Imperial College Business School

Imperial means Intelligent Business

IDEA Lab: Transforming IDEAs into Human and Technological Impact

Jamina Ward, Stephen Vaz

IDEA Lab, Imperial College Business School

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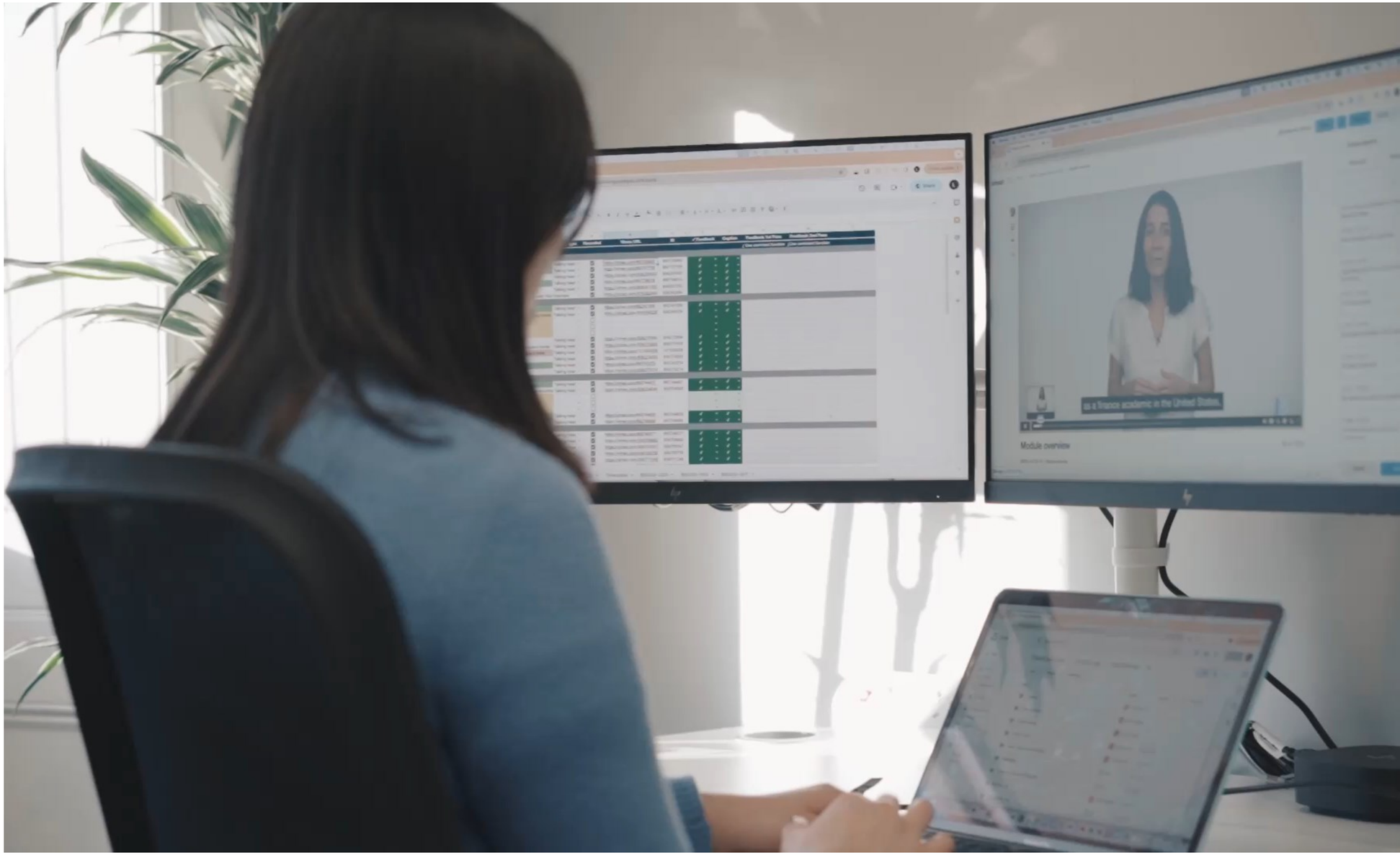
Transforming IDEAs into Human and Technological Impact

Established in 2005, the IDEA Lab team at Imperial College Business School is leading the way in global business education, using **I**nnovation, **D**igital **E**ducation, and **A**nalytics to unlock learner potential.



Timeline of achievements

Start

2005: Foundation

The Edtech Lab is established as Imperial College London's first digital learning group within the Business School

2006: A Blended Approach

Launch of EMBA, our first blended learning programme.

2010: A NEW Platform

Development of "The Hub" learning platform

2015: Expanding Digital Reach

Launch of the Global Online MBA programme – Imperial's first online programme

2016: New Horizons

Launch of primers for the school

Launch of MBA Essentials with edX

Introduction of 4 online electives for BPES, offering depth into financial, strategic and operational contexts to science and engineering students

2017: Pedagogical Innovation

New and improved EMBA

Creation of OSCAR, our innovative learning design framework, offering a transformative approach to online curriculum adaptation

2018: A Year of Milestones

Birth of insendi

World's first holographic lecture

Founding the FOME alliance setting the stage for a global academic collaboration

Launch of the MSc Business Analytics online

Timeline of achievements

2019: Recognition for Excellence

By 2019, won eight prestigious awards, showcasing our commitment to innovation and quality in digital education

2020: Adapting & Expanding

Strategic response to the COVID-19 pandemic: blending 300 modules with 120 faculty and the setup of our Hy-flex lecture theatres and co-pilots, enabling us to offer hybrid learning across all our programmes

Introduction of the MSc in Strategic Marketing online

2021: A Data-Driven Approach

Formation of a dedicated data team with a primary focus on machine learning and AI

Learning analytics collaboration with the Maths department led to Phase 1 of Precision Education, setting the foundation for the college's Unified Data Platform launch in January 2022

2022: New Opportunities

Launch of the editorial team, paving the way for enhanced content quality and exploring potential publishing avenues

Development of MBA concentrations

Present day: Rebranding & Renewal

Evolution from Edtech Lab to the IDEA Lab

Launch of GenAI testing initiative, reinforcing our leadership position at the forefront of educational technology and innovation

Appointment of New Executive Director

The future

Key Facts & Figures

563

Online Masters students

4

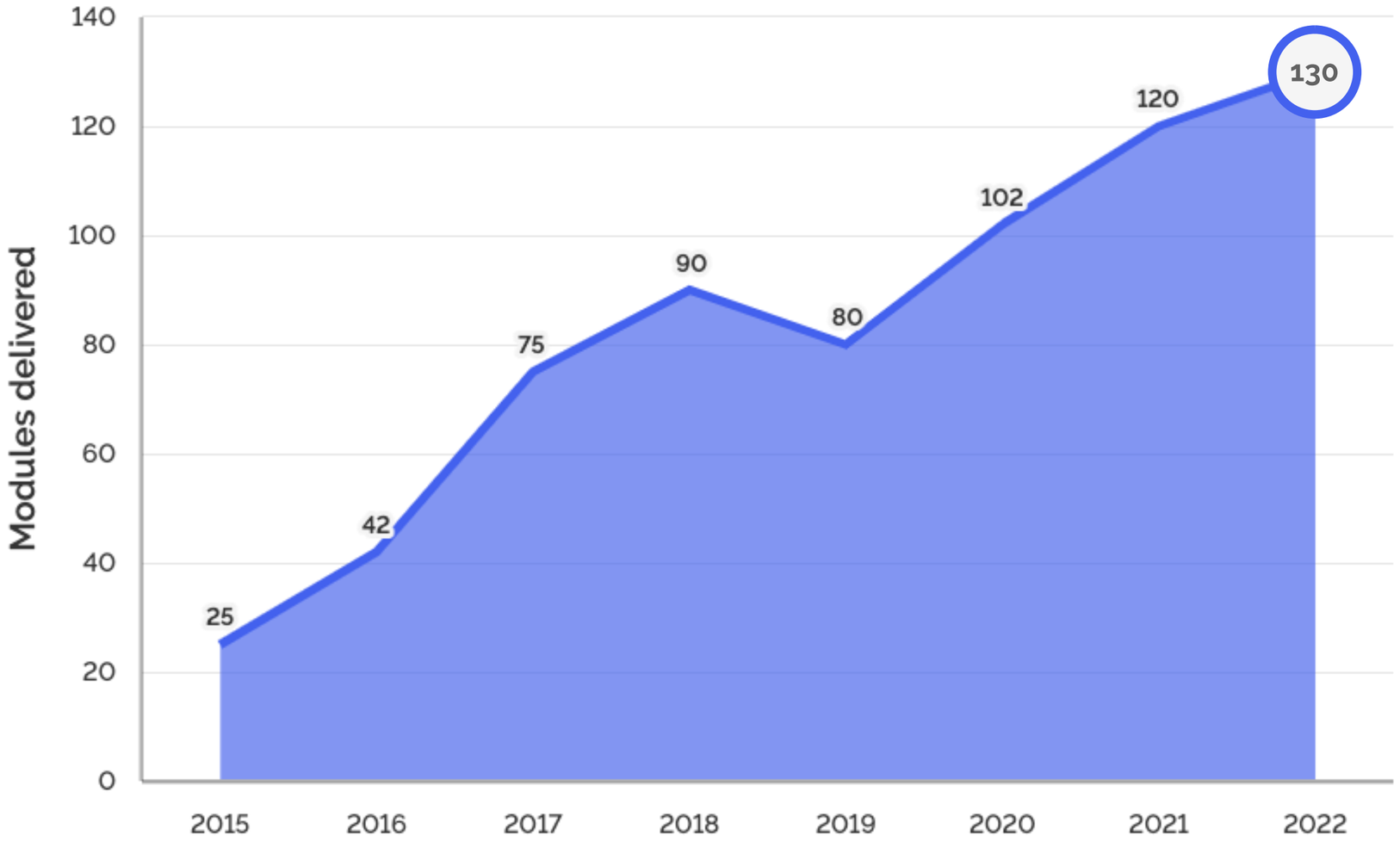
Online degree programmes

11m

Annual programme revenue

11

Awards won



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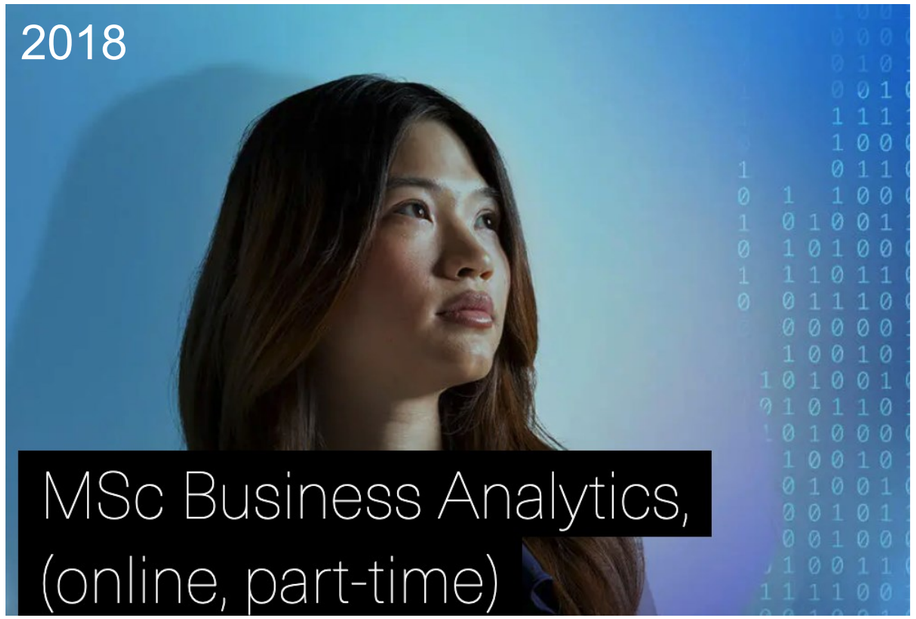
Online and blended programmes

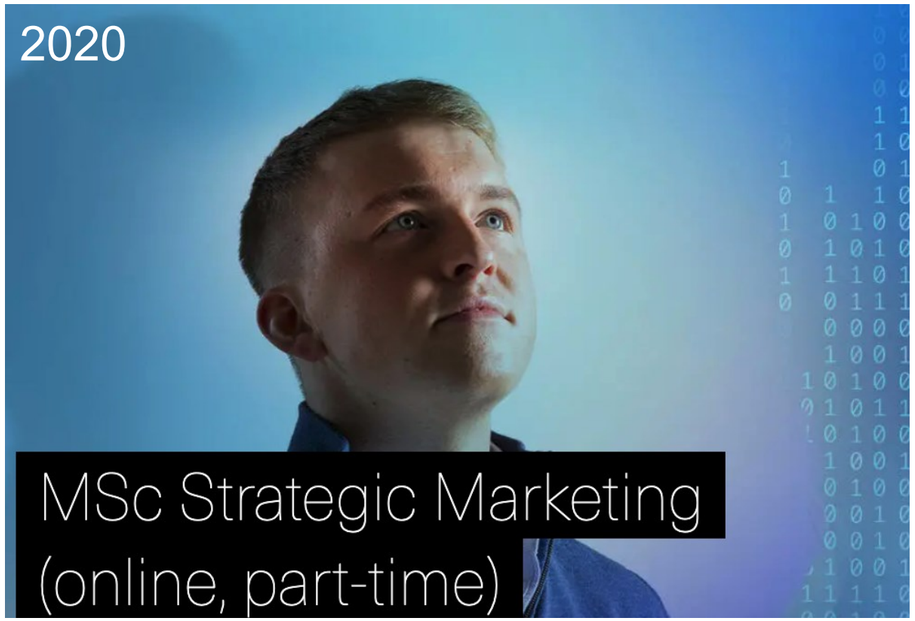
We partner with Imperial College Business School's world class academics to develop two MBA programmes and two part-time Masters programmes.

These are delivered either as blended programmes or fully online via The Hub, our dynamic online learning environment built on insendi.

insendi was first designed and incubated within the IDEA Lab team at Imperial, before being acquired by Study Group in 2020.

insendi





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The world’s #1 Online MBA

In April 2024, Imperial College Business School was ranked first in the **QS Online MBA rankings**.

Imperial advanced one place to secure the top position, surpassing 102 other degree programmes from 21 global locations.

Our Global Online MBA programme has been ranked first for its exceptional learning experience and its high success rate in helping students secure employment after graduation.

The annual QS Online MBA rankings score online MBA degree programmes based on four key criteria:

- Faculty and teaching
- Class profile
- Employability
- Classroom experience.

> “This is fantastic recognition of our reputation for creating online degrees that meet the needs of students seeking a high quality, flexible study experience. As higher education looks towards a more hybrid future, we will continue to invest in online degrees and lifelong learning experiences that provide students with the skills they need to navigate a tech driven workplace.” **Professor Franklin Allen, Interim Dean of Imperial College Business School**

QS Online MBA Rankings, 2024
https://www.topmba.com/online-mba-rankings-global

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Pedagogical approach

Segmentation
We break down complex topics into manageable chunks, making it easier for learners to understand and retain information.

Multimedia
We employ a mix of text, visuals, audio and interactive elements to cater to different learning preferences and enhance comprehension.

Active learning
We encourage learners to interact with content, fostering deep engagement and better knowledge retention.

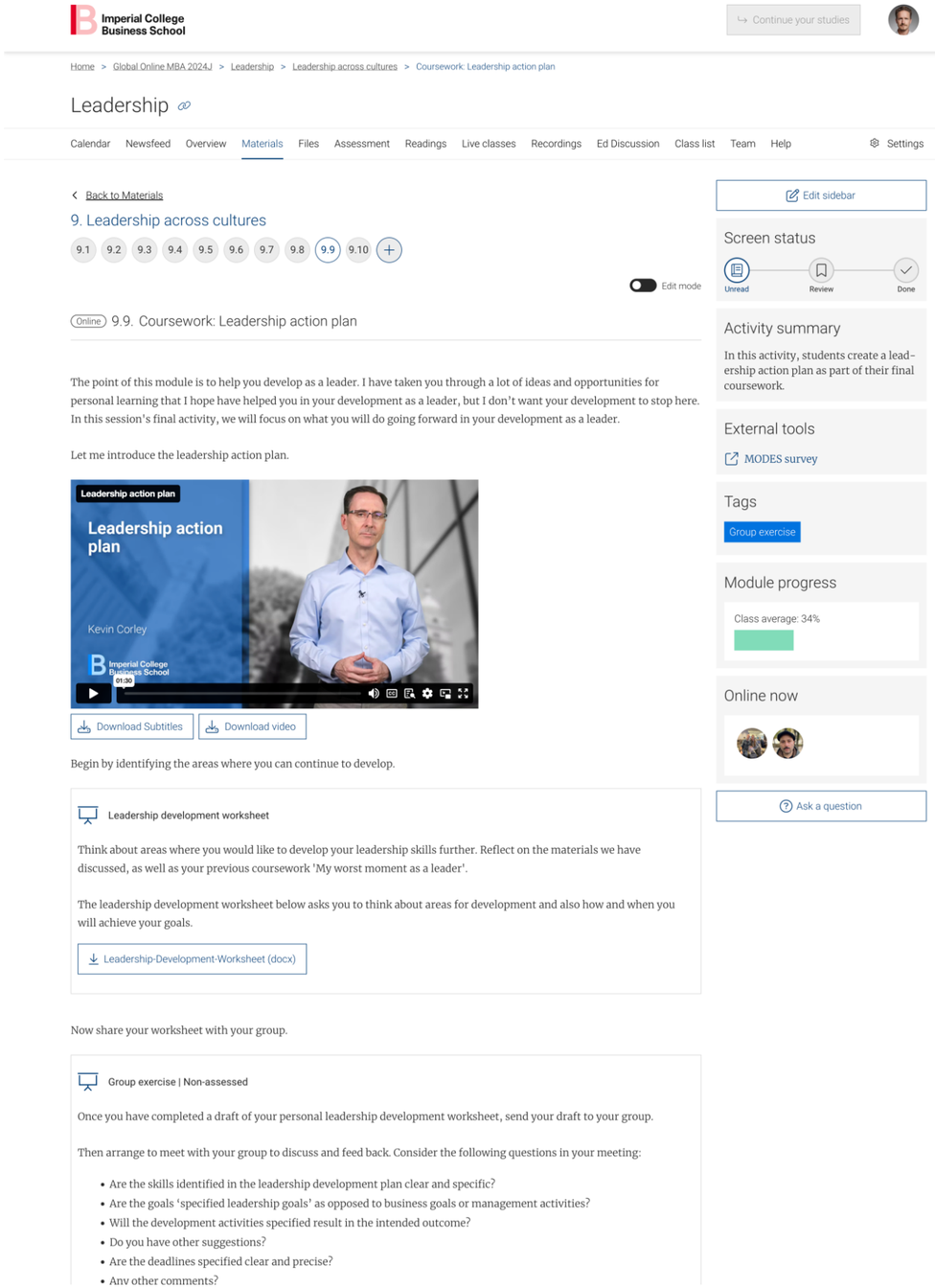
Feedback
We incorporate regular, constructive feedback throughout our modules, helping learners to track their progress and adjust their learning strategies as needed.

Constructive alignment
We ensure that our learning outcomes, activities and assessments are all aligned, creating a coherent and purposeful learning journey.

Storytelling
We use narrative techniques and detailed real world case studies to bring concepts to life, making learning more memorable, relevant and engaging.

Experiential learning
We provide practical activities that allow learners to apply what they've learned to their real lives, deepening their understanding and skills.

Social learning
We cultivate opportunities for learners to connect with each other and collaborate, fostering a sense of community and promoting peer learning.



Active engagement

The '4Ps'

The '4 Ps' ensure we achieve many of our pedagogical aims such as storytelling, multimedia and active, social and experiential learning. We audit our modules to ensure an even balance of each 'P'.

Presenting

Information and theory is conveyed to students, generally through our video presentations, feedback or readings within the Hub, linked via a narrative through the module.

Practise

Plenty of opportunities to consolidate learning by practising the concepts presented through formative quizzes, question exercises or drag and drops, for example.

Participation

Students actively participate in most exercises in the Hub but most noticeably in online and live discussions, or contributing to wordclouds, polls etc and creating presentations.

Produce

Students embed or apply their learning by producing content of their own. For example producing a report or presentation, applying the concepts to a real-world issue.

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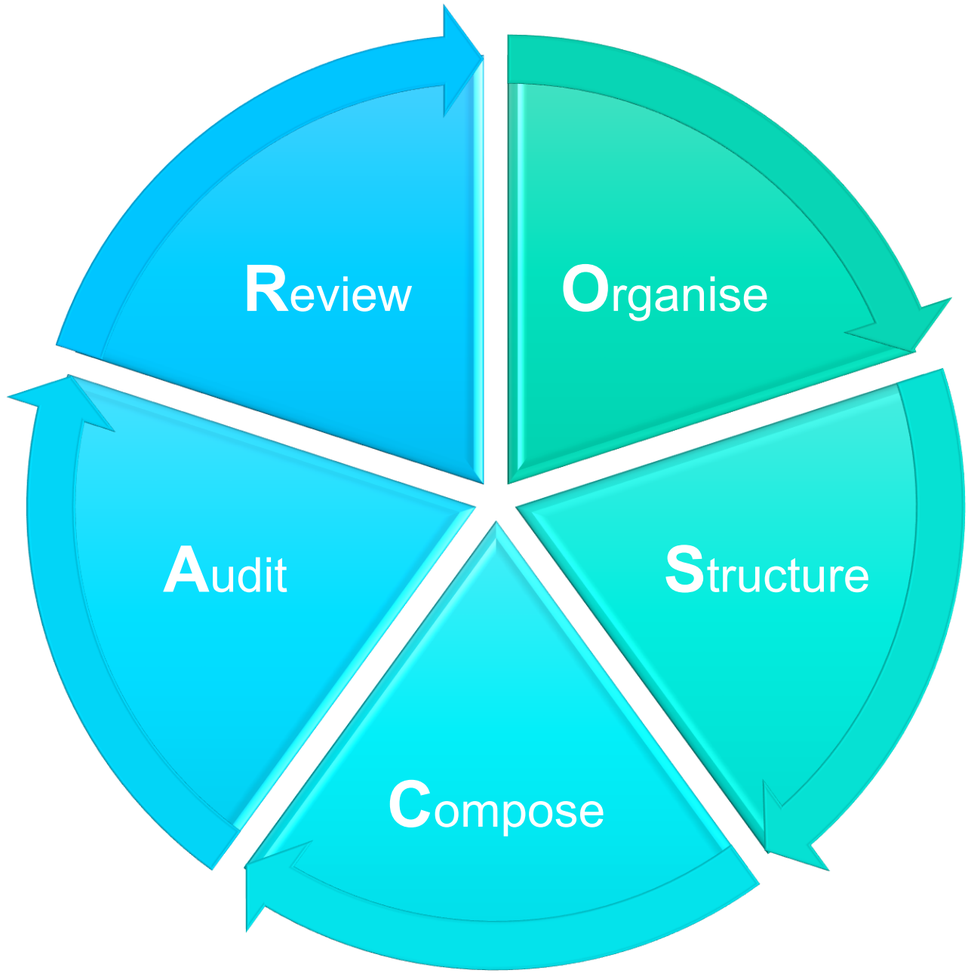
OSCAR framework

Our five-step development approach to create new online modules is faculty-focused, ensuring scholars are thoroughly involved in every step of the process.

- Transforms face-to-face and offline materials for our online pedagogy
- Led by pedagogy, not by tools
- Encapsulates our 4Ps design principles
- Collaboration is key



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Checkpoint 1

1. Organise curriculum materials, refine learning outcomes and develop pedagogical framework.

Learning Outcomes

By the end of this module, you should:

- Understand basic algorithms (such as search, sorting, and shortest paths) and data structures (such as arrays, lists, and graphs) and their representation in a programming language
- Understand why and how we analyse the efficiency of algorithms and data structures, as well as the workings of basic algorithms for problems like sorting, sorting and shortest paths
- Have gained insight into the process of moving from a problem statement to formulating a computational solution method
- Be able to read, design, and implement medium-sized programs in Python

2. Structure the module by dividing the curriculum into timed units. Determine the placement of assessments and live sessions. Segment content into activities and exercises that best meet the intended outcomes.

Session 1: Introduction to optimisation			
Page	Page title	Content	Estimation of page time
1.1	Introduction to session one	**Welcome video** **Learning outcomes** **Reading / essential resources** **Activity (Poll question)**	20
1.2	What is an optimisation problem?	**Interactive video:** The generic optimisation problem (slide 14) (Question: What is the advantage of expressing the feasible region through constraints rather than every possible feasible solution?) **Video:** Outline cowboy example (slide 15) **Text entry:** What would be suitable decision variables? What do we want to maximise and minimise? What are the constraints? **Feedback:** Identification of decision variables, max and min, and constraints etc. and mention what optimal solution is.	30
1.3	Real-life applications	**Video Interview:** Interview with Analytics faculty about their work with big companies (Burgerk King, Easy Jet etc.) **Activity:** Click through examples to learn more about real-life optimisation applications **Additional resources:** Link to website **Open discussion (audio? video?):** Think about your experience, what could be optimisation problems in your company and what might be the decision variables etc..	30
1.4	Optimisation terminology	**Video:** Outline terminology (feasible solution; global minimiser; local minimiser; epsilon global minimiser; epsilon local minimisers) (Slides 18-19 without formula)) **Graph manipulation:** Can you draw an optimisation problem that has three local and two global minimisers? **Poll:** Is it possible to draw an optimisation problem that has two local and three global minimisers? **Feedback:** No. Every global minimiser must have a local minimiser but not vv.	30

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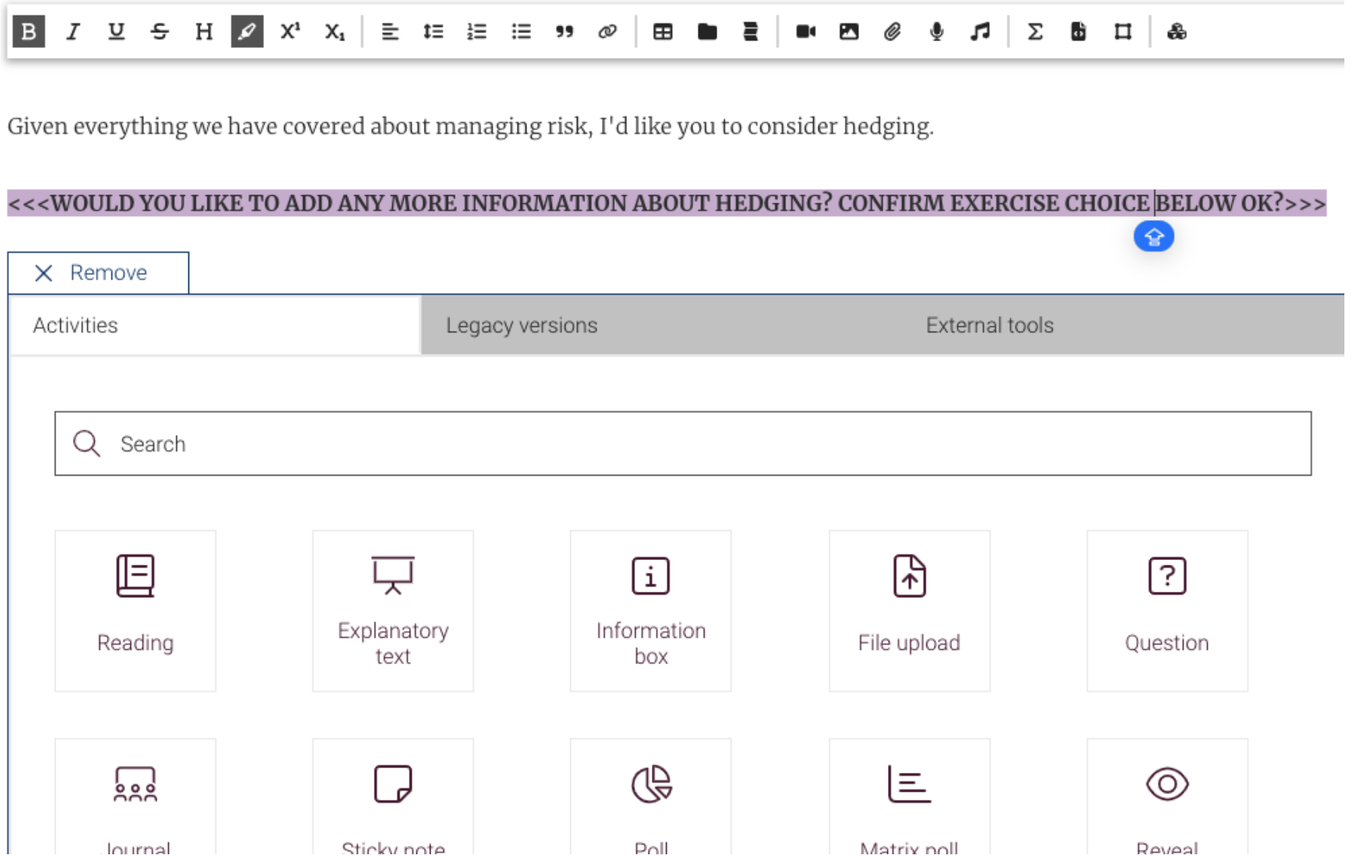
Checkpoint 2

3. Compose the content. Support faculty to develop written materials and record audio/video assets.



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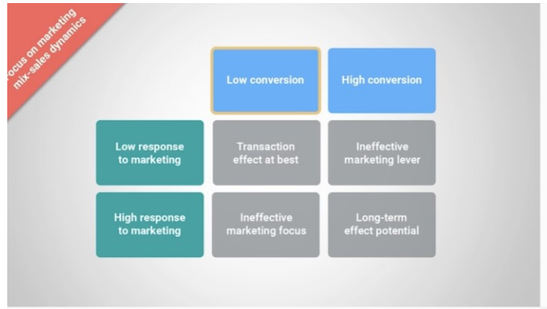
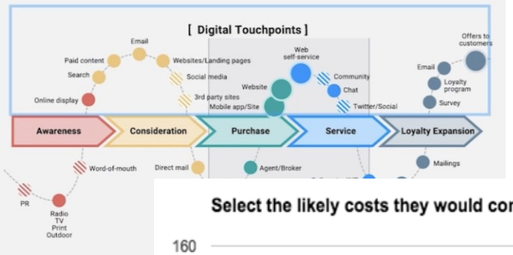
Checkpoint 3

4. Audit the module for blend of activities, workload balance and timings.

Carry out testing with student panel.



Description	Definition
Offerings	Develop innovative new products or services
Platform	Use a set of common components, assembly methods or technologies that serve as building blocks to create derivative offerings.
Solutions	Create integrated and customized offerings that solve end-to-end customer problems.
Customers	Discover unmet customer needs or identify underserved customer segments.
Customer experience	Redesign customer interactions at all points and moments of contact.
Value capture	Redefine how the company gets paid or create new revenue streams for the company.
Processes	Redesign core operating processes to achieve greater efficiency and effectiveness.
Organization	Redefining the scope of activities of the company and its alliances, as well as the roles, responsibilities and incentives of its units and individuals.
Supply chain	Think differently about sourcing and fulfilment.
Presence	Create new distribution channels or innovative points of presence, including places where offerings can be bought or used by customers.
Networking	Create network-centric intelligent and integrated offerings.
Brand	Leverage a brand into new domains.

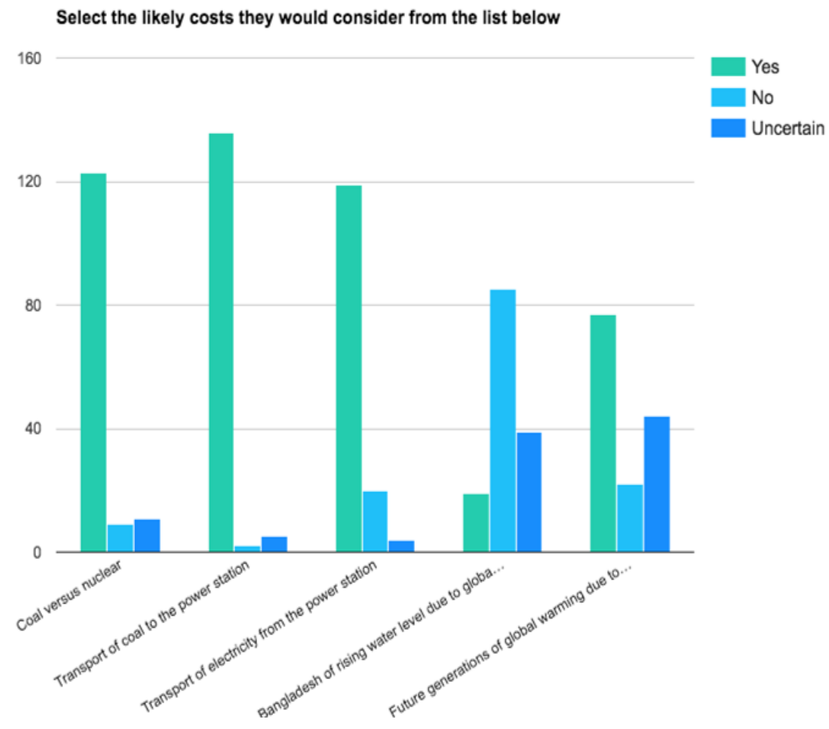


Now try out the matching activity I

Drag and drop the terms to match the descriptions.

Total Cost	Discounted value of sales less costs	Historic costs	Fixed Cost	Variable Cost
Replacement costs	Average Cost	Marginal Cost	Opportunity costs	

Description	Term
What it cost to buy the machines	Drop
What it cost to replace the machines	Drop
Best price if I sold the machines	Drop
Net income from the machines over time	Drop
The cost of producing some particular level of output C(Q)	Drop



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Final sign-off

5. Review the completed module, carry out proof-reading and approve for publication.

Once the module has run, analyse learning analytics and student satisfaction survey to collect insights for iterative improvement.

Items	Notes	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Titles	Do all session and activity tiles follow convention?	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Timings	Have all timings been added? Do these accurately represent the activity? Are the timings weighted equally between sessions?	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Summaries	Have all summaries been added? Do they adhere to conventions?	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Intro and review timings	These should be a min of 10 mins. Check equivalent pages match (i.e. same review page format should take the same time to review)	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Learning outcomes	Check these match between introduction and session review and that settings have been applied	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Replacement exercises	Review all (approved) new exercise types have been replaced	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Review exercise settings	Do these look correct?	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Linking text	Check linking text at the bottom of every page - check it links to the correct activity	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Assessed quizzes	Check deadlines, timings and weightings are correct	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

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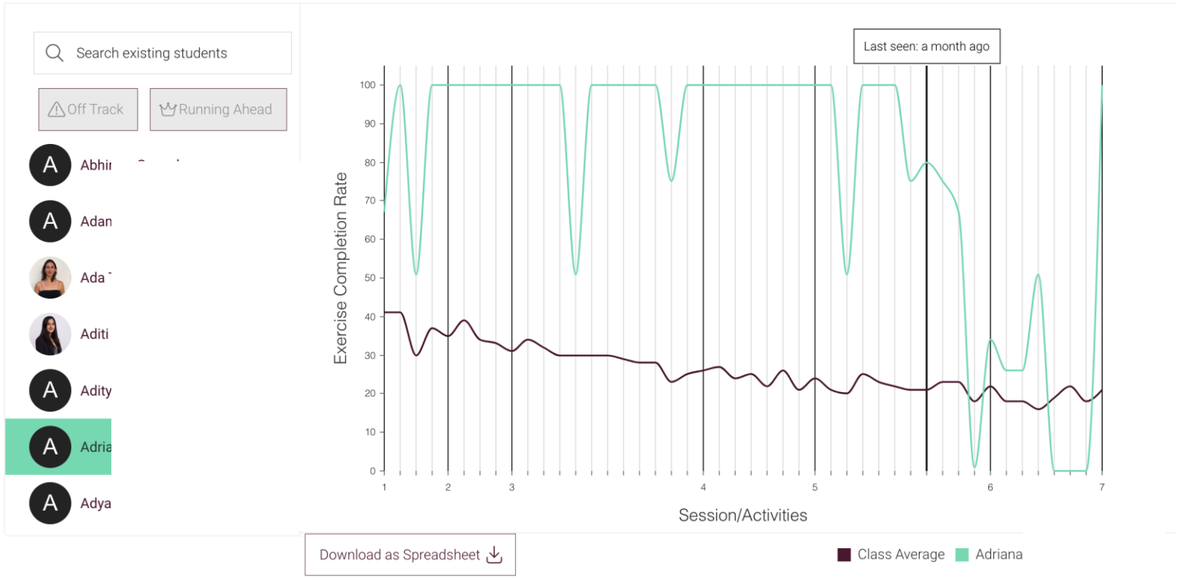
1. How likely are you to recommend this module to a colleague?

Not at all likely — Extremely likely

0 1 2 3 4 5 6 7 8 9 10

2. Would you like to tell us the main reason for your answer?

Learning Analytics Dashboard



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Student Satisfaction

Our online programmes are highly rated by students in end-of-module surveys (MODES – module evaluation surveys).

In Autumn term 2023, two of the three top performing programmes from ICBS were online programmes.

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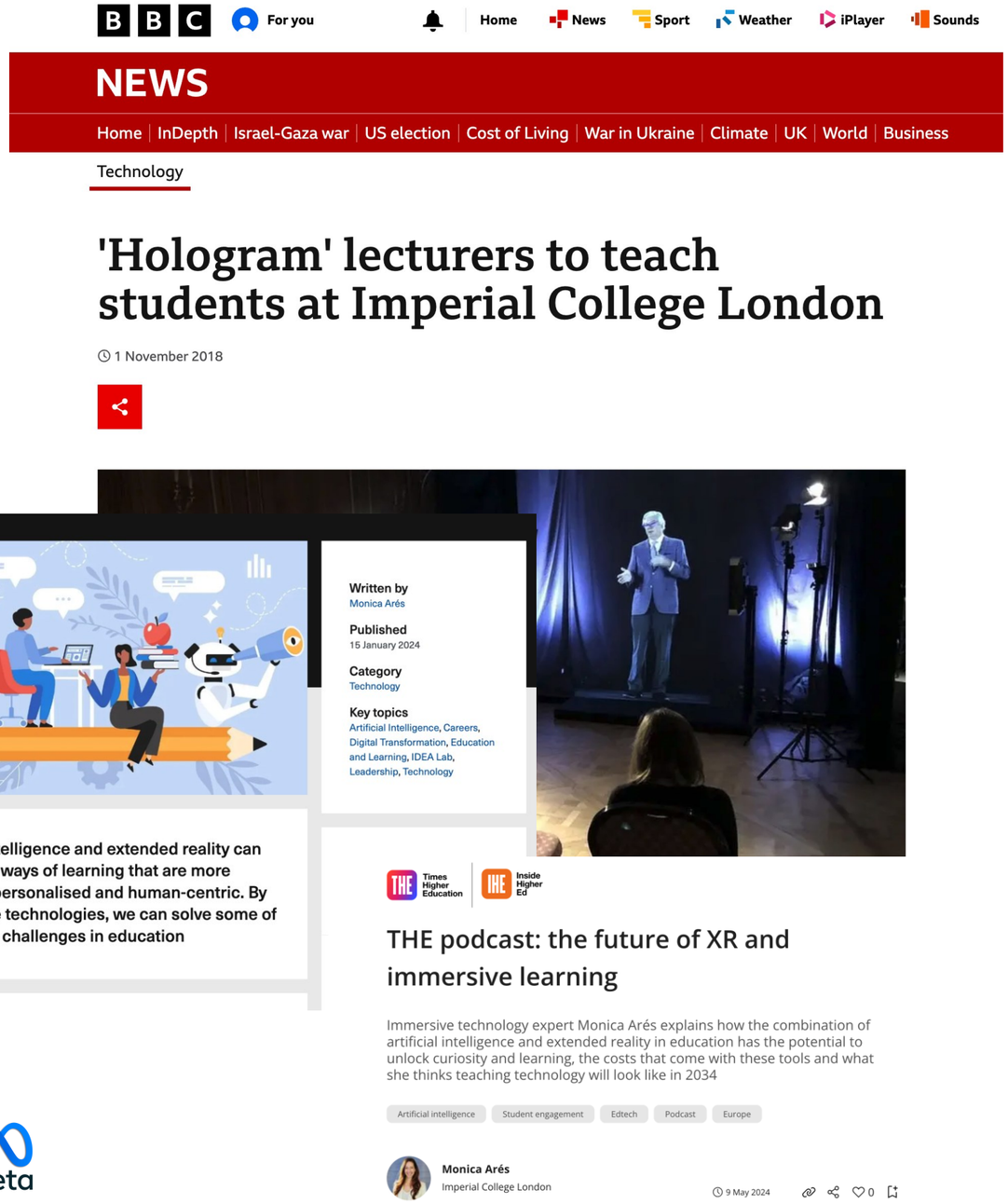
Innovation

Innovation and experimentation has always been core to the mission of the Ed Tech team at ICBS.

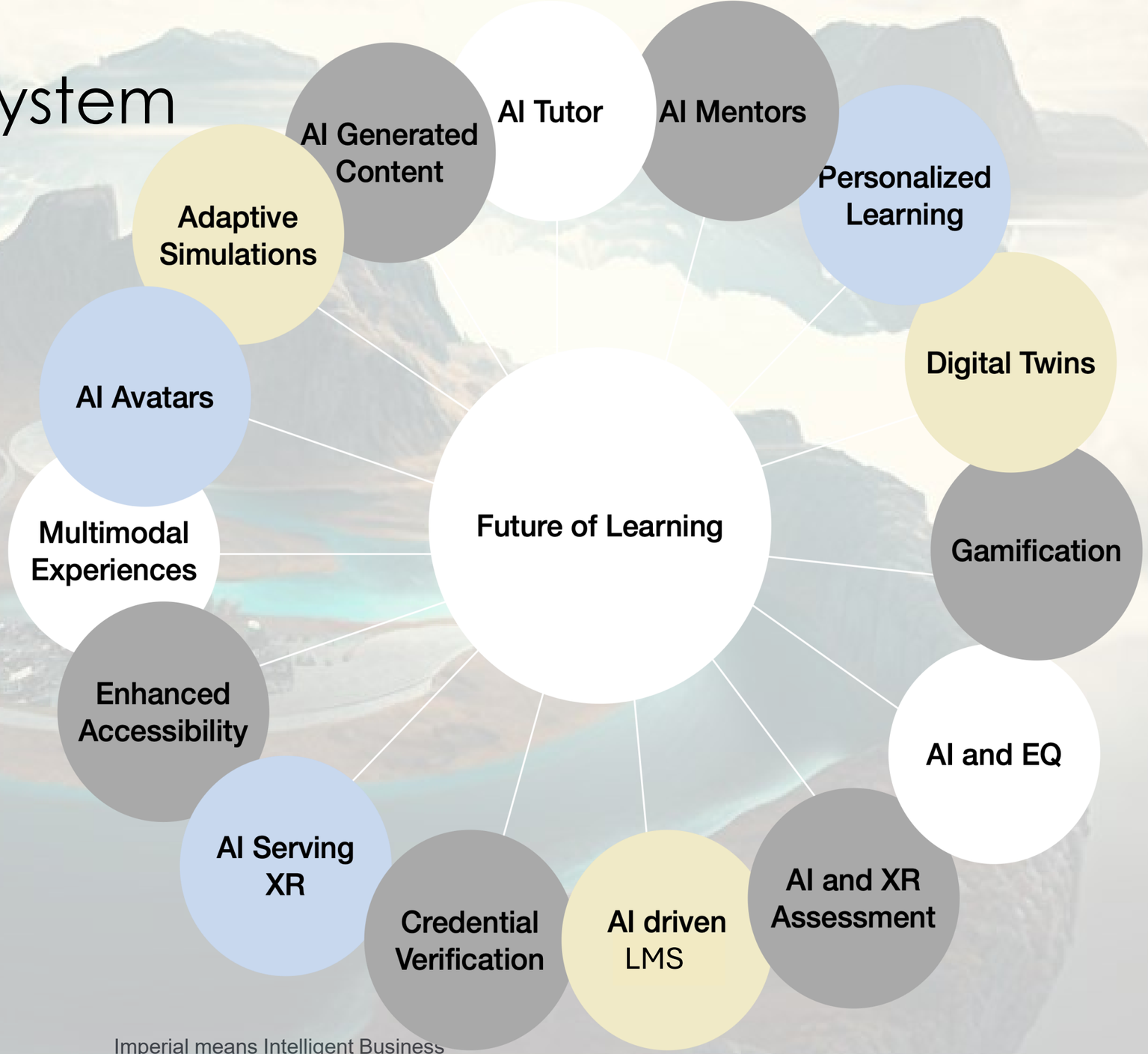
Our vision is to revolutionising learning and empowering visionary leaders through AI and other emerging technologies.

Working in partnership and collaborating across industries and regions, we create adaptive, personalised and immersive experiences that increase accessibility and prioritise the human experience.



insendi FOME ALLIANCE Touchcast bodyswaps Meta

The new learning ecosystem



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Research: AI Stress Testing

Stress-testing assessments against the use of Gen-AI

IDEA Lab collaborated with Education Quality at ICBS to ‘stress-test’ Autumn term 2023 module assessments, including assignments, quizzes and programming tasks, across Imperial College Business School.

Using a range of AI tools, we tested what output students could obtain if they asked AI to complete module assessment tasks.

- What can AI do well?
- What does AI struggle with?
- Ideas for preventing AI misuse

PDF Available (last updated August 2024) at:
https://www.imperial.ac.uk/about/education/resources/ai-education-hub/case-studies/idea-lab/

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Research: Student attitudes to AI

What do Imperial students think of AI tools and AI Avatars?

We surveyed a large group of 600+ students at Imperial to understand **how are they using AI tool** and what do they think/feel about **AI avatars** and '**digital twins**'?

The appeal of Digital Twins

64% of students indicated that they find the concept of a digital twin of the module leader, designed to assist with course content questions, to be appealing.

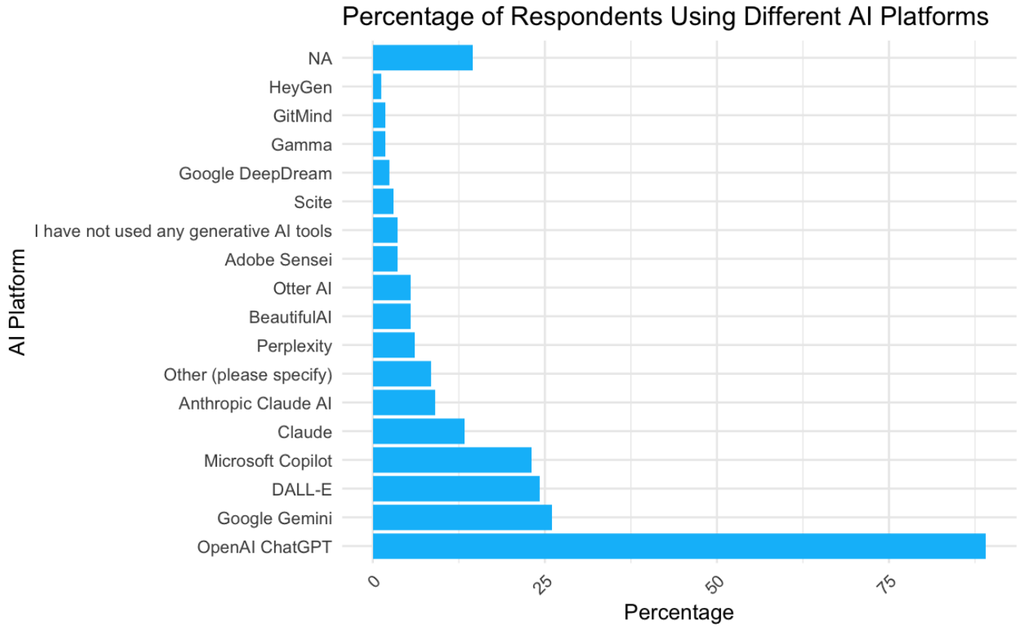
Likelihood of Use

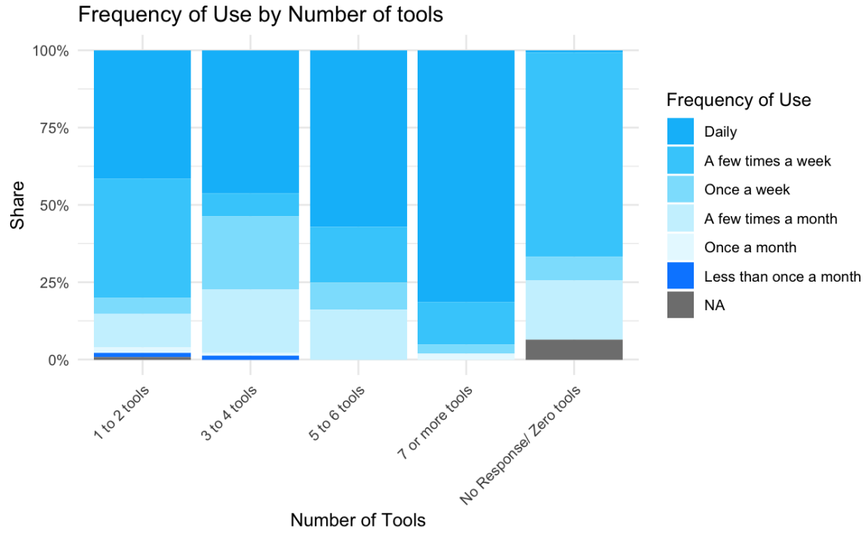
About 59% of students reported *'they are likely or very likely to use a Digital twin of the module leader for additional support'*.

Benefits of Digital Twins

The most frequently mentioned advantage was 24/7 availability (36%), followed by consistent responses (21%) and additional learning resources (20%).

Which generative AI tools have you used to help with your studies?





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Touchcast

David Shrier

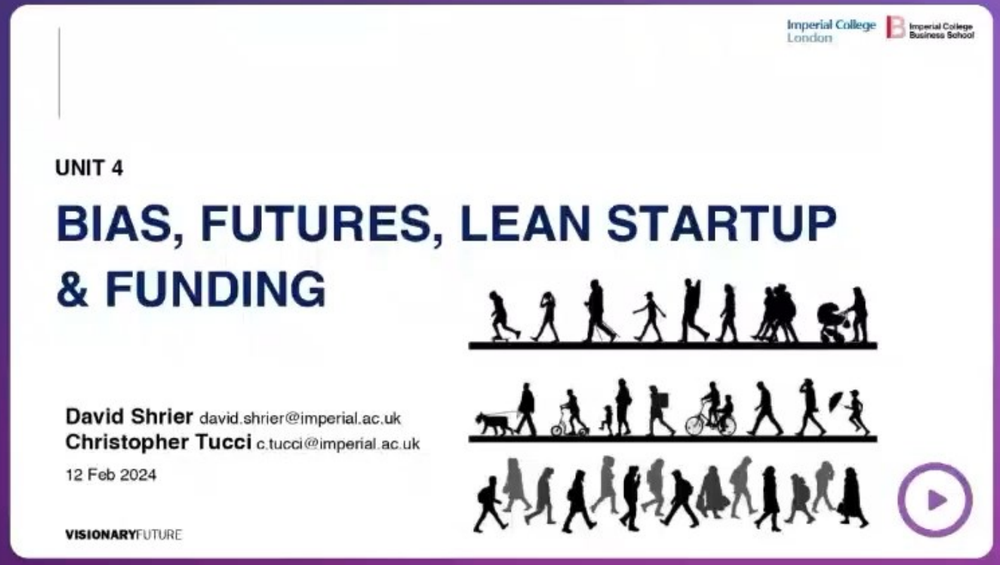
Professor of Practice

Imperial College

Watch Unit 4

Download Unit 4 Slides

what is the purpose of AI ventures?



The purpose of AI Ventures is to equip students with the knowledge and skills needed to create new AI startups

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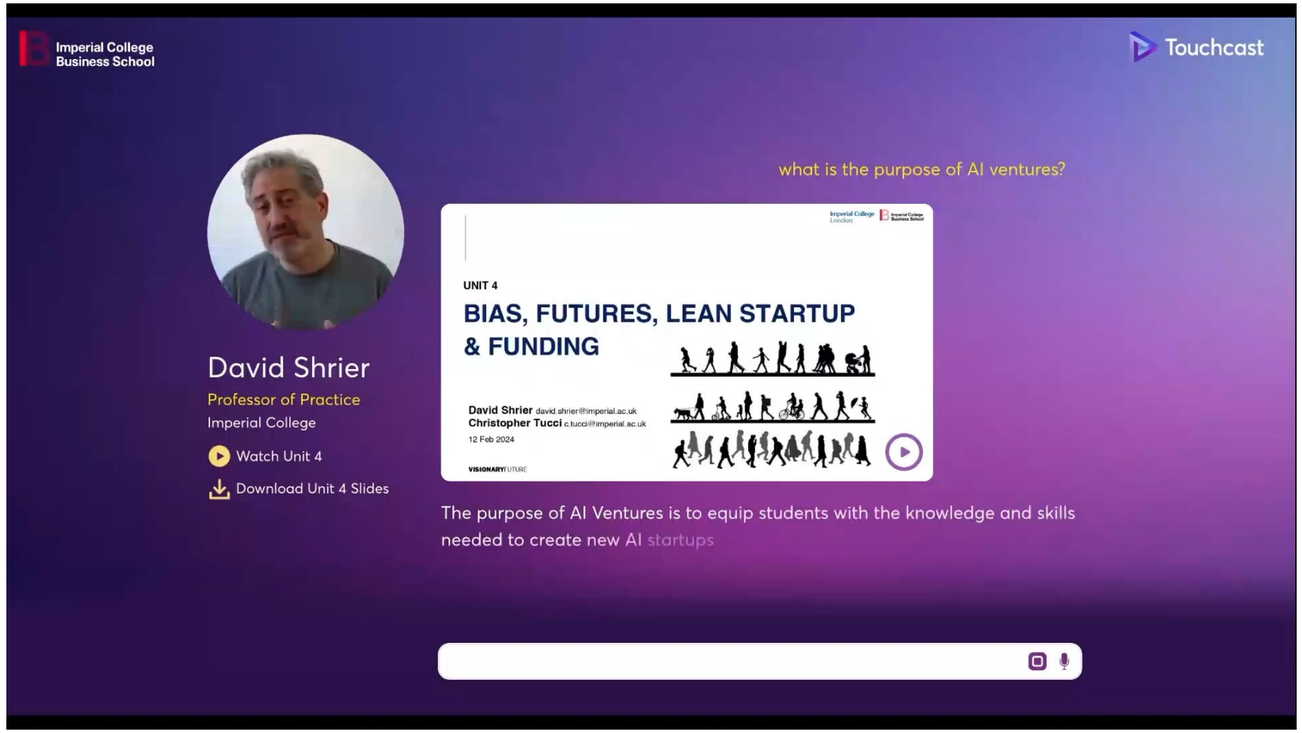
Touchcast

DaveBot: A Digital Twin

- "DaveBot", was launched in January 2024 as an experimental component of **Professor David Shrier's AI Ventures** module.
- In partnership with **Touchcast**.
- **21 users were involved**, primarily consisting of Imperial staff, researchers, and students.
- Davebot was engaged in **answering a diverse array of questions**, predominantly focusing on AI, course content, personal inquiries, and course quizzes.
- The **Linguistic Inquiry** and **Word Count (LIWC)** software was used to analyse DaveBot's interactions.
- Findings indicate that DaveBot tends to:
  - use formal, logical language
  - display confidence and authority in its knowledge
  - appear less spontaneous
  - maintain a positive tone.



Linguistic Analysis (LIWC) of DaveBot

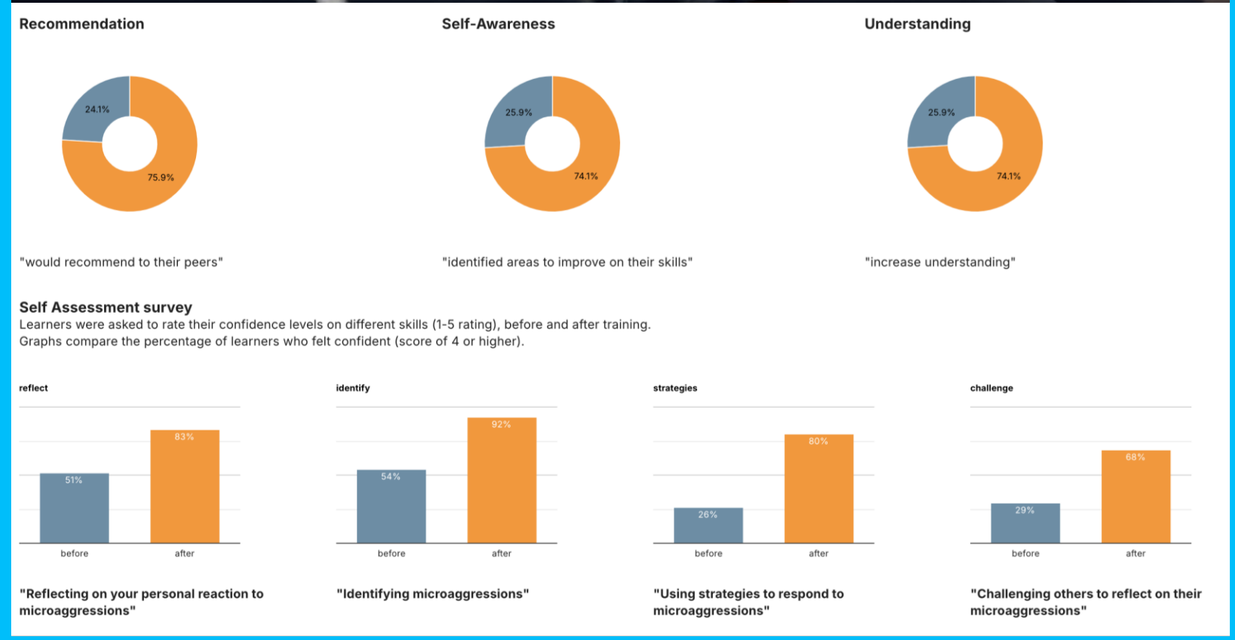
Linguistic Inquiry and Word Count (LIWC) is the gold standard in software for analysing word use. It can be used to study a single individual, groups of people over time, or all of social media. https://www.liwc.app/

Dimension	Score
Analytical Thinking (Analytic)	74.03
Clout	52.03
Authenticity	33.53
Emotional Tone	69.25

Values Day: Using VR for ED&I training

- In September and October 2024, IDEA Lab delivered synchronous VR sessions to around **500 students** over 10 induction event days.
- In partnership with **Meta** and **Bodyswaps**.
- Using a suite of over 40 x Meta **Quest 3 VR** headsets.
- Over **76% of participants** rated their VR experience as **Good** or **Excellent**.

“Thank you for this amazing experience! […] It is a great step forward using today’s technology in teaching! ”



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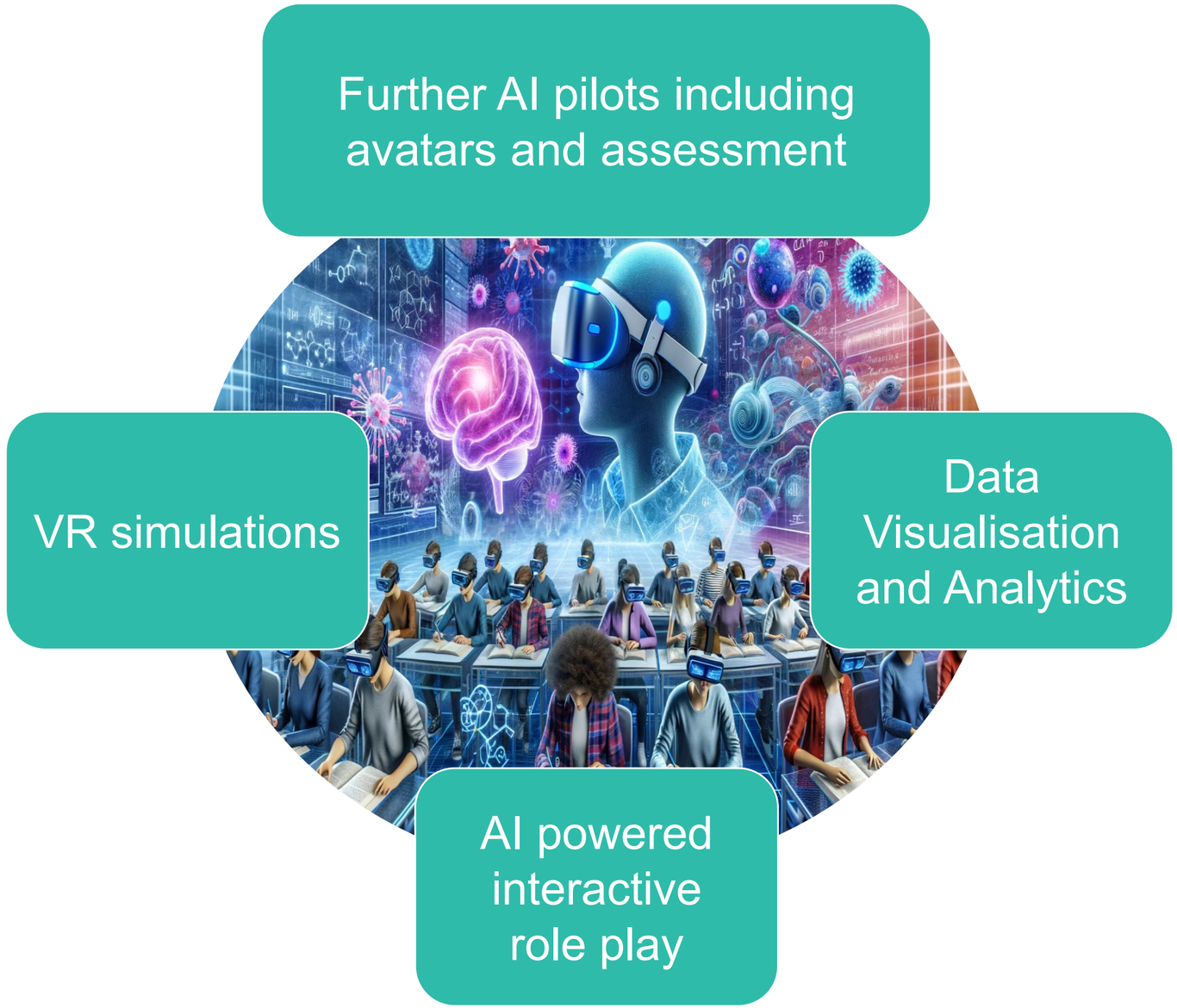
What's next?

By forging new industry partnerships and collaborating with other innovators across Imperial, the IDEA Lab team will:

- Compare and evaluate the benefits of leading Gen-AI tools (Chat GPT, Co-Pilot, Gemini and others) in a range of use cases: **teaching**, **assessment**, **learning** and **organisational efficiency**.
- Create and test more **AI digital twins** in collaboration with ICBS faculty.
- Experiment with AI-enhanced **assessment feedback.**
- Launch custom-designed **virtual reality and AI scenarios** for immersive role play.
- Experiment with **3D animation and data visualisation**, in partnership with Imperial's Digital Media Lab.



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Any questions?

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