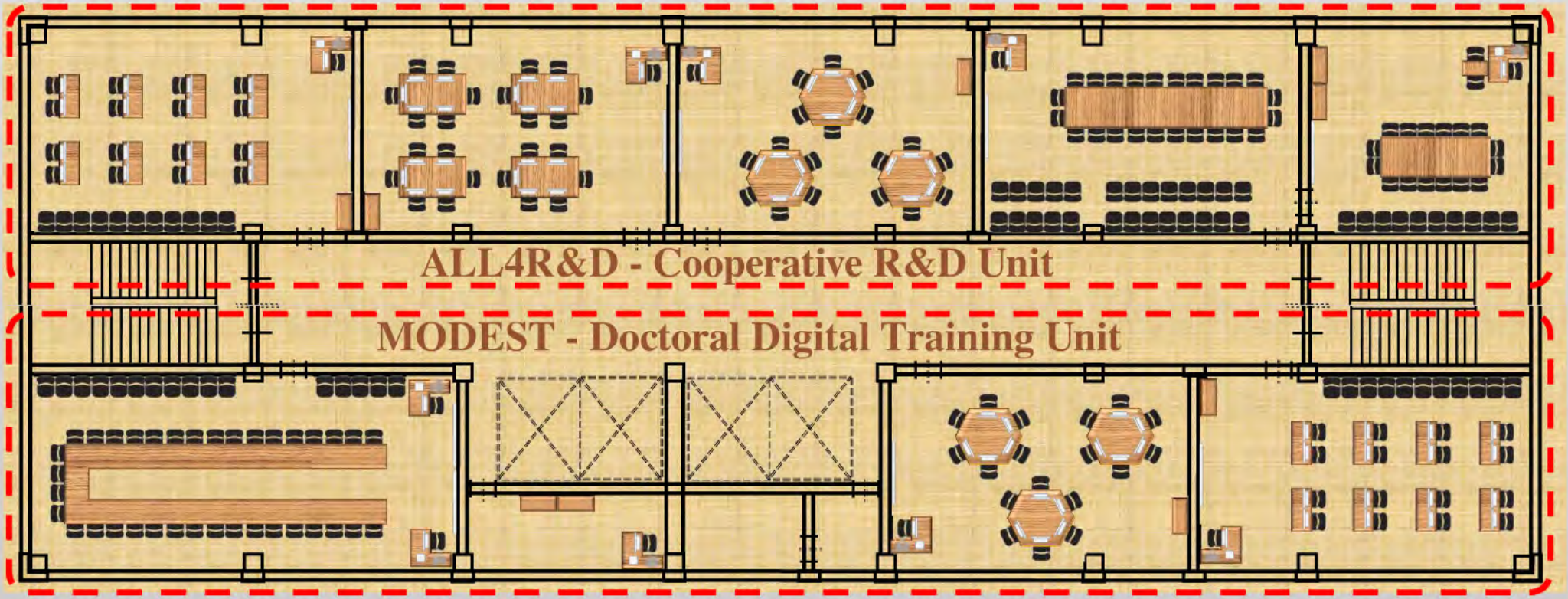

Proposal for
Research projects
in NPUA R&D Unit

Structure of the NPUA Cooperative R&D Unit

Synergy with Erasmus+ project **MODEST (Modernization of Doctoral Education in Science and Improvement of Teaching Methodologies)**



Research field:

Educational and Research Application of Digital Technologies

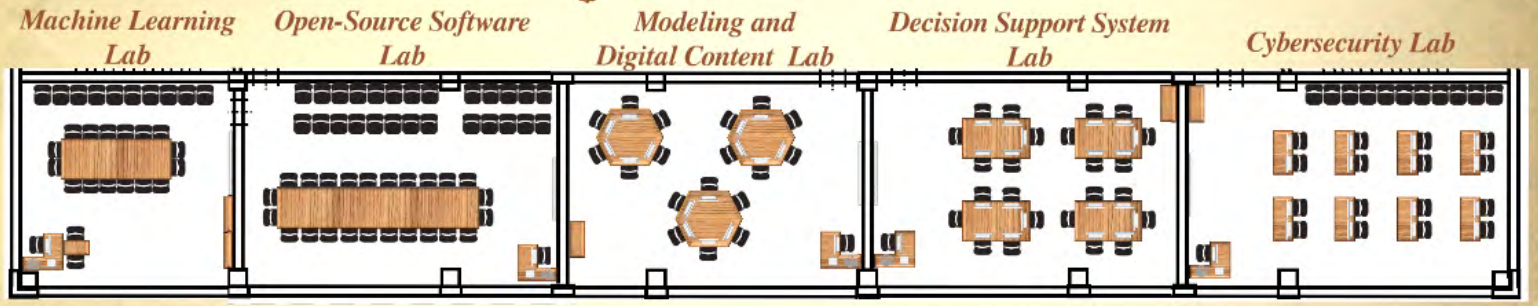
Centre of Excellence in Digital Technology

Proposal for Research projects in NPUA R&D Unit

3 research project proposals from IIAP, as well as a proposal from both Compass LLC and Microring LLC

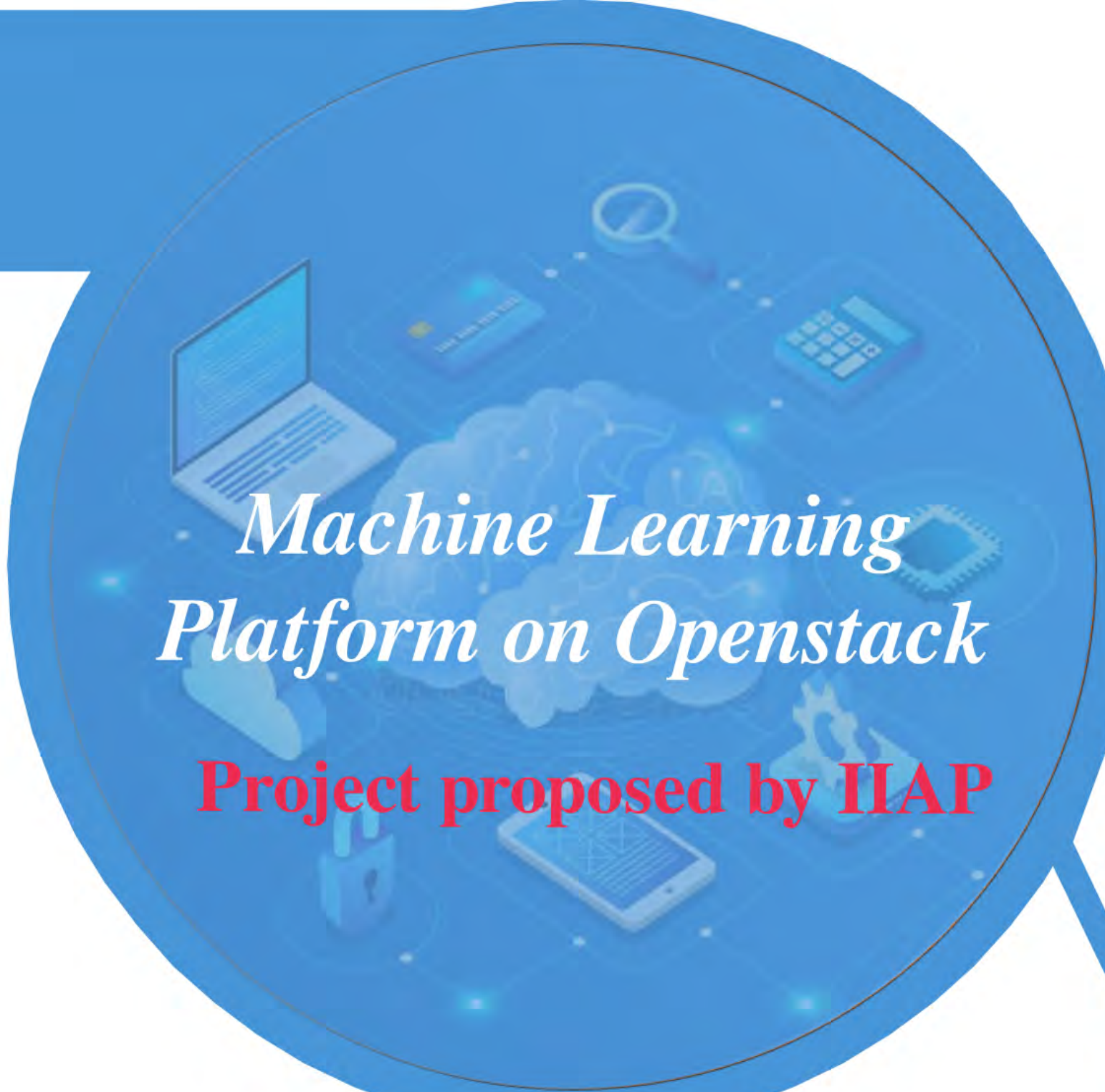
We are waiting for proposals for new research projects

NPUA Cooperative R&D Unit



Current proposals:

- **Machine Learning Platform on Openstack (IIAP)**
- **Balancing IO and CPU in a Hadoop Infrastructure (IIAP)**
- **Symmetric Cryptosystem with a High Level of Confidentiality and Productivity (IIAP)**
- **Process Modelling and Digital Content in Research and Education (Compass LLC)**
- **Decision Support System Based on Big Data Analysis (Microring LLC)**

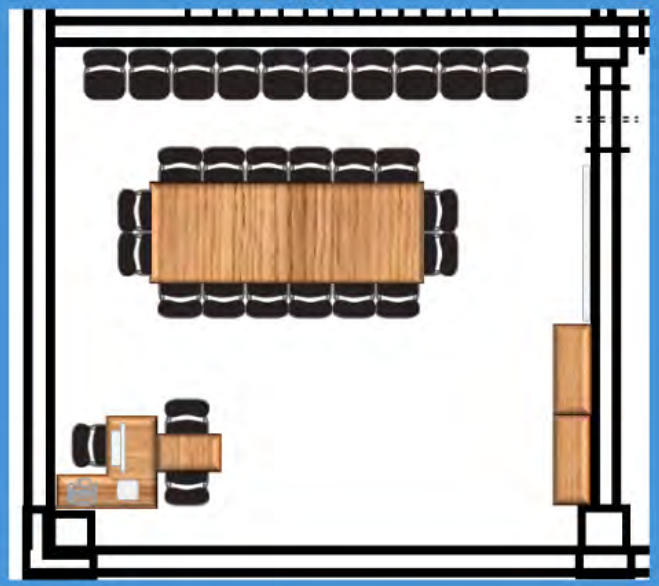


Machine Learning Platform on Openstack

Project proposed by IIAP

Machine Learning Platform on Openstack

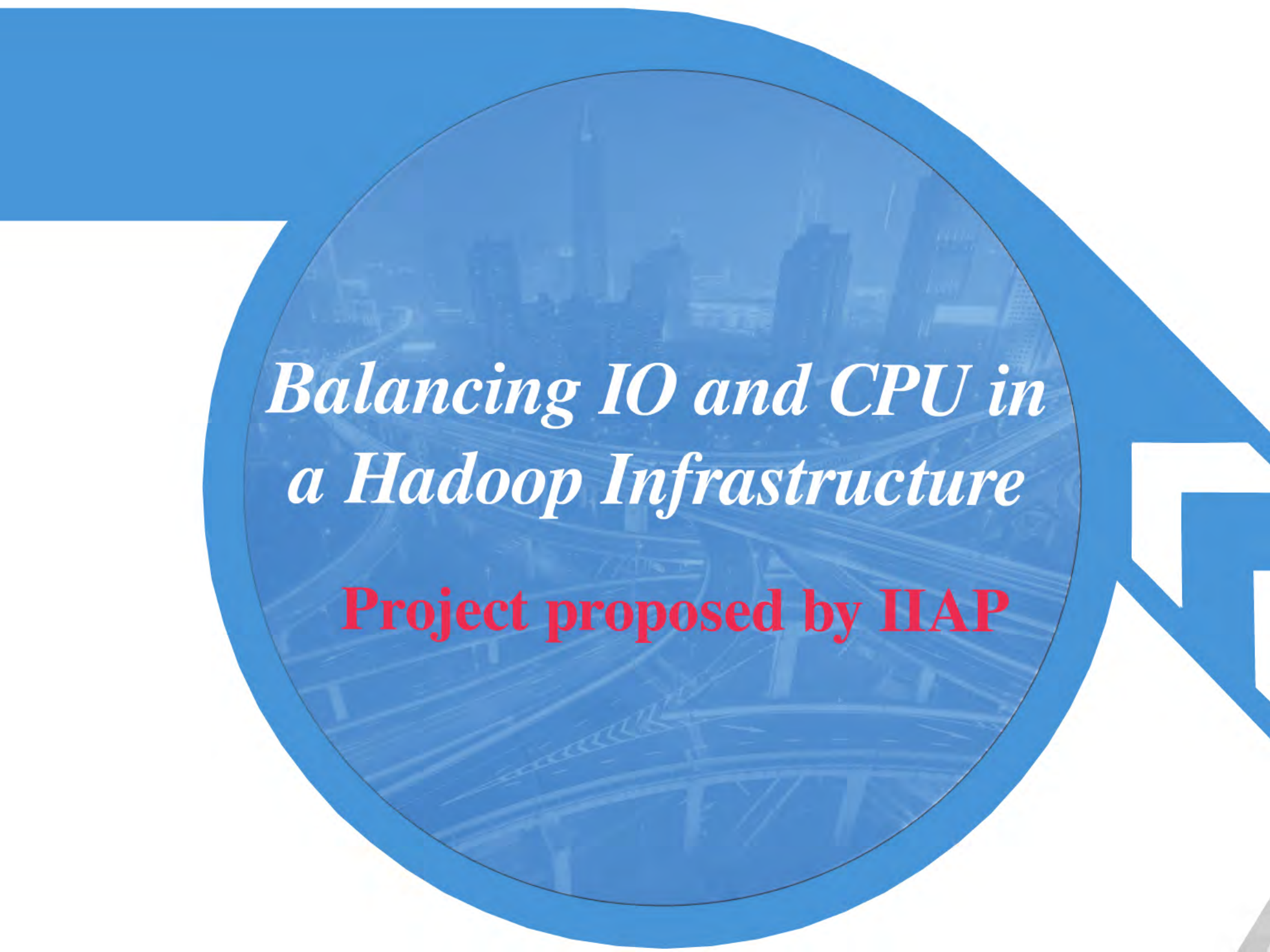
Machine Learning Lab



The Project proposed by *IIAP* aims to deploy a scalable machine learning (ML) platform based on Big data analytics

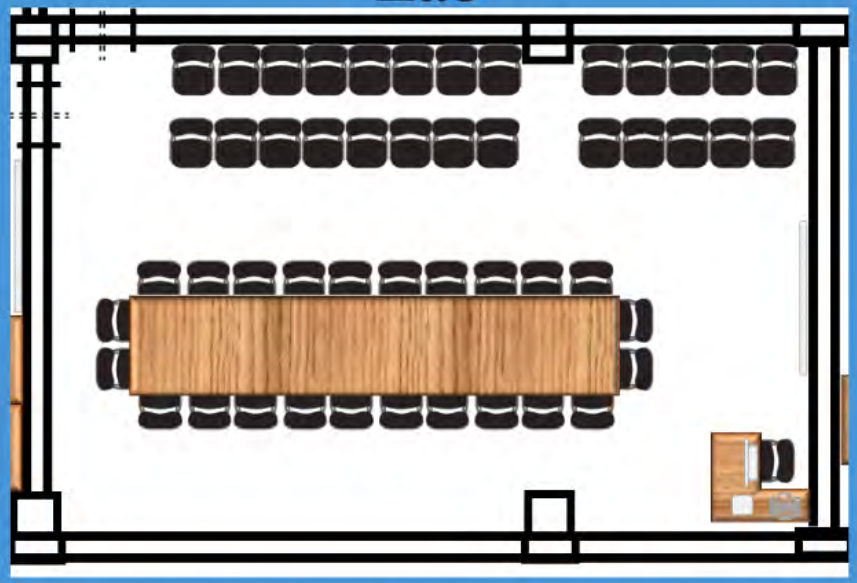
It will serve to different scientific communities in Armenia and beyond

ML requires processing huge amount of data and the main motivation of Cloud operating system and Supercomputer usage is that it can provide these computational resources when it is needed


Balancing IO and CPU in
a Hadoop Infrastructure
Project proposed by IIAP

Balancing IO and CPU in a Hadoop Infrastructure

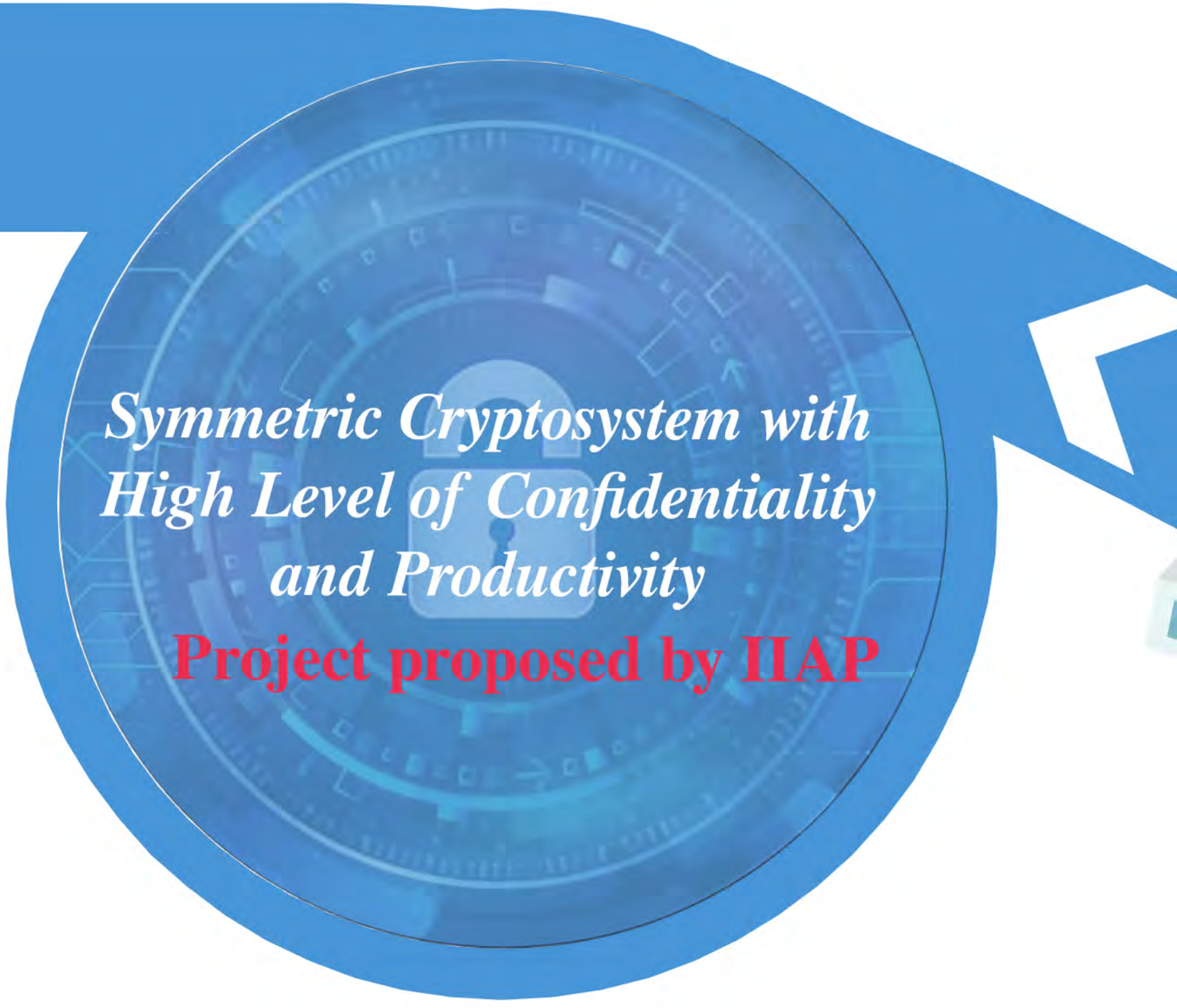
Open-Source Software Lab



The Project proposed by *IIAP* and is based on the fact that modern technologies allowing efficient treatment of large datasets

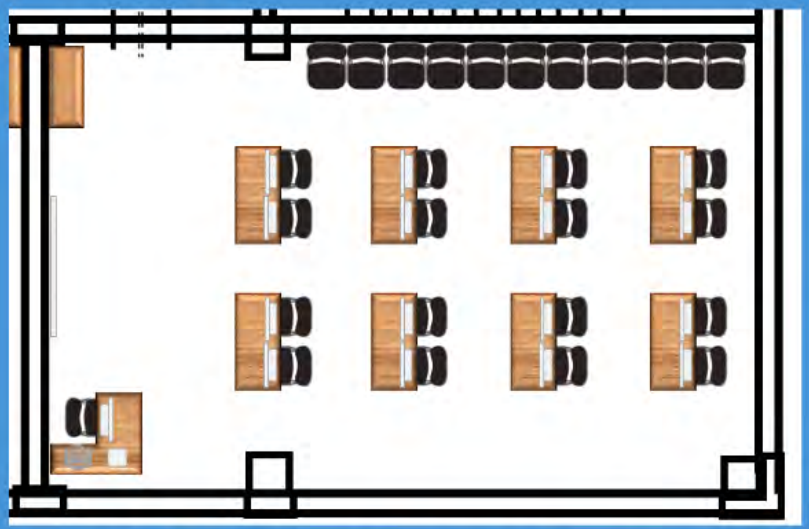
Implementation of map-reduce model such as open source framework Hadoop allow to split a large dataset into a set of blocks which are distributed on several machines

Data compression is a means to reduce data size and therefore transfer time (and IO load) between disks and memory, but at the same time compression increases treatment time (and CPU load) for decompressing data before its effective use.


Symmetric Cryptosystem with
High Level of Confidentiality
and Productivity
Project proposed by IIAP

Symmetric Cryptosystem with a High Level of Confidentiality and Productivity

Cybersecurity Lab



The Project proposed by *IIAP* poses the task of creating a new cryptographic system that will surpass existing ones in terms of confidentiality and productivity

Research will be extremely useful from an academic point of view to expand understanding of the fundamental problems of cryptography and find ways to solve them

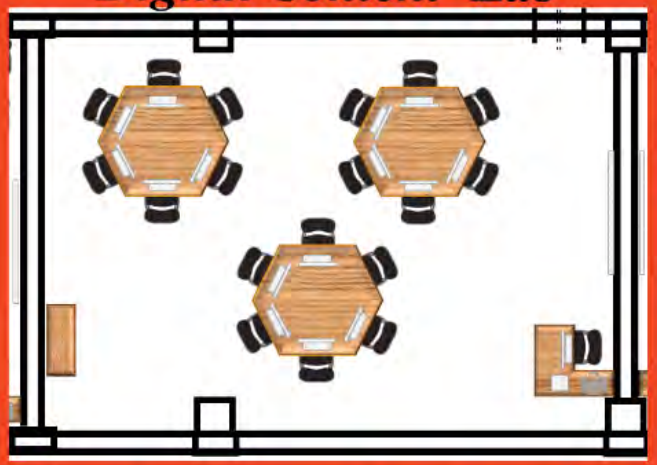
Potential users of the Project result can be any specialist who is interested in ensuring the confidentiality and integrity of his data

Process Modelling and Digital Content in Research and Education

Project proposed by Compass LLC

Process Modelling and Digital Content in Research and Education

Modeling and Digital Content Lab



The Project proposed by *Compass LLC* and relates to technical research in areas where conducting natural experiments with real equipment and materials is very dangerous or expensive

Digitalization in these areas, associated with the use of digital modelling of processes and the creation of object models in the form of digital content, can be a real alternative in academic research

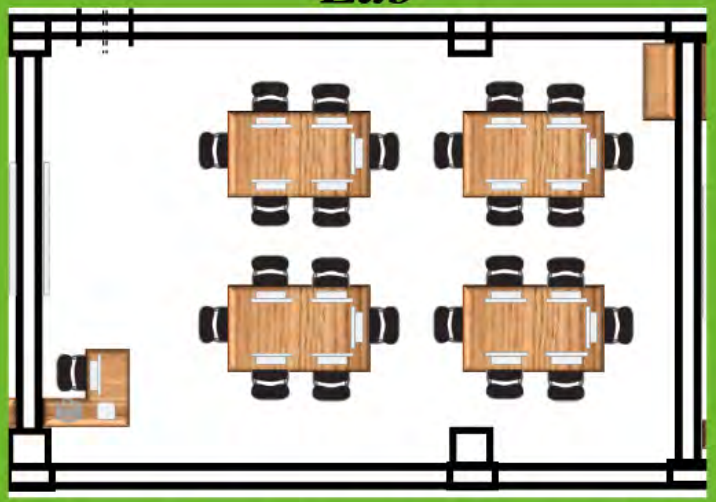
At the same time, gamification and virtual reality technologies can provide a significantly higher level of model adequacy, ensuring the perception of objects and processes as close to reality as possible

Decision Support System Based on Big Data Analysis

Project proposed by Microring LLC

Decision Support System Based on Big Data Analysis

Decision Support System Lab

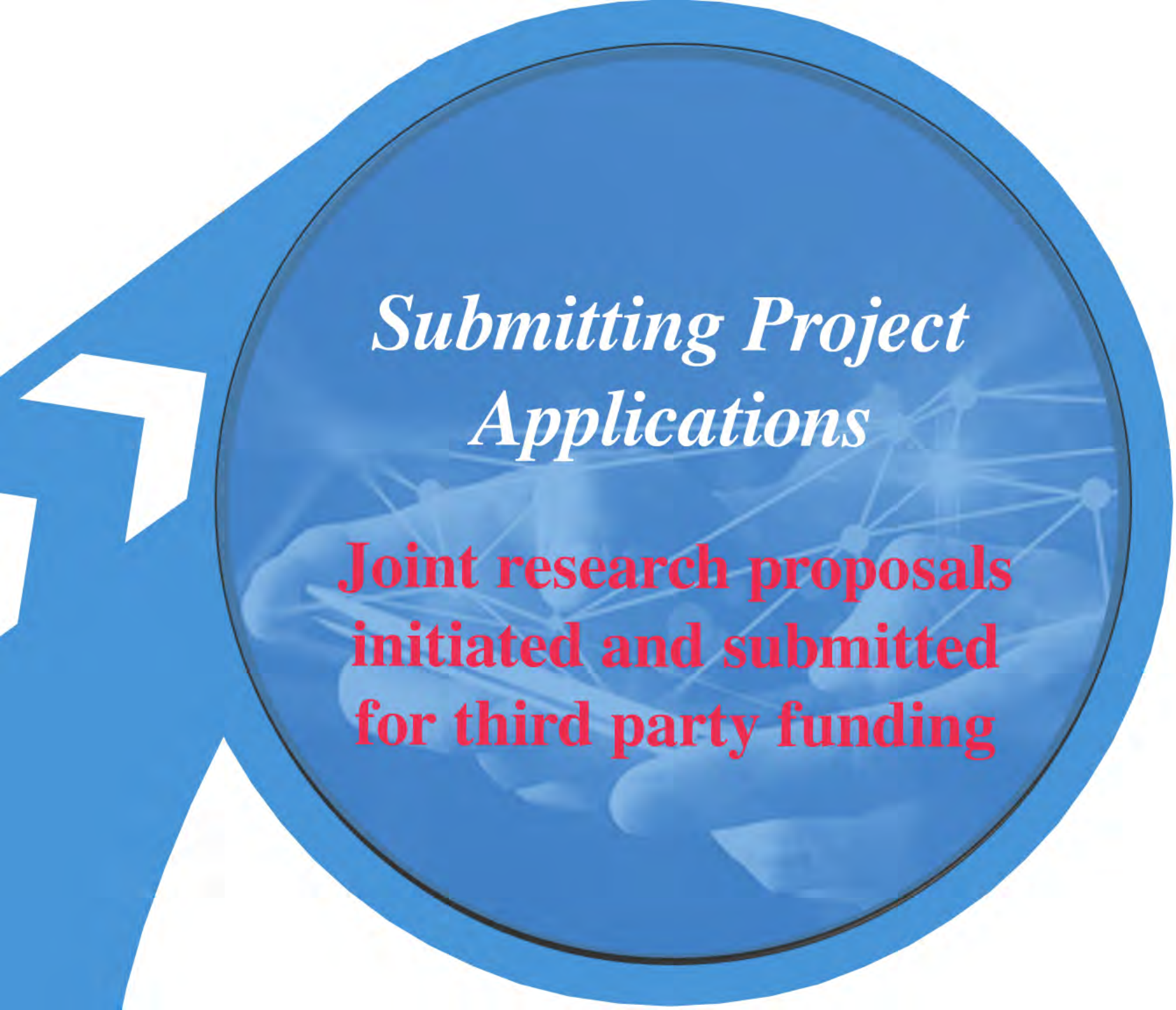


The Project proposed by *Microring LLC* aims to create a quick decision support system in today's rapidly changing industry environment

One of the main issues of digitalization of the industry in the broadest sense is decision support

This becomes especially relevant when it comes to making decisions in real-time systems, when decisions must be made immediately and/or based on a large amount of heterogeneous data

Potential users of the Project result can be any specialist who is faced with the problem of decision-making in management, research, education and other fields, as well as scientist interested in Big Data

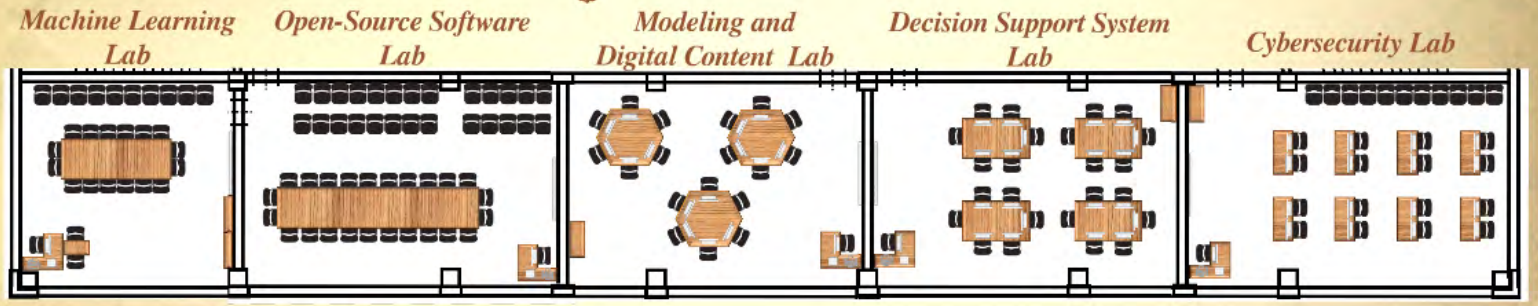

Submitting Project Applications
Joint research proposals initiated and submitted for third party funding

Submitting Project Applications

- **Joint research proposal from universities of Armenia, Russia and Belarus submitted for funding by National Authorized Bodies**

- **2 joint research proposals from universities of Armenia and Russia are being prepared for submission for funding by the National Authorized Bodies (deadline April 15, 2020)**

NPUA Cooperative R&D Unit



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