

Develop a Business Case for a Transport Booking System

Final report



Project Objective

The key objective of this consultancy project is to provide technical support to development of system requirements and business case to establish a corporate transport booking system across the ICRC organisation, keeping in mind a potential multiplying effect that could be used by Red Cross Red Crescent National Societies (NS).

As such, the participation of Red Cross Colombia and Red Cross Costa Rica was important.

The project was carried out between March-July 2024.

Methodology

Data gathering and Research

- Reviewed system requirements to match ICRC and NS' needs
- Deployed a survey to gather user feedback
- Updated the detailed process map for vehicle sharing
- Performed a market research to understand trends
- Consulted different stakeholders such as ICRC's IT Department to understand technical requirements and constraints
- Had internal meetings to discuss data integration with the Welcome Database

Turning data into insights

- Selection of vendors and demos organised
- Created a business case



This report will address the following key areas

1

Transport booking system requirements

We conducted an in-depth assessment of current fleet management practices and carpooling potential. Existing systems were reviewed, surveys and interviews conducted to gauge carpooling interest, and system requirements categorised, considering IT constraints and sustainability.

2

Market research

We conducted secondary research to analyse trends in vehicle sharing, good practices, and potential service providers, considering existing MRP options for system integration or specific software solutions.

3

Ranking and rating of identified solutions

Solutions were evaluated based on criteria such as user-friendliness, technological integration, and alignment with ICRC and NS' operational needs.

4

Findings and Recommendations

Based on the analysis and insights from the four key areas, Fleet Forum consultants provided findings and recommendations.

Transport Booking System Needs Assessment

We identified 79 requirements, with 56 classed as essential. Key features include environmental impact, web-based and mobile applications, real-time vehicle availability, and automated notifications.

Requirement	Description
Ease of booking transport via web browser	Allows passengers to book transport conveniently from any device, increasing accessibility and usage.
Journey authority sign off/permissions	Ensures that trips are authorised by the appropriate security focal points, maintaining security protocols.
Combining trips	Reduces vehicle usage and improves efficiency by combining trips, leading to cost savings and reduced environmental impact.
Trip Cost	Assigns trip costs to specific donors or project budget codes, ensuring accurate financial tracking and accountability.
Integration	Connects the system to VTS, FMS, and Finance, enabling seamless data integration and export for better management.
Reporting	Provides clear reporting of trips, usage, and passenger metrics, allowing for better monitoring and decision-making.

Current transport booking practices

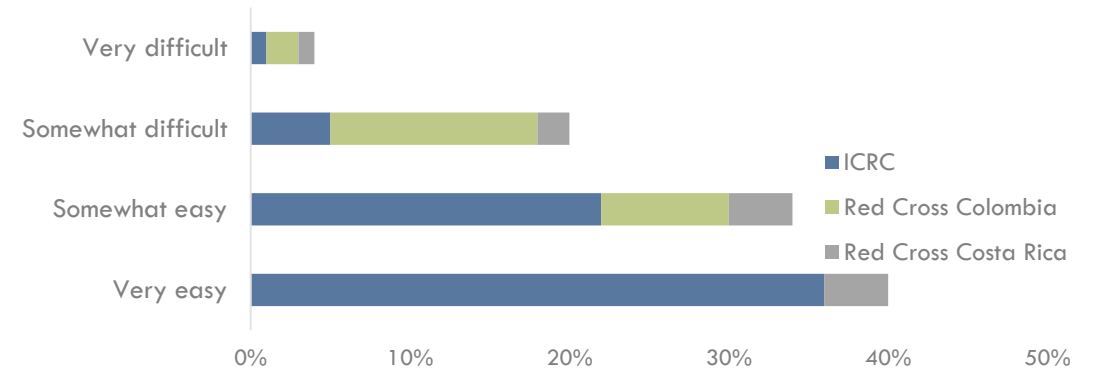


- The survey data indicates a wide range of booking frequencies among respondents, from those who book transport only once per month to those who require transport multiple times daily
- Despite the varied booking needs, most transport bookings are currently done using STM/E-mail

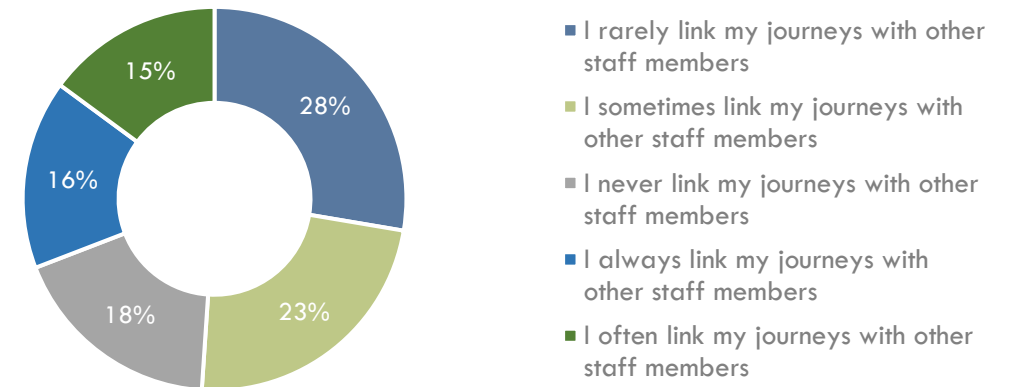
ICRC and Red Cross staff find it difficult to book transport and rarely link their journeys with other staff members.

- 24% of the respondents currently find it difficult to book transport
- 18% of the respondents never link their journeys with other staff members, and 51% rarely or sometimes link their journeys with other staff members, resulting in missed opportunities for optimising vehicle usage, reducing costs and ultimately reducing CO2

How difficult is it to book transport currently?

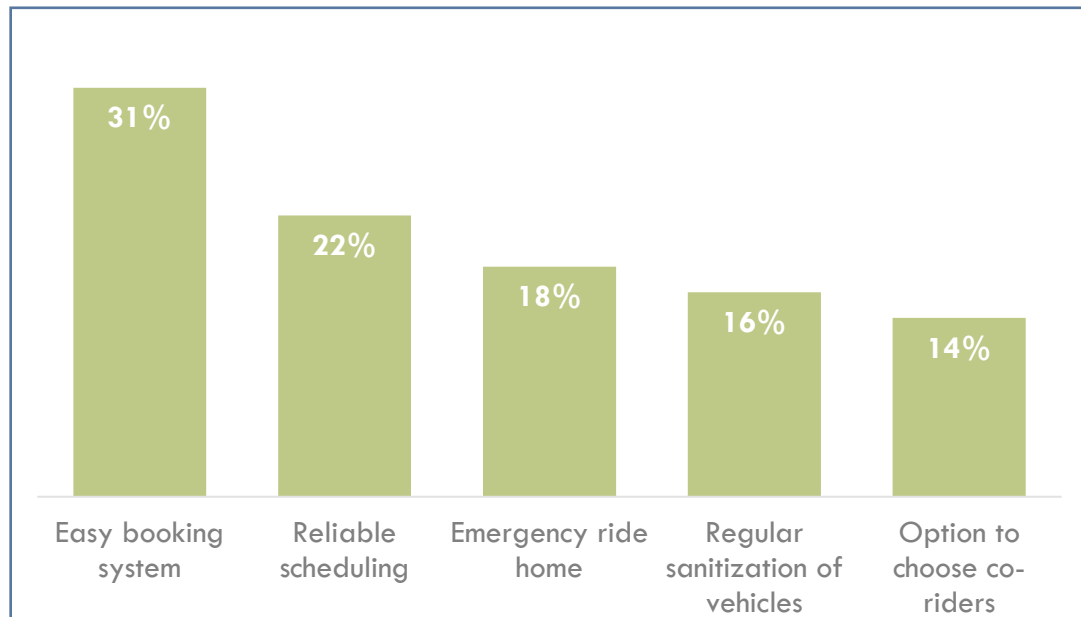


How often do per month do you link your journeys with other staff members for business related purposes?



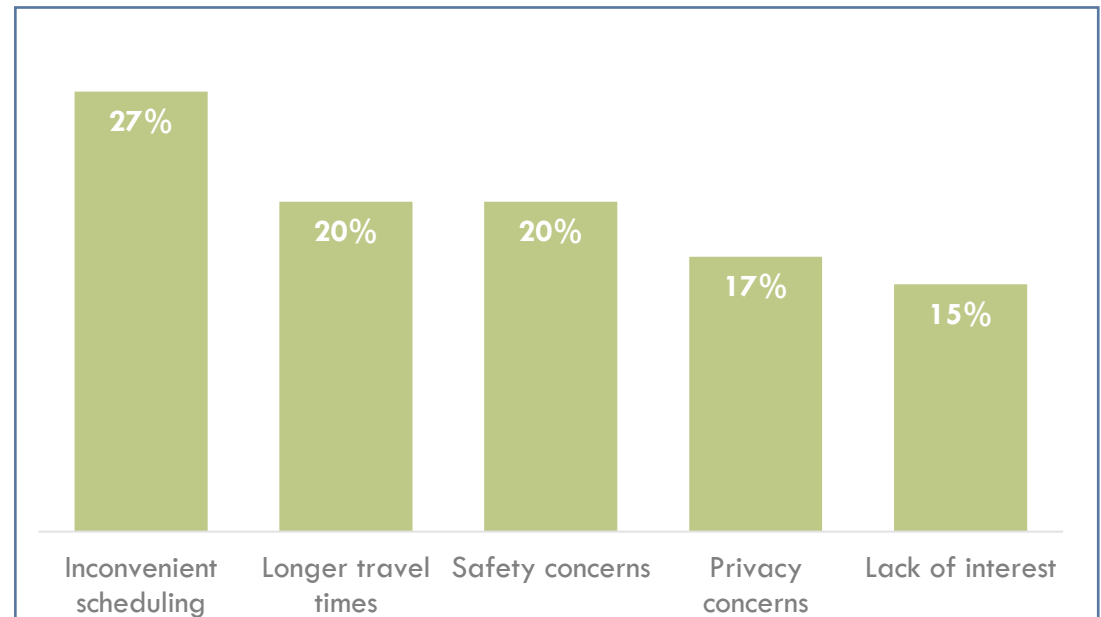
Survey respondents highlighted the importance of an easy booking system and reliable scheduling in a transport booking system, while key concerns raised include inconvenient scheduling and longer travel times.

Important features



Survey respondents highlighted the importance of an easy booking system and reliable scheduling in a transport booking system.

Concerns

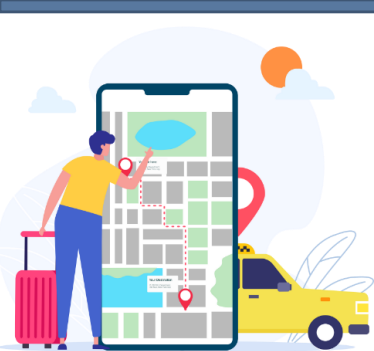


Key concerns raised by respondents include inconvenient scheduling and longer travel times.

Market research

Current market trends in transport booking systems





Types of systems

- **Standard software packages:** cost-effective, minimal customisation
- **Customised solutions:** flexible, tailored to specific needs
- **Mobile cloud-based systems:** scalable, easy updates, remote access

Examples of Good Practices

- UNFPA, UNICEF, and UNDP vehicle sharing PoC led to 10-15% cost reduction*
- Address obstacles like resistance to change and ownership concerns for successful implementation





* The cost savings were based on a cross-organisational vehicle sharing project in which 3 organisations pooled their vehicles

Benefits of transport booking systems

- **Efficiency Improvement**
 - Up to 15% increase in operational efficiency
 - Automation of transport processes reduces human errors
- **Cost Savings**
 - Up to 20% reduction in operational costs
 - Optimized route planning and fleet management
- **Improved Resource Planning**
 - Real-time visibility into vehicle availability and driver schedules
 - Better decision-making and resource utilisation
- **Transparency and Reporting**
 - Detailed reporting capabilities enhance accountability
 - Supports compliance with regulatory and donor requirements
- **Environmental Impact**
 - Reduction in CO2 emissions and fuel consumption by 10%
 - Supports sustainability goals




Ranking and rating of identified solutions

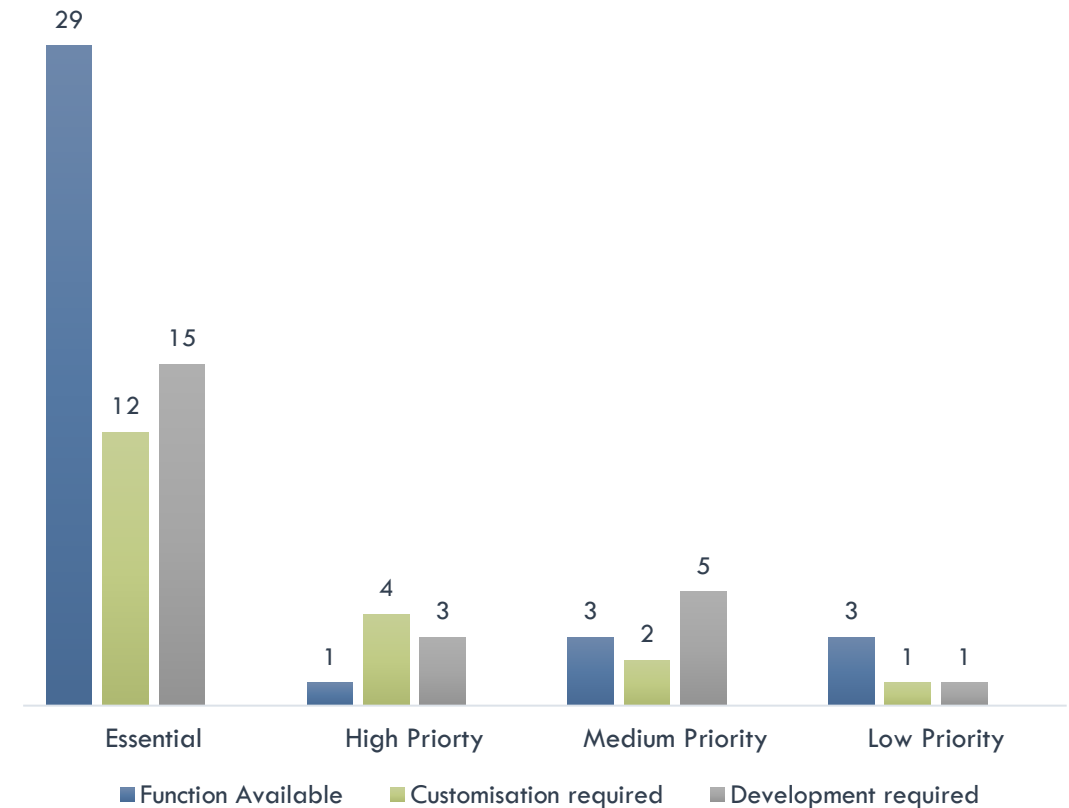
Key functionalities of a transport booking system

	Functionality	Description
	Booking Management	Transport booking systems streamline planning and booking by automating trip scheduling, vehicle and driver assignments, and booking management through a centralised platform. This reduces administrative workload, minimises errors, and enhances overall efficiency with features like automated scheduling, real-time availability, and conflict resolution.
	Real-Time Tracking and Monitoring	Provides continuous insights into vehicle location and status, improving operational efficiency, customer service, safety, regulatory compliance, and asset utilization by allowing timely interventions and adjustments.
	Reporting and Analytics	Reporting and analytics tools enable organisations to generate detailed reports, perform comprehensive data analysis, and make informed decisions to optimise resource utilisation , with key features like customizable reports, trend analysis, KPI tracking, and predictive analytics.
	Integration with Other Systems	Many transport booking systems offer APIs and other integration options, enabling seamless connectivity with existing ERP systems, CRM software, and other business applications. This integration capability ensures that data flows smoothly across different platforms, enhancing overall operational efficiency and data accuracy . Integrated systems facilitate better coordination, reduce data silos, and support comprehensive process automation, leading to improved organisational performance.

Fleet Wave



- Fleet management software designed to streamline operations.
- Fleet Wave meets 42 essential requirements, with 12 needing customisation before becoming fully functional (Smart Forms).

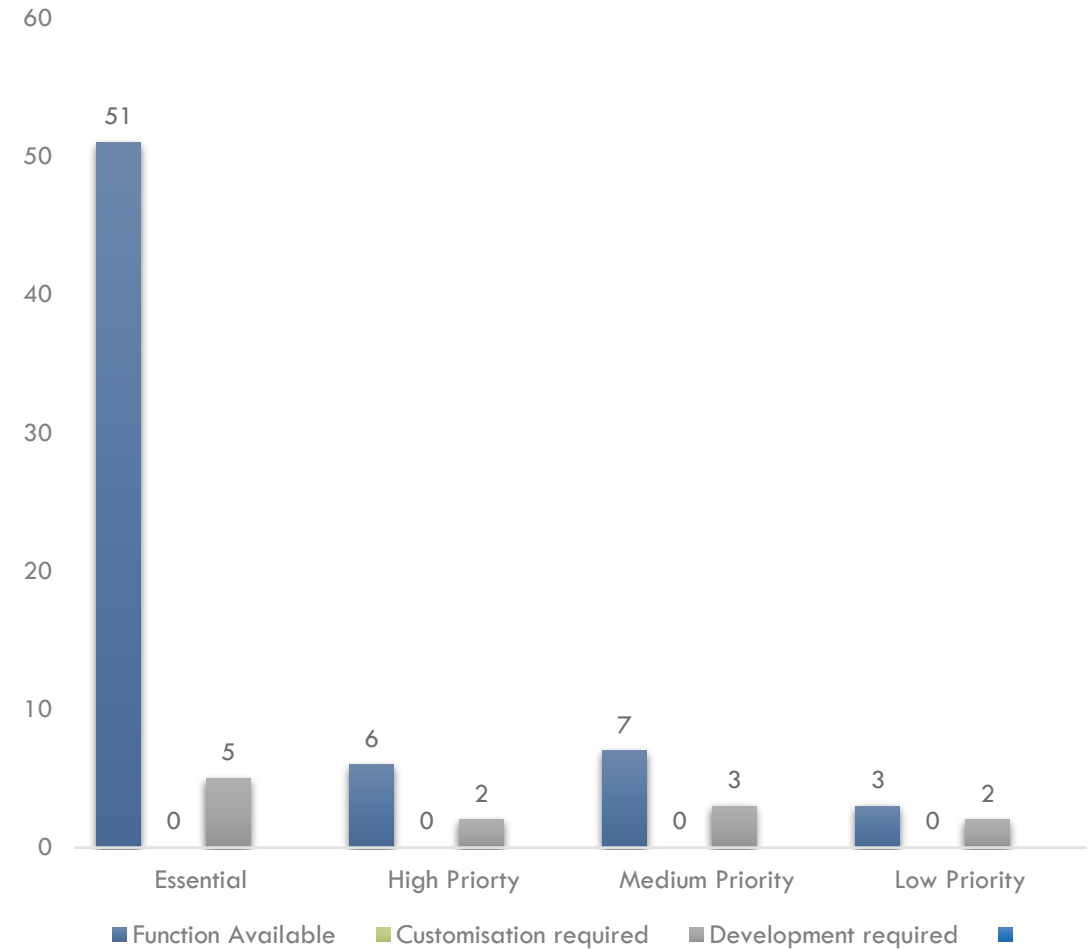
Key missing requirement	Description
 Combining trips	Currently, the system does not support combining trips, which is essential for reducing vehicle usage, improving efficiency and reducing CO2 emissions.
 Arrival/Departure notification	The system lacks automated notifications for arrival and departure, which are important for timely coordination.
 Automated notifications to drivers of tasks	There is no functionality for automated task notifications to drivers, which affects task management and communication.



TerraMar





- A fully operational system that focuses on transport booking and vehicle tracking.
- Meets most essential requirements (51).

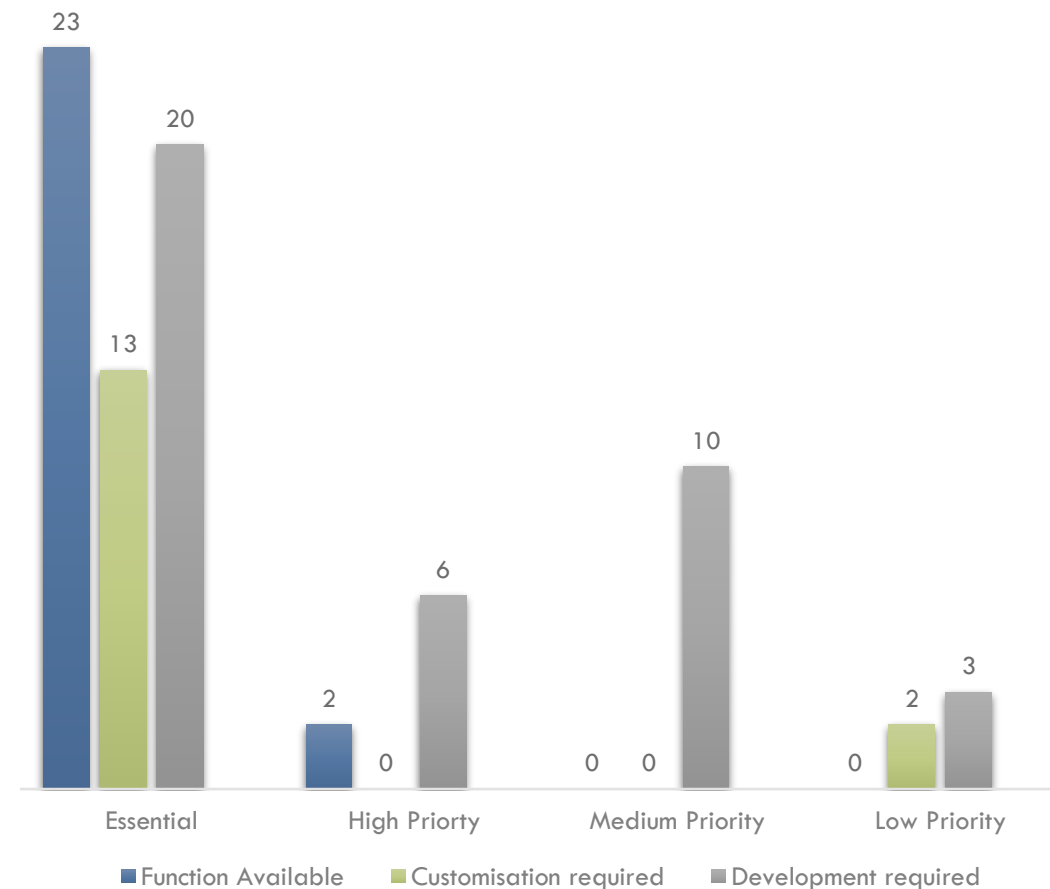
Key missing requirement		Description
	Communication module between passenger, drivers & dispatcher	The system lacks a communication module that connects passengers, drivers, and dispatchers, which is crucial for effective coordination and communication.
	Trip Amendments	The system does not support trip amendments, which limits the ability to efficiently make necessary changes to trip details.



Fleet Base

- Basic functionalities with the least essential requirements met; designed for internal development.
- Can be run and developed on ICRC's own server, providing flexibility and control.

Key missing requirement	Description
 Combining trips	Currently, the system does not support the combining of trips, which is essential for reducing vehicle usage and improving efficiency.
 Arrival/Departure notification	The system lacks automated notifications for arrival and departure, which are important for timely coordination.
 Communication module between passenger, drivers & dispatcher	The system lacks a communication module that connects passengers, drivers, and dispatchers, which is crucial for effective coordination and communication.
 Trip Amendments	The system does not support trip amendments, which limits the ability to make necessary changes to trip details efficiently.



Summary

Standalone system



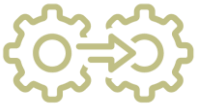
- Ready for deployment
- Meets the majority of requirements
- Supports trip combination function
- Cloud-based system
- Additional fleet management system
- Limited client customisation needed

Integrated/upgrade of existing system



- Highly customisable at client level (Smart Forms)
- Reduced training/management requirements
- Open APIs for third-party software integration
- Cloud-based system
- Requires significant customisation
- Migration needed for Fleet Management System

Semi-Integrated



- Hosted on internal servers
- Customisable to ICRC/NS requirements
- Vehicle tracking via driver/passenger smartphone
- Requires extensive development and customisation before deployment
- High initial cost
- Additional fleet management system

Return of investment

Fleetwave

System Cost Recovery Time (Years) at 5% Saving
30% Of System Utilisation 10 Years
60% Of System Utilisation 3 Years
90% Of System Utilisation 1.5 Years

Fleetbase

System Cost Recovery Time (Years) at 5% Saving
30% Of System Utilisation No return of investment
60% Of System Utilisation 5 Years
90% Of System Utilisation 2.5 Years

ROUTE

System Cost Recovery Time (Years) at 5% Saving
30% Of System Utilisation 3 Years
60% Of System Utilisation 1.5 Years
90% Of System Utilisation 10 Months

Terra Mar

System Cost Recovery Time (Years) at 5% Saving
30% Of System Utilisation 10 Years
60% Of System Utilisation 2.5 Years
90% Of System Utilisation 1.5 Years

Approximative return of Investment with a 5% savings as results of using the Carpolling system

Findings

Current IT & Software architecture

- ICRC's current software architecture is using 2 different systems for fleet management (FleetWave and VTS supplier), adding an additional TBS adds more complexity. E.g. driver and vehicle data need to be manually transported and updated from the FMS into TBS).
- ICRC's FMS, FleetWave, will stop being supported in the next 2 – 3 years, forcing ICRC to make broader IT decisions that might impact the current choice for a TBS.
- Given the sensitivity of ICRC's work, there are strict data security protocols. Any transport booking system should abide by the protocol.

Methodology of booking transport

- Shifting to a TBS requires that all ICRC and NS drivers have access to a smart phone. This not only involves a one of investment but also recurring costs (contracts and replacements).
- Currently 80% of the transport bookings from the survey respondents are made using electronic systems. Introducing a TBS has the potential to be an easy change as staff is already used to a formalised booking approach.

Journey management process

- ICRC trip authorisation and administration processes require involvement of different roles within ICRC (security, finance, HR). A future transport booking system should allow for authorisation hierarchies.
- Survey results show that ICRC users want user-friendly systems and an easy booking process . This finding is in line with market trends.

Demo Findings

- TBS providers working solely in the corporate sector do not offer off the shelf systems that fully meet ICRC/Red Cross needs.
- Products of two of the selected demo providers require significant development and customisation to meet ICRC/NS needs. This implies a business risk and no cost savings at least in the first year of implementation.
- Based on ICRC/NS specifications and requirements, TerraMar's TBS meets the needs best.

Opportunities

- Although market research highlights the important role of AI, none of the researched system providers has shown AI driven technology that would support ICRC in predicting journeys, analysing movement patterns and making optimisation suggestions.
- Market research shows that traditional fleet management progresses into providing sustainable mobility solutions. This is also in line with ICRC sustainability agenda. The selection of the TBS should be able to plan different types of transport modes such as using public transport, e-bikes, walking short distances.

Recommendations

Key Considerations prior to selecting a provider

- Any choice for a TBS should be taken in the light of future developments of the provider and ICRC's future needs. This means to select a provider that currently offers a TBS and FMS integrated system.
- The TBS provider should provide comprehensive training and continuous support how to best use the system. Additionally, ICRC/NS should invest in training for fleet managers and dispatchers to analyse the data of the TBS to achieve more benefits.
- Data integration: adopt a TBS which would have to take information from a tracking system and information from a fleet management system
- Prior to final selection of a TBS system, ICRC/NS should ask the provider for business cases that demonstrate the cost/CO2 savings. Preferably these business cases are from their customers
- Responsiveness of the supplier to ICRC/NS' future (mobility) needs should be included as a key success indicator for the collaboration

Key elements during the selection process

- Engage stakeholders (passengers, drivers, dispatchers, security, operation room) throughout the selection and implementation process to address their needs and gain their support. Stakeholder engagement enhances system adoption and provides valuable insights for customisation.

Future Developments

- ICRC/NS should stay abreast of technology developments particularly in the area of AI whilst continuing to consider data protection, privacy and safety and security.

Phased implementation

- TerraMar's TBS meets ICRC needs best. However, a phased approach is recommended to identify how much customisation is needed. A phased approach could consist of:
 - Set pilot success criteria (e.g. reduction of costs, CO2, efficiency gains, user experience, vendor's responsiveness to current needs)
 - Roll out in 5 pilot countries, two of them being Costa Rica and Colombia
 - Based on pilot results, assess the system and see what features need to be changed or added and what the cost implications would be
- If ICRC/NS decides to continue with TerraMar's TBS after a pilot, the current system should be adapted so that it supports multiple authorisation levels when booking journeys