



Neapolis University Pafos

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Case Study: Innovating in the Connected Mobility Industry.

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1 Introduction

UrbanMove is a fast-growing European company offering electric scooters, shared e-bikes, and micro-mobility data services to municipalities. Founded in 2017, the company quickly expanded across major European cities by providing convenient, app-based transportation with real-time location and usage tracking.

However, by 2025 UrbanMove is facing significant challenges:

- Intense competition from global mobility giants using more advanced AI and predictive analytics.
- Regulatory pressure from cities demanding improved safety, sustainability, and data transparency.
- Rising operational costs due to device maintenance, vandalism, and fleet redistribution.
- Consumer expectations for connected, personalised, and seamless mobility experiences.

To remain competitive, UrbanMove's leadership has launched **Project Nexus**, a three-year strategic innovation initiative aiming to transform the company into a leader in connected mobility systems. Project Nexus contains four streams:

1. Emerging Technology Intelligence
 - Developing capabilities to identify, analyse, and adopt new disruptive technologies.
2. AI-Driven Operations
 - Implementing machine learning and predictive maintenance models to reduce fleet downtime.
3. IoT-Enhanced Fleet Ecosystem
 - Upgrading every scooter and bike with next-generation sensors, telematics, and edge-processing capabilities.
4. Crowdsourced Innovation & Funding
 - Engaging users and communities in co-creating new features, and exploring crowdfunding options for green infrastructure expansion.

As the Digital Transformation Officer, you have been asked to evaluate Project Nexus and provide an integrated analysis to support strategic decision-making.

2 Project evaluation and integrated analysis

2.1 Technological Innovation and Disruption

2.1.1 Connected mobility industry evolution

- Connected mobility industry is evolving toward integrating various transport means into one comprehensive system, replacing separate information, booking, and ticketing systems for competing modes. [1]
- Theoretical Framework for Disruption: Uses the Technology Acceptance Model (TAM) and value theory to provide a theoretical framework for understanding the adoption of disruptive innovations, including those in the mobility sector. [1]
- Blockchain and Connected Mobility: Identifies the development of blockchain technology as a potential new impulse for connected mobility, possibly rendering traditional intermediary business models obsolete through smart contracts. [1]
- Ideal Types of Mobility Services: Identifies three ideal types of innovative mobility services: 'mobility service added to product,' 'robotaxi,' and 'territorialized open mobility platform,' where the latter two have the potential to destabilize the automotive industry's architecture. [2]

However

- The transition to Battery Electric Vehicles (BEVs) is not making the industry as modular as predicted, which is reflected in the organizational structure of assembly and industry architecture, despite efforts by new entrants to modularize. [3]
- Jacobides et al. [3] propose a new theoretical structure for innovation, called "Mark III," which characterizes the connected mobility sector as one where incumbents and new entrants have a much tighter connection, involving acquisitions, alliances, and ecosystem formation. [3]

2.1.2 What characteristics of UrbanMove's environment make it particularly vulnerable to disruption?

- Electrification and Industry Disruption: Confirms that vehicle electrification, a systemic innovation, is not enough alone to destabilize the industry, but its massification combined with other factors could lead to a disruptive dynamic, aligning with sociotechnical transition theory. [2]
- Challenges in Car IT Transformation: Identifies the difficult and slow transformation of car IT as a specific area where the industry struggles, intensifying the speed of disruption and making established companies vulnerable. [4]
- New Digital Competitors: Attributes the growing momentum of disruption to new market competitors, such as Tesla and other companies entering from the IT sector, that are 'born on the web' and lack the legacy structures of established manufacturers. [4]
- Organizational Transformation Needs: Identifies that the need for organizational transformation and continuous education is often undervalued by the industry when productizing new emerging technologies, making them vulnerable to failure and collapse. [5]
- Changing Ownership Models: Notes that the industry is rapidly deploying new forms of carsharing, ridesharing, and ridehailing services, which will reduce the importance of private vehicle ownership, indicating a vulnerability due to changing consumption models. [5]
- Uncertainty in Trends: Identifies great uncertainty regarding technological evolution and social trends that will condition businesses in the near future as a major vulnerability. [6]
- CAV Disruptive Potential: Notes that the disruptive potential of Connected and Autonomous Vehicles (CAV) has the capacity to transform existing business models, making them vulnerable. [6]

2.1.3 To what extent could Project Nexus help UrbanMove avoid being displaced by competitors?

| Feasibility of Project Nexus: Problem-Solution Fit | | | | |
|--|---|--|--|----------|
| Challenge | Current Impact | How Project Nexus solves it | Evidence/Assumptions | Coverage |
| Competition | More advanced AI and predictive analytics | Stream 1 - to keep innovation, 2 - advancing AI, 3 - more data for analytics, 4 - faster feedback loop | All 4 streams complement mitigation of the competition challenge. | 100% |
| Regulations | Demanding improved safety, sustainability, and data transparency | Stream 1, 3 - data for transparency | Safety and sustainability concerns are not addressed. | 33% |
| Operational costs | Rising due to device maintenance, vandalism, and fleet redistribution | Stream 1, 2 - mitigating maintenance, | Vandalism issue is not addressed. Fleet redistribution depends on the supply chain, not only fleet downtime. | 50% |
| Consumer expectations | Want connected, personalised, and seamless mobility experiences | Stream 1, 4 - feature co-creation | Connected and seamless terms are too abstract, probably SMART re-evaluation is needed. | 33% |

Summary Project Nexus effectively addresses UrbanMove's challenges related to competition. However, a more detailed proposition and mitigation alignment would be beneficial for a 3-year project. Despite securing the competitor displacement issue, other challenges do not fully present an actionable resolution.

2.2 Sources of Innovation and Technological Development

2.2.1 Evaluation of UrbanMove's internal and external sources of innovation.

Internal sources of innovation

1. **Operational Data Assets:** UrbanMove possesses valuable real-time location and usage tracking data from its existing fleet operations, providing insights into user behavior, demand patterns, and operational inefficiencies.
2. **Fleet Management Expertise:** Years of experience managing scooters and e-bikes across multiple European cities has developed organizational knowledge in logistics, redistribution, and urban mobility operations.
3. **Legacy Technology Debt:** Current fleet lacks advanced sensors and analytics capabilities, suggesting historical underinvestment in R&D and technological infrastructure.
4. **Limited AI/ML Capabilities:** The competitive disadvantage against "global mobility giants using more advanced AI" indicates insufficient internal data science and machine learning expertise.
5. **Reactive Rather Than Proactive:** The company appears to be responding to competitive and regulatory pressures rather than driving innovation from within, suggesting weak internal innovation culture.

External sources of innovation

1. **Technology Partnerships:** Opportunities to collaborate with IoT sensor manufacturers, edge computing providers, and AI/ML platform vendors to rapidly upgrade technical capabilities.
2. **University and Research Collaborations:** Access to European research institutions specializing in smart cities, mobility systems, and sustainable transportation for applied research partnerships.
3. **Open Innovation Platforms:** The planned "Crowdsourced Innovation & Funding" stream represents a structured approach to tap user creativity and community knowledge.
4. **Supplier Innovation:** Next-generation telematics and sensor providers can contribute technological advancements developed for adjacent industries (automotive, logistics, smart cities).
5. **Regulatory Bodies as Innovation Drivers:** City requirements for safety, sustainability, and data transparency can serve as forcing functions that drive innovation priorities.
6. **Industry Consortia and Standards Bodies:** Participation in mobility-as-a-service (MaaS) platforms and interoperability initiatives provides access to shared innovation and best practices.
7. **Monitoring and learning from global mobility giants' technological deployments** provides a roadmap for relevant innovations without full R&D investment.

2.2.2 Which sources of innovation are most relevant for UrbanMove?

External technology partnerships (Highest priority) UrbanMove faces an urgent need to close the technology gap with competitors. Building advanced AI/ML capabilities and next-generation IoT infrastructure internally would require years and substantial investment the company may not afford given competitive pressures.

Crowdsourced and user-driven innovation (Strategic differentiator) This aligns directly with Stream 4 and represents a potential competitive advantage. As the proposal notes, the connected mobility industry is shifting toward user expectations for "connected, personalised, and seamless mobility experiences." User communities can identify pain points and desired features that purely technology-driven approaches might miss. While competitors may have superior technology, UrbanMove can differentiate through community engagement and co-creation, building user loyalty while generating innovation insights.

Operational Data as internal innovation engine (Underutilized asset) UrbanMove's existing operational data represents an underexploited internal source. With proper analytics infrastructure (likely through external partnerships), this data can drive:

- Predictive maintenance models
- Demand forecasting and dynamic redistribution
- Usage pattern analysis for service optimization
- Safety and risk assessment

Regulatory Requirements as innovation catalyst (Often overlooked) Rather than viewing regulatory pressure as purely a constraint, UrbanMove should engage proactively with municipalities to co-develop solutions. Cities seeking "improved safety, sustainability, and data transparency" can become innovation partners, providing clear requirements and potentially pilot funding.

2.2.3 How could the company strengthen its innovation capabilities to accelerate Project Nexus?

Establish a dedicated innovation lab: Create a cross-functional team focused on rapid prototyping and experimentation with emerging technologies relevant to connected mobility. Identify and collaborate with leading AI/ML firms, IoT sensor manufacturers, and edge computing providers to access cutting-edge capabilities without full internal development.

Invest in data analytics infrastructure: Build rich data pipelines and analytics platforms to fully leverage operational data for predictive insights and optimization.

Cultivate an open innovation culture: Encourage stakeholders at all levels to contribute ideas and participate in co-innovation initiatives, joint pilot programs, shared funding.

- Engage with regulatory bodies: Proactively collaborate with city governments to align innovation efforts with regulatory requirements and explore pilot opportunities.
- Leverage user communities: Implement structured mechanisms for gathering user feedback and co-creating new features through crowdsourcing platforms.

Continuous learning and development: Invest in upskilling internal teams on emerging technologies and innovation methodologies to build internal capabilities over time.

2.3 Technology Evaluation and Life Cycle Positioning

2.3.1 TLC and S-curve positioning

Current E-technologies are approaching the plateau of the S-curve where further investment yields minimal competitive advantage. Telematics are maturing, but next-generation IoT (Stream 3) represents a new technology cycle entering early growth phase. AI implies high ROI potential; technology still in the phase where investment yields substantial performance gains. Innovations such as blockchain, Edge AI, autonomous systems are high risk but potential for first-mover advantage and industry reshaping.

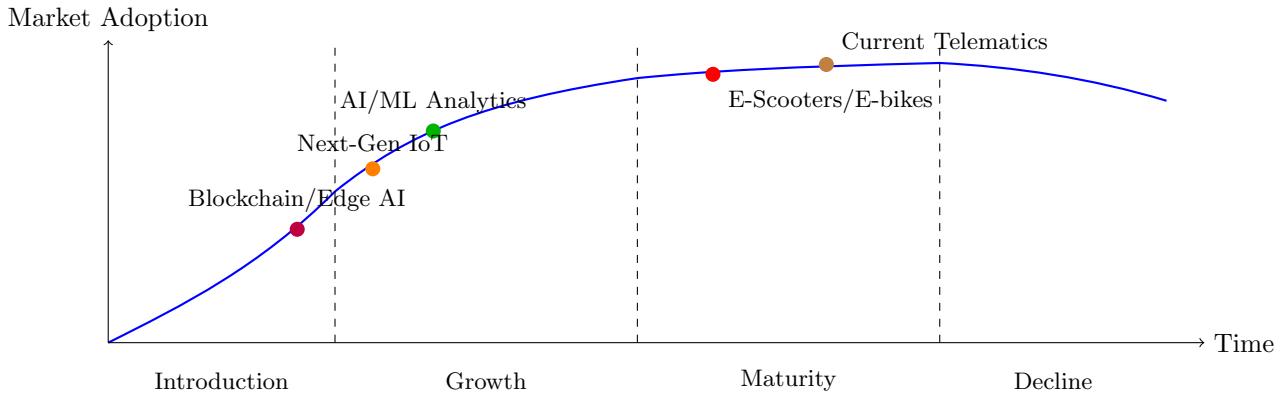


Figure 1: Technology Life Cycle Positioning of Key Technologies for UrbanMove

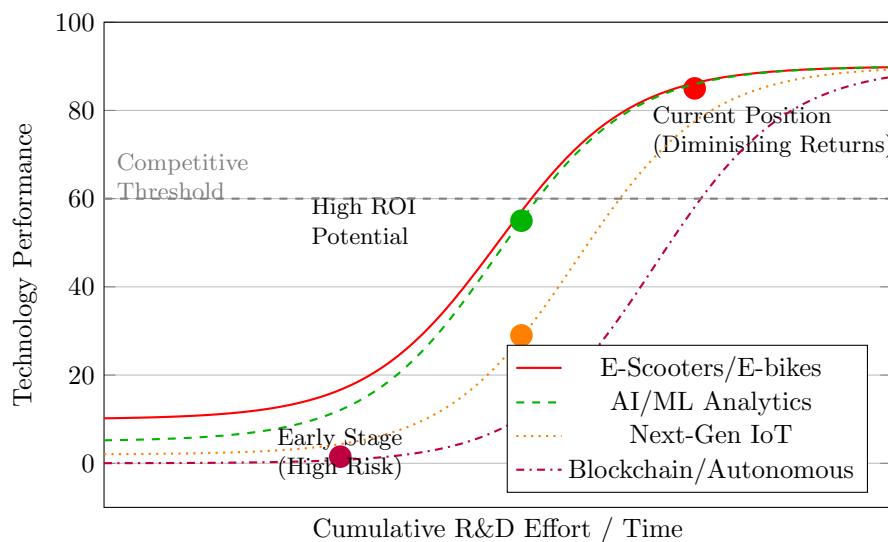


Figure 2: S-curve Positioning of Key Technologies for UrbanMove

2.3.2 Focus strategy for the next 3 to 5 years

Whether UrbanMove should focus on incremental improvements or radical innovation over the next 3–5 years depends on balancing short-term survival with long-term competitiveness.

Recommended Strategy: Dual-Track Approach with Incremental Emphasis (70/30 split).

70% to Incremental Innovations Rationale: UrbanMove faces urgent pressure from competitors with superior AI/predictive analytics. The company must close this gap rapidly to maintain market position. With scooters/e-bikes in late growth/maturity, competitive advantage comes from operational excellence, not revolutionary hardware changes. Incremental improvements in AI-driven operations (Stream 2) and IoT enhancements (Stream 3) offer clearer, faster returns compared to radical innovations. As a company under financial pressure (rising costs, intense competition), betting heavily on unproven radical innovations could be fatal.

30% to Selective Radical Innovations Rationale: To avoid being outpaced long-term, UrbanMove must invest in emerging technologies with transformative potential. Blockchain, Edge AI, and autonomous systems could redefine mobility services. Early exploration through Stream 1 (emerging tech intelligence) and Stream 4 (crowdsourced innovation) allows UrbanMove to identify promising radical innovations without overcommitting resources. What to avoid:

- Blockchain experiments: Too early, unclear value proposition in this context
- Proprietary vehicle design: Market doesn't reward hardware innovation at this maturity stage
- Unrelated diversification: Stay focused on core micro-mobility and adjacent mobility services

| Technology | Life Cycle Stage | S-Curve Position | Investment Priority |
|------------------------|----------------------|------------------|-------------------------|
| E-Scooters/E-bikes | Late Growth/Maturity | Plateau | Low (Maintain) |
| Current Telematics | Maturity | Plateau | Low (Replace) |
| AI/ML Analytics | Mid-Growth | Steep Climb | High (Urgent) |
| Next-Gen IoT | Early-Mid Growth | Early Climb | High (Strategic) |
| Blockchain/Edge AI | Introduction | Bottom | Medium (Explore) |
| Autonomous Systems | Introduction | Bottom | Low (Monitor) |

Table 1: Technology Position Summary for UrbanMove's Project Nexus

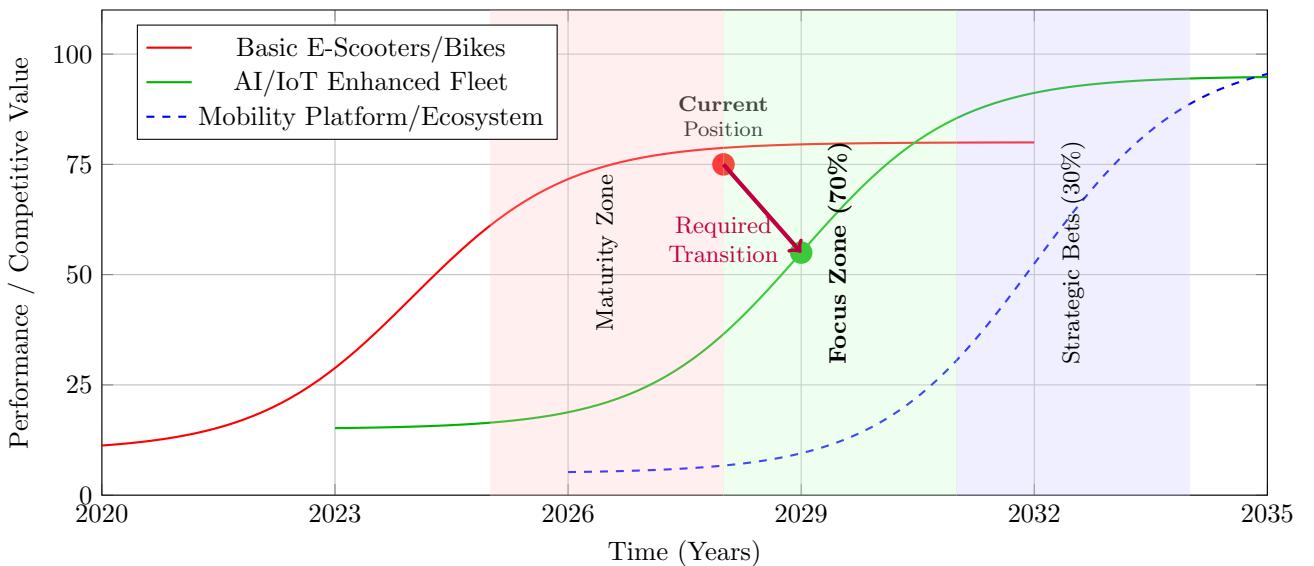


Figure 3: Recommended Technology Transition Strategy for UrbanMove

2.4 Selection of Innovative Projects and Proof of Concept (PoC)

Stream 1. Emerging Technology Intelligence: Developing capabilities to identify, analyse, and adopt new disruptive technologies.

Stream 2. AI-Driven Operations: Implementing machine learning and predictive maintenance models to reduce fleet downtime.

Stream 3. IoT-Enhanced Fleet Ecosystem: Upgrading every scooter and bike with next-generation sensors, telematics, and edge-processing capabilities.

Stream 4. Crowdsourced Innovation & Funding: Engaging users and communities in co-creating new features, and exploring crowdfunding options for green infrastructure expansion.

2.4.1 Evaluation and Prioritization of the Project Nexus streams

To evaluate and prioritize the four streams of Project Nexus, UrbanMove should consider the following criteria:

- 1) **Strategic Alignment:** Each stream should be evaluated based on how well it aligns with UrbanMove's strategic goals of enhancing competitiveness, improving operational efficiency, and meeting regulatory requirements.
- 2) **Risk Assessment:** Assess the technical, market, and operational risks associated with each stream. Streams with lower risk profiles may be prioritized for initial implementation.
- 3) **Resource Requirements:** Evaluate the financial, human, and technological resources required for each stream. Streams that can be executed within existing resource constraints may be prioritized.
- 4) **Time to Value:** Consider the expected time frame for each stream to deliver tangible benefits. Streams that can provide quicker returns may be prioritized to address immediate competitive pressures.
- 5) **Interdependencies:** Analyze how the streams interrelate. Some streams may enable or enhance the effectiveness of others, suggesting a logical sequence for implementation.
- 6) **Stakeholder Impact:** Evaluate the potential impact of each stream on key stakeholders, including customers, employees, and regulatory bodies. Streams that positively influence stakeholder relationships may be prioritized.

2.4.2 Selection criteria

Criteria for evaluating and prioritizing the streams were selected based on their relevance to UrbanMove's strategic objectives and operational context on a scale from 1 to 5 (1 = worst, 5 = best)¹

| Stream | Strategic Alignment | Risk | Resources | Time to Value | Inter-dependencies | Stakeholder | Total |
|--------------------------------------|---------------------|------|-----------|---------------|--------------------|-------------|-------|
| Stream 1: Emerging Tech Intelligence | 5 | 1 | 2 | 5 | 5 | 3 | 21 |
| Stream 2: AI-Driven Operations | 5 | 2 | 4 | 2 | 4 | 3 | 20 |
| Stream 3: IoT-Enhanced Fleet | 2 | 1 | 1 | 3 | 3 | 3 | 13 |
| Stream 4: Crowd-sourced Innovation | 5 | 5 | 5 | 4 | 3 | 5 | 27 |

Table 2: Project Nexus Streams Evaluation Matrix

¹Subjective scoring is used.

2.4.3 Proof of Concept Design for Stream 4: Crowdsourced Innovation

Stream 4 (Crowdsourced Innovation) was selected based on the evaluation matrix above.

PoC Objective Validate that community engagement through crowdsourced innovation can generate actionable features that improve user satisfaction and operational efficiency within a 3-month pilot period.

PoC Scope and Design

- **Target Cities:** Select 2-3 mid-sized European cities where UrbanMove has established presence (10,000+ active users)
- **Platform:** Deploy a dedicated in-app innovation portal with three modules:
 1. Feature suggestion and voting system
 2. Community forum for discussion and refinement
 3. Prototype testing feedback mechanism
- **Incentive Structure:**
 - Free ride credits for meaningful contributions
 - Recognition badges for top contributors
 - Direct implementation of winning ideas with public attribution
- **Focus Areas:** Safety improvements, user experience enhancements, sustainability features

Quantitative Metrics:

- **Engagement Rate:** Target $\geq 15\%$ of active users submit or vote on ideas
- **Idea Quality:** ≥ 10 actionable, technically feasible ideas generated
- **Implementation Rate:** ≥ 3 community ideas deployed in pilot cities
- **User Satisfaction Impact:** Net Promoter Score (NPS) increase of ≥ 5 points in pilot cities
- **Cost Efficiency:** Innovation cost per implemented feature $< 50\%$ of traditional internal R&D cost

Qualitative Metrics:

- Quality of dialogue in community forums (sentiment analysis)
- Alignment of suggested features with UrbanMove's strategic priorities
- Diversity of user segments participating (casual vs. power users, age groups, etc.)
- Municipal stakeholder feedback on community-generated safety/sustainability ideas

Go/No-Go Decision Criteria

- **GO:** If $\geq 75\%$ of quantitative targets met AND qualitative feedback demonstrates strong community value perception
- **ITERATE:** If 50-74% of targets met; refine incentive structure and platform UX for expanded pilot
- **NO-GO:** If $< 50\%$ of targets met; reassess community engagement strategy or deprioritize Stream

Risk Mitigation

- **Low Participation:** Pre-launch marketing campaign, partnerships with local cycling/sustainability groups
- **Unfeasible Ideas:** Clear submission guidelines, technical feasibility pre-screening by innovation team
- **IP/Legal Issues:** Terms of service establishing UrbanMove's rights to implement submitted ideas with proper attribution
- **Negative Community Sentiment:** Active moderation, transparent communication about which ideas can/cannot be implemented and why

Timeline

- **Month 1:** Platform development, user recruitment, launch campaign
- **Month 2:** Active idea generation, voting, and community discussion period
- **Month 3:** Prototype development of top 3-5 ideas, testing, and evaluation
- **End of Month 3:** Final metrics analysis and go/no-go decision

2.5 Crowdfunding Strategies

2.5.1 Is crowdfunding a viable strategy?

Crowdfunding presents a moderately viable strategy for UrbanMove's green infrastructure expansion, but with significant limitations. While reward-based crowdfunding could engage environmentally-conscious users and generate community buy-in for sustainability initiatives, the capital requirements for large-scale infrastructure (charging stations, maintenance facilities) likely exceed typical crowdfunding campaign capacity. The company's competitive pressures and rising operational costs suggest limited ability to offer attractive equity terms. Additionally, regulatory complexity in mobility services may deter investors. Crowdfunding works best as a complementary funding source for specific, community-focused pilot projects rather than core infrastructure financing. Traditional venture capital or municipal partnerships offer more scalable solutions for UrbanMove's three-year transformation timeline.

2.5.2 Best fit

Best-fit crowdfunding type: Reward-based with hybrid equity option Reward-based crowdfunding best aligns with UrbanMove's community engagement strategy (Stream 4), offering free rides, exclusive features, or naming rights for charging stations. For larger infrastructure projects, equity crowdfunding could attract impact investors focused on sustainable mobility. Donation-based crowdfunding suits pilot sustainability initiatives in partnership with municipalities, while debt crowdfunding remains unsuitable given operational cost pressures.

2.5.3 Considerations

Key risks and considerations:

- **Regulatory Compliance:** Crowdfunding campaigns must comply with EU financial regulations (MiFID II, Prospectus Regulation), requiring legal expertise and potentially limiting campaign scope.
- **Reputational Risk:** Failed campaigns damage brand credibility, especially problematic given competitive pressures.
- **Data Privacy:** Backer information must comply with GDPR; transparency requirements may expose strategic plans to competitors.
- **Equity Dilution:** Equity crowdfunding risks ownership fragmentation and complicates future fundraising.
- **Ethical Concerns:** Ensure equitable access to rewards across socioeconomic groups; avoid "greenwashing" perceptions if sustainability claims aren't substantiated.

3 Summary

3.1 Overall project evaluation

Project Nexus addresses competition effectively but underserves regulatory, operational cost, and consumer experience challenges. A 70/30 incremental-to-radical innovation split is recommended, prioritizing AI operations and IoT enhancements while exploring emerging technologies. Stream 4 (Crowdsourced Innovation) offers highest strategic value with manageable risk. Crowdfunding suits pilot projects but cannot replace traditional financing for core infrastructure.

3.2 Strategic action points

- Prioritize Stream 4 PoC to validate community engagement model
- Strengthen AI/ML capabilities through external partnerships
- Develop comprehensive safety and sustainability roadmap for regulatory compliance
- Establish innovation lab for rapid prototyping
- Leverage operational data as competitive asset through advanced analytics

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