AI4Business Lab

Data Challenges

Brochure

dr. Inez Zwetsloot //Book a time to learn more! // ai4business-eb@uva.nl // 06 30566833 // ai4business.uva.nl

Do you have these questions?

"I have all this data but I don't have (people with) the right skills to get value from it"

"How do I get in touch with AI and analytics talent?"

"This business analytics problem is too difficult for us to solve"

"We do not have time for these high-risk AI projects (focused on innovation)"

"We need to do something with AI, but what?"

The AI4Business Lab has the answers!

What do we offer?

We help you solve your AI and analytics challenges

Focus of this brochure

Data Challenges

- *Let your* data challenge *be solved by our student groups – get multiple innovative solutions*
- *12-week challenge in the spring*
- *Share your data and invest a few hours to explain challenge*

Collaborative AI and Analytics Projects

- *Translate AI challenges into research problems and let us help you develop strategic solutions*
- *Few months up to PhD projects*
- *Cost of research time, share data and invest time to collaborate*

Use Cases – How can Analytics and AI help?

LLM for Customer Enquiries

Problem: High workload IT team to write queries for data extraction

Objective: Create bot based on RAG and LLM to write queries.

ML Prediction

Problem: Difficult to plan air services due to seasonal demand.

Objective: Use machine learning models to forecast demand for an airline.

Locating Health Services

Problem: Where to locate a new health centre?

Objective: Identify optimal location to minimize travel time for whole population.

Process mining

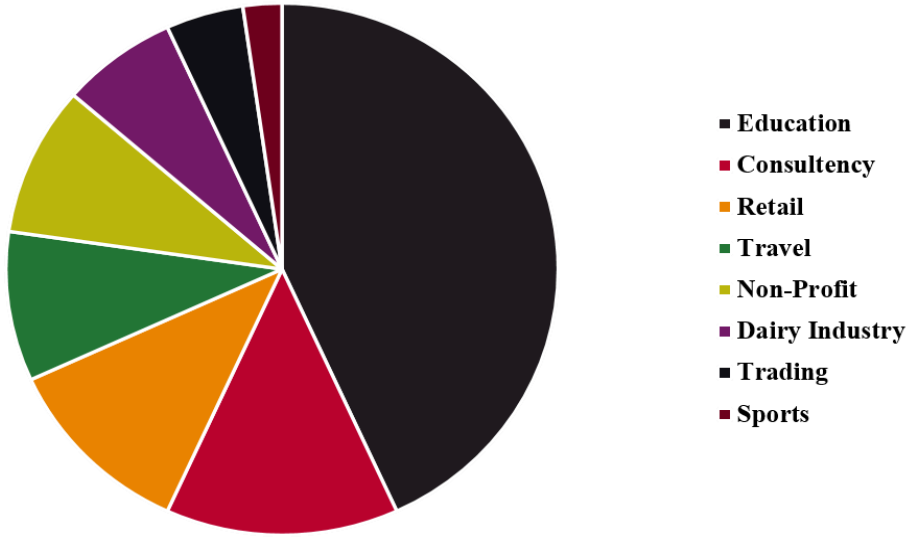
Problem: Difficulty estimating throughput time of enrolment process.

Objective: Conduct exploratory data analyses to identify bottlenecks.

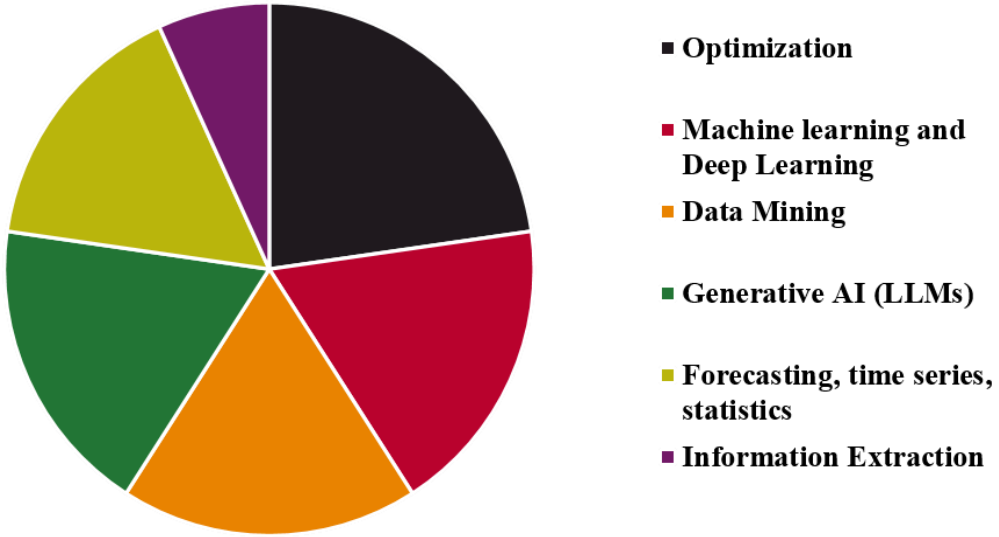
2024: Large variety of Data Challenges

View our past projects

Sectors



Data Techniques Used



What do you get?

- ✓ Innovative solutions to your AI challenges
- ✓ Contact with bright analytics students
- ✓ Access to the University of Amsterdam's knowledge network
- ✓ Support from start to finish during the projects

Student Groups

Projects are executed by groups of 2-4 students

Data challenge requirements & deliverable

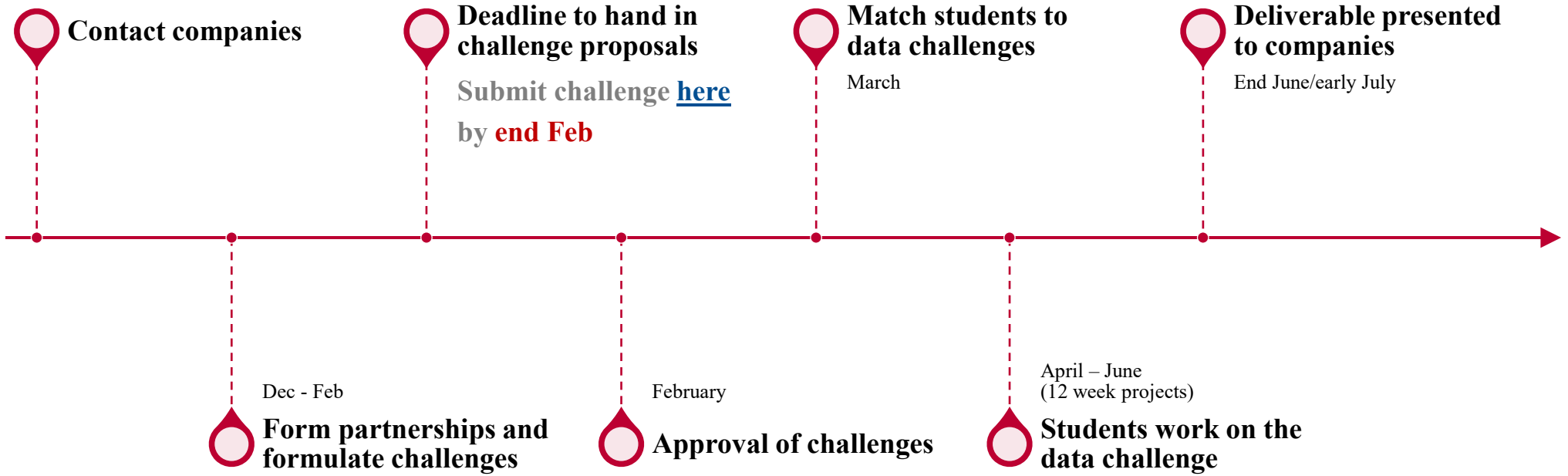
Requirements – typical project should meet the following requirements:

- ✓ A challenge related to AI and/or analytics
- ✓ Business/organizational relevance
- ✓ Data is supplied by partner organization before project start (April, 1st)
- ✓ Scope is suitable for a 12-week project for a group of 3-4 students
- ✓ Project has some level of complexity in terms of problem structuring, data, and/or algorithm building.

Deliverable– typically our students will deliver

- ✓ A dashboard, and/or
- ✓ A repository with code to implement algorithms, and/or
- ✓ A data-driven advice (eg. set of slides with conclusions)

Data Challenge Timeline



Typical projects

- ✓ Develop optimization models/**data-driven decision support systems** for answering questions like i) how to schedule resource ii) where to locate a new centre iii) how to allocate budget across options
- ✓ Build **Machine Learning** or statistical algorithms to **predict business relevant indicators** such as credit limits, customer demand, supply chain efficiency, customer classifications
- ✓ Explore the **potential of GenerativeAI** for operational efficiency, for example develop text extraction algorithms for report processing or analyze bias (and compliance) in a genAI system.
- ✓ Creating insights from very large unstructured data and structuring data management using **data and process mining**

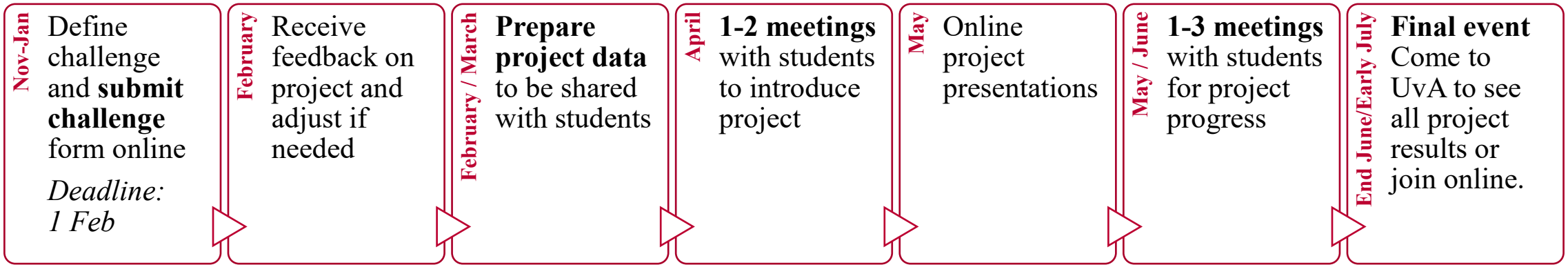
UNIVERSITY OF AMSTERDAM
Economics & Business

Student Skills

Our final year **BSc Business Analytics** possess the following skills/experience:

- Foundation in mathematics, coding, statistics
- Operations research and optimization
- Machine learning and Artificial Intelligence
- Econometrics
- Natural language processing
- Business knowledge including HR, Marketing Entrepreneurship, Accounting, Finance

Time investment



Note: the student receive day-to-day supervision from an UvA supervisor

Cost

We charge **an administrative fee of €750** (excl VAT). This fee covers the administrative costs of coordinating and managing the data challenge. An invoice for the fee will only be sent **after the project is matched** with students (typically in April).

This fee is waived for startups, SMEs, non-profits, governmental organisations and educational institutions.

Data Sharing options

We offer the following data sharing options, depending on your needs:

1. Share data file directly with the students (without any restrictions).
2. Share data file directly with the students and sign an NDA* if needed.
3. Create a synthetic data file, mirroring the real data's characteristics but without confidentiality concerns, for student use.
4. We can create a virtual environment that allows data providers to control access, ensuring students cannot download the data (some financial costs are associated with this option).
5. Allow students to access the data on-site or via a company laptop.

Typically, for the data challenges, we work with options 1, 2 and 3. For longer internships it is common to either set up 4 or 5.

*The NDA form will be supplied by UvA and can be downloaded here.

UvA AI4Business Lab (AI4B Lab)

About

- Bridges academic research and industry needs in business analytics & AI.

Goals

- ✓ Advance applied research in the AI & analytics field.
- ✓ Help business solve AI challenges
- ✓ Provides hands-on experience for students with real-world data problems.

Collaborations

- *Data challenge projects* - let our students solve your data challenge!
- Larger *collaborative research projects*
- Build a network

Skills include Analytics and AI:

- ✓ Predictive modeling & time series analysis
- ✓ Optimization & recommendation systems
- ✓ Machine Learning & text mining
- ✓ Large Language Models (ChatGPT)
- ✓ Dashboards and visualization

In business domains such as HR, Marketing, Operations, Finance,…

Use Cases – How can Analytics and AI help?

LLMs for Business Optimization

Problem: Are the emerging LLMs good at optimally solving business problems?

Objective: Compare performance of different LLMs on solving business problems.

HR helper

Problem: Current hiring processes are lengthy and difficult.

Objective: Save HR time and obtain unbiased results by automatically generating questions.

BSA prediction

Problem: Want to offer timely support to those who may not pass their classes.

Objective: Use predictive algorithms to see which students will meet BSA requirements and not.

Compare XAI solutions

Problem: How different do different XAI methods perform on datasets?

Objective: Conduct a computational study to test the performance of models.

More information

Website: You can find more information here www.ai4business.uva.nl

Call: Book a short call to learn more through: book a time to learn more!

Submit your data challenge here

Dr. Inez Zwetsloot
Director AI4Business Lab

ai4business-eb@uva.nl
www.ai4business.uva.nl

06 30566833