



**Transnational Infrastructures and the Rise of
Contemporary Europe**

Johan Schot

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Relevance

The construction of the European Union represents the most profound development in European politics and society in the twentieth century. The dominant image of this topic is one of inspired leaders and competitive nation states engaged in the critical adventure of designing a new Europe, a process that started in the late 1920s, but got momentum after the Second World War. This literature assumes that "Europe" (as a political and cultural entity) was created through the building of economic and political institutions. This view has been criticized by those who observe there is little historical evidence that nation-states and national identities in Europe can be incorporated or subsumed within any larger structure. They maintain that key elements for forming a European state and identity, such as political legitimacy, a shared language, symbols, and a sense of history and memory are missing (see Milward 1992, Smith 1992, and Shore 2000).

Both of these perspectives on the 'project of Europe' are too narrow and incomplete since they do not incorporate how transnational infrastructures -- the material links between nation states that took form through railroad, highway, energy, and telecommunication networks -- have shaped the boundaries and internal structure of Europe. The building and use of transnational infrastructures created material and institutional links between European nation-states, and the resulting circulation of goods, information, services, and people brought about many sort of ties among European nation-states. All this took place long before there was an explicit project of creating Europe. This research proposal will focus on construction and use of these transnational infrastructures, and in doing so adopts a new starting point for viewing the historical development and present dynamics of Europe. This will make visible to what extent a "hidden integration" is taking place (Leonard 1998).

Key objective and overall research question

This proposal suggests that important fragments of an emerging European society and identity are embedded in transnational material infrastructures -- the wires, pipes, cables, highways, railroads, and information networks that span political borders and connect national infrastructures.

The overall research question is:

How did the construction and use of multiple new transnational infrastructures -- for example, railroads, highways, electricity lines, pipelines, telegraphs, telephone and radio networks -- shape the emergence of Europe in the 20th century?

This is a very broad question that needs further specification. Before proceeding, I need to introduce four analytical tools and concepts that will be used as heuristics.

Approach and subquestions

The approach is characterized by four strategies: 1) it has a research focus on transnational infrastructures; 2) it explicitly considers long-term developments; 3) it views Europe as a "imagined community"; and 4) it includes users of transnational infrastructures as active participants in the creation of Europe in the 20th century.

Transnational infrastructures

Infrastructures can be defined as geographically spread-out and materially coupled systems: that is, linked networks of artifacts, knowledge, people, organizations, and institutions. For example the railroad infrastructure consists of tracks, trains, railway companies, governmental agencies, railway engineers, etc. Such infrastructures resemble what Thomas Hughes (1983) has called large technical systems, but without the limiting assumption of some kind of central control and articulated system goals. Systems in the Hughesian sense are a special case of infrastructures. Transnational infrastructures are defined as those infrastructures that connect (emerging) nation-states. This research proposal will examine infrastructures that were actually built such as highways, railroad systems, and telecommunication networks. It will examine critical links that were often extensively discussed before building such as the Channel Tunnel. It will also examine influential projects that were never built such as the Atlantropa project to dam the Strait of Gibraltar.

A long term process

From the mid-nineteenth century onwards, a host of new transnational infrastructures were built that would heavily influence the flow of people, information, energy, goods and services between nation-states. These infrastructures and their resulting flows shaped the boundaries and internal structure of Europe, long before Europe was an explicit political project. To study this process, the research will have to start deep in the second half of the nineteenth century. In this early period, infrastructure building focused mostly on national interests (and nation states). Yet there were several notable attempts to built transnational infrastructures especially in railroads and telegraphs.

Issues of how to connect to other states were always asked -- and were in some cases answered with iron tracks, wires and cables. For example, in the late 19th and early 20th century Switzerland connected its electricity network to regions in Germany, France and Italy. Several international conferences were held to discuss a large variety of initiatives and plans. Often smaller countries such as Belgium, The Netherlands, and Switzerland took the lead. In 1885, the Belgian government founded the influential Association International des Congrès de Chemins de Fer (AICCF). The Dutch touring club ANWB initiated an international association of touring clubs (Ligue International des Associations Touristes; LIAT), which from 1908 onwards sponsored a series of international road conferences.

From the 1920s onward, authoritarian states developed a number of initiatives. The Comintern built what Lenin called "a newspaper without paper or borders," involving the world's most powerful transmitter (1922) broadcasting in many European languages. In the Second World War the Nazis built a trans-European network (Rundfunkbetreuungsstelle) to broadcast Hitler's speeches.

After each of the two World Wars the structure of the nation-state was questioned and contested, but became dominant again. However, especially after the Second World War, a host of new initiatives for building truly transnational infrastructures were developed by newly emerging European institutions. This was done in Western and Eastern Europe in quite different circumstances, especially during the Cold War. The Dutch initiated a European railway policy that led to the launch of a Trans-Europe- Express already in 1957. The Economic Commission for Europe, with financial help from the Marshall Plan, developed plans for a European highway network. Meanwhile, a number of transnational energy (gas and electricity) networks were established in Eastern and Western Europe, severing the established infrastructure links and reifying the political divide.

In the last decades of the twentieth century, several new developments emerged which have already profoundly affected the relationships between infrastructure building and the shape of Europe. The most important was the end of the Cold War, signified by the fall of the Berlin Wall in 1989. The resulting unification or re-unification of infrastructures between West and East

Europe has inevitably led to challenging practical questions about the scope and definition of Europe.

Taking a long-term perspective on these developments will make it possible to compare different infrastructures and to analyze the vicissitudes of their construction and use. A long-term perspective is also particularly relevant because some of these projects have been debated over many decades (for example the Channel Tunnel and Øresund bridge). Two different periods can be identified and compared: an early period in which nation-states were emerging and created a certain bias and commitment in infrastructure development, and a later period in which an explicit European project created new directions for infrastructure development. However, the new “European” projects were rarely developed from scratch. They were grounded in the existing infrastructures of the earlier phase, and their scope and definition as well as their success or failure were crucially dependent on these earlier infrastructures.

Imagined communities

The concept “imagined community” is grounded in the now seminal work of Anderson (1983) on nationalism and the rise of nation-states. He coined this concept in order to consider nations separate from nation-states. Nations are communities that emerge from a set of nation-building practices such as mass education, conscript armies, taxation, the standardization of vernacular language, the mobilization of myths and symbols, and the invention of tradition (see also Hobsbawm and Ranger 1983). These new practices laid the foundations for the emergence of the nation-state.

Although it is neither a nation nor a nation-state, Europe can still be seen as an imagined community and the construction of transnational infrastructures as a Europe building practice. Many actors are involved in the construction process, ranging from engineers, government officials, companies, and user organizations; and they often imagine different communities and different infrastructures. Differences might refer to a preference for specific connections, excluding certain regions, users, or nation-states; also, there are often sharp differences over plans for a decentralized or centralized structures. Such differences often relate to particular visions of why specific networks are needed (for example tourism or transport of goods). The project will analyze these differences and subsequent discussions, negotiations, and controversies. It will make visible that transnational infrastructures and the Europe that they helped shape could have been constructed in many different ways. For example the Danes, Swedes and Germans were involved in negotiations on exporting Norwegian hydropower, but for nearly half a century Norway’s political and popular resistance to exporting electricity produced a situation of non-linking. Since 1965, connections with several other South-European infrastructures were added, but the Nordic co-operation NORDEL –the most integrated transnational electricity market in the world – is still poorly linked to the continent (Kaijser 1997). Since infrastructure building has often been a contested process, the project will provide a window to contrasting visions and the plurality of Europe. Europe was always a ‘tidal Europe’ whose frontiers ebb and flow, ranging from the Atlantic to the Urals and beyond. This is reflected in the impossibility of providing a precise (time-independent) definition of Europe (see Davis 1996).

Living communities

Visions of Europe as embodied in transnational infrastructures will have very real and powerful implications. However, their nature will depend on how the infrastructures were actually taken up by a range of users. The construction of Europe cannot be reduced to the politics of “imagined Europe” materialized in transnational infrastructures; the research needs to take into account how a range of users appropriated them. Here, appropriation refers to the process in which users signify, reproduce, communicate, explore, and integrate these infrastructures in their daily

life. In doing so, users create living communities of trading and traveling while building new identities, experiences and relationships across Europe.

Subquestions

These conceptual considerations make it possible to specify two sets of subquestions. These subquestions will be dealt with in the projects described below. All projects will include the entire long time span to facilitate analysis and well-grounded comparisons.

Four Ph.D projects, studying different infrastructures, will address the following questions:

What visions of imagined Europe accompanied the construction of transnational infrastructures? How can we describe their content? What was emphasized and what was marginalized? Which kind of needs, purposes, users and usages were projected? What kind of changes can be seen over time? Which aspects are embedded in the design and lay-out of the infrastructures? Who is proposing which imagined Europe? What voices are heard and what voices are silent or silenced? Whose imaginations prevail in the construction and use of infrastructure? How can we explain this outcome?

Two-post-doc projects will address a wider set of questions:

How was the totality of infrastructures and transnational connections in Europe transformed between 1860 and the present? How were transnational infrastructures culturally appropriated? Who used these transnational infrastructures, and for kind of purposes? What kinds of changes were enacted in everyday life, for example in terms of trading, consuming, and traveling patterns?

Subproject 1. Mapping Europe.

Post-doc project 5 years half time

Research questions and approach

This project will deal with two overlapping research questions:

How is the nature of transnational infrastructures spanning Europe transformed? How were the opportunities created by this transformation used and appropriated by various users?

This project will collect data on the the use of transnational links. The following infrastructures will be included: railroads, air corridors, roads and highways, rivers and canals, telegraph, telephone, radio and television, internet, electricity and gas. Data include quantitative data, for example on length, use, and density of network, and qualitative data on actors involved, their interests and visions, data on controversies and negotiation processes, and the process of planning and building.

Project 2 Building Europe on the Rails

Ph.D. project.

Research questions and cases

Main questions asked in this project: how was a set of railroad networks, tailored for national use and encompassing national engineering traditions, transformed into a European network? Which alternatives were considered? What visions of Europe, and of the users of the railroad infrastructures, were shaped during this process, and how were they embedded in a European network?

The research will focus upon two cases: 1) Discussions within the IUC, the AICCF, and related engineering journals on transnational connections involving railway gauges, electric tensions, and international ticketing, 1890 – 1960; 2) The construction of a European railway policy,

especially focussing on the development of the Trans-Europe-Express (since 1957, the Dutch National Railway Company was a major driving force here) and on the high-speed train network.

Project 3 Free Mobility and the European Dream

PhD project

Main research questions: How did a European road system develop from national systems, and how did the existence of powerful non-governmental players influence the development of this system? What was the influence of American road building experiences, and what kind of images of Europe and the users of the infrastructures were constructed and embedded in a European network?

The following cases are chosen: 1) The discussions within the context of the European road conferences on transnational connections; 2) the development of a separate European highway system, which already started before the Second World War.

Subproject 4: Europe in the Airwaves

Ph.D. student

In this project the construction of a variety of point-to-point radio communication and transnational radio mass communication infrastructures will be studied. How were these systems developed? What kind of images of Europe were constructed in the process of building and using these infrastructures, and how did these images influence infrastructure development? How did the competition between various systems, including the American ones, play out? In this project two cases will be studied: 1) The battle of frequencies, and the discussions and negotiations within ITU; 2) the construction of networks for war and propaganda.

Subproject 5: Electrifying Europe

Ph.D. project

Main research questions are: what were the visions and stakes in pre-war and wartime proposals for regional or trans-European electricity networks, and why did they fail or succeed? How did post-war regional initiatives for trans-border integration in the Western block succeed? What were their visions and stakes? Were there alternative visions that were discarded? What constituted the borders of the expansion and impeded a truly electrical unification of (Western) Europe? Was Western Europe connected to Eastern Europe across the Iron Curtain? How did initiatives for linking, non-linking, and de-linking play out?

In the project three case-studies will be studied: 1) The success and failure of a number of regional projects before and during the Second World War; 2) The development of a European network through UCPTTE including the construction of a central European network and the connections with other regional networks; 3) the construction of links between Western and Eastern Europe during and after the Cold War.

Subproject 6. Symbols of Europe.

Post-doc 3 years full time

This project will focus on the question: how was the European dimension of transnational infrastructures culturally appropriated and signified? How were regional, national and European identities related? What were the consequences for the construction and use of transnational infrastructures?

Many studies focus on national symbolism, but few focus on the European dimension. In this project European culture is defined as the signifying system through which a European identity is communicated, reproduced, experienced, explored, and developed. Aspects of this culture are often represented in symbols accompanying the planning, construction and use of transnational infrastructures (including stylized maps, postcards, pictures, advertisements, cartoons, songs, and little stories recorded in newspapers, novels etc.). They will reflect ideas on regional, national and European identities, as contrasted to the colonies and/or the USA . Regional, national and European identities might be conflicting, but also could very well co-exist (Smith 1992). These symbols make European transnational infrastructures and their meanings tangible and comprehensible. However, these symbols were never merely of symbolic importance. They were fashioned in the process of constructing and using infrastructures as a strategy of self-representation (for a case-study on France see Hecht 1998). The project will focus on 3 to 4 case-studies drawing on the work of the Ph.D students. Of course, additional data collection will be needed. In addition, hotly debated projects such as the Channel Tunnel and the Øresund bridge between Denmark and Sweden will be considered. For these case-studies, research will be directed at looking at ways in which these projects were represented, communicated, and experienced by the designers of the projects and by the various publics involved (surrounding communities and users).

Synthesis Transnational infrastructures and the Rise of Contemporary Europe

The principal aim of this research plan is to develop a synthetic view on the co-construction of transnational infrastructure and Europe. Based on above mentioned projects, a synthetic study will be published. This study will provide an answer to the overall research question (see above) This will include:

- Characterizing the European bias, commitment, and ideas embodied in the construction, use and appropriation of transnational infrastructures;
- Bringing out the variety, plurality and tensions of those processes;
- Assessing the importance of major historical events such as both World Wars and the fall of Berlin Wall;
- Developing a view on the process of building Europe since the fall of the Berlin Wall during a new phase in the globalization of the world economy.

References

- Anderson, Benedict, (1983), *Imagined Communities. Reflections on the Origins and Spread of Nationalism*, London.
- Bavoux, Jean-Jacques and Jean-Bernard Charrier, (1994), *Transports et structuration de l'espace dans l'Union européenne*, Paris.
- Davis, Norman, (1996), *Europe. A History*, London.
- Fischer, Claude, (1992), *American Calling. A Social History of the Telephone to 1940*, Berkeley,
- Fridlund, Mats and Helmut Maier, (1996), *The second battle of the currents*, Stockholm.
- Gall, Alexander, (1998), *Das Atlantropa Projekt. Die Geschichte einer geschieternten Vision. Herman Sörgel und die Absenkung des Mittelmeers*, Frankfurt.
- Grübler, Arnulf, (1990), *The Rise and Fall of Infrastructures. Dynamics of Evolution and Technological Change in Transport*, Heidelberg.
- Headrick, Daniel, (1991), *The invisible weapon. Telecommunications and international politics 1851-1945*, New York.
- Allen, Michael Thad, and Gabrielle Hecht, (2001), *Technologies of Power*, Cambridge.

- Hecht, Gabrielle (1998), *The Radiance of France. Nuclear Power and National Identity after World War II*, Cambridge.
- Hobsbawm, Eric and Ranger, Terence (eds.), (1983), *The Invention of Tradition*, Cambridge.
- Thomas Hughes, (1983), *Networks of power. Electrification in Western society 1880-1930* Baltimore.
- Hugill, Peter, (1999), *Global communications since 1844. Geopolitics and technology*, Baltimore.
- Kaijser, Arne, and Marika Hedin, (1995), *Nordic energy systems: Historical perspectives and current issues*, Cambridge.
- Kaijser, Arne, (1997), 'Trans-border integration of electricity and gas in the Nordic countries 1915-1992', *Polhem* 15, 4-43.
- Klausen, Jytte, and Louise Tilly, (eds.), (1997), *European Integration in Social and Historical Perspective*, Lanham.
- Leonard, Mark, (1998), *Europe: the Search for European Identity*, London.
- L'evy-Leboyer, Maurice, (1998), 'The French Electrical Power System: An Inter-country Comparison', in Renate Maintz and Thomas Hughes, *The Development of Large Technical Systems*, Boulder, 245-262.
- McShane, Clay, (1994), *Down the Asphalt Path. The Automobile and the American City*, New York.
- Misa, Thomas J., (1995), *A Nation of Steel. The Making of Modern America 1865-1925*, Baltimore and London.
- Mattelart, Armand, (2000), *Networking the World 1794-2000*, Minneapolis.
- Milward, Alan (1992), *The European Rescue of the Nation-State*, London.
- Nye, David, (1990), *Electrifying America. Social meanings of a New Technology*, Cambridge.
- Schot, Johan, (2000), *De Bouwput van techniek en maatschappij. Uitgangspunten van een nieuwe contextualistische techniekgeschiedenis*, Intreerede Technische Universiteit Eindhoven.
- Smith, Anthony D., (1992), 'National Identity and the Idea of European Unity', *International Affairs*, 68,1, 55-76.
- Smith, Anthony D., (1998), *Nationalism and Modernism*, London and New York.
- Shore, Cris, (2000), *Building Europe. The Cultural Politics of European Integration*, London and New York.
- Laurent Tissot, (1998), 'Les modèles ferroviaires nationaux et la création d'un système international de transports européens, 1870 - 1914. Coordination, intégration ou unification?' *Relations Internationales* No. 95, 313-327.
- Verbong, Geert (ed), (2000), 'Energie', in J.W. Schot et. al., *Techniek in Nederland in de 20^e eeuw* Vol. 2 , Zutphen.
- Verbong, Geert and Erik van der Vleuten,(2002), *Long-term electricity system dynamics* Eindhoven, internal report.
- Vleuten, (1998), Erik van der, *Electrifying Denmark*, Århus.
- Wæver, Ole, (1995), 'Identity, Integration and Security. Solving the Sovereignty Puzzle in E.U. Studies', *Journal of International Affairs*, 48, no 2, 389-431.