LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

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LAMBDA Deliverable 5.7
Second 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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Workpackage	WP 5 Stakeholder Engagement, Community Building, Dissemination and Exploitation
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Related Tasks	Task 5.1 Stakeholder Engagement and Community Building Activities Task 5.2 Communication activities and Dissemination Events

Document History and Contributions

Version	Date	Author(s)	Description
0.1	1.12.2020	Valentina Janev (PUPIN)	First Draft
0.2	09.12.2020	Shimaa Ibrahim (UBO)	In depth analysis of the LAMBDA Web site. Collecting reports about dissemination activities from LAMBDA researchers
0.3	14.12.2020	Sanja Vraneš (PUPIN)	Review
0.4	18.12.2020	Valentina Janev (PUPIN)	Final version
0.5			
0.6			

Disclaimer:

Executive Summary

One of the specific objectives of LAMBDA (**L**earning, **A**pplying, **M**ultiplying **B**ig **D**ata **A**nalytics) project is focused its efforts on formulating and delivering proper strategies and activities for dissemination and communication that will result in the best and most effective advertising of the project at local, regional and European, and international level. 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, PPT available at https://project-lambda.org/Promotional-Material), web portal (https://project-lambda.org), conference and journal papers (https://project-lambda.org/Publications), some specific instruments have been considered such as feedback collection from stakeholders via the private part of the portal and via Google Forms, see for instance Foresight Exercise.

This report presents an update on the communication and dissemination activities conducted in the last six months (July 2020 – December 2020). During the reporting period, LAMBDA researchers organized several scientific events (KRRL2020) and prepared a plan for the next year's activities including AAAI 2021 and the LAMBDA Summer School of Big Data Analytics III. Researchers have presented results at several events that due to COVID-19 were organized online (ISWC 2020, COLING 2020, WI-IAT 2020, eLearning 2020) and attended different networking events on topics relevant for the project.

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Abbreviations and Acronyms

AAAI	Conference on Artificial Intelligence
BDA	Big Data Analytics
CIKM	Conference on Information & Knowledge Management
COLING	Conference on Computational Linguistics
IJCNN	International Joint Conference on Neural Networks
ISWC	International Semantic Web Conference
KG	Knowledge Graphs
KPI	Key Performance Indicator
KRRL	Knowledge Representation & Representation Learning
LKDA	Learning, Knowledge, Data, Analytics
NLIWOD	Natural Language Interfaces for the Web of Data
RDF	Resource Description Framework
SPARQL	SPARQL Protocol and RDF Query Language
WIIAT	Web Intelligence and Intelligent Agent Technology

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1. Introduction

1.1 WP5 Scope

The main objective of Work Package 5 (WP5 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 development activities are tailored to the needs of the consortium partners (PUPIN as the key beneficiary), as well as other related stakeholders from the expanding county (Serbia) and the region to reach, explore and understand the opportunities present in the area of Big Data. WP5 focused its efforts on developing and implementing:

- **[Task 5.1]** the appropriate Stakeholder Engagement Strategy, as an approach for the involvement of external stakeholders and coordination of that activity across the LAMBDA objectives and priorities defined in the Grant Agreement;
- **[Task 5.2]** the appropriate dissemination and communication strategies and activities that will result in the best and most useful promotion of the project in the local, regional areas as well as European and international level;
- **[Task 5.3]** the appropriate exploitation strategy for implementing the project goals and maximizing the impacts. In order to facilitate early involvement of researchers in the process of identifying real-world challenges, we organized brainstorming sessions with existing and potential partners from the industry. These sessions allowed us to understand the use of Big Data and emerging technologies for the competitive advantage of companies.

1.2 Relation to other Deliverables

We reported the results of WP5 in several deliverables.

- Deliverable 5.1 Stakeholders Database and Market Analysis (confidential, M6): Describes the stakeholder database established as part of the LAMBDA platform's private side, which comprises all stakeholders relevant to LAMBDA (local, regional, national and EU level).
- Deliverable 5.2 Dissemination and Communication Strategy and Preliminary Exploitation Plan (M6): Outlines the intended strategy for the dissemination, communication and exploitation of the LAMBDA project, as well as the specific objectives of the dissemination activities until the project is complete.
- Deliverable 5.3 First Report on Stakeholder Engagement and Exploitation Activities and Deliverable 5.4 Second Report on Stakeholder Engagement and Exploitation Activities: Provide an update on the stakeholder engagement/interaction and a summary of the exploitation activities including market analysis, case studies, product/service development, teaching/training services, MSc/PhD thesis defence, follow-up projects or project proposals, and Big Data ecosystem development.

- Deliverable 5.5 First Report on Communication activities and Dissemination Events 1.0 (M12): Presents details of the dissemination and communication activities implemented for the reporting period (M1-M12).

- Deliverable 5.6 Second Report on Communication activities and Dissemination Events (M24): Presents details of the dissemination and communication activities implemented for the reporting period (M13-M24).

This deliverable is also related to:
  - o Deliverable 3.6 Belgrade BDA School II: Documents the 2nd edition of LAMBDA Big Data Analytics Summer School, https://project-lambda.org/Summer-School-2020

Information about the project activities and results is publically available on the LAMBDA portal (https://project-lambda.org). The LAMBDA portal is continuously updated with new information about the LAMBDA activities, publications and networking events. Websites most often updated are:

- o Past events, https://project-lambda.org/Past-Events
- o Deliverables, https://project-lambda.org/Deliverables
- o Publications, https://project-lambda.org/Publications

1.3 Structure of the Deliverable

This deliverable reports an update about the dissemination and communication activities in the period from July 2020 to December 2020:

- Summary of the LAMBDA dissemination activities within the reporting period including the EU conferences organized and the events in Serbia and the region (Section 2);
- The communication activities in the reporting period (Section 3);
- The statistics about LAMBDA website (Section 4);
- Scientific publications (Section 5);
- The conclusion of the deliverable (Section 6).

2. Dissemination Activities in the reporting period (M24 – M30)

2.1 Summary

Table 1. Dissemination Activities – Targets and Achievements (December 2020)

Output	Success Indicator	End of the project	Status, June 2019	Status, December 2020
Big Data Analytics School	Number of events	2	1	2
	Number of lectures books, published, e.g. via CEUR-WS.org)	More than 20 lectures	9 lectures	> 40 lectures
		2 open access books	1 book accepted for publication, chapters in preparation	1 book published[1]
	Number of trained teachers / students	More than 50	> 30	>50, see also statistics about BDA School 2020
	Re-use of the lectures in different universities in the region	More than 10	9 different universities from West Balkan sent representatives for the 1st BDA School	Impact has been made across Europe, see also statistics about BDA School 2020
LAMBDA-Network of Experts	Number of organizations	More than 100	> 30	>100, see short list in D5.4
	Number of experts	More than 200	57	> 100 in the LAMBDA network
Dissemination and outreach (other than BDA school)	Number of WS, seminars and networking events organized	More than 15	See Deliverable 5.5[2]	>15
	Number of brainstorming sessions on key society challenges	7 (including the annual Research-Industry forums)	See Deliverable 5.5[1]	6 research-industry forums[3]
	Number of joint scientific papers	6	2	>10

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[1] Janev, V., Graux, D., Jabeen, H., Sallinger, E. (Eds.) Knowledge Graphs and Big Data Processing, Information Systems and Applications, incl. Internet/Web, and HCI, Vol. 12072. DOI 10.1007/978-3-030-53199-7, ISBN 978-3-030-53199-7, https://www.springer.com/gp/book/9783030531980
[2] https://project-lambda.org/D5.5
[3] https://project-lambda.org/Research-Industry-Forums

2.2 Organization of events and participation at EU conferences in the reporting period (July 2020 - December 2020)

Table 2. Example of events in the period from July 2020 to December 2020

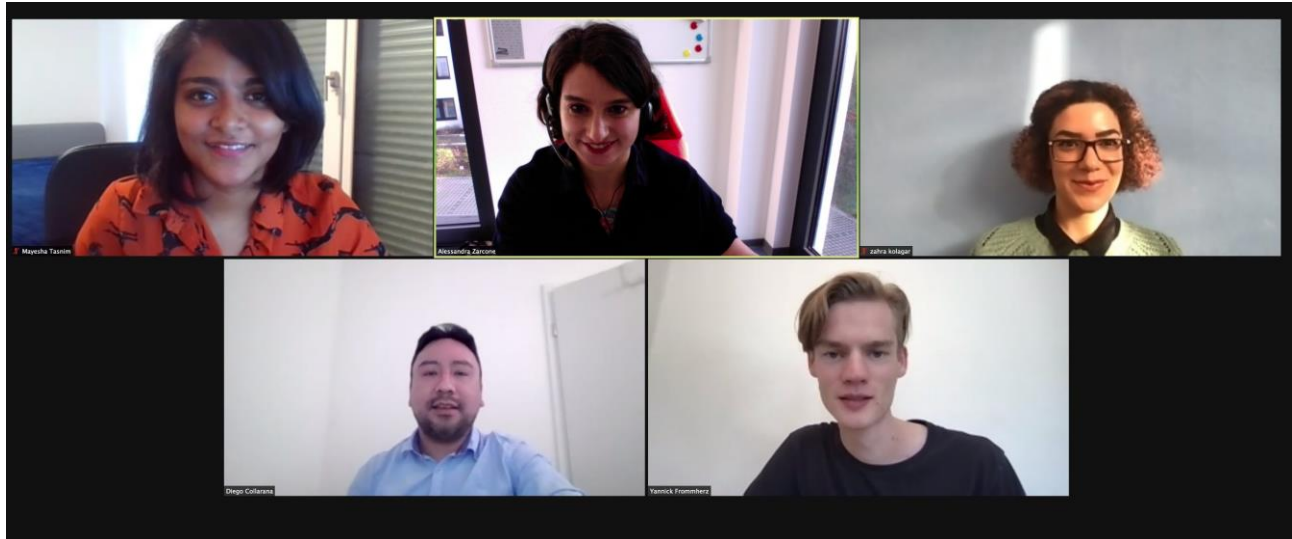| Short name	Partner	International Conferences (Examples)
PUPIN	• Institute Mihajlo Pupin, Serbia (Coordinator)	• eLearning 2020 (paper) • TELFOR 2020 (paper)
IAIS	• Fraunhofer Institute for Intelligent Analysis and Information Systems, Germany	• KRRL Workshop 2020 (LAMBDA event) • International Semantic Web Conference (ISWC), November 2020, Virtual Conference.
UBO	• Institute for Computer Science - University of Bonn, Germany •	• The 6th Natural Language Interfaces for the Web of Data (NLIWOD) Workshop Co-located with the 19th International Semantic Web Conference (ISWC) November 2-3, 2020, Virtual (LAMBDA event)
UOXF	• Department of Computer Science - University of Oxford, UK •	• Half-Day tutorial at The 19th International Semantic Web Conference (ISWC2020) - Scalable RDF Analytics with SANSA (UBO event)

Figure 1. Diego Collarana from Fraunhofer IAIS Dresden at NLIWOD workshop

2.2.1 NLIWOD at ISWC, Online, November 2020 (Fraunhofer & UBO)

● The 6th Natural Language Interfaces for the Web of Data (NLIWOD) Workshop, will be co-located with the 19th International Semantic Web Conference (ISWC). The workshop will be organized by members of IAIS.

The NLIWOD workshop focuses on the advancement of Natural Language (NL) Interfaces to the Web of Data. The workshop has been organized four times within ISWC, with a focus on soliciting

discussions on the development of question answering systems, chatbots, and other NL techniques. It is a yearly highlight for the active NL interface community centered around semantic technologies.

The NLIWOD workshop attracts people from academia as well as from industry to promote active collaboration and discussion, to extend the scope of currently addressed topics, and to foster the reuse of resources developed so far. We want to broaden the scope of this workshop series to dialogue systems and chatbots as increasingly important business intelligence factors.

The primary goal of the NLIWOD workshop is to bring together experts on the use of natural-language interfaces (NLI) for answering questions, especially over the Web of Data.

2.2.2 Tutorial at ISWC, Online, November 2020 (UBO)

- Scalable RDF Analytics with SANSA - Half-Day tutorial at The 19th International Semantic Web Conference (ISWC2020) - 09:00 AM – 12:00 PM (CET) 1st November 2020, (Virtual)

The size of knowledge graphs has reached the scale where centralised analytical approaches have become infeasible. Recent technological progress has enabled tools for powerful distributed in-memory analytics that have been shown to work well on elementary data structures but they are not specialised for knowledge graph (KG) processing. Scalable Semantic Analytics Stack (SANSA) is a library built on top of one such tool, Apache Spark, and it offers several APIs covering different 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 up to date overview of the stack, together with detailed discussions on the previous releases, technical add-ons and developments. Furthermore, a hands-on session on SANSA, covering all the aforementioned layers using simple use-cases will be provided.

Link to Tutorial and CookBook.

2.2.3 LWDA workshops, September 2020 (Fraunhofer & UBO)

LWDA, which expands to "„Lernen, Wissen, Daten, Analysen" ("„Learning, Knowledge, Data, Analytics"), covers recent research in areas such as knowledge discovery, machine learning & data mining, knowledge management, database management & information systems, information retrieval. The LWDA 2020 conference is organized by Fraunhofer IAIS and the MLAI group at the University of Bonn.

2.3 Events in Serbia

- The paper **LAMBDA Learning and Consulting Platform** was presented at the eLearning Conference 2020, which was organized online, https://econference.metropolitan.ac.rs/ . ***Abstract:*** *The potential behind the exploitation of data (Open, Linked and Big) to boost economies and growth is in the focus of many EU initiatives, the most recent of which is the European Strategy for Data. Many students and professionals are taking the online route to acquire knowledge on emerging technologies for Big Data. Therefore, in this paper, we introduce the LAMBDA Learning and Consulting platform that contains over 30 lectures*

related to topics such as challenges in processing Big Data, semantic and knowledge graphs-based tools for Big Data, Big Data architectures, Smart Data Analytics, Best Practices and Use Cases from different industries. The paper discusses the technical elements of the platform and the possibilities for adoption in different settings including vocational training.

- The paper **Electricity Balancing: Challenges and Perspectives** was presented at the TELFOR Conference 2020, which was organized online, https://www.telfor.rs/program-naucne-sekcije
  Abstract: *The European electricity system undergoes significant changes driven by the EU common rules for the internal market for electricity, as well as by the climate action agenda. In addition to the balancing pan-European platforms that are under development, the European Commission supports different innovation initiatives for Smart Grids. In this paper some initial results from the PLATOON (Digital PLAtform and analytical TOOls for eNergy) projects are presents based on the specific objectives for supporting the modernization of electricity balancing services in Serbia. Main contribution of the study is the design of analytical services for more accurate load forecasting (as a central and integral process for planning), renewable energy sources production forecasting and calculation of effects of renewable energy sources integration.*

2.4 Collaboration / Networking with other projects

2.4.1 Webinars

PUPIN researchers who serve as technical coordinators of EU projects prepared 2 webinars related to the projects InBetween[4] (see Agenda of the event at Figure 2) and RESPOND[5] (see Agenda of the event at Figure 3). The information was disseminated through LAMBDA communication channels (e-mailing list, Twitter account).

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[4] http://www.pupin.rs/naucnoistrazivacki-projekti/evropski-ni-projekti/inbetween-ict-enabled-behavioral-change-towards-energy-efficient-lifestyles-2/
[5] http://www.pupin.rs/naucnoistrazivacki-projekti/evropski-ni-projekti/respond-integrated-demand-response-solution-towards-energy-positive-neighbourhoods/

Figure 2. PUPIN contribution to InBetween Webinar

Demand response trends powering the energy and utilities industry: Meet Project Respond

▶ Recorded on 30 Sep 20

RESPOND
DEMAND RESPONSE FOR ALL

Share: (in) (twitter) (email) (f)

As the global energy sector seeks to drive the shift to net zero, rolling out demand response has never been more important. Project RESPOND is a three-year, EU-funded research and innovation project aimed at adapting successful industrial demand response models to domestic use, in order to better match energy supply with demand. As the project approaches its conclusion, Engerati hosts project leaders to hear the challenges and trends in DR and the lessons learnt from the three pilot sites in Spain, Ireland and Denmark.

Agenda:

1) Welcome & Introduction
Chair: Francisco Javier Díez (Tekniker)

2) Project RESPOND: technical challenges
Led by Nikola Tomašević and Lazar Berbakov (Pupin

3) DR trends for utilities and the energy sector
Led by María Luisa Serrano & Agustina Yara (Feníe Energía) and Oriol Pla & Laura Martínez (DEXMA)

4) COVID-19 challenges in Demand Response
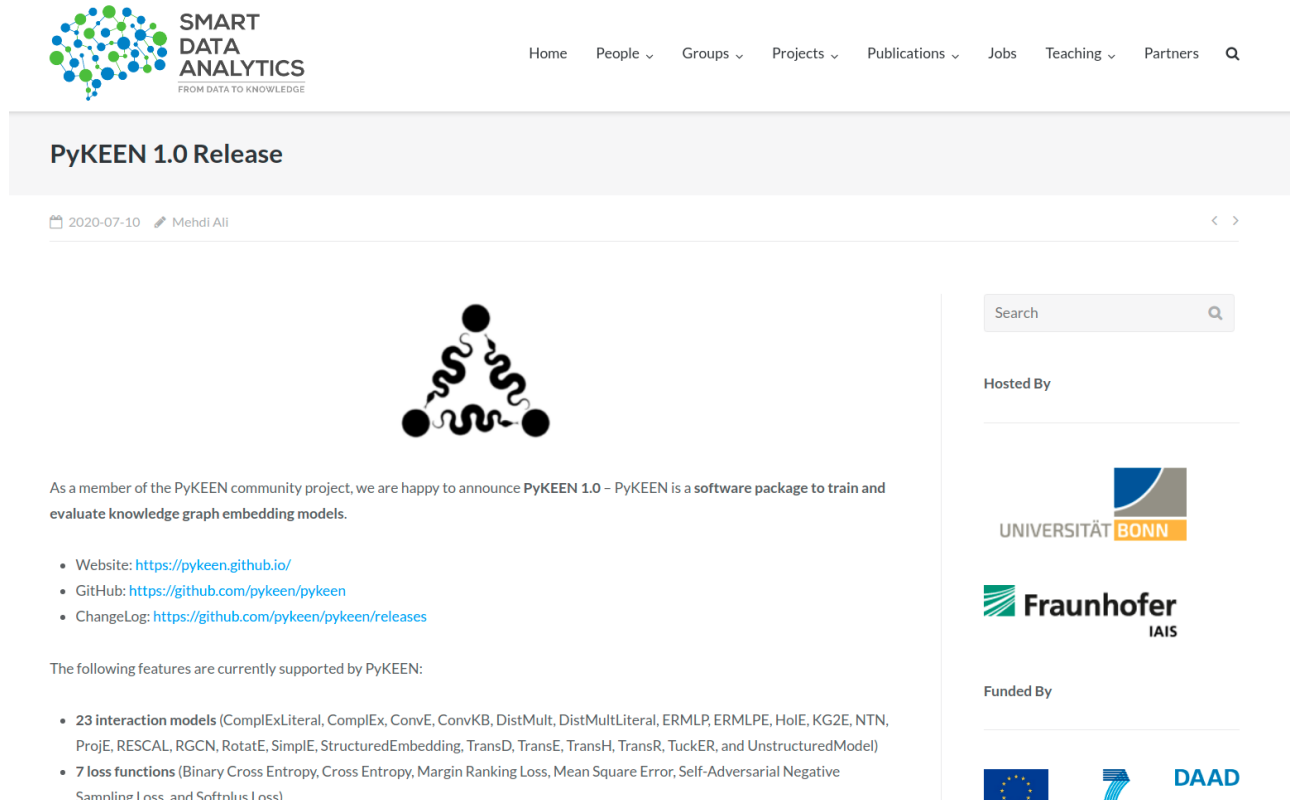Led by Iker Esnaola Gonzalez (Tekniker)

5) Q&A

Figure 3. PUPIN contribution to RESPOND Webinar

The last LAMBDA webinar in 2020 is organized by Fraunhofer IAIS, see https://project-lambda.org/Webinar-5 .

2.4.2 Software releases

This section points to several networking events that occurred in the reporting period. More can be found on the LAMBDA Web site, https://project-lambda.org/Past-Events

- Software release: PyKEEN is a software package to train and evaluate knowledge graph embedding models

Figure 4. PyKeen release announcement

2.4.3 AI challenges

- A Summary of Recent SDA Contributions towards improving Entity Disambiguation, Linking and Prediction

In 2020, the SDA team from Bonn University contributed to several improvements to the state-of-the-art in individual AI challenges on standard community datasets. They reported about those results in several papers and blog posts. In this post, they collect those and provide pointers to further relevant information. A common theme is that they achieved better performance on various tasks by improving the use of knowledge graph structures. More information can be found here.

SDA Research @SDA_Research · Nov 30

We are delighted that we could contribute to improving entity disambiguation, linking, and prediction. In our blog post, we give an overview of our contributions: sda-research.medium.com/a-summary-of-r… #machinelearning #knowledgegraphs #entitydisambiguation #entitylinking #linkprediction

P1: Q478214
Tesla
Automotive company
Input n-gram: founded Tesla

P3: Q478214
Tesla
Automotive company
Input n-gram: Tesla

A Summary of Recent SDA Contributions towards improving Entity Dis…

This blog post was written by several authors in the SDA Team.
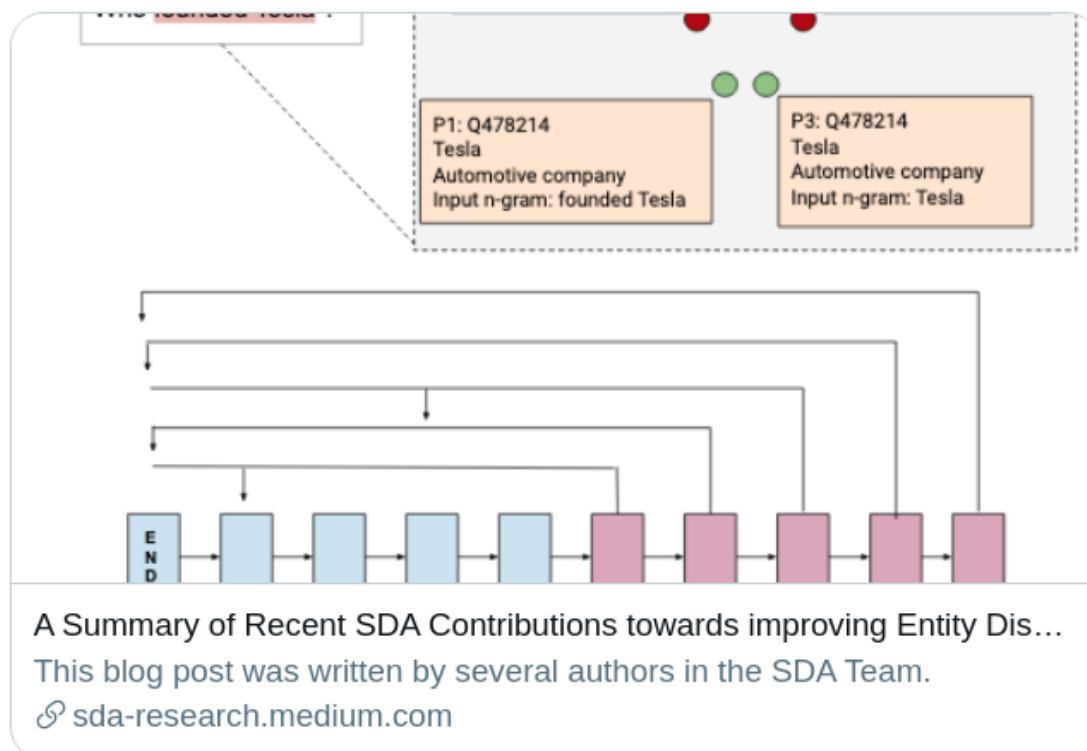
🔗 sda-research.medium.com

Figure 5. A post from SDA on Twitter about relevant contributions

3. Scientific Publications

3.1 Published papers (UBO, IAIS, UOXF)

19 papers have been published:

1. Mami, Mohamed Nadjib, Irlán Grangel-González, Damien Graux, Enkeleda Elezi, and Felix Lösch. "Semantic Data Integration for the SMT Manufacturing Process Using SANSA Stack." In European Semantic Web Conference (ESWC), pp. 307-311. Springer, Cham, 2020.

2. Nayyeri, Mojtaba, Xiaotian Zhou, Sahar Vahdati, Reza Izanloo, Hamed Shariat Yazdi, and Jens Lehmann. "Let the Margin SlidE±for Knowledge Graph Embeddings via a Correntropy Objective Function." In 2020 International Joint Conference on Neural Networks (IJCNN), pp. 1-9. IEEE, 2020.

3. Mulang, Isaiah Onando, Kuldeep Singh, Akhilesh Vyas, Saeedeh Shekarpour, Maria-Esther Vidal, and Soren Auer. "Encoding Knowledge Graph Entity Aliases in Attentive Neural Network for Wikidata Entity Linking." In International Conference on Web Information Systems Engineering (WISE), pp. 328-342. Springer, Cham, 2020.

4. Payrosangari, Samin, Afshin Sadeghi, Damien Graux, and Jens Lehmann. "Meta-Hyperband: Hyperparameter optimization with meta-learning and Coarse-to-Fine." In International Conference on Intelligent Data Engineering and Automated Learning (IDEAL 2020), pp. 335-347. Springer, Cham, 2020.

5. Bader, Sebastian, Jaroslav Pullmann, Christian Mader, Sebastian Tramp, Christoph Quix, Andreas W. Müller, Haydar Akyürek et al. "The International Data Spaces Information Model–An Ontology for Sovereign Exchange of Digital Content." In International Semantic Web Conference, pp. 176-192. Springer, Cham, 2020.

6. Banerjee, Debayan, Debanjan Chaudhuri, Mohnish Dubey, and Jens Lehmann. "PNEL: Pointer Network based End-To-End Entity Linking over Knowledge Graphs." In International Semantic Web Conference, pp. 21-38. Springer, Cham, 2020.

7. Rose, Jewgeni, and Jens Lehmann. "CASQAD–A New Dataset for Context-Aware Spatial Question Answering." In International Semantic Web Conference, pp. 3-17. Springer, Cham, 2020.

8. Nayyeri, Mojtaba, Chengjin Xu, Sahar Vahdati, Nadezhda Vassilyeva, Emanuel Sallinger, Hamed Shariat Yazdi, and Jens Lehmann. "Fantastic Knowledge Graph Embeddings and How to Find the Right Space for Them." In International Semantic Web Conference, pp. 438-455. Springer, Cham, 2020.

9. Mulang', Isaiah Onando, Kuldeep Singh, Chaitali Prabhu, Abhishek Nadgeri, Johannes Hoffart, and Jens Lehmann. "Evaluating the impact of knowledge graph context on entity disambiguation models." In Proceedings of the 29th ACM International Conference on Information & Knowledge Management (CIKM), pp. 2157-2160. 2020.

10. Armitage, Jason, Endri Kacupaj, Golsa Tahmasebzadeh, Maria Maleshkova, Ralph Ewerth, and Jens Lehmann. "MLM: A Benchmark Dataset for Multitask Learning with Multiple Languages and Modalities." In Proceedings of the 29th ACM International Conference on Information & Knowledge Management (CIKM), pp. 2967-2974. 2020.

11. Ariam Rivas, Irlán Grangel-González, Diego Collarana, Jens Lehmann, Maria-Esther Vidal. "Unveiling Relations in the Industry 4.0 Standards Landscape Based on Knowledge Graph

Embeddings." In International Conference on Database and Expert Systems Applications (DEXA), pp. 179-194. Springer, Cham, 2020.

12. Sibarani, Elisa Margareth, and Simon Scerri. "SCODIS: Job Advert-Derived Time Series for High-Demand Skillset Discovery and Prediction." In International Conference on Database and Expert Systems Applications (DEXA), pp. 366-381. Springer, Cham, 2020.

13. Jabeen, Hajira, Jonas Weinz, and Jens Lehmann. "AutoChef: Automated Generation of Cooking Recipes." In 2020 IEEE Congress on Evolutionary Computation (IEEE WCCI 2020), pp. 1-7. IEEE, 2020.

14. Nedelchev, Rostislav, Ricardo Usbeck, and Jens Lehmann. "Treating dialogue quality evaluation as an anomaly detection problem." In Proceedings of The 12th Language Resources and Evaluation Conference, pp. 508-512. 2020.

15. Iglesias, Enrique, Samaneh Jozashoori, David Chaves-Fraga, Diego Collarana, and Maria-Esther Vidal. "SDM-RDFizer: an RML interpreter for the efficient creation of RDF knowledge graphs." In Proceedings of the 29th ACM International Conference on Information & Knowledge Management (CIKM), pp. 3039-3046. 2020.

16. Luigi Bellomarini, Marco Benedetti, Stefano Ceri, Andrea Gentili, Rosario Laurendi, Davide Magnanimi, Markus Nissl, Emanuel Sallinger: Reasoning on Company Takeovers during the COVID-19 Crisis with Knowledge Graphs. RuleML+RR (Supplement) 2020: 145-156

17. Luigi Bellomarini, Eleonora Laurenza, Emanuel Sallinger: Rule-based Anti-Money Laundering in Financial Intelligence Units: Experience and Vision. RuleML+RR (Supplement) 2020: 133-144

18. Luigi Bellomarini, Eleonora Laurenza, Emanuel Sallinger, Evgeny Sherkhonov: Reasoning Under Uncertainty in Knowledge Graphs. RuleML+RR 2020: 131-139

19. Mojtaba Nayyeri, Chengjin Xu, Sahar Vahdati, Nadezhda Vassilyeva, Emanuel Sallinger, Hamed Shariat Yazdi, Jens Lehmann: Fantastic Knowledge Graph Embeddings and How to Find the Right Space for Them. ISWC (1) 2020: 438-455

3.2 Accepted papers (UBO, IAIS)

1. Mojtaba Nayyeri, Sahar Vahdati, Can Aykul, and Jens Lehmann. "5* Knowledge Graph Embeddings with Projective Transformations"- AAAI 2021

2. Mohamed, Heba, Said Fathalla, Jens Lehmann, and Hajira Jabeen. "A Distributed Approach for Parsing Large-Scale OWL Datasets." - KEOD 2020

3. Say, Aysegul, Said Fathalla, Sahar Vahdati, Jens Lehmann, and Sören Auer. "Semantic Representation of Physics Research Data." - KEOD 2020

4. Lukovnikov, Denis, Jens Lehmann, and Asja Fischer. "Improving the Long-Range Performance of Gated Graph Neural Networks." - NFMCP 2020

5. Ibrahim, Shimaa, Said Fathalla, Jens Lehmann, and Hajira Jabeen. "Multilingual Ontology Merging Using Cross-lingual Matching." - WI-IAT 2020

6. Mohamed, Heba, Said Fathalla, Jens Lehmann, and Hajira Jabeen. "OWLStats: Distributed Computation of OWL Dataset Statistics." - WI-IAT 2020.

7. Rostislav Nedelchev, Ricardo Usbeck, and Jens Lehmann. "Language Model Transformers as Evaluators for Open-domain Dialogues" - COLING 2020

8. Chengjin Xu, Mojtaba Nayyeri, Yung-Yu Chen, and Jens Lehmann. "Knowledge Graph Embeddings in Geometric Algebras" - COLING 2020

9. Chengjin Xu, Mojtaba Nayyeri, Fouad Alkhoury, Hamed Shariat Yazdi, and Jens. "TeRo: A Time-aware Knowledge Graph Embedding via Temporal Rotation" - COLING 2020

10. Galkin, Mikhail, Priyansh Trivedi, Gaurav Maheshwari, Ricardo Usbeck, and Jens Lehmann. "Message Passing for Hyper-Relational Knowledge Graphs." - EMNLP 2020

11. Xu, Chengjin, Mojtaba Nayyeri, Fouad Alkhoury, Hamed Shariat Yazdi, and Jens Lehmann. "Temporal knowledge graph embedding model based on additive time series decomposition." - ISWC 2020
12. Martin Arispe, Mayesha Tasnim, Damien Graux, Fabrizio Orlandi, Diego Collarana. "Verbalizing the Evolution of Knowledge Graphs with Formal Concept Analysis." Joint Proceedings of Workshops AI4LEGAL2020, NLIWOD, PROFILES 2020, QuWeDa 2020, and SEMIFORM2020 Colocated with the 19th International Semantic Web Conference, 72-79 (ISWC 2020).

3.3 Published Journal Papers (UBO, IAIS)

1. Singh, Kuldeep, Ioanna Lytra, Arun Sethupat Radhakrishna, Saeedeh Shekarpour, Maria-Esther Vidal, and Jens Lehmann. "No one is perfect: Analysing the performance of question answering components over the DBpedia knowledge graph." Journal of Web Semantics 65 (2020): 100594.
2. Zafar, Hamid, Mohnish Dubey, Jens Lehmann, and Elena Demidova. "IQA: Interactive query construction in semantic question answering systems." Journal of Web Semantics (2020): 100586.

3.4 PUPIN Journal Papers in 2020

● Nikola Tomasević, Nikola Gvozdenović, Sanja Vraneš, An overview and comparison of supervised data mining techniques for student exam performance prediction, Computers and Education Volume 143, January 2020, 103676 https://doi.org/10.1016/j.compedu.2019.103676
● Lackshen, G., Janev, V., Vraneš, S. (2020) Arabic Linked Drug Dataset Consolidating and Publishing, Computer Science and Information Systems 00(0):0000–0000
● Lazar Berbakov, Goran Dimić, Marko Beko, Jelena Vasiljević, Željko Stojković, Collaborative Data Transmission in Wireless Sensor Networks, in IEEE Access Journal, Volume 8, Issue 1, 2020, pp. 39647 - 39658. https://ieeexplore.ieee.org/document/9007355
● Dea Pujić, Nikola Tomašević, Marko Batić (2020) Semi-supervised Approach for Improving Generalization in Non-Intrusive Load Monitoring (submitted)
● Marko Jelić et all (2020) Towards self-sustainable island grids through optimal utilization of renewable energy potential and community engagement (accepted for publication)

3.5 LAMBDA Book

The Book can be download from LAMBDA page or Springer.

● Janev, V., Graux, D., Jabeen, H., Sallinger, E. (Eds.) Knowledge Graphs and Big Data Processing. Lecture Notes in Computer Science vol. 12072, pp. 1-208. Springer International Publishing. ISBN 978-3-030-53198-0. DOI: https://doi.org/10.1007/978-3-030-53199-7

Foundations

● *Chapter 1 Ecosystem of Big Data (Valentina Janev)*

Architecture

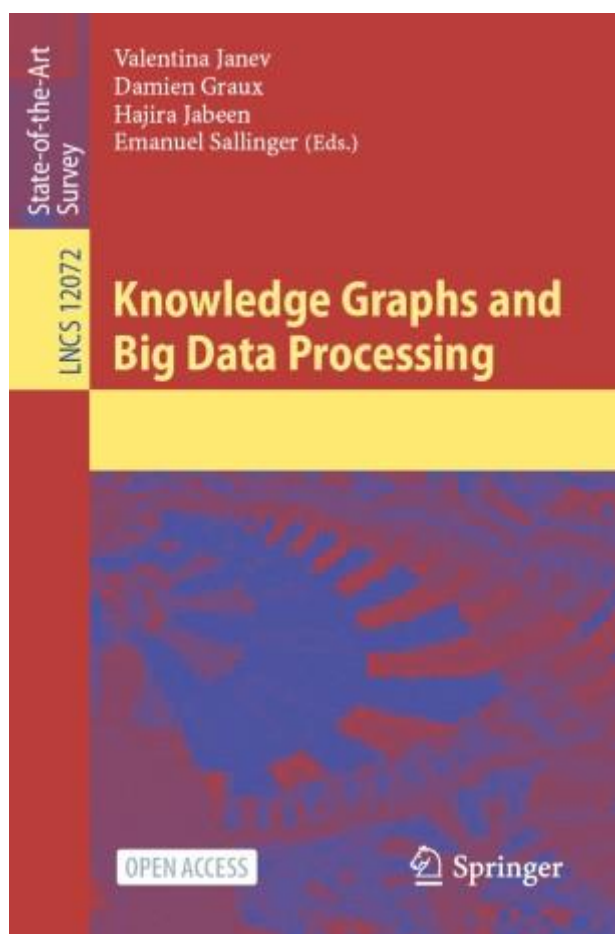## Methods and Solutions

Applications

Figure 6. LAMBDA Book

4. Communication Activities in the Reporting Period

4.1 LAMBDA Promotional Material

Traditional dissemination and promotional material - leaflets, brochures, PPTs and posters have been created in the beginning of the project. The material was distributed at many events (meetings with stakeholders, national and regional conferences, see examples in Figure 7.

The LAMBDA PPT slides[6] were updated for the Advisory Board meeting in November 2020.

ESWC Poster and Networking Session (Portorož, Slovenia), June 2019

LAMBDA disseminated at the Belgrade Metropolitan University (Serbia)

LAMBDA Poster at NexusLinguarum (Prague, Czech Republic) Meeting presented by Dr. Valentina Janev, January 2020

Figure 7. Promotion of LAMBDA at events in 2019 and 2020

4.2 LAMBDA Portal

The portal of LAMBDA is continually updated with new information on the activities, publications and networking events of LAMBDA. Websites most frequently updated are:

- Events, https://project-lambda.org/Past-Events

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[6] https://project-lambda.org/sites/default/files/2020-11/LAMBDA-Project-Presentation-2020.pdf

- Deliverables, https://project-lambda.org/Deliverables
- Publications, https://project-lambda.org/Publications

Figure 8. Past events presented on the LAMBDA portal

4.3 LAMBDA Twitter Account

In the very beginning of the project the LAMBDA Twitter account was created https://twitter.com/Net4LAMBDA, see Figure 9.
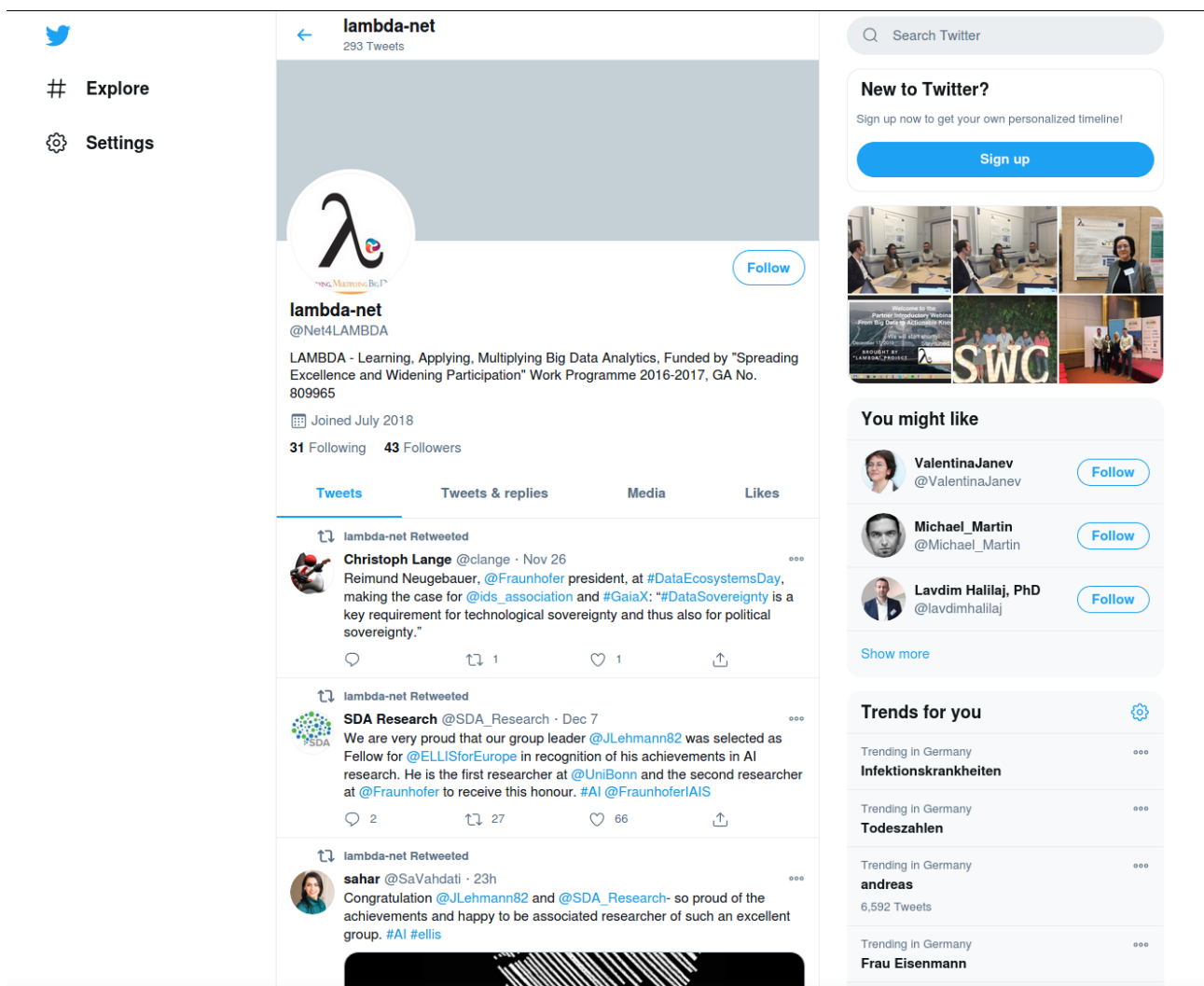
Figure 9. LAMBDA Twitter Account

4.4 LAMBDA LinkedIn Account

In the very beginning of the project the LAMBDA LinkedIn[7] account was created. Figure 10 shows the use of social media for the project's publicity mainly on LinkedIn.

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[7] https://www.linkedin.com/groups/12129621/

Figure 10. LAMBDA LinkedIn account

4.5 Future LAMBDA Events - Big Data Analytics Summer School, Online, June 2021

The event will preserve the activities of the Summer School of Big Data Analytics, Belgrade, Serbia, June 2019, 2020, and 2021.

Home » Big Data Analytics Summer School, Belgrade, Serbia, June 2021

Tools
- Add content

Big Data Analytics Summer School, Belgrade, Serbia, June 2021

View   Edit   Delete   Revisions

Posted on: Mon, 12/07/2020 - 15:37 **By**: valentina.janev

We are very pleased to announce that the 3rd edition of the Belgrade Big Data Analytics Summer School will be organized by the LAMBDA Consortium from 15 June to 17 June 2021.

Topics (Energy)

Organizing Committee

- Valentina Janev, Institute Mihajlo Pupin
- Diego Collarana, Fraunhofer IAIS
- Jens Lehmann, University of Bonn
- Emanuel Sallinger, University of Oxford

Country
Serbia
Date
Tue, 06/15/2021 - 12:00
Forthcoming Events
Work package
WP3

Figure 11. Announcement of the Belgrade BDA School 2021

3.2.2 PhD Workshop, Online, June 2021

Home » PhD Workshop 2021

PhD Workshop 2021

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Posted on: Mon, 12/07/2020 - 15:35 **By:** valentina.janev

Organizing Committee

- Heba Mohamad, University of Bonn
- Emanuel Sallinger, University of Oxford
- Damien Graux, ADAPT SFI Centre, Trinity College Dublin

Date
Mon, 05/03/2021 - 12:00
Forthcoming Events
Work package
WP5

Figure 12. Announcement of the PhD Workshop 2021

5.   Statistics about the LAMBDA Website

The content presented via the LAMBDA platform and Website is structured into categories, as presented in Table 3.

Table 3. Statistics about the LAMBDA Website (December 2020)

About	Number of pages	Links
Deliverables	> 30	https://project-lambda.org/Deliverables
Lectures	> 40	https://project-lambda.org/Knowledge-repository/Lectures
Webinars	5	https://project-lambda.org/Webinars
Publications	1	https://project-lambda.org/Publications
Awards	3	https://project-lambda.org/Awards
Forthcoming Events	2	https://project-lambda.org/Fortcoming-Events
Past events	>30	https://project-lambda.org/Past-Events
Research Industry Forums	6	https://project-lambda.org/Research-Industry-Forums
Summer Schools	3	https://project-lambda.org/Summer-Schools
Networking School Teachers	2	https://project-lambda.org/networking-school-teachers
Staff exchanges	7	https://project-lambda.org/Staff-Exchange
Consortium Plenary Meetings	8	https://project-lambda.org/Consortium-Meetings
Promotional material	1	https://project-lambda.org/Promotional-Material

6. Conclusion

This deliverable provides a summary of the work carried out in the WP5 framework in the reporting period (M24-M30).

Significant increase in the scope and scale of activities can be noticed in the last year (see also D5.6, M24) that is a result of the well-planned stakeholders' engagement strategy and the definition of a set of KPIs for different activities. Another driver that provided impetus to the dissemination and exploitation actions in the course of LAMBDA project was the specification of a detailed LAMBDA Action Plan for 2019 and 2020, see https://project-lambda.org/Action-Plan-2019 and https://project-lambda.org/Action-Plan-2020 .

Due to COVID-19, dissemination activities in the period from April 2020 to June 2020 were organized online.