

Business Case Study: Optimizing Performance and Fan Engagement with AI at EURO FC

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Club Profile

EURO FC is one of Europe's most prestigious football clubs, consistently competing in the UEFA Champions League. Based in a major European capital, the club has a global fan base and an annual turnover exceeding 500 million. EURO FC operates elite youth academies, a sports science lab, and a digital innovation unit.

Departmental Focus: Sports Performance and Fan Engagement

The club wants to enhance its data-driven decision-making in two strategic areas:

- **Sports Performance:** Use AI to monitor and improve player health, tactics, and training load.
- **Fan Engagement:** Personalize digital content and optimize ticketing and merchandising strategies.

Challenge

EURO FC is looking to implement AI solutions to:

- Predict player injuries and optimize recovery plans
- Analyze match footage for tactical insights
- Segment fans to personalize experiences and boost online sales

Proposed AI Integration

The club plans a dual AI initiative:

- **On the Pitch:** Computer vision for in-game tactical analysis, deep learning for injury prediction using physiological data
- **Off the Pitch:** NLP and clustering for fan sentiment and segmentation, recommendation systems for merchandising

Implementation Plan

- **Q1:** Integrate wearable data, fan CRM data, and match video sources
- **Q2:** Develop injury prediction model and launch video analysis prototype
- **Q3:** Roll out fan engagement AI on the mobile app and web store
- **Q4:** Monitor KPIs and enhance model accuracy

Expected Impact

- Reduce training-related injuries by 25%
- Improve match preparation by automating opponent scouting reports
- Increase e-commerce conversion rate by 15%

Fictional Financials

Balance Sheet – End of Year (in millions)

Assets	Current Year	Previous Year
Cash	100	80
Player Contracts (Assets)	350	310
Stadium and Facilities	420	400
Merchandise Inventory	30	28
Total Assets	900	818
Liabilities & Equity		
Bank Loans	200	180
Deferred Revenue	150	130
Wages Payable	100	95
Shareholder Equity	450	413
Total Liabilities & Equity	900	818

Profit and Loss Statement (in millions)

Item	Current Year	Previous Year
Matchday Revenue	150	140
Broadcasting Revenue	210	200
Commercial Revenue	190	175
Total Revenue	550	515
Operating Expenses	470	450
Operating Profit	80	65
Taxes	20	15
Net Income	60	50

Data Challenge: AI for Performance and Loyalty

EURO FC invites student analysts to propose and evaluate AI models based on multimodal data:

Available data includes:

- **Structured:** Player biometrics, fan purchase history, ticket usage
- **Text:** Fan tweets, post-match interviews, support emails
- **Images/Video:** Match footage, training videos
- **Time Series:** GPS performance data, injury logs

Objectives: Students should:

1. Select a project focus: injury forecasting, fan sentiment tracking, merchandise recommendation, tactical heatmaps
2. Recommend suitable AI methods: LSTM, YOLO, CNNs, clustering, topic modeling, sentiment analysis
3. Propose data preprocessing and integration methods
4. Identify Python libraries (OpenCV, TensorFlow, NLTK, Scikit-learn, Plotly, Keras)
5. Suggest how results can inform player management and fan marketing

Bonus: Propose a visualization dashboard for coaches or the marketing team.

Discussion Questions

1. What are the risks of relying on AI in player health or fan data analysis?
2. How can EURO FC ensure fairness and transparency in performance metrics?

3. What privacy concerns arise from analyzing fan behavior or wearable data?
4. How can data science support both elite performance and fan loyalty?

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