Business Case Study: Transforming Learning and Campus Operations with AI at UNIVISION University

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Institution Profile

UNIVISION University is a leading multidisciplinary institution with 35,000 students across four campuses and a growing online division. Known for research and innovation, it aims to be at the forefront of data-driven education and smart campus development. The annual budget exceeds 450 million.

Departmental Focus: Teaching Innovation and Campus Intelligence

The university is investing in AI to modernize teaching practices and improve resource management. Two key areas have been prioritized:

- **Learning Analytics:** Personalize student support, identify at-risk students, and optimize curricula
- **Smart Campus Operations:** Improve scheduling, energy use, space allocation, and incident response

Challenge

With growing enrollment and digitalization, UNIVISION aims to:

- Increase retention and graduation rates using predictive analytics
- Automate classroom and facility usage based on demand
- Improve safety and sustainability with real-time data insights

Proposed AI Integration

Key components of the AI strategy include:

- **Academic AI:** Predictive models for dropout risk, NLP for automated feedback on essays, recommender systems for courses
- **Operational AI:** Time series and sensor data models for smart lighting, crowd flow analysis with video, chatbot-based student services

Implementation Plan

- **Q1:** Integrate LMS, SIS, campus IoT, and student services data
- **Q2:** Deploy student risk prediction model and pilot virtual advisor
- **Q3:** Test AI scheduling and energy-saving algorithms
- **Q4:** Evaluate KPIs: retention rate, energy use, user satisfaction

Expected Impact

- Improve student retention by 10%
- Reduce energy costs by 18%
- Increase operational efficiency in space usage by 22%

Fictional Financials

Balance Sheet – End of Year (in millions)

Assets	**Current Year**	**Previous Year**
Cash	100	80
Grants Receivable	120	110
Buildings and Equipment	480	450
Endowment	160	150
Total Assets	**860**	**790**
Liabilities & Equity		
Accounts Payable	90	85
Deferred Tuition Revenue	180	170
Loans and Bonds	250	230
Net Assets / Equity	340	305
Total Liabilities & Equity	**860**	**790**

Profit and Loss Statement (in millions)

Item	Current Year	Previous Year
Tuition and Fees	320	300
Research Grants	85	80
Housing and Services	45	42
Total Revenue	**450**	**422**
Academic and Admin Expenses	370	355
Operating Surplus	**80**	**67**
Investment Income	10	8
Net Result	**90**	**75**

Data Challenge: Smarter Learning and Campus Operations

Students are invited to solve a campus-focused data problem using real or synthetic data:

- **Structured:** Grades, attendance, course history, facility usage
- **Text:** Student feedback, helpdesk chat logs, academic essays
- **Images/Video:** CCTV footage, smart classroom screenshots
- **Time Series:** Electricity consumption, student access logs

Objectives:

1. Choose a problem: dropout risk modeling, resource allocation, schedule optimization, feedback analysis
2. Select AI tools: classification, NLP, clustering, anomaly detection, reinforcement learning
3. Propose data pipelines and model validation
4. Recommend Python libraries (`pandas`, `scikit-learn`, `gensim`, `Prophet`, `Keras`, `Dash`)
5. Suggest visual outputs for administrators and faculty

Bonus: Create a concept for an AI-powered student success dashboard or campus control room.

Discussion Questions

1. How can AI help personalize learning without reinforcing bias?
2. What risks arise from automating student evaluations or services?
3. How should UNIVISION handle student privacy and consent?
4. In what ways can AI promote sustainability on campus?

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