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Executive summary

NEARCTIS is a Network of excellence. The project, financed by DG ICT, started on July 2008 and lasted 5 years. Besides managing to be an independent virtual institute, the objectives of the network have been threefold: gathering academic research on traffic management, and being able to propose an integrated research programme in the field of traffic management. The network also aimed at gathering new partners and spreading knowledge.

1. Gathering academic research on traffic management

NEARCTIS gathered a significant part of the European academic community working on road traffic management, i.e. traffic modeling, traffic control, communication and location technologies. The final objective has been to constitute a virtual research institute, which meant to elaborate several elements: an integrated research program, a set of common shared resources, a policy and structure for results and methods dissemination, and the integration of training capabilities.

NEARCTIS main focus in the process has been to ensure a strong link between the team involved in the network and the academic community (in Europe and overseas) as well as the stakeholders of the traffic systems through the creation of a network of Associate Partners involved at various levels in the process.

The PhD students have continued and for most of them finalised their research and have sent their last report to the Phd committee for evaluation.

The mobility exchange programmes between researchers has continued in year 5: 2 exchanges took place, between UoS and TUD and between TUD and IFSTTAR.

The PhD students have published articles, had the opportunity to present their work at high level conferences and gained awards for their hard work.

The results of the Marie-Curie proposal set up in year 4 to perpetuate our positive experience of the education programme are known. This proposal over-passed the selection threshold (like only a fifth of the total number of submission), but not the financing one. After the steering meeting we collectively examined the pitfalls reported by the evaluation form and we realized that we might resubmit the proposal with a good chance of success. Indeed the reviewers in their comments argue that the topic addressed inside BOOST are relevant regarding the state of the art, that the internal structure is adequate (especially the balance between non-profit and profit sector) but they asked a more precise positioning and a clearer internal management.

NEARCTIS co-sponsored a call for paper on Modeling Cooperative Traffic Management and ITS together with the TRB. 14 papers for NEARCTIS were presented, out of 26 submitted.

2. Towards an integrated research programme:

“NEARCTIS Joint Programme of Activities was organized to develop the various components of a virtual research institute. Elaborating a common and consistent research programme has been the main goal. This work was organized within two groups of tasks, one taking account of the various scientific fields involved and the other the various systems implementation fields.

2.1. A wide range of scientific topics

Efforts focus on modeling (traffic flow, assignment, environmental and energy impacts, individual impacts versus flow modeling), optimization and control, as well as evaluation methods (technical, economical, environmental, safety issues).

NEARCTIS also focuses on communication (positioning and tracking, geographic information, vehicle to infrastructure, vehicle to vehicle communication), deployment and implementation issues (system architecture, interoperability, uncertainty and robustness).

The work developed for this activity of the project was finalized in year 4. However, the WP leader has been involved in the preparation of the review and in presenting its results at the occasion of dissemination activities

NEARCTIS' inputs are now recognized by other stakeholders of the research community. NEARCTIS is represented at the WG Automation, and is participating to the Smart cities initiative. Our Deliverable D14 has been considered as an input by DG RTD for the preparation of the 1st “Horizon 2020” call.

2.2. A multiscale consideration of traffic management questions

Global services, with more particularly information and control of cooperative systems, door to door guidance, fleet management, shadow toll systems, has been assessed. Motorway corridors were another issue, with a special focus for information and route guidance and travel time information. Other subjects were dense urban networks, coordinated freeways/signal control, freeway management (managed lanes, incident management) as well as shared multimodal/ multi-users networks.

Last year, D15, “Specs and evaluation approaches for possible case studies” was completed. Associate Partners have been consulted in the process.

2.3. Developing common resources

One of the objectives of the project has been to develop a set of shared resources of various kinds: experimental tracks or vehicles, data bases, software. Those resources have to be made available to the partners of the project, but more widely to the whole scientific community.

In year 3, Deliverables D11 (“Report on identified research topics due to shared resources”) and D12 (“Content management system, including shared resources”) finalized the task of developing common resources. Databases are available on the website of the project and partners have started filling up information. This has led to benchmarking between institutes (for example IFSTTAR is considering using “Infosciences”, the tool made by EPFL to register publications).

3. Extending the network, disseminating knowledge

A close integration of partners requires their number to remain within reasonable limits. On the other hand, it is necessary to develop a strong connection with several communities:

- The international academic community concerned with the research topics studied in the network
- The scientific community concerned with related topics not directly addressed inside NEARCTIS: human factors, economics, road safety...
- The professional community concerned by traffic optimization: car manufacturers, traffic systems manufacturers, consultants
- The Traffic management authorities: local authorities, motorways operators...

Keeping this link with a wider community has been made in two ways: constituting a network of associate partners, organizing a range of dissemination actions

3.1. Associate Partners

Associate partners from all the abovementioned communities and from all over the world have already joined NEARCTIS. They have been associated, to the extend they wish, to the activities of the project and get access to information disseminated by the project. They have been encouraged to attend NEARCTIS workshops.

Participation to the mobility exchange programme of NEARCTIS has been extended to the Associate Partners and they have been involved in the setting of the research agenda. The AP continued to be involved in the drafting of the Deliverables and Associate Partners routinely used the mailing list of NEARCTIS to communicate on open positions and inform on their events.

NEARCTIS has towards the end privileged collaboration with highly motivated individuals or organizations (collaboration with various projects like SATIE or ECOSTAND, Multitude, TfL) who were willing to collaborate on concrete events or project with us.

In the last year, Trinity College Dublin joined as an associated partner. They contributed in the organization of the project's final event.

3.2. Training and dissemination actions

NEARCTIS organized annual workshops; open to all partners and associate partners and to others on invitation. Other information has been disseminated through a newsletter and through the website www.nearctis.org or by contacting the coordinator.

The network website (www.nearctis.org)has been a major dissemination channel for the NEARCTIS Network of Excellence (NoE). Knowledge management and internal communication was facilitated by the NEARCTIS portal incorporating on-line reporting and document management. It was available to the NEARCTIS partners (full and associate) as a protected area via login. It gathered, promoted and communicated project activities and project related information – news, information, useful links, reports, etc. In addition to the NEARCTIS website, partners' websites as well as relevant “external” websites have been used to promote the project and disseminate information.

NEARCTIS web-site has been periodically updated as new information became available and new achievements were reached within the consortium. As the partner's area of the website hosted several shared resources for partners, its accessibility was assessed at each meeting.

A high quality booklet was produced. It summarizes the output of the project, making the deliverables more accessible, and informing a less scientifically oriented audience.

NEARCTIs organised two workshop during year 5, both as side events of the ITS World or ITS Europe Congress. The event workshop for period 4 took place in October in Vienna (so in the 5th period), at the side of ITS World. The final workshop took place in Dublin, Trinity College, on the 6th of June 2013, at the side of ITS Dublin.

NEARCTIS partners organized various training and dissemination actions, and participated into the main European dissemination actions.

4. Perpetuation of the Network of Excellence

A network of excellence like NEARCTIS is only the first step into constituting a more permanent, self-sufficient research structure, i.e a virtual center of excellence. Some previous NoE have shown the way, as for instance HUMANIST which is now a well-established VCE with a high level of activity. Within the NEARCTIS joint program of activities, a specific task is thus devoted to determining the conditions for perpetuating the network and designing the VCE organization.

The work about the NEARCTIS perpetuation took two complementary directions:

- We build a working team dedicated to perpetuation, with members from UCL, TU Delft, ERT, EPFL, IFTTAR and TUC. The aim of this working team is to obtain a consensus on the main objectives that NEARCTIS should fulfill after the official end of the project. From working hypothesis discussed with the Advisory Committee and partners, we set to validate and have a better view of the needs of potential partners. In this regard, we built a survey for associates partners and members. This survey will permit the perpetuation team to define which outputs of NEARCTIS are the most valued by the partners and have to be continued in the near future.
- The structure of the future Network, as well as its financial model has been drafted.
- In 2013/2014 we started testing the perpetuation of activities on which there were a consensus, in order to make them recurrent, visible and sustainable.

Lobbying have been set-up by our participation to various committees (iMobility forum through their WG on Automation, “Smart Cities”) at a European level.

During the last year of the NEARCTIS life (July 2012-June 2013), the activities devoted to perpetuation have known their most active period. From the previous survey, we knew which were the most interesting activities of NEARCTIS that we shall perpetuate (see figure below).

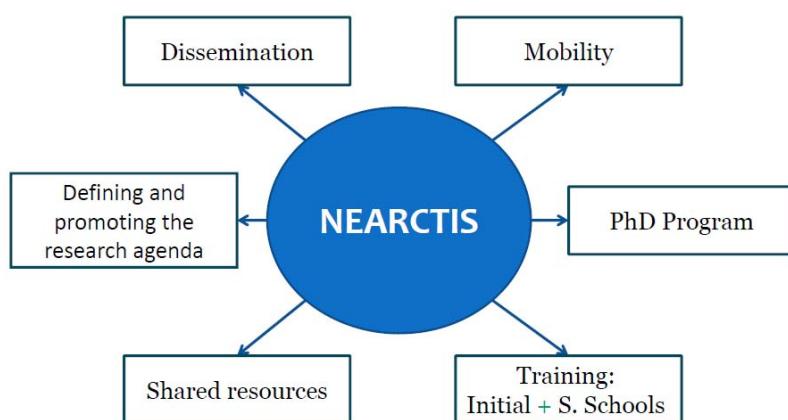


Figure 1: most interesting activities of the NEARCTIS network of Excellence.

We wrote and deliver on time (February 2013) the D16 focused on perpetuation. In this document we examine various possible ways of continuing those activities. We took for this work the above figure as a starting point. From this we divided the items into two parts, depending on the relevant structure and founding for those activities.

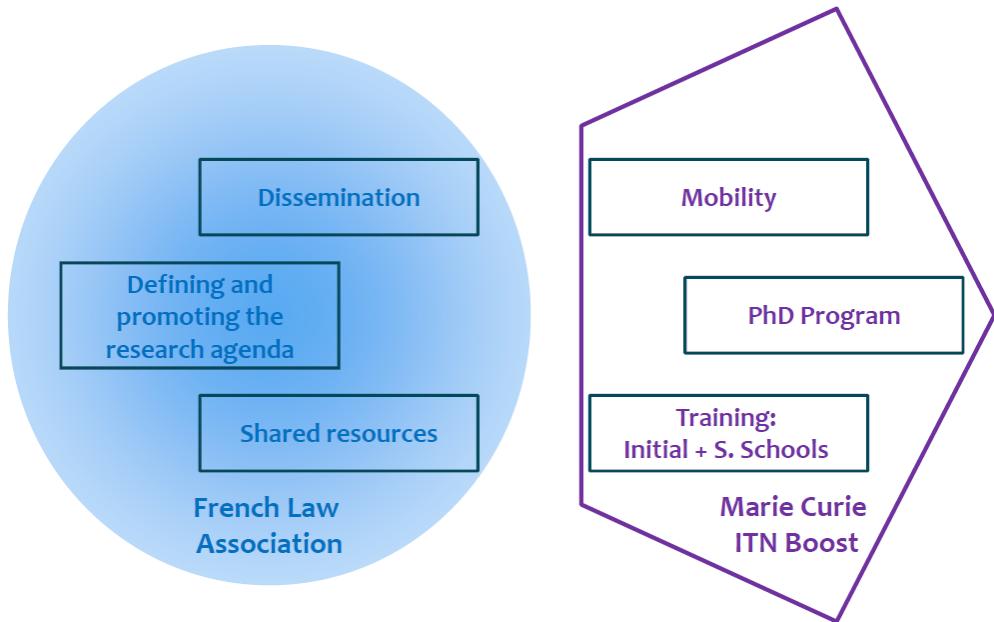


Figure 2: structure to perpetuate the NEARCTIS activities

French law association

The first part of the activities list is composed of what can be set up without a significant amount of extra founding. Indeed research activities are already financed by the institutions belonging to NEARCTIS. We decided nevertheless that the realized work to give consistency should result in new proposals for team research activities. The structure of the association (French law) seemed to us the most appropriate to this end. The work of this association will consist:

- To collect information about the calls for proposal (both at the national and European level);
- To help partners of this association in constructing ad-hoc consortiums able to precisely answer to those calls;
- To animate the community, thus permitting to improve and regularly maintain up to date the shared research agenda (D18) for a better traffic management and modeling, considering many externalities: congestion but also pollution, fuel consumption and safety;
- To maintain and enlarge in scope the resources shared between members of this association, built during the NEARCTIS period of activities and that will permit to realize those researches.

The amount of annually needed money for those activities will represent less than a thousand of Euros per year per member. That will permit to ensure a part time secretariat. Note that the initial orientation taken by the consortium and reflected into the D16 was much vaguer, as it did not define yet precisely the adequate structure that had to be created to gather our research forces to promote our research agenda.

The details of the status of this association are currently under discussion between members. Nevertheless, there is a common agreement since the last steering committee in Dublin among all current NEARCTIS core members on the necessity to build such an association. Of course we will enlarge the membership list to main European universities and research bodies

(Trinity College Dublin, Linkoping University are a first set of putative future members). The international links that we developed and concretized into associate partnership will also be continued into this new association.

ITN Marie Curie proposal: BOOST

The other activities, like summer schools, PhD and Post Doc need a financing support. Remember that those activities were considered as one of the most interesting ones in the web survey we realized at mid-life of the NEARCTIS network.

Therefore, we used the opportunity of the Marie Curie ITN call to submit a proposal: BOOST, the 22nd of November 2012. BOOST stands for Better Operations Of tranSportation system. The structure of this proposal is reflected into the tasks table presented below.

Research tasks	Multi modal travellers information before and during travel	Travel demand management	Congestion management
Data collection, fusion and analysis	EPFL (ER1.1.a), UoS (ESR1.1.b)	UCL (ESR1.2)	TfL (ESR1.3)
	UCL (transversal) ER1		
Modelling and simulation	IFSTTAR (ESR2.1)	TUD (ESR2.2)	TUD (ESR2.3.a), IFSTTAR (ESR2.3.b)
	TSS (transversal) (ER2)		
Control	EPFL (ESR3.1.a), DLR (ESR3.1.b)	TUC (ESR3.2)	TUC (ER3.3.a), EGIS (ER3.3.b)

Table 1: Structure of the BOOST proposal

Most of the core members of NEARCTIS were member of this proposal, but we enlarged the collaboration by adding non academic institutions, namely Transport for London, EGIS (a consultancy company originated from France) and TSS a microscopic simulation group based in Barcelona. The associate partners list joined to the proposal also contains a various and significant number of private sector companies operating or advising on the use of ITS.

All private sector colleagues engaged to provide the BOOST project with their data and their more operational-oriented way of seeing problems. They were meant to benefit from the summer schools and also from the collaboration of Early researchers that they would host for 12 months. For each of the stay (ESR, ie PhD students or ER, corresponding more to post docs) we planned twin supervision with a tutor coming from the academic sector and one coming from the profit sector.

This proposal over-passed the selection threshold (like only a fifth of the total number of submission), but not the financing one. After the steering meeting we collectively examined the pitfalls reported by the evaluation form and we realized that we might resubmit the proposal with a good chance of success. Indeed the reviewers in their comments argue that the topic addressed inside BOOST are relevant regarding the state of the art, that the internal structure is adequate (especially the balance between non-profit and profit sector) but they asked a more precise positioning and a clearer internal management.