Part A: Describe the Business Case for Car Sharing in Futureville

Amy Forde
Athabasca University
COMP361
2026-01-06

I. THE BUSINESS ENVIRONMENT

The car sharing project has three major benefits to the city of Futureville; lowering the cost of transportation for citizens, lowering emissions from vehicles, and improving transportation infrastructure. The first major benefit is an enticing benefit for citizens of Futureville; lowering the cost of individual transportation. Car sharing allows citizens to spend a lower and more predictable amount on transportation because the prices and rates will remain stable without the oft unpredictable costs of owning a vehicle. Owning a vehicle comes with maintenance costs, parking costs and a considerable up-front cost. If an owned vehicle is involved in an accident, the owner will either pay the high cost of repairs, an insurance deductible or the cost of replacing the vehicle. In the car sharing proposal, costs are much lower because the customer only pays for what they use and are billed monthly creating a lower and more predictable cost schedule. The second major benefit predicts lower emissions because there are less vehicles on the road and because the cars used by the car sharing company are newer, well-maintained vehicles that produce less emissions. Many citizens may not be able to afford to buy emission-friendly vehicles, but a car sharing program makes this an attainable goal. The third major benefit of a car sharing project is an improvement to transportation infrastructure in Futureville. Shared vehicles means that there are less vehicles in the city that require parking, freeing up space in neighborhoods for other things. Shared vehicles also means that there will be less vehicles on the roads, improving traffic concerns and reducing traffic accidents.

A car sharing program with goals like those mentioned above will need to be executed well and thoroughly for the benefits to become significant. One of the most vital components of such a project will be the information system that is used to operate the business. This system will need to be complex, accurate and it will need to interact with many other interfaces such as insurance companies, financial companies, mechanical systems, etc. Customers will need to interface with an application, providers will also need to interact with an application, managers and employees of the car sharing company will need to use the company's information system to connect to other applications or interfaces that will need to be allowed to make changes to the car sharing company's information system. The system should have many subsystems including a customer interface subsystem, a supplier or provider subsystem, a maintenance and mechanical subsystem, a payment and fee schedule subsystem, a monitoring and tracking vehicles subsystem, a HR and customer service subsystem, and many others may arise as the project proceeds through its pilot phase.

There are many stakeholders in this project including both internal and external as well as operational and executive. Internal stakeholders consist of employees of the car sharing company, management of the car sharing company, and shareholders. External stakeholders consist of the customer base, city planners and management, regulatory agencies, mechanical shops, parking companies, car dealerships, suppliers, accounting and banking firms, and insurance/legal firms. The operational stakeholders include all those who will be regularly interacting with the information system such as the customers, the company's IT team or a contracted IT team, suppliers, car sharing company employees, and any banks or insurance companies that will need to maintain up to date information on the application. Executive stakeholders include the owners or shareholders of the company, and all those stakeholders that benefit from the program but do not necessarily use the information system such as mechanical shops, insurance agencies, car dealerships, etc. The stakes for internal stakeholders such as company employees and management are continued employment and financial benefits. The stakes for external stakeholders are as varied as the stakeholders themselves. Most of the external stakeholders such as customers, suppliers and insurance agencies have financial stakes. The customer uses the program to save money, the suppliers will have access to a guaranteed revenue stream and insurance/legal firms will have guaranteed business.

Some stakes are not financial, however, such as city planners and regulatory bodies. The stakes for these stakeholders include ensuring local bylaws and regulations are being followed to protect the consumer.

II. THE SYSTEM VISION

A. Problem Description

Transportation in large urban centers has become a major financial and environmental concern especially as the population grows. Traffic infrastructure has become increasingly convoluted causing delays and an increase of emissions. Space for storing and parking personal and commercial vehicles is another rising concern in cities. The financial burden of owning a vehicle has increased which decreases public interest in more expensive but environmentally friendly vehicle options. The proposed car sharing system intends to address these concerns by offering a way to lower vehicle use and therefore lower emissions, lower congestion on the roads and relieve a major financial burden on individual consumers. The major objective of the car sharing system will be to provide an affordable platform for consumers to meet their transportation needs while reducing emissions and infrastructure congestion.

B. System Capabilities

The pilot project will start with basic capabilities and grow as the customer base grows. Customers of the car sharing system will be able to:

- View available vehicles, locations and fees
- Access the service 24/7, 365 days a year
- Select a vehicle and access it with no complications
- View, edit and delete their membership details
- View vehicle information such as mileage, year, make and model etc.
- View their vehicle history and be able to select preferred vehicles
- To manage fee payments and see breakdowns of fees owed
- Contact customer support to quickly resolve issues and concerns

Employees and managers of the car sharing system will be able to:

- Update the database of available vehicles
- Gather information or reports about consumer habits and preferred features
- To manage payments and billing
- To push marketing, discounts and incentives easily to the customer base
- Manage suppliers and other third-party relationships

C. Business Benefits

The primary business benefit of the car sharing system is to gain a large enough customer base to expand the pilot program into a large-scale profitable business while providing the social benefits mentioned previously.

- Increasing the customer base
- Increasing profits
- Expanding beyond the pilot program
- Satisfying current customers to increase word of mouth marketing
- Marketing and using technology to attract more customers
- Keep insurance claims low

- Expand to other geographic locations or cities

III. RISK AND FEASIBILITY

Four areas of risk and feasibility will need to be addressed in the car sharing project; organizational feasibility, technological feasibility, resource feasibility and schedule feasibility. Organizational feasibility consists of those risks and challenges that exist within the car sharing company itself. Because car sharing companies are new concepts in many cities, employees and developers may not have experience with the day-to-day operations of a car sharing company. This leaves room for error and inefficiency as everyone learns what the best policies and procedures are. Additionally, customers and potential customers may be wary of new things and may be resistant to changing their transportation habits despite numerous benefits to changing. If the customer base does not grow quickly, some customers may quit using the program because it is not being expanded to areas that they live and work in. Conversely, if the program grows too quickly, customers may become overwhelmed with options or experience shortages in vehicle availability due to a large demand. In order to ensure organization feasibility, the car sharing company will need to ensure that there is a balance between availability and demand, as well as ensuring that customers have a seamless transition from owning vehicles to sharing them.

Technological feasibility is an important category to determine in a car sharing project because so many aspects of the project depend on rapidly changing technology. A complex information system is needed to monitor, track and maintain the program as well as connecting to all the external stakeholders and their information systems. Vehicles chosen for the fleet will be newer vehicles with a high level of technology such as electric vehicles. New and innovative technologies may have unpredictable risks that are not discovered until something negative has occurred, making them unavoidable and difficult to prepare for. In a 2017 study on the risks involved with car sharing [1], the authors found that the major technological risks for car sharing include unanticipated risks related to rapidly evolving technology, adhering to the governance of public policy, privacy and cybersecurity risks and liability risks. Solutions to ensure technological feasibility include identifying risks early, hiring experts and consultants and managing the scope of the project to align with the consumer comfort with innovative technologies [2].

The proposed car sharing project is a resource-intensive project, requiring cooperation and partnership with many government and regulatory bodies, industry professionals, vendors and suppliers. The major resource for a successful project is human resources; staff and experts [2]. In the development of the information system alone, many experienced and expert IT professionals are required. This type of experienced and/or expert professional is rare and comes with increased costs to meet salary expectations and the risk of the expert quitting or leaving the company. Supplier contracts and relationships with partner companies can deteriorate or become too costly. For example, if the dealership that supplies the fleet vehicles to the car sharing company decides to cut ties, the company will need to quickly find a new supplier which can lead to increased costs, delays, and loss of customers. Resources are also influenced by fluctuating markets, shortages and other availability issues, which can lead to inconsistent fee schedules deterring current and future customers from using the program.

Another area of risk is scheduling and delivering parts of the project on time and in the correct priority order. Because the car sharing program is complex and has so many variables that are outside the control of the developers such as staff retention, cooperation from partner agencies, and changes or challenges from regulatory polices, scheduling will be very difficult to estimate. Strict deadlines and pressure from management may lead to the development team cutting corners or producing a software system that does not adequately meet the needs of the consumers and other stakeholders. If development takes too long, shareholders may withdraw support and pilot customers may lose interest if expansion of the program is too slow. The car sharing company may want to delay or speed up the launch to adhere to seasonal demands; more people drive in winter and cold weather than in summer and warm weather.

One solution for these concerns is using an iterative development model which allows managers to check in after each iteration, get an idea of how long an iteration takes, and address risks and schedule issues early in the development process [2]. Agile development practises would be especially beneficial to this project because they allow flexibility for frequent changes to the project's requirements.

REFERENCES

[1] Y. Li and A. Taeihagh, "The governance of risks in ridesharing: Lessons learned from Singapore," The Governance of Innovative Technologies. https://www.ippapublicpolicy.org/file/paper/593b9a916f2dc.pdf (accessed Jan 2026).

[2] J. Satzinger, *Systems Analysis and Design in a Changing World*, 7th ed. Cengage Learning, 2016.

Part B: Use the Event Decomposition Technique to Identify Use Cases for the Car Sharing System

Event Name	Event Type	Use Case Name
Member needs to sign-up	External	Member sign-up
System sends application package	Temporal	Send Application Package
System receives completed application	Temporal	Receive Application Package
System requests/receives application fee	Temporal	Request/Receive Application Fee
Manager needs to receive applications	Temporal	Receive Completed Application
Manager needs to approve applications	External	Approve Application
Manager returns unapproved applications	External	Return Application
System needs to create smartcard and PIN data	State	Create SmartCard and PIN
System needs to create member profile	State	Create Member Profile
Member/manager needs to edit member profile	External	Edit Member Profile
Member needs to terminate member profile	External	Delete Member Profile
Manager needs to terminate member profile	Temporal	Terminate Member Profile
Member/manager needs to check member account history	External	Check Account History
System needs to track and apply member penalties	State	Track Penalties Apply Penalties
System needs to bill member accounts monthly	Temporal	Bill Member

Member needs to view vehicle inventory	External	View Vehicle Inventory
Member needs to reserve a vehicle	External	Reserve Vehicle
Member needs to manage reservations	External	Manage Reservations
Member needs to view vehicle locations	External	View Vehicle Location
Member needs to view location and vehicle history	External	View History
Member needs to view member vehicle usage data	External	View Usage

Part C: Essay Question

The report and table outlined above are vital to the development of the car sharing system because they provide three important things; a benefit and risk analysis, a guideline for the requirements of the system and a guideline for the functionality of the system [1]. The benefit and risk analysis provided by the System Vision Document and the Risk and Feasibility Report includes all the information that the project needs to submit it for approval. Without this information, it would be difficult to obtain approval. The second benefit of this information is that it outlines the exact requirements of the system by breaking down the system into specific events which reflect those requirements. By breaking the system down into specific events, the development team ensures that all requirements are considered in the context of system events. Listing the events of the system also allows for prototype building and improved testing. Additionally, the information presented above provides an outline for the functionality that the development team will be responsible for implementing. Once the requirements have been translated to functionality through the analysis of events and use cases, the system is ready to move on to the next stages of development, design and implementation. Analysis of risks, benefits, objectives, events and use cases is not a task that is only done before design and implementation. Analyses of these kinds are helpful to conduct periodically for improvement, maintenance and future expansion. A 2016 study on car sharing in Australia [2] found that a thorough analysis of benefits, risks, requirements and functionality of a car sharing program led to developing plans for strategic expansion, including improvements and additional benefits.

References

[1]   J. Satzinger, *Systems Analysis and Design in a Changing World*, 7th ed. Cengage Learning, 2016.
[2]   P. B. Associates, "The Impact of Car Share Services in Australia." https://carsharing.org/wp-content/uploads/2018/05/The-Impact-of-Car-Share-Services-in-Australia.pdf (accessed Jan. 2026).