



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

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LAMBDA Deliverable 5.5

First Report on Communication activities and Dissemination Events

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Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	



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Institute for Computer Science - University of Bonn (UBO)	Contractor	Germany
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Executive Summary

This document presents details of the dissemination and communication activities implemented for the reporting period (M1-M12). During this period, WP5 focused its efforts on developing and implementing the appropriate dissemination and communication strategies and activities that will result in the best and most effective promotion of the project in the local, regional areas as well as European and international level.

The LAMBDA portal (<https://project-lambda.org>) as the main source of information about the project activities and results has been updated regularly, see [past events](#). In order to support LAMBDA researchers in spreading information and project publicity, the PUPIN team prepared general promotion material (leaflet, poster, PowerPoint presentation, templates, teaser video etc.), established the [LAMBDA 'Network of Experts' Group on LinkedIn](#) and activated the [Net4LAMBDA](#) account on Twitter.

In the reporting period, the LAMBDA researchers organized five scientific events including the [LAMBDA Big Data Analytics Summer School](#). LAMBDA researchers presented results at many other events ([US-Serbia & West Balkan](#) Data Science Workshop, [Very Large Data Bases 2018](#), [SEMANTiCS 2018](#), [TELFOR 2018](#), [GIS and Remote Sensing 2018](#), [ICIST 2019](#), [ESWC 2019](#)) and attended different networking events on topics relevant for the project.



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Abbreviations and Acronyms

OERs	Open Educational Resources
NoE	Network of Experts
WP	Work package

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1. Introduction

The main objective of Work package 5 (WP 5 Stakeholder engagement, Community building and Dissemination) is to identify and reach out to the relevant stakeholders both on the side of actors-producers and users of Big Data, but also institutions within the domain of data science education. The dissemination and exploitation activities are tailored to the needs of the consortium partners (PUPIN as the main beneficiary), as well as other relevant stakeholders from the widening county (Serbia) and the region to access, explore and understand the opportunities present in the 'Big Data' field.

1.1 Related Deliverables

At the time of writing this deliverable, it is twelve months after the start of the LAMBDA project. The deliverable has been created based on the description of WP5 objectives and other tasks in the grant agreement and the close collaboration of project partners, in particular, related to the organization of the Big Data Analytics Summer School as the main event for promoting the LAMBDA results in this reporting period.



Figure 1. Organizers, Quest Speakers, Lectures and Participants of the Big Data Analytics Summer School, Belgrade, June 2019

Deliverable 5.5 First Report on Communication activities and Dissemination Events relates to the following deliverables:

- D5.1 [Stakeholders Database and Market Analysis](#) (M6): describes the stakeholder database establish as part of the private side of the LAMBDA platform that includes all stakeholders that are relevant for LAMBDA (local, regional, national and EU level).
- D5.2 [Dissemination and Communication Strategy and Preliminary Exploitation Plan](#) (M6): outlines the envisioned Dissemination, Communication and Exploitation strategy of the LAMBDA project, as well as the specific objectives of dissemination activities until the end of the project.
- D3.5 Belgrade BDA School (Report 1) (M12)

Taking into consideration that D5.2 reported also on dissemination activities of the LAMBDA project in the first six months, this deliverable will present the statistics for the whole reporting period (M1-M12) and discuss in more details the events organized in period M07-M12.



1.2 Intended audience of the deliverable

Table 1 defines the intended audience of the current deliverable:

Intended audience	Reasons for interest in this document
Consortium partners	To be informed on the communication and dissemination activities performed by the consortium during the reporting period
Participants / Stakeholders	To have on one place the information about the LAMBDA dissemination and raise awareness about the project results.
European Commission	To review and assess this deliverable as a required report based on DoW
General public	To be informed about the LAMBDA activities.

Table 1. Target audience for this deliverable

1.3 Structure of the Deliverable

This Deliverable is the third document delivered in WP5 framework and presents the following points:

- Summary of the LAMBDA Dissemination, Communication and Exploitation strategy (Section 2);
- Summary on
 - the general promotion material (prepared by the PUPIN team) that is used throughout the project (Section 3);
 - the communication activities in the reporting period (Section 4);
 - the published scientific publications (Section 5);
 - events organized by the LAMBDA consortium (Section 6);
 - networking events where LAMBDA researcher have participated (Section 7);

2. Dissemination and Communication strategy

One of the activities initiated at the very beginning of the project was to establish a comprehensive dissemination strategy and action plan for its implementation, as well as to identify all available instruments for dissemination and exploitation of project outcomes. Apart from standard instruments, like publicity and promotion materials (leaflets, posters, etc.), web portal, conference and journal papers, some specific instruments have been considered such as feedback collection from stakeholders via the private part of the portal. The appropriate instruments have been developed for the collection of inputs from all Partners regarding dissemination actions undertaken. In order to promote the LAMBDA project to the wide audience but also try to attract numerous prominent scientists, a Network of Experts has been established as a LinkedIn Group, see <https://www.linkedin.com/groups/12129621/>.

2.1 Dissemination Approach

LAMBDA consortium applies standard tools and a multi-channel dissemination approach to disseminate knowledge and experience gained in the project framework. The dissemination basically involves the transfer of information and knowledge gathered in the project activities and transfer of LAMBDA results to the different stakeholders mainly in EU, Serbia and other non-EU countries in the West Balkan region undertaking accession process, including Montenegro, North Macedonia, Bosnia, and Herzegovina, as LAMBDA project intention is to make PUPIN regional center of excellence and point of reference in Big Data Analytics domain. The major underlying assumption of the dissemination strategy is that the whole Consortium should commit to performing dissemination and communication activities and proactively look for dissemination opportunities and make available their own dissemination channels, as well as contribute to opening the new ones, tailored to the LAMBDA project objectives. Each Partner shall proactively contribute to communicate and disseminate contents related to the project by exploiting their existing communication channels, relevant to LAMBDA as well, in order to reach the widest audience in Serbia, West Balkan region and Europe-wide. Moreover, each dissemination activity shall be carried out by the individual partner who is the most prominent expert on the respective subject. However, communication and dissemination activities shall be performed in a well-organized and structured way, and the Coordinator shall be able to track and review any communication and dissemination action performed by any of the LAMBDA partners. As such, the Coordinator has developed a set of instruments for the collection of inputs from Partners referring to planned activities as well as for the tracking of actions carried out by Partners. The Coordinator will also ensure that sensitive material is not disclosed and that all the communication and dissemination activities will be adjusted towards the specific audience.

Within this framework, the following basic criteria should be followed:

- Target audience categories should be carefully identified;
- Contents should be carefully identified and tailored towards targeted beneficiaries;
- Communication messages should be formulated both in advance and *ad-hoc* having in mind the targeted audience;
- Information channels and tools should be carefully identified and adjusted towards the targeted stakeholders and the general public.



2.1.1 Target Groups

The targeted dissemination and exploitation audience includes the following categories:

- Scientific communities:
 - Universities
 - Research Institutes
 - Innovation Centers
 - Science and Technology Parks
- Public authorities, and particularly:
 - Ministries
 - Governmental agencies
 - Local and municipal authorities,
- Financial sectors:
 - Banks,
 - Hedge Funds,
 - Investment funds
- Service providers, such as:
 - ESCOs,
 - Utilities,
 - Traffic authorities
 - Energy management authorities
 - Mobile providers
- Industry:
 - Software industry
 - Manufacturing industry,
 - Process industry, etc.

LAMBDA project established a Stakeholder database¹, as part of the private side of the LAMBDA platform. This database will include all stakeholders that are relevant to involve at all levels: local, regional, national and EU. Following EU and national Data Protection Regulations, the data is restricted to the members of the consortium and each stakeholder registered with the LAMBDA platform has to read and accept the 'Terms of Use' document and LAMBDA 'Privacy Policy' document. Once registered on the platform, stakeholders can use all available e-collaboration tools.

2.1.2 Objectives of the Dissemination and Exploitation Activities

The following are the objectives of the dissemination and exploitation activities to be carried out within the framework of the project:

- provide up-to-date information about the project;
- share the results of the project with the scientific community interested to the topics addressed by the LAMBDA project, to promote the research and receive useful inputs from other scientists and International Communities, especially within the West Balkan region;
- share the knowledge acquired within LAMBDA among the industrial stakeholders as a basis to create future opportunities for application of big data analytics to enhance the quality of their products and services;
- build a solid base for future partnerships, collaborations, and information exchange between relevant communities, including scientific community, industry and public sector;
- attract potential customers and generate expectation towards the project results, in order to prepare its exploitation (especially in PUPIN's standard niche areas);

¹ <https://project-lambda.org/Stakeholders-Section>



- identify additional potential application fields, customers and business opportunities based on the reactions to the dissemination activity;
- gather feedback from peers, experts, researchers, potential customers, industry, and the general public;

Planned dissemination activities to fulfil the above objectives and reach targeted audience include:

- **Implementation of the LAMBDA web portal** to facilitate interaction with all stakeholders and potential beneficiaries in South-east Europe;
- **Awareness raising spread and knowledge dissemination** at the national and regional level through preparation of promotional material and regular presence at international conferences and workshops in Europe; Significant events (conferences, seminars, workshops) which will be organised by LAMBDA project will be reported in the deliverable entitled 'Report on Communication activities and Dissemination Events';
- **Publishing in scientific journals**, for instance the Big Data Research published by Elsevier, <https://www.journals.elsevier.com/big-data-research/>, or the Semantic Web Journal of IOS Press.
- **Networking with universities from Serbia including** the School of Electrical Engineering (University of Belgrade), Faculty of Mechanical Engineering (University of Niš), Traffic engineering (University of Belgrade), Mathematics and Computer Science of the Universities of Belgrade (University of Novi Sad), and others. Spreading excellence towards these academic partners will be accomplished through presentations of capacity building activities in the project, and through exchange of know-how and experience.
- **Networking with universities from the Region including** the University of Zagreb, University of Tuzla, University of Montenegro, University Ss. Cyril and Methodius and others institutes and universities active in relevant research in the region.
- **Networking with regional policy makers:** seminars will be organized with the Consultative Office of the Ministry of Science of Serbia, which helps researchers and research organizations in Serbia to participate in ERA and H2020, once per year; seminars and thematic meetings organised with the regional Chambers of Commerce, and with industry clusters once per year, to facilitate cooperation with industry and SMEs from the region (WP5, Task 5.3);
- **Spreading excellence** towards regional and EU universities and research partners via existing virtual platforms such as the PACINNO virtual platform for supporting the work of the Adriatic TTOs;
- **Networking with Data Science Associations and selected projects** such as [Big Data Value Association AISBL](#) (BDVA), [European Data Science Academy](#) (EDSA), [European Association for Data Science](#) (EuADS) and European Network of National Big Data Centers of Excellence (<http://www.big-data-networks.eu/>) ;



2.2 Communication Approach (updated)

The following table outlines a selection of dissemination channels.

Table 2. Selection of dissemination channels

Channel	Description	Link
Project Portal	A central hub for all communication efforts will aggregate the diverse landscape of project communication into one conclusive online presence – also demonstrating the platform and the use cases.	Available from M1 (see https://project-lambda.org)
Collaborations / Mailing list and forum	Providing a forum for experts, jury, project team and interested people from domain; Leverage the existing academic partnership networks / existing client network	Stakeholder database ² BDA-School mailing list ³
Webinar YouTube / VideoLectures.net	Video tutorials and Webinars will be available based on the Lectures (https://project-lambda.org/Knowledge-repository/Lectures) of the BDA Summer School ⁴	https://project-lambda.org/Webinars
Social media	Multiplying communication efforts by using social media like Twitter, Facebook, LinkedIn, Google+ and SlideShare.	LinkedIn Network of Experts ⁵
Printed dissemination material	Document templates, leaflets, posters, rollups, business cards and giveaways Hand out printed materials (Leaflet) at different events	https://project-lambda.org/Promotional-Material
Content pool	Preparing stories and free-to-copy texts, pictures and A/V-footage.	materials in the content pool at the Private side of the LAMBDA portal
Advertorials	Booking a small but highly targeted number of advertorials in selected magazines and online media reaching the target group Advertorials associated with the Research-Industry Forum and BDA School	Promotion via the School of Electrical Engineering Web site ⁶

² <https://project-lambda.org/Stakeholders-Section>

³ bda-school@mail.project-lambda.org

⁴ <https://project-lambda.org/Summer-School-2019>

⁵ <https://www.linkedin.com/groups/12129621/>

⁶ <https://www.etf.bg.ac.rs/sr/vesti/2019/05/project-lambda-big-data-analytics-summer-school-2019-institut-mihajlo-pupin>

3. Communication Activities in the reporting period

3.1 Summary

Table 3 outlines a selection of dissemination channels and targets as was proposed in the Grant Agreement.

Table 3. Communication Activities – Targets and Achievements

	Channel	Description	Measurements (end of the project)	Status, June 2019
1	Printed dissemination material	Document templates, leaflets, posters, rollups, business cards and giveaways	Hand out printed materials in 30 different conferences	>15 events
2	Content pool	Preparing stories and free-to-copy texts, pictures and A/V-footage.	10 materials in the content pool	Will be delivered in September 2019
3	Advertorials	Booking a small but highly targeted number of advertorials in selected magazines and online media reaching the target group	3 advertorials associated with the Research-Industry Forum and BDA School	See below
4	Collaborations / Mailing list and forum	Providing a forum for experts, jury, project team and interested people from domain; Leverage the existing academic partnership networks / existing client network	>100 academic institutions from the region; >50 clients in the stakeholder database	Mailing list has more than 50 members
5	Project Website	A central hub for all communication efforts will aggregate the diverse landscape of project communication into one conclusive online presence – also demonstrating the platform and the use cases.	Available from M1 (see WP1)	See Deliverable 1.2 ⁷
6	Social media	Multiplying communication efforts by using social media like Twitter, Facebook, LinkedIn, Google+ and SlideShare.	4 new accounts on social sites	3 accounts - Twitter, LinkedIn, YouTube ⁸
7	YouTube / VideoLectures.net	Lectures of the BDA Summer School	20 lectures	9 lectures

3.2 Hand out printed materials (Scientific events)

- [US-Serbia & West Balkan Data Science Workshop, 26-28 August 2018](#)
- [Semantics Conference 2018](#), September 2018
- [VLDB 2018](#), July 2018
- [GIS and Remote Sensing Conference, September 27-28 September 2018](#)
- [Reinventing the world-The power of Industry 4.0, 5th November 2018](#)

⁷ <https://project-lambda.org/D1.2>

⁸ <https://www.youtube.com/channel/UC9BCAGX1dzCI2akuRxILq6Q>



- [CESSDA ERIC 2018, 15 November 2018](#)
- [Circular Serbia, December 2018](#)
- [Semantic technologies for Big Data, ICIST, Serbia, March 2019](#)
- [Trends and opportunities of the digital world, April 2019](#)
- [IT Conference DATUM, April 2019](#)
- [PEARL PV, Workshop, Belgrade, 25 April, 2019](#)
- [CIBEK 2019, May 2019](#)
- [11th International Scientific Conference "Returning the planet to people and returning a man to the planet", June 2019](#)
- [ESWC, Slovenia, June 2019](#)
- [2019 ACM SIGMOD/PODS @ Amsterdam, NL, July 2019](#)

3.3 Advertorials

- **Learning Big Data Analytics with SlideWiki**, <https://slidewiki.eu/2018/11/01/learning-big-data-analytics-with-slidewiki/>
- **Big Data Analytics Summer School 2019**, <https://project-lambda.org/Announcement-2>
- **Big Data Analytics Summer School 2019**, <https://www.etf.bg.ac.rs/sr/vesti/2019/05/project-lambda-big-data-analytics-summer-school-2019-institut-mihajlo-pupin>

The University of Oxford is captured, see <http://www.cs.ox.ac.uk/innovation/inspiredresearch/InspiredResearchwinter2018.pdf>, as number one organization of providing high quality teaching and learning material.

The LAMBDA project benefits from the impact of such excellence in teaching. In addition, the LAMBD project itself is reported as one the important projects for Oxford University in terms of providing high level learning and application platform for highly talented researchers and students from special regions of West Balkan.

InspiredResearch

Winter 2018 Issue 13

NEWS FROM THE DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF OXFORD

OXFORD RANKED FIRST IN WORLD

Oxford University becomes first UK institution to top the Times Higher Education Computer Science global subject rankings – p4

**DEEPMIND:**

Graduate scholarships encourage wider participation in Computer Science – p5

**LABHACK IN ZIMBABWE:**

Supporting Science, Technology, Engineering and Mathematics (STEM) education in Africa – p25

**STRACHEY LECTURE:**

Professor Rodney Brookes: steps towards super Intelligence – p21

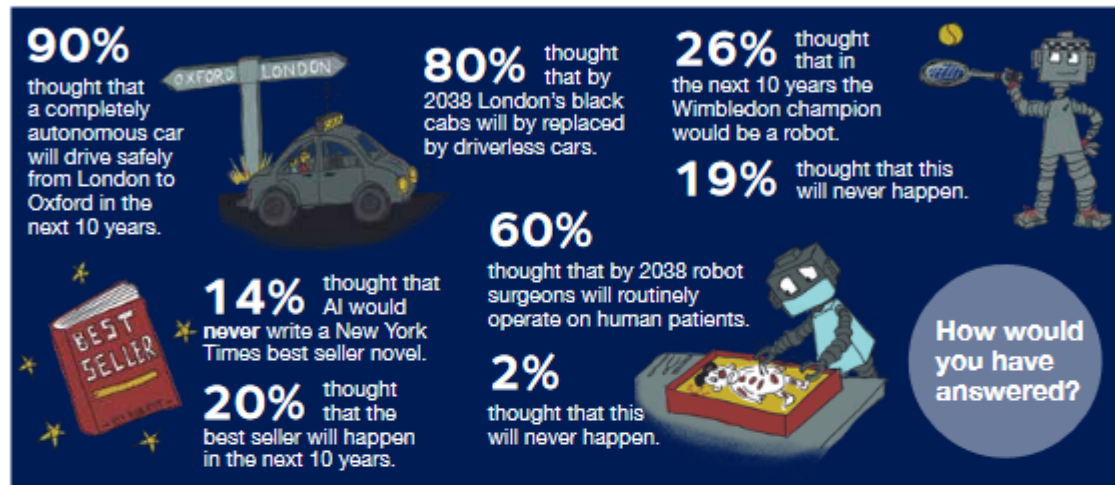


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Answers on a postcard: Artificial Intelligence predictions

As a little bit of fun, during the Oxford Artificial Intelligence Exposition (AI Expo), and other recent events, we've been asking delegates and students to make their predictions on the future of Artificial Intelligence. We asked participants – who ranged from school children to professors and CEOs of technology companies – a series of questions such as 'when will a completely autonomous car safely drive from London to Oxford?' and 'when will a robot tennis player beat a reigning Wimbledon champion?'. A few of the answers to this entirely non-scientific poll can be found below.



Semmler identifies Apple security vulnerability

Semmler is a software engineering analytics platform whose CEO is Oege de Moor, a former Professor at the Department of Computer Science.

In August it was announced that Semmler had received an additional \$21 million in funding, led by Accel Partners, and with participation from Work-Bench.

The Security Research Team at Semmler has recently discovered a series of critical remote code execution vulnerabilities in Apple's XNU operating system kernel. This may allow malicious attackers on the same network to take control of any vulnerable Apple device. The vulnerabilities were found using Semmler's variant-analysis engine to search for vulnerability patterns in source code.

Read more and watch a demonstration video here: goo.gl/cpM9yx

New grant awarded for LAMBDA project

The Department of Computer Science has been awarded a European Commission grant under the Horizon 2020 Twinning scheme.

The goal of the LAMBDA ('Learning, Applying, Multiplying Big Data Analytics') project, led at Oxford by Emanuel Sallinger and Tim Furche, is to spread excellence in research, teaching and innovation in knowledge graphs and big data analytics. This is highly synergistic with the department's existing strengths in information systems, databases, artificial intelligence, knowledge representation, and reasoning.

The Oxford team will participate in all aspects of the project, and will focus particularly on the knowledge graph aspect. Knowledge graphs have become a focus of research at Oxford, notably leading to the development of the VADALOG system within the EPSRC Value Added Data Systems project at the department. Among

its benefits, the LAMBDA grant will allow the team to develop new teaching and learning materials, ensuring that excellence in research also has a direct impact on excellence in teaching and innovation. After three successful awards in the Medical Sciences division of the university, this is a first for the Mathematical, Physical, Engineering and Life Sciences division.

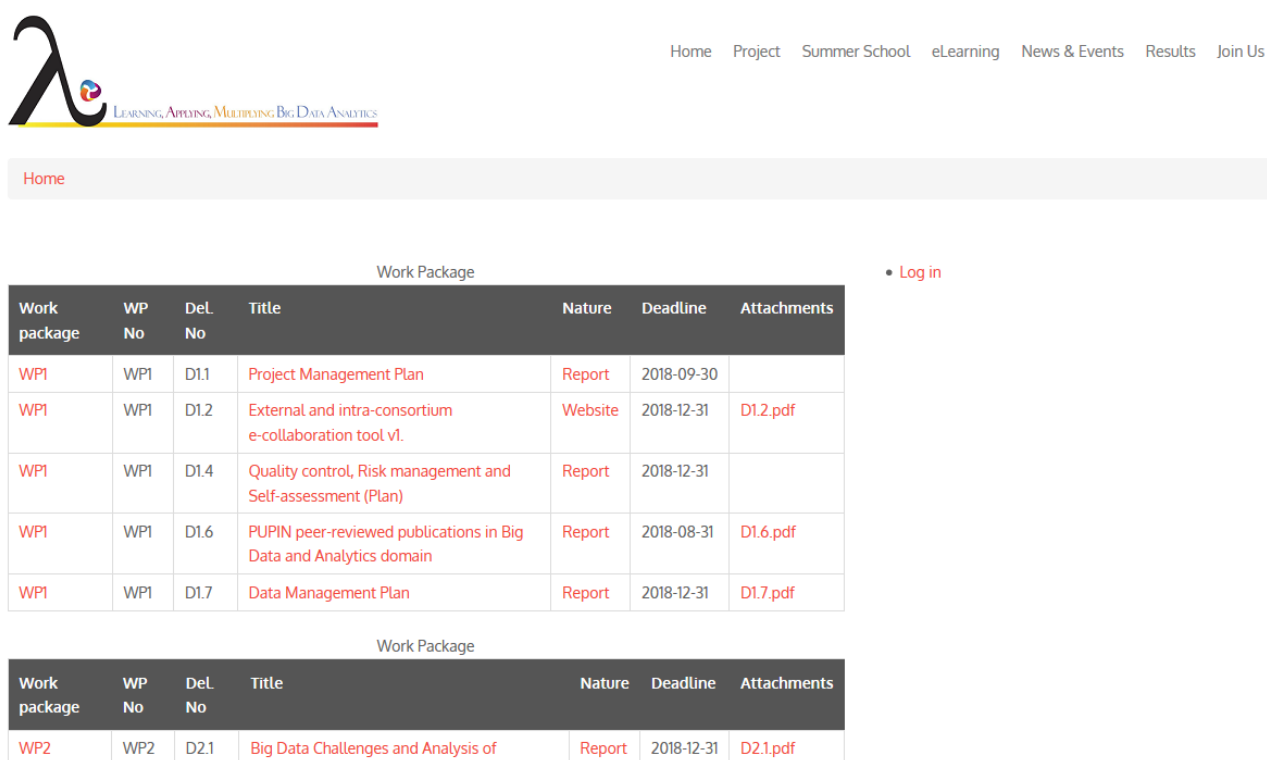
EC-funded Horizon 2020 grants aim to spread excellence and widen participation by decreasing disparity in European research and innovation. The LAMBDA project's core is formed by the University of Oxford (Department of Computer Science), The Fraunhofer Society (Institute for Intelligent Analysis and Information Systems), the University of Bonn (Institute for Computer Science) and the University of Belgrade (Institute Mihajlo Pupin, the oldest and largest ICT research institute in Serbia and the West Balkan region).

Figure 2. The Oxford Computer Science Department Magazine, Winter 2018, Issue 13 (about LAMBDA)

3.4 LAMBDA Portal

The LAMBDA portal (shown in figure 3) is continuously updated with new information about the LAMBDA activities, publications and networking events. Websites most often updated are

- Events, <https://project-lambda.org/Past-Events>
- Deliverables, <https://project-lambda.org/Deliverables>
- Publications, <https://project-lambda.org/Publications>



Work package	WP No	DeL No	Title	Nature	Deadline	Attachments
WP1	WP1	D1.1	Project Management Plan	Report	2018-09-30	
WP1	WP1	D1.2	External and intra-consortium e-collaboration tool v1.	Website	2018-12-31	D1.2.pdf
WP1	WP1	D1.4	Quality control, Risk management and Self-assessment (Plan)	Report	2018-12-31	
WP1	WP1	D1.6	PUPIN peer-reviewed publications in Big Data and Analytics domain	Report	2018-08-31	D1.6.pdf
WP1	WP1	D1.7	Data Management Plan	Report	2018-12-31	D1.7.pdf

Work package	WP No	DeL No	Title	Nature	Deadline	Attachments
WP2	WP2	D2.1	Big Data Challenges and Analysis of	Report	2018-12-31	D2.1.pdf

Figure 3. LAMBDA Portal – Deliverables

3.5 LAMBDA Network of Experts

The LAMBDA Network of Experts (shown in figure 4), established as LinkedIn group from the very beginning of the project, has 57 members (June 2019) including

- members of the Advisory Board, <https://project-lambda.org/Advisory-Board>
- representatives from stakeholders, <https://project-lambda.org/Stakeholders-Education-Research>, <https://project-lambda.org/Stakeholders-Public-Administration-NGO>, <https://project-lambda.org/Stakeholders-Industry>

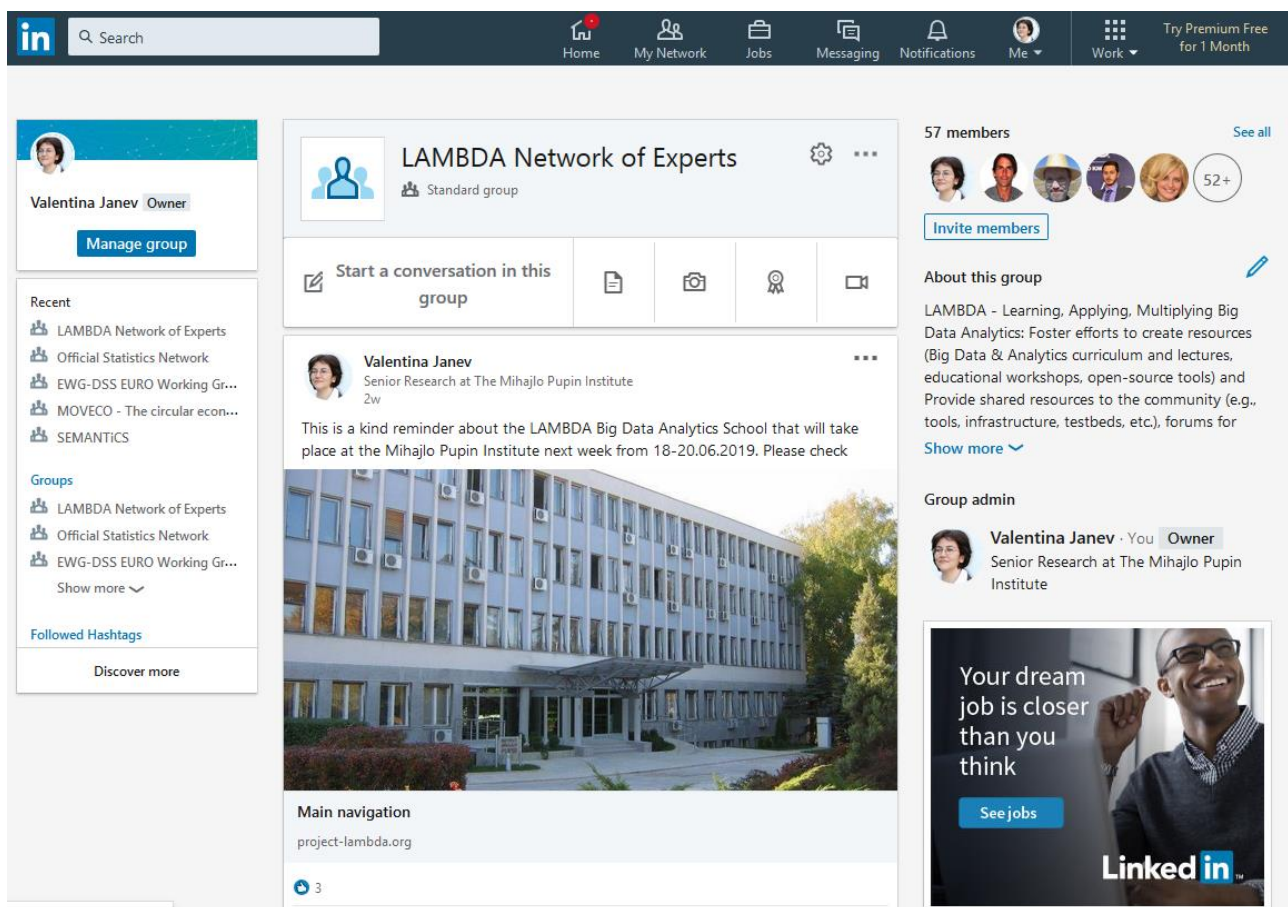


Figure 4. LAMBDA Network of Experts

3.6 LAMBDA Twitter Account

In the very beginning of the project the LAMBDA Twitter account was created <https://twitter.com/Net4LAMBDA>.

Figure 5 shows the usage of social media mainly twitter for the publicity of the project.

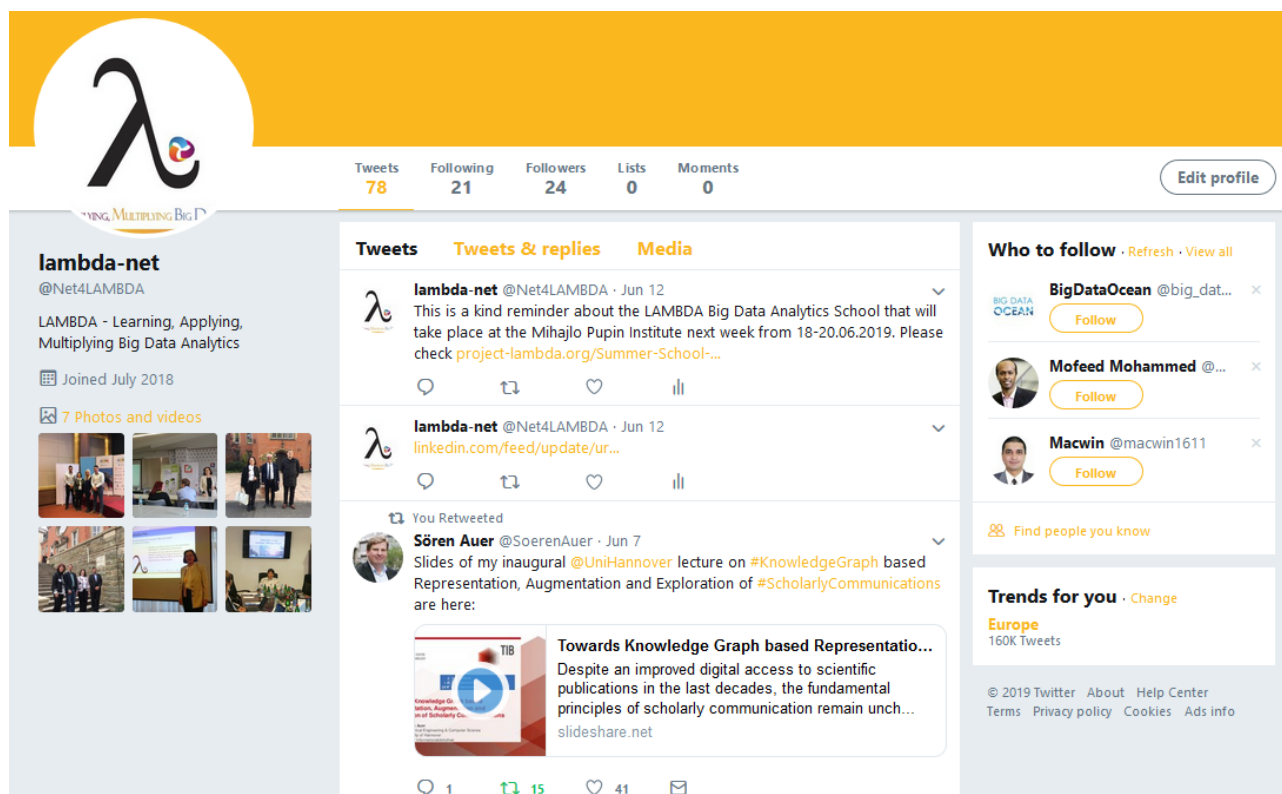


Figure 5. LAMBDA Twitter account

3.7 Promotional Material (Logo, Leaflet, Templates) (updated)

Developing the LAMBDA logo (Figure 6) was one of the first steps taken by the project consortium to establish the project's branding. The logo has been designed to help external audiences to easily identify LAMBDA and contributes to the project's visibility from the very beginning. Through the selection process, various designs were suggested and developed to find a version that is easy to recognise and connect with the main project objectives.

The promotional material was prepared with Adobe Illustrator® industry-standard vector graphics software.



Figure 6. LAMBDA Logo

The LAMBDA leaflet was developed in order to be distributed for communication/dissemination and awareness raising purposes to stakeholders with an interest in LAMBDA during conferences,



workshops or other local event. The leaflet is available on the public website, under the “Promotional Material” link⁹.

Different templates (Presentation template, Deliverable template, Agenda meeting template) have been created and are available for download and use by project partner via the LAMBDA G-folder [Templates and Dissemination Material](#).

In the last month, related to the preparation for the Big Data Analytics Summer School and the ESWC Workshops, the poster was created, see <https://project-lambda.org/sites/default/files/2019-05/LAMBDA-poster.pdf>



Figure 7. LAMBDA Leaflet (1)

⁹ <https://project-lambda.org/Promotional-Material>

Project Objectives

- to strengthen the Human capital and Education, Research and Development capacities of "Mihajlo Pupin" Institute, the leading Serbian R&D institution 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.
- to decrease 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.

Open Education



- Module 1 - Enterprise Knowledge Graphs
- Module 2 - Semantic Big Data Architectures
- Module 3 - Smart Data Analytics

Events

- Big Data Analytics Summer School 2019 / 2020
- Research-Government-Industry Forum 2019 / 2020
- LAMBDA Sessions at International Conferences 2019/2020
 - Information Society and Technology (ICIST), Kopaonik, Serbia
 - Central European Conference on Information and Intelligent Systems (CEIIS), Varaždin, Croatia
 - Information Tehnology, Zabljak, Montenegro
 - ICT Innovations, Ohrid, Macedonia

Visit "Mihajlo Pupin" Institute Website: www.pupin.rs

Impact

Learning:
Increased education and research excellence

Applying:
Improved technologies and services of the involved

Multiplying:
A spill over effect on research and innovation in the region and Europe in general





The **LAMBDA project** shall define a scientific strategy for stepping up and stimulating scientific excellence and innovation capacity, increasing research capacities and unlocking the research potential of the biggest and the oldest R&D Institute in the ICT area in the whole West Balkan region, turning the Institute Mihajlo Pupin into a regional point of reference when it comes to multidisciplinary ICT competence related to **Big Data Analytics**.

Project duration: 30 months from July 2018 to December 2020
More information at: www.project-lambda.org

Figure 8. LAMBDA Leaflet (2)



Figure 9. LAMBDA Poster

4. Dissemination Activities in the reporting period

An adaptive framework for dissemination and communication has been defined within the LAMBDA consortium that is based on the following dissemination types:

- **Scientific dissemination** will target relevant journals related to open, linked and/or big data and important national and international conferences (see examples in Table 4);
- **Industrial dissemination** will be the most critical part of the dissemination phase because of the relevance of addressing SMEs and large industry directly and of ensuring technical takeup by competitive players. In order to generate awareness within the business community special workshops and events will be organised to spread the project's work and results. Further information on the workshops will be defined in the **Twinning Strategy and Action Plan for 2018-2020**. Spreading excellence towards industry partners will emphasize the formulation of research problems from the real-world perspective, and solving the problems by taking into account possibilities of the cutting edge technologies.
- **Traditional dissemination and promotional material** - leaflets, brochures and posters, created and distributed in all appropriate events, including meetings with stakeholders, contacts with press or television, and national and regional conferences.

4.1 Summary

Table 4. Dissemination Activities – Targets and Achievements

Output	Success Indicator	End of the project	Status, June 2019
Big Data Analytics School	Number of events	2	1
	Number of lectures (books, published, e.g. via CEUR-WS.org)	More than 20 lectures, 2 open access books	9 lectures 1 book accepted for publication, chapters in preparation
	Number of trained teachers / students	More than 50	>30
	Re-use of the lectures in different universities in the region	More than 10	9 different universities sent representatives for the 1 st BDA School
LAMBDA-Network of Experts	Number of organizations	More than 100	>30
	Number of experts	More than 200	57
Dissemination and outreach (other than BDA school)	Number of WS, seminars and networking events organized	More than 15	See bellow
	Number of brainstorming sessions on key society challenges	7 (including the annual Research-Industry forums)	See bellow
	Number of joint scientific papers	6	2

4.2 Organization of events

- [SlideWiki Developer Hackathon, Belgrade, Serbia, 26-28 September 2018](#) (topic: open education)
- [Circular Serbia, Belgrade, December 2018](#) (topic: environment)

- [LAMBDA and PEARL PV, Workshop, Belgrade, 25 April, 2019](#) (topic: energy efficiency)
- [Special track: Semantic technologies for Big Data, ICIST, Serbia, March 2019](#)
- [LASCAR-19, Workshop on Large Scale RDF Analytics, ESWC, Slovenia, June 2019](#)
- [Semantic Representation, Analysis, and Visualization Track, ESWC, Slovenia, June 2019](#)
- [Research-Industry Forum, Serbia, June 2019](#) (see Deliverable 3.5)



On 26-28 September 2018, SlideWiki developers met in Belgrade, Serbia for the 8th hackathon¹⁰. An important benefit of the Hackathon was that PUPIN staff met SlideWiki DevOps (Development and Operations) team and learn how to implement new features head-on, e.g., by sitting together behind one screen (pair-programming).

Figure 10. SlideWiki Developer Hackathon, Belgrade

Figure 11. PUPIN Team at the 9th Int. Conference on Information Society and Technology held on Kopaonik, Serbia on Mar 10-13, 2018

The [International Conference on Information Society and Technology \(ICIST\)](#) series is one of the top IT scientific events in Serbia and the region, with 70-100 papers presented each year, average of 200 participants per edition, attended also by the number of IT industry representatives in the region.



¹⁰ <https://project-lambda.org/node/31>

4.3 Collaboration / Networking with Policy Makers

Table 5. Networking with Policy makers (examples)

Agency / Ministry	Description
	2018 / 2019
Ministry of Science Chamber of Commerce, Serbia	<ul style="list-style-type: none"> ➤ Reinventing the world-The power of Industry 4.0, 5th November 2018, http://ntpark-conf.rs ➤ 63rd International Fair of Technology, May 2019
Chamber of Commerce Ministry of Environmental Protection, Serbia	<ul style="list-style-type: none"> ➤ Circular Serbia, December 2018 ➤ Green Economy Congress 2018
ICT Network, Serbia, https://www.ict-net.com/	Cluster event in April 2019 in Belgrade, Serbia
City of Vienna	Meeting with the Mayor of Vienna and the President of the Vienna Science and Technology Fund, and representatives with Federation of Austrian Industries, June 2019
Big Data Value Association (BDVA)	Several events with members of the BDVA
Expert Group on AI in OECD	Meeting and knowledge exchange



Figure 12. Circular Serbia Conference, Belgrade, Chamber of Commerce



Valentina Janev, Coordinator of the LAMBDA project participated in the panel discussion on 'Key Challenges for Transformations Towards a Circular Economy', Circular Serbia Conference, organized by the Western Balkans Consulting Global in collaboration with the Wuppertal Institute, RWTHAACHEN University, TU Delft. The panel discussion was an opportunity to analyse the role of ICT sector in reshaping the Industrial Ecosystem and creating Circular Economy (a business model that involves minimizing resource consumption and waste, and creating a closed loop for reusing, recycling or composting. The event was organized at the Serbian Chamber of Commerce and Industry.

4.4 Joint scientific papers

Two joint papers have been published:

- ([download](#)) Marko Jelić, Dea Pujić and Hajira Jabeen (2019) A State-of-the-Art Review on Big Data Technologies. In Proc. of 9th International Conference on Information Society Technology, Kopaonik, Serbia, March 10 – March 13, 2019.
- ([download](#)) V.Janev, J. Lehmann, E. Sallinger, S. Vahdati, D. Graux, and H. Jabeen, LAMBDA: Learning, Applying, Multiplying Big DataAnalytics, ESWC Proceedings, 2019

Currently under development is the Springer book that will include the lectures presented at the LAMBDA Big Data Analytics Summer School.

4.5 PUPIN Journal Papers

For more information, please check <https://project-lambda.org/Publications>.

- [download](#) Vuk Mijović, Nikola Tomašević, Valentina Janev, Mladen Stanojević, Sanja Vraneš (2018). *Emergency Management In Critical Infrastructures: A Complex-Event-Processing Paradigm*, Journal of Systems Science and Systems Engineering, Springer Berlin Heidelberg, ISSN: [1004-3756](#) (Paper) [1861-9576](#) (Online), <https://doi.org/10.1007/s11518-018-5393-5>, 2019. (IF 1.079)
- (under review) Guma Lakshen, Valentina Janev, Sanja Vraneš, *Quality issues in open big data ecosystems: A case study from the drug industry*
- (under review) Guma Lakshen, Valentina Janev, Sanja Vraneš, *Quality Assessment of Arabic Drug Datasets*
- (under review) Nikola Tomašević, Nikola Gvozdenović, Sanja Vraneš, An overview and comparison of supervised data mining techniques for student exam performance prediction, Computers and Education.

4.6 Forthcoming LAMBDA Events in Serbia and the Region

For more information, please check <https://project-lambda.org/Forthcoming-Events>.

Table 6. Organization of Events in Serbia and the Region in 2019 / 2020

Event	Deadline
Semantics Conference	September 2019
Computer Information Systems and Industrial management (Serbia, CISIM 2019)	September 2019
European Conference on Information and Intelligent Systems (Croatia, CECIIS, http://www.ceciiis.foi.hr/about)	October 2019
International Conference on Information Society and Technology (Serbia, ICIST 2020)	March 2020
Big Data Analytics School II and Research-Government-Industry 2020	Call ¹¹
ICT Innovations (FYROM, http://ictinnovations.org/)	October 2020
International Scientific-Professional Information Technology Conference (Montenegro, e.g. http://www.it.ac.me/eng/)	October 2020

4.7 Examples of Announcements for LAMBDA Events in 2019

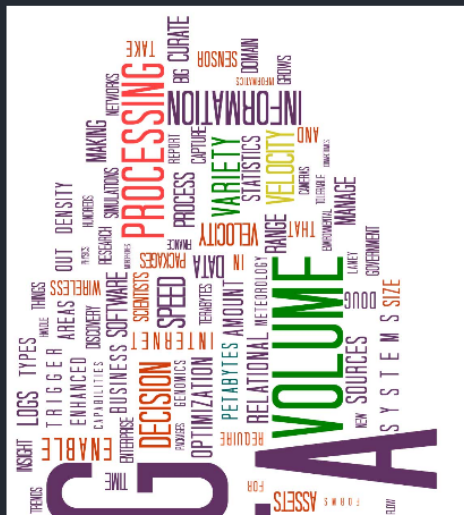
4.7.1 ICIST, Serbia, March 2019

The 9th International Conference on Information Society and Technology was held on Kopaonik, Serbia on Mar 10-13, 2019. The Semantic technologies for Big Data: Volume, Velocity, Variety and Veracity Session was supported by the LAMBDA project. The Session was chaired by: [Jens Lehmann](#) (UBO), [Emanuel Sallinger](#) (UOXF) and [Valentina Janev](#) (PUPIN).

Figure 13 show the call for paper announce in the homepage of the event.

¹¹ <https://project-lambda.org/BDA-Summer-School-2019>

ICIST Special Tracks



Semantic technologies for Big Data: Volume, Velocity, Variety and Veracity

Session supported by LAMBDA project, <https://project-lambda.org/>

With characteristics like Volume, Velocity, Variety and Veracity, Big Data throws challenges to the existing IT establishments. Researchers and professionals face challenges when exploring Big Data sets and when extracting value and knowledge from different data sources.

Although various modelling approaches and schemes have been proposed by the Semantic Community that could contribute to standardization of the Big Data pipelines and development of Big Data applications, specific approaches for Big Data applications are required.

In this special session we seek to raise discussion on:

- How could Data Semantics principles be applied in Big Data technologies e.g. representing the entire pipeline of technologies connected to achieve a specific solution and make this representation shareable and verifiable in different cases?

Figure 13. ICIST Special Track, Serbia, March 2019

4.7.2 ESWC, Slovenia, June 2019

- “[Workshop](http://lascar.sda.tech/) on Large Scale RDF Analytics - LASCAR”, <http://lascar.sda.tech/>
- Tutorial “SANSa’s Leap of Faith: Scalable RDF and Heterogeneous Data Lakes”, <http://sansa-stack.net/eswc2019-tutorial/>
- ESWC Project Networking Session 2019



SANSa's Leap of Faith: Scalable RDF and Heterogeneous Data Lakes

Half-Day Tutorial at [16th European Semantic Web Conference 2019](#)

2nd – 6th June 2019, Portorož, Slovenia

[Hajira Jabeen](#), [Mohamed Nadjib Mami](#), [Damien Graux](#), [Gezim Sejdiu](#), and [Prof. Dr. Jens Lehmann](#)

Scalable processing of Knowledge Graphs (KG) is an important requirement for today's KG engineers. Scalable Semantic Analytics Stack (SANSa) is a library built on top of Apache Spark and it offers several APIs tackling various facets of scalable KG processing. SANSa is organized into several layers: (1) RDF data handling e.g. filtering, computation of RDF statistics, and quality assessment (2) SPARQL querying (3) inference reasoning (4) analytics over KGs. In addition to processing native RDF, SANSa also allows users to query a wide range of heterogeneous data sources (e.g. files stored in Hadoop or other popular NoSQL stores) uniformly using SPARQL. This tutorial, aims to provide an overview, detailed discussion, and a hands-on session on SANSa, covering all the aforementioned layers using simple use-cases.

[Tutorial Description](#)

[Schedule](#)

[Presenters](#)

Introduction

In recent years, Semantic Web has become an acknowledged format for data consumption, publication, conversion, and exchange, with openly established standards and protocols. These activities and interests have resulted in an unprecedented increase in both, size and number of Knowledge Graphs (KG). Concurrently, KGs are being increasingly adopted as a major

Figure 14. SANSa Tutorial at ESWC 2019, Slovenia, June 2019



Figure 15. Poster Session at ESWC 2019, Slovenia, June 2019