

# Technical Report: CarGest Fleet Management App for Ride-Sharing in Romania - Revised 10-Year Plan with Enhanced Investments

Gherasim Antonie-Stefan, Hîrjan Fabian-Andrei, Iftime Cristina

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# 1 Introduction

This technical report outlines CarGest, a fleet management app for ride-sharing in Romania, aiming for market dominance via a purchased own fleet ( 50 cars by Year 10, €700–750/car/month), telematics (€45–65.89/vehicle/month), and diversified revenues (analytics, driver training, insurance partnerships, Bulgaria expansion). The 10-year plan uses a €150,000 bank loan, 50%/25% fleet growth, enhanced investments in development, marketing, and support staff, and a fleet sale/reinvestment strategy to achieve profitability by Year 4 (2028) and €4,768,667 cumulative cash flow by Year 10.

## 2 Case Study: CarGest in the Romanian Ride-Sharing Market

### 2.1 Background

Romania's ride-sharing market, with over 30,000 drivers by 2025, faces challenges like vehicle allocation and compliance with Law No. 204/2019. CarGest addresses these with a scalable platform.

### 2.2 International and National Relevance

Global platforms use AI/IoT. Romania's congestion and fuel costs require localized solutions. CarGest offers compliance, telematics, and diversified revenues for monopoly potential, with expansion to Bulgaria by Year 8.

### 2.3 Proposed Solution

CarGest provides fleet monitoring, driver scheduling, compliance, telematics (tracking, keyless entry), AI-driven gas station recommendations, analytics reports, driver training, insurance partnerships, and a purchased own fleet with sales and reinvestment.

## 3 Analysis of Existing Solutions

### 3.1 Architecture and Technologies

Fleetio and Samsara use microservices on AWS/Google Cloud:

- **Backend:** Node.js, Python, PostgreSQL.
- **Frontend:** React, React Native.
- **Real-Time:** WebSocket, Kafka.
- **Mapping:** Google Maps API.

Uber handles high request volumes. Fuel APIs lack Romania-specific AI.

## 3.2 Marketing Approaches

Competitors use B2B channels. Bolt uses driver referrals in Romania.

## 3.3 Gaps and Opportunities

Samsara (€50/vehicle/month) is costly. CarGest's €45–65.89/vehicle/month with telematics, compliance, analytics, training, insurance partnerships, and own fleet targets Romania and Bulgaria markets.

# 4 Proposed Technologies and Motivations

CarGest's stack ensures scalability:

- **Backend:** SpringBoot (Java), PostgreSQL. *Motivation:* Scalable APIs, geospatial queries.
- **Frontend:** Django (Python). *Motivation:* Secure dashboards.
- **Cloud:** Azure. *Motivation:* GDPR compliance.
- **Real-Time:** WebSocket, Google Maps API. *Motivation:* Live tracking.
- **AI/ML:** Azure AI. *Motivation:* Predictive maintenance, fuel recommendations.
- **Security:** OAuth 2.0, AES-256. *Motivation:* GDPR, Law No. 204/2019.
- **Telematics:** Teltonika GPS (OBD-II). *Motivation:* 15% maintenance savings.
- **Fuel API/AI:** Xavvy, Azure AI. *Motivation:* 10% fuel savings.

## 5 Business Model Canvas

Component	Description	Details
Key Partners	Tech providers, vehicle vendors, platforms, insurers	Azure, Google Maps, Teltonika, Xavvy, Bolt/Uber, Toyota, insurance firms
Key Activities	Development, telematics, own fleet, analytics, training, partnerships, expansion	App development, compliance, fleet purchasing/sales, analytics, driver training, insurance partnerships, Bulgaria expansion
Key Resources	Developers, telematics, vehicles, office	Pay-per-service development, 50 cars, Bucharest office
Value Propositions	Cost-effective management, telematics, analytics, training, partnerships, monopoly	20% cost reduction, compliance, tracking, keyless entry, AI fuel recommendations, analytics, training, insurance discounts
Customer Relationships	Automated support, forums	In-app chat, telematics alerts, enhanced support staff
Channels	Referral program, partnerships	€100/fleet referrals, digital ads/events (5% revenue from Year 3)
Customer Segments	Fleet operators, drivers, insurers	Small-medium fleets, 50% growth Years 1-5, 25% Years 6-10, Bulgaria market
Cost Structure	Development, telematics, fuel API, hosting, referral, staff, leasing, rental, training delivery, fleet purchases, loan, taxes	€20,000 initial development, 7% revenue from Year 3, €25,000/car, 19% VAT, 16% corporate tax
Revenue Streams	Subscription, onboarding, own fleet, analytics, training, insurance, expansion	€45–65.89/vehicle/month, €500/fleet onboarding, €700–750/car/month own fleet, €200/report analytics, €100/driver training, €50/vehicle/year insurance, €500,000/year Bulgaria

Table 1: Business Model Canvas for CarGest (Plan 1)

## 6 Architectural Diagram

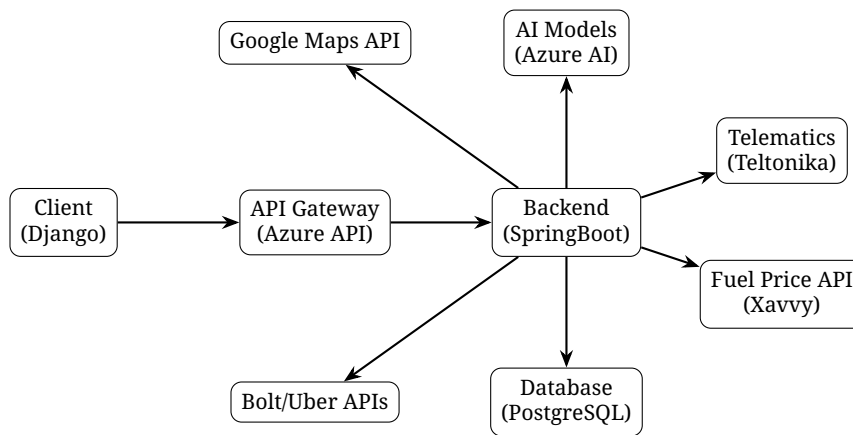


Figure 1: CarGest Architectural Diagram with Telematics and Fuel Price API

## 7 Use-Case Diagrams

### 7.1 Overview

CarGest supports fleet operators and drivers with tracking, maintenance, compliance, telematics, AI fuel recommendations, analytics, driver training, and own fleet management.

### 7.2 Use-Case Diagram: Fleet Operator

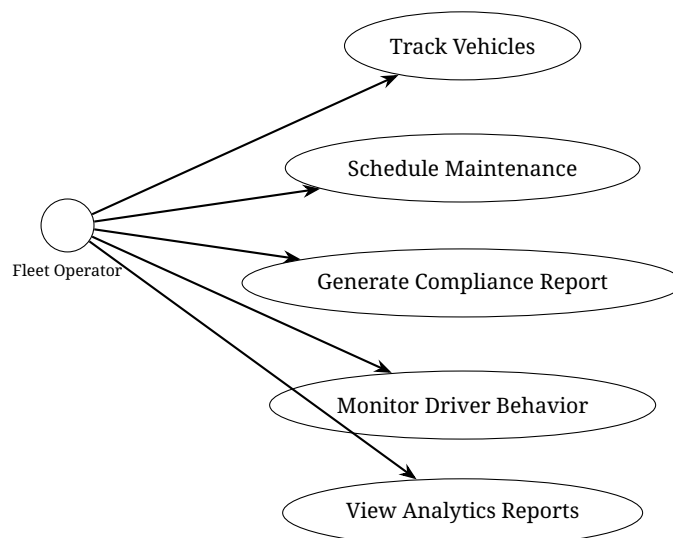


Figure 2: Use-Case Diagram for Fleet Operator

### 7.3 Use-Case Diagram: Driver

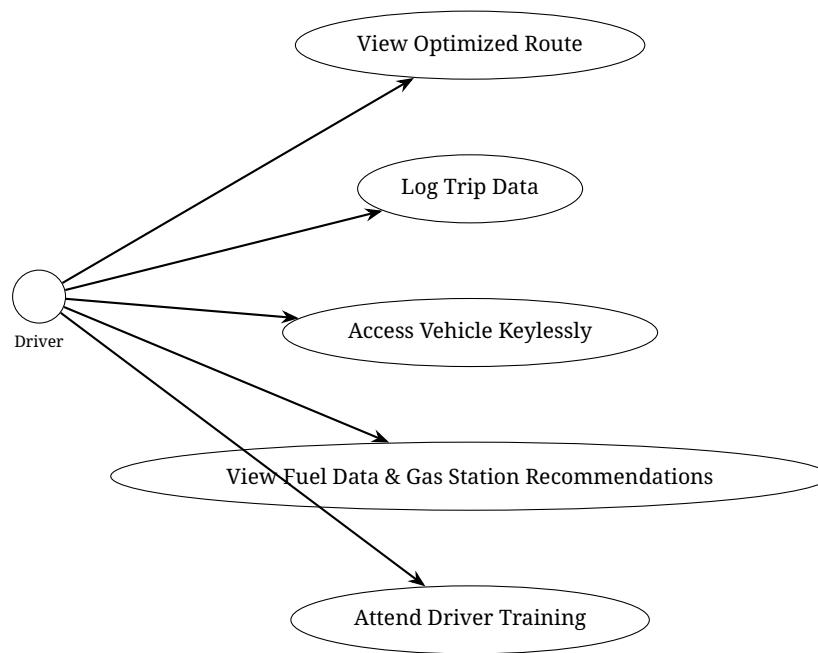


Figure 3: Use-Case Diagram for Driver

## 8 SWOT Analysis

Category	Factors	Details
Strengths	Competitive pricing, telematics, fleet resale, diversified revenues, enhanced investments	€45–65.89/vehicle/month undercuts competitors. Telematics enables tracking, keyless entry. 50-car fleet with €700–750/car/month and resale drives profits. Analytics, training, insurance, Bulgaria expansion add €2.88M. Increased development (€701K), marketing (€534K), and support staff (€224K) support 50% growth.
Weaknesses	Initial loan burden, fleet purchase costs, higher early costs	€150,000 loan, €25,000/car purchases, and increased early investments require careful cash flow management.
Opportunities	Growing market, regulatory support, regional expansion	15% market growth, 50% fleet growth Years 1-5. Law No. 204/2019 drives compliance demand. Bulgaria entry adds €1.55M.
Threats	Competition, regulatory changes, fuel volatility	Samsara, Fleetio have larger share. Law amendments may require updates. Fuel prices impact costs.

Table 2: SWOT Analysis for CarGest

## 9 Cost Prediction

CarGest's financials are projected yearly for Plan 1 (€45–65.89/vehicle/month, telematics), combining revenues (subscription, onboarding, own fleet, analytics, training, insurance, international), sale proceeds, and costs (development, telematics, fuel API, hosting, referral, staff, leasing, rental, training delivery, fleet purchases/maintenance/depreciation, loan, taxes). The table shows cash costs, total costs (including depreciation), and net cash flow.

Item	Y1 (€)	Y2 (€)	Y3 (€)	Y4 (€)	Y5 (€)	Y6 (€)	Y7 (€)	Y8 (€)	Y9 (€)	Y10 (€)	Total (€)
<b>Revenues</b>											
Subscription	54,000	81,000	148,995	223,493	344,032	455,184	565,301	698,961	860,953	1,027,268	5,258,214
Onboarding Fee	24,500	36,750	55,125	82,688	103,360	106,461	109,655	112,944	116,333	119,823	867,638
Own Fleet	0	0	30,076	61,250	123,042	195,405	262,359	339,424	431,099	537,826	1,980,481
Analytics	0	3,000	3,000	6,000	12,000	12,000	12,000	12,000	15,000	15,000	90,000
Driver Training	0	4,000	6,000	9,000	13,500	18,000	24,000	31,500	39,000	48,000	213,000
Insurance Partnerships	0	10,000	15,125	22,688	34,500	43,400	54,000	67,000	82,500	101,876	430,089
International Expansion	0	0	0	0	0	0	0	500,000	515,000	530,450	1,545,450
<b>Total Revenues</b>	<b>78,500</b>	<b>134,750</b>	<b>258,321</b>	<b>405,118</b>	<b>630,434</b>	<b>830,450</b>	<b>1,027,315</b>	<b>1,761,829</b>	<b>2,059,885</b>	<b>2,380,243</b>	<b>9,671,895</b>
<b>Sale Proceeds</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>77,250</b>	<b>39,750</b>	<b>40,938</b>	<b>67,776</b>	<b>61,110</b>	<b>286,824</b>
<b>Costs</b>											
Development	40,000	20,600	18,082	28,358	44,130	58,132	71,912	123,328	144,192	166,617	715,351
Telematics Hardware	10,000	1,500	4,225	6,338	9,945	12,228	15,160	18,760	22,576	27,376	128,108
Fuel API (Xavvy)	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,354	28,752
Cloud Hosting	30,000	30,900	31,827	32,782	33,765	34,778	35,821	36,896	38,003	39,143	344,916
Referral Program	50,000	51,500	12,916	20,256	31,522	41,523	51,366	88,091	102,994	119,012	569,179
Support Staff	20,000	21,200	23,108	25,187	27,454	29,029	30,717	32,529	34,480	36,575	280,279
Porsche Cayenne Leasing	18,000	18,540	19,096	19,669	20,259	20,867	21,493	22,138	22,802	24,149	207,013
Property Rental	12,000	12,360	12,731	13,113	13,506	13,911	14,328	14,758	15,201	16,099	137,565
Driver Training Delivery	0	800	1,200	1,800	2,700	3,600	4,800	6,300	7,800	9,600	38,600
Own Fleet Purchase	0	0	250,000	77,250	79,567	89,954	84,413	86,945	89,553	92,240	889,922
Own Fleet Maintenance	0	0	20,000	24,600	39,120	48,648	60,216	75,652	94,076	112,500	474,812
Own Fleet Depreciation	0	0	35,000	52,500	70,000	87,500	105,000	122,500	140,000	157,500	770,000
Loan Repayment	18,853	18,853	18,853	18,853	18,853	18,853	18,853	18,853	18,853	18,853	188,530
VAT (19%)	14,915	25,603	49,081	76,972	119,782	157,786	195,190	334,748	391,378	452,246	1,837,660
Corporate Tax (16%)	0	0	0	0	0	0	5,000	10,000	10,000	10,000	35,000
Reinvestment	0	0	0	0	0	97,326	70,500	84,813	122,901	128,610	504,150
<b>Total Cash Costs</b>	<b>164,904</b>	<b>154,298</b>	<b>338,199</b>	<b>355,911</b>	<b>415,419</b>	<b>476,040</b>	<b>557,500</b>	<b>653,261</b>	<b>763,680</b>	<b>887,290</b>	<b>4,565,902</b>
<b>Total Costs (Incl. Dep.)</b>	<b>164,904</b>	<b>154,298</b>	<b>373,199</b>	<b>408,411</b>	<b>485,419</b>	<b>563,540</b>	<b>662,500</b>	<b>775,761</b>	<b>903,680</b>	<b>1,044,790</b>	<b>5,335,902</b>
<b>Net Cash Flow</b>	<b>-86,404</b>	<b>-19,548</b>	<b>-114,878</b>	<b>3,207</b>	<b>162,515</b>	<b>371,660</b>	<b>439,565</b>	<b>1,069,506</b>	<b>1,333,981</b>	<b>1,609,063</b>	<b>4,768,667</b>
<b>Cumulative Cash Flow</b>	<b>-86,404</b>	<b>-105,952</b>	<b>-220,830</b>	<b>-217,623</b>	<b>-55,108</b>	<b>316,552</b>	<b>756,117</b>	<b>1,825,623</b>	<b>3,159,604</b>	<b>4,768,667</b>	

Table 3: Yearly Financial Prediction for CarGest (Plan 1, Revenues, Sale Proceeds, and Costs)

### 9.1 Cost and Revenue Assumptions

- **Subscription:** €45/vehicle/month (Years 1-2), 10% increase biennially (€49.5, €54.45, €59.9, €65.89), 3% inflation, 50% fleet growth Years 1-5, 25% Years 6-10.
- **Onboarding Fee:** €500/fleet, 3% inflation.
- **Own Fleet:** €700/car/month (Years 3-5), €750/car/month (Years 6-10), 3% inflation, 50 cars by Year 10.
- **Analytics:** €200/report/month, 10% of fleets (10–180), 3% inflation, starting Year 2.
- **Driver Training:** €100/driver, 20% of drivers (20–361), 3% inflation, starting Year 2.
- **Insurance Partnerships:** €50/vehicle/year, all client vehicles (100–1,804), 3% inflation, starting Year 2.
- **International Expansion:** €500,000/year (Years 8–10), 3% inflation.
- **Sale Proceeds:** 30% of purchase price after 5 years (e.g., €7,500/car, inflated).

- **Development:** €20,000 initial, €20,000/year (Years 1-2), 7% revenue from Year 3, 3% inflation.
- **Telematics:** €100/vehicle (client + own fleet), 10% replacement, scaling with fleet size.
- **Fuel API:** €2,500/year, 3% inflation.
- **Cloud Hosting:** €2,500/month, scaling (10% per 50% growth Years 1-5, 5% per 25% Years 6-10), 3% inflation.
- **Referral Program:** €50,000/year (Years 1-2), 5% revenue from Year 3, 3% inflation.
- **Support Staff:** €20,000/year, scaling (10% per 50% growth Years 1-5, 5% per 25% Years 6-10), 3% inflation.
- **Porsche Leasing:** €1,500/month, 3% inflation.
- **Property Rental:** €1,000/month, 3% inflation.
- **Driver Training Delivery:** €20/driver, 3% inflation.
- **Own Fleet Costs:** €25,000/car purchase, €2,000/year/car maintenance (Years 1-5), €1,500/year post-repurchase, €100/car telematics, 3% inflation.
- **Depreciation:**  $(€25,000 - €7,500)/5 = €3,500/\text{year}/\text{car}$ , inflated.
- **Reinvestment:** 50% of own fleet net cash earnings (€533.33 or €625/car/month) plus sale proceeds.
- **Loan:** €150,000, 5% interest, 10-year repayment (€18,853/year).
- **Taxes:** 19% VAT on revenues, 16% corporate tax on profits (minimized until Year 7).

## 9.2 Amortization Analysis

Plan 1 revenues total €9,671,895, including €1,980,481 from the own fleet (€700–750/car/month), €1,545,450 from Bulgaria, and €733,089 from analytics/training/insurance. Sale proceeds add €286,824. Cash costs total €4,565,902, with depreciation €770,000. Cumulative cash flow turns positive in Year 4 (2028, €3,207), reaching €4,768,667 by Year 10, indicating strong profitability despite higher early investments. The graph shows cumulative revenues, cash costs, and cash flow.



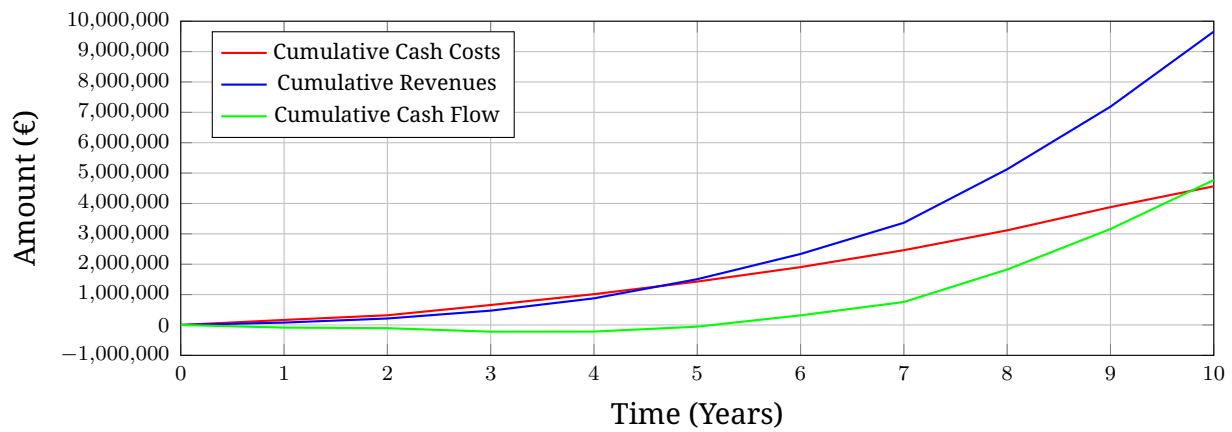


Figure 4: Yearly Amortization of CarGest Investment (2025–2034, Plan 1 with Telematics)

## 10 Conclusion

CarGest offers a robust platform for Romania’s ride-sharing market with telematics (€45–65.89/vehicle/month), compliance, analytics (€200/report), driver training (€100/driver), insurance partnerships (€50/vehicle/year), and an own fleet (50 cars by Year 10, €700–750/car/month). With a €150,000 loan, Plan 1 achieves profitability in Year 4 (2028, €3,207), reaching €4,768,667 by Year 10, driven by subscriptions (€5,258,214), fleet revenue (€1,980,481), Bulgaria expansion (€1,545,450), and other streams (€733,089). Enhanced investments in development (€715K), marketing (€569K), and support staff (€280K) align with 50%/25% growth, while selling older cars ensures a profitable, modern fleet and regional dominance.