1. **Project Information**

*Title:* Selling Sound: The Standardization of Sound in the European Car Industry and the Hidden Integration of Europe  

*Summary:* This programme aims to understand how the standardization of consumer products has contributed to the hidden integration of Europe by examining the history and current practice of sound design in the European car industry.

2. **Principal Applicant**

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4. **Previous and Future Submissions**

This programme is a revised draft of a programme that has been submitted in September 2005 (elaborated version), and has been defended for the committee in November 2005.

5. **Institutional Setting**

- Maastricht University, Faculty of Arts & Culture, Research Institute *Cultuurwetenschappen*, Research Group Technology & Society  
- Eindhoven University of Technology, Department of Technology Management, Programme Mobility History, Foundation for the History of Technology  
- Graduate Research School WTMC (Science, Technology & Modern Culture)  
- Inventing Europe: a Eurocores programme financed by the European Science Foundation

6. **Period of Funding**

Project 1: January 1, 2007-December 31, 2010  
Project 2: January 1, 2008-December 31, 2010  
Project 3: September 1, 2009-March 31, 2010  
Project 4: September 1, 2010-August 31, 2011

7. **Composition of the Research Team**

a) Principal applicant: Prof. dr. Karin Bijsterveld, Maastricht University  
b) Co-applicant: Dr. ing. Gijs Mom, Eindhoven University of Technology
c) Executors:
   Project 1: Vacancy
   Project 2: Vacancy
   Project 3: Dr. ing. Gijs Mom, Eindhoven University of Technology
   Project 4: Prof. dr. Karin Bijsterveld, Maastricht University

d) Second promotor project 1: Prof.dr.ir. Wiebe E. Bijker, Maastricht University
   Co-promotor project 1: Dr. Tineke Egyedi, Delft University of Technology

e)  

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<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Projected Role in Project</th>
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| Prof. dr. K.Th.Bijsterveld | Maastricht University, Fac. of Arts & Culture, Research Institute Cultuurwetenschappen | • Executor Project 4
|                   |                                                                             | • First Promotor PhD, Project 1           |
| Dr. ing. G.P.A. Mom          | Eindhoven University of Technology, Department of Technology Management, Mobility History, Foundation for the History of Technology | • Executor Project 3
|                   |                                                                             | • Supervisor Postdoc, Project 2           |
| Prof.dr.ir. W.E. Bijker     | Maastricht University, Fac. of Arts & Culture, Research Institute Cultuurwetenschappen | • Second Promotor PhD, Project 1          |
| Dr. T. Egyedi         | Delft University of Technology, Faculty of Technology Policy & Management, ICT Department | • Co-promotor Project 1                  |
| Vacancy             | Maastricht University, Fac. of Arts & Culture, Research Institute Cultuurwetenschappen, Graduate Research School WTMC | • Executor (PhD) Project 1               |
| Vacancy             | Eindhoven University of Technology, Faculty of Technology Management, Mobility History, Foundation for the History of Technology | • Executor (Postdoc) Project 2           |
8. Structure of the Proposed Research

Project 1: Standardizing Car Sound and the Circulation of Expert Knowledge in Europe, 1970-present

Project 2: Mobility Concepts and the Construction of the Car as Acoustic Cocoon in Europe, 1930-1970
Postdoc Project: Vacancy, Eindhoven University of Technology, Faculty of Technology Management. Supervisor: Dr. ing. G.P.A. Mom

Project 3: Intermediate Organizations in the 20th Century European Car Culture Senior Researcher, Substitution: Dr. ing. G.P.A. Mom, Eindhoven University of Technology, Faculty of Technology Management

Project 4: Listening to Europe: Car Sound Design and Hidden Integration Senior Researcher, Substitution: Prof. dr. K.Th.Bijsterveld, Maastricht University, Faculty of Arts & Culture

9. Description of the Proposed Research
This programme aims to understand how the standardization of consumer products has contributed to the hidden integration of Europe by examining the history and current practice of sound design in the European car industry.

In the 1930s, European noise abatement campaigns began to stress the negative effects of street noise on the mental health of the working population, while engineers increasingly defined engine noise as a sign of power loss. The two claims stimulated the car industry to consider the reduction of noise from and within cars (Smilor 1978, Bijsterveld 2001). From the late 1960s onwards, environmental concerns about highway noise further contributed to this trend. These concerns pushed, for instance, international standardization of car noise measurement and the harmonization of the legislation of the European Economic Community member states regarding the maximum noise levels of passenger vehicles (Price et al. 1971, Sandberg 2001). More recently, car noise reduction itself, as well as the marketing of products in terms of their emotional meaning—an expression of the so-called Erlebnisgesellschaft (event society)—have fostered the search for distinct sound marks of cars. Some projects financed by the European Union (EU) even explicitly aimed at finding cultural differences in consumer sound preferences that could be transformed into marketable target sounds (Vetter 2004). In this complex process, the variety of individual perceptions of car sounds had to be classified and eventually standardized so as to enable the branding of sound and the linkage of particular sounds to particular groups of European consumers. By analysing such processes of standardization in a detailed manner, our program aims to produce insights into the role of science, technology and consumption in the ‘hidden integration’ of Europe.
The concept of the hidden integration of Europe refers to processes of integration on other levels than political institutions. This concept has been coined in the context of the ESF-programme Tensions of Europe (1999-2004) and its follow-up: the ESF-Eurocores programme Inventing Europe. These programs aim to complement the political and economic historiography of European integration by focusing on the involvement of material networks, technical systems, and the circulation of knowledge in the process of European integration (Oldenziel & Schot 2004, Schot 2005). The establishment of international communication networks, infrastructural projects and professional-technical communities has indeed created webs of integration that are powerful, yet different from political connections, and often hidden from public awareness. ‘Hidden’ thus means: hidden from the key research interests of the political and social sciences that study Europe as a common market and object of multi-level governance, and hidden from what most people think Europe is about. We focus in particular on the integration of the technological cultures of the EU member states—the countries’ socio-cultural embedding of technology—during processes of standardization. This will show how Europe has been shaped through material practices and the identities related to these practices. As our programme will clarify, these material practices are closely connected to policy co-ordination, yet need a closer study that seeks to understand the distinctive character of connecting technological cultures. Acknowledging the role of technology in processes of integration will thus yield insights in how to enhance European integration. In addition, it will help the general public to understand what ‘Europe’ means in the everyday use and functioning of the technological artefacts they consume.

Of all technology-related processes sustaining integration, standardization is one of the most substantial (Stevens 2004). In our project, we employ two definitions of standardization. The first defines standardization as ‘the process of drawing up and applying rules (standards) with the participation of interested parties in society, to create order or unity in areas where diversity is needless or undesirable’ (quoted by Egyedi 1996: 6). Examples are the standardization of the dimensions of cargo containers, of control algorithms for traffic management panels, and of units for measurement and testing. Such standards create connections between technological systems that cross the boundaries traditionally separating companies and countries. The second definition is borrowed from marketing and considers standardization as a ‘system of identification that describes products by their quality….’ (quoted in Medina & Duffy 1998: 228). Such so-called ‘grade labelling’ aims at ease of comparison by the buyer and leads to product standardization. In case grade labelling involves intangible attributes, it will often require the standardization of sensorial experiences such as smell, taste and sound.

In our programme, we will focus on the contribution of both these types of standardization to the hidden integration of Europe. These forms of integration, so we accept as hypothesis, are materialized in three ways. First, standardized product requirements and the units, quality grades and instruments involved in testing products in terms of these requirements, create larger technological systems since the product requirements ask for all kinds of adaptations of the products’ environments. Maximum car noise levels, for instance, ask for standardized car noise measurement, which requires standardized units, meters and ways of measurement, which may—in case the noise measurement focuses, say, on car tyres—influence car tyre development, general car
construction and even the choice of asphalt. Second, the standardized grading of product-related sensorial experiences re-classifies these experiences, and the branded marketing of these experiences, in turn, help to construct new conceptions of the European consumer. Although these conceptions may not self-evidently influence the identities of these consumers, consumers may refer to products and their characteristics to articulate their personal or group identity. They may, for example, re-define themselves as people preferring reliable, luxurious or sportive car sounds. Third, the circulation of knowledge preceding the establishment of standardized product requirements and quality grade labelling helps to integrate expertise as well as the technological cultures the experts represent.

We will analyse this integration of expertise, of consumer conceptualizations and of technological systems by following experts in two kinds of settings. The first concerns the committees in which representatives of research institutes, industries and governments meet to discuss noise measurement and maximum noise levels, including Technical Committee 43 (on acoustics) of the International Standardization Organization (ISO) and relevant EU committees. Following experts in these arenas will clarify, for instance, how the experts’ decisions relate to the industries and policies predominant in their home countries. Porsche, for instance, lobbied for standardized noise measurement focusing on car tyres, since that would leave the sound mark of Porsche’s engines untouched (informal interview). The second type of setting to be studied pertains to the circulation of knowledge in EU-projects such as OBELICS, which aimed at developing sound marks that would address pan-European groups of consumers. Experts from the car industries involved in OBELICS presumed that consumers in Europe would prefer other car sounds than American or Japanese consumers (Vetter 2004). In addition to studying contemporary committees and projects, our research programme will follow the circulation and appropriation of sound engineering knowledge and related technologies over larger time periods in Europe.

The third concept crucial to our study, next to hidden integration and standardization, is that of the Erlebnisgesellschaft (Schulze 1992). This concept postulates that consumer products have been developed to such extent that their differences in technical design are decreasing. As a consequence, products are increasingly marketed in terms of the emotional meaning and the ‘inner’ experiences they intend to evoke. In these marketing strategies, sensorial perception is predominant. Even smell has not escaped ‘efforts to regiment it in the realm of signs’ (Marks 2002: 114). Since the marketing of products in terms of their visual perception has already been mined for decades, their sonic, haptic and olfactory aspects now gain terrain as exciting entrances into the creation of agreeable emotions. This explains the increasing attention to the interior sound of cars, although this would not have been possible without the prior reduction of exterior noise. Nowadays, BMW has, to give just one example, ‘a team of over 200 acoustic engineers’ ensuring that the engine sounds ‘sporty,’ that the ‘doors have a reassuringly solid sound as they close, the buttons click with purpose and the dashboard remains silent whatever the driving conditions.’ (Jackson 2003: 106)

A study of the construction of sound marks contributes to an unravelling of the standardization of sound and its contribution to European integration. Yet it also contributes to the history of consumption and cultural theory. Within such theory, the car has been discussed as one of the most significant icons of modern consumption, mobility,
individuality and freedom—and rightly so (König 2000). But very few studies analyse the co-evolution of automobile technology and its functional and symbolic meanings (Mom 2004, Möser 2002). We do aim to study this co-evolution. Studying the history of car sound design in the context of wider mobility concepts and car cultures will in particular reveal how the car could become the ‘acoustic cocoon’ it now is. In an unprecedented way, car drivers can create acoustic intimacy, listen to whatever music they like, and feel undisturbed by other people’s sounds. This may even have contributed to the popularity of the car, as this ‘cocooning’ helps nurturing a longing for individuality, freedom, and control in an ever more congested world (Bull 2004).

At first sight, studying the history and current practice of car sound design may seem a topic rather modest for a full programme including several projects. It is our claim, however, that only a detailed study of the dynamics of a particular technology development within a wider cultural context can unveil how technology contributes to European integration. Without intimate knowledge of the artefacts, networks of experts, standardization practices and technological cultures involved, one will simply not be able to unravel the complexities of the integration process (Waterton 2002). In our synthesizing project, the details of our case study will be compared to those of similar studies in the ESF projects Tensions of Europe and Inventing Europe, which underlines the need for distinct case studies. Focusing on the history and the contemporary situation of one case—car sound design—further helps to make this project truly interdisciplinary in the methodologies employed, as the description of our projects below will clarify. What’s more, the example of the car, being one of our Western culture’s most cherished objects, enables us to interest a wider audience for the issue of technology’s role in European integration, and may even help this audience to identify more easily with the positive aspects of European integration at large. Last but not least, the focus on car sound combines the history of technology and European integration with the cultural history of the senses—a strand of research that has, from the Annales school onwards attractively widened our knowledge of cultural history with insights in the changing sensory conventions (Corbin 1986, 1995, 1999, Thompson 2002, Sterne 2003).

As will become clear from the description of our projects below, the research we propose to do can not be done without access to the automotive industry and the networks of acoustic experts in university-based research institutes, standardizations committees and policy bodies. The access we have already acquired to these worlds, and notably the automotive industry, is exceptional, and would not have been possible without the prior research of Karin Bijsterveld (the principal applicant) and her students into the recent history of noise abatement and control. Of similar importance is the expertise of Gijs Mom on mobility history, Tineke Egyedi’s expertise on processes of standardization, and Wiebe Bijker’s knowledge of science and technology dynamics in general. Below, we will clarify their roles in our programme.

**Project 1: Standardizing Car Sound and the Circulation of Expert Knowledge in Europe, 1970-present (PhD: Vacancy)**

This PhD project focuses empirically on the recent international standardization of noise measurement, on the EU harmonization of maximum car noise levels, and on the search for target sounds in the European car industry. It seeks to understand how the circulation of expert knowledge involved—as well as the related units of noise measurement,
technologies of noise control, and classifications of European consumers—contributed to the hidden integration of Europe. The time-frame covered by the project is 1970-present.

Theoretically, the project will build on three strands of literature: studies of ‘standardization’ within the field of science and technology studies (STS), studies on the ‘circulation of knowledge and artefacts’ within the history of science and technology, and studies on the ‘event society’ within cultural theory. The project will therefore be genuinely interdisciplinary in character. Work on standardization has shown that standards can be defined as technologies of trust, co-operation and control, and function as disembedding mechanisms that enable historical actors to connect previously disparate industries and policies (Egyedi 1996, Schmidt & Welre 1998). The idea to analyze the circulation and appropriation of knowledge and artefacts across domains and countries—which has been a key analytical concept in the Tensions of Europe program—inspires us to study how experts co-operating in standardization and harmonization committees have tailored the research, industrial and policy traditions predominating in their home countries to those of other experts, again acting upon integration. Furthermore, the notion of the event society enables us to understand the origins and consequences of marketing cars in terms of target sounds. By developing sounds for specific consumer groups, the car industry has created new classifications and constructions of European consumers.

As to methodology, the project focuses on qualitative semi-structured interviews and archival research. To understand our choice of interview partners, it is important to know that EU-Directives concerning environmental noise establish priorities for the preparation of standards concerning the measurement and assessment of vehicle sound emission by both the International Standardization Organization (ISO) and the European Committee for Standardization (CEN). The PhD aims to interview (former) members of ISO and its Technical Committee 43 (TC43) on acoustics, and of CEN and its Technical Committee 211. The chair of the TC43 at ISO is willing to cooperate and has promised to find other crucial interview partners within the organization. A member of the Swedish National Road and Transport Research Institute (VTI), who chairs three committees within ISO and CEN, has also already agreed to be interviewed. Both gatekeepers may ensure access to ISO and CEN archives.

Similarly relevant is CALM, a network for the planning of future noise research that had been initiated by the European Commission. The aim of CALM was the promotion of an EU-wide reduction of environmental noise by defining research needs and priorities concerning the regulation of both noise emission—including road traffic noise—and its perception. Furthermore, EU-projects on vehicle sound emission in the context of the reduction of environmental noise like SVEN (Sound Quality of Vehicle Exterior Noise) and RATIN (Road and Tyre Interaction Noise) will be investigated. The coordinators of the CALM-network are willing to be interviewed, and former participants in the SVEN project have also agreed to contribute.

With respect to the issue of sound design in the European car industry, interviews have been carried out with (former) employees of Ford, Opel and Renault, all multinational car-manufacturing industries with Europe-based research centres. All of the interview partners at these companies assured further cooperation. In addition, co-operation of DaimlerChrysler, BMW and Porsche will be searched for. The members of the OBELICS (Objective Evaluation of Interior Car Sound) project at HEAD acoustics have been interviewed on the issues of vehicle sound evaluation as well as the
development of adequate testing facilities, and have promised to contribute once again. The have also given us access to files of articles on vehicle sound design and measurement which had been presented at international conferences on (vehicle) acoustics. Furthermore, the founder of Sonicbrand, a UK-based company specialized in the acoustical branding of consumer products, has already agreed to be interviewed as well.

The PhD student will be based at Maastricht University, enrolled in WTMC, and supervised by professor Bijsterveld, professor Bijker and dr. Egyedi. Bijker is the author of path-breaking books in STS (Bijker et al. 1987, Bijker 1995). Egyedi is a recognized expert on standardization (Egyedi 1996).

Project 2: Mobility Concepts and the Construction of the Car as Acoustic Cocoon in Europe, 1930-1970 (Postdoc: Vacancy)

This project will unravel the European history of car sound design and the rise of the car as ‘acoustic cocoon’ by focusing on exterior car noise control and interior car acoustics between 1930 and 1970. Both domains of technological development have been intricately related, and should be understood in the wider cultural context of noise abatement and the so-called ‘prosthetisation’ of the car. Similar to the first subproject, this project contributes to the understanding of hidden integration by analysing the circulation and appropriation of knowledge about car sound design and related technologies across European nation states. In addition, this project foregrounds how the rise of the ‘acoustic cocoon’ became part and parcel of a European car system in which ‘corridor’ highways became the standard.

In the 1920s and 1930s, traffic noise became the topic of a heated public debate. In an atmosphere of general concern about the many sensorial stimuli city dwellers had to cope with, and an increasing focus of engineers on efficiently-running machines, silencing the car acquired significance. To convince consumers, car manufacturers started to advertise silence as a sign of style, and stressed that quieter engines did not implicate a loss of power (Noise 1935). Technically, silencing the car focused on the engine (by encapsulating the engine and developing sophisticated exhaust systems), on fine-tuning the gearbox, and on creating streamlined bodies (Mom & Filarski forthcoming). Only after a considerable reduction of external noise had been attained, the car industry started to focus on the design of interior noise, first by developing effective insulation techniques, then by designing radio and other sound generating systems (Bull 2004).

The second relevant context for the rise of the car as acoustic cocoon is the ‘prosthetisation’ of the car (Möser 2002, Gehlen 1980, Urry 2004). As soon as the car had acquired a closed body in the 1920s, a struggle between users and engineers over the control of car driving properties started. A simulation (first mechanically, then electronically) of a braking force at the braking pedal replaced the actual ‘feel’ of braking a car. Similarly, dashboard information about engine speed and oil temperature came to be transformed into digital warning lights that simply urged the lay driver to stop as soon as ‘something’ went wrong. Even the introduction of the windscreen can be interpreted as a process of sensory reformulation, replacing direct sensory contact with the surrounding world by a movie-like consecution of images to be consumed by the
‘tourist gaze’ (Urry 1990) of the driver. This ‘prosthetisation’ encapsulated the driver, and thus created sensorial space, so to speak, for interior car sound design.

The process of encapsulating the car driver, so is our hypothesis, helped to sustain, or at least ran parallel to, a significant development on another level: the increasing conception of highways as ‘corridors’—passages with a distinct order of time and space, relatively independent from the localities crossed (Peters 2003). In the 1930s, the Germans designed their ‘autobahns’ as slowly winding freeways that allowed motorists to admire the national landscape (Zeller 2002). At the same time, however, Italy built straight and efficient highways. After World War II, and notably with the introduction of the European Network (E-network) of Freeways from the 1960s onwards, the efficient highway increasingly became the standard. Through this trend, a corridor-style of travelling materialized, even strengthened by the introduction of traffic noise barriers at the end of the 1960s. As highways became standardized and internationally integrated, and drivers increasingly experienced a ‘tunnel vision,’ the acoustic cocoon privatized the experience and control of sound.

This project is theoretically embedded in the cultural history of technology by focusing on intermediate-level research that makes it possible to relate the details of car technology to wider cultural changes. The intermediate level involved is that of mobility concepts, such as the prosthesisation of the car and the notion of highways as corridors. The study of these concepts facilitates connections between technological choices and cultural imperatives.

The project combines methods of conceptual analysis and comparative history. Conceptually, it focuses on changing mobility concepts over time, whereas the comparative part highlights the circulation and appropriation of car-related knowledge and artefacts in different European countries. The main empirical sources include leading journals in car engineering, noise abatement and acoustics, such as Automobiltechnische Zeitschrift, Motortechnische Zeitschrift, Automotive Engineer, Journal de la SIA, Quiet, Kampf dem Lärm, Noise Control and Journal of Sound and Vibration. In addition, this project will draw on car industry archives, notably those mentioned in subproject one.

This postdoc will be supervised by Gijs Mom and based at Eindhoven, where (s)he will be closely in touch with work currently done by Mom on automotive and mobility history.

Project 3: Intermediate Organizations in the 20th Century European Car Culture (Senior Researcher: Gijs Mom)

The third project builds upon the second by extending it geographically and conceptually. First, it compares the 20th century European car culture (and the car sound resulting from it) with the North American one. Second, it examines the role of intermediate consumer organizations in the construction of the European car culture, understanding ‘hidden integration’ as a process partially resulting from these intermediate organizations’ activities. Third, it focuses on the use and experience of cars rather than on its design by taking the representation of car cultures in road novels and travel literature, and thus a symbolic level, into account.

Theoretically, this project has to be positioned in a tradition similar to project two. It combines a detailed knowledge of car technologies with that of the wider cultural context through a focus on intermediate level research: the consumer organizations in this
case. Methodologically, however, this project not only centres on the conceptual analysis of engineering journals and consumer organizations’ archives; it also widens the scope by including the narrative and rhetorical analysis of travel literature and novels such as *The Motor Boys* and *The Motor Girls* series (Vaughan 1990, McShane 1994).

Recently, a ‘European road’ to automobilism has been postulated as a new object of study in a field hitherto dominated by the paradigm that the European car culture has always been ‘lagging behind’ the American model (McShane & Mom forthcoming). New research, however—initiated within the Tensions of Europe program and chaired by Mom—resulted in the hypothesis of a ‘European car culture’ (Tolliday 2000, Mom 2003a).

According to this new paradigm, several phenomena make the European car culture stand apart from its American counterpart. These are compact cities, winding roads of moderate length and a desire to control both engine and car speed. Such desire is one of the explanations for the reluctance, among European car buyers, to accept the automatic gearbox (Mom 2003b). European car culture has also been characterized by high energy prices and relatively small production series, leading to relatively high car and fuel prices, and resulting in a trend, notably after World War II, to produce smaller cars with high-revving, fuel-efficient engines. As a result, the European standard family car differed markedly from the American one that had a larger, low-revving engine, higher vehicle mass and a focus on high driving comfort (cruise control, automatic gearbox, climate control). All this contributed to the rise of significant differences between the sound of European and American cars.

Another difference between the European and the American car culture is the role of organizations mediating between producers and users. In the United States, the automotive industry itself organized for a closely knit network of service and marketing institutions. In European countries, however, automobile and touring clubs did part of this job, founding—in a rather early stage—transnational organizations as well. At the national level, these intermediary organizations significantly influenced the definition of what a car should be. Through transnational cooperation, something similar happened at the European level: the intermediate organizations constantly, and despite national differences, re-defined a European ‘state of the art’ in terms of car technology, driving behaviour and style, thereby contributing to the ‘hidden integration’ of Europe. Moreover, their activities helped to create an economy of scale and level of automobile export that balanced the downside of the relatively small national markets in Europe.

In terms of sources, this project will draw upon consumer organizations’ archives and a variety of trade journals from European countries and the United States, such as those mentioned under subproject 2, but including *Automotive Engineering*. In addition, this project introduces travel literature and belles-lettres literature as a source to reconstruct the emergence and change of both the American and European car culture. Mom has recently finished a study on the Dutch culture of mobility (Mom & Filarski, forthcoming), and has found this type of sources extremely useful. Until World War II, trade journals abounded with motoring stories (Müller 2004). In the wake of the democratisation of the car, though, such stories became less and less common. Hence, other types of sources need to be explored.

Dr. Mom is a recognized expert on mobility history and has published in *Technology & Culture, Journal of Transport History*, and *History of Technology*. His
monography on the history of the electric vehicle has been awarded with the IEEE Engineer-Historian Award 2004, and the Nicholas-Joseph Cugnot Award (Society of Automotive Historians) 2005. In 2005, a Fulbright fellowship has enabled Mom to spend a few months in the United States. Although this fellowship focused on the co-evolution of car technology and tourism, it enabled Mom to bring many sources relevant to ‘Selling Sound’ with him on return.

Project 4: Listening to Europe: Car Sound Design and Hidden Integration (Senior Researcher Karin Bijsterveld)
The fourth project encompasses a monograph that synthesizes the three subprojects mentioned above by linking the case studies of car sound to the wider body of literature on hidden integration produced within the ESF-project Tensions of Europe and the ESF-Eurocores project Inventing Europe.

While Gijs Mom has been involved in the mobility group within Tensions, Karin Bijsterveld has been a member of the consumption group. The Tensions-programme, in which 200 European and American scholars cooperated, has already produced a wealth of publications on the role of technology in the integration of Europe, notably on transport, infrastructures, cities and consumption (http://www.histech.nl/tensions). The international cooperation between historians of technology in Inventing Europe will generate additional studies, as well as an edited book series for a general audience. To this book series Bijsterveld may contribute a chapter, based on the monograph, in case Selling Sound would be awarded. It is important to note, however, that we could not submit Selling Sound for a Eurocores-grant since these grants require international cooperation, while Selling Sound involves Dutch universities only. What is of crucial significance to Selling Sound, however, is that the meetings that have been and will be organized by the Tensions and Inventing Europe networks, provide for a unique chance to connect the study of car sound design and hidden integration to other knowledge on technology and hidden integration generated in these networks. Cooperation on such a scale is rather unique within the humanities. At the very same time, Bijsterveld is able to confront her research with the wider historiography of European integration, since Politics and Culture in Europe is one of the three sections of the Research Institute Cultuurwetenschappen of Maastricht University.

The monograph itself involves the study of three levels of integration resulting from processes of standardization, each concentrating on a different kind of intra-European connections.

- Integration through the circulation of expert knowledge prior to the establishment of standardized products. Intriguingly, the groups of experts defining European standards are relatively small and the mutual links between industries, research institutes, standardization committees and policy bodies are manifold. How do these experts connect the different technological cultures of their home countries, what new networks of knowledge and artefacts are created, and how do these new networks, in turn, change the technological cultures of European countries?

- Integration through the standardization of products and products’ testing. How do the standardized designs, units of measurement and ways of testing create larger technological systems? How does the testing by intermediate consumer
organization, for instance, create a wider horizon for comparison of consumer products, and therefore—perhaps—new European product requirements?

- Integration through the grading and branded marketing of car sound, the second type of standardization. How do these processes, characteristic of the event society, contribute to the construction of new ‘European’ products and ‘European’ consumers?

In addition to the analysis of these processes of integration on the basis of the car sound case and of the wider corpus of literature on technology and European integration, this study will make clear:

- How the construction of the passenger car as an ‘acoustic cocoon’ came to be established. How did the co-evolution of car technology and mobility culture lead to cars that sonically encapsulate its drivers and that, at the very same time, enables drivers to control their cars’ interior sound with help of audio technologies? And how has the rise of the acoustic cocoon contributed to the popularity of the car, not only for commuting but also for international travelling through Europe? These questions will not only be answered by synthesizing the knowledge on the rise of standardized noise control, ‘prosthetisation’ and ‘corridor’ highways from the first three subprojects, but also by examining the history of the car radio and car audio sets. A preliminary study into car driver handbooks and the Philips car radio (1930s-1970s) has shown that the car radio was both promoted and appropriated as making long, lonely (and trans-European) drives less boring and thus safer, and as toning down the bad temper car drivers might develop in response to other drivers’ motoring performance. Bijsterveld will expand this case study in her ‘regular’ research time, prior to the year scheduled for writing the monograph, and will link the case study with the results of work on the significance of sound and music to car drivers (Bull 2003, 2004).

In sum, this synthesizing monograph will enhance our knowledge of the role of technology in European integration through the interdisciplinary act of ‘listening to Europe’. Listening to Europe means that we combine research into the rise of the car as acoustic cocoon in a changing European mobility culture with research into the European standardization of noise control, sonic marketing and the related networks of experts and technological cultures.

10: Work Programme

**General Schedule**

Project 1: January 1, 2007-December 31, 2010
Project 2: January 1, 2008-December 31, 2010
Project 3: September 1, 2009-March 31, 2010
Project 4: September 1, 2010-August 31, 2011
Detailed Schedules

Work programme project 1:
The PhD will dedicate the first year of the research period to interviewing the first circle of respondents within the automotive industry (Ford, Opel, Renault), the world of standardization and harmonization (ISO, CEN), that of noise control, car sound engineering and marketing (CALM, SVEN, OBELICS, Sonicbrand), and secure additional access to the automotive industry and relevant archives subsequently. Furthermore, s/he will do additional reading into standardization, event society, hidden integration and general STS literature, resulting in a review like chapter that will function as the second chapter of her thesis. In addition, s/he will participate in two workshops and one summer school within WTMC, and will devote about 10 percent of her time to teaching.

In the second year, the PhD will interview the persons that have been pointed out as relevant by the first circle respondents, will focus on the archival research (ISO, CEN, automotive industry), and will study the papers and documents provided by both the respondents from the first and the second circle. As to teaching and WTMC, the schedule will be similar to the first year. In addition, s/he will write a chapter on the relation between the work done in standardization and harmonization committees and European integration, which may be presented at a conference of the Inventing Europe network and/or a 4S or EASST conference (meetings of STS societies).

In the third year, then, s/he will focus on writing two chapters, one focused on the consequences of noise control initiatives for the circulation of knowledge and artefacts, and thus for the hidden integration of Europe, and one on the consequences of sonic branding in the automotive industry for the construction of the ‘European’ consumer. S/he will also attend a WTMC winter school (in which chapters will be discussed by experts) and do some teaching. Finally, the fourth year will be almost entirely devoted to fine-tuning the chapters 2-5, and writing the introduction and conclusion of the dissertation.

Work programme project 2
This three years’ post-doc project will start one year after the first project, which will enable us to advertise this job internationally, and to learn about the technical detail resulting from project 1. The post-doc will devote the first half of his/her first year to the study of a limited selection of secondary sources, national automotive trade journals and specialist acoustic journals (see the selection mentioned in the description of the project), on the basis of which two trade journals per (selected) country will be identified. These journals will be the focus of the second half of the first year. In the second year the post-doc will focus on the archives of the automotive industries selected in project 1, and write his/her first article, preferably for History and Technology (on the history of exterior car noise control and the related circulation and appropriation of knowledge and artefacts across several countries). The third year, then, will focus on the production of two articles, one on the rise of the acoustic cocoon and the ‘prosthetisation’ of the car for Science in Context (a journal focused on the relation between science, technology and culture), and one for Science, Technology & Human Values that could discuss the rise of the acoustic cocoon in relation to standardized and ‘corridor’-like highways.


Work programme project 3

This senior researcher project will start about one and a half year after project 2 begins, and takes eight months. It will use the first results of project 2, the senior researcher’s own research results from the Fulbright project, and a two-weeks visit to American archives for the production of the first article, focusing on the development of a European automotive culture as opposed to the American one, and its consequences for the sound of European cars (for Technology & Culture). In addition, the first phase of this project will be devoted to reading the travel and belles-lettres literature (selected during the Fulbright project). The second four months, then, will combine the narrative and rhetorical analysis of this literature with a study of the activities of intermediate consumer organizations’ so as to write a second article (for The Journal of Transport History) on the construction of a European ‘state of the art’ in car (sound) technology, behaviour and style: the consumer organizations’ (and other users’) contribution to the hidden integration of Europe.

Work programme project 4

The synthesizing project will start half a year before the PhD and postdoc finish their work, and half a year after project 3 has been finished, and will take one year. The synthesizing monograph is planned to have seven chapters. Chapter 1 will start with a description of a modern car and its marketing in terms of sound, and will show the links between the sound design of cars and all kinds of European standardization, harmonization and classification work. This will be the opening to the key research questions. Chapter 2 will review the literature on the hidden integration of Europe produced within Tensions of Europe and Inventing Europe, and will clarify how the results from the projects 1-3 of Selling Sound relate to this body of literature. The chapters 3-5, then, will focus on the three levels of hidden integration questions mentioned in the description of project 4, while chapter 6 will focus on answering the questions related to the rise of the acoustic cocoon, and chapter 7 will be the concluding chapter. In terms of time, the first draft of chapter 1 will take one month, the first draft of chapter 2 two months, the first drafts of the chapters 3-7 each one month (so five in sum), leaving a four months for the second draft. Since fine-tuning is the phase that defines the quality of the end-product, this needs a considerable amount of time. In addition, these last four months will be used to produce an article (based on the chapters 2-5) for Science and Public Policy.

11: Planned Deliverables

Project One: Dissertation
Project Two: Three articles (in History and Technology, Science in Context, and Science, Technology & Human Values)
Project Three: Two articles (in Technology & Culture and The Journal of Transport History)
Project Four: Monography, and an article for Science and Public Policy. Before the actual start of project four, an article on the history of the car radio will be submitted to The Senses and Society. Following project four, a chapter in one of the volumes of the Inventing Europe Book Series is an option.
12. Short Curriculum Vitae Principal Applicant
Karin Bijsterveld (1961) graduated as Historian at Groningen University (Contemporary and Social-Economic History, with Musicology as Minor). She is now Professor in the Technology & Society Studies Department, Maastricht University, The Netherlands, and Director of the graduate research school WTMC (Science, Technology & Modern Culture). She has published on the history of academic and political discourse concerning the elderly, in *Journal of Family History* (January 2000), and elsewhere. Her published dissertation on this topic has been awarded with the SNS Bank Limburg Award 1997 and the Schreuder Award 1998. Her recent work addresses the history of sound and noise, and technology and music, a subject on which she has co-edited a special issue of both *Tijdschrift voor Mediageschiedenis* (with Prof. dr. J. van Dijck, 2003) and *Social Studies of Science* (with Prof. T. Pinch, 2004). Her manuscript ‘Mechanical Sound: Technology, Culture and Public Problems of Noise in the 20th Century’ has been accepted on conditions by MIT Press.

Five Key Publications Principal Applicant

Bijsterveld, Karin (2004).


Bijsterveld, Karin (2003).

Bijsterveld, Karin (2001).


13. Summary for non-specialists (in Dutch)
Wanneer u in uw auto stapt en de contactsleutel omdraait, zult u er vermoedelijk niet bij stilstaan: dat aan het ontwerp en het functioneren van uw auto vele processen van Europese integratie zijn voorafgegaan. Over het maximaal niveau van lawaai dat uw auto mag maken, bestaan richtlijnen van de Europese Unie. Auto-industriën en akoestici hebben de technologie van de auto aan die maxima aangepast, en deze technologieën weer in grotere technologische systemen ingepast. Internationale en Europese standaardiseringscommissies
hebben bepaald met welke apparatuur, aan de hand van welke meeteenheden en op welke manieren het lawaai moet worden gemeten, hetgeen doorwerkt in de productie van auto’s. Zo is het mogelijk geworden ook het binnengeluid van de auto te bestuderen en te verfijnen. In projecten die met Europees geld zijn gefinancierd, is onderzocht hoe u luistert en welke autogeluiden u op prijs stelt. Marketingmensen hebben deze geluiden omgezet in gestandaardiseerde geluiden—en standaardiseren zo uw ‘ervaring”—voor een ‘typisch’ Europese markt. Via de keuze voor een bepaalde auto kunt u deze geluiden kopen. Wellicht vindt u dat het geluid van ‘uw’ merk auto precies bij u past en gedraagt u zich daarmee als de nieuwe Europese consument.

Deze studie draait om dergelijke vormen van ‘verborgen’ integratie. We spreken van ‘verborgen’ integratie omdat u zich hoogstwaarschijnlijk niet van dit type integratie bewust bent, hoewel u de discussies over Europese verdragen, de Europese grondwet en de Europese economie kent. We spreken ook van ‘verborgen’ integratie omdat de politieke wetenschappen zich meer met Europa als superstaat en gemeenschappelijke markt hebben beziggehouden, dan met de rol van technologie in het ontstaan van Europese integratie: het onderwerp van deze studie. Daarbij concentreren we ons vooral op de bijdrage van verschillende vormen van standaardisering aan die integratie. Dat doen we met het geluid van de auto als sprekend voorbeeld—een terrein waarop zich vanaf de jaren dertig, en in versnelde mate vanaf de jaren zeventig zeer interessante technologische vernieuwingen hebben voorgedaan. Dit stelt ons bovendien in staat te laten zien hoe de auto zich tot ‘akoestisch cocon’ ontwikkeld heeft. Daarmee denken we de populariteit van de auto op een nieuwe manier begrijpelijk te kunnen maken. Met het ‘stiller’ worden van de binnen-akoestiek en de toegenomen mogelijkheden tot het beluisteren van muziek, radioprogramma’s en luisterboeken, kan de bestuurder zijn geluidsomgeving stiler maken, terwijl hij op de weg zelf—als gevolg van files en gestandaardiseerde aanwijzingen—steeds minder vrijheid heeft.

Vier deelstudies zullen dit verhelderen. In de eerste daarvan bestudeert een promovendus recente ontwikkelingen (vanaf de jaren zeventig) in de auto-industrie, Europese richtlijnen voor de maximale geluidsemissie van auto’s, internationale en Europese commissies voor het standaardiseren van lawaaibestrijding en Europese projecten voor lawaaibehersing en geluidsdesign om na te gaan hoe kennis en technologie uit verschillende landen op elkaar worden afgestemd. Interviews met kernfiguren uit de wereld van de auto-industrie, beluistering en lawaaibehersing zullen daarvoor een belangrijke ingang zijn. De tweede studie, voor een postdoc, verbreidt het object van studie naar de geschiedenis van de lawaaibestrijding van en de constructie van stilte in de auto vanaf de jaren dertig tot de jaren zeventig. Ook daarin zal veel aandacht zijn voor de manier waarop kennis en technologische artefacten op het gebied van autogeluid zich over verschillende landen hebben verspreid en tot nieuwe vormen van integratie hebben geleid. Bovendien zal worden onderzocht hoe het ontstaan van het ‘akoestisch cocon’ zich verhield tot de ontwikkeling waarin de automobilist steeds minder rechtstreeks contact had met de technologie van zijn auto alsook met de omgeving die hij via gestandaardiseerde snelwegen met zijn auto passeerde. Tijdschriften op het gebied van autotechniek en akoestiek alsmede secundaire literatuur over de geschiedenis van mobiliteit zijn hier de voornaamste bronnen. Het derde deelproject zorgt opnieuw voor een verbreding, zowel in geografische zin als naar het type te bestuderen bronnen. Het zal de autocultuur—en de consequenties daarvan voor het autogeluid—van Europa met die van de Verenigde Staten vergelijken. Het zal tevens
nagaan hoe die autocultuur zowel vorm kreeg door activiteiten van internationaal samenwerkende consumentenorganisaties als in reisliteratuur.

Het laatste, synthetiserende deelproject, tenslotte, verbindt in een monografie de kennis uit de drie eerste deelstudies met andere studies naar de rol van technologie in Europese integratie zoals die zijn en worden uitgevoerd in de ESF projecten *Tensions of Europe* en *Inventing Europe*. Die confrontatie maakt een systematische benadering mogelijk van de vormen van integratie die voortkomen uit en samenhangen met processen van standaardisering. De integrerende studie laat bovendien zien hoe gestandaardiseerde snelwegen en de auditieve privacy in de auto bijdroegen aan de manier waarop automobilisten de Europese ruimte doorkruisten en zich Europa eigen maakten.
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