ABSTRACT

Many of today's social, economic and environmental problems can be traced to inefficiencies or inequities in our transportation infrastructure and systems. New and innovative solutions for addressing these problems, improved research programs will be a fundamental part of this process. Over the last decade Austria has implemented a series of innovations designed to improve the quality and efficiency of transportation research funding. This paper describes some of these techniques including using theme-based programs, improving research administration, encouraging multi-disciplinary research and developing innovative research processes. These techniques have been successful both in stimulating development of the country’s transport research sector and the quality of transport ideas; furthermore, they have helped build political and financial support for transportation research among policy makers.
AUSTRIA'S APPROACH FOR STIMULATING INNOVATIVE MULTIDISCIPLINARY TRANSPORTATION RESEARCH

1. INTRODUCTION

Transport plays a fundamental role in our society and economy. Many of today’s social, economic and environmental problems can be traced to inefficiencies or inequities in our transportation infrastructure and systems. Leaders worldwide have recognized the need for developing new and innovative solutions for addressing these problems, improved research programs will be a fundamental part of this process. [1]

This paper describes Austria’s approach to stimulating innovative multidisciplinary transportation research. Many of these techniques can be used elsewhere to improve research quality and effectiveness. The paper begins with an introduction to Austrian transportation research and then describes two innovative activities: the ways2go program and the IV2Splus Trans-national Call for Projects. The final section presents conclusions and recommendations.

2. AUSTRIAN TRANSPORT TECHNOLOGY RESEARCH FUNDING POLICY

This section presents a short history of transport research in Austria, the introduction of techniques for improving research effectiveness during the last ten years, the “Intelligent Transport Systems and Services (IV2S)” program – the first using these new techniques and the new IV2Splus research funding program.

2.1 Background: One decade of transport research in Austria

Transportation has traditionally played a significant role in due to the country’s geographical position in the middle of Europe and its topographical constraints (limited settlement space connected by narrow transport corridors). Transportation also contributes over 10% to Austria’s gross national product.

Austrian transport companies have successfully developed niches in several important transport related sectors (e.g. automotive and rail technologies). During the last several years many of these companies have shifted their emphasis to producing products and services based on new technology developed partly with support from various different government research grant programs. [2]

In the late 1990s, Austria decided to take a more comprehensive approach to funding transport research. While former funding programs were limited to supporting industries only, the new approach significantly expands the scope. The new programs emphasize topics where new services and products can be developed that make a meaningful contribution to solving transport related social, economic and environmental problems (mission oriented transport research funding programs). The state’s commitment to transport research funding designed to meet these major challenges is especially important, since development in the field of transport, due to market or system failures, does not always provide adequate problem solutions without public interventions.

In summary, Austria’s goals for state-funded research are to safeguard and expand the competitiveness of the Austrian transport industry and to support development of an efficient, safe, environmentally and socially sustainable transport system. The next section outlines Austria’s program for meeting these ambitious goals.

2.2 Improving the Effectiveness of Transport Research in Austria

Transportation is part of the same federal ministry that also includes innovation and technology: the Austrian Federal Ministry for Transport, Innovation and Technology (BMVIT). This meant that the BMVIT has the in-house resources to rethink research support and to actually implement new ideas. The BMVIT applied three key techniques to improve transport research effectiveness: introducing “impulse programs” to create a more open and focused research system, facilitating coordination and cooperation between research and transport policy and their stakeholders, and finally building an efficient administrative and
in institutional framework for carrying out research activities more smoothly. Each of these
techniques is described below.

Creating the impulse program was the main step in transforming transportation
research funding from a series of singular initiatives to a comprehensive, focused and
transparent instrument. The impulse programs are designed to stimulate cooperative R&D
between industry, research and scientific organizations, and end-users. The programs are
especially focused on promoting research by small and medium scale enterprises (SMEs).

In a nutshell the impulse program method consists of developing a problem or
mission-oriented call for proposals in a specific topic. Proposals are expected to define
projects that contribute to innovation leading to new or improved products or services.

Then the impulse programs are funded for a fixed multiple-year program. The
programs are administered using standard procedures designed to provide an open and
transparent system for submitting and evaluating research proposals (open calls for projects
and external project evaluations) while ensuring high quality through the use of a competitive
application process for funding. Once an impulse program is completed, new programs are
developed (either expanding on earlier programs or completely new programs).

The first trial of this program architecture took place in 2002 when the BMVIT
combined multiple sources of funding for innovative transport technology research into a
single program called "Intelligent Transport Systems and Services (IV2S)". The IV2S
program contained three specific impulse programs. The program was completed in 2006
and was - as described in the following section - considered very successful.

The second technique used to improve transport research effectiveness was to better
coordinate transport research with transport policy agendas in order to better utilize research
results and to form cohesive policies (again the fact that BMVIT included innovation and
technology as well as transport was helpful in making this happen). One important example
was development of a telematics master plan for Austria that now serves as a guideline for
the development of intelligent transport systems. Coordination was improved by creating
several complementary initiatives within the BMVIT and by forming multi-disciplinary
industrial platforms (working groups).

The third technique was to concentrate administrative competences for BMVIT’s
research funding programs in a newly created organization the Austrian Research Funding
Promotion Agency (FFG). This independent agency was created in 2004 by combining four
separate organizations and other scattered program management bodies reducing
duplication and providing one-stop assistance to researchers from development of proposals
to grant administration. In this case the BMVIT is the ‘owner’ of the research program and is
therefore responsible for developing the program goals and the call for proposals, while the
FFG is hired to coordinate the Call for Proposals process, the proposal evaluation process
and grant accounting. The FFG performs the same role for many research programs in
addition to transportation, so they are able to develop efficient and user-friendly
administration techniques. [3]

These techniques were partly implemented during IV2S program period, and were
further developed and amended for use in the IV2Splus program.

2.3 IV2S Research Funding Program 2002-2006

The Intelligent Transport Systems and Services (IV2S) research program was launched in
2002. The program has a budget of over EUR 50 million ($71 million) and a four-year
duration. The IV2S program included three impulse programs:

• I2 Intelligent Infrastructure – Transport Telematics and Intelligent Transport systems;
• A3 Austrian Advanced Automotive Technology; and
• ISB Innovative System Railway.

The program provided funding for over 250 projects with a total volume (including matching
funds) of more than EUR 100 million ($140 million). The IV2S program was targeted on
applied research activities, complying with the definitions of the European Community
framework for state aid for research and development and innovation. [4] The program was
judged to be successful using two main criteria.

First, the transport related funding as well as research funding in other industrial
sectors helped stimulate a wide range of primary and secondary impacts on Austria’s
science, innovation and technology system. Studies have shown that the research funding
has helped to support the on-going structural transformation of Austria’s economy. [5] The
European Innovation Scoreboard showed that Austria’s level of innovation among European
Union members rose from 11th place in 2000 to 6th place in 2009. [6]

Second, the transportation research funding strongly contributed to building critical
mass in terms of research personnel and knowledge which, in turn, has created an
interlinked community of researchers and research organizations focused on completing
innovative projects and competing effectively for international research grants. The strong
showing of Austrian transportation research organizations in the European Framework
Program 6 (FP6) provides evidence of this success. Austrian transport researchers were able
to obtain 172% of their share compared to 114% average for all Austrian researchers. (This
measure compares the share of funds returned to Austria from the FP6 program to the
amount Austria contributes.) Early evidence from the 7th Framework Program shows that this
trend is continuing. [7]

While the IV2S program was considered generally successful, there were fewer
projects that led directly to actual products or services. Therefore, the BMVIT added the new
funding instrument “Lighthouse Projects” designed to demonstrate near to market
technologies in large scale demonstration projects. Furthermore, as described in the
following section, the IV2Splus program themes placed a stronger focus on developing tools
to generate projects which lead to products.

2.4 IV2Splus Research Funding Program 2007 - 2012

Given the success of the IV2S program, the BMVIT decided to extend the program by
creating the Intelligent Transport Systems and Services plus (IV2Splus) program. The
program developed new topics for the impulse themes and introduced several new ideas
based on experience with the IV2S program and consideration of important policy goals.

The architecture for the impulse programs was developed by using a two-step
process. First, general policy goals were considered in conjunction with results of the IV2S
program to help define the impulse theme topics. Then the impulse program themes were
developed in more detail in terms of topics and governance. The following general policy
goals were considered in defining the theme topics:

• Goals set forth in the European Commission in the Mid-Term Review of the European
Commission’s 2001 Transport White Paper [8]. These include improved co-modality,
i.e. optimization of transport modes in both individual (mono-modal) and in multimodal
use, encouraging modal shift towards more environmentally friendly transport modes
such as rail, inland waterways into transport chains/integrated routes as well as
improving integration of transport modes.

• The need for increasing energy efficiency and environmental sustainability in the
transport sector due to binding climate protection targets or other pressing social and
environmental policy issues (e.g. threat to the security of energy supply).

• Changing demographic and social conditions (e.g. a massive change in the age
structure), combined with changes in land use and new transport and mobility
requirements.

• The transport manufacturing sector and transport research have both become
increasingly international. To compete successfully manufacturers and researchers
must be key players in effective international networks.

Three complimentary impulse programs were developed to address these policy issues. The
three programs consist of Alternative Propulsion Systems and Fuels (A3plus), Intermodality
and Interoperability (I2V) and ways2go. The fourth part of the IV2Splus program (Impuls)
consists of an initiative designed to encourage specific multidisciplinary projects including
transfer of knowledge from bionics and creative industries to transportation. The four programs are shown on Figure 1. A total yearly budget of about EUR 20 million ($28 million) is foreseen for all IV2Splus research promotion activities.

The A3plus program spans a broad thematic arc ranging from development of highly efficient drive units to innovative storage concepts for alternative fuels to advanced automotive electronics for energy efficient control and vehicle system management. In parallel to these vehicle-based technologies, the program also considers alternative energy including research on alternative fuels as well as the infrastructure systems needed to efficiently create and distribute these new energy sources.

The I2V program line focuses on development of intermodal and interoperable transport solutions, intelligent freight logistics and reducing the environmental impacts of transport. Two especially important priorities are research on ways to shift freight flows from road to rail and/or waterway transport, and research on improving freight transport logistics by considering the entire transport logistics chain including both external and internal to the firm freight flows.

The ways2go program focuses on passenger transport. The program aims to increase knowledge on future mobility and transport issues in order to encourage development and testing of sustainable, demand-oriented transport systems and mobility solutions. The program particularly encourages interdisciplinary research projects that integrate ideas from outside subjects with transport research addressing future transport challenges. The ways2go program is described in more detail in Section 3.

The overall IV2Splus strategy program also includes support for international (transnational) research by coordinating program activities with other countries under the framework of ERA-NET TRANSPORT (www.transport-era.net). [10] One new instrument resulting out of this approach is the Trans-National Call for project proposals designed to overcome the difficulties of coordinating national research programs. It is described in Section 4.
3 WAYS2GO – INNOVATION AND TECHNOLOGY FOR EVOLVING MOBILITY

3.1 ways2go Program Design

Personal mobility has always been closely linked to demographic, economic and land use characteristics. However, rapid changes in these fields are having a significant impact on mobility needs and transport demand. These changes must be fully considered in the design of future transport systems both to achieve a high level of user acceptance and to provide sustainable transport networks. The ways2go program is intended to do just that.

As an impulse program, the ways2go program is designed to focus on a particular set of important policy issues. The program’s overall theme is how social and demographic change will affect future transport demand; this broad theme was further refined to include several specific areas of focus examined in the context of future social and demographic change. These focus areas are described in the following paragraphs.

The ways2go program is particularly interested in exploring questions related to age discrimination, social inclusion, equal opportunities and accessibility in transport. These are subjects that will play an increasingly important role as society evolves. Often these issues are thought-of in the urban context, so the ways2go program explicitly considers mobility in rural areas where aging and socio-economic change (people moving to urban areas) is having a huge impact on transportation demand and where it is very difficult to provide cost effective public transport service.

Another ways2go program focus is developing ideas for creating socially inclusive, environmentally sound and safe transport systems. An important program goal is helping develop products and systems that contribute to realization of the barrier free transport systems called for in the Disability Equality Act. These could be innovative ideas for using the multi-sense principle in design, technologies for reducing transport system physical and/or informational barriers and ideas based on the principles of "universal design" (design for all) – a prerequisite for making transport system improvements that benefit all users.

Finally, the ways2go program also supports development of innovative technologies that can be used to improve the spatial planning and decision-making processes. New technological applications and methods can be used to better integrate spatial and transport planning. Spatial structure depends directly on transportation systems and vice versa, therefore they must be planned together to optimize outcomes. ways2go therefore supports an integrative approach towards transport technology, spatial planning and transportation planning, so that new and improved planning approaches for future transport systems can be realized.

The ways2go program is structured in terms of four topics all designed to address the overall program themes. The four topics are outlined below.

3.2.1 Mobility research for future mobility solutions

This topic focuses on broadening the mobility research knowledge base. Projects are designed to expand the knowledge base by solving specific problems. The topic considers two main themes:

- **User-specific mobility needs and transport demands** - This theme focuses on developing new knowledge about future mobility behavior and demand with particular attention on the needs of transport disadvantaged groups. The theme includes:

  - analyzing physical and psychosocial mobility barriers for specific user groups,
examing the usability of future mobility solutions for specific user groups, and
developing indicators for better describing mobility characteristics and needs.

- **Social factors influencing mobility behavior, mobility trends, technology and mobility scenarios** – This theme focuses on understanding the relationships and interactions between mobility and other social fields. The theme includes: analyzing the social impact of mobility behavior, interactions between virtual and physical mobility, accessible transport technology options, technology options for changing rural mobility needs and opportunities and risks for current and future transport and mobility solutions.

### 3.2.2 Mobility solutions and mobility infrastructure for the future

This topic focuses on developing and testing ideas for improving future mobility systems and transport infrastructure. A key goal is considering the ability of people to use specific technological solutions in a social context and to transition smoothly at transport system interfaces with the objective of developing new, integrated mobility solutions.

The topic includes developing and testing both innovative information technology (IT) and ‘physical’ solutions. IT solutions include systems and components that: support personal mobility in vehicles, infrastructure and public spaces, reduce barriers to independent use of the transport system and encourage use of sustainable transport.

Physical solutions include developing and refining actual products and services including developing new means of personal transport and support infrastructure, ideas for increasing societal acceptance of new transport technologies, and developing ideas for improving the attractiveness and efficiency of public transport.

### 3.2.3 Motivation and learning for sustainable mobility and lifestyles

This topic focuses on developing innovative concepts for increasing the sustainability and safety of mobility options and mobility aspects of personal lifestyle. Concepts range from hard measures (e.g. pricing and incentive schemes) to soft measures (e.g. awareness-building and education programs).

The topic includes programs designed to publicize more sustainable and safe mobility practices, programs to encourage implementation of new business models and multidisciplinary cooperation in the transport sector, programs to encourage sustainable transport through the creation of new marketing tools (e.g. using social networks to encourage public transport), and programs to increase the usability of technology for specific user groups.

### 3.2.4 Innovative tools and methods for spatial planning, transport planning and transport technology

Good planning is the foundation for developing a more efficient and sustainable transport system. Furthermore, solving future transport problems will require closer coordination between transport and spatial planning. Therefore, this topic focuses on the development of new tools for improving the transport and spatial planning processes.

The theme includes developing applications for improving management and analysis of transport data (e.g. automated data collection and analysis), developing applications to improve transport research knowledge management and developing planning tools (e.g. new analytical models) and methods for the future.

### 3.3 ways2go First Call for Proposals

The first call for projects under the ways2go impulse program was issued in March 2008. Given the program’s goal of encouraging a multi-disciplinary approach to understanding transport and mobility needs, the formal Call for Projects was accompanied by a strong outreach program designed to encourage wide participation. The outreach included contact with:

- Research institutes at universities, colleges, and independent organizations;
• Industrial companies;
• Small and medium-sized enterprises (SMEs);
• Transport operators, mobility service providers, infrastructure operators;
• NGOs and associations (e.g. disability, health care, nursing and/or rehabilitation);
• Government bodies and local authorities (particularly municipalities); and
• Individuals.

A total of 82 project proposals were submitted for the Call; 36 of these projects were selected with a total funding volume of EUR 5.3 million ($7.5 million). Kick-off date for these projects was autumn 2008.

Response to the call for projects was considered excellent. Not only were many more projects submitted than had been anticipated, but the proposals included many innovative ideas and included teams with totally new partner networks across several disciplines. This showed that the ways2go program had stimulated formation of a new mobility research community in Austria; 50% of program participants were newcomers in transport related funding programs.

Furthermore, the program succeeded in encouraging SMEs, which is often where real innovation occurs, to participate (about 70% of company participants are SMEs). Finally some of the new partnerships formed for the ways2go projects are now working cooperatively on other projects thus increasing the quality and innovation level in Austria’s transport sector.

One reason for the program’s success in attracting new and smaller organizations was the inclusion of a very small project category called “concepts” into the program. This enabled organizations and individuals to submit project ideas for a maximum grant of EUR 35,000 ($49,000). The applications for these grants were simpler and less detailed than the full application. Projects in this category had to show how they would lead to knowledge that would ultimately become a new product or service; in this way these concept projects could also be a way to refine and develop ideas for future Calls for Projects.

The response showed that taking a holistic approach to mobility research and technology was strongly welcomed by the research community. Many of the project proposals took a socio-technical approach expanding the technology-limited scope found in previous research programs. The ways2go program encouraged this approach by introducing a new project type “basic research with technological or economic orientation” which enabled researchers to take a broader perspective in their work.

The ways2go projects cover a very broad set of topics. As part of the proposal process applicants were asked to self-assess their proposals based on research subject and target group in order to describe project effects more practically. Figure 2 presents results of this assessment.

As shown in Figure 2, the projects selected from the first ways2go call generally cover the main program themes and should contribute to meeting the program aims, although final results are not yet available (first final project result are expected by the end of 2009). A list of the projects funded from the first ways2go call is on line at:

http://verkehrstechnologien.at/ways2go/_/prog18/umb7

3.4 Transport Research Knowledge Management and Networking

A key goal of the BMVIT is to improve the quality and efficiency of transport research in Austria. One approach to achieve this goal is to develop a system of knowledge management. This fits nicely within the ways2go program and therefore the program managers decided to include a special project analyzing ideas for developing a knowledge management program using input from ways2go projects.

The ways2go knowledge management system project (ways2know) consists of surveying users to determine system requirements and then developing a prototype system (including recommendations for implementation). The requirements analysis has been completed and initial results show that the research community believes that a knowledge management system would be a useful tool for improving research quality and networking.

The survey completed as part of this analysis provided a great deal of specific information that is currently being used to design the prototype system. Final project results are expected in autumn 2009. [12]

In addition to the formal study of knowledge management, the ways2go project is taking a proactive approach to networking among project sponsors by convening a series of workshops. As a result of networking at these workshops a large number of projects have started to share information and ideas, thus creating synergies and reducing the amount of duplicated work. For example, two projects can share a single survey. While some networking has taken place in other programs the ways2go program’s proactive approach of organizing these networking events has significantly increased the quality and quantity of cooperation. This idea will be formalized as part of the knowledge management program.

Surprisingly many ways2go projects from the first call have now already started interlinking activities for cross-utilization of work. Such a high degree of “coopetition” has not yet been observed in other transport related programs.
3.5 Lessons-learned and Outlook for Future ways2go Activities

The first call for proposals under the ways2go impulse program was considered successful by both the organizers and participants. Therefore, the BMVIT decided to continue the program by funding a second call for projects. While the first call was considered successful, the BMVIT analyzed the program to identify lessons and ideas for improvement that were subsequently included in the second call for proposals. This call was issued in June 2009 with a proposal submittal deadline in November 2009. This section outlines the process used to revise the call for proposals.

The first step in assessing the ways2go first call was internal. While the first call was judged successful, there was interest in increasing the number of ideas leading to actual market ready products and services especially given the current economic crisis. Therefore, the second call for proposals was designed with a stronger focus on applied research.

The second step consisted of working with key external stakeholders to evaluate the first call both in terms of themes and program administration. Stakeholders included first call project managers, key transport decision-makers, and the public.

The first question: “Are the ways2go themes still relevant?” was answered with a resounding yes. In fact, these themes are growing in importance. This can be seen in the fact that many ways2go themes are subjects of lively public policy discussions (transport’s impact on climate change) as well as international research. For example, international conferences on the impact of demographic trends on transportation systems (e.g., the TRB conference held in October 2008), increasing accessibility, integrating IT into transportation systems and developing new strategies for integrating transportation and land use planning. Stakeholders did make suggestions for revisions and additions within the main themes.

The second question addressed by stakeholders was about other ideas that could improve the ways2go program. Stakeholders developed several specific recommendations including:

Increase outreach to industry – Large industrial companies were underrepresented in the submissions for the first call. Therefore, representatives of these companies were contacted to learn more about why they had not proposed. The main finding was that, while the firms knew about the ways2go program, they were confused about whether or not they had projects that would qualify given the program’s interdisciplinary emphasis. They were unsure how their projects would fit within a “soft” or “social” oriented research program rather than in former clearly “technical” oriented programs.

The important take away from this misunderstanding is to remember that, multidisciplinary programs are more difficult for traditional engineering based researchers to understand. Therefore, special outreach is needed for large manufacturing companies and especially at the level of the actual ‘potential researchers’ rather than only at the corporate R&D level. This outreach should consist of describing the program in more detail and brainstorming about potential projects.

Present concrete proposals for product customer profiles – One way of focusing research on developing new products designed to meet real needs is asking all researchers to describe exactly how one or more ‘typical’ customers would use the product or service. For example, the call for proposals could identify several different prototype customer profiles and ask that proposals describe this person’s transportation needs in 2020 and how exactly they would use the proposed product or service. The customer profiles would provide a wide range of social and demographic groups (e.g., age, sex, background, location, lifestyles, etc.), for example one might be a 37-year-old female working part-time and living in Vienna with two children aged 4 and 7. A refinement would be to ask that the consortiums to develop their own customer descriptions.

Finally, a side benefit of this approach is that the proposals would provide an excellent Delphi analysis of future transport trends in Austria and internationally. This Delphi analysis could be used to further refine the program objectives for future calls and for developing ideas on future trends in transport.
This idea is currently under a feasibility check and could be implemented into the third call for proposals in 2010.

Accelerate transnational cooperation projects – Very few project proposals from the first call were had a trans-national project component, although a funding bonus of 5% was offered. This fact, combined with experience in the ERA-NET TRANSPORT project, clearly showed the need for taking a more flexible approach towards funding trans-national projects and resulted in development of the “Transnational IV2Splus Call” described in more detail below.

4. FLEXIBILITY FOR TRANSNATIONAL COOPERATION: THE TRANSNATIONAL IV2SPLUS CALL

An important goal for Austria's transport research is to increase cooperation with researchers in other countries. This international research cooperation strengthens innovation networks and opens new market opportunities for the Austrian transport sector. Austria has been an active participant in the ERA-NET TRANSPORT cooperation platform but wanted to further increase the amount of international research cooperation. Therefore, in 2009, BMVIT launched a new Call for Projects under the IV2Splus program designed to stimulate and enhance international research collaboration. This section describes the ERA-NET TRANSPORT cooperation platform and the new Transnational IV2Splus Call for Proposals.

4.1 ERA-NET Transport Cooperation Platform

In 2004, 13 countries formed the ERA-NET TRANSPORT (ENT) cooperation network within a Framework Program 6 project (see www.transport-era.net) to encourage research funding information exchange and to develop cooperation procedures for funding transnational research collaborations between national research programs in the transport sector. Since then ERA-NET TRANSPORT partner countries have organized several trans-national calls and obtained a good understanding of process related implications for trans-national research funding cooperation.

Experience from the ERA-NET TRANSPORT process clearly highlights the barriers to effective collaboration between national R & D funding programs of member states, specifically:

- It is difficult to coordinate the timing of individual national research programs to encourage effective transnational participation. The diversity of approval and process requirements for different countries makes it extremely difficult to efficiently coordinate call timing internationally.

- Producing comprehensive thematic harmonization of program priorities (research agendas) for program-specific, trans-national calls or tenders is a difficult and long-term task. When taken together with timeline related problems (see above) this restriction significantly impacts the ability to support trans-national projects.

The ERA-NET TRANSPORT cooperation platform partners have worked well together sharing ideas for research themes and research program administration, but due to the barriers outlined above it has been very difficult to launch coordinated programs that encourage researchers from separate countries to work together on specific projects funded under national research programs.

Note that while the barriers make it difficult for international consortiums to work together on nationally-funded research projects, they do work effectively on transport research funded by the European Union where international cooperation is a requirement for funding.

4.2 IV2Splus Transnational Call for Proposals

The goal of the BMVIT's IV2Splus Transnational Call is to reduce the barriers preventing effective transnational research cooperation. The specific objectives include:
Establishing new transnational research cooperation that makes a demonstrable contribution (e.g. knowledge synergies, opening new markets) to the development of transport technologies in Austria within the framework of IV2Splus;

• Increasing the participation of Austrian organizations in trans-national research projects by increasing program flexibility;

• Creating linkages to foreign research funding sources (both public and private);

• Reducing the coordination effort needed to support trans-national research; and,

• Creating a critical mass of funding for research in IV2Splus-related topics.

Given the limited national resources available to support scientific research this type of international cooperation is critical to building an innovative transport research sector.

The IV2Splus Transnational Call for Proposals is designed to compliment the national IV2Splus impulse programs. This Call for Projects works by significantly increasing the flexibility for international research cooperation both with respect to time (deadlines) and themes in a pragmatic approach.

The instrument provides flexibility in time by being a continuous call (as opposed to the normal national calls which are open for a limited period). This gives participants better chances to coordinate with partners in other countries, to develop joint proposals and most importantly, to coordinate the project proposal with research funding deadlines in other countries (the Austrian program funds Austrian organizations, the foreign organizations need to be funded under their own national programs).

The trans-national call provides flexibility with respect to themes by being open to projects that are consistent with all three of the IV2Splus impulse programs. This provides wide latitude for project proposals.

The IV2Splus Transnational Call for Proposals will only fund projects that include international partners. The first call was launched in June 2009. A total of EUR 1 million ($1.4 million) has been dedicated for the first call. The first proposal deadline is in November 2009, but proposals will be accepted on a continuous basis to improve coordination with other national programs.

The Transnational Call for Proposals is one of the first practical translations of experiences gained from the ERA-NET TRANSPORT into a national funding system. This instrument is currently on its first trial and aims for a permanent installation if successful.

5. CONCLUSIONS AND RECOMMENDATIONS

This paper describes Austria’s approach to stimulating innovative multidisciplinary transportation research. Many of the techniques used by Austria are transferable to other research programs. These techniques include:

• **Theme-based Funding Programs** – Austria’s use of time limited impulse programs is a good way to continuously re-think research programs. This forces sponsors to develop new themes for research and make a convincing case for their importance.

• **Improved Research Funding Administration** – Creation of a separate research administration organization freed technical staff to focus on the thematic subjects and made administration simpler, fairer and more efficient for project sponsors.

• **Multidisciplinary Research** – Austria’s ways2go program is a good example of a program designed to encourage multidisciplinary research that fully considers the impacts of demographic and social change on transport demand. Developing this program meant working closely with multiple stakeholders to fully understand the themes and to encourage participation from organizations not necessarily focused on transportation research.

• **Innovative Research Funding Processes** – The BMVIT’s IV2Splus Transnational Call for Proposals is a good example of thinking creatively to encourage new forms of cooperation. In this case the cooperation involves different countries, but the
approach of evaluating the barriers to cooperative research and then developing flexible techniques for working around these barriers is applicable in other situations.

In summary, the Austrian Federal Ministry for Transport, Innovation and Technology has implemented several techniques designed to improve the quality and efficiency of its transportation research programs. These techniques have been successful both in stimulating development of the country's transport research sector and the quality of transport ideas. The program has helped build support for transportation research among policy makers and therefore continued financial support.

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