

# **Enhancing International Cooperation between the EU and other Countries**

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***Research Infrastructures  
and their Networking***

# Situational Analysis

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- Rapidly growing middle class
- Rapidly growing car population
- Rapid urbanisation
- Greater demand for efficient and effective public transport facilities
- Pressure to deliver infrastructure to match growing demand
- Budgetary pressure to provide new infrastructure versus maintenance of existing infrastructure
- Environmental concerns and concerns about impact of Climate Change

# EUTRAIN

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- Its purpose is to seek international cooperation in transport research in order to resolve common transport related problems and challenges
  - by creation of critical mass
  - by promotion of free circulation of specialised knowledge, experience and knowhow
  - by mobilising global resources (people as well as research infrastructure) cost-effectively and time-efficiently
  - by easing existing barriers and limiting factors for collaboration, e.g.
    - harmonisation of international standards and practices
    - freedom for information and data sharing
    - respecting intellectual property regimes

# Transport Research Infrastructure

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*Especially in difficult economic circumstances, research and innovation are the key drivers for [ ] welfare. Excellent Research Infrastructures enable the cross disciplinary, frontier research and innovation that is needed to address the Grand Challenges [ ].*

*Research Infrastructures also play a crucial role in the training of young scientists and engineers: they attract thousands of scientists and students from universities, research institutions and industry [ ]. They guarantee the generation of new ideas and developments which turn into innovations and therefore support the creation of jobs.*

*After: Strategy Report on Research Infrastructures – Roadmap 2010 (European Union, 2011)*

# World-Class Research Infrastructure

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- **Definitions:**

- Fairly unique (one-of-its-kind) research infrastructure (RI) able to assist in addressing global challenges in rail, road, air and/or waterborne transport
- Both hard (physical) and soft (databases) RI

- **Important factors to consider:**

- Networking around RI is as important as the RI itself
- The RI should facilitate collaboration between researchers
- The researchers/staff responsible for the RI are as important as the RI itself
- Sharing of soft research infrastructure (e.g. research databases) will promote greater efficiency and reduce duplication and will be more cost-effective if hygiene factors such as IP and harmonisation issues can be overcome

# Example of Sharing Soft RI

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- Heavy Vehicle Simulator International Alliance (HVSIA) –  
Purpose:
  - Establishment of research areas of mutual interest
  - Establishment of mechanisms for funding, monitoring and completion of studies on common issues
  - Promotion of collaboration between accelerated pavement testing programmes
  - Sharing of knowledge
  - Avoidance of duplicate research
  - Optimisation of the use of resources and saving costs
- Members
  - China, Costa Rica, India, Indonesia, South Africa, Sweden, USA (x4)
- Tool for sharing research data:
  - HVSIA Activity Matrix

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**Gauteng**



**Relevant Links**

- Acronyms
- APT Conference 2008
- HVS Site Locations
- HVSIA - Matrixes and Other info
- HVSIA Panel of Experts
- Meetings and Workshops - Documentation
- Pavement Interactive Website
- Pavement layers - codes and descriptions
- Pave-Test
- Technical Documents - Public
- TRB AFD40

**California**



**CoE-ERDC-Hanover**



**CoE-ERDC-Vicksburg**



**Florida**



**CRII India**      **China**




**VTI**



## HVSIA Matrixes and other Information



[HVSIA Activity Matrix](#)

[Overview Page](#)



[HVSIA Instrumentation Matrix](#)



[Pavement Thesaurus](#)



[Current and Future Projects](#)



[Machine Production Table](#)



[Standard Procedures](#)

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# HVSIA Activity Matrix

More information on the work done on each Focus Area per Institution/Organisation can be obtained by clicking on the relevant coloured square alongside the Focus Area.

**NB:** Each Institution/Organisation is responsible for the updating of their own information.

[Go to Instructions Page>>>](#)

[Go to Overview Page >>](#)

[Go to Acronyms Page>>](#)

Focus Areas	Competency Areas																																			
	Struc Des				Materials				Performance				Rehab/Maint				Constr				Info Syst		VPI				Instr				EIA					
	Func		Struc		Func		Struc		Func		Struc		Func		Struc		Func		Struc		Func		Struc		Func		Struc		EIA							
Asphalt	F	E	R	C	V	F	E	C	R	V	CR	R	C	F	R	C	CR	E	R	V	C	F	E	R	C	C	F	E	C	R	F	E	CR	C	R	CR
Cemented layers		E	R	C						C		R			R			E	R							R										
Concrete	F	E	R	C		F		C	R			R		F	R	C		E	R	F	C	F	E	R	C	C		E			F	E	CR	C		
Granular			R	C	V				R	V	CR		C										CR		R											CR
Modified binders				C		F		C			CR	C	F		C						C	F			C	C	F				F					
LIC			R			F			R					R					R						R											
Long lasting pvmts				C				C				C			C						C				C	C							C			
NDT				C									E		C			E			C		E			C					F					
LTPP																																				
Surface Treatments																																				
Bitumen/polymer stab		E	R				E		R				E		R	C			R		C		E	R												
DISR			R	C				C	R				R	C		C			R		C			R	C	C							C			
Upgrading of LVRs			R		CR						CR			R		CR			CR				R									CR			CR	
Roadbed prep																																				
Waste materials				C				C			CR	C			C	CR				C					C	C							C			CR
Subgrade soils				C	V			C			CR	C		V	C	CR						CR				C						E	C			CR
Geosynthetics		E			V		E				CR		E			CR																CR			CR	
Unpaved roads							E					E																								
Side Slopes														V																		V				
Light weight material										V				V																						
Comparative testing																																			R	



# Florida

## Focus area activities: Asphalt

Focus Area	Description	Activities	Results
Asphalt			

## Reports for Focus area: Asphalt

Focus Area	Report No	Author(s)	Date of Issue
Assessing Appropriate Loading Configuration in Accelerated Pavement Testing	Proceedings, 2 nd intl Conference on APT, Minneapolis , MN	Tom Byron, Bouzid Choubane & Mang Tia	September 2004
Evaluation of Coarse and Fine Graded Superpave Mixtures Under Accelerated Pavement Testing	Accepted for Publication TRB 2006	Bouzid Choubane, Salil Gokhale, Greg Sholar & Howard Moseley	January 2006
Evaluation of Superpave Mixtures With and Without Polymer Modification by Means of Accelerated Pavement Testing	Final Report, UF Project No 49104504801-12	Mang Tia, Rey Roque, Okan Sirin, Hong-Joong Kim	November 2002
Rut Initiation Mechanisms in Asphalt Mixtures as Generated Under Accelerated Pavement Testing	TRR 1940, pp. 136-145	Salil Gokhale, Bouzid Choubane, Tom Byron & Mang Tia	January 2005
Evaluation of Performance Data from Repeated Load Test	CTAA, Vol. 50	Leslie Myers, Jagan Guddimetla, Salil Gokhale, C. Paugh & Bouzid Choubane	December 2005
One-Way and Two-Way Directional Heavy Vehicle Simulator Loading Effects on Rutting in Hot Mix Asphalt Pavements	TRR 1869	Mark Novak, Bjorn Birgisson, Rey Roque & Bouzid Choubane	January 2004
Impact of wide-base single tires on pavement damage	Research Report FL/DOT/SMO/09-528	James Greene, Ulas Toros, Sungho Kim, Tom Byron, Bouzid Choubane	December 2009

# STATE OF FLORIDA



## IMPACT OF WIDE-BASE SINGLE TIRES ON PAVEMENT DAMAGE

Research Report







FL/DOT/SMO/09-528

James Greene  
Ulas Toros  
Sungho Kim  
Tom Byron  
Bouzid Choubane

December 2009

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## HVSIA Matrixes and other Information

	<a href="#">HVSIA Activity Matrix</a>
	<a href="#">Overview Page</a>
	<a href="#">HVSIA Instrumentation Matrix</a>
	<a href="#">Pavement Thesaurus</a>
	<a href="#">Current and Future Projects</a>
	<a href="#">Machine Production Table</a>
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## HVS International Alliance: Current and future projects

Programme	Current Projects		Future Projects		Contact Person
	Project Details	Timeline	Project Details	Timeline	
<b>GDPTW</b>	Thin concrete for heavy traffic	2006 to July 2008	Thin concrete for light traffic	July 2008 to July 2009	lplessis@csir.co.za
<b>CSIR</b>	HMA rutting studies	Oct 2006 to March 2009	HiMA structures	2008/2009	wsteyn@csir.co.za
<b>FLORIDA</b>	Stress absorbing membrane interlayer study (rutting)  HMA rutting study  HMA bottom-up cracking study  Stress Absorbing Membrane Interlayer (Cracking and Rutting), HMA Rutting Study, HMA Fatigue Cracking	2009 to March 2010    2009 to 2010	HMA top-down cracking study  Stress absorbing membrane interlayer study continuation (rutting and cracking)  Stress Absorbing Membrane Interlayer (Cracking and Rutting), HMA Rutting Study, Heavy Polymer Modified Binder	2010    2010 to 2011	bouzid.choubane@dot.state.fl.us
<b>CALTRANS</b>	Warm-mix asphalt8 (possible extension)  Warm-mix asphalt (Phase 3, rubberized AC)  Composite pavement	Oct 2007 to Dec 2008  Jan 2010 to Dec 2010  Dec 2009 to Jun 2010	Composite pavement  Permeable pavement  OGFC/quiet pavement mix-design Comparison of new mix design procedure New aggregate base specification development	Sept 2008 to Dec 2009  Jan 2010 to Dec 2010	djjones@ucdavis.edu
<b>ERDC</b>					
<b>SWEDEN</b>	Upgrading treatment for low volume roads and High Modulus Asphalt structure	April to July 2008	Reference structure according to Swedish specification	2008/2009	leif.g.wiman@vti.se
<b>OTHER</b>					

# Conclusions

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- In view of (possible) constraints in research budgets, collaboration is the way to go if we want to address Global Challenges in the transportation domain
- Research collaboration on both hard and soft Research Infrastructures will reduce costs and will generate greater efficiencies
- In order to instil a culture of collaboration, there is a need to share information on societal needs, identify facilities that can be made available for addressing the Global Challenges, as well as to identify current barriers preventing effective collaboration and explore ways by which these can be overcome

# First Step: Gathering Information (by Country)

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- International cooperation involving Research Infrastructure (RI)
  - Transport-related research topics/priorities warranting international cooperation
  - Main national RI that would qualify to be considered world-class
  - Key drivers for international cooperation around RI
  - Examples of international projects that required cooperation on RI
  - Examples of research networks involving RI
- Data sharing issues and intellectual property regimes that could impact on international cooperation
- Networking around RI
  - National legislation and practices that could be an obstacle or a benefit for international cooperation around RI
  - Drivers for networking

***Country champions need to be identified to gather this information***