Science and technology are at the very heart of the European project. But how to write a history of Europe in the making when using technology as an actor category and lens of analysis? This is the driving narrative behind *Making Europe: Technology and Transformations (1850-2000)* – a six-volume series on the history of Europe in the «long twentieth century»\(^1\). All volumes in the series are co-authored by two or three authors and are the result of an intense debate and discussion amongst all people involved in this collective endeavor. As the series editors Johan Schot and Phil Scranton emphasize in the introduction to the series, *Making Europe* aims at providing a novel perspective on European history by decentering the European Union and its many predecessors and by placing the complex, desynchronized and multilayered process of Europeanization in a long-term historical perspective:

Technology’s role in shaping Europe coalesced around 1850, when a new era began, an era from 1850 to 2000, that we refer to as the Long Twentieth Century. It was during the mid-nineteenth century that a newly globalizing world began to emerge. This was a world in which the many new transportation and communication technologies played a decisive part. At this time, technology became a reference point for European superiority – both within and beyond Europe. Cross-border connections and institutions thrived; the knowledge-sharing practices that fostered these connections were widely circulated and adopted. This circulation of knowledge led to a worldwide imagining, negotiation, and experiencing of Europe that still exists today\(^2\).

Challenging European integration scholarship – which largely interpreted the post-war European integration process as a political project driven by great men (the «founding fathers») and neo-functionalist dynamics – the research agenda of the ToE-network focuses on the «hidden integration» of Europe: processes that carried, flagged, and helped to maintain a sense of Europeanness by bringing out tensions in Europe and about Europe\(^3\). *Making Europe* treats Europe as an actor and Europeans as

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\(^1\) The book series is one outcome of the «Tensions of Europe» (ToE) network – an international network of scholars in the field of history of technology with the aim of promoting transnational research and collaboration (www.tensionsofeurope.eu). For detailed information about the six volumes (including podcasts by the authors) see www.makingeurope.eu/.


a performative category in the shaping of transnational infrastructures, knowledge, artefacts, as well as in the production of the social and cultural capital of technology. In this sense, the book series attempts to demonstrate the intellectual tradition and conceptual richness of the history of science and technology and what it has to offer for a better understanding of the «project of Europe»; at the same time, it is a critical investigation of the ambiguous role of technology in European history.

**Struggling with «Europe» and «technology»: the Europe/technology uncertainty principle**

All volumes struggle with the fuzziness of the term «Europe» or «Europeanness» in both its temporal and spatial dimensions. As Wolfram Kaiser and Johan Schot put in in their volume on *Writing the Rules for Europe*: «It was, and is, a content with fuzzy economic, political, and cultural borders […]. Europe is often present in different shapes: as an ambition, a problem, a necessity, a stepping stone, a last resort, a natural geographical space, a colonial space, a response to America, a background factor, or an unintended consequence»⁴. In fact, it is the focus on technology which allows for a much clearer reflection on what Europe means or has meant. As Dirk van Laak and Maria Paula Diogo explain in *Europeans Globalizing*, the concept of Europe has neither been historical, nor cultural or geographical, but civilizational. It was premised on «a radically new way of perceiving nature and its relationship to Humanity»⁵.

That this relationship was often a contested and harmful one goes without saying. While recognizing the pivotal role of technology in the making of Europe, *Making Europe* also addresses the dark side of the techno-economic and techno-political phenomena inscribed into the logic of technological progress and the techno-scientific conquest of the world. This is most obvious in the instrumental role that hundreds of thousands of technicians, engineers and craftsmen played as so-called «experts» during wars or in supporting totalitarian regimes⁶. As Martin Kohlrausch and Helmut Trischler demonstrate in their volume *Building Europe on Expertise*, the many «Faustian bargains» between techno-scientific experts and totalitarian regimes show that the relationship between experts and the state can generally be interpreted as mutually beneficial – and that expert cultures are obviously quite willing to adapt themselves to changing political circumstances⁷. As Melvin Kranzberg once stated, technology is neither

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good, nor bad, nor neutral\(^8\). Neither are technicians or engineers. Understanding the «non-neutrality» of technology and its protagonists in the shaping of Europe – be it in the physical, social, political, economic, or cultural sense – is exactly what *Making Europe* does when studying actors (both individual and institutional ones), arenas (such as international organizations or discrete moments of techno-political conflicts), and actants (non-human actors in the Latourian sense such as infrastructures or technical devices).

Because of the «notoriously inaccurate scale» of Europe as an epistemological object of study, all volumes of the series were faced with the «Europe/technology uncertainty principle»: the more one tries to explore the grand aims, spatial vision and contested projects of Europe that informed the planning, building or uses of technologies, the more the unique materiality or thingness of technological infrastructures or devices tends to fade away. On the other side, the closer one comes to understanding the mechanisms, protocols and conventions of large technological systems or networks, the more nebulous the European aspect becomes\(^9\).

The teams of authors of *Making Europe* address this challenge by choosing different narrative strategies: depending on the topic of investigation, the authors deal with different layers of complexity in applying flexible geometries (local, national and global) and zoomable scales (macro, meso and micro). The books therefore vary in terms of structure and architecture, but all share a common vision and ambition: to study Europe’s multiple pasts through the lens of technology and thereby offer fresh perspectives on how technical experts as well as amateur users, large technological systems as well as domestic devices, ideologies of rationality and effectivity as well as technophobic and utopian imaginaries have left their mark on the complex windings of the long twentieth century.

**Critical interventions**

Besides offering a fresh look at European history at large, *Making Europe* aims at making a number of critical interventions in the field of European integration history in specific. First, it offers a consequent transnational approach to European history, thereby applying a spatial approach that takes into consideration the variable geometry of Europe in terms both of its continental configurations and asymmetries and of its global entanglements. Second, it develops a long-term historical perspective of European integration and fragmentation which addresses both the many a-synchronicities of national developments and the structural or intellectual traditions and continuities of European organizations, regulatory regimes, as well as the longevity of large technological systems and infrastructures. Finally, it offers a


number of conceptual innovations by introducing terms or concepts such as «hidden integration», «techno-diplomacy», or «technocratic internationalism» which propose novel ways of interpreting the role of technology in the making of modern Europe. Technology as an «actor category» in European history matters not only in terms of the transnational «hardware» of European integration. In fact, Making Europe critically discusses and even questions the master narrative of technology being the driving force of modernization and progress. Against such teleological narratives, Europeans Globalizing (Diogo/van Laak) argues that the «religion of science and technology» which drove the technocratic missionaries of imperialism and colonialism since the late 18th centuries were to be met with very different reactions and defensive strategies depending on the «contact zones» or «portals of globalization». Instead of a one-way diffusion or transfer of European knowledge and technology in terms of an imposition of European scientific and technological regimes, responses to European technological imperialism varied widely. Hybrid or creole technologies as a creative process of cultural appropriation might go hand in hand with forms of armed resistance or more subtle processes of clandestine boycott. As the example of railroad construction in India shows, the realization of this project was not only a «tool of empire», but the very essence of the European way of understanding and dealing with nature «by making the territory manageable and by rationalizing and controlling time, space, speed, and productivity». Yet at the same time, this project also demonstrates the different cultural and political appropriation of European technology in indigenous contexts: while the two great Indian leaders Mahatma Ghandi and Jawaharlal Nehru basically shared the idea of mastering the land through infrastructure, they differed greatly in the political and above all cultural implications of this «tentacle of progress» in the nation-building process of India. While Gandhi's concept of «swaraj» eventually failed, Nehru's vision of a powerful interventionist state based on a critical appropriation of technology-driven colonial modernity emerged as a winning strategy for an independent India. While most of the classical integration literature focuses on the political and institutional developments that eventually led to the European Union in the 1990s, Making Europe enlarges the temporal framework and argues that many structural, procedural and mental conditions that are too easily assigned to the post-war integration project.

10 Transnational infrastructures are certainly the most prominent example of such «European hardware». They are the main focus of the volume by P. Högselius, A. Kaijser, E. van der Vleuten, Europe's Infrastructure Transition. Economy, War, Nature, Basingstoke, Palgrave Macmillan, 2016.
have a much longer history\textsuperscript{16}. While the intellectual roots of a «United States of Europe» have been studied in detail\textsuperscript{17}, many concrete practices and procedures of transnational collaboration that paved the way for EU-like regulatory regimes remain rather hidden. A good example for such a process of hidden integration in the «international machinery» of nineteenth-century Europe is the emergence of international organizations such as the International Telegraph Union (ITU) or the Universal Postal Union (UPU)\textsuperscript{18}. Such organizations, although born out of necessity to govern problems of trans-border or transnational communication traffic, were more than sites for building cable connections or defining technical norms. They «shaped new ways of thinking about transnational cooperation, established new institutional patterns and forms of decision-making, and influenced emerging behavioural norms in the international machinery»\textsuperscript{19}. As Andreas Fickers and Pascal Griset argue in their volume \textit{Communicating Europe}, these organizations became privileged arenas of European techno-diplomacy and established new routines and habitual ways of thinking and acting as well as a long-lasting legacy and tradition of expert-based regulation\textsuperscript{20}.

This spirit of «technocratic internationalism» which has its origin in economic and political ideas of liberalism has been a crucial element of the European way to modernization and was closely connected to both national and European integration as well as to colonial expansion\textsuperscript{21}.

Another contribution of the \textit{Making Europe} series concerns the social and cultural dimension of Europeanization through the use of transnational communication or transport infrastructures, the creative appropriation of key technologies and consumer products such as the sewing machine or the bicycle, or distant participation in European techno-events. In \textit{Consumers, Tinkerers, Rebels}, Ruth Oldenziel and Mikael Hård offer a panorama of case studies showing how Europeans of all classes and origins appropriated technologies and turned them into meaningful objects for identity construction and social distinction\textsuperscript{22}. They also highlight the power of amateur users, for example when organized in consumer associations or interest groups. Between 1880 and 1900, urban and middle-class cycling clubs popped up all over Europe and established a powerful lobby-group promoting a transnational touring infrastructure and rural

\textsuperscript{16} This necessity of looking back into the 19th century in order to understand post-war integration process is also put forward by K.K. Patel, \textit{Projekt Europa. Eine kritische Geschichte}, München, C.H. Beck, 2018.


\textsuperscript{19} W. Kaiser, J. Schot, \textit{Writing the Rules for Europe}, cit., p. 8.


service corridors: «This was comprised of a system of bicycle support services, guidebooks, maps, hotels, railroads, and signs, in addition to clean beds and good food. Internationally oriented from the start, the clubs contributed to creating a genuine transnational and pan-European feeling of collaboration, generating a tourist infrastructure and a touring experience that automobile lovers and their organizations would expand and perfect».

In addition to such physical experiences of Europe through travelling, electrical communication devices such as the telegraph, radio and television enabled Europeans to virtually travel the continent and to participate at important European events from a distance. This mediated experience of Europe based on the technological imaginary of «immediacy», «liveness», or «simultaneity» that is even inscribed into the design of electronic devices such as the radio dial, helped to create a feeling of transnational and European communion – at least during specific moments or events.

While international organizations such as the European Broadcasting Union (EBU) or its Eastern European counterpart, the Organisation Internationale de Radio-Télédiffusion (OIRT), promoted transnational media events and infrastructures even during the Cold War, radio and television signals also became privileged targets for ideological warfare and jamming activities. Cross-border communication was therefore always characterized by tensions and ambiguities, resulting in a careful negotiation of the political, economic, juridical, and cultural interests of all actors involved. «Depending on the political systems (democratic states or totalitarian regimes) or circumstances (times of stability or crises), the possibilities and limits of private entrepreneurship and state interventions, international regulation and individual freedom, strategic planning and creative or subversive appropriation, were negotiated and thereby constantly shifted and reorganized. This is what makes the European history of communication and information technologies a history of asymmetrical interdependencies rather than a history of clear patterns of evolution based on a teleological narrative of integration».

The Making Europe story
It is of course impossible to adequately synthesize the many arguments and new perspectives that the Making Europe book series is eager to make. The critical interventions presented above can only offer a reduced glimpse but hopefully demonstrate the critical potential of this collective endeavor. Unlike other recent collective initiatives aiming to write the history of Europe, Making Europe offers a concise lens

\[23\] Ibidem, p. 130.
\[24\] See A. Fickers, P. Griset, Communicating Europe, cit., pp. 159-195.
through which the history of Europe in the long twentieth century can be studied and understood. Although the authors portray some of their main protagonists – be it «system builders», «experts», or «rebels» – with quite some empathy and admiration for their genius, creativity or will, the Making Europe story does not aim at replacing the myth of the founding fathers of European integration by a new one simply exchanging politicians by technocrats or engineers. In understanding technology as a powerful actor of historical change, as a socially constructed and culturally enriched human activity, Making Europe offers a complex narrative of European history in the long twentieth century that acknowledges both the integrative and splitting forces of technology in a truly transnational and longue-durée perspective.

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Aline Sierp

The European Union as a Memory Region

The question of what Europe is and how it can best be defined has not only been instrumental to the recent «narrative turn» in European integration history but has occupied scholarly writing since the very beginning of what today is the European Union. While there is discussion whether the EU can be described as a confederation, a state sui generis or an international organisation, most scholars are in no doubt that nation states continue to be the main building blocks of the European Union. This academic over-emphasis on the EU’s member states has led to a certain number of blind spots when it comes to research areas that by definition cut across national boundaries. One example is scholarly work on memories and memory politics. The academic focus continues to be on the nation-state as the prime locus for the formation of memories, despite the widespread recognition that memories usually form in discursive arenas above and below the state. With this in mind, the concept of the European Union as a memory region has started to appear in the last decade. Scholars working with this concept highlight the fact that memories in Europe are multifaceted with