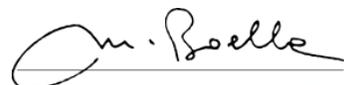




**ISTITUTO SUPERIORE  
MARIO BOELLA**

# TRAINING AND AWARENESS ACTIVITIES ON EGNSS IN SOUTH EAST ASIA

*Matteo Vannucchi, ISMB*

  
**I S M B**  
Istituto Superiore Mario Boella

ICG-13 – Xi'an, 6<sup>th</sup> November 2018

Matteo Vannucchi

# ISMB

To create **value-driven** and **socially relevant** technological & process innovations in close Collaboration with industry and institutions.

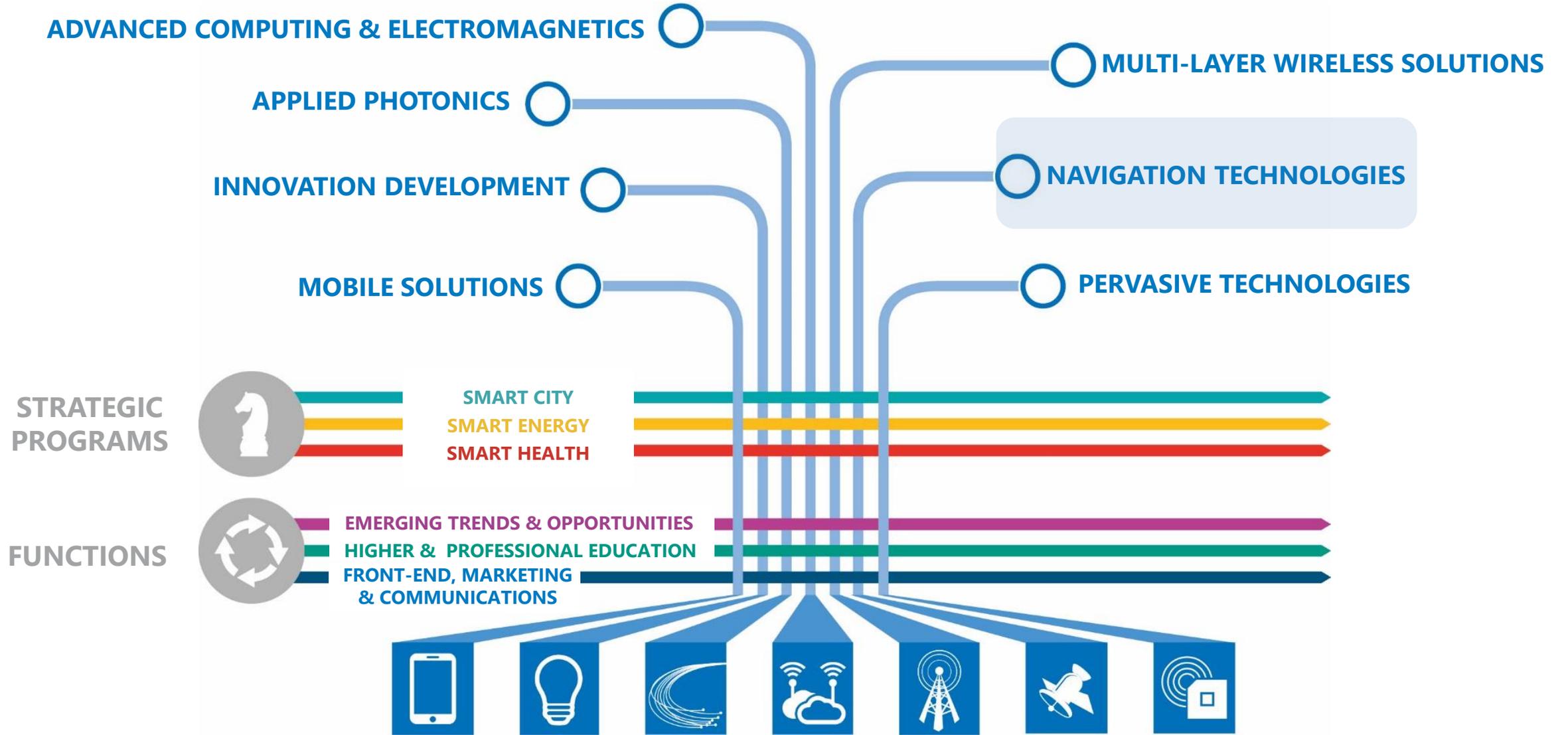
ISMB is an “Operating Body” of Compagnia di San Paolo and it has been founded in 2000 with Politecnico di Torino. The Institute is a no profit Research & Innovation center operating in the ICT domain.



**POLITECNICO  
DI TORINO**



# RESEARCH AREAS, STRATEGIC PROGRAMS AND FUNCTIONS



## 2<sup>ND</sup> LEVEL MASTER ON NAVIGATION

The 2nd Level Specializing Master on Navigation and Related Applications is a joint initiative of Politecnico di Torino and Istituto Superiore Mario Boella (ISMB)



POLITECNICO  
DI TORINO



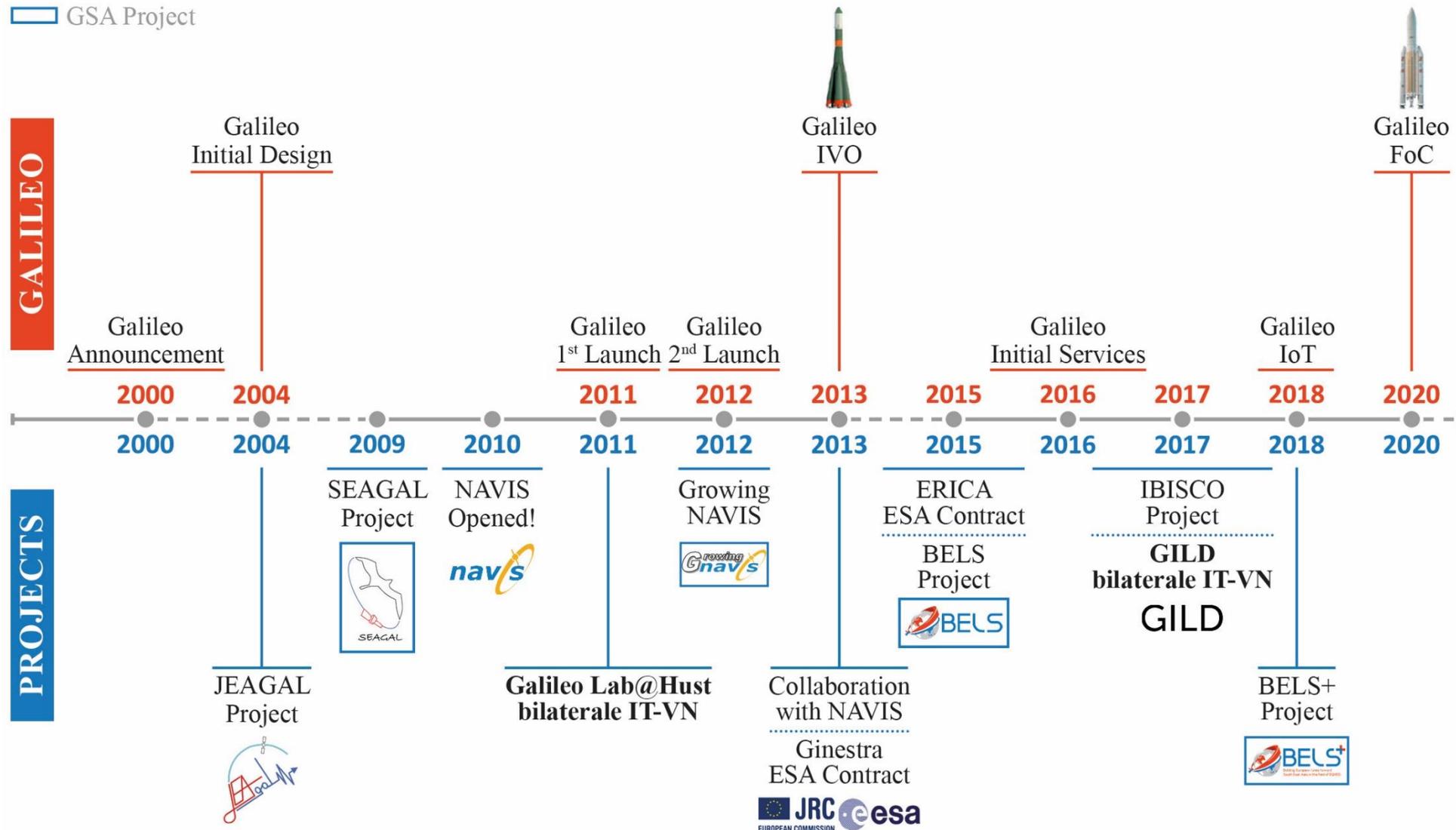
with the collaboration of the Istituto Nazionale di Ricerca Metrologica (INRiM) and the United Nations Office for Outer Space Affairs.



UNITED NATIONS  
Office for Outer Space Affairs

14 EDITIONS!

# LONG-LASTING COLLABORATION WITH SOUTHEAST ASIA - SEA



# MILESTONES

2004 First train-the-trainer action in Hanoi University of Science and Technology



2010 Set-up of the NAVIS, an International Collaboration Centre on European GNSS in Hanoi

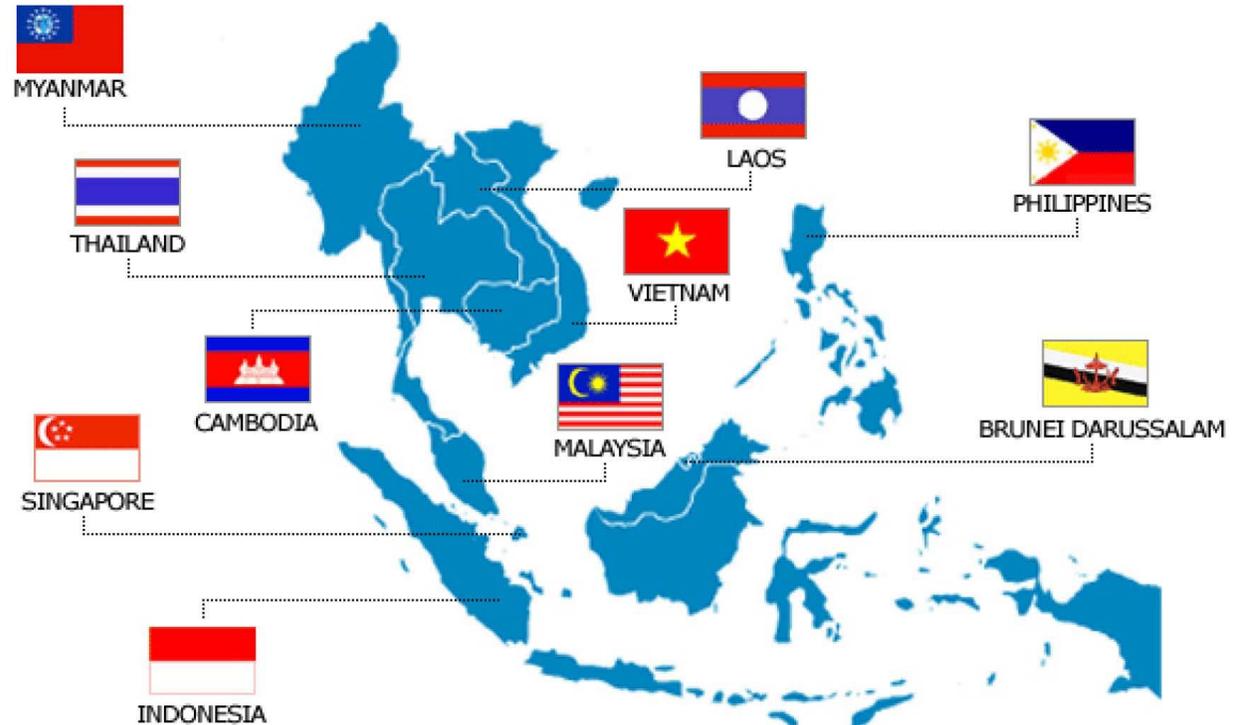
2012 New Training and Research activities in collaboration with EU Universities

2015 New services for:  
European companies (visits and test facility)  
Asian researchers and professionals (training)

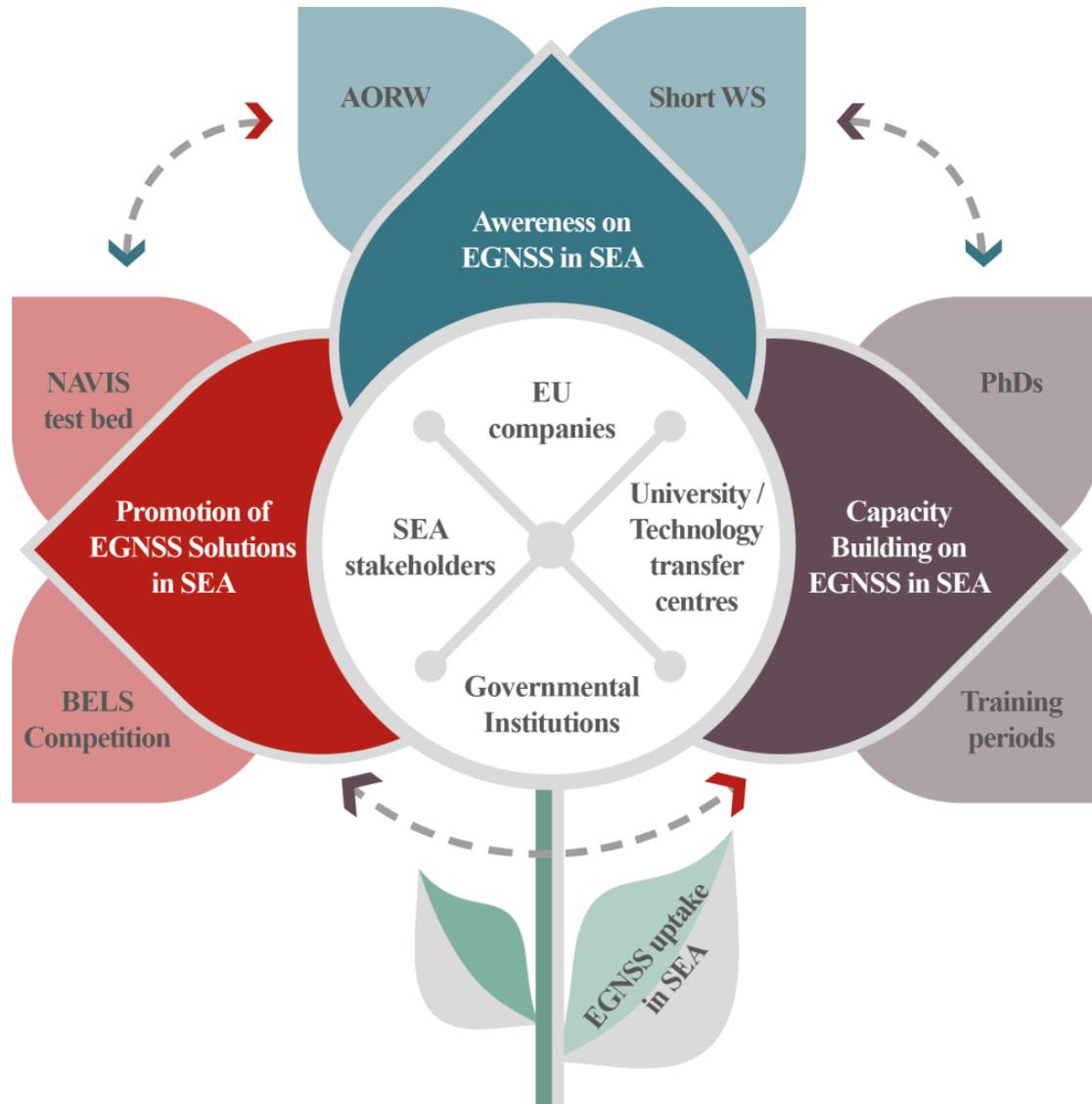
2018 Professional training dedicated to GNSS researchers and professionals in EU and SEA  
Showcase of European GNSS technology at the Navis Demo Centre in Hanoi, Vietnam  
Participation to Job fair events to attract future young GNSS professionals

# SEA AND ASEAN

## ASEAN Member Countries



# BELS (2015-2018) CONCEPT



# BELS

Building European Links toward South East Asia in the field of EGNSS



HORIZON 2020

# DISCOVER

## OUR RESULTS

LEARN MORE



16

Companies accompanied  
to South East Asia  
and Vietnam



13

Conferences/Workshops  
organized



~10000

People involved in  
BELS Project activities

Copyright OHB

# BELS FOLLOW-UP: BELS+ (2018-2020)

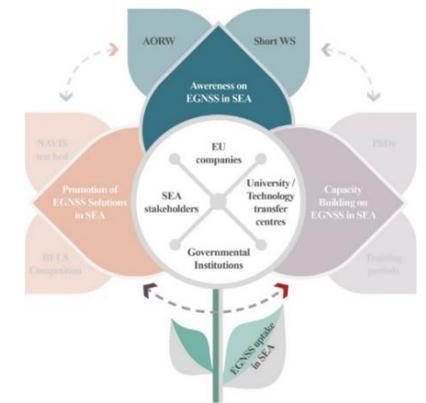


BELS+ will continue BELS main activities:

- Set-up of the NAVIS Demo Centre to showcase EU GNSS Technology
- Awareness actions and Training on EGNSS in SEA: workshops, hands-on sessions, technical trainings
- Actions aiming to put in contact GNSS professionals, researchers and institutions of Europe and SEA

# AWARENESS ON EGNSS IN SEA

- Co-organization of the **Multi GNSS Asia - MGA Conference** in collaboration with MGA and JAXA in Malaysia, Vietnam, Thailand, Brunei, Philippines, Indonesia
- **10 Short Awareness Workshops between 2015 and 2018** in Bandung (Indonesia), Manila (Philippines), Vientiane (Laos), Phnom Penh (Cambodia), Kuala Lumpur (Malaysia), Bangkok (Thailand), Nay Pyi Taw (Myanmar), Singapore, Ho Chi Minh City (Vietnam)
- Special sessions or side events: i.e. **Special session on Galileo and EGNSS at FIG World Conference 2019** in Hanoi, Vietnam (TBD).



# TRAINING ACTIVITIES

Example of Training Activity: **BELS Final Workshop** in Hanoi, Vientnam in May 2018.

Two training days on:

- Fundamentals on GNSS and on Precise positioning
- Exercises on GNSS Signals and data processing
- Technical visits

Approx. 50 participants to the training days: GNSS researchers, students, PhDs, professionals, etc

		22 <sup>nd</sup> May	23 <sup>rd</sup> May	24 <sup>th</sup> May
P R O G R A M		<b>Training</b>	<b>Training</b>	<b>Workshop</b>
	Morning	Fundamentals on GNSS @ NAVIS	Exercises on GNSS Signal and Data Processing @ NAVIS	Session 1: E-GNSS solutions for South East Asia
		Lunch	Lunch	Lunch
	Afternoon	Overview on Precise Positioning @ NAVIS	Technical visit to CORS station, and RTK Demonstration on site	Session 2: Needs and use of GNSS in South East Asia
		Reception	Dinner	Gala Dinner



# NEW AWARENESS AND TRAINING ACTIVITIES WITH BELS+

- Awareness event in Thailand in Sept. 2018 at the TAIEX-PI ASEAN Multi-Country Workshop on Space Applications
- First EGNSS day with Training sessions and demonstrations carried on by EU GNSS Companies in Nov. 2018 in Hanoi, Vietnam
- New events in 2019 and in 2020



08.11.2018  
HANOI - VIETNAM  
OPENING CEREMONY

NAVIS  
DEMO CENTRE

AND FIRST EGNSS DAY



# GNSS INTERFERENCE AND JAMMING LOCALISATION AND DETECTION IN VIETNAM



- Italy-Vietnam bilateral project
- Co-funded by Italian Ministero degli Affari Esteri e della Cooperazione Internazionale (Progetti di Grande Rilevanza) and by the Vietnamese Ministry of Science and Technology
- Partners: ISMB, Politecnico di Torino, NAVIS Centre @ Hanoi University of Science and Technology



*Ministero degli Affari Esteri  
e della Cooperazione Internazionale*

# CONCLUSIONS

- 15-year long fruitful win-win collaboration
- Training and Awareness activities carried on in all ASEAN countries
- Research Centre set up in Vietnam which has gain high reputation both nationally and internationally
- Students and visiting researchers trained in Italy and in Europe
- Activities with and funding from European Institutions (ESA, EC, ... ) facilitated by the joint Italy-Vietnam collaboration
- Ongoing projects and joint activities involving the whole South East Asia region

# CONTACTS

Matteo Vannucchi

Istituto Superiore Mario Boella

Via Pier Carlo Boggio, 61

10138 Torino, Italy

T. +39 011 2276444

vannucchi@ismb.it

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[www.ismb.it](http://www.ismb.it)

