Dr. Nili Mandelblit

Dr. Nili Mandelblit is the director of the Space, RI, Transport and NMP programs in ISERD. Nili holds a Ph.D. in Cognitive Science from the University of California, San Diego, and a B.Sc. in Computer Science from the Hebrew University of Jerusalem. After her Ph.D., Nili conducted a post-doctorate research in Paris, France in the Ecole Polytechnique, CREA. During the years 1998-2009, Nili conducted a career in the High-Tech industry as Director and A-VP of marketing and business development in international software companies. In 2008-2009, Nili also served as a lecturer at the Ben Gurion University MBA program. Nili joined ISERD in March 2010.
The EU Vision on Connected and Automated Driving (and its implementation via H2020)

Dr. Nili Mandelblit,
Director - Transport, Aero-Space, Materials & Manufacturing
ISERD
ISERD - an inter-ministerial organization established to promote Israel’s R&I cooperation with Europe

Steering Committee:
• Ministry of Economy and Industry
• The Council for Higher Education – Planning and Budgeting Committee
• Ministry of Science and Technology
• Ministry of Foreign Affairs
• Ministry of Finance

Chairman of the Steering Committee:
• The Chief Scientist, Ministry of Economy & Industry

The main venue for Israel’s R&I cooperation with Europe is the EU Framework Program (FP)
The European Framework Program

- EU's main funding instrument for R&I (since 1984)
- Goals:
  - Strengthen the scientific & technological base of European Industry
  - Support EU policies and address major Societal Challenges
  - Create a “European Research Area” (ERA)

- Covering all major scientific and technological disciplines
- Funding implemented via Calls for Proposals (mostly *collaborative actions*: consortia with at least 3 partners from 3 different countries)
- Any legal entity can participate: Industry, Academia, Public authorities, NGOs
### Funding Members of H2020

**EU Member States (28)**
- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Rep.
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- UK

**Associated Countries (16)**
- Albania
- Bosnia and Herzegovina
- Faroe Islands
- FYROM - Macedonia
- Iceland
- Israel
- Norway
- Serbia
- Switzerland
- Turkey
- Ukraine
- Tunisia
- Georgia
- Armenia
- Montenegro
Since 1996 (mid FP4) Israel is an Associated Country (AC) = Full participation in the Framework R&I Programmes
Progression of FP budgets over time
Israel Participation in H2020

499 projects  213 Entities

Source: signed projects, eCORDA H2020 database, February 27, 2017
The Horizon 2020 Program

**Excellent Science**
- European Research Council (€13.1B)
- Future & Emerging Technologies (€2.7B)
- Marie Sklodowska-Curie Actions (€6.1B)
- Research Infrastructures (€2.5B)

**Industrial Leadership**
- Leadership in Enabling & Industrial Technologies
  - ICT
  - Nano, Materials, Production, Biotech
  - Space
  (€13.5B)
- Access to Risk Finance
  (€2.9 B)
- Innovation in SMEs (€0.6 B)

**Societal Challenges**
- Health (€7.5 B)
- Food (€3.9 B)
- Energy (€6 B)
- Transport (€6.3 B)
- Climate (€3 B)
- Inclusive Societies (€1.3B)
- Security (€1.7 B)

**Spreading Excellence** (€0.8 B)
- EIT (€2.7 B)

**Science for Society** (€0.5 B)
- JRC (€1.9 B)

**Euratom** (€1.6 B)
The European Commission View on Automated Road Transport

Quote from Carlos Moedas - Commissioner for Research, Science and Innovation:

"Automated road transport is such a fast-moving and important area that it requires a coordinated and collaborative approach within and between the public and the private sphere. A vast range of sectors, from the automotive industry and road infrastructure to IT and telecoms, have a role to play in exploring this new frontier. That's why this first European event is so important."

(April 4, 2017, Brussels)
The European Commission View on Automated Road Transport

The EC should provide:

• Policy
• The legal and regulatory framework (innovation-friendly conditions)
• Framework for international cooperation
• Public funding for R&D projects as well as large-scale trials

→ Implementation via Horizon 2020
Recent political milestones

• **April 2016**: “The Amsterdam Declaration”: EU transport ministers outline the steps necessary for the development of self-driving technology
  → **Building a coherent European framework** for the deployment of interoperable connected and automated driving

• **March 2017**: 29 European countries sign “Letter of Intent” to cooperate on **cross-border testing** of automated road transport
  → Creating cross border pilots
  → Jointly address data transmission and liability
  The cross-border tests will build on **pilot projects** funded under Horizon 2020
Cross border experimentation brings strong economic benefits for Europe:

- Maintain automotive industry global lead
- A harmonised and unified market (of 500 million consumers) to the EU automotive, tech and telecoms industries

Cross border experimentation requires:

- Close cooperation among MS
- Ensure interoperability all over Europe (to avoid having vehicles stopped when they reach a border)
Cross Border experimentation of automated road transport

Start with cross-border experimentation on:

• Connectivity
• Data access
• Liability
End of 2016: The automotive, IT, and telecom industries have joined forces to form the European Alliance of Telecoms and Automotive (EATA) to develop cross-border testing

Plans:
1. Carry out a large scale pre deployment project that will provide enabling connectivity
2. Establish intelligent cross-border sections to test connectivity
The European Alliance of Telecoms and Automotive

Steps:

• Feb 2017: France and Germany agreed to build a cross-border corridor between two neighbouring regions (Lorraine and Saarland)

• EC is working with additional MS to link test sections to enable cross-border testing
  • aligned with the TEN-T corridors.
The 5G Automotive Alliance (5GAA)

- The EU Telecom industry joined up to create 5GAA to specifically promote 5G in the automotive sector.
- An MoU amongst EATA and 5GAA signed at the Mobile World Congress in Barcelona (February 2017).
  - EATA Experimentation will also serve for introducing 5G wireless communication
- Target for 2025:
  - Provide sufficient capacity for millions of cars to interact at the same time
  - Uninterrupted 5G coverage for all urban areas and major roads and railways in Europe (See the “5G Action Plan”).
- An evolutionary path till 2025:
  - Start with current cellular technology, evolving over time to 5G networks
  - co-existence with already available wireless technologies (ITS-G5 and LTE)
The challenges of 5G for transport

• Technical challenges: Support data exchange for millions of cars at the same time
  • Exchange between vehicles (V2V)
  • Exchange between vehicles and road infrastructure (V2X)

• Policy issues:
  • Data ownership (who will control the data generated)
  • Privacy concerns
  • Secured data exchange
  • Insurance liability regulations (who will be liable for possible damages)
Secured Data Exchange – the EU context

“Cybersecurity strategy for the European Union” (2013): A strategic framework for the EU initiatives on cybersecurity

Key objectives:

1. Increasing cybersecurity capabilities and cooperation in the EU
   • Bring capabilities to the same level in all MS
   • Ensure efficient exchange of information across MS

2. Making the EU a strong player in cybersecurity
   • Overcome current market fragmentation
   • Technology which respects fundamental rights (privacy)

3. Embed cybersecurity in future EU policy initiatives
   • in particular in the emerging sectors: connected cars, smart grids, IoT
Cybersecurity for Connected Cars in H2020

- **Project Ex: SAFERtec** - a recently launched EU project looking to advance security levels for connected vehicle systems
  - The project aims to develop a connected vehicle system and then, through appropriate modelling, determine the necessary protection profiles (specific security requirements) to identified risks, which may impact human safety.
  - Next step: After defining the security requirements for the future of connected vehicles, analyse the existing assurance frameworks.
Other EU activities: Overcoming fragmentation in autonomous cars testing and pilots:

**Workshop on Automation Pilots, Brussles, Dec 2016**

- Organized by the European Commission & CARTRE project
  - CARTRE: Coordination of Automated Road Transport Deployment for Europe - H2020 Project

- Workshop Objective: an overview of ongoing automated driving demonstration pilots across Europe
  - Understand common issues and concerns associated with tests
  - Gain insights on how to leverage the pilots and demonstrations towards deployment

- Participating Member States:
  - Austria, Belgium, Germany, Spain, Greece, Finland, France, The Netherlands, Sweden, UK
Reports from MS

1. Germany

- Recently released a new “Strategy for Automated and Connected Driving”
- Includes the following aspects:
  - Infrastructure (Digital infrastructure and Standards for intelligent roads)
  - Legislation (Legal framework at national and international level, Driver training, Type approval/technical monitoring)
  - Innovation (Digital Motorway Test Bed, Research funding/framework)
  - Interconnectivity (Mobility data and spatial data, Intelligent transport systems),
  - Cyber Security and data protection (Cyber security standards, Need for action in terms of data protection)
  - Societal Dialogue (Chances and risks of automated and connected driving and Provision of information).
Reports from MS – cont.

- **Greece:** Testing a driverless bus in the city of Trikala
- **France:** 10,000 Kms available for testing on open roads
- **Sweden:** 100 “normal” families will experience for an extended timeframe self-driving Volvo XC90s on public roads in Gothenburg

→ Tests are only now really beginning
→ 2017/2018 will be important years
Transport in Horizon 2020
The Horizon 2020 Program

- **Excellent Science** (€24.4 B)
  - European Research Council (€13.1B)
  - Future & Emerging Technologies (€2.7B)
  - Marie Skłodowska-Curie Actions (€6.1B)
  - Research Infrastructures (€2.5B)

- **Industrial Leadership** (€17 B)
  - Leadership in Enabling & Industrial Technologies
    - ICT
    - Nano, Materials, Production, Biotech
    - Space (€13.5B)
  - Access to Risk Finance (€2.9 B)
  - Innovation in SMEs (€0.6 B)

- **Societal Challenges** (€29.7 B)
  - Health (€7.5 B)
  - Food (€3.9 B)
  - Energy (€6 B)
  - **Transport** (€6.3 B)
  - Climate (€3 B)
  - Inclusive Societies (€1.3B)
  - Security (€1.7 B)

- **Spreading Excellence** (€0.8 B)
  - EIT (€2.7 B)
  - JRC (€1.9 B)
  - Euratom (€1.6 B)

- **Science for Society** (€0.5 B)
H2020 Transport 2018-2020

- Draft work program 2018-20 is now being discussed by EC and MS/AC
- Includes 3 section (calls):
  1. **Mobility for Growth (MG)** – Sustainability, multi-model integration, safety and resilience, competitiveness, “accounting for the people”
  2. **Automated Road Transport (ART)**
  3. **Green Vehicles (GV)**
- In addition, 3 Joint Undertakings (with separate calls for proposals):
  - Aviation: **CleanSky & SESAR**
  - Rail: **Shift2Rail**

The 2018 Call will be published in **Autumn 2017**
H2020 Transport 2018-2020

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The 2018 Call will be published in Autumn 2017
The H2020 Transport ART call

• Automated Road Transport (ART): key priority (since 2016)

• Dedicated budget: 114M Euros for 2016-17 calls
  • 2018-2019 budget yet TBD

• Focus of the 2016-17 ART calls (CLOSED):
  • Automated driving systems (automation level 3) for passengers cars, trucks, and urban transport
  • Large-scale demonstration projects
# ART call 2016-2017 (CLOSED)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
<th>Action type</th>
<th>Stages</th>
<th>Budget (EUR Mio)</th>
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<tbody>
<tr>
<td>ART-02</td>
<td>Automation pilots for passenger cars</td>
<td>IA</td>
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<td>ART-04</td>
<td>Safety and end-user acceptance aspects of road automation in the transition period</td>
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<td>Road infrastructure to support the transition to automation and the coexistence of conventional and automated vehicles on the same network</td>
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<td>Coordination of activities in support of road automation</td>
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<td>ICT infrastructure to enable the transition towards road transport automation</td>
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<td>ART-03</td>
<td>Multi-Brand platooning in real traffic conditions</td>
<td>IA</td>
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<tr>
<td>ART-07</td>
<td>Full-scale demonstration of urban road transport automation</td>
<td>IA</td>
<td>2</td>
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</tbody>
</table>

**CSA = Coordination and Support Action**  
**IA = Innovation Action; RIA = Research and Innovation Action**
Shift2Rail JU

IP 1: Cost-efficient and Reliable Trains, including high capacity trains and high speed trains
IP 2: Advanced Traffic Management & Control Systems
IP 3: Cost-efficient, Sustainable and Reliable High Capacity Infrastructure
IP 4: IT Solutions for Attractive Railway Services
IP 5: Technologies for Sustainable & Attractive European Freight

Long-term needs and socio-economic research
Smart materials and processes
System integration, safety and interoperability
Energy and sustainability
Human capital
SESAR 2020 JU

SESAR: Single European Sky Air-traffic management Research

The SESAR Programme 2020: Applied Research, Pre-Industrial Development and Validation

- Trajectory Performance & Journey Management
- Enhanced Network Management DCB
- Conflict Management & Automation
- Large Scale Demonstrations

Integrated Airport Management

Terminal: Airport & Intermodal Systems
- Information Management & Exchange
- Location Services
- Collaboration Systems

Airport: Towers & Surface Traffic Mgt. Systems
- Local Towers & Remote Tower Centers
- Automation for capacity, safety and efficiency
- Visualization, Augmented Reality
- Automation for Low Visibility
- Accurate Capacity Forewarning and Workshops

ATM: Centres & Airborne Traffic Mgt. Systems
- Network Operation Developments
- Approach & Terminal En Route, RNAV/ILS Developments
- Working Position, Situational Awareness
- Information Processing & Datalinks
- Management Tools & Automated Systems

Aircraft: Vehicle systems, Airline & Military Operations
- Avionics & Flight Management
- Airborne Surveillance and Safety Net
- Advanced Landing and Ground Guidance Systems
- Information Processing & Datalinks
- Management Tools & Automated Systems

- Advanced Data Center, Processing & Information Management
- Information and Services Based Advanced Surveillance
- Information and Services Based Advanced Surveillance
- Mobile Communications Systems
- ENHANCED NAVIGATION AND AUTOMATION
- Surveillance for Automation, Safety & Security

Information exchange / location services

Surveillance for automation, safety & security
## European Technology Platforms (ETPs)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sector</th>
<th>Platform</th>
<th>H2020 Calls</th>
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<tr>
<td>Surface Transport</td>
<td>Automotive</td>
<td>ERTRAC</td>
<td>MG, ART</td>
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<td>Urban Mobility</td>
<td>ELTIS</td>
<td>MG</td>
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<td>Green Vehicles</td>
<td>EGVI</td>
<td>GV (joint Transport/NMP)</td>
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<td>Smart System Integration</td>
<td>EPoSS</td>
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<td>Logistics</td>
<td>ALICE</td>
<td>MG</td>
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<td>Maritime</td>
<td>WATERBORNE TP</td>
<td>MG</td>
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<tr>
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<td>Rail</td>
<td>ERRAC</td>
<td>Shift2Rail</td>
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Partners search For H2020 Transport projects

ISERD site: [www.iserd.org.il](http://www.iserd.org.il)

Transport NCP net – partner search::

Publish a Partner Search + Express your interest in published searches:

Indexes:
[http://www.transport-research.info/web/projects/browse_partner.cfm](http://www.transport-research.info/web/projects/browse_partner.cfm)

Linked-in Transport community group -
"H2020 TRANSPORT Research & Innovation“ and Intelligent Transportation Systems (ITS)":
[https://www.linkedin.com/groups/4427028](https://www.linkedin.com/groups/4427028)
THANK YOU

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