

Editorial

Special issue: Towards New Transatlantic Transport Research: The STELLA-STAR Project on the Move

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Mobility as a key feature of a modern society takes place at all geographic scales. The past decades have witnessed an enormous and unprecedented increase in the volume of intercontinental transport (e.g., between Europe and North-America, and between Asia and North-America) (Black and Nijkamp, 2002). Interestingly enough, a similar development is also present at a local level, where not only the activity radius is increasing, but also the frequency of trips. Geographically, our world is becoming less distant (resembling a 'small world network'; see, e.g., Barabasi, 2002 and Watts, 1999) and more local and close-by, the so-called 'global village' (Poot, 2004).

In this context, emerging network agglomerations, the so-called preferential nodes (hubs), seem to become the key elements of the 'global space-economy', i.e. of the networks (such as airline, internet or telecommunication networks) where physical distance tends to become less relevant (Russo et al., 2005). On the one hand, these hubs are the main connectors in a global network, but, on the other hand, the structure of such networks is highly vulnerable to external shocks (e.g., attacks that target these hubs; Gorman, 2005). This suggests the need to

detect and protect these hubs as key forces. The identification of vulnerable/secure nodes in the current global networks may then be a critical issue for sustainable transport and communication strategies.

In the past decades, we have not only seen a drastic increase of transport at metropolitan or local levels, but we have also witnessed a globalization of trade and goods transport, a phenomenon induced by the fact that mass and scale tend to have more impact on the transport prices of goods than distance. Consequently, the smart organization of goods flows, ranging from local to global scales by means of sophisticated logistics, has become an enormous challenge for transport operators. In this context, the rise of information and communication technology (ICT) has meant a breakthrough in the history of network logistics.

Transportation and communication have developed over the centuries in a mutually dependent manner, in which the former was very much a precursor of the latter (Button et al., 2006). This dependence continues to the present day, when the rapid development of ICT has not only meant an enormous rise in productivity caused by our information and communication economy, but has also facilitated a better logistic handling of both passenger and goods transportation. Nevertheless, there may be different patterns of mobility among various countries as a result of varying adoption mechanisms of new technologies, different lifestyles and residential living patterns, different land use patterns and different transportation policies (see also Button, 1993 and Feitelson and Verhoef, 2001).

Consequently, it is important to investigate the commonalities and contrasts in the transport field in different countries more thoroughly. In particular, at the Transatlantic edge we witness rather drastic differences in both behaviour and policy, which warrants an ambitious effort to draw lessons from comparative studies (Reggiani and Schintler, 2005).

The above-mentioned trends prompt a scientific investigation along two complementary lines. First, the rapid increase in Transatlantic transport calls for applied modelling and policy research on actual flows, impediments to mobility, risks of large-scale transport volumes (e.g., security), modern logistics and ICT, as well as policy arrangements on international transport (e.g., open skies or open seas agreements). In the second place, almost all countries face similar problems associated with the mobility revolution (such as congestion, environmental decay, traffic fatalities, just-in-time logistics).

Such issues demand a thorough analysis and an exchange of experiences from different regions in our world. The STELLA¹ (*Sustainable Transport in Europe and Links and Liaisons with America*) Thematic Network (1992-1995), funded by the European Commission in association with the National Science Foundation (NSF), aimed to investigate the above-mentioned issues, mainly by means of the activities of five goal-oriented Focus Groups:

- FG1: Globalisation, E-economy and Trade;
- FG2: ICT, Innovation and the Transport System;
- FG3: Society, Behaviour and Private/Public Transport;
- FG4: Environment, Health, Safety, Land Use and Congestion;
- FG5: Institution, Regulations and Markets in Transportation.

In particular, the relationship with the North American STAR network (*Sustainable Transportation Analysis and Research*), supported by the National Science Foundation, has helped to favour the aim of generating value added from knowledge exchange and of

¹ www.stellaproject.org; see, for further details, Black et al., in this volume.

supporting a common research approach from both sides of the Atlantic, for the benefit not only of the research community, but also of the policy-making bodies and industrial organisations.

The five above research areas – and their interrelationships with related transferability/implementation tasks in applied and policy frameworks – have then constituted the main activity challenges of the STELLA-STAR Network². The findings, results and new directions emerging from the three years of the STELLA Project have also been the focus of a Special STELLA-STAR Session organised in Las Palmas, Spain, in June 2005, in the framework of the Euro-NECTAR³ (*Network for European Communication and Transport Activities Research*) Conference. In this connection, the editors wish to thank Piet Rietveld (Chairman of NECTAR) for his enthusiastic cooperation, as well as Juan Carlos Martin Hernandez (Faculty of Economics, University of Las Palmas) and his staff for so efficiently arranging the entire conference.

The structure of this Special Issue – comprising six papers – is illustrated in figure 1.

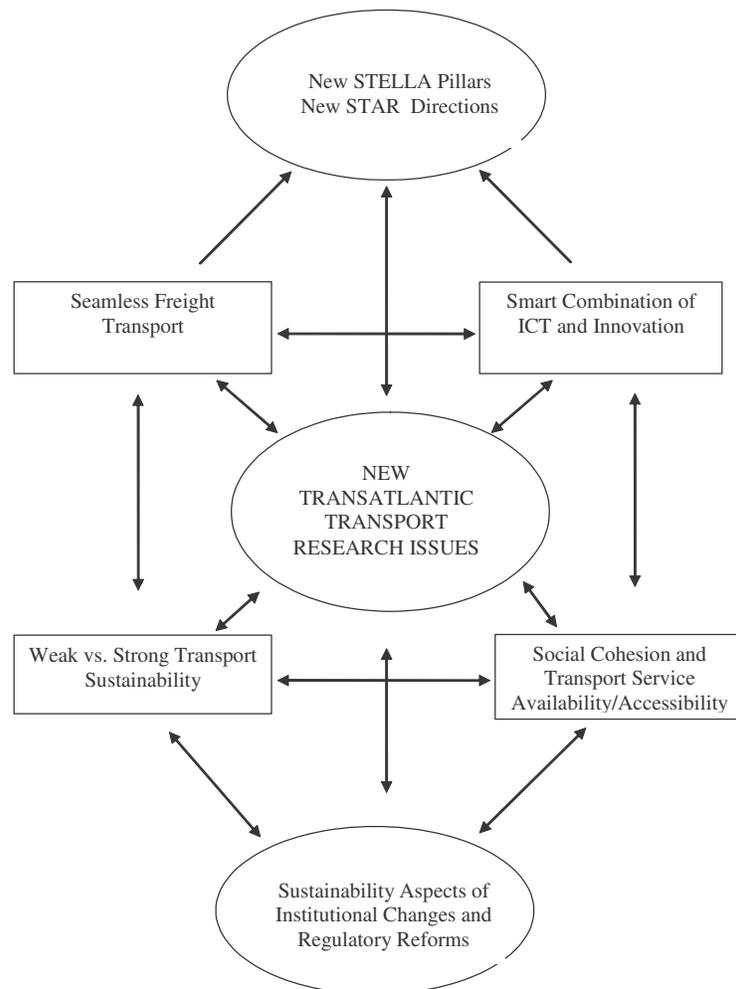


Figure 1. The Architecture of the Special Issue

² See the related Deliverables in the website: www.stellaproject.org

³ www.nectarist.free.fr

Figure 1 shows that these focal papers can be grouped – from a methodological viewpoint – in four main topics, under two main umbrellas:

- a) the introductory paper dealing with new STELLA-STAR pillars and directions;
- b) the final paper considering the policy and institutional issues.

The opening paper, by William Black, Peter Nijkamp and Aura Reggiani, introduces the main research questions from a Transatlantic perspective, questions which open a new research agenda for the STELLA horizons. The authors pay emphasis – on the one hand – to the so-called social-science based approach to transportation analysis, with due attention to socio-psychological determinants of spatial mobility; on the other hand, they address the effects of open markets and globalisation, such as new logistic developments and technological changes. In this framework, they claim that performance/barriers indicators might constitute a useful instrument for effective policy measures. In addition, they envisage a stronger emphasis on the future role of policy bodies and public and private institutions in the transport market, in the light of a desirable sustainable transport.

In the framework of freight transport issues, the new concept of ‘seamless’ transport is presented by Cristina Capineri and Tom Leinbach in the second paper. In particular, these authors examine some of the consequences of the lack of seamlessness in terms of freight transport inefficiencies, as well as new Transatlantic expressions of intermodality, technology and logistics, in the light of seamlessness and sustainability for freight transport.

The third contribution, by William R. Black and Marina van Geenhuizen, investigates the relationship between ICT⁴ use and transport demand. The authors examine the effect of ICT on transport, by illustrating the aim, use, and impact for each of the various ICT applications, with reference to three main areas: excessive driving, congestion relief and fatality reduction. In this context, they discuss a better use of ICT in order to reduce negative externalities. They conclude that a smart combination of ICT measures and innovation might improve sustainability.

Linked to the issue of ICT and mobility behaviour is the fourth paper by George Rudinger, Stefan Poppelreuter and Kieran Donaghy. In particular, these authors present the problems connected to the different mobility needs of elderly, female and socially excluded (principally low-income) users of public and private transport. In this context, they deal with three new research perspectives, especially concerning the elderly: a) policy research directions; b) research policy/strategical directions; c) research topics and issues. They conclude by envisaging improvement in public transport and in the related fully accessibility – in conjunction with ICT support – in order to meet the transportation needs of this social segment.

The fifth paper, by Veli Himanen, Adriaan Perrels and Martin Lee-Gosselin, discusses options open to transport policy when considering situations concerning the issue of environment, safety, health, land use and congestion. The authors outline that TIF (Transport Intelligence Framework) might provide an umbrella for summarising the abovementioned five themes and related policies. In this context, the authors consider the relevance of strong versus weak sustainability paradigm, in order to formulate appropriate transport policies.

The final paper, by Piet Rietveld and Roger Stough, examines institutional and regulatory aspects of sustainable transport from a cross-national perspective. Interestingly, the authors refer to possibility of viewing the role of institutions in transport analysis in terms of independent variable that help to explain some dependent variables, such as traffic

⁴ Information and Communication Technology

congestion, operational procedures, infrastructure investments, policy intervention, and so on. In addition, the authors contemplate a number of Transatlantic examples and possible case studies, where the role of institutions may be relevant on the sustainable transport development. The paper concludes by exposing new themes for future cross Atlantic research co-operation in the field of institutions and regulations.

Overall, this Special Issue – by means of the various contributions – aims to provide a prospective view of the new methodological directions in analysing transport sustainability and the related policy implications, in the framework of the STELLA-STAR Transatlantic transport research arena. All contributions have been refereed. The editors are grateful to all the authors and referees for their prompt and careful collaboration, by providing new insights and reflections in the field.

A final observation concerns the general ‘lesson’ emerging from the papers considered here, i.e. the need for the transport science to have innovative paths of analysis oriented towards theoretical foundations and methodological/policy reflections, in conjunction with appropriate empirical investigations from both sides of the Atlantic. Among the several suggestions which have emerged from these papers, it should be stressed that they all considered comparison and comparability of results as a goal of future research activities. Moreover, the need to detect solutions that might be politically and socially viable has been also underlined. It is hoped that this Special Issue constitutes a scientific synthesis of the first phase of the STELLA-STAR network project, from which future STELLA-STAR research challenges and endeavours can be launched.

References

- Barabasi, A.-L. (2002). *Linked. The New Science of Networks*. Perseus Publishing, Cambridge, Massachusetts.
- Black W.R. and Nijkamp, P. (eds.)(2002). *Social Change and Sustainable Transport*. Indiana University Press, Bloomington.
- Button, K.J. (1993). *Transport, the Environment and Economic Policy*. Edward Elgar, Cheltenham, UK.
- Button, K., Bragg, M., Stough, R. and Taylor, S. (eds.)(2006). *Telecommunications, Travel and Location*. Edward Elgar, Cheltenham, UK (forthcoming).
- Feitelson, E., and Verhoef, E.T. (2001). *Transport and Environment*. Edward Elgar, Cheltenham, UK
- Gorman, S.P. (2005). *Networks, Security and Complexity*. Edward Elgar, Cheltenham, UK.
- Nijkamp, P. (ed.)(2004). *Transport Systems and Policy*. Edward Elgar, Cheltenham, UK.
- Poot, J. (ed.)(2004). *On the Edge of the Global Economy*. Edward Elgar, Cheltenham, UK.
- Reggiani A. and Schintler, L. (eds.)(2005). *Methods and Models in Transport and Communication: Cross Atlantic Perspectives*. Springer-Verlag, Berlin.
- Russo, G., Reggiani, A. and Nijkamp, P. (2005). Spatial Activity and Labour Market Patterns: A Connectivity Analysis of Commuting Flows in Germany. Paper Presented at the

Workshop on Modelling the Entrepreneurial and Innovative Space-Economy, Tinbergen Institute, Amsterdam; TI Discussion Paper 2005-107/3.

Watts, D.J. (1999). *Small Worlds*. Princeton University Press, Princeton.