A Big Data Learning Platform for the West Balkans and Beyond

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ABSTRACT
As the number of Big Data related methods, tools, frameworks and solutions is growing, there is a need to classify and make available the knowledge related to this domain. This is especially useful for countries which, so far, have suffered from some lack of infrastructure in Big Data. In this article, we describe the deployment of an open online platform gathering lectures and resources, from multiple partnered European institutions, tailored for West Balkan students through focuses on local Big Data challenges.

CCS CONCEPTS
• Information systems → Data management systems; • Applied computing → Education.

KEYWORDS
Teaching Big Data Analytics, West Balkans, European collaboration

1 INTRODUCTION
Big Data refers to data sets which have large sizes and complex structures. The data size can range from dozens of terabytes to a few zettabytes and is still growing [7]. Big Data Analytics, hence, refers to the strategy of analysing large volumes of data that gathered from a wide variety of sources, including social networks, transaction records, videos, digital images and different kind of sensors. In an attempt to support the European data economy policy [1], our consortium proposed a training approach [2] and established the infrastructure for collaborative work of teachers/trainers with PhD students and other interested parties such as industries.

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This article describes the infrastructure that we deployed to reinforce organizational learning and capacity building in the West Balkan region (see aside for a precise location of the targeted region) and to facilitate teachers-trainees cooperation in the larger network of experts1 in the field of Knowledge Graphs, Semantic Big Data Architectures, and Smart Data Analytics. Moreover, our consortium spreads over Europe: Germany, Serbia the UK; and gathers experts from 15+ different countries [2].

2 AN OPEN EDUCATION PLATFORM
Our overall objectives are to stimulate scientific excellence and innovation capacity, to increase the research capacities and to unlock the research potential in the ICT area in the whole West Balkan region, turning the partner-institutes into regional points of reference when it comes to multidisciplinary ICT competence related to Big Data analytics. In early 2018, the consortium started activities for improving the skills and competences for smart data management through a set of actions such as: the organization of international events (training, workshops, webinars, conferences), the development of a specific learning kit about Big Data Analytics [2], or the publication of an open-access book2 [3].

In particular, to increase the audience and the availability of our initiative, we developed an online Knowledge repository to help students acquiring new skills:

<https://project-lambda.org/Learning>

The learning materials that were produced are free, stored in a public repository and available online via the OpenCourseWare platform SlideWiki [4]. This project repository aims at facilitating the exchange of learning materials, tools, project results and best practice between the international leading organizations and research institutions and industry from the West Balkan countries.

2.1 Technical Considerations
Practically, the Learning and Consulting Platform was established using Drupal3 as a content management system. Some of the advantages of Drupal are related to the availability of different features, its easy customization and its security, i.e., Drupal is less resource-intensive and its pages typically load quicker and have

1https://www.linkedin.com/groups/12129621/
2Downloaded more than 40 000 times as of January 2021.
3https://www.drupal.org/
In order to structure our Big Data learning programme, we split it into eight modules which are tackling various angles of the knowledge we want the students to acquire. We release our lectures in different media types: slide decks, videos, scientific articles, chapters, hands-on sessions. In total, the platform offers more than 40 different media types: slide decks, videos, scientific articles, chapters, hands-on sessions. In total, the platform offers more than 40 different media types: slide decks, videos, scientific articles, chapters, hands-on sessions. In order to foster knowledge about Big Data analytics in the West Balkan area, we set up various actions, from staff-exchange to summer schools. Among these actions, we also deployed an online and open platform gathering all the material presented to students plus additional analyses. So far, our platform counts more than 150 registered users and shares 40+ lectures in different formats. Moreover, the initiative of opening such a platform allows users to learn at anytime virtually (which proved to be very useful during the COVID-19 outbreak) and from anywhere. The latter thereby broadens the possible audience of our lectures which can now be taken outside the West Balkan region.

REFERENCES

[8] https://project-lambda.org/Knowledge-repository/Lectures
[9] https://project-lambda.org/tools-for-experimentation
[10] https://slidewiki.org/