
LAMBDA - Learning, Applying, Multiplying Big Data Analytics

Project Presentation
for VIDIS Kick-off Meeting
January 28, 2021



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 809965.



Project Funding

- ❑ This project has received funding from the European Union's Horizon 2020 research and innovation programme under GA No 809965

- ❑ Project Partners

- [Institute Mihajlo Pupin, Serbia \(Coordinator\)](#)
- [Fraunhofer Institute for Intelligent Analysis and Information Systems, Germany](#)
- [Institute for Computer Science - University of Bonn, Germany](#)
- [Department of Computer Science - University of Oxford, UK](#)



Vision and Primary Objectives



Strengthening the Human capital and Education, Research and Development capacities of “Mihajlo Pupin” Institute

the leading Serbian R&D institution in information and communication technologies in order to serve as a **Big Data & Analytics HUB** that connects and integrates scientists and professionals from the West Balkans and the entire region into the European Research Area.

Decreasing the existing European regional R&I disparity by Fostering excellence in the Big Data Ecosystem areas unlocking and raising the scientific profile of academics institutions from Serbia and the region while contributing to European progress beyond the state-of-the-art of related research and technology, as well as establishing productive and fruitful long-term cooperation.

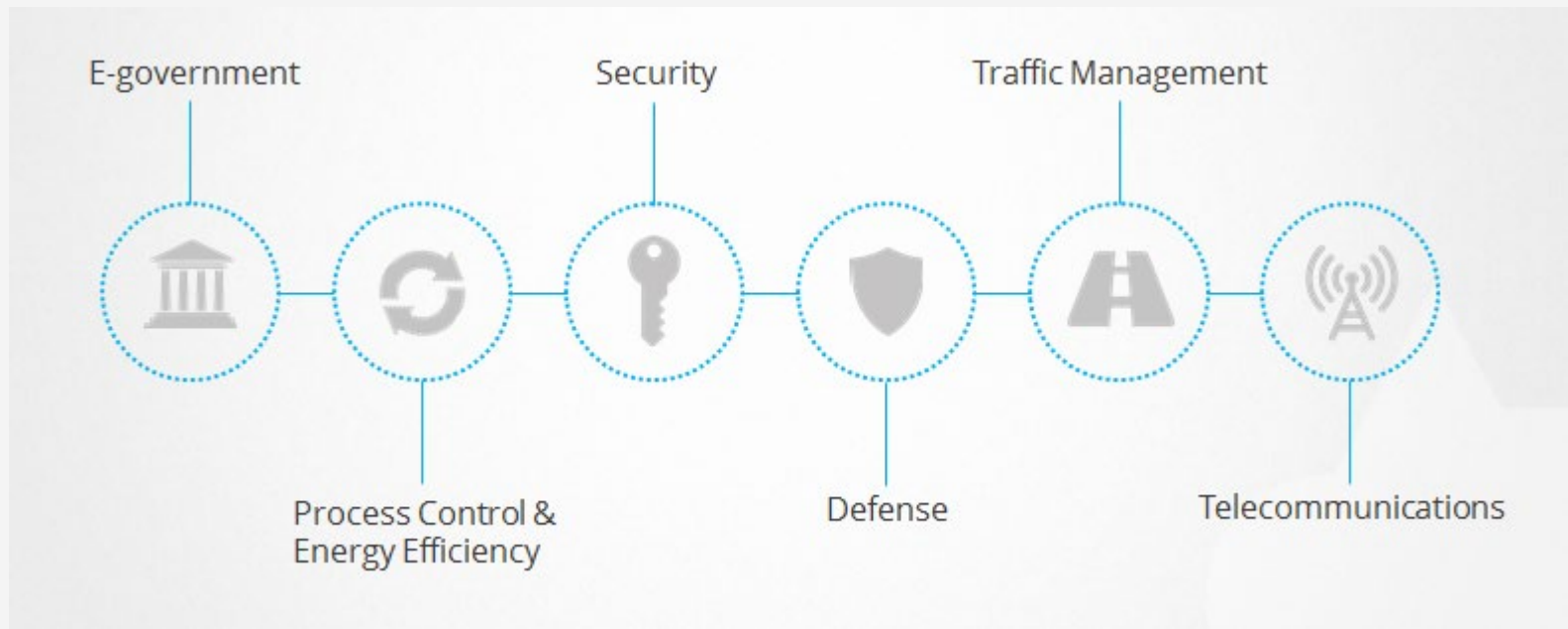


European Innovation Scoreboard 2020

- Leading Serbian R&D institution in information and communication technologies (ICT)
- The oldest (1946) R&D Institute in ICT area in the whole Southeastern Europe



- World Bank SEE Knowledge Economy report for 2004 and 2011: “Internationally competitive”
- EU Commissionaire Janez Potočnik – “Pupin as the best practice example for bridging academia and industry”
- 90% of turnover via TT



LAMBDA aims to define the **scientific strategy for stepping up and stimulating the scientific excellence and innovation capacity**, while increasing the research capacities and unlocking the research potential of **PUPIN in domain of Open Data and Big Data technologies**.

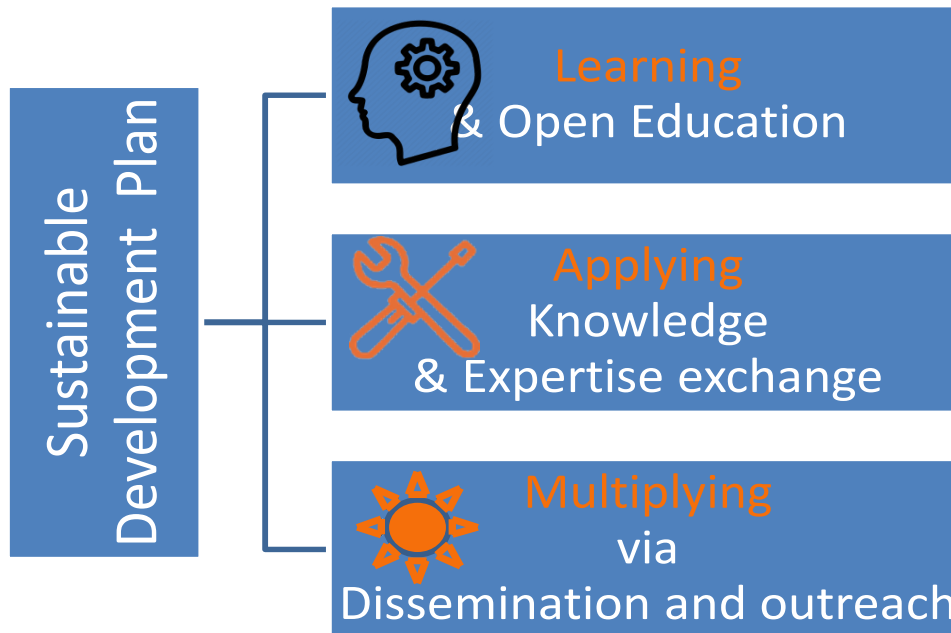


LAMBDA – How we do it

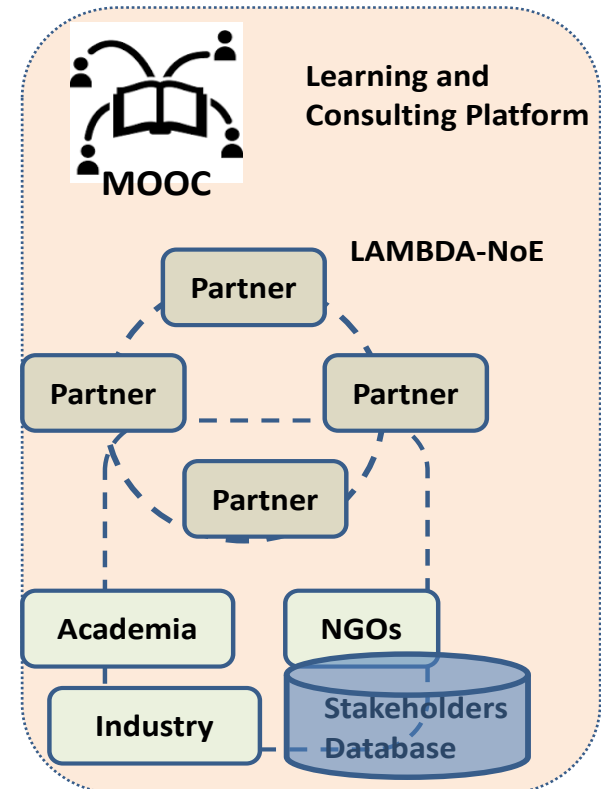
Phase 1: Setting up the initiative

Phase 2: Implementation

Phase 3: Evaluation and Impact Analysis



Outputs



LAMBDA Specific Objectives - Key Success Factors

OBJ 1: Strategic Partnership - Establishment and development of productive and fruitful long-term cooperation that continues after project completion

- 4 partners, 3 different countries (Serbia, Germany, UK)

OBJ 2: Boosting scientific excellence of the linked institutions and capacity building of the widening country and the region in Big Data Analytics and semantics

- Joint papers (BOOK)
- Different capacity building activities implemented
 - 2 editions of the Big Data Analytics Summer School)



LAMBDA Specific Objectives - Key Success Factors

OBJ 3: Spreading excellence and disseminating knowledge throughout the West Balkan and South-East European countries

- Workshops at International conferences in Serbia and the region
 - 2 Special Sessions at ICIST, CECIIS – Croatia, ESWC - Slovenia
- Thematic meetings on key societal challenges (Data Strategy, Energy efficiency, Circular economy, 5G)
- Public Webinars with participants from WB, SEE, Europe

OBJ 4: Sustainability of research related to key societal challenges (sustainable transport, sustainable energy, security, societal wellbeing) and financial autonomy in the long run

- Networking with other PUPIN projects - **21 H2020** (NEON, AI-PROFICIENT, HESTIA, **SINERGY**, TRAPEZE, BorderUAS, PLATOON, TRINITY, IDEAS, REACT, LAMBDA,)
- Networking with COST Actions (NexusLinguarum, Distributed Knowledge Graphs)

LAMBDA Results

WP3

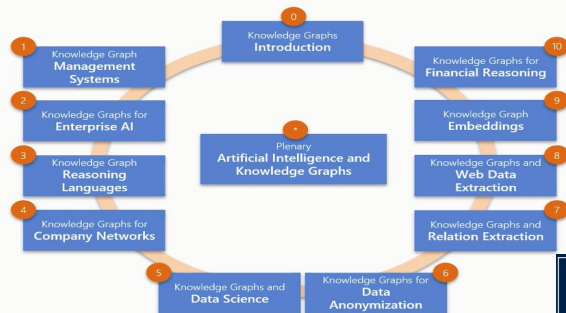
Open Education

- Repository of LAMBDA lectures
- Adoption of the results in Serbia and West Balkan
- Publishing the lectures via the SlideWiki OpenCourseWare

Curriculum Development

- Business Intelligence
- Semantic Web Technologies
- Knowledge Graphs for Financial Reasoning
- SW Technologies for eGovernment

10 Lectures/Modules

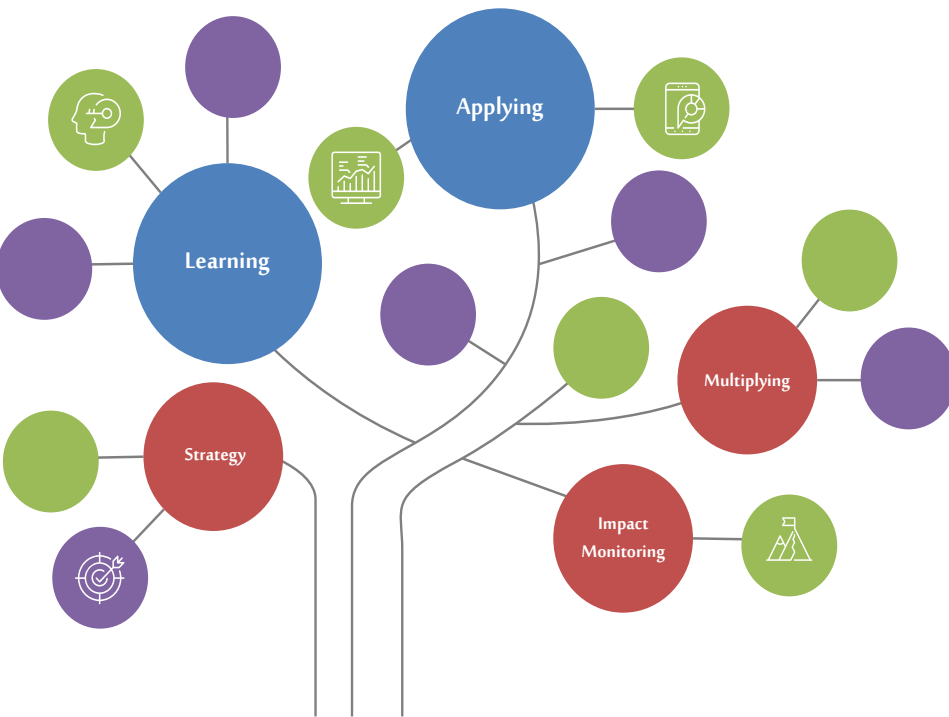


1	Introduction to Business Intelligence	Introduction to Business Intelligence
2	Business Intelligence architectures	Business Intelligence architectures
3	Data warehouse technology	Data warehouse technology
4	Massive real-time data warehouses	ETL & OLAP, ROLAP, MOLAP, HOLAP
5	Business performance management (BPM) methodologies	Business performance management (BPM) methodologies
6	BPM Tools and applications	BPM Tools and applications
7	Knowledge discovery and Data mining I	Introduction to Big Data
8	Knowledge discovery and Data mining II	Knowledge discovery and Data mining I
9	Knowledge discovery and Data mining III	Knowledge discovery and Data mining II
10	Knowledge discovery and Data mining IV	Knowledge discovery and Data mining III
11	ETL & OLAP	New methods for data integration & Data Lake concept
12	OLAP, ROLAP, MOLAP, HOLAP	Semantic technologies and Web services
13	On Demand Decision support systems	Big Data Architectures
14	New Trends in Business Intelligence - I	Hadoop Ecosystem
15	New Trends in Business Intelligence - II	New Trends in Business Intelligence (ORACLE, SAP, SAS)

NEW LECTURES

LAMBDA Results - Benefits for PUPIN

Applying



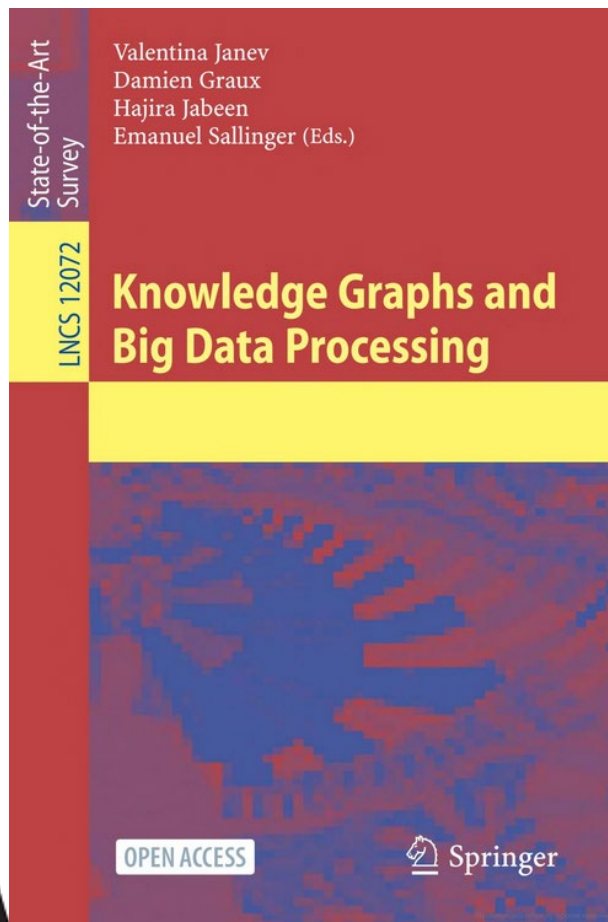
Impact – Adoption of knowledge

- Design of innovative **software architectures** (inBetween, PLATOON)
- Implementation of **analytical services** for energy domain
- Development of **prototypes** with Fraunhofer to be offered on EU market
- **Experimentation**

LAMBDA Results - Benefits for PUPIN

Table of Contents

Capacity Building



Foundations

Chapter 1 Ecosystem of Big Data	1
<i>Valentina Janev</i>	
Chapter 2 Knowledge Graphs: The Layered Perspective	19
<i>Luigi Bellomarini, Emanuel Sallinger, and Sahar Vahdati</i>	
Chapter 3 Big Data Outlook, Tools, and Architectures	34
<i>Hajira Jabeen</i>	

Architecture

Chapter 4 Creation of Knowledge Graphs	55
<i>Anastasia Dimou</i>	
Chapter 5 Federated Query Processing	69
<i>Kemele M. Endris, Maria-Esther Vidal, and Damien Graux</i>	
Chapter 6 Reasoning in Knowledge Graphs: An Embeddings Spotlight ...	82
<i>Luigi Bellomarini, Emanuel Sallinger, and Sahar Vahdati</i>	

Methods and Solutions

Chapter 7 Scalable Knowledge Graph Processing using SANSA	97
<i>Hajira Jabeen, Damien Graux, and Gezim Sejdiu</i>	
Chapter 8 Context-Based Entity Matching for Big Data	114
<i>Mayesha Tasnim, Diego Collarana, Damien Graux, and Maria-Esther Vidal</i>	

Applications

Chapter 9 Survey on Big Data Applications	139
<i>Valentina Janev, Dea Pujić, Marko Jelić, and Maria-Esther Vidal</i>	
Chapter 10 Case Study from the Energy Domain	155
<i>Dea Pujić, Marko Jelić, Nikola Tomašević, and Marko Batić</i>	

Bibliography	171
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LAMBDA Results - Networking

The screenshot displays the Facebook interface for the 'LAMBDA Network of Experts' group. On the left, the group's profile card shows the owner, Valentina Janev, and statistics such as 100 members and 91 other connections. Below this, a list of recent posts is visible, including one from Maria Manuela Cruz. The main content area features the group's cover photo with the LAMBDA logo and the text 'LAMBDA Network of Experts, Funded by "Spreading Excellence and Widening Participation", GA 809965'. To the right, the 'About this group' section provides details about the project's funding and goals. The bottom right corner shows the 'Admin' section with Valentina Janev listed as the owner. A chat window is open in the foreground, showing a conversation between Ana Garcia Robles and Valentina Janev.

Valentina Janev Owner
Created group: Jul 2018

Pending posts 0
Requests to join 2

Manage group
Edit group

Recent

- LAMBDA Network of Experts, ...
- MOVECO - The circular econ...
- Official Statistics Network
- EWG-DSS EURO Working Gro...
- SEMANTICS

Groups

- LAMBDA Network of Experts, ...
- MOVECO - The circular econ...
- Official Statistics Network

Show more

Events +
Followed Hashtags

Discover more

LAMBDA Network of Experts, Funded by "Spreading Excellence and Widening Participation", GA 809965

Listed group

Start a conversation in this group

All Recommended

Maria Manuela Cruz
Full Professor at Polytech
3w

Maria Manuela Cruz
Full Professor at Polytech
3w

Released last August
Handbook of Research on Cy
edited by Maria Manuela C

Ana Garcia Robles
Value Association
DEC 1

Ana Garcia Robles • 1:51 PM
Welcome to BDVA!

Valentina Janev • 1:52 PM
Thank You very much. I have received the confirmation last week, thank You!

Write a message...

100 members
Including Sanja Vranes and 91 other connections

Invite connections

See all

About this group

LAMBDA - Learning, Applying, Multiplying Big Data Analytics, Funded by "Spreading Excellence and Widening Participation" Work Programme 2016-2017, GA No. 809965. The project fosters efforts to create resources (Big Data & Analytics curriculum and lectures, ...

See all

Admin

Valentina Janev
You Owner
LAMBDA Coordinator at Institute Mihailo Pupin

Promoted

Enjoy 20% off Journals & Free delivery worldwide! Use Promo

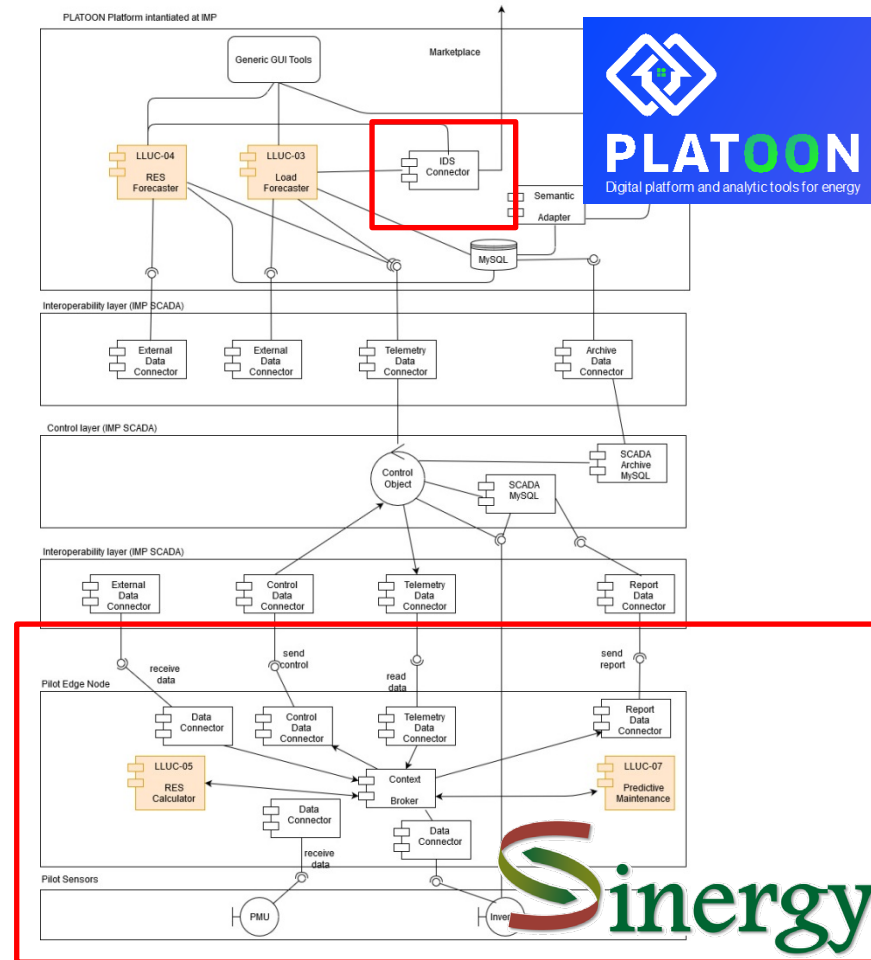
LAMBDA Results - Benefits for PUPIN

Capacity Building Topics

- Knowledge Graphs
- Explainable AI
- Big Data Tools
(catalogue of tools)
- **Semantics & Innovative Scenarios**
- **Analytics services**
- **Interoperability**

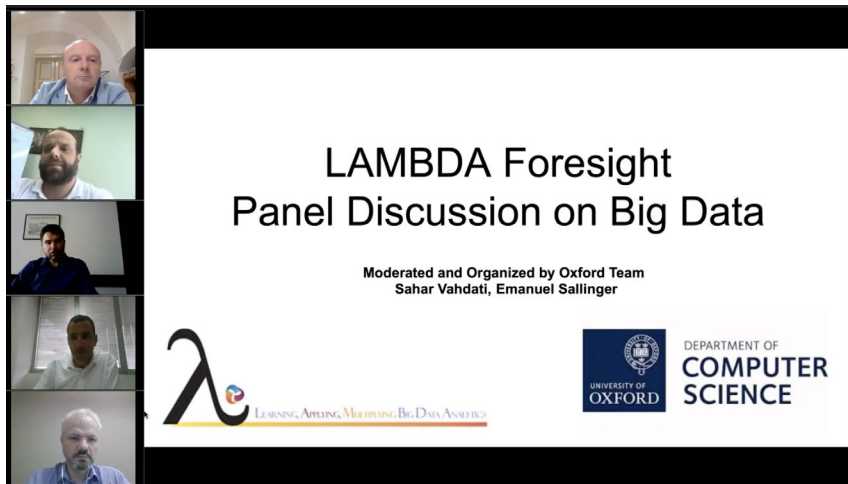


Software Architecture (Example)



LAMBDA Results - Benefits

Foresight Exercises



The screenshot shows a video conference interface. On the left, there are five small video feeds of participants. The main area displays the title 'LAMBDA Foresight Panel Discussion on Big Data' in a large, bold font. Below the title, it says 'Moderated and Organized by Oxford Team' and 'Sahar Vahdati, Emanuel Sallinger'. At the bottom, there are logos for the University of Oxford Department of Computer Science and the LAMBDA project, which includes the text 'LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS'.

Panel Discussions, Thematic Events

- AI Strategy for Serbia



The image shows two logos. The top logo is for 'KR4L KNOWLEDGE REPRESENTATION & REPRESENTATION LEARNING', featuring a stylized blue molecular structure icon. The bottom logo is for the 'LAMBDA' project, featuring a large black Greek letter lambda with a small colorful circular icon to its right, and the text 'LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS' below it.

LAMBDA Results - Adoption



Univerzitet Union
- Nikola Tesla



University of Tuzla
Bosnia and Herzegovina



University of Niš
Faculty of Mechanical Engineering



"Ss. Cyril and Methodius" University - Skopje
FACULTY OF COMPUTER
SCIENCE AND ENGINEERING



UNIVERZITET U NOVOM SADU
UNIVERSITY OF NOVI SAD



> 15 Speakers (Germany, Bulgaria, UK, Italy,
Austria, Romania, Serbia)

> 60 participants, > 20 different organizations



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

Open Education (June 2020)

Home

34 lectures

Select MODULE - Any -

Select Event - Any -

Apply

- My account
- Log out

- Any -

- Any -

tent

Module

Lecture

Presented at
event

Artificial intelligence

The Revolution of AI

Other

Artificial intelligence

Conversational AI

Other

Artificial intelligence

AI and Knowledge Graphs

BDA School
2020

Foundations

Big Data Ecosystem

Other

Foundations

Introduction to Knowledge Graphs

BDA School 2019

Artificial intelligence

Survey

Foundations

Enterprise Knowledge Graphs

Semantic Big Data Architectures

Big Data and KGs Tools

Smart Data Analytics

Case Studies

Book

Spreading Excellence (AB)



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The following invited experts have confirmed participation at the LAMBDA Advisory Board:

• [Log in](#)

- [Sören Auer, Director, German National Library for Science and Technology](#)
- [Atanas Kiryakov, OntoText](#)
- [László Kovács, Hungarian Academy of Sciences](#)
- [Maria Esther Vidal, Head of Scientific Data Management Research Group, German National Library for Science and Technology](#)
- [Daniel Pop, Research Institute e-Austria Timisoara / West University of Timisoara](#)
- [Gabriel Iuhasz West University of Timisoara](#)
- [Mari Carmen Suárez-Figueroa, Department de Inteligencia Artificial, Universidad Politécnica de Madrid](#)

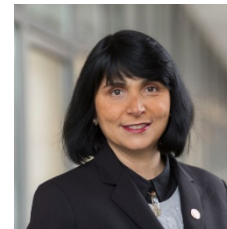


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LAMBDA in Year 3

Plan

- PhD Colloquium
- 3rd edition of BDA School (topics from energy)
- Intensify the PUPIN – Fraunhofer collaboration in domain of Industrial Data Spaces
- Involvement in BDVA Task Force on Energy



Thank You for Your Attention !



Institute Mihajlo Pupin

Valentina.Janev@pupin.rs