European Science Foundation

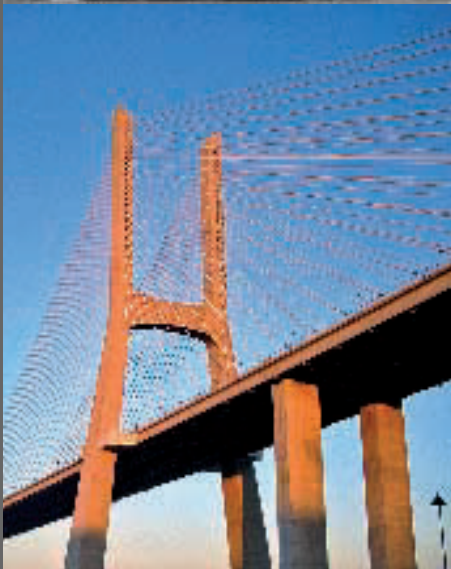SETTING SCIENCE AGENDAS FOR EUROPE

Inventing Europe: technology and the making of Europe, 1850 to the present

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The European Science Foundation (ESF) was established in 1974 to create a common European platform for cross-border cooperation in all aspects of scientific research.
With its emphasis on a multidisciplinary and pan-European approach, the Foundation provides the leadership necessary to open new frontiers in European science.
Its activities include providing science policy advice (Science Strategy); stimulating co-operation between researchers and organisations to explore new directions (Science Synergy); and the administration of externally funded programmes (Science Management). These take place in the following areas:
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The aim of the European Collaborative Research (EUROCORES) Scheme is to enable researchers in different European countries to develop collaboration and scientific synergy in areas where European scale and scope are required to reach the critical mass necessary for top class science in a global context.
The scheme provides a flexible framework which allows national basic research funding and performing organisations to join forces to support excellent European research in and across all scientific areas.
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Contents

Introduction

The past and the future of Europe have become pressing issues with a sharp political edge both in public and academic debates. Many people believe that the future will be determined by the European integration process. This is one of the reasons why countries that were once part of the former Eastern European block eagerly wanted to enter the European Union. This was seen as a return to Europe. Increasingly, Europe seems to closely represent the space that is occupied by the EU, and hence European and EU identities might merge.

The ESF EUROCORES programme *Inventing Europe: Technology and the Making of Europe, 1850 to the Present* aims to look at Europe's past to explore which European spaces were constructed over a long time-span, ever since 1850, by whom, why and with what kind of impact, e.g. who was marginalised and silenced? The programme uses a much neglected lens – the history of technology – to research this process. It will examine how technology operated as an agent of change in the contested processes of the making of European spaces: how have technical communities, social groups and citizens contested, projected, performed and reproduced 'Europe' in constructing and using a range of technologies. This approach has been developed and tested in the ESF Scientific Network 'Tensions of Europe: technology and the making of 20th century Europe', and was later continued under the auspices of the private Dutch Foundation for the History of Technology (SHT). The resulting network of scholars produced a research agenda which is at the root of the 'Inventing Europe' programme.

'Inventing Europe' aims to make a contribution to the newly emerging transnational history research perspective. It looks at the role of the nation-states, but also pays great attention to the circulation of people, ideas, goods, services and artefacts; its research projects study, taken all together, the behaviour of transnational networks and alliances and the linking and entanglements of cities, nation-states and regions in and beyond Europe. The programme will examine how phenomena such as technology transfer and the interaction with its (former) colonies and the United States has shaped the construction of Europe. The mutual shaping of Europe and technology is examined from a long-term historical perspective, going back in some cases to the middle of the 19th century. In particular, three dimensions of technologies will be examined: 1) infrastructures such as transport networks (railways, roads, waterways, air traffic) and electricity grids; 2) knowledge networks and large-scale technological European projects; and 3) user regimes and consumer products. It is expected that the programme will not only recast the historical understanding of integration and the emergence of Europe as an ideal, a concept, and practice but will also shed new light on prevailing interpretations of both Hot and Cold Wars which have dominated European historiography.

The programme has ambitious aims in terms of its deliverables: not only does it seek to nurture a number of large and genuine international research collaborations, it also aims at bringing together the results in a jointly produced, coherent academic book series and in a virtual exhibit aimed at a more general public. To make this possible the programme will pursue an intensive networking and dissemination strategy, interacting with many other research networks and with individual scholars in the social sciences and humanities who share its concerns.

We believe that the development of this programme comes at an opportune time. The future course of the European integration process depends crucially on our historical understanding of the ways people have opposed and have related to Europe, especially outside the area of formal state building. What has been called the 'EU's democratic deficit' is related to a much deeper cultural deficit: how does Europe, how does the European Union fit into "our" history? Yet, despite the absence of an obvious and easy identification with Europe, people in and outside Europe have not failed to relate to Europe. The programme 'Inventing Europe' will render visible the rich and varied ways in which people have built, explored and opposed Europe over the past century and a half. Understanding history will contribute to the process of mapping Europe's future.

Johan Schot
Chair of the Scientific Committee
for 'Inventing Europe'

'Inventing Europe' – Programme description

The main scientific goal of the ESF EUROCORES programme 'Inventing Europe' is to develop an alternative understanding of the process of European integration. This process is more broadly conceived than is commonly the case in academic literature and public discourse. Research 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. The programme also examines the currents of disintegration, fragmentation and segregation that may have countered Europe's integration. The programme thus invites projects to take into account how a host of social actors (defined by region, class, gender, ethnicity or sectors in society including industry, NGOs and universities) appropriated and/or subverted specific visions and suggested practices to build Europe. Research efforts will illuminate how such processes of integration from below have 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 geographical borders of what is now considered to be Europe. Europe's colonies formed a constituent element in the definitional politics of Europe. How crucial the colonies have been is indicated by the disregarding of national identities by European nationals living outside Europe when they employ 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 also true for Europe's encounters with the United States and the Soviet Union, where Europeans learned to distinguish themselves from the new superpowers: 'Europe' as an intellectual construct and material practice was often referred to in comparison and competition with, in particular, the USA and the Soviet Union. 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 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 programme 'Inventing Europe' takes technological change as the point of entry 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 work completed under the ESF Scientific Network 'Tensions of Europe: technology and the making of 20th century Europe' (see: Johan Schot, Tom Misa, Ruth Oldenziel (editors), History and Technology, Special Issue: The Role of Technology in the Making of Europe, vol. XXI/1, 2005).

Transnational infrastructures, such as transport axes, energy systems and telecommunication networks constitute material and transnational links between nation-states. In the past two centuries countries constructed and used these networks to strengthen nation, state and empire building which all contributed to integrating and rearranging Europe in specific ways. 'Inventing Europe' research includes both the documentation of the building of these (trans) national networks and the design of standards and regulations needed to make such transnational networks operational. Research therefore explicitly focuses on the social actors who – with many different purposes in mind and often projecting different images about Europe – helped construct (and operate) 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 would clearly be too limited in order to provide a complete picture of the bottom-up integration processes. The meaning and construction of infrastructures depend crucially on how a range of users, be they state agencies, professionals, consumers or advocates of their interests, mediated and appropriated these infrastruc-

tures. 'Europe' is also made within these user-groups. Therefore, research will explore questions about how users signified, explored, integrated, modified or undermined such infrastructures in their daily routines and practices. To explore these issues, research projects 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 comprises the creation, transfer, standardisation 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 organisations of European traffic engineers, agricultural scientists, computer scientists, civil engineers, urban planners, or the networks of technical universities and technical museums offer excellent research sites to illustrate how, via artefacts and people, both formal and tacit knowledge circulates. Such research can illuminate what it meant to produce European standards and ways of thinking, and how they fitted or did not fit into existing national frames. Transnational projects such as 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 Organisation (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.

The study of consumer products provides 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 – it also helps 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 19th century onwards, multinational corporations and a host of European labour,

cooperative, consumer and engineering organisations as well as – notably – women's organisations have engaged actively in the politics and ideology of consumption, accumulating knowledge and expertise, launching campaigns and building networks. How did these groups try to interact with and 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 how these complex processes are experienced at a variety of societal, political and, indeed, technological levels.

These examples indicate that the story of Europe's hidden integration, as defined in this programme, significantly predates the formal political processes of European integration. Integration and technological change, therefore, need to be studied from a long-term historical perspective, going back in some cases to the middle of the 19th century. Furthermore, European integration should not be understood as an inevitable result of a unidirectional process. Research should examine it as an historically contingent process with certain, but not inevitable, outcomes.

The scientific aims may be summarised 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 European integration was shaped by encounters with non-Europe, 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.

In a more general sense, the programme seeks to develop a collaborative and coordinated way of doing research. One of the major outputs is expected to be the establishment of a book series on the history of European integration, which will take the process beyond the restricted timeframe of the EUROCORES programme as it stands. The nature, scope and aims of the book series will be discussed and established

in a wide-ranging dialogue which will involve networks and individuals also from outside the 'Inventing Europe' programme who work on similar issues. In tandem with the results published through the book series, the programme will explore ways of presenting for a general audience concrete new knowledge gained from research results in the individual projects, notably through a prototype of a virtual exhibition. For this purpose a close collaboration and coordination is established with some of the major technology and science museums and other heritage websites across Europe.

'Inventing Europe' Collaborative Research Projects (CRPs)

European Ways of Life in the 'American Century': mediating consumption and technology in the 20th century (EUWOL)

Ruth Oldenziel [Project Leader]

Overview

In 1952 the Swedish architect Eskil Sundahl claimed that the Swedish supermarket 'differs considerably from its place of origin', i.e. the United States. Rather than taking on such 'enormous dimensions' as in the USA, the 'Swedish self-service store,' Sundahl suggested, 'has a kind of intimacy.' This quote captures an important aspect of the European post-war consumer society: the United States is seen as both a source of inspiration and counter-narrative. The USA already served as an important role model in the interwar period, when 'rationalisation' of everything from manufacturing to housework became a pivotal metaphor. Still, at that time, European actors had already developed various appropriation strategies to reshape the US production and consumption regime to fit what they considered domestic, regional or local traditions. The proposed research project argues that the US challenge in fact inspired the formation of pan-European and national identities that to a large extent were defined on the basis of distinct modes of production, distribution and consumption during what has been famously called the 'American Century'. As a result, there never developed in Europe one particular 'way of life' but several 'ways of life,' and, accordingly, several technological regimes.

The research project European 'Ways of Life' in the American Century: mediating consumption and technology in the 20th century (EUWOL) takes the US challenge as its point of departure. It proposes a hypothesis that stresses the decisive importance of national appropriation strategies and highlights the intra-European networks that contributed to the formation of specific European consumption regimes and material cultures. The research project uses the area of consumption to investigate the prospects and potentials of Europe in a global world that has become increasingly dominated by the United States. It asks which European models circulated between actors in different countries and through which professional, economic, political and cultural channels such models diffused. The project treats three interrelated areas of consumption, one that is connected with residence and housing, one that treats the emergence of various forms of leisure activities, and one that is related to the distribution, preservation and packaging of food.

To comprehend the production, consumption and appropriation of residential houses, food products and leisure, this CRP investigates mediation processes. In the centre of analysis are 'intermediary' actors (e.g. city governments, trade unions, political parties, automobile clubs and consumer organisations) who act as spokespersons and representatives of producers and consumers. They publicly negotiate (with varying degrees of success) the form and content of consumer goods and the technological structures in which material forms of residence and leisure are realised. Often, mediators serve as bridges between politicians and citizens. Applying mediation as a research strategy implies paying special attention to the work of 'mediators' located at 'junctions', often in the form of specific institutional loci: agencies, committees or platforms. At such junctions, mediators create links between production and consumption by articulating and negotiating wishes, expectations, interests and strategies of potential consumers and producers of products, services and leisure.

In investigating the development and use of technologies related to housing, leisure and food in Europe between 1918 and 1989, the research project examines how the state, civil society and the economy in various parts of Europe configured the space of mediation for shaping technological developments in numerous ways. The CRP seeks to understand how, in Europe, the state, together with NGOs, put consumption on the political agenda. It analyses how intermediary groups (including consumer lobby groups, labour unions, business associations and government agencies) were crucial in shaping Europe's particular patterns of consumption, and seeks to understand how these groups sought to combine elements of mass, collective and individual models of consumption which generated different consumer products and socio-technical regimes. In particular, the researchers will look at how the USA's position as the transatlantic 'other' helped define local, national and pan-European identities.

Research domains

The research project will be built resting on three pillars; food, housing and leisure.

a) *Food:* under this heading, the development of the European cold chain will be investigated (cooling and freezing techniques, the refrigerator, chilled and frozen food and the packaging thereof) and, closely connect-

ed to this theme, the reception and appropriation of a number of emblematic 'American' comestibles. The main focus will be on those East and West European actors who sought to develop, introduce and negotiate the cold chain and US food-products in Europe. By investigating how the development of the cold chain in Europe came about and how US food products were appropriated and domesticated in European households, supermarkets, cookbooks and the popular media, the project seeks to contribute to theoretical debates about technological (knowledge) exchange, the importance of a user perspective within science and technology studies, the domestication and appropriation of (foreign) technologies, while also contributing to the historical knowledge on processes of alleged Americanisation. By identifying the social actors that played the main role in European and transatlantic mediation and appropriation processes, the pillar aims to show how the internationalisation of the food system contributed to the formation of European ways of life. In this way, it hopes to revise the idea of the European consumer society as a predominantly US-inspired and copied development.

b) *Housing:* under this heading, the project explores the interpretive flexibility of mass housing, the degree of standardisation of industrial construction methods, and the degree of normalisation of everyday life in three stages of their development, and attempts to relate these topics to the United States as a role model or a warning. Each stage is roughly delimited by the following dates:
1. 1917-1945: restricted and experimental standardisation, enabling organised tenants (often cooperative form) to influence the design of the domestic environment and develop group-specific ways of life; US cities and housing solutions serve, to a large extent, as negative images.
2. 1945-1972: rigid standardisation and the obstructing of alternative voices; the normalisation of daily life goes hand in hand with the massive introduction of US-inspired household technology (via collective modes of consumption); Soviet-style architectural solutions meet Continental ways of life in Eastern Europe.
3. 1973-1989: modular construction systems and the accommodation of user preferences; individual initiatives in both East and West; openness toward the 'American way of life', but at the same time a growing awareness of its environmental side-effects; movement out of the city into 'towns-in-between' that signify a European alternative to US-style suburbia.

Although there is a rich literature on the international circulation of architectural ideas – especially within the modernist movement – the international exchange between local non-expert networks is hardly covered. It is not clear yet how local civil networks shaped technological choices and daily living. Nor is it clear how knowledge travelled between different configurations of stakeholders and whether separate networks of experts and non-experts converged or existed side by side. Instead of focusing on planning documents and drawings, the project assesses sources such as expert and non-expert study tours and congresses, local debates, minutes of neighbourhood societies, letters-to-the-editor in housing journals, contemporary sociological investigations and police records. Important actors to study are, e.g. public-housing associations acting as mediators between industry, politics and inhabitants.

c) *Leisure:* reseachers working in this field aim at exposing a crucial hallmark of (both past and contemporary) leisure production and consumption: the dynamic interplay between standardisation or collective consumption and individual consumption in a context of contested ideologies, coined as the 'American Century'.
Two main questions will be addressed:
1. How did 'American' ideas and concepts about leisure contribute to the formation of national and pan-European concepts of (the organisation of) leisure? Restated, how did European countries and transnational European organisations translate (different) images of American ways of life and leisure into (different and similar) concepts of (the organisation of) leisure?
2. How were these national and pan-European views both shaped by and translated into technological requirements and technological infrastructures of transport, housing and food?

The working hypothesis is that the outcome of mediation practices, i.e. the mediated production and consumption of leisure in 'response' to 'American' models of leisure, and their appropriation resulted in different national and similar European leisure regimes and material leisure cultures. These regimes and cultures took individual, collective and mixed forms of leisure.

The project has dimensions at national and at international levels. At the national level, the project deals with the actions and interactions of national actors in the making of national leisure. In an international perspective, the project deals with the activities and influence of transnational European actors such as European organisations for tourism and leisure, European trade unions and European welfare organisations.

Individual Projects (IPs):

Producing European Consumption Regimes in the 'American Century': leisure, housing and food technologies (four projects about Americanisation, leisure, housing and food)

Funding agency: Netherlands Organisation for Scientific Research (NWO)

The Dutch research team asks how the three areas of housing, leisure and food became socially and technically intertwined consumer regimes during the 20th century. The interconnected social technical infrastructures and the cultural scripts of leisure, health, well-being, food, modernity and housing design offer important sites to study processes of technological diffusion in the 'American Century.'

Subproject 1: Appropriating America: making Europe – technology and Europe in the making

Ruth Oldenziel [Project Leader]

In encounters with the USA, European social actors have neither entirely accepted nor outright rejected American models; rather, they actively and selectively appropriated them to fit domestic (European) practices. At the same time, the direct influence of the USA in the shaping of Europe's science, technology and culture has been crucial in the making of 20th century Europe. This subproject looks both at what kind of America, US social actors sought to select for export and the multiple ways European actors constructed these imports for their own ends. The research looks at users of technological systems of food, leisure and the built environment, and focuses on European social actors such as government agencies, firms, civil-society organisations and cultural opinion makers: how have they sought to resist, appropriate and rework cultural scripts for their own designs? Against ghe background of major fromeworks of international polics, such as the Marshall Aid plan, the Cold War, or US-dominated practices under the flag of international governance, European technological trajectories of food, leisure and the built environment have been shaped while users and consumers have resisted, appropriated or reworked American models.

Subproject 2: Transnational and National Actors and the Making of European Leisure

Adri Albert de la Bruhèze [Principal Investigator]

Tourism and leisure became part of the political struggle between the superpowers in which Europe occupied the centre stage. The US propagated car infrastructure (highways, roadside hotels, motels and restaurants) to

Symbol of Berlin. TV tower and a cloudy summer sky from Berlin

promote individual freedom and open road holidays and leisure outings in Europe. By contrast, the Soviet Union and its satellite states emphasised government-guaranteed and organised tourism and forms of transportation. Research focuses on how Europeans appropriated and contested both these competing tourist models and forms of leisure and what role social actors played in this appropriation, notably during the Cold War era.

The working hypothesis is that within the competitive Cold War context, European tourism and leisure developed within a variety of state-market-society relations that demanded different technological solutions. As an important source of cultural authority, nation-states, professionals and political and cultural elites claimed leisure for their own ends. Nation-states played a key role, encouraging and generating both individual (for the elite) and collective (for the masses) leisure practices. Civil organisations such as trade unions did the same by organising leisure outings and (international) summer camps for members' children. By analysing how consumers' representatives, industrialists and the state mediated and shaped leisure activities, this project will shed light on the interplay between local leisure cultures and political regimes.

The IP maps the development of national and transnational leisure regimes by focusing on the Cold War when US government agencies, national European organisations and transnational (European) organisations (i.e. the European Travel Commission (ETC), the Organisation for European Economic Cooperation (OEEC), and its successor the Organisation for Economic Cooperation and Development (OECD) translated, contested and appropriated 'American' leisure models to articulate national and European forms of leisure in an age when most foreign travellers were Americans.

Subproject 3: Standardisation Contested: European large-scale housing practice in the Netherlands, 1918-1989

Liesbeth Bervoets [Project Member]

When after the Second World War millions of apartments had to be constructed, European welfare states reverted to a banal and impoverished version of pre-war modernist "Zeilenbau" and "Plattenbau". This uniformity in large-scale housing during the 1950s and 1960s suggests a convergence in housing technologies in Europe and the USA. European and US housing experts, however, followed different routes in solving the problem of providing large-scale social housing. While US mass housing was mostly a commercial enterprise, European housing policies varied according to the different state-market-civil society configurations. Americans learned from European housing endeavours through instructional tours, international congresses, and exhibitions, and vice versa.

In the post-war era, the Dutch housing policy centralised and standardised housing production, disregarding the pioneering pre-war expertise of local housing networks and the international knowledge transfer. In response, housing experts of both established and newly established consumer organisations initiated national housing surveys and lobbied for the improvement of housing quality.

The research examines how local civil-society networks shaped technological choices and daily practices with respect to large-scale social housing. It will focus on the intersection of the national and the international by mapping the international circulation of knowledge and experience from housing expert and non-expert networks that shaped local Dutch building and living practices. It addresses the way residents coped with the lifestyles that architects inscribed into the technical designs, with the pressure of the Marshall Plan and with European integration of international voluntary networks and professional associations.

Subproject 4: 'National' Food and the Politics of Authentification

Milena Veenis [Project Member]

This project will research a selection of foodstuffs that the European Commission has earmarked as Protected Designation of Origin (PDO) that seek to claim 'authentic national' character. The Netherlands are proud to present Gouda cheese, Italy showcases its famous Parma ham, and Greece claims feta as one of its national products. Whether experts recognise the difference between Greek and Turkish "feta" or on what grounds a "prosciutto", made from pigs imported from the Netherlands but fattened on Italian pastures, can


A three-dimensional metal EAT sign

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be registered as 'truly Italian' is not only a matter of taste but of the politics of authentification.

Authenticity claims made in European countries represent great commercial value, in part because the appeal for the tourist industry arises from presumed authentic national products. Tourists prefer to spend their holidays abroad to lose themselves in the other's 'authenticity' – more often than not expressed in culinary ways. The quest for 'authenticity' expresses a strong desire for distinctiveness and identity. The special appeal of these authenticity claims is to a large degree a response to the perceived threat of 'Americanisation' and 'McDonaldisation' of national (food) cultures and the accompanying (culinary) standardisation. Commercial success turns out to be precarious, however: once a country successfully markets its cultural authenticity the authentic value diminishes. As pizza and Parma ham, for example, become widely available in Danish supermarkets, tourists have fewer reasons to travel to Italy to indulge themselves in local gastronomic delights. By examining the biography of a selection of foodstuffs with a focus on the intersection between food and mass tourism, the politics of authentification will be analysed within the context of the contested role of the United States in the process of European integration.
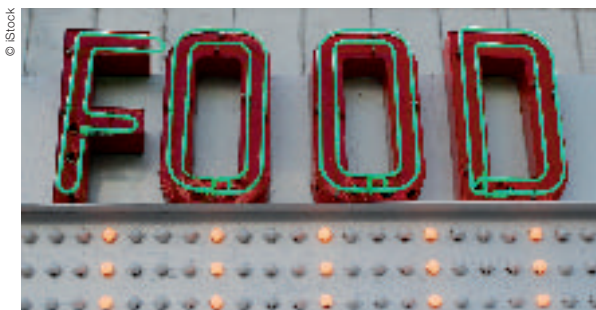
A vintage neon 'food' sign switched on and lit up

Standardisation and Diversity of Foods in Europe through Technical Innovations of Packaging in the European Food Industry, 1918-1989

Marc de Ferrière le Vayer [Principal Investigator]
Christophe Bouneau [Project Member]
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Florence Hachez-Leroy [Project Member]
Nicolas Marty [Project Member]
Jean-Pierre Williot [Project Member]

Funding agency: National Centre for Scientific Research (CNRS), France

This IP examines how packaging techniques in the food industry helped build a common European culture in producing uniform products after the First World War. Although national cooking habits remain important, historical research suggests that the biggest influence has come from the USA in terms of both marketing and technology. While geographical space remains heterogeneous, after the Second World War the European regulations have progressively built a global market with uniform administrative and economic rules. The project will investigate both the technical and marketing dimensions of this phenomenon. First, it focuses on the technical changes in packaging. How did the food industry manage the changes from loose goods at the beginning of the 20th century to modern packaging at the end of the period? The team will study the conflicts between wood and glass, glass and board, against plastic models by examining the logistical changes including the shift from using horses to trucks for transport, the development of cooling techniques, and new regulations for environmental protection (eco-packaging). Second, the team will focus on marketing changes. Advertisements appeared directly on the packages, but many other types of indicators were printed as well, including nutritional information, barcodes, or traceability. All these new packaging design practices are superimposed on traditional markers such as appellation of origin or novel ones such as geographical indications to acknowledge European regionalism, thereby marrying tradition and modernity. The research will help unpack which elements of the new technologies came from the USA, from Europe, or were the result of European appropriation of US models and will describe the role of consumers and European or US firms in the innovation process of food packaging.

Separate Summer Homes: Scandinavian leisure consumption and its ideologies during the short 20th century

Thomas Kaiserfeld [Principal Investigator]
Per Lundin [Project Member]

Funding agency: Swedish Research Council (VR), Sweden

The working hypothesis of the research team is that a specifically Scandinavian model of leisure consumption developed during the short 20th century (1918-1989) in the form of separate summer homes. Roughly three phases that highlight a specific spatial interdependence between transport and separate summer homes are distinguished. In the first period (1918-1947) the railway was predominant and only the wealthy had separate summer homes that functioned as sports cottages near mountains or lakes, easily accessible by train, so encouraged by the Swedish Tourist Association and its Norwegian and Finnish counterparts. Later, labour unions and cooperative organisations initiated the vacation reforms of the 1930s, offering separate summer homes for workers. After the Second World War (1948-1972) when leisure was democratised, cars quintupled and the paid vacation period was extended to four weeks, American patterns briefly emerged only to revert back to the Scandinavian models: reconstruction of abandoned farm houses and construction of

Swedish Holiday Houses

centrally planned summer cities on the periphery of cities. In the next phase, 1970s and 1980s when air travel offered white- and blue-collar workers cheap travel, separate holiday homes transcended national borders and aspects of the Scandinavian model appeared in Spain, Greece, Thailand and elsewhere, built by travel agencies and real estate developers who had mostly a commercial interest. Focusing on two 20th century de-location patterns in the areas of transport and leisure practices, the project analyses the shaping of a Scandinavian model of leisure. Transportation technologies and leisure ideologies will be brought together analytically to better understand the phenomenon of separate summer homes. For each phase the team will ask which social actors circulated the ideas about and practices of having a separate summer home; whether the circulation of ideas took place on an international level, if so, which networks were important in the process; and how national, regional and local social actors received and appropriated these ideas and practices.

Icing the Norwegian Nation: the import, transformation and appropriation of deep freezing technologies, 1930-1970

Professor Per Østby [Principal Investigator]
Terje Finstad [Project Member]
Stig Kvaal [Project Member]

Funding agency: Research Council of Norway (NFR)

During the 20th century, Norway, like other European nations, was influenced by the 'American way of living'. In what ways 'the American way of living' shaped the formation of what we may call 'Europe' will be examined through the technical changes of food conservation during the 20th century. More specifically, we will look at the establishment of what has been termed 'the cold chain': the fishing, harvesting, processing, promotion, distribution and use of food through various freezing technologies. The establishment of the cold chain in Norway, the 'icing' of the nation, also had a strong political dimension. A group of scientific experts, who dominated the Social Democratic party, not only influenced its ideology but also its day-to-day policy making. Many of them had been trained in the USA and admired American individualism and consumption, but also believed in the socialist ideas of the planned economy and collective solutions developed since the 1930s. The research will focus on the tensions between 'the love of America' and the social-democratic ambition to create a more just and collective-oriented Europe. The research will cover various fields. The main subproject (Icing everything) will focus on the implementation and integration of home freezing technologies from 1930 to 1970 (Finstad, Kvaal and Østby). A second related project (In icy waters) will look at the establishment of a system of more effective sea harvesting, a fleet of trawlers, modern factories, and more standardised and effective distribution of fish products, the FRIONOR chain (Kvaal and Østby). A third associated and ongoing project (The Healthy and the Sinful) examines the role of food and natural stimulants in a more general way (Kvaal).

Making It All Work for You: technological discourses, representations and mediation junctions in Danish leisure society, 1920-1989

Dr Michael Wagner [Principal Investigator]

Funding agency: Danish agency for Science, Technology and Innovation (DASTI), Denmark

The research project will investigate the way modern leisure life was invented, constructed, presented and appropriated in Denmark during the period 1920-1989. The project will examine how leisure was constructed as an ideology of collective consumption and recreation within the context of the democratic welfare state; how leisure technologies were produced and introduced to individual consumers in Denmark compared with other countries in Europe after 1920; who the innovators and initiators were; and what motivated the mediators to propagate such modernist ideas. It will focus on whether these ideas were imported directly from the USA or were of European origin in order to discover what social actors formulated and introduced the leisure ideology as consumption in Denmark; how the consumer ideology came to be mediated in the public and how consumer organisations appropriated and transformed it into a collective vision of the good life for the modern individual. Finally, the research will focus on the role consumers played in shaping leisure technology to construct a cultural identity and build a material reality that was believed to benefit every citizen from childhood to old age. The emergence of a modern Danish consumer and leisure society will be examined through three consumption junctions: mechanisation (cars, boats and bicycles); sports and recreation (non-competitive sports, outdoor living, touring and sightseeing); and the commercial organisation of adventure (holiday camps, camping tourism, charter tourism, event making and branding).

Associated Projects:

Living in Kreuzberg: Turkish immigrants and German post-war collective housing

Esra Akçan [Associated Partner]

This associated research project explores the post-war development of Berlin's 'Turkish neighbourhood' in the former West-Berlin district of Kreuzberg as an emblematic case for the living conditions of the Turkish diaspora in Europe. It will address the evolution of Kreuzberg from the late 1960s as the hinterland embodying the marginal and minority cultures of West-Berlin, to its architectural rehabilitation during the 1980s by the "Internationale Bauausstellung" (IBA) Project that involved a high number of international architects, and finally to its gentrification after the unification of Germany.

The development of the Kreuzberg neighbourhood after the 1960s constitutes a perfect case study to observe the changing living conditions of the Turkish population in Berlin in particular, and Central Europe in general. The IBA project in and around Kreuzberg, carried out by the West German government throughout the 1980s, was in part an attempt to regularise and normalise the 'marginal' neighbourhood of Berlin. Yet, once built, some of its sections were gentrified, pushing the former Turkish immigrants outside its borders, while other sections were hybridised and enriched with the evolving living habits of its Turkish inhabitants. While these inhabitants did not want to fully assimilate themselves into a 'German' identity, their 'ways of life' significantly evolved into something other than that of their relatives in Turkey. This research project uses the description of living conditions as one of the parameters to define the emerging identities as part of a new and specific form of 'Europeanness'.

Household Technology and Modern Ways of Life in German and Swedish Housing Projects, 1918-1973

Mikael Hård [Associated Partner]

After the Second World War millions of apartments had to be constructed in Germany, and even Sweden experienced a construction boom. In the early 1950s, the Stockholm suburb of Vällingby became a Mecca for West German architects and planners. In both Sweden and Germany, the USA was considered either of limited importance or served as a negative role model. Planners went to the USA to study traffic planning, but by and large the apartment-housing areas that emerged in the period 1945-1973 were seen as an alternative to US-style suburbs.

This Associated Project investigates the role that the built environment in large-scale housing areas has played in the development of particular [sub-] urban ways of life. Comparing Sweden and Germany/FRG, it examines differences and similarities of daily life practices to understand them analytically in relation to material structures. Not individuals, but housing cooperatives, municipally owned building companies, private proprietors and national or municipal administrations decided how many storeys the buildings should have and how many bedrooms the apartments should have, what kind of washing machines should be installed in the basement and what size refrigerators the apartments should have, as well as where the local store, the playground and the school should be located. The proposed project investigates the relationship between these institutions and the inhabitants themselves. It pays particular attention to the daily life of the inhabitants and investigates to what extent their lives were moulded by the built environment, the technical infrastructure, and various codified social norms. It addresses questions such as: What role did the inhabitants play in the decisions taken by collective building companies? Did they accept the way of life prescribed by architects and the built environment, or did they successfully develop alternative ways of life? What functions were modern household technologies meant to play in social-housing projects, and how did inhabitants domesticate them?

Keeping Cool in Cold War Germany: the cold chain, food system and mass consumption, 1933-1989

Karin Zachmann [Associated Partner]

During the 20th century European consumers witnessed dramatic changes in the food system. The emergence of high input agriculture led to a dramatic increase in harvest per acreage and to a range of innovations in the food-processing industries. The transformation of the food system was a highly complex process that started after the First World War, but accelerated during the Cold War. Refrigerating and freezing technologies improved food processing, both altering the retail system and consumers' behaviour. The electrical refrigerator and the freezer proved to be a key technology within the food system's structural and cultural transformation and therefore provide an excellent starting point for investigating the transformation of the food system as a whole.

German engineers and nutritionists established a strong tradition in refrigeration. Their US colleagues, however, had a clear lead in knitting together a highly efficient cold chain. After the Second World War, US officials developed a great interest in extending the

American cold chain onto European soil as a conveyor of US farm surplus. It needs to be explored whether and how West Germany as member of the OEEC and recipient of Marshall Plan aid in its various forms partly adopted the US model as well as reworking it according to its own traditions in the food system. East German experts and practitioners along the food chain, however, had to implement their experiences into a different framework, i.e. the Soviet-dominated East European economic, technological and social system. How this proceeded and to what extent the process was shaped by Soviet influence is a major question.

The project sets out to analyse the development of the German cold chain as an important pillar of the food system during the Nazi period and in both German states during the Cold War. It will explore whether and how the refrigerator fused the food system into a large technical system, thereby transforming the private household and the consumer into components of the technical system that imposed on the consumer the rationality of mass production, distribution and consumption.

Tinkering in Daily Life: people, state, and consumption in South East Europe

Dobrinka Parusheva [Associated Partner]
Iliyana Atanasova-Marcheva [Project Member]
Emiliya Karaboeva [Project Member]
Elitsa Stoilova [Project Member]
Meglena Zlatkova [Project Member]

This project seeks to contribute to the empirical knowledge and theory about the patterns of consumption in South East Europe (SEE) during the short 20th century (1918-1989). In terms of both geography and perception, it aims to place South East Europe on the European map of consumption regimes to contribute to understanding multiple 'European ways of life.' After the First World War, inhabitants of South East Europe felt attracted by 'the European way of life', understood in the singular, and tried to imitate it. While in Bulgaria, the point of reference was predominantly Germany, in Romania a majority of the people chose to follow France and Italy as their model. 'Europe' (whether Germany and France, or Italy and Belgium) came to symbolise to South East Europe what 'America' represented to Western Europe. In the post-Second World War period 'socialist' consumer standards were developed in opposition to 'capitalist' ones, in which little difference existed between the near West ('Europe') and the far West (America). South East European social actors did their best to accommodate the West European 'Ways of Life' to the domestic traditions of the region in the same way that (West) European social actors devel-

oped strategies to appropriate and rework the American model of (individual) consumption to fit local contexts. The project's working hypothesis is that consumers in South East European countries developed a particular 'tinkering' way of life as a strategy to deal with state efforts to dominate the mediation between people and consumption in Bulgaria and surrounding countries in the period before and after the Second World War. The research will pay special attention to the question of continuity and discontinuity to see whether or not the establishment of a socialist regime meant a rupture in consumer practices.

Paradoxical Rurality: dwelling in rural Flanders, 1948-1978

Leen van Molle [Associated Partner]
Rien Emmery [Project Member]
Hilde Heynen [Project Member]
Yves Segers [Project Member]

This project is set in the context of a large, interdisciplinary research programme at the University of Leuven that started in 2003 and includes scholars from the departments of history and architecture. The project concentrates on the links between spatial, architectural and social developments in the 20th century. Building further on the results of two earlier projects (regarding dwelling culture in Flanders during the interwar period and the 1960s and 1970s), this new research intends to be innovative from two points of view: in the first place, by focusing on the countryside as a usually overlooked but popular living environment; second by relying on fieldwork and oral history to get a better understanding of how models of modern housing and living (architecture, design, technology, consumption) interacted with everyday life and the construction of social identities. Flanders, characterised by a remarkable process of 'flight from the town', therefore offers an interesting subject for investigation. Research results for Flanders will be compared with developments in other countries, especially France and the Netherlands, in order to grasp differences and similarities in the construction of the rural environment in the European post-war consumer society. The project investigates the Flemish case in terms of substitution and illustrates how rural housing became a widespread alternative for second homes (dachas, etc.) that other projects investigate in other countries. Both the focus on the countryside and the input of oral source material offer an important complement to and thought-provoking touchstone for the other participating projects in the current collaborative research of EUWOL's housing and leisure pillars.

'Inventing Europe' – Collaborative Research Projects (CRPs)

Visions of the South: consumption, food and technology in Italy, 1918-1989

Emanuela Scarpellini [Associated Partner]

This project will focus on the historical development of Southern Europe, particularly of Italy, from 1918 to 1989. According to historical and anthropological studies published during the 1960s and 1970s, different consumer patterns exist in Southern and Northern Europe. While Northern countries were affected by a rapid process of industrialisation, nations such as Italy were in the middle of a transition from tradition to modernity in the first decades of the 20th century. From such analyses, a portrait of distinctive cultural traits emerges, combining industrial backwardness, strong local identities and traditional social behaviours. Family played a central role within this 'Mediterranean' paradigm and food had a peculiar meaning in defining social rituals in private households and in the public sphere, hierarchies, gender roles and ethnicity. The research will ask how different social and technical backgrounds shaped an alternative attitude toward new food products coming from abroad; whether US models played any role; and finally, whether there was any 'inter-European' influence or reciprocity in the process of building new ways of life. The research will start by studying the period of the Fascist dictatorship and then move to Italy's rapid economic growth in the 1950s and 1960s, which led to radical transformations in social, economic, technical and cultural spheres and to the formation of a consumer society. In line with the overarching question of the EUWOL Collaborative Research Project, the research will pay particular attention to the 'American model' and the role of the cold chain and supermarkets.

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Europe Goes Critical: the emergence and governance of critical transnational European infrastructures (EUROCRIT)

Arne Kaijser [Project Leader]

Overview

At present, there is strong political concern about 'critical infrastructures' partly triggered by terrorist attacks demonstrating the vulnerability of infrastructures. The purpose of EUROCRIT is to put this discussion on critical infrastructures in an historical and transnational perspective. It studies how infrastructures have expanded in Europe both through the interconnection across national borders and through interconnections of different kinds of infrastructures with one another. The focus is on energy infrastructures, particularly electricity and natural gas networks. To discover and examine interdependencies, EUROCRIT investigates both international organisations that have addressed such issues or, in their absence, bilateral collaborations; and system failures, in which largely hidden interdependencies were often painfully exposed.

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Individual Projects (IPs):

Natural Gas: trusting the enemy

Arne Kaijser [Project Leader]
Per Högselius [Project Member]

This IP aims to historically investigate the emergence of critical (inter)dependencies in the European transnational natural gas infrastructure. In particular, the IP aims to explain why certain bilateral natural gas relations could be established, but others not. The IP will study both successful and unsuccessful attempts to create such linkages in Europe, and the role played by the perceived criticalities of transnational gas relations in this process.

The actual existence of a European natural gas infrastructure – with a complexity that has increased dramatically during the past couple of decades – is intriguing: it provides an example of a truly transEuropean infrastructure with large-scale flows not only between countries belonging to specific European sub-regions (such as the EU or the Nordic countries), but above all across the Iron Curtain as well as between Europe and the Arab world.

Natural gas differs from other sources of energy in terms of the very complex material networks (in the form of pipelines) that are necessary for enabling the transport of gas to customers and users. This, in combination with the fact that only a very few countries have direct access to large domestic gas resources, has created incentives to link different countries' gas infrastructures with one another which, over time, has resulted in the creation of a wide and complex transnational gas infrastructure in Europe.

Questions to be addressed in this IP include the following: Why have different countries chosen to integrate their natural gas infrastructure with certain neighbours but not with others? How have they perceived and anticipated the emergence of associated transnational interdependencies? To what extent have they discussed *alternatives* to those connections that have become reality? How have organisational and institutional solutions been created in those cases where the transnational relations involve one or more transit countries, such as in the Soviet-German case? How has it been possible to create sufficiently strong transnational actor-networks in order to actually create the physical connections? How have actors on both sides of the borders imagined that the connections would be used, and how has it turned out in reality? Which actors and groups have tried to resist the emergence of the links, and why?

'Inventing Europe' –
Collaborative Research Projects (CRPs)

From Reliability to Liability: European electricity networks and the shaping of transnational interdependencies and risks

Erik van der Vleuten [Principal Investigator]
Vincent Lagendijk [Project Member]

Funding agency: Netherlands Organisation for Scientific Research (NWO), The Netherlands

This IP inquires why and how transnational electrical networks interlaced (or segregated) economic and social life of Europe's peoples and countries, the associated risks, and measures to deal with these risks.

During the 20th century, electricity supply increasingly became an omnipresent and vital infrastructure. Virtually all sectors of society, including other infrastructures, require electricity to function properly. Electricity supply became a cornerstone of economic and social life. In parallel to this process, corporate and national electricity networks in Europe were to a large extent interwoven or integrated.

This electrical integration of Europe – largely invisible to the broader public – had great advantages, such as enabling electricity trade between countries rich in energy resources and countries lacking such resources, making electric energy available to all. Moreover, in the case of a local electricity supply breakdown, emergency supplies could be drawn from neighbouring countries. In such cases transnational power networks supported economic and social development across national borders.
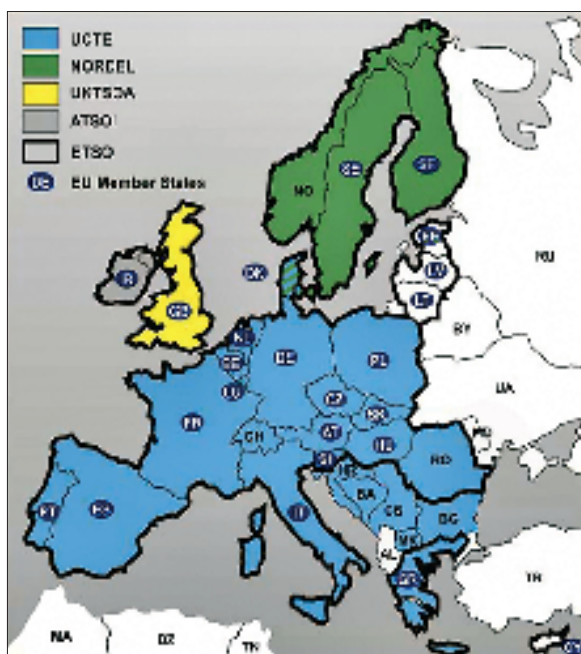
On the other hand, transnational interconnections also introduced new types of transnational risks, embedded in the system architecture and largely beyond the control of corporate or national network operators. For instance, the great November 2006 blackout originated in northern Germany and cascaded through the network as far as Portugal and Croatia, shutting down lights, televisions, computers and engines for more than 15 million European households. Such events reveal a veritable transnational vulnerability: power system failures in one country may disrupt economic and social life in others.

The IP asks questions such as: Which interdependencies were built into Europe's transnational power systems, technically and institutionally, from 1945 until today? How did international network organisations such as the UCPTE (1951) in Western Europe, Nordel (1963) in Scandinavia, and the CDO/IPS (1962) in Central Eastern Europe build and interpret such interdependencies? How did they interpret issues of reliability and failure in emerging transnational power systems? How did they anticipate failures, in terms of system architecture and institutional/governance arrangements? Did transnational interdependencies vary in these three electrical regions? How did actual power failures expose transnational interdependencies as well as interdependencies between electricity supply and economic and social life?

An Uneasy Alliance: critical connections across the European border

Karl-Erik Michelsen [Principal Investigator]

Funding agency: Academy of Finland (AKA), Finland

This IP investigates the concept of 'criticality'. We are trying to answer the question: What makes a normal infrastructure critical? There are number of things which can turn infrastructures critical, but we believe the key is technology. Technology is not an autonomous force acting independently in society, but intimately connected to political, cultural and economic structures.

During the Cold War, when the world was divided in two hostile camps, superpowers (the Soviet Union and the United States) struggled to gain political and ideological hegemony. They also raced to win the dominant position in the field of nuclear technology.

Finland was drawn into this competition during the 1950s when the country prepared to go 'nuclear'. Finnish engineers, managers and politicians did not want to purchase nuclear technology from the Soviet Union because eastern technology was considered unreliable and even dangerous. However, the Soviet Union pressured the Finnish government into accepting

Kivennapa: a power line through Karelia

the offer and the Soviet-designed VVER-reactor was installed in the Loviisa Nuclear Power plant. Because of this purely political decision, the Finnish energy supply as well as Finnish nuclear technology became 'critically' dependent on the Soviet Union.

The Loviisa Nuclear Power project was followed by other infrastructure projects which connected Finland to the Soviet Union. A natural gas pipeline was built across the border in the 1970s and a little later a high-voltage electricity line connected the Finnish national grid to the Sosnovy Bor Nuclear Power Station (Chernobyl type NPL near Leningrad). Today, the Union Power Company (multinational, but a Russian majority-owned company) is offering to install another high-voltage cable from Sosnovy Bor to Finland.

All these decisions have created intense debate in Finland. The discussions have focused on safety issues, but also on the style and reliability of the Soviet/Russian technology. It has been argued that by connecting Finland to the Soviet/Russian technological culture, Finnish energy supply has become vulnerable and critical.

From Systems to Complexes: coping with security and efficiency in European electricity networks

Lars Thue [Principal Investigator]

Funding agency: Research Council of Norway (NFR), Norway

This IP focuses on three interacting trends that have strongly affected how the European power industry has coped with security and efficiency during the recent decades:
1. The horizontal, physical expansion of networks across borders.
2. The vertical deepening of technology through the integration of information and communication technology (ICT) with the high-voltage systems.
3. The liberalisation and unbundling of the industry.

In short, the Europeanisation of the electricity networks has interacted with the digital and the neo-liberal shift. The resulting changes in technology and governance regimes have created new possibilities and new challenges for balancing security and efficiency.

The study of these processes focuses on the integration of ICT with the high-voltage systems. This 'cybernetisation' of the electricity network creates possibilities for enhancing both the security and the efficiency of the electricity networks. The Europeanisation of these networks, however, creates significant challenges for ICT-standardisation, and the neo-liberal shift brought strong pressure to bear for using the ICT-solution more for efficiency than for enhanced security. The history of the construction and international diffusion of the Norwegian-constructed Elcom-standard of data communication can be a point of departure for this project.

The aim of the project is to create a better understanding of the transformation from large technological systems to heterogeneous technological complexes. Within the framework of modern European history, the IP describes and explains the development of such technological complexes within the Norwegian, Nordic and European power industry.

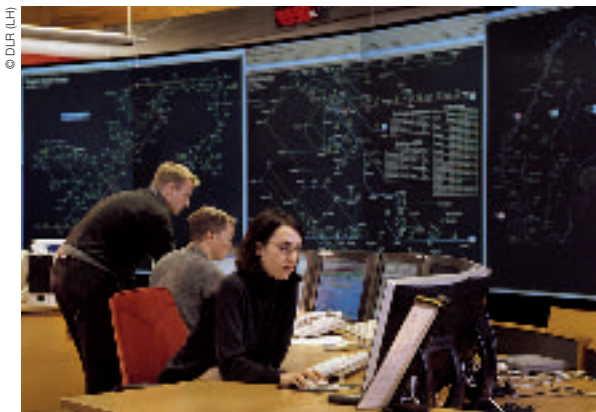## Air Traffic Control: facilitating transnational trust through governance and technology

Lars Heide [Principal Investigator]

Funding agency: Danish agency for Science, Technology and Innovation (DASTI), Denmark

This IP analyses negotiations of how Eurocontrol and predecessor air traffic control systems came to operate, the role of air traffic control's technical and organisational vulnerability, and how this endeavour contributed to the shaping of Europe.

Air traffic control centres constitute a worldwide infrastructure directing aircrafts travelling in between airports as well as in landing and taking off. Air traffic is a critical infrastructure, as it is indispensable for swift transport of people and freight. Failure will remove an essential safety component endangering people, goods and aircraft and may cause serious disruption to the economy. Safety and efficiency is based upon a net of connected ground air traffic control centres where every node depends upon efficiency of neighbouring control centres. Failure in a centre affects neighbouring centres, often in different counties.

'Inventing Europe' –
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Air traffic control facility in Braunschweig, Germany

Eurocontrol has facilitated safe and efficient air traffic in West Europe since 1963. Between the 1960s and the 1990s, more efficient air traffic was gained through introducing new, complex technology depending on electronic cybernetic systems, which with few exceptions relied on national governance.

The ending of the Cold War eased cooperation between civilian and military air traffic, flying between East and West Europe became easier, and Eurocontrol's sphere of operation expanded and came to encompass most of Eastern Europe. Simultaneously, air traffic was deregulated and air traffic soared. Now, focus on negotiating air traffic control in Europe shifted from improved technology to governance.

With its analysis of cybernetic elements in air traffic control systems and its focus on governance, this IP aims at providing new insights into the shaping, possibilities and limitations of critical infrastructures.

In Case of Break-down: emergency communication systems

Anique Hommels [Principal Investigator]
Eefje Cleophas [Project Member]

Funding agency: Netherlands Organisation for Scientific Research (NWO), The Netherlands

Communication networks for emergency services (e.g. police, ambulance, fire brigade) are among society's most critical infrastructures. This project focuses on the emergence and governance of such networks in Europe after the Second World War. Before the 1990s, all European countries had their own radio communication networks for emergency services. They used different frequencies, standards and operating protocols. As a result, cross-border communication between these networks was very hard to achieve. In the late 1980s, after the Schengen Agreements were signed, more efforts were made to enhance international collaboration between emergency services. In this process, the development of a European communication standard for this sector (called Tetra) by the ETSI (European Telecommunications Standards Institute) played a key role. At the moment, several European countries (e.g. the Netherlands (C2000), Belgium (Astrid), Finland (VIRVE), UK (Airwave) base their emergency systems on this standard. This IP also examines how emergency communications functioned during actual system failures and disasters.

This IP focuses on three research questions:

1. How did transnational connections between the emergency services of different European countries come into existence? How was the Tetra standard negotiated by these countries?

2. What are significant examples of disasters and accidents in Europe that help analyse how international communications in emergency situations actually took place? How did differences in (organisational) culture, risk perceptions, technologies and emergency procedures influence (or hamper) international collaboration in emergency situations? How does this reflect the diversity of Europe? Do our societies' vulnerability increase or decrease as a consequence of the European integration of the emergency networks?

3. How can we better understand the character and nature of 'critical infrastructures' and what concepts and perspectives are most fruitful for analysing them?

In order to answer these questions, this IP will be using a combination of qualitative research methods: archival research, interviews and in-depth case studies.

Associated Projects (APs):

Technologies of Network Interface: The international links of Greece's power and communication infrastructure

Aristotelis Tympas [Associated Partner]
Stathis Arapostathis [Project Member]
Yiannis Garyfallos [Project Member]
Katerina Vlantoni [Project Member]

This AP is focused on the history of the technologies employed in order to connect different national European networks, usually versions of a technology known as 'converter' technology (a generic name used to describe various connecting configurations, including power flow and communication signal 'transformers', 'filters', 'amplifiers', and a whole range of automation and on-line computation apparatuses). It places the emphasis on the connections between the Greek electrification and telecommunication networks and the networks of Greece's neighbouring European states.

We intend to address questions concerning the international dependencies produced by decisions about the mode of network connection, the advantages and risks of certain converter technologies, the vulnerabilities associated with these converter technologies, the international, technical and other bodies set so as to negotiate and maintain technological interfaces, the differences between the converter technologies used in this region and other European regions, especially those studied by our CRP partners.

Our focus will be on the post-Second World War decades. During most of this period, Greece was a Western European country that was surrounded by countries representing various versions of the society that we associate with Eastern Europe. Forced to share its networks with the networks of other European countries so as to, for example, increase the reach and stability of its own networks, Greece had to have a flexible technology of network connections, one that could be quickly adjusted so as to accommodate the changing political relationships between Greece and its neighbours. One of Greece's neighbours (Bulgaria) was under the direct control of the Soviet Union, one (Albania) was isolated from both the Soviet Union and Western Europe, whereas a third (Yugoslavia) tried to gain its independence from both Western and Eastern Europe by maintaining material links to both. Greece also tried connections that avoided the Balkans altogether, by seeking to connect its power and communication networks to the networks of Italy. Turkey, with which Greece shared mainland borders, was a Western ally that was not trusted. Italy, a Western European member, could be trusted but was split from Greece by a sea.

Becoming A Power Hub of the Balkans: Bulgarian electric system between national strategy and COMECON rules

Ivan Tchalakov [Associated Partner]
Ivailo Hristov [Project Member]
Tihomir Mitev [Project Member]

This AP aims at studying technological, organisational and normative issues in transnational power supply through the lens of developments in the Bulgarian electric power system during the period between 1945 and 1985. The new framework of COMECOM led to radical changes in the Bulgarian electric power industry which had until then used (Western) European technology and relied predominantly on private, state and community (municipal) capital. In Bulgaria power production grew tenfold during the 1950s and 1960s, developing its own research infrastructure and a diversified system of power production (based on water, thermal and nuclear power stations) and power distribution. It also included several high-voltage transmission lines to Ukraine and neighbouring countries of Greece, Macedonia, Albania, Serbia and Turkey.

The AP addresses the following questions:
- What have been the technological, institutional and organisational principles in building the Bulgarian power system?
- What have been the patterns of electricity system integration with other COMECON countries and with the former Soviet Union?
- How did these processes relate to perceptions of transnational interdependencies and vulnerabilities?
- How was an electrical reorientation towards non-COMECON Balkan countries (Turkey, Greece, former Yugoslavia) possible?

To answer the above questions we will study the following related issues:
- Analysis of the origin and execution of the National Strategy for Electrification (NSE), launched by the communist regime in the late 1940s until the early 1960s.
- The process of transnational integration of the Bulgarian electric power system in a COMECON context during the 1970s and 1980s. This will help to better understand the challenges in transforming the electric power infrastructure, built during the socialist era into a part of electric power systems of the EU.
- The process of accumulation of experience by local managers, engineers and R&D scientists in building and managing an increasingly complex electric power system.

'Inventing Europe' –
Collaborative Research Projects (CRPs)

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Software for Europe: constructing Europe through software (SOFT-EU)

Gerard Alberts [Project Leader]

Overview

SOFT-EU addresses the role of software in the shaping of post-Second World War Europe through the tensions between two contrasting modes of computer technology appropriation: the direct importation of applications software, and the development of software through university-industry co-entrepreneurship; absorbing IBM-culture versus aspiring to an ALGOL-culture.

Writing a contextual history of software will open up new ways to address historical themes concerning Europe and Europeanness in the second half of the 20th century. In the initial era of post-war reconstruction, building a computing machine could be seen as a source of specifically national pride; a decade later, the shift from hardware to software initiatives appeared to present a very different, universalist character. The SOFT-EU programme studies the factors that informed this change and the role of underlying software standards in the move towards European unification and the Cold War.

"Software for Europe" uses software as a lens to focus on the relations between information technology use and the shaping of European policies and infrastructures, examine whether there have been specifically 'European' styles or modes of working in software development, and to what extent software practices have contributed to reinventions of Europe. Our main theme within 'Inventing Europe' is constructing European ways of knowing.

Artefact appropriation: IBM and Europe

The first mode of appropriation has been most common in data processing in the fields of banking, insurance and the civil service. European national markets were typically dominated from the 1950s by US corporations, most notably International Business Machines (IBM), which operated on a vastly greater scale than its competitors and was the most strongly perceived as 'American' in character. Cliché has it that IBM's clients were encouraged to follow a monolithic corporate culture, including the scripts of its machinery: our aim here is to question this, pointing both to the agency of national users and to the multiplicity of meanings resulting from IBM's policy of local assimilation. In some countries, including Finland, IBM stood for international progressiveness, acting as an entry-point to Europe as it took its prospective clients to Stockholm or Paris. In contrast, in the Netherlands, Belgium or France, IBM rather symbolised American culture, even if clients travelled to Paris or to Stuttgart to see the latest models. The IBM users' organisation, SHARE, was renowned for its influence on company policy and on the nature of IBM software as it developed. 1966 saw the foundation of an affiliate group, SHARE European Association (SEAS.) In European eyes, the very same adoption of technology might appear as an entry point to modern life or as conservative business imposing itself, as progressive western or decadent American culture. Perceptions of the relations between modernity, modern technology and American culture were ambiguous. Was there, beyond the symbolic and commercial role of IBM and its competitors, a hidden integrating, and perhaps at the same time disintegrating influence in the technology and policy of these actors?

Concept appropriation: ALGOL and the European space for software

The explicit appropriation of shared ideas about computers, as distinct from the artefacts, is visible from the late 1940s in a variety of local initiatives grounded in established collaborative cultures of measuring and computing; here, the need for software played a key role. Whereas, in the USA, a commercial software sector had identifiably emerged by 1958, Europe presents an under-explored case in which no such sector existed. Typically, the computers manufactured in various European countries would be delivered without software; the task of writing code, compilers and operating systems, was taken on by academic teams outside the pre-existing commercial sphere. This pattern was seen in Amsterdam, Grenoble, Mainz, Munich, Vienna and Copenhagen. If this entrepreneurial spirit defied the academic convention of staying out of the muddle of private interest, the computer specialists may have acted as a counterculture; or perhaps the academic habitus was not as unambiguous as the European self-image would have it.

In 1959, UNESCO capitalised on the established integrative tendency with the formation of what became the International Federation for Information Processing (IFIP), an umbrella for national organisations and a forum for collaborative activity. Though its remit was global, IFIP is remembered for a number of initiatives with strong European traits. Most notable of these is ALGOL (for ALGOrithmic Language), an early example of a high-level programming language, used to communicate with machines in terms convenient and accessible to human operators. The 'purity' of the

mathematically refined ALGOL is widely contrasted, in received opinion, with the less elegant but more widely applied language FORTRAN, a product of IBM's US-focused corporate culture.

How was this ambiguity negotiated – could the cultures promoted by UNESCO, IFIP and ALGOL be both European and global? Did national funding agencies promote the construction of particular images? Was the 'ALGOL effort' dominant and centralising within Europe? Software for Europe proposes as a working hypothesis that, beyond the effort to define a new language, the culture of software co-entrepreneurship across borders represented by ALGOL helped to create a specifically European space for software.

Individual Projects (IPs):

Electrologica's Software: co-entrepreneurship and the emergence of a Dutch software industry

Gerard Alberts [Project Leader]
Adrienne van den Bogaard [Project Member]

Funding agency: Netherlands Organisation for Scientific Research (NWO), The Netherlands

Electrologica was a successful Dutch computer manufacturer from 1958 onwards delivering its X1 machines as bare hardware. The firm did not have a software department. Instead university groups in Delft, Leiden, Utrecht and at the Amsterdam Mathematisch Centrum took the responsibility and constructed compilers (ALGOL in particular), operating systems and other programmes. Curious as this situation may seem, it was the general pattern for European computer manufacturers. Indeed industry and academic computing centres were in co-entrepreneurship creating a European space for software.

Electrologica spun off from the research institute Mathematisch Centrum (1958)

The compiler group of the Danish 'Regnecentralen'

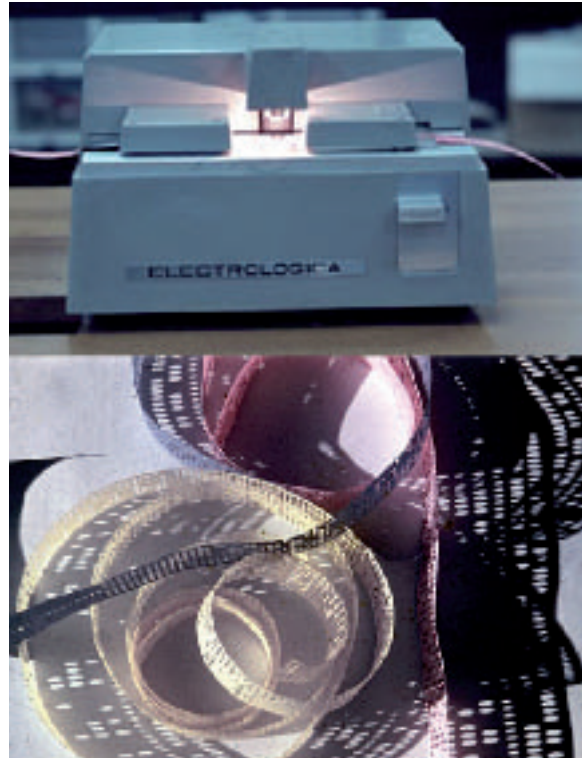Software: punched tape and fast tape reader of the Electologica X1

a) ALGOL compilers: university-industry co-entrepreneurship

Edsger Dijkstra and Jaap Zonneveld at the Mathematisch Centrum of Amsterdam gained instant fame within the international ALGOL community when in August 1960 they were the first to deliver a compiler for the full language of ALGOL. A compiler is a translator: a programme automatically translating from a 'higher' programming language to machine code. One line of research will be to straightforwardly trace the history of the ALGOL effort. The second line of research is to exploit the fact that academic researchers were constructing compilers for a commercially available computer, Electrologica X1, that came without programmes. Such cooperation which synchronically occurred in Mainz and Munich (ALCOR group), Copenhagen (Regnecentralen's Compiler group) and Grenoble (IMAG) seems to represent a typical European pattern of co-entrepreneurship.

b) Emulating or resisting IBM: creating European space for software (1958-1980)?

'Selling a computer is selling a system' – by this sentence, the Vice-president Jan Berghuis expressed the strategy of Philips Computer Industries (PCI) in the 1960s. It shows that Philips had decided to emulate International Business Machine (IBM) corporate strategy. PCI had decided to produce computers compatible with IBM, including systems software and applications written in FORTRAN.

On his part, ALGOL-compiler writer Edsger Dijkstra, qualified FORTRAN as 'nothing more than just an assembler language.' These contrasting quotes show that the appropriation of IBM computing technologies was controversial. This IP investigates the emergence of Dutch software companies such as VOLMAC (an emulator of IBM), BSO-ORIGIN (resisting IBM), and software development within Philips, and within the European user-group SEAS.

There is intense cooperation to be studied with the third IP in this project. Were Dutch, Finnish, French, Belgian, and Czech initiatives considered primarily to enhance national pride, or was there some European identity created at the same time, demarcating Europe from the American IBM? Was there anything inherently American in IBM?

Czech(oslovak) Participation in the ALGOL Effort

Helena Durnová [Principal Investigator]

A large proportion of the development of computing technology falls within the period of the Cold War when Europe was divided by the Iron Curtain. Even though it is impossible to say that the Curtain was impermeable when it comes to technology and knowledge transfer, it cannot be denied that it presented a significant obstacle. As Czechoslovakia lay directly on the border drawn by the Cold War, it had first-hand experience of this divide that needs to be taken into account when discussing the shaping of post-war Europe. While rela-

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Brno computer laboratory
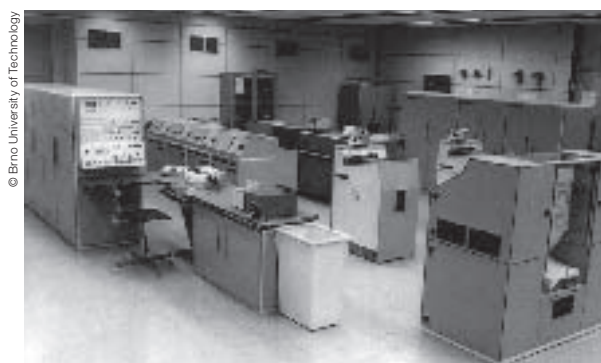
The Czech JSEP EC 1021, recognisably a clone of the IBM system\360

tively tight with regard to material transfer, the border seemed much more permeable with regard to institutions and discourse.

Early software efforts in Czechoslovakia seem to have followed a pattern different from the development of hardware. Initially a part of mathematics, these efforts were not under such a strong control as the calculating machines. The intellectual endeavour connected with software could thus demonstrate the pervasiveness of European ways of constructing knowledge even under the Communist Party regime. Preliminary research in the field of software and computing technology suggests different levels of control over the actual computing machines on one hand and over the spread of programming practices on the other: while there were few objections to software and programming, computers imported from the West were not welcomed by the establishment.

After the Velvet Revolution of November 1989, leading Czechoslovak intellectuals spoke of a return to Europe, to which others reacted by the geographically justified statement that Czechoslovakia had never ceased being part of Europe. The Czech part of the Software for Europe project will explore European traces in the development of Czechoslovak computer science and software.

Using IBM in Europe to Recapture the Lead? Co-constructing computer expertise in Europe and visions of European know-how through IBM and its technology

Hannu Salmi [Principal Investigator]
Petri Paju [Project Member]

This IP aims to scrutinise the co-shaping of computer expertise and visions of European capabilities through the use of IBM technology in Europe during the Cold War, especially between 1950 and 1980. The IBM Corporation and its technology had extensive influence in Europe in the era of mainframe computers. This influence is essential in understanding both European experiences in computer use, including software, and the processes in which visions of European and national computing and data processing were planned, negotiated and performed. So far, this topic has received only passing academic attention, except for a few important studies on national IBMs in Europe. Instead of just adopting foreign technology and absorbing alien culture from outside, as has long been the dominant view on Europe's relationship to IBM, the question arises: did Europeans reshape and re-interpret IBM technology to fit their own purposes? Furthermore, this research offers new insights into the roles that multinational companies have played and can play in shaping Europe.

This IP has links with all three themes in the 'Inventing Europe' research programme and forms a central part of the Collaborative Research Project SOFT-EU as it studies Europe through artefact appropriation.

Computers: battle for the future

The Times reported on IBM's future plans on 18 July 1968

The use of IBM technology in shaping Europe will be analysed at several levels, the two most important ones being the European (IBM Europe) and the national level (focusing on IBM Finland). The project will draw on archival sources, critical reading of published materials, and interviews. Moreover, memories and information will also be collected via an Internet questionnaire, which suits well an international inquiry, including both European and US respondents. Our research will be of academic and public interest and we will actively diffuse our findings to both audiences.

Associated Projects (APs):

Competing Modernities: machines Américaines

Sandra Mols [Associated Partner]

Belgium, in the early 1960s, had no indigenous computing industry, no computer science department, and national science institutes had only recently been equipped with electronic computers. Belgian computing expertise was in fact imported from the Anglo-Saxon world, locally reshaped and appropriated, but an import nevertheless. This relative backwardness, also cast as a decline due to comparisons with Belgian science and technology in the interwar period, has been related to the Second World War, conservatism in politics, economics and science and technology, and the nation's dual linguistic structuring. Similar observations apply to programming in the 1960s, which seems to have consisted in copying, after some delay, American and British sophisticated programming practices. In this project, I aim to explore these delays, backwardness and the process of appropriation by (a) elaborating inventories of resources for the history of computing technology and computer practitioners in post-war Belgium, and (b) analyses of programming practices developed in Belgium, and their relations to the emergence of a Belgian computer industry and of 'informatique'/'informatica' university departments from the late 1960s onwards.

Trips to the US and the UK and reports on Anglo-Saxon advancements in science and technology, and electronic computing research, as in the Netherlands, inspired in 1951 the Fonds National de la Recherche Scientifique and the Institut pour la Recherche Scientifique dans l'Industrie et l'Agriculture to sponsor the construction of a national computer, the 'machine IRSIA-FNRS', using US designs.

Software Development Configurations: the 'IMAG' lab at Grenoble and the computer industry

Pierre-E. Mounier-Kuhn [Associated Partner]

IMAG (Institut de Mathématiques Appliquées de Grenoble) and the computer companies operating in France were elements of European scientific and industrial configurations.

The IMAG combined a tradition of mathematical research with a know-how in collaborating with industry and technical administrations. At first, it offered expertise in numerical analysis that helped computer producers and users to make optimal use of their calculators. Around 1960 the IMAG developed an expertise in delivering programming languages, compilers and other software tools under contract with most computer manufacturers operating in France. A second, deeper relationship was established in the late 1960s, when IBM, followed by the national champion CII, created 'Scientific Centres' on the IMAG premises, mixing academic and industrial software developers to undertake joint research on novel concepts such as virtual memory, network analysis and modelling. In turn, this collaboration induced a new research culture within the computer industry and contributed to legitimising the emergence of 'basic software' as a distinct function and structure within companies such as Bull and CII. These efforts were transnational from the beginning. In the mid-1970s, the CII-IMAG Centre in Grenoble developed software tools and network models for the next generation of Unidata computers, designed in the European joint venture created by CII, Siemens and Philips.

The main questions addressed, at this stage, are:
- What does the IMAG story reveal about the history of the ALGOL language, its dynamics and limits?
- What did the evolution of the university-industry relationship mean: from contracts targeted at a precise software item, to joint research teams?
- What did 'research' and 'academic cooperation' mean precisely for the software developers of a computer company?

National pride, international research and an American computer: Louis Bolliet and his IMAG-CII team at the CII 10070 machine of the Grenoble University, 1972

© IMAG, University of Grenoble

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Software in the UK: computer appropriation, automatic coding and the problematics of the 'British problem', 1948-1970

James Sumner [Associated Partner]

The post-war United Kingdom – anglophone, enthusiastic for NATO and profoundly sceptical of European integration – was widely perceived to share a stronger common context with the USA than with its neighbours. Yet policy makers strongly resisted the image of the UK as a US client state as this implied decline and marginalisation; some sought to invoke a wholly independent technical and cultural identity, despite serious resource limitations. These tensions are strikingly highlighted in the case of software production.

For a brief period in the late 1940s, the UK held a joint perceived leadership with the USA in digital information storage, processing and programming; native manufacturers and service providers, however, were overwhelmingly eclipsed by US corporations (most notably IBM) before 1970. This is commonly considered symptomatic of the 'British problem', a supposed technological pathology of marrying superlative innovation to commercial incompetence. Yet similar stories are told in France, the Netherlands and elsewhere: arguably, the rhetoric of national decline has widely been used for strategic ends.

This AP aims to reassess UK computing through the 'hidden integration' of software, gauging activity not by the volume of machines produced, but through the connections and communities forged by users and use. Reflecting the overall SOFT-EU focus on tensions between the artefact and concept modes of appropriation, the proposed activity considers both IBM's entry into the UK and British academia's relationship to the ALGOL programming-language initiative.

Brian Pollard, Keith Lonsdale and Alan Turing at the console of the Ferranti Mark 1 computer (Manchester 1951)

Programming languages (known initially as autocodes) were pioneered in the universities of Manchester and Cambridge from the early 1950s, predating both FORTRAN and ALGOL. As competing international approaches emerged, British researchers selected among an array of possibilities for: assimilation, co-operation, competition on common ground, and rejection in favour of independent alternatives.

Analysis of the paths taken, the motivations and consequences will draw on archival sources and interview work among principal policy makers, software developers and representative users.

Software Tensions in Non-Anglophone European Contexts: the example of Greece

Aristotelis Tympas [Associated Partner]
Theodore Lekkas [Project Member]
Dimitris Ziakkas [Project Member]

This AP is focused on the history of the tensions caused each time citizens of several European countries realised that software imported from the US could not support applications requiring the use of their own alphabet. Given that post-Second World War European integration initiatives started by guaranteeing the diversity of European languages and the cultural traditions associated with them, the difficulty of having software that could technically sustain this linguistic diversity became a major European technological problem, one that stood in the way of all attempts at Europeanisation. It became a problem of vital importance for some of Europe's smaller countries, which felt that they could not address the issue at the national level only, because of the lack of proper economies of scale. To study the details of this problem, we focus on the case of Greece.

The set of the research questions to be addressed by this AP (www.phs.uoa.gr/ht) includes the following: What were the technical solutions tried (or rejected), successfully or unsuccessfully, in response to the various manifestations of this problem? How exactly various Europeanisation initiatives (e.g. EC and EU software research projects) sought to solve the problem? How did such initiatives emerge and how did they score? How did such initiatives interact with national ones? Have there been international alliances (within Europe and within European nation-states) in favour of certain technical agendas? Was there a difference in the response of public authorities and private firms? What was the role of computer science and technology academicians, professionals and user-groups? Was there a process of hidden European integration, due to success or failure, in dealing with this software problem?

The West German Schneider advertises its products as European with the slogan: "Change quality level. Welcome to Europe, to the Schneider technology"

ICT and Business: the rise and development of sofware-based industries in Europe (integration-homogenisation-differentiation)

Paul Erker [Associated Partner]
Timo Leimbach [Project Member]

The spread of information and communication technologies (ICT) since the 1960s has changed our patterns of public life as well as of private life. The cutting edge of this fundamental change was the implementation of these technologies in corporations. 'Since the 1950s, business has been as radically transformed by the digital hand of information technology as it was by the managerial revolution in the period Chandler described'. This is the main argument of James Cortada, one of the very first historians who tried to describe and analyse this development in American business. In most cases, the implementation of ICT (hard- and software) was motivated by two aims. First, management aimed at getting a better financial and managerial control of a corporation, and second, companies used ICT to rationalise and optimise the production process, the material and information flows and related factors. Because of the fact that both white-collar as well as blue-collar work was concerned by this, it fundamentally changed the structure, organisation and policy of corporations. On the one hand, totally new industries such as consulting or on-line retail were created and

on the other hand, traditional industries such as manufacturing enforced their innovation life cycles with the adaptation of ICT. The transformation process of both, 'new' and 'old' industries varied in range and scope.

Genesis and Development of 'Soft Computing/ Computational Intelligence' in the 20th Century European System of Science and Technology

Rudolf Seising [Associated Partner]

This AP is an investigation of the genesis and development of soft computing/computational intelligence research in Europe in the second half of the 20th century as an example of Mode 2, which has been proposed as an adequate approach to modelling knowledge production in modern knowledge societies. The AP discusses important contributions to the shaping of computer sciences and artificial intelligence in Europe after the Second World War.

To this end, we must consider developments in humanities, science, and engineering in the first half of the 20th century, as well as the origins of the theories and methods that constitute the field of soft computing/computational intelligence. We must go back to the beginnings of computers, the theory of the Turing machine and of automata, and to the mathematical formulation of bionics and evolutionary strategies as well as to the analysis of natural neural networks and the construction of artificial neural networks.

In this AP the development of soft computing/ computational intelligence is regarded as an example of Mode 2 knowledge production in the European knowledge society of the 20th century. It shows interdisciplinary research, heterogeneous networking, and co-evolutionary processes between theory and practice, and cooperation between university and industrial research and teaching. Embedding the genesis and development of soft computing/computational intelligence in the organisational principle of Mode 2 knowledge production seems appropriate, especially as publicity and media skills have played a highly visible role in this process of development and there is no clear line of separation between the producers and users of knowledge – thus the distribution of knowledge in society is blurred.

Inside the Box: a history of the software package

Thomas Haigh [Associated Partner]

Packaged software in its most literal form, a shrink-wrapped box containing disks and an instruction manual, was a taken-for-granted part of the computing experience during the 1980s and early 1990s. But

the seeming naturalness of packaged software masks a complex history and a great deal of commercial, cultural and legal work done to transform computer code into a consumer product. Software has been produced and consumed since the 1950s, but usually in different forms. Indeed, recent shifts toward downloaded software and subscription plans have eroded the once dominant position of shrink-wrapped software.

My project focuses on the software package as a social artifact, on the role of cultural and legal institutions in shaping and supporting its development, and on the active work of users in negotiating a viable framework for the use of packaged software.

The project is based around investigation of a number of key turning points in the development of software. These includes the emergence of computer user-groups in the 1950s to facilitate the sharing of code between computer centres, the origin of the concept of software during the 1960s, the development of the software package as an economic good and the creation of the mainframe software industry around 1970, the invention of a mass software publishing industry for personal computers around 1980 and the shift to the Internet as a key means of software distribution from the late 1990s onward. Two longitudinal case studies provide an additional perspective, focused on software packages and libraries for scientific calculation and on the evolution of open source projects.

History of the Software Services Industry

Jeff Yost [Associated Partner]

Emerging in the mid-1950s software services firms provided a critical means for many corporations and organisations to use digital computer technology for the first time. These firms included service bureaux, systems integrators and facilities management enterprises. Service bureaux leased computer time, systems integrators engaged in programming to make complex systems operable, and facilities managers took over computer installations to rationalise the use of expensive systems and create heightened efficiencies. In short, software services firms made the efficient use of computer systems possible. Despite its important technological and economic contributions to fulfilling the promise of digital technology, the software services industry has received only minimal attention in the historical literature.

This study will serve as a corrective to this oversight. It will examine the prehistory of software services to understand how organisational capabilities were created prior to the first electronic computers that would prove influential in the digital era. It will analyse the origins of the software services industry and the underlying factors to survival and growth in the early trade of the 1950s and 1960s. The study will also examine the continually evolving structure of the industry during the 1970s and 1980s and its relation to the development of new technology. It will explicate the strategy and execution of industry giants and small independent contractors, as well as detail the importance of trade organisations to the industry. While the project will focus on the US software services industry it will also examine aspects of the European software services field.

People in SOFT-EU:

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Principal Investigators:
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Hannu Salmi, University of Turku, Finland

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The Development of European Waterways, Road and Rail Infrastructures: a geographical information system for the history of European integration, 1825-2005 (Water, Road and Rail)

Jordi Martí-Henneberg [Project Leader]

© European Community

To celebrate the creation of the European Coal and Steel Community, a train decorated with flags and carrying coal crosses the French-Luxembourg border on 10 February 1953. This event exemplifies the intimate relationships between technology and European integration

Overview

This Collaborative Research Project will provide an empirical basis for multidisciplinary studies on the relationship between terrestrial transport infrastructures and the making of Europe. We will develop a historical Geographical Information System (GIS) comprising the networks of waterways, roads and railroads in Europe. This map series will be useful to analyse the socio-economic role of transport infrastructures in Europe. To achieve this we will integrate other databases on Europe's population and economy at the regional or municipal level. This will provide a new platform for the use of cutting edge spatial analysis techniques in order to produce an historical narrative on European integration and the role of transport infrastructures in its development.

Individual Projects (IPs):

A GIS for the History of European Integration (1825-2005): the European road and rail infrastructure

Jordi Martí-Henneberg [Project Leader]
Francisco J. Tapiador [Co-Principal Investigator]
Kerstin Burckhart [Project Member]
Eloy del Río [Project Member]
Rafael Giménez i Capdevila [Project Member]
Josep R. Modol [Project Member]
Laia Mojica, PhD student [Project Member]
Alejandro Simón, PhD student [Project Member]
Kaloyan Stanev, PhD student [Project Member]
Antònia Valentín [Project Member]

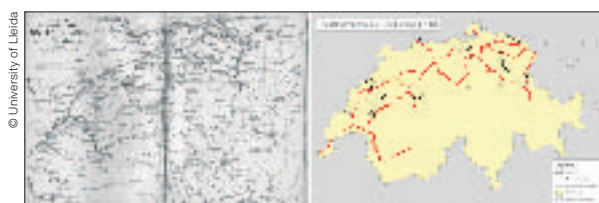*Funding agency: Ministry of Education and Science (MEC), Spain*

The main objective is to explore the links between the geographical data on the development of the transport network in Europe with a variety of geographical resources to assist historical interpretation. This will allow the IP members to study the relationships between the development of the transport infrastructure and topics such as population change, economic growth and political making. This data and analysis will be made available to the rest of the components of the European network. The IP can rely and expand on existing work (see also: http://web.udl.es/dept/geosoc/europa/in/presentacio.html).

Professor Jordi Marti-Henneberg (UdL) will coordinate the GIS database creation and cartography areas, while Dr Francisco Tapiador (UCLM) will coordinate the implementation of the spatial analysis tools. Both will take in hand the interpretation in terms of historical narratives.

'Inventing Europe' –
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Specific goals:

1. To create a GIS of the development of Europe's road and rail networks from 1825 to 2005. This will be done using information from a variety of levels including the pan-European, individual countries, and regional and local datasets.
2. To link this database with complementary digital demographic and socio-economic datasets at the same scales, creating an integrated GIS database for further geohistorical analysis.
3. To link transportation data to population databases. This allows the calculation of population accessibility over time. Differences of accessibility have been a key factor in explaining the territorial imbalances in Europe. The working hyopothesis is that the transport network provides a guide to understanding the location of both people and companies.

Map sources and digital construction of the rail map (example: Switzerland)
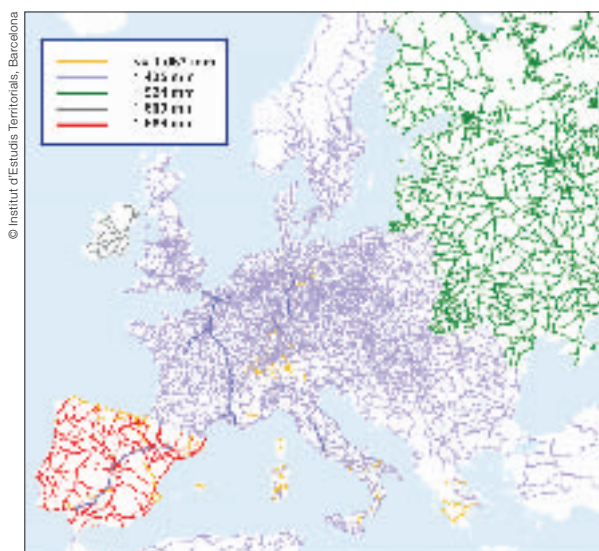
Gauge differences in European railroads (2000)

A GIS for the History of European Integration (1825-2005): the European road and rail infrastructure

Francisco J. Tapiador [Principal Investigator]
Jose Fenollar [Project Member]
Ana Mateos [Project Member]
Eva Salgado [Project Member]

The two Spanish partners will integrate the geographical data on the development of the transport network with a variety of geographical resources to ease and assist historical interpretation. This will allow the Spanish team to study the relationships between the development of the transport infrastructure and topics such as population change, economic growth and political making. This will be then make available to the rest of the components of the European network.

Professor Marti-Henneberg (UdL) will coordinate the GIS database creation and cartography areas, while Dr. Tapiador (UCLM) will coordinate the implementation of the spatial analysis tools. Both will take in hand the interpretation in terms of historical narratives.

The objectives of the project are:

1. Provide a main database infrastructure for the use of scholars and teaching
2. Our research group will use this information to analyse the importance of transport availability in population distribution and urban formation.
3. This main subject will be studied from the point of view of a better understanding of the integration process in Europe in real terms. That means, for example, considering socio-economic data to measure the real links among countries, rather than using a political point of view.

Regional contrasts of development in the long term will arise from this analysis. This issue will provide new information for the study of the territorial imbalances in Europe.

Transportation Systems and Developments in Social and Economic Indicators in Turkey

Sedef Akgüngör [Principal Investigator]
Ceyhan Aldemir [Project Member]
Yaprak Gülcan [Project Member]
Yesim Kustepeli [Project Member]
Vahap Tecim [Project Member]

The principle aim of this IP is to investigate the relationship between transportation systems and developments in social and economic indicators in Turkey. The Turkish IP has three tasks:

1. create a historical database for Turkey's transport network and social and economic indications. The data will be used to create GIS maps.
2. develop a model to explore the relationship between transport networks and social and economic indicators. The IP seeks to interpret the informational content of the GIS database relating to transport network and social and economic indicators such as production, consumption, trade, income, education, population, distribution and clustering of industries in Turkey.
3. present a case study that focuses on Izmir – the third largest city in Turkey – and its vicinity (including neighbouring provinces, Manisa and Aydın) where the first railway in Turkey was constructed between Izmir and Aydın in 1856. The aim is to demonstrate and analyse the interactions between the transport network, economic activity and socio-cultural changes. In doing so, the case study will demonstrate the dispersion and changes in economic activity and its relation to advancements in transport infrastructure. The major issue is to understand how industrial location decisions in Izmir and its vicinity have evolved through observing spatial distribution of economic activity and transportation infrastructure. The case study will also explore changes in life-styles, artifacts and values of the individual. The purpose is to see to what extent, technological, economic and socio-cultural changes have followed similar/dissimilar patterns and whether such patterns are parallel with western lifestyles, artifacts and values within the time period 1856-2010.

The senior researchers will be academic advisers to three PhD students. Each student will concentrate on one of the following component of the research:
1. economic history,
2. economic development, and
3. intercultural research.

Ege Region Railways

Finnish Railways in the Nordic and Russian Context

Jarmo Rusanen [Principal Investigator]
Harri Antikainen [Project Member]

From a point of view of transportation, the geographical position of Finland differs greatly from that of most Central and Eastern European countries, because of its wide geographic expanses and relatively small population. The railway network, mainly constructed between 1862 and 1909, is considered to have had a strong impact on the spatial distribution of the population in Finland. This is because Finland was urbanised mostly after the railway network had already been established.

This study is based on operationalising the concept of innovation diffusion and centre-periphery theory. The study also makes heavy use of theories based on applications and analyses of GIS science.

Finland has produced statistical population census data since the 1880s, mainly at municipality level until the 1980s. After that, changes in the distribution of the population in Finland over the period 1970-2000 have been examined in terms of a coordinate system of 1 x 1 km grid cells. This kind of geo-referenced data is quite unique in the EU.

The main tool which will be used is GIS with its many analytical methods, e.g. network analysis and zonal statistics.
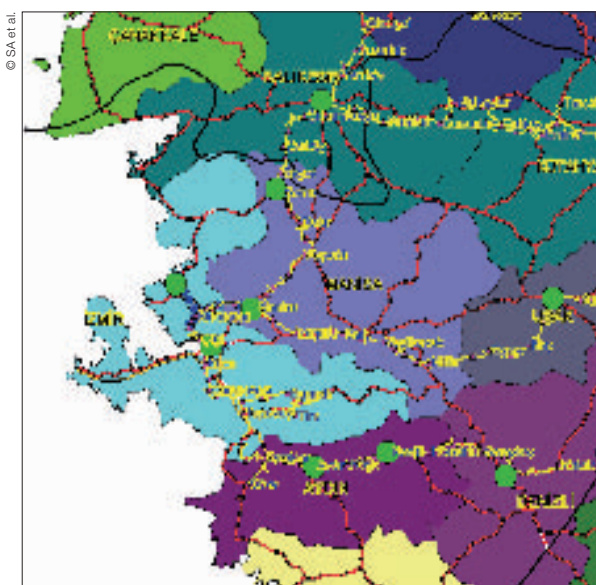
The main themes of the research are:
1. Railways and their change of significance in the long term in the context of a remote and sparsely populated country.
2. Accessibility of railways and their effect on people's everyday life (1880-2000) using the municipality level data and 1 x 1 km data.
3. Effect of Russian and Swedish railway networks on the development of Finnish and Nordic railways from 1870 onwards.
4. Potential of Finnish 1 x 1 km grid cell data in the research on the European infrastructure context.

Crossing Borders: waterway, rail and road connections between the Netherlands and Germany, Belgium and the UK, 1825-2000

Hans Buiter [Principal Investigator]

Funding agency: Netherlands Organisation for Scientific Research (NWO), The Netherlands

Until now economic historians and historians of transportation have mostly focused on national infrastructures. The Dutch historiography and that of neighbouring countries are no exception to this rule. This IP aims to collect and analyse data on the European transport networks and to study more in depth the transnational connections between the Netherlands and its neighbouring nations by waterways, rail lines and roads.

The development of transport infrastructures was no linear process. Infrastructures did not always live up to the expectations of their initiators – as the history of the many rail lines, canal and river projects shows. The literature stresses that different modes of transport were competing with each other, but were on many occasions also complementary. The history of the Dutch-German railway design and Rhine navigation illustrates this latter point and as a result, transport costs tended to fall. Borders were important features in the process. Infrastructures were subject to political manoeuvres and toll gathering. Taxation made border crossing time-consuming and expensive. On many occasions infrastructures were put forward explicitly to connect regions, nations and markets on both sides of the borders but in practice the borders were stubborn; connections even once established, disappeared or got replaced.

The overall aim is to improve understanding of the process of linking and de-linking of different transport infrastructures. Three subgoals can be described as follows:
- The development of a statistical database on road, railway and waterway development within the various nation-states and between the nation-states, from 1850-2005.
- The development of an analytical tool to interpret this database
- The mapping of the functioning of several waterways, rail and road connections between the Netherlands and Germany, Belgium and the United Kingdom and a few other connected European countries further away.

Roads and Railways Network Development in Portugal, 1800-2000

Professor Luis Silveira [Principal Investigator]
Daniel Alves [Project Member]
Nuno Lima [Project Member]

Funding agency: Foundation for Science and Technology (FCT), Portugal

This IP can contribute an already existing platform (http://www.fcsh.unl.pt/atlas) and its experience in working with geographic information systems (GIS) and historical analyses towards the main goals of the CRP: namely, to elaborate a GIS with historical information regarding the road and railway network development. The data to be analysed cover Portugal over the past two centuries. They allow to analyse the contribution of these material developments to the historical process of European integration.

The IP's main concern is the digitalisation and GIS integration of the existing data on the evolution of Portuguese road and railway networks, for the period between 1830 and 2000 with 10-year intervals. All the information gathered will be used in an historical analysis, not only comparing the road and railway networks development in Portugal and Europe, with a special focus on the Iberian perspective, but also, studying the impact that these material improvements had on the Portuguese economy, demographic distribution and administrative evolution, over the past 150 years.

Associated Projects (APs):

The Background of the European Integration: a physical geography of Europe

Francisco J. Tapiador [Principal Investigator]
Jose Fenollar [Project Member]
Ana Mateos [Project Member]
Eva Salgado [Project Member]

This AP aims to provide the geography of Europe for the envisaged 'Inventing Europe' book series. It will comprise a set of maps, data and resources providing the physical framework of Europe, including orography, water resources, climate, and plant and animal distribution. Outputs from this AP could be used as introductory material to the book series, thus providing a common layout of European territory that could be used by other scientists. It could also be used to frame the European narratives in its physical place.
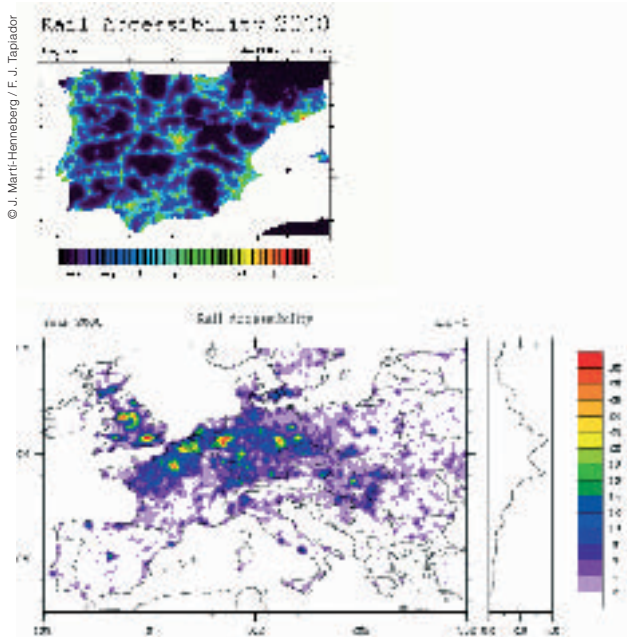
The Role of the French state in the development of transportation infrastructure, 1830-2005

Thomas Thevenin [Associated Partner]
Arnaud Banos [Project Member]
Valérie Fachinetti-Mannone [Project Member]
Jean-Paul Hubert [Project Member]
François Moriconi-Ebrard [Project Member]
Robert Schwartz [Project Member]

The French AP complements and enhances the European project in several ways and is structured in several smaller sub-projects.

Firstly, *Cross-national comparison:* in a move beyond the framework of a national study – an aim emphasised in the general proposal – the IP shall provide a comparative study of transportation policy and its implementation, focusing on the role of the French state in the development of railways from the 1830s to the present, compared with the UK policy during the same period.

Secondly, *Transnational connections* will be investigated through an analysis of international rail traffic across French borders. Particular attention will be given to historic patterns affected by the changing national status of Alsace-Lorraine after 1870 and 1919 and the high-speed TGV network. Another theme on *European integration* will be studied historically with particular attention paid to assessing the contribution of high-speed rail and super highways in transforming international relations. This will entail defining pertinent indicators of transnational mobility, trade etc. that can serve to gauge the transforming effect of high-speed transport.

Finally, *Rail transport and spatial inequalities:* On the eve of the transport revolution in France long-standing economic, social and cultural disparities existed between what is generally described as the developed North/Northeast and the less-developed South. Historic patterns of regional growth, stagnation, decline and revitalization shall be identified; the extent to which historic disparities were reduced, maintained or increased in relation to the expanding (and contracting) system of rail transportation shall be determined. This will serve as important historical background for studying the role of the high-speed TGV network in the contemporary restructuring of spatial relations among regions and cities linked by the TGV, and comparing contemporary results with patterns of change brought about by railways during the earlier periods examined. Economic historian J. C. Toutain has documented a convergence in the economic productivity of the North and the South during the 19th and 20th centuries; we shall investigate the effect of rail transport in that convergence.
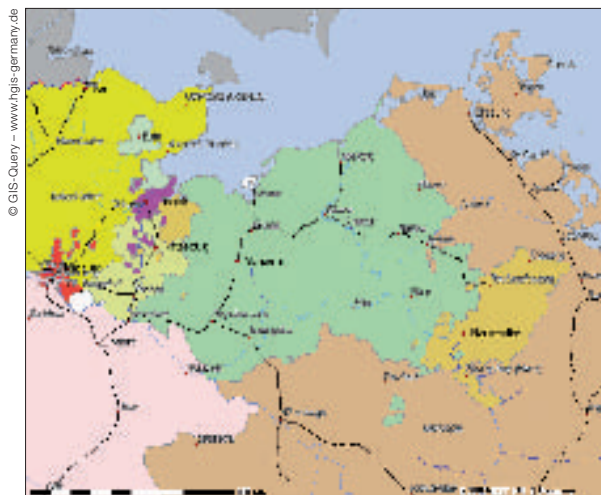
Railways and Waterways in Northern Germany, 1865

Transport Networks in Germany and in Central Europe, 1825-2005

Andreas Kunz [Associated Partner]
Monika Krompiec [Project Member]
Thomas Treiling [Project Member]

This Associated Project aims at first to construct a GIS on the development of water, road and rail networks in Germany (and some of the adjacent countries) for the entire period of 1825-2005. Work already done in connection with the Historical GIS of Germany will be transferred to a new transport-oriented GIS, whose structure will be aligned as much as possible with the overall European GIS pursued within the CRP. For the rail network – as the most dynamic transport network of the 19th and early 20th century – short time intervals (1-5 years) will be selected in order to obtain a comprehensive picture of the infrastructural development. Broader intervals (10-25 years) will be taken for the water and road networks. In order to make intermodal comparisons possible, eight definitive 'key-years' will be selected at a 25-year interval, beginning in 1825 and moving up to 2000.

These eight benchmark years will also serve as the backbone for a quantitative and qualitative analysis, which is the second aim of the project. As far as the quantitative aspects are concerned, we are proposing to explore transport-related and spatially encoded data with the help of the GIS database. For the first time the impact of these modern transport systems can be studied both in relation to their production (both inter- and intramodal) and to their immediate spatial setting. Focusing on the qualitative impact, finally we propose to study forms and patterns of connectivity, accessibility and path dependency – key concepts very often associated with the history and geography of modern transport networks. The 'GIS engine' will make it possible, we believe, that these concepts can thus be studied in a much more flexible and, above all, comparative way, so that patterns of economic and political integration (or disintegration), steady or uneven economic development, improvement or decline of living conditions, can be scrutinised in a systematic way for individual or groups of countries and for Europe as whole.

Roads Connecting, Roads Dividing: infrastructure in South East Europe

Ekaterina Nikova [Associated Partner]
Martin Ivanov [Project Member]

This Associated Project aims to take a long-term perspective on infrastructure in the Balkans and to conceptualise the reasons for its belated and insufficient development. More specifically, it will analyse why in history the three concentric circles of infrastructure – regional, national and all-European – have most often been in conflict with each other.

The AP will take advantage of the GIS and data collected by the participants of the CRP (see above), providing them in return with a narrative on the development of European infrastructure in one specific and important part of Europe. Thus the project in general might go beyond the technicalities of data collection and encompass all of Europe.

The approach is emphatically interdisciplinary, combining the tools of economic history, political history and international relations. The topic will be explored both empirically and conceptually.

The European Road and Rail Infrastructure: a geographical information system for the history of European integration, 1825-2005 (UK component)

Ian Gregory [Associated Partner]
Kerstin Burckhart [Project Member]
Rafael Giménez i Capdevila [Project Member]
Robert Schwartz [Project Member]
Leigh Shaw-Taylor [Project Member]

There are two distinct components of the UK contribution to this CRP.
1. Dr Ian Gregory will contribute GIS and spatial analytical expertise to the overall European project focusing in particular on analysing how the Europe-wide growth of the transport network influenced, and was influenced by, broad demographic trends across Europe.

2. The larger subproject will make use of GIS approaches to explore in detail how the growth of the transport network in England & Wales as an administrative entity has influenced the demography and industrial structure of the country. This will be done collaboratively between Dr Ian Gregory who will provide much of the GIS expertise, Dr Leigh Shaw-Taylor who will provide expertise in industrial structure, and Professor Robert Schwartz who will provide expertise in the demographic development. All three partners have a long-standing interest in the development of the UK's transport network.

The AP team will perform an in-depth study of how the development of the transport network has influenced the development of England & Wales and its relationship with the rest of Europe. The UK provides an intriguing case study of how transport has affected the integration of a country both within the UK, and between the UK and the rest of Europe. The UK was the first nation to go through the industrial revolution and for many years led the world in the development of rail transport. More recently it has lagged behind in many ways both by allowing its rail network to decline and stagnate, and in being relatively slow to develop a network of major roads. It also has a unique relationship with Europe, being an island on the edge of the Continent with strong relationships to its former Empire and the Commonwealth, as well as with countries such as the United States which have provided a focus for British trade and integration. These relationships have frequently conflicted with any desire for closer integration with Europe.

People in Water, Road and Rail:

Project Leader:
Jordi Martí-Henneberg, University of Lleida, Spain

Principal Investigators:
Sedef Akgüngör, Dokuz Eylul University, Izmir, Turkey
Hans Buiter, University of Technology Eindhoven, the Netherlands
Jarmo Rusanen, University of Oulu, Finland
Luis Silveira, Universidade Nova de Lisboa, Portugal
Francisco J. Tapiador, University of Castilla-La Mancha, Toledo, Spain

Associated Partners:
Ian Gregory, Lancaster University, UK
Andreas Kunz, Institute of European History, Mainz, Germany

Ekaterina Nikova, Bulgarian Academy of Sciences, Sofia, Bulgaria
Thomas Thévenin, Université de Bourgogne, Dijon, France

Project Members:
Ceyhan Aldemir, Dokuz Eylul University, Izmir, Turkey
Daniel Alves, Universidade Nova de Lisboa, Portugal
Harri Antikainen, University of Oulu, Finland
Arnaud Banos, THEMA / CNRS, Besançon, France (AP)
Kerstin Burckhart, University of Lleida, Spain
Eloy del Río, University of Lleida, Spain
Valérie Fachinetti-Mannone, University of Burgundy, Dijon, France (AP)
Jose Fenollar, University of Castilla-La Mancha, Toledo, Spain
Rafael Giménez i Capdevila, University of Barcelona, Spain
Yaprak Gülcan, Dokuz Eylul University, Izmir, Turkey
Jean-Paul Hubert, INRETS / INSEE, Paris, France (AP)
Martin Ivanov, Bulgarian Academy of Sciences, Sofia, Bulgaria (AP)
Monika Krompiec, Institute of European History, Mainz, Germany (AP)
Yesim Kustepeli, Dokuz Eylul University, Izmir, Turkey
Nuno Lima, Universidade Nova de Lisboa, Portugal
Ana Mateos, University of Castilla-La Mancha, Toledo, Spain
Josep R. Modol, University of Lleida, Spain
Laia Mojica, University of Lleida, Spain
François Moriconi-Ebrard, CNRS UMR SEDET, Paris, France (AP)
Eva Salgado, University of Castilla-La Mancha, Toledo, Spain
Robert Schwartz, Mount Holyoke College, South Hadley, US (AP)
Leigh Shaw-Taylor, University of Cambridge, UK (AP)
Alejandro Simon, University of Lleida, Spain
Kaloyan Stanev, University of Lleida, Spain
Vahap Tecim, Dokuz Eylul University, Izmir, Turkey
Thomas Treiling, University of Mainz, Germany (AP)
Antònia Valentín, University of Lleida, Spain

New Approaches to Europe's History through 'Inventing Europe' Networking Activities

The ESF EUROCORES Programme 'Inventing Europe' is articulated through an intensive networking strategy. The first stages of this strategy are reflected below in the various activities already planned for 2007-2008.

The launching conference was organized on 7-10 June 2007 in Rotterdam, The Netherlands, together with the "Tensions of Europe" Network. At this conference discussions were organised with a number of other networks and with science and technology musea. The programme of the conference is attached. Several follow-up activities were planned, including a 1st summerschool for Ph.D students and junior researchers at Chios/Izmir (27 August – 3 September 2007), a meeting with science and technology musea at Oslo (16-17 September 2007) to discuss further collaboration in view of an envisaged joint virtual exhibit, a Scientific Committee meeting in Barcelona including a workshop to discuss the use of Geographical Information Systems (GIS) for a history of European integration (30 November – 2 December 2007); and a meeting in Florence, scheduled for spring 2008, to develop the content and nature of the book series for a new history of European integration through the lens of the history of technology.

'Inventing Europe' – Networking Activities

Rotterdam, The Netherlands

1) Launch Conference ESF EUROCORES Programme 'Inventing Europe' and 3rd Plenary Conference of the 'Tensions of Europe' Network: Scientific Programme

Thursday 7 June

11.30 - 12.30
Plenary Session Opening: Introducing 'Inventing Europe'

13.30 - 15.30
'Inventing Europe' internal CRP working meetings

16.00 - 18.00
'Tensions of Europe' Advisory Group scientific committee 'Inventing Europe' invited

19.00 - 20.30
Opening Keynote
3rd 'Tensions of Europe' Plenary Conference
A Global and Transnational Perspective on Europe
Chair: Johan Schot, Eindhoven University of Technology, NL
Keynote speaker: Charles Bright, University of Michigan, US Commentator:
Helmut Trischler, Deutsches Museum, DE

Friday 8 June

09.00 - 12.00
Presentation of awarded 'Inventing Europe' CRPs
Introduction of the EUROCORES Programme 'Inventing Europe'
Rüdiger Klein and Johan Schot

Software for Europe (SOFT-EU):
Interview by Robert Bud

Europe goes Critical: The Emergence and Governance of Critical Transnational European Infrastructures (EUROCRIT):
Interview by Pascal Griset

The Development of European Waterways, Road and Rail Infrastructures: A Geographical Information System for the History of European Integration, 1825-2005 (Water, Road & Rail):
Interview by Pascal Griset

European Ways of Life in the 'American Century': Mediating Consumptions and Technology in the Twentieth Century (EUWOL): *Interview by Luda Klusakova*

13.30 - 15.00 ToE Research Sessions and Round Table

Railway Exchanges in 19th-Century Europe
Organiser: Karen Bowie, École Nationale Supérieure d'Architecture de Versailles, FR
Chair: Eda Kranakis, University of Ottawa, CA
Commentator: Colin Divall, Institute of Railway Studies, York, UK
Papers:
The Foreign Study Trips of French Railway Engineers, 1830-1845
- Karen Bowie, Ecole Nationale Supérieure d'Architecture de Versailles, FR
The Creation for French Railway Engineering and it's Exportation in Europe, 1840-1900
- Jean-François Belhoste, Ecole Pratique des Hautes Etudes, Paris, FR
Atmospheric Railways: A European Caper?
- Paul Smith, Direction de l'architecture et du patrimoine, Ministère de la Culture, FR

Risky Business: Large-scale Technologies and Projects
Organiser: Programme Committee
Chair: Karl-Erik Michelsen, South Karelian Institute, FI
Commentator: Phil Scranton, Rutgers University, Camden, US

Papers:
The Channel Tunnel: Stunning Achievement or Spectacular Failure?
- Terry Gourvish, London School of Economics, UK
Changing Conceptualizations of Technological Risks and Accidents in the Transition from National to Transnational European Nations
- Aristotle Tympas, Stathis Arapostathis, Katerina Vlantoni, Yiannis Garyfallos, National and Kapodistrian University of Athens, GR

Responses to Atomic Energy in European Popular Media, 1945-1970
Organiser: Dick van Lente, Erasmus University of Rotterdam, NL
Chair: Karin Bijsterveld, University of Maastricht, NL
Commentator: Menno Spiering, University of Amsterdam, NL
Papers:
The Atom and the Public: Popular Representations of the Nuclear Age in Six Countries, 1945-1962
- Dick van Lente, Erasmus University of Rotterdam, NL
Confronting Nuclear Holocaust, Confronting Nuclear Power: East and West German Reactions in Transnational Space
- Dolores Augustine, St. John's University, New York, US
Between Technological Enthusiasm and Seismological Concerns: Introducing Nuclear Technology to Greece
- Ilias Lemontzoglou, University of Athens and National Technical University of Athens, GR

Past and Future Tenses: How History Can Play a Role in Policymaking
Organiser: Paul Edwards, University of Michigan, US
Judith Schueler, Stichting Toekomstbeeld der Techniek, Den Haag, NL
Chair: Judith Schueler, Stichting Toekomstbeeld der Techniek, Den Haag, NL
Panel: Maarten Botterman, GNKS Consult, NL; Paul Edwards, University of Michigan, US John Doyle, European Commission; Arne Kaijser, Royal Institute of Technology, SE

15.30 - 17.30
Networks meet Networks
This session had the goal to identify synergy and connections between the 'Inventing Europe'/'Tensions of Europe' intellectual agenda and six other projects and/or networks that

cover related fields and who were represented by key researchers.
In parallel sessions, the representatives had the opportunity to present in 5-7 minutes their main objectives and ideas to three different groups of conference participants who were invited to respond and discuss how their work connects for ca. 20-minutes. After three rounds of discussions, each network presented ideas for further collaboration in a plenary discussion.
Globalizing Europe Economic History Network (Herman de Jong)
Museum of Europe (Pieter van Damme)
Socio-Economic Governance and European Identities (Eric Bussière)
Creating Links and Innovative Overviews for a New History Research Agenda for the Citizens of a Growing Europe Network of Excellence (Ann Katherine Isaacs)
The International Organization for Industrial Archaeology and Industrial Heritage (Marie Nisser)
Military Industrial Governance in Europe (Pascal Deloge and David Burigana)
London School for Economics Global Economic History Network (Patrick O'Brien)

20.00 - 20.15
Launch of the ESF EUROCORES Programme 'Inventing Europe'
by John Marks, Chief Executive, European Science Foundation, Strasbourg

20.15 - 22.00
Public Debate on "The micro-foundations of European integration"
Organiser: Johan Schot, Eindhoven University of Technology, NL

The role of technology in the Making of Contemporary Europe

On the occasion of the launch of the ESF EURO-CORES Programme 'Inventing Europe' a public debate was held in order to discuss the development of a new kind of view on European integration. Until now the integration process has been mainly perceived from the perspective of the formation of EU institutions, the development of treaties, and policy coordination. The idea was to discuss that it is critical — for citizens, companies, policy-makers and scholars alike — to explore, exploit, and communicate the role of technology in the making of contemporary Europe.

The claim is that through the development and use of technology, people,– individually as citizens, migrants, workers, tourists, entrepreneurs etc., and collectively as business, NGOs, universities, and governments – have related themselves, their interests and their visions to Europe. This process has built the micro-foundations for European integration. Discussing the micro-foundations of European integration and the role of technology is very timely given: 1) the widely accepted call by the European Council in Lisbon in March 2000 to make Europe the most competitive and dynamic knowledge based economy by 2010; 2) the need to develop a new legitimating basis for European integration.

The public debate brought both needs together, and discussed whether, and how investments in technology can also create a basis for European integration. The discussants were Mrs. Godelieve van Heteren, former Dutch MP for the Labour Party and a former chair of the Committee for European Affairs at the Dutch Parliament, Mr. Jacques Joosten, director of the Dutch Polymer Institute, DPI, Associate Professor Eda Kranakis from the University of Ottawa (Canada) as well as Dr. John Marks, the CEO of the European Science Foundation ESF. The debate was moderated by Professor Karl-Erik Michelsen from the Lappeenranta University in Finland.

In front of an audience of some 200 in Rotterdam's De Burger Zaal, the debate kicked off with Mrs. Godelieve van Heteren arguing that currently the political language used is too narrow and the interaction is missing in the political discussion: "Little use has been made of micro-foundations. The scientific community should lobby for pre-conditions for a societal change through education", she proposed.

Invitees explored how firms and consumers have constructed a common European market: how was Europe articulated through efforts to build large scale European research projects and knowledge networks? Professor Kranakis emphasized that economic and political integration cannot be separated from "social Europe" where many contemporary phenomena are common across the continent (e.g. divorce).

The question of how Europe has been created through colonial, development, trans-Atlantic, and other global technology exchanges was raised as one of the main discussion points in the debate. Mr. Jacques Joosten drew attention to the fact that Europe is still dragging behind the USA and Japan in research and development spending. He urged a change of attitude in order to prevent the brain drain in European science.

Dr. John Marks agreed that there is a lot to do to develop the infrastructures in Europe to compete with other powerful regions. He emphasized the importance of human infrastructure for the evolution ahead. According to Dr. Marks this is the key issue in order to reach the goals of the Lisbon strategy: "700 000 additional researchers are needed in European research. The question is how to interest school kids in research careers, how to train them and also keep them in Europe?"

Barriers between the private and public sectors and between different European countries are another challenge. Mr. Joosten and Dr. Marks concurred that researchers and research funders still have to make efforts in this field. "Europe should concentrate on research based on excellence. Now it is time for national research councils to show that they support common international goals", Marks said.

Referring to the conference, Marks pointed to European Collaborative Research (EUROCORES) programmes, such as 'Inventing Europe' as examples of how cutting-edge research can be cast in a funding framework that allows transnational teams to work together: "These kinds of programmes are there for a purpose: results are shared, research is conducted jointly and develops into a new type of research", Marks concluded.

Reija Tuomaala

09.00 - 18.00

ToE Research Sessions and Round Table

Aeronautical Exchanges: Transatlantic Competition and the Making of Europe
Organisers: David Burigana, Padua University, IT; Pascal Deloge, Louvain University, Marie Haps Institute, Belgium
Chair: Waqar Zaïdi, Imperial College London, UK
Commentator: Eric Bussière, Paris IV University, FR
Papers:
The European Search for Aeronautical Technologies: With or Without the Americans? Steps and Ways in the 60's and the 70's
- David Burigana, Padua University, IT
The FN Search for Technological Transfers (1948-1987): A Search for Survival and a Contribution to a European Aeronautical Identity?
- Pascal Deloge, Louvain University, Marie Haps Institute, BE
The Rationalization of the European Aeronautics Companies in the 1990's: The EADS Example
- Yohan Droit, University Paris IV, Sorbonne, FR

Making the Link(s) between Infrastructures and Europe: Exploring Transnational Technologies
Organiser: Alec Badenoch, Eindhoven University of Technology, NL
Chair: Robert Bud, The Science Museum, London, UK
Commentator: Jaakko Suominen, University of Turku, FI
Papers:
Introduction: Untangling Infrastructures and Europe: Scales, Mediation, Events
- Alec Badenoch, Eindhoven University of Technology, NL
Eventing Europe: Broadcasting and the Mediated Performances of Europe
- Andreas Fickers, Utrecht University, NL
- Suzanne Lommers, Eindhoven University of Technology, NL

National Identities and National Policies in European Information Technology: The Image of IBM
Organiser: Gerard Alberts, University of Amsterdam, NL
Chair: Paul Edwards, University of Michigan, US
Commentator: James Sumner, University of Manchester, UK

Papers:
Against a Giant? German Information Technology Policy and IBM, 1965-1980
- Timo Leimbach, Ludwig-Maximilians Universität München, DE
Co-constructing Technological Capacity and National Identity: Building the Would-be First Computer in Postwar Finland
- Petri Paju, Department of Cultural History, University of Turku, FI
Policy of a Small Country: The Case of Czechoslovakia
- Helena Durnová, Masaryk University, Brno, CZ

Colonialism and the Creation of Europe
Organisers: Ana Cardosa de Matos, Universidade de Evora, PT
Maria Paula Diogo, Faculty of Science and Technology, New University of Lisbon, PT
Tiago Saraiva, Insitute of Social Sciences, New University of Lisbon, PT
Chair: Donna Mehos, Eindhoven University of Technology, NL
Panel: Charles Bright, University of Michigan, US; Maria Paula Diogo, Faculty of Science and Technology, New University of Lisbon, PT; Pascal Griset, Université Paris -Sorbonne, FR; Tiago Saraiva, Insitute of Social Sciences, New University of Lisbon, PT

Europe's Engineers? System Building Actors in the 20th Century
Organiser: Alec Badenoch, Eindhoven University of Technology, NL
Chair: Arne Kaijser, Royal Institute of Technology, SE
Commentator: Cornelis Disco, University of Twente, NL
Papers:
Universalism or Regionalism? The Work of the Advisory and Technical Committee for Communications and Transit of the League of Nations
- Irene Anastasiadou, Vincent Lagendijk, Frank Schipper, Eindhoven University of Technology, NL
Postmodern Power: The Cultural Shift in Electricity System Building at the Turn of the Millennium
- Per Högselius, Lund University, SE
Co-ordinating Visions: Trans-European Networks and Narratives of European Integration
- Alec Badenoch, Rafaella Broft, Marloes van der Heijden, Ingrid van der Heijden, Johan Schot, Eindhoven University of Technology, NL

Media and the Making of Europe

Organiser: Programme Committee
Chair: Luda Klusakova, Charles University, Prague, CZ
Commentator: Onno de Wit, Presiding Editor Tijdschrijft voor Mediageschiedenis, NL
Papers:
News Heading North: The Telegraph and the Temporal Representation of «Europe» in the Newspapers of Northern Scandinavia, 1850-1870
- Jonas Harvard, Department of Humanities, Mid Sweden University, SE
Inventing Northrhine-Westphalia on VHF: Transnational Technological Developments and the Regionalization of the European Broadcasting Space
- Christian Henrich-Franke, University of Siegen, DE
Communicating Europe: Communication Technologies in the Greek Daily Press, 1900-1910
- Eirini Mergoupi-Savaidou, Spyros Tzokas, National and Kapodistrian University of Athens, National Technical University of Athens, GR
- Faidra Papanelopoulou, Greek Open University, GR

National Styles of Computing Development

Organiser: Programme Committee
Chair: Aristotle Tympas, National and Kapodistrian University of Athens, GR
Commentator: Tom Misa, University of Minnesota, US
Papers:
Contrasting Views on Software Development within Philips, 1950-1970
- Adrienne van den Bogaard, Delft University of Technology, NL
Has Software Development Softened Rigid European Borders? What about Electronics?
- Dimitris Ziakkas, Theodore Lekkas, National and Kapodistrian University of Athens, GR
Transnational History of Computing: Appropriating European Markets
- Corinna Schlombs, University of Pennsylvania, US

European Logistics, Market Scale and Giant Plants and Firms around 1900

Organiser: Leslie Hannah, Department of Economics, University of Tokyo, JP
Panel: Leslie Hannah, Department of Economics, University of Tokyo, JP; Phil Scranton, Rutgers University, Camden, US; Ray Stokes, Centre for Business History, Scotland Department of Economic and Social History, UK

Negotiating Technical Standards in 20th-Century Europe

Organiser: Lars Heide, Centre for Business History, DK
Chair: Judith Schueler, Stichting Toekomstbeeld der Techniek, Den Haag, NL
Commentator: Hans Weinberger, Norwegian Museum of Science & Technology, Oslo, NO
Papers:
Negotiating Radio Waves in the 1920s: A Common Good?
- Nina Wormbs, Division for History of Science and Technology, Royal Institute of Technology, SE
Negotiating the TETRA Standard: Complex Interactions Between Dutch and European Politics
- Anique Hommels, Department of Technology and Society Studies, University of Maastricht, NL
Shaping and Applying Welding Standards: The Danish Welding Institute and Force Technology, 1940-2007
- Lars Heide, Centre for Business History, DK

State Power in Interwar Europe: Regulating Post and Telecommunications

Organiser: Jan Oliva, University of Bordeaux, France, University of Prague, CZ
Chair: Muriel Le Roux, National Centre for Scientific Research, CNRS, FR
Commentator: Pascal Griset, Université Paris-Sorbonne, FR
Papers:
The European Airmail Network in the Interwar Period: A Global Approach
- Andrea Giuntini, Department of Economics, University of Modena & Reggio Emilia, IT
Mapping the Ideal European Network: A French Perspective on the Contested Europeanization of Airmail at the Beginning of the 1930s
- Léonard Laborie, University Paris IV - Sorbonne, FR
State Interventionism in Czechoslovakia in the Field of Post and Telecommunications, 1918-1938
- Jan Oliva, University of Bordeaux, FR / University of Prague, CZ
- Ivan Jakubec, Charles University of Prague, CZ

Appropriating Technology in Europe

Organiser: Programme Committee
Chair: Mikael Hård, University of Technology,

Darmstadt, DE
Commentator: Karin Zachmann, University of Technology, Munich, DE
Papers:
The Road to Socialism Paved with Good Intentions: Automobile Culture in the Soviet Union, the GDR and Romania in Times of Cold War
- Luminita Gatejel, Berlin School for Comparative History of Europe, Freie Universität Berlin, DE
Diafilm-Studio in the USSR in 1930-1980: Hand-made Artifact Adapted to the Requirements of All-Soviet-Union Market
- Anna Kotomina, Institute of General History, Russian Academy of Science, Moscow, RU
Modifying the Harvester for a German Landscape: Accounting for the Environment in Transatlantic Implement Industry
- Gregory Shealy Jr., University of Wisconsin at Madison, US

Technology Dialogues: East and West
Organiser/Chair: Pál Germuska, Institute for the History of the 1956 Revolution, HU
Commentator: Helmut Trischler, Deutsches Museum, Germany
Papers:
Al-Gaddafi's Ears: The Development of the Radio Reconnaissance Instrument Production in Hungary, 1965-1985
- Pál Germuska, Institute for the History of the 1956 Revolution, HU
Coordination of the Military Research and Development Inside the Soviet Bloc in the 1950s
- Irina Bystrova, The Institute of Russian History, Russian Academy of Sciences, RU
Czechoslovak Theater Technology under Communism: Ambassador to the West
- Karen Freeze, Jackson School of International Studies/REECAS, University of Washington, US

Dream Factories: Communicating Industry and Modernism in the Baltic Sea Countries, 1945-1990s
Organiser: Birgitte Beck-Pristed, The Worker's Museum in Copenhagen, DK
Marija Dremaite, Department of Theory of History and Cultural History, Vilnius University, LT
Chair: Marija Dremaite, Department of Theory of History and Cultural History, Vilnius University, LT
Panel: Birgitte Beck-Pristed, The Worker's

Museum in Copenhagen, DK; Andis Cinis, Latvian Academy of Arts, Riga, LV; Maths Isacson, Royal Institute of Technology, Stockholm, SE; Anne Marit Karlsen, Norwegian Museum of Science and Technology, NO; Anja Kervanto Nevanlinna, Dept. of Art History, University of Helsinki, FI

Transnational Perspectives on European History
Organiser/Chair: Johan Schot, Eindhoven University of Technology, NL
Commentator: Erik van der Vleuten, Eindhoven University of Technology, NL
Papers:
Constructing Dutch Streets: A Melting Pot of European Technologies
- Hans Buiter, Eindhoven University of Technology, NL
The Communication of Architecture as a Transnational Experience: The CIAM and Modern Architecture in Poland
- Martin Kohlrausch, Deutsches Historisches Institut, Warsaw, PL
European Ways of Knowledge: Shaping European Demography in Institutional Discourses, 1900-1930
- Heinrich Hartmann, Centre for French Studies, Free University Berlin, DE
- Anne Seitz, Centre Marc Bloch, Centre for Research in Social Sciences, Berlin, DE

Inventing and Governing Transnational Commons in Europe
Organiser: Cornelis Disco, University of Twente, NL
Panel: Håkon Andersen, University of Science and Technology, NO; Cornelis Disco, University of Twente, NL; Bruce Hevly, University of Washington, US; Arne Kaijser, Royal Institute of Technology, SE; Eda Kranakis, University of Ottowa, CA; Karl-Erik Michelsen, South Karelian Institute, FI; Peter Wilding, University of Klagenfurt / IFZ Graz, AT

**19.00 - 22.00
European Taste Festival**

<div style="background:black;color:white">**Sunday 10 June**</div>

**11.00 - 13.00
'Inventing Europe' 1st Scientific Committee meeting**

Tiago Saraiva (University of Lisbon), Notes on Eurofood: Tensions of Taste?
(from: Tensions of Europe Newsletter No. 4, July 2007)

The Third Tensions of Europe Conference primary aim was the launching of the European Taste Festival, the materialisation of the common dreams and obsessions of an expansive network of committed historians of technology. In spite of the overwhelming number of recipes received by the organizers, the demanding evaluation process only allowed for a happy few to present their proposals at a glamorous dinner at the De Doelen in Rotterdam on 9th June 2007. Judith Schueler and Andreas Fickers were the graceful presenters of a celebration that followed the script of the Eurovision Song Contest and that also shared its high ambitions of forging European cultural identity, not through listening to ABBA or Céline Dion, but by eating instead the sophisticated creations of the Golden Pan Winner, the newly created award.

The memories of family soirées watching Eurovision immediately came to my mind, specially stimulated by Andrea's hair style incredibly similar to that of the Portuguese Television presenter of the 70s. Those soirées were for me quick lessons on European history as my father and uncles deciphered each vote as a logical consequence from old national political and economic rivalries. But my mother preferred to ignore the men's talk and only pointed the musical virtues or defects of the songs presented in the contest. Here predications were consistently more accurate. The discussion about jury decisions being dictated either by transnational musical values or by international politics was a common subject arising after every Eurovision Song Contest. The successful first celebration of the European taste Festival promises no less passionate debates for the future, with the members of the jury formed by all the participants to the conference emotionally discussing the merits and flaws of the different dishes while being the object of multiple bribes (mostly under the form of some national beverage) by the nominees.

Although everybody recognized the great job done by the team of Dutch chefs converting a cacophony of recipes into a harmonic menu, granting them a collective unanimous applause, the same cooks were repeatedly accused of not treating with due respect the unique behaviour of Spanish rice, or of ignoring the immense complexity attached to a Hungarian paprika. The esteem for the international cuisine practised by the chefs was thus easily turned into exquisite considerations about

the role of food as a privileged vehicle of globalization, not only by imposing cross-cultural taste standardization, but also by fixing local identities – with rigid definitions of what is Mediterranean, or Scandinavian cuisine – with multiculturalism winning over cosmopolitanism. Behind the criticisms it was hard to ignore some concealed resentment, namely from representatives of countries that in spite of their rich culinary traditions didn't make to the finals, such as Italy or Portugal, to say nothing about France, whose wines were equally absent.

But one big advantage about food is the easy and relaxed tone assumed when discussing around a dinner table such difficult issues as national identity, the global circulation of commodities, or healthy diets. The good mood of the celebration was also greatly enhanced by the smart humour of the presenters and the inspired presentation of each recipe by the respective creator(s). And the truth is, most dishes in the great final participated in the valuable endeavour of converting Europe into a virtuous community of flavours, where the diversity of the local tastes was happily blended in a three-course menu. In this spirit, the *European Roots Salad*, designed by Vincent Lagendijk, Irene Anastasiadou, Suzanne Lommers and Frank Schipper, would be a great starter for every European wiling to put the beets, carrots and radish growing in its soil in service of a healthy body. The *Apples in a Dressing Gown* by Luda Klusakova worked as a perfect homage to the most customary presence in the orchards of all European countries, proving in a simple and delicate dessert the shared taste experiences of Europeans. Dobrinka Parusheva and Aristotle Tympas and their *Sarma* possibly made the strongest case about the continuity of gastronomic traditions in South Eastern Europe, with cooking habits crossing the complicated geopolitical map of the Balkans. Nevertheless, as an outsider to the area, together with the apples, this was a dish that raised my doubts about the ability of international Dutch chefs interpreting local cuisines.

The *Stew on Reindeer Flakes* by Nina Wormbs seemed to be a direct answer to the Balkan continuity challenge and proved the advantages of multiple European cuisines, presenting us a fusion recipe mixing, in a nice and unpretentious way, ingredients from both the North and South into

an harmonious European whole. Ulla Liukonnen and Tanja Karppinen dessert, with their *Yogurt Pannacotta and Marinated Berries*, followed the same pattern by heavily relying on the high quality of the ingredients offered by the diversity of European landscapes: if their berries came from Finnish forests, the lemon balm that topped the dessert originated form Mediterranean gardens, and the yogurt from the pastures of Poland. Instead one sole product common to entire Europe, as the dressed apples, or one common cooking tradition, as in the *Sarma*, Wormbs, Liukonnen and Karpinnen stress the advantages of living on a continent of multiple age-old traditions of relating to the environment.

Now, a composition of the previous dishes would offer us a rosy menu of Europe, made of continuities and harmonious integration of diversity. From such gastronomy one would never guess that this was a continent strongly divided by national borders, responsible for the depletion of world resources, and the place where two world wars originated. But, for example, Pal Germuska's *Chicken Paprika* reminds us that not everything is bad in paying homage to national traditions. His dish, one of the most exquisite dishes of the entire meal, was after all one of the essential ingredients of Hungarian nationalism in the inter-war period. And fortunately we also have some unpleasant cooks (all of them male!) always willing to remind us of our common dark legend. Harro Maat went directly to one of the bleakest pages of our history with its *Black Rice with Garlic Sauce*. If rice in all its usual whiteness recalls the purity of the things, the black rice tells us a nightmare story of colonial plantations and slave trade. Arne Kaijser in his *Fortress Europe* reworked the classic rosy Swedish cake, known as the Princess Cake, transforming a fairy tale dessert into a violent scenario where princes and knights have made space for immigrants crossing the Mediterranean in fragile and deadly pateras. But the best representative of this new rising school of black culinary traditions is perhaps Tom Misa and his *Drum Roll of Colonial Fish*. Coming from the other side of the Atlantic, he offered his European friends a provocative dish with technology, fascism and colonialism as its main ingredients. And guess what? Tom Misa was awarded the Golden Pan.

2) Summer School "Cold War Technology in Europe" (Chios (GR) / Izmir (TK) 27 August – 1 September 2007)

In collaboration with the "Tensions of Europe" network a Summer School was organised on Cold War Technology in Europe for "Inventing Europe" young scholars and others (http://www.hpst.phs.uoa.gr/SummerSchool/SS2007.html). The Summer School also attracted doctoral students and junior scholars from the "Tensions of Europe" network and many others interested in the topic – in total 20 of the finest of the next generation who are working on related themes. It was hosted by the History of Science and Technology Division, Philosophy and History of Science Department, University of Athens, Greece (www.phs.uoa.gr/ht/) and took place between Monday, 27 August 27, and Saturday, 1 September, 2007 on the Greek island of Chios (Monday, Tuesday, Friday, Saturday) and in Izmir, Turkey (Wednesday, Thursday). The programme consisted of lectures, discussion of pre-assigned material, sessions of student project presentations, roundtable discussions, and special sessions on how to publish, write a proposal, and search for a job. It also included visits to sites of interest to the history of technology (both in Greece and in Turkey), planned so as to introduce continuities and discontinuities in the history of technology in the region.

Historians of Cold War Europe are no longer content to offer tales of diplomatic intrigues and calculations of missile throw-weights that feature Europe as the playing field for struggles between the superpowers. The increasingly sophisticated legal, political, economic, and institutional perspectives being brought to bear upon analyses of postwar Europe increasingly emphasizes the complex internal divisions and multilateral interactions on the nominally polarized Continent. The aim of the Summer School was to incorporate the latest research developments on European science and technology into a new historiography of Cold War Europe. The Summer School introduced a broader set of innovative research strategies for identifying and explaining the processes that shaped, sustained, and sometimes undermined various transnational European identities in ways that have seldom been visible in traditional bilateral political narratives. The motivating themes were drawn primarily from the history of technology and high-tech science – not the history of artefacts as material "prime movers" in malleable social spaces, but the history of complex systems of knowledge that have both integrated and fragmented European politics, society, and culture in the twentieth century. The Summer School thus served as an introduction to an emerging set of scholarly agendas for changing the way we write histories of Europe.

The Cold War created favorable conditions for large-scale technological projects that often had unexpected transnational effects, certainly within "Western Europe" and "Eastern Europe" respectively, but on occasion across that geopolitical divide as well. This held true for civilian entities like CERN, EURATOM, or JINR, and especially for ambitious new military enterprises of unprecedented scale and complexity. In the process of constituting multi-site technologies, these enterprises could change the dynamics of the arduous political negotiations among their national participants. They served as an important nexus for regional networks without ever severing their reliance on national economies, and demand more than the techniques of comparative history for proper explanation. The curriculum addressed certain Europe-building practices in which specific concepts and visions of Europe became embedded in particular designs for artefacts and systems. The working assumption is that to unpack these technoscientific systems is to uncover important ways in which Europe has been made and unmade over time. The subject matter ranges from large-scale collaborations for fundamental research within highly technological frameworks (particle physics, molecular biology), to vast military production enterprises, and on to the realm of consumer culture. While recognizing that we should always be mindful of the ways in which nation-states have laid claim to diverging narratives of Europe, we think it profitable to take a closer look at transnational processes from these diverse vantage points and ask, What roles have scientific and technological systems and practices played in how Europe has been experienced, projected, performed, exported, imported, and reproduced?

This approach aims at replacing the essentialist question "What is Europe?" with the notion of Europe as an evolving category of practice. But by the same token, it acknowledges the realities of "East" and "West" while inviting participants to examine hitherto unacknowledged continuities and mutual appropriations throughout the Cold War era.

Teachers at the summerschool were Sedef Akgungor (TK), Yaprak Gulcan (TK), Ruth Oldenziel (NL), Phil Scranton (US), George Stathakis (GR), Helmuth Trischler (DE), Aristotelis Tympas (GR).

Tensions of Europe Network

Ever since 1999, the 'Tensions of Europe' (ToE) Network [www.histech.nl/tensions], which has developed out of an ESF Scientific Network by the same name, has explored and defined ways to study transnational European history with a focus on the role of technology as a force of change. 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 facilitates research into how the construction and use of new technologies have been crucial research sites for articulating a range of Europe's, and also more specific various European integration projects in material, institutional, and discursive ways.

ToE has brought together a group of ca. 200 scholars with shared interests from many disciplines and 17 countries. They formulated an Intellectual Agenda which inspired the EUROCORES Programme 'Inventing Europe. Technology and the Making of Europe from 1850 to the Present', which is supported by more than a dozen European national funding agencies. ToE continues to coordinate historians interested in the role of technology in modern European history across Europe also beyond the new EUROCORES programme through a workshop, conference and publication plan. The coordination includes a willingness to integrate parts of research capacities, orient new research, and coordinate fundraising efforts on topics defined in the intellectual agenda. Annual summer schools are organized for the training of PhD students and junior scholars in the humanities and social sciences. For many of its activities ToE collaborates with 'Inventing Europe'.

'Tensions of Europe' activities are governed by an Advisory Board and a Management Committee. The present members of the Management Committee are: Maria Paula Diogo, Universidade Nova de Lisboa (PT); Mikael Hård, Darmstadt University of Technology (DE); Per Högselius, Royal Institute of Technology (SE); Dagmara Jajesniak-Quast, Centre for Research in Contemporary History, Potsdam (DE); Tom Misa, University of Minnesota (US); Ruth Oldenziel and Johan Schot, Eindhoven University of Technology (NL) [vice-Chair and Chair respectively]; Aristotle Tympas, National and Kapodistrian University of Athens (GR).

The Dutch Foundation for the History of Technology (SHT, est. 1988) provides the secretariat for ToE (secretariat and coordination: Jan Korsten) and is supported by the Eindhoven University of Technology (NL). SHT's mission is to develop and communicate knowledge that increases our understanding of the critical role of technology in the history of the western world. In 2006 SHT developed a PhD programme for PhD students from Central and Eastern Europe tied to the ToE Intellectual Agenda.

3) Workshop "Virtual Europe – a virtual exhibit of 'Inventing Europe' Oslo, 16-17 September 2007

In order to expand the collaboration with science and technology museums aimed at developing a virtual exhibit as one of the outcomes of 'Inventing Europe' a working meeting was convened by Steering Committee member Hans Weinberger (Director of the Norwegian Technical Museum). The meeting was attended by the group of liaison researchers from all four Collaborative Research Projects and of a selected group of representatives from major museums of science and technology.

It was agreed that for the virtual exhibit the 4 CRPs will collaborate and produce a joint output that will contribute to the overall intellectual agenda set for 'Inventing Europe'. Technical and science museums across Europe will collaborate with the four research teams to produce a single demonstrator case study accessible through museum websites and possibly on site in museums.

Collaborating with museums on such a product can provide "Inventing Europe" project results with broader and new audiences which complement the audience envisaged for the book series. Images and reflections on material culture can bring to life the text-based research conducted.

Integrating the new knowledge generated in the projects will also benefit participating museums. It will provide experience and build expertise in collaboration on an electronic product which would be useful in preparing the way for future collaboration. The project plan developed is expected to demonstrate how museum collections can bring to life academic research. Throughout the process both parties (museums and university-based academic researchers) will advance their skills and expertise in crafting narratives for these diverse audiences.

4) "A Place in Europe: Historical GIS and new perspectives on European and world history" Barcelona, 30 November – 2 December 2007

This workshop will explore the opportunities for the use of Geographical Information Systems (GIS) as a basis for collaborative research. GIS is a tool that facilitates the geographical representation of historical information: for example, transport infrastructures and the growth of cities can be mapped in space and time using GIS.

Once all sets of information are "georeferenced" within the GIS, historical analysis can identify underlying relevant patterns, e.g. the uneven socio-economic development in Europe. Much technological investment is fixed in space, which makes a GIS approach particularly suited for many aspects of a history of technology. Similarly, the diffusion of innovations can be represented in maps.

This workshop will aim at providing a common understanding on how GIS can be used to integrate the kinds of data 'Inventing Europe' will produce, and secondly how it can be integrated and analysed to produce scientific results. 'Inventing Europe' researchers will also be introduced to other successful examples of time-enabled GIS from Europe and beyond.

During the sessions, representatives of various large scale research networks and research infrastructure initiatives will be presenting their projects and their visions for a European Historical GIS Initiative. Also other international frameworks will be presented, such as UCGIS, ECAI, ESFRI, NSF/NEH roadmap. Experts and practitioners are invited to reflect, during a specialist session, on opportunities to use the European Research Infrastructure initiatives as a backbone for the building of a European historical GIS: break-out groups may aim at drafting short statements on different aspects of requirements for a European Historical GIS Initiative that can be agreed as a common text to be circulated, via ESF, to public and private funders and other stakeholders.

5) Workshop "Virtual Europe – a virtual exhibit of Inventing Europe (Pt.2)" (February 2008)

6) Workshop "New Directions for a transnational history of European integration" Florence- European University Institute (Spring 2008)

This workshop will explore various ways in which a new history of Europe could be written and produced. The content of the planned book series will be outlined, and follow-up activities will be planned. The discussion will be structured around the input to be generated by the 4 funded Inventing Europe projects as well as possible input from other projects and networks. In addition, historiographical and conceptual position papers will be presented on the state-of-the art of European integration history and promising new avenues for research. The workshop aims to generate a common framework and understanding of the main issues, and topics to be addressed in the book series.

'Inventing Europe' – Governing Bodies

'Inventing Europe' Scientific Committee

Dr. Gerard Alberts
University of Amsterdam, The Netherlands

Dr. Helena Durnova
Brno University of Technology, Czech Republic

Dr. Ian Gregory
Lancaster University, UK

Professor Jordi Martí-Henneberg
Universidad de Lleida, Spain

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Professor Ruth Oldenziel
Eindhoven University of Technology, The Netherlands

Professor Johan Schot (Chair)
Eindhoven University of Technology, The Netherlands

Professor Hans Weinberger
The Norwegian Museum of Science and Technology, Oslo, Norway

'Inventing Europe' Review Panel

Dr. Per Boje (Chair)
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Professor Albert Carreras
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Professor C.A. Davids
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Professor Guðmundur Hálfdánarson
Department of History, University of Iceland, Reykjavik, Iceland

Professor Robert Halleux (2006 only)
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Dr. Luda Klusáková
Institute of World History, Charles University, Prague, Czech Republic

Professor Patrick O'Brien (2006 only)
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Dr. Suzanne Pasleau (from November 2006)
Département des Sciences Historiques, Université de Liège, Belgium

Professor Secondo Rolfo
Ceris-CNR, Moncalieri, Italy

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Professor Sverker Sörlin
Division of History of Science and Technology, Royal Institute of Technology (KTH), Stockholm, Sweden

Professor Hans Weinberger (2006 only)
The Norwegian Museum of Science and Technology, Oslo, Norway

'Inventing Europe' Management Committee

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