



NATIONAL RESEARCH  
UNIVERSITY

# Developing Data Dexterity Skills at the University (HSE Case)

Olga Podolskaya, Head of Project

# Contents

1

Why Data Dexterity?

2

Data Culture Project in HSE

3

Plans and Prospects

# Why Data Dexterity?



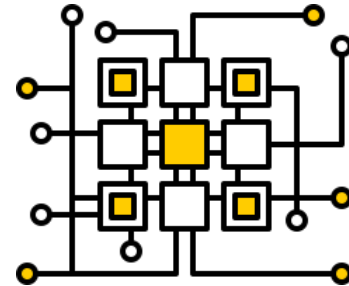
# Human Resources for the Modern Economy



Basic IT skills  
required to work in  
the digital  
professional  
environment —  
Digital Literacy



Competencies for  
effective  
processing of data,  
including Big Data  
— Data Culture



Data culture  
training needs to  
be customized

# Resources for Data Culture Acquisition

- › Competencies associated with the use of modern technologies are accumulated in the real sector: the University needs to establish **partnerships with businesses**
- › Data culture trainings for students must be combined with relevant **trainings for teaching staff**
- › The limited number of highly qualified instructors dictates that **online technologies** should be used

# Expanding the Range of Educational Programmes in the IT

## **From the ‘standard’ programmes in IT:**

- › Business Informatics,
- › Applied Mathematics and Informatics,
- › Software Engineering, etc.

## **To new markets and interdisciplinary fields in Data Science:**

- › Data Analysis in Biology and Medicine,
- › Financial Technologies and Data Analysis, etc.

# Optional Data Skills Training for Non-IT Students

**Minor on Data Mining** (since 2015, provided by the Faculty of Computer Science):

- › 4 joint 5-credit courses offered in the 2-3rd years of undergraduate studies
- › Offered to students enrolled in all HSE programmes except for 'Applied Mathematics and Informatics'



# Data Culture Project in HSE





# Data Culture Project — since 2017

**Key goal:** to enhance the data skills of **all HSE graduates**, so that they could meet the up-to-date market demands and effectively work in the context of digital economy

by

- › Creating new courses focused on data skills acquisition and customizing them in view of the standards and challenges of the labour market in a specific subject field
- › Providing students with opportunities to gain access to different levels of digital competencies within the framework of their main educational trajectory

# Pilot Year

## First-year targets:

- › To integrate the Project on **12** bachelor's educational programmes
- › At least **55%** educational programmes to be included (with Faculty of CS, HSE Tikhonov Moscow Institute of Electronics and Mathematics and Faculty of Business and Management)

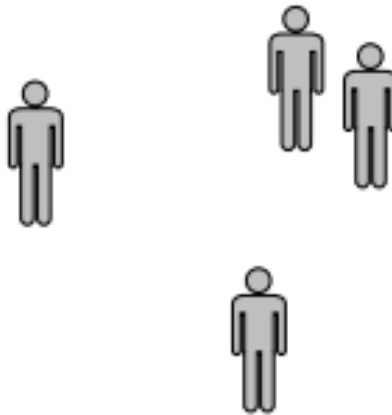
## 2017/18 totals:

- › **67%** (26) educational programmes were included
- › **10** of them **had no courses on data skills** before

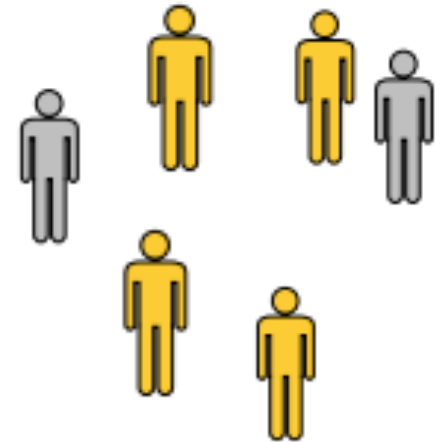
# Data Culture: Project Staff



HSE Faculty members








Practitioners from the IT-industry

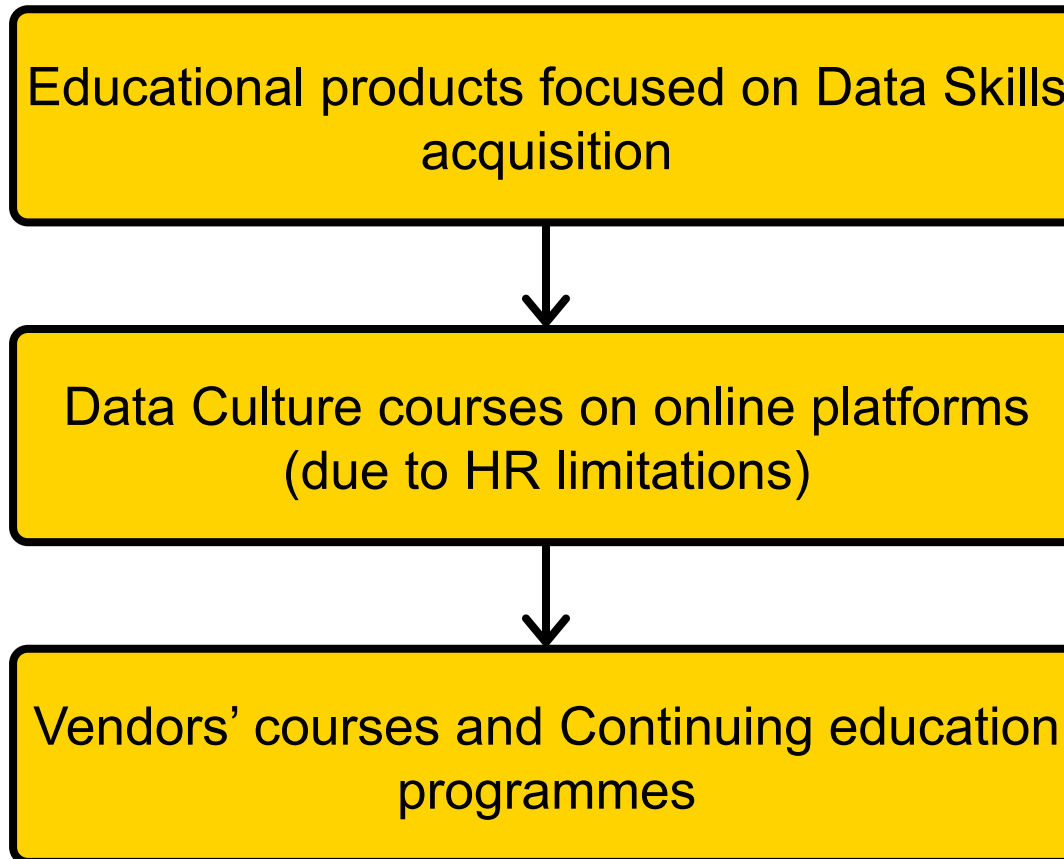


Teams of data culture leaders from among the teaching staff and IT-specialists

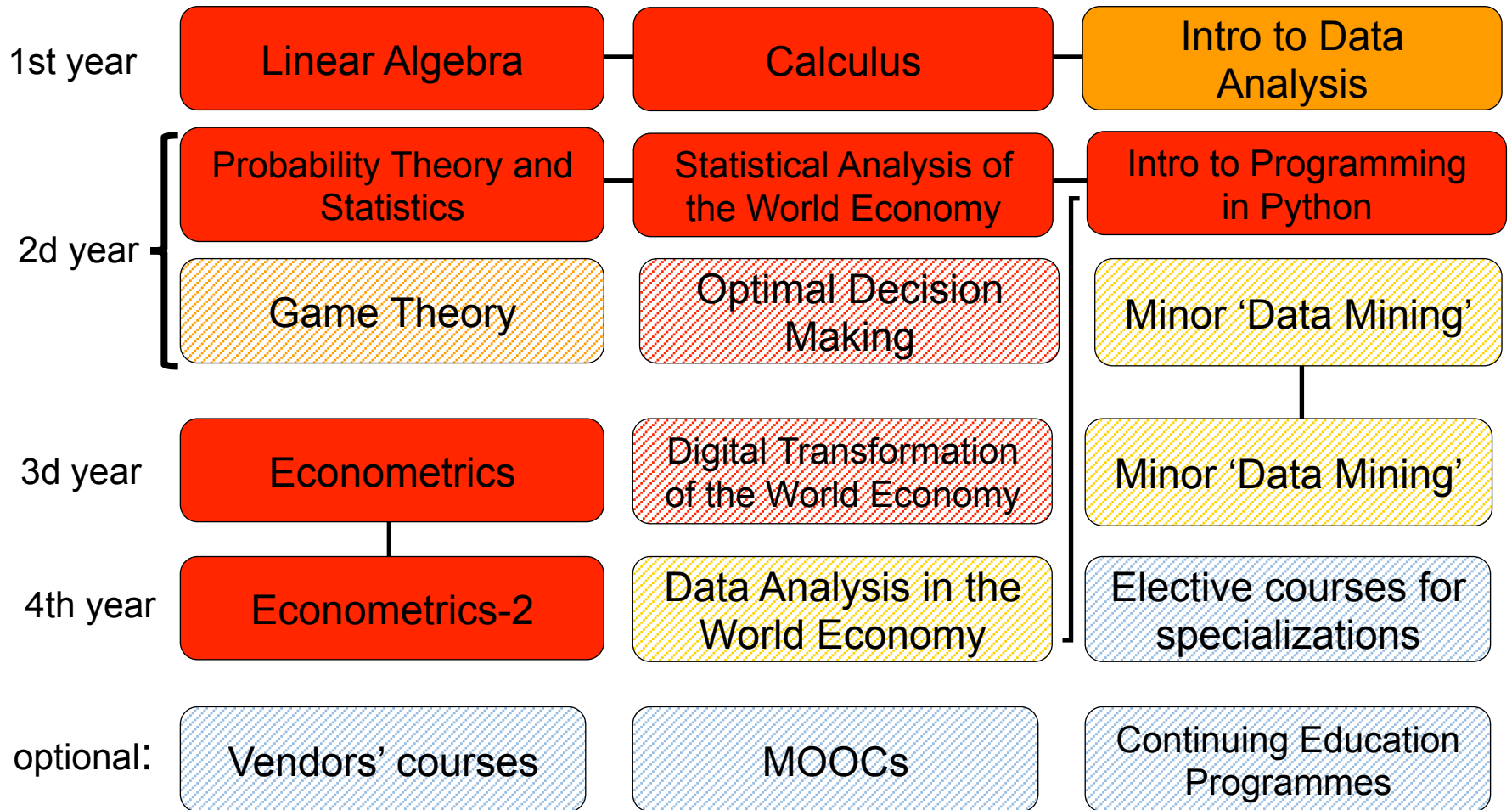
# Data Skills Acquisition Levels

Levels		The user is capable of / knows
Elementary		<ul style="list-style-type: none"><li>› Professional trajectories of development in DS</li><li>› Main methods and applications of data analysis in their field</li></ul>
Basic		<ul style="list-style-type: none"><li>› Performing primary data analysis</li><li>› Formulating task to professionals</li><li>› Managing projects in the field of Data Science</li></ul>
Advanced		<ul style="list-style-type: none"><li>› Independently solving standard data analysis problems in a specific field</li></ul>
Professional		<ul style="list-style-type: none"><li>› Working as a Data Scientist in a field-specific company</li><li>› Solving data analysis problems in any field</li></ul>
Expert		<ul style="list-style-type: none"><li>› Conducting research and developing new methods of data analysis</li></ul>

# Data Culture: Supporting Educational Products



# Data Culture Block for Programme on World Economy (2018-2022)



elementary level



basic level



advanced level



elective course

# Project Events



Open lectures and master classes



Workshops, master classes and off-site events for the university's teaching staff

# Plans and Prospects





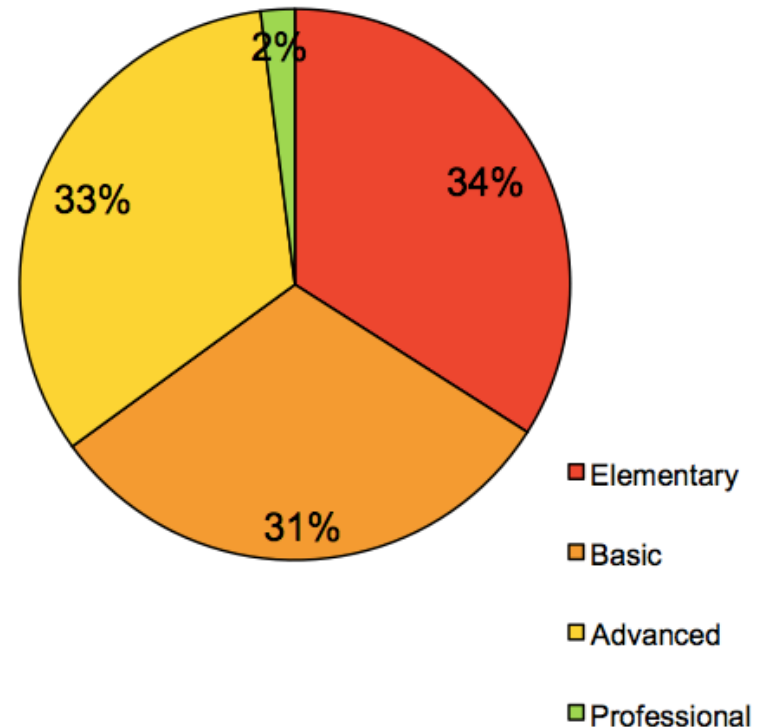
# 2018/2019

- › 100% coverage of HSE's Bachelor's Programmes (46)

1 semester:

- › 25 courses, 13 new!
- › 9 staff members, 33 visiting lecturers

In 2017/18: 17 staff members, 50 visiting lecturers



# Data Culture: Courses offered in 2018 (examples)

## **Elementary Level:**

- › Digital Literacy (Philosophy, History, Cultural Studies, Linguistics, etc.)
- › Information Technologies for Lawyers (Law)

## **Basic Level:**

- › Introduction to Data Culture with Excel Practicum (International Relations)

## **Advanced Level:**

- › Web Mining and Internet Data Analysis, Machine Learning (Economics)
- › Big Data Analysis in Social Sciences (Political Science)

## **Professional Level:**

- › Large-scale Machine Learning (Faculty of Computer Science)

# What's next?

Courses	Teaching Staff
Modernize / enrich DC blocks for every programme	Scale courses and materials using franchise and trainings
Extend DC Project to Master's and graduate levels	Project of advanced training for teaching staff to develop data culture
Create new online products, use the existing ones (specializations at Coursera, etc.)	
Implement elements of data culture into project work	Interact more with business

# Thank you!

Olga Podolskaya

Head of Project



[opodolskaya@hse.ru](mailto:opodolskaya@hse.ru)



[@opodolskaya](https://www.t.me/opodolskaya)