

Centralized vehicle leasing in humanitarian fleet management: the UNHCR case

Centralized
vehicle leasing

387

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Received 14 July 2015
Revised 29 September 2015
Accepted 8 October 2015

Abstract

Purpose – Fleet management is a key function in humanitarian organizations, but is not always recognized as such. This results in poor performance and negative impacts on the organization. The purpose of this paper is to demonstrate how the UN High Commissioner for Refugees (UNHCR) managed to substantially improve its fleet management through the introduction of an Internal Leasing Program (ILP), in which headquarters procures vehicles and leases them to field offices.

Design/methodology/approach – This paper develops a framework for fleet management based on a longitudinal case study with UNHCR. It compares fleet performance indicators before and after implementation of an ILP.

Findings – At UNHCR, vehicle procurement was driven by availability of funding. Fleet management was highly decentralized and field offices had limited awareness of its importance. These systems and behaviors led to major challenges for the organization. The introduction of the ILP positively impacted fleet management at UNHCR by reducing fleet size, average age of fleet and procurement costs.

Practical implications – This paper provides fleet managers with a tool for analyzing their fleet. The frameworks and actions described in this paper contain practical recommendations for achieving a well-performing fleet.

Originality/value – This paper is the first to analyze fleet management before and after introduction of an ILP. It describes the benefits of this model based on empirical data, and develops frameworks to be used by researchers and practitioners.

Keywords Humanitarian operations, Internal Leasing Program, Vehicle fleet management

Paper type Research paper

Introduction

Natural and man-made disasters hit everywhere, from urban areas to the most remote places on earth. Poor road infrastructure and damaged road networks often make it difficult for humanitarian organizations to reach beneficiaries. Heavy duty 4×4 vehicles allow for transport of staff and supplies to remote locations. All large humanitarian organizations run fleets of hundreds to several thousands of 4×4 vehicles. Such fleets require high investment and operating costs. At the UN High Commissioner for Refugees (UNHCR) for example, costs associated with vehicles are the largest expenditure after staff (UNHCR, 2006). Pedraza-Martinez *et al.* (2011)

The authors are grateful to Othman Boufaied, INSEAD, the Internal Leasing Program staff for their help in the research, and to UNHCR for its financial support.



Journal of Humanitarian Logistics
and Supply Chain Management
Vol. 5 No. 3, 2015
pp. 387-404
© Emerald Group Publishing Limited
2042-6747
DOI 10.1108/JHLSCM-07-2015-0034

estimated that half the costs occur at headquarters level (procurement) and the other half at field office level (operations).

Vehicles are important assets that have to be managed carefully to ensure high availability at reasonable cost. Vehicle fleet management can be either decentralized or centralized (Pedraza-Martinez and Van Wassenhove, 2012). In decentralized fleet management, the field offices are responsible for procurement, operation and disposal of the vehicles. In centralized fleet management, the headquarters procure the vehicles and give guidelines for their utilization, maintenance and repair. Headquarters also manage proper disposal of the vehicles at their end of life.

The decentralized model is still the most common among humanitarian organizations, despite that it leads to lower fleet standardization and higher costs. The preference for the decentralized fleet management model stems from the decentralized nature of most humanitarian organizations, with high decision power delegated to field offices. Decentralization provides several benefits such as good adaptation of operations to local needs, lean management structures and fast decision making. Decentralization also generates a number of issues such as limited headquarter control over operations, low standardization and misaligned objectives between the field (e.g. high availability of vehicles) and headquarters (e.g. low costs).

In recent years, a number of humanitarian organizations have realized that moving from a decentralized to a centralized fleet management model can bring several advantages. This move generally resulted in a transition from field offices buying vehicles from local dealers to leasing them from headquarters instead. We call this new centralized leasing model an Internal Leasing Program (ILP). Organizations working with an ILP procure vehicles directly from a supplier, often the manufacturer, and lease them to field offices in exchange of a monthly rental fee. The ILP also offers a number of other fleet management services to field offices, and thus becomes an internal service provider, supporting operations.

The International Committee of the Red Cross (ICRC) launched its ILP in 2000, the International Federation of the Red Cross in 2002, the UN World Food Program in 2007 and the UNHCR in 2014. These organizations have all greatly benefited from their move to an ILP model. However, these benefits have never been analyzed and quantified in a structured way. Our paper intends to fill this gap. We conduct a longitudinal case study in one organization, the UNHCR, and compare the fleet structure and associated costs before and after introduction of their ILP.

We intend to answer the following questions in order to understand the reasons for and benefits from moving to an ILP model: first, what are the causes leading to poor fleet management practices in a humanitarian organization? second, what are the levers to be pulled to enable change? and third, how does an ILP improve fleet management?

This paper is the first to compare fleet management in a humanitarian organization before and after implementation of an ILP model. We identify a number of systems and behaviors which lead to suboptimal fleet management in an organization, the UNHCR, and describe the transition to a more effective centralized rental model (ILP). We provide a demonstration of how principles such as standardization, centralization of procurement and leasing can generate significant improvements in the humanitarian sector.

This paper contributes to theory by proposing a framework that identifies the causes leading to major challenges in humanitarian fleet management. It also develops a framework for optimal fleet management. Researchers can use our frameworks to understand and analyze fleet management in humanitarian organizations. Our findings also contribute to practice by identifying common challenges in humanitarian fleet

management, and proposing ways to address them. Our study demonstrates the benefits that an ILP model can achieve, and provides support to humanitarian organizations in the process of adopting this new model.

Literature

Vehicle fleet management in the humanitarian sector is a new area of research. The first paper focussing on this area was published in 2011 (Pedraza-Martinez *et al.*, 2011). Since then, a number of papers analyzing different topics related to fleet management have appeared.

Pedraza-Martinez *et al.* (2011) gave an overview of the fleet management models found in four large humanitarian organizations. Their in-depth case studies identified three different models. In the decentralized model field offices have a high level of freedom in vehicle procurement, operation and disposal. Most humanitarian organizations currently apply this model, because it is in line with the high level of decentralization observed in the humanitarian sector. In the centralized fleet management model headquarters takes most fleet related decisions. It procures vehicles centrally and sends them to field offices. Headquarters also edict policies and guidelines on how to manage and operate the vehicles in the field. The hybrid fleet management model combines principles of the centralized and decentralized model, and headquarters and field offices share responsibility on most fleet related decisions. A fourth model would be to consider externalization of fleet management where humanitarian organizations rent vehicles with drivers from the local market (Balcik *et al.*, 2010, p. 21). This model may be particularly appropriate for smaller organizations.

Pedraza-Martinez and Van Wassenhove (2012) identify a number of characteristics of humanitarian logistics that create challenges for humanitarian fleet management. The dual objective of relief (speed) and development operations (cost) creates conflicting priorities. Vehicles have to be readily available to respond quickly to the needs of relief operations. This requires prepositioning vehicles in country, or buying them from local dealers at higher prices. Development operations however require cost effective and lean fleet operations, which humanitarian organizations can only achieve through global procurement from the manufacturer. Since humanitarian organizations are often involved in relief and development operations (Beamon and Balcik, 2008), they have to design vehicle supply chains that are able to respond to these conflicting priorities. The high level of decentralization in humanitarian organizations represents another challenge for humanitarian fleet management. Because of this, the central fleet management unit often has limited power to impose fleet related policies (see also Pedraza-Martinez *et al.*, 2011). Harsh field operating conditions are also challenging for humanitarian fleet management (Balcik *et al.*, 2010; Pedraza-Martinez and Van Wassenhove, 2012), and require the use of costly heavy duty 4 × 4 vehicles. These specific challenges explain the uniqueness of humanitarian fleet management and why it substantially differs from fleet management in the commercial sector.

Besiou *et al.* (2014) analyzed fleet management in case the organization needs to run both disaster response and development programs. Disaster relief focusses on responding to a crisis, whereas development programs aim to build capacity and resilience in vulnerable communities. According to Besiou *et al.* (2014), the centralized model generates superior results in development programs, because planning is easier and future needs are known. A higher level of decentralization is beneficial when vehicles are used both in disaster response and development programs, because of specific knowledge and higher flexibility in local decision making.

Pedraza-Martinez and Van Wassenhove (2013) compared different vehicle replacement strategies in the ICRC. They found that replacing vehicles earlier than the policy currently applied in the humanitarian sector (five years or 150,000 km) would lead to significant savings. This is confirmed by Eftekhar (2015) who finds that the strategy of using vehicles intensively and disposing them early yields better results than the strategies currently applied by most humanitarian organizations, both in terms of utilization and costs.

However, implementing a new replacement policy is difficult because the interests of headquarters and field offices are often misaligned (Eftekhar, 2015; Pedraza-Martinez *et al.*, 2011). Headquarters are interested in reducing total fleet costs, whereas field offices may keep old vehicles around to increase availability. Indeed, the lack of transportation capacity during the early days after a disaster is one of the most significant constraints for relief operations (Balcik *et al.*, 2008), and field offices tend to have over-sized fleets to overcome this constraint.

Previous research found that earmarking funding to particular programs is detrimental to performance because it reduces operational flexibility and prevents humanitarian organizations from reallocating vehicles to a program with more pressing needs (Besiou *et al.*, 2014; Pedraza-Martinez *et al.*, 2011; Pedraza-Martinez and Van Wassenhove, 2012). Earmarked funding also incentivizes field offices to spend remaining budgets at the end of year on buying vehicles, often beyond what is reasonably needed. This leads to over-sized fleets.

Eftekhar (2015) analyses the allocation of vehicles in humanitarian organizations. He finds that the current vehicle allocation mechanisms, which tend to keep vehicles for a long time and reduce their utilization as their total mileage increases, is not efficient and leads to higher costs to the organization. Vehicle allocation also has to take into consideration specific safety constraints in humanitarian operations, such as the requirement to drive in convoys in hostile environments (Balcik *et al.*, 2010).

Eftekhar *et al.* (2014) analyze how the central procurement department should adapt the organization's fleet size to the needs of the operations. They find that when both the frequency and magnitude of demand variation are high, the organization should follow a level strategy (i.e. keep the fleet size rather constant). This demand pattern is common in many humanitarian operations, since demand for supplies depends on a number of unpredictable factors (Beamon and Kotleba, 2006). However, when the frequency of demand variation is low, and its magnitude high, it is advisable to follow a chase strategy (i.e. adapt fleet size to demand).

Stauffer *et al.* (2015) analyzed the characteristics of vehicle demand in humanitarian fleet management. They find that the demand for support items such as vehicles, which they call secondary demand, is different from the primary demand for relief items. They find that the optimal preparedness approach in the context of humanitarian fleet management is not necessarily to preposition vehicles in multiple hubs, but to ship them out of a centralized hub. They suggest using an additional temporary hub in case of mega disasters. This finding is in line with previous research that found that prepositioning is not always the best option in humanitarian logistics (see e.g. Kunz *et al.*, 2014).

This short overview of literature shows that a number of issues in fleet management in the humanitarian sector have been studied such as the degree of fleet management centralization, the impact of program type on fleet management or the effect of earmarked funding. However, no study has yet considered ILPs and their benefits for humanitarian organizations, despite their increasing use. This paper aims to fill this gap in literature.

Methodology

We conduct a longitudinal case study with one humanitarian organization, the UNHCR. This research methodology compares the same single case at two different points in time. It aims at identifying how conditions and processes change over time (Yin, 2009). Longitudinal case studies are particularly useful for analyzing the implementation of a new system in an organization (see e.g. Karlsson and Åhlström, 1995), as we do when studying the introduction of the ILP at UNHCR.

According to Leonard-Barton (1990), longitudinal case studies combine retrospective and real-time cases, which is a particularly strong way to mitigate the risk of bias in a single case study (Eisenhardt and Graebner, 2007). A limitation when using only retrospective case studies is that respondents tend to forget past events that they did not consider as important (Leonard-Barton, 1990). Longitudinal case study research avoids this limitation, because it has a lower tendency to overlook such events by combining retrospective and real-time cases. It is therefore a more appropriate method for tracking cause and effect relationships (Leonard-Barton, 1990). Building our initial case observation on existing reports and documents written before the transition to the ILP helped us to avoid overlooking important past events.

Longitudinal case study involves a number of challenges. Karlsson and Åhlström (1995) mention that gaining access to an organization for a longitudinal study is difficult. Our privileged access to UNHCR through a research project allowed us to analyze internal reports as well as discuss the new setup with all staff of the ILP. In a longitudinal case study research, the researchers face the risk of becoming too much involved with the people and the organization they study (Leonard-Barton, 1990). We addressed this issue by using mainly internal documents as source of data for the situation before the introduction of the ILP. Doing so, we were able to build a strong knowledge of the situation before the ILP was introduced without spending several years in the organization.

In this paper, we compare fleet management in the UNHCR over two periods: before and after introduction of an ILP. We describe fleet management in the organization before the ILP through a framework, and the process of change that led to the ILP through another framework. We analyze a number of fleet performance indicators measured in April 2013, before the introduction of the ILP, and compare them with the same measures taken in October 2014, ten months after its launch.

We select the UNHCR for four reasons. First, the transition of this organization to the ILP model occurred at the start of 2014, which was a convenient timing for our analysis. Second, fleet management at UNHCR before the introduction of the ILP was representative of a typical humanitarian organization (see e.g. in Pedraza-Martinez *et al.*, 2011). Third, the ILP of UNHCR is a particularly successful case, recognized by the best transportation award it received in 2015 from the Fleet Forum, a professional organization of fleet managers in the humanitarian sector. Finally, the willingness of representatives of the UNHCR ILP to communicate about the transformation was a good opportunity to co-write this paper.

Our longitudinal case study combines data from different sources. In order to understand fleet management before the introduction of the ILP, we used historical documents such as a review of UNHCR's fleet management done in 2011 (McConnell, 2011). We also used a number of internal audits pointing to issues and concerns related to fleet before the ILP, as well as UNHCR's ILP 2014-2018 fleet strategy (UNHCR, 2014). For the analysis of fleet management one year after the introduction of the ILP, we interviewed 15 key staff of the ILP in Budapest, and conducted a number of meetings to discuss our preliminary findings with ILP managers.

In order to add quantitative information to our analysis, we defined a number of verifiable fleet performance metrics. We included fleet size, fleet age, average vehicle procurement cost and level of standardization. We used the UNHCR asset database to calculate these figures. After cleaning the data sets to remove errors, we calculated baseline figures for these metrics in April 2013, before the introduction of GFM. We then repeated the same calculation one and a half year later, in October 2014, ten months after introduction of the ILP.

Framework

In this section we present the frameworks we developed based on our observations of fleet management at UNHCR before and after introduction of the ILP. Translating our observations in frameworks allows us to present our findings in a structured way. Our frameworks help practitioners from other organizations to understand possible causes of under-performing fleet, and to learn how to address them. These frameworks are also useful for research, because they offer a suggestion on how different issues are interconnected and generated either a positive or a negative impact on the organization. These frameworks provide a basis that can be further tested and extended by researchers.

Figure 1 presents the framework of fleet management before the introduction of the ILP. In this framework, we identified three underlying systems and behaviors that contributed to under-performing of fleet management at UNHCR since they led to a number of negative consequences on fleet. Together, these consequences led to three resulting challenges for the organization. Table AI provides a number of quotations from UNHCR internal documents that support each concept (box) we present in Figure 1. We use the authors’ interpretation and expert judgment to link these concepts (arrows in Figure 1).

Fund driven procurement of vehicles is the first underlying system and behavior we observed at UNHCR before the ILP. Field offices procured vehicles whenever funding was available. This resulted in more than 50 percent of vehicles being ordered in December to spend unused budgets, as shown in Figure 2. The yearly budget cycles in most humanitarian organizations where funds are not transferred to the following year lead to this type of behavior. Field offices receive yearly funding for their programs,

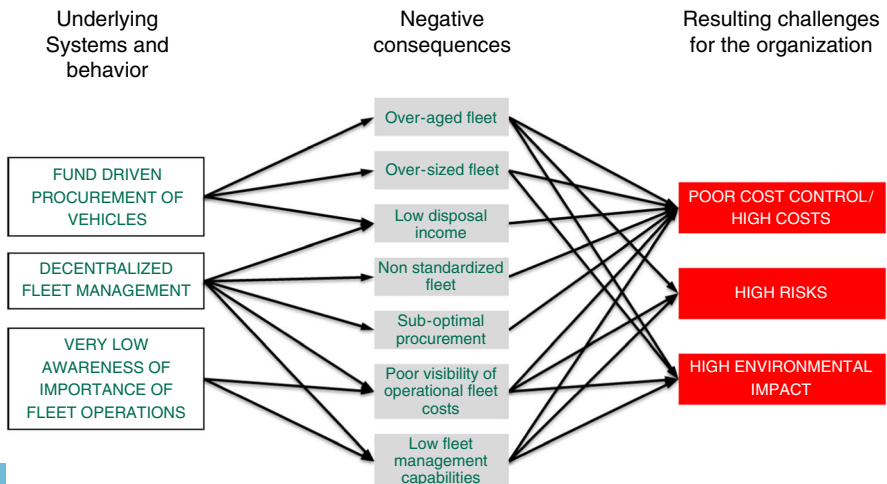


Figure 1. Framework of fleet management before the introduction of the Internal Leasing Program

Centralized vehicle leasing

393

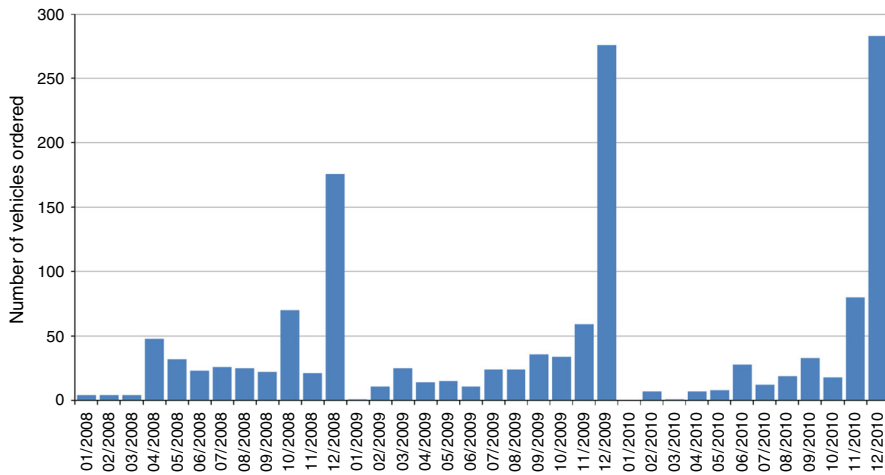


Figure 2.
Number of vehicles
ordered by the
field offices per
month prior to ILP

and all funds that are not used by the end of the year are lost and returned to the donor. This has two negative effects. First, the field office cannot set aside reserves for a hypothetical expense that may occur in the next budgeting period. In the case of fleet management, this means that a field office cannot set aside money for purchasing a vehicle that might have to be replaced next year. The field office therefore (rightly) decides to purchase a new vehicle before the end of the year just in case it would require the additional transportation capacity next year. Such behavior obviously leads to inefficient use of resources. Second, if the field office returns unspent money, the donor might reduce future budgets.

Decentralized fleet management is the second underlying system and behavior we observed at UNHCR. Before implementation of the ILP field offices had a high degree of freedom in vehicle procurement, utilization and disposal. This is confirmed by the UN Office of Internal Oversight Services (OIOS) in an audit conducted in 2007: “The ownership of the fleet, decisions on budgetary allocation for maintenance and the redeployment and allocation of staff resources have been substantially vested in UNHCR representations” (OIOS, 2007).

The low awareness of the importance of fleet operations is the third system and behavior we recognized at UNHCR before introduction of the ILP. Field offices were not sufficiently aware of the importance of vehicles to their programs, i.e. to reach the populations in need, and hence did not pay enough attention to fleet management. The OIOS survey found that “very little attention was given to the logistics/fleet management function, a high-risk area due to financial value and the size and variety of a fleet ranging from motorbikes to heavy trucks” (OIOS, 2007). In 2006, an internal evaluation of UNHCR’s fleet management noted that “there is inadequate support structure at UNHCR headquarters for logistics/fleet management beyond, essentially, supply and procurement [...]” (UNHCR, 2006).

These underlying systems and behaviors led to a number of negative consequences on UNHCR’s fleet. First, the fleet was over-aged since the prescribed disposal policy was often not applied, as noted by the internal fleet management evaluation in 2006: “UNHCR is replacing vehicles every eight, or so, years, not every five years as guideline principles advise” (UNHCR, 2006). Operating old vehicles increases maintenance costs, risks for staff and creates a high environmental impact.

Second, fund driven vehicle procurement resulted in over-sized fleets. Field offices kept a number of vehicles as safety stock in case future funding would not be available, as UNHCR noted in its internal evaluation: “[...] the uncertainty of if and when vehicles will be replaced leads [field] offices to hoard vehicles in the event of breakdowns or unanticipated changes in the program” (UNHCR, 2006). Consequently, the number of vehicles in field offices often exceeded real needs, and a significant number of vehicles were barely used. This resulted in increased costs for the organization and a high environmental impact.

Third, because field offices did not receive the disposal revenue (UNHCR, 2006), they had little interest in disposing them at highest possible price. Due to the high level of decentralization, headquarters had no impact on this behavior. Fourth, decentralization led to lack of fleet standardization within and between field offices. This generated high complexity for maintenance and spare parts management. Fifth, decentralization prevented UNHCR from procuring vehicles globally from manufacturers, and field offices did not benefit from economies of scale and large fleet discounts. These three negative consequences impacted the organization by generating higher costs.

Sixth, due to the high level of decentralization and the low field office awareness of the importance of fleet operations, headquarters had limited visibility on operational fleet costs in the field. Headquarters did not even have a good approximation of the total number of vehicles being used by field offices, and they certainly did not know the cost of operating those vehicles.

Seventh, low field office awareness about the importance of fleet operations led to little investment in fleet management capabilities. In the audit of 2012 UNHCR financial statements, the Board of Auditors noted “very low levels of capacity for fleet management in terms of staff expertise, specialist guidance to inform vehicle management and standard tools such as templates or systems analyzing fleet performance. Few staff at country level have formal qualifications in logistics” (UN Board of Auditors, 2012). Due to the high level of decentralization, headquarters could not impose any requirement on those staff. The limited control over operational expenses and the low fleet management capabilities generated high costs to UNHCR, but also high risks to the organization (e.g. brand damage due to accidents caused by bad driver behavior), as well as a high environmental impact (e.g. due to over-aged and poorly maintained vehicles).

The seven negative consequences described above led to three resulting challenges for the organization. First, UNHCR had poor control over fleet related costs which were quite high in some field offices. The audit conducted by the UN OIOS in 2007 noted that “no effective global monitoring of fleet management and the associated costs has been established” (OIOS, 2007). The auditors noted that they “encountered difficulties in determining the overall cost of UNHCR fleet management activities. In UNHCR’s charts of accounts, direct fleet management expenses alone are recorded in over fifteen expenditure codes, and OIOS noticed numerous examples of inconsistent recording of expenditure” (OIOS, 2007). In the audit of 2012 UNHCR financial statements, the Board of Auditors recognized the same problem: “UNHCR currently lacks a robust and up to date picture of its fleet, its performance and operating costs. [...] Information on operating costs is opaque, mainly because of inconsistent approaches to coding expenses at country level into UNHCR’s financial systems” (UN Board of Auditors, 2012).

Poor control of fleet operating costs is problematic because the costs occurring at the field office level represent as much as 50 percent of the entire fleet cost (Pedraza-Martinez *et al.*, 2011). The internal audit of fleet management at UNHCR found

that these operating costs can be substantially different depending on how vehicles are managed, thus emphasizing the importance of close monitoring: “The difference in operating costs (spare parts, down-time, fuel wastage) between a well-managed and poorly managed vehicle over a six-year period can run over \$35,000” (UNHCR, 2006).

Second, the seven negative consequences also led to high risks for the organization. Transportation of staff and refugees are mission critical activities for UNHCR. Adequate program delivery relies upon the availability of appropriate vehicles (McConnell, 2011). Unavailable or inappropriate vehicles therefore increase the risk of not being able to deliver on UNHCR’s mandate. Staff driving old and poorly maintained vehicles represents a major safety risk. The UN Board of Auditors noted that while road traffic accidents represent a major operational risk and the leading cause of safety-related death and injuries among UN staff, “road safety risks were not being actively managed [by field office]” (UN Board of Auditors, 2012). In addition to road accident risks, a review of UNHCR’s fleet management identified a “significant enterprise risk to the agency a result of a generally low level of fleet management professionalism within the organization. This is regarded as a consequence of a failure to recognize the strategic importance of fleet operations to the organizational objectives of UNHCR” (McConnell, 2011). As a consequence of decentralization and limited awareness of the importance of fleet management, UNHCR had poor control over vehicle use. This generated a high reputational risk for the organization. In 2011, the fleet management review noted that “mechanisms for ensuring UNHCR vehicles are used exclusively for business purposes, are properly insured and well maintained are weak. There are numerous reported cases where UNHCR registered vehicles have been involved in incidents that have exposed the organization to legal liability and/or reputational damage” (McConnell, 2011).

Third, some of the negative consequences identified earlier also generated a high environmental impact, mainly due to over-sized and over-aged fleets. There was no strategy to reduce fleet emissions, despite the UN commitment to improve environmental performance of fleet operations (McConnell, 2011). Ways to reduce fleet emissions are to drive less, use more fuel efficient vehicles or improve driving techniques (McConnell, 2011). None of these simple options had been applied at UNHCR before the implementation of ILP.

The audits and evaluations cited earlier all strongly encouraged UNHCR to take action and improve its fleet management practices by implementing a number of recommendations. The audit of UNHCR’s fleet management stated that “there are many opportunities to improve UNHCR’s fleet management capabilities and for UNHCR to gain efficiencies by introducing global supervision and monitoring of these activities” (OIOS, 2007).

UNHCR recognized the challenges and implemented numerous recommendations from past audits and evaluations when it launched its ILP in 2014. The ILP model offers several benefits for headquarters and field offices. It gives headquarters better control over fleet management. By charging programs for the use of vehicles instead of their full procurement cost, it is in line with international public sector accounting standards (i.e. IPSAS) and donors’ requirements. Centrally managed disposal is better for the ILP because it ensures timely and profitable disposal of non-needed vehicles. The ILP model is also beneficial for field offices because it gives them access to new and adequate vehicles without paying the full investment cost upfront. By spreading the cash outlays over the entire lifetime of the vehicles, it reduces cash flow requirements at the start of new programs. Central procurement through the ILP is simpler for field offices because all vehicles are already equipped with accessories, and

procurement costs are significantly lower. Finally, field offices only pay the lease for the vehicles they need, and can return excess vehicles to the ILP.

Thanks to these mutual advantages, both headquarters and field offices benefit from the transition to the ILP model. However, this change process was not a simple exercise. Old habits die hard and UNHCR realized that if it wanted to solve the problems with fleet management, it first had to address the underlying systems and behaviors which led to the negative consequences identified in Figure 1. We describe this process of change in our framework for well-performing and professionally managed fleet (Figure 3).

Figure 1 demonstrated how existing systems and behaviors at UNHCR before the introduction of ILP led to a number of challenges. To address these challenges UNHCR had to follow a process of change that started by correcting the underlying systems and behaviors in fleet management (Figure 3). Table AII demonstrates how UNHCR achieved this through the implementation of the ILP. Instead of procuring vehicles based on available funding, field offices are now required to request them to ILP based on real needs. With the ILP, field offices pay a monthly rent for their vehicles. Using unspent budgets to rent additional vehicles would make little sense, because the rent for these vehicles would also have to be paid the following years. The misaligned incentive to spend remaining budgets on purchasing vehicles at the end of the year therefore largely disappeared.

As a central unit depending from headquarters, the ILP brought a higher level of centralization to fleet management at UNHCR. Vehicle procurement became a fully centralized function, and pooling demand from all field offices allowed the ILP to benefit from considerable volume discounts. Centralization of fleet management also brought a higher level of standardization in vehicle models. Centrally managed disposal led to better field office compliance with vehicle disposal policies. Selling newer and better maintained vehicles through professionally run auctions generated significantly higher disposal revenues. Headquarters introduced a number of common rules and policies related to fleet management, and prepared a fleet management handbook for the entire organization.

Finally, the ILP communicated intensively about the importance of fleet operations. It used different communication channels, such as internal e-mails, a promotional video, a fleet strategy booklet and the fleet management handbook. In 2015, the ILP launched a massive fleet management training targeted to different functions at the field offices, which will further increase awareness about the importance of fleet management.

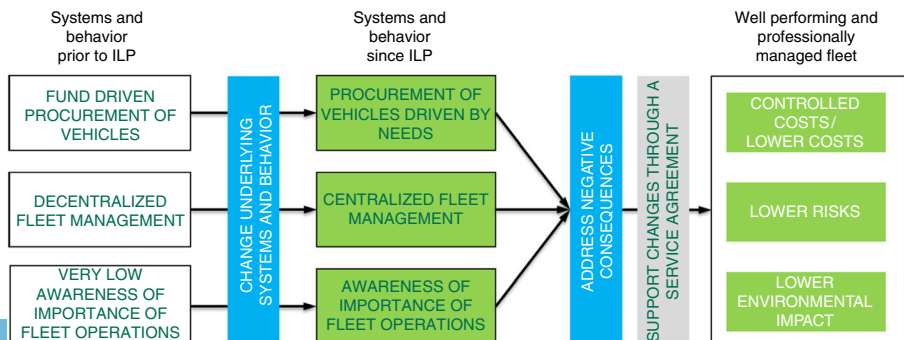


Figure 3. Framework for well-performing and professionally managed fleet

Once the ILP had addressed the underlying systems and behaviors, it took a number of corrective actions to address the negative consequences shown in Figure 1. The ILP implemented some of these corrective actions in its first year of operation (e.g. centralized procurement and disposal, fleet standardization). The ILP will implement other corrective actions in the coming years, such as launching fleet management training, implementing fleet management software and advising field offices on maintenance and repairs.

In order to be successful, these actions have to be supported by a service agreement that states the authorities and responsibilities of the ILP and field offices. The ILP developed such contractual agreement for fleet management following an existing framework used by other functions in the organization, the accountabilities, responsibilities and authorities framework. Without such contractual agreement and top management support, the ILP would not have been able to impose the new fleet management model on field offices.

By following the process described in Figure 3, UNHCR will achieve a well-performing and professionally managed fleet as described in the ILP fleet strategy for 2014-2018 (UNHCR, 2014). The ILP will allow better control of the costs of fleet, and substantially reduce those. Field offices will know how much they spend on vehicles, and headquarters will have a detailed understanding of the total cost of ownership of vehicles throughout their lifecycle. UNHCR will better understand fleet related risks and manage them. Proper fleet utilization, use of adequate vehicles and launch of road safety programs will reduce risks to UNHCR. Finally, thanks to newer and well-maintained vehicles, the ILP will reduce the environmental impact of UNHCR's fleet. Adequate fleet size will ensure UNHCR only operates vehicles that are required to fulfill its mandate.

Results

In this section we demonstrate that the ILP already made significant progress toward the achievement of a well-performing and professionally managed fleet at UNHCR. We define a number of fleet performance indicators and calculate their value before the ILP (April 2013) and ten months after its introduction (October 2014).

The first indicator is fleet size. In 2011, the fleet management review estimated that UNHCR had a fleet of about 6,500 vehicles, which was "oversized compared with operational needs" (McConnell, 2011), although nobody knew the exact number of vehicles in the field. One of the objectives of the 2014-2018 ILP strategy is to ensure that the fleet is right-sized (UNHCR, 2014). The ILP achieved this objective, by decreasing the fleet from 4,913 to 4,389 vehicles, a decrease of 11 percent, between April 2013 and October 2015. This was achieved through carefully managed and highly successful auctions of old vehicles. UNHCR now has a good view on total fleet in its 100 + field offices, and estimates the adequate total fleet size to run its current operations at about 4,000 vehicles.

The second indicator is average fleet age. In 2011, the fleet management review noted that "with an average age of 6 years a large proportion of the fleet has exceeded its economical lifespan", which will lead to "high service and repair costs" (McConnell, 2011). An objective of the 2014-2018 ILP strategy is to reduce fleet age (UNHCR, 2014). After ten months of operation, the ILP managed to reduce average fleet age from 5.85 years in 2013 to 4.63 years in 2014, a 21 percent decrease. Again, this was largely achieved by centrally managed and well-organized auctions of old vehicles in the field.

The third indicator is average procurement cost of vehicles. In 2012, the report of the Board of Auditors found that the choice of vehicles did not "incorporate whole life costing and performance criteria" (UN Board of Auditors, 2012). In 2005, the internal evaluation of UNHCR's fleet management found that "purchasing from local dealers,

ex-stock, can cost 25 percent above that which UNHCR gets by ordering directly from the manufacturer” (UNHCR, 2006). The 2014-2018 ILP strategy aims to solve this problem by centralizing and optimizing procurement (UNHCR, 2014). By doing so, the ILP generated a procurement cost reduction of 21 percent, or a saving of about \$5 million per year. For confidentiality reasons, we cannot disclose UNHCR’s procurement costs before and after introduction of the ILP.

The fourth indicator is level of fleet standardization. We measure it through the number of suppliers and the number of models procured by the organization. In 2012, the report of the Board of Auditors found that field offices procured vehicles from over 30 different manufacturers (UN Board of Auditors, 2012). This obviously increased the complexity of spare part and maintenance management. This report recommended that headquarters should “set an objective to reduce the number of models in the fleet, selecting standard models taking into account cost in use data, availability criteria and the views of country teams” (UN Board of Auditors, 2012). The 2014-2018 ILP strategy addresses this recommendation by standardizing the fleet (UNHCR, 2014). Our analysis shows that ILP was able to reduce the number of suppliers from 44 to 25 (–43 percent, see Figure 4). The main supplier delivers more than 80 percent of vehicles to the organization. Substantially fewer model types and larger order quantities to a few suppliers explain the substantial reduction in procurement costs to a large extent. The other suppliers are alternative vendors, mainly in countries where importing vehicles is highly regulated.

Central procurement allowed ILP to reduce the number of models from 35 to 23 (–34 percent). Figure 5 shows that the four most common models represented less than 50 percent in April 2013, but accounted for more than 80 percent of the fleet in October 2014.

Discussion

Our results demonstrate that the move from a highly decentralized fleet to a well-designed ILP generated significant improvements and savings at UNHCR. While our aim is not to compare the commercial and humanitarian sectors, it is worthwhile to note that the ILP incorporates principles from the commercial sector. One is centralization of fleet management, which enabled UNHCR to impose a number of sound policies throughout the organization. While audits and fleet management reviews had repeatedly recommended

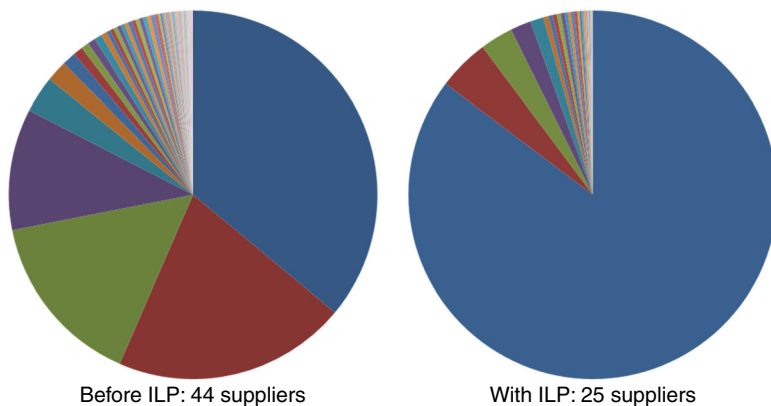
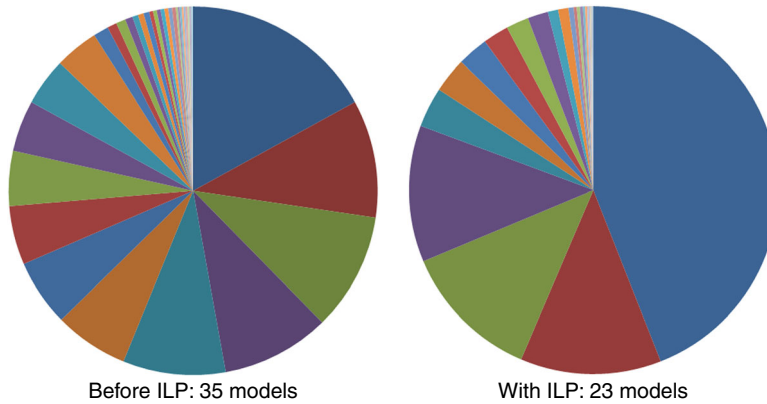


Figure 4.
Number of vehicles^a
procured from each
supplier, before and
with the ILP

Note: ^aValues not disclosed for confidentiality reasons



Note: ^aValues not disclosed for confidentiality reasons

Figure 5.
Number of vehicles^a
procured from each
model, before and
with the ILP

changes to fleet management over the years, it is only since the ILP established central supervision of the fleet that these changes could be implemented. Pooling of demand and centralized procurement benefited the organization through better pricing and more informed decision making. Younger fleets and adequate disposal through professionally managed auctions resulted in significantly higher disposal revenues.

The change from owning to using vehicles is another principle commonly found in the commercial sector. Leasing or rental allows field offices to spread cash outlays over the entire lifetime of a vehicle. This substantially reduces the peaks of cash required to procure vehicles at the start of a new program. The ILP model also gives field offices a higher operational flexibility because they only pay for vehicles used and have the option to return vehicles no longer needed to the ILP.

Reducing the fleet size and disposing of unneeded old vehicles is in line with lean management principles. Any excess vehicle in a fleet can be seen as extra capacity, similar to excess stock. This “waste” in the system prevents managers from identifying operational problems like vehicle immobilization due to poor maintenance or suboptimal transport management. Indeed, if a field office has several extra vehicles that are rarely used, it will not realize it has a problem when an old vehicle spends a long time in maintenance. Just like reducing excess inventory, right-sizing the fleet allows UNHCR to make fleet management problems apparent and solve them.

The improvements that the ILP brought to UNHCR’s fleet management after ten months of operation are only a starting point in the implementation of UNHCR’s 2014-2018 fleet strategy (UNHCR, 2014). In order to sustain this positive improvement cycle, the ILP is in the process of implementing a number of additional changes. It is working on a fleet performance measurement system that will allow field offices to track their performance. Fleet utilization, vehicle activity status, and fuel consumption are some of the key performance indicators this system will track.

The ILP is currently also implementing a fleet management training for field offices, as well as a fleet management software for collecting and reporting fleet data. Vehicles are being equipped with electronic tracking devices. The ILP is also working on assisting field offices with maintenance and repairs. At a later stage, it will also provide field offices with appropriate tools for managing fuel procurement and consumption. Ultimately, the goal of UNHCR’s ILP is to move away from merely providing vehicles to field offices to offering a full transportation service.

Conclusion

Fleet management is a key function in humanitarian organizations although it is still not fully recognized as such. Poorly managed fleets are not only expensive but increase risks and have a detrimental impact on the environment. Evidently, poor fleet management may also lead to missing program delivery targets due to unavailability of vehicles. Given that most humanitarian organizations are strongly decentralized, the huge impact of poorly managed fleets may not even be visible. Humanitarian organizations focus on their mandate and mission. Frequently this focus fails to include the important role of vehicles as a key enabler.

Decentralized and fund driven procurement, poor maintenance and spare parts management, over-aged vehicles, no attention for proper disposal and other deficiencies continue to haunt the humanitarian world. Most of these cannot effectively be tackled in a highly decentralized system. This paper describes how professional fleet management can be achieved through a centralized ILP where headquarters procure and dispose of vehicles and lease them to field offices, together with a series of support actions that are aimed at substantially improving local fleet management capabilities. While these types of arrangements gain traction in some larger humanitarian organizations, they are still uncommon in the smaller ones. Moreover, ILPs have not adequately been analyzed and described in literature. Our paper provides a first step to fill this gap.

We provide an in-depth discussion of the ILP at UNHCR and compare performance before and after its introduction. Our contribution consists of frameworks that connect systems and behaviors to poor results and recurring problems of humanitarian organizations. We show how these systems and behaviors can be addressed in a comprehensive fashion, and how this enacts a positive continual improvement loop that can lead to professional fleet management. Our case description and frameworks for analysis can be used by practitioners and researchers alike to further develop the theory and practice of humanitarian fleet management.

References

- Balcik, B., Beamon, B.M. and Smilowitz, K. (2008), "Last mile distribution in humanitarian relief", *Journal of Intelligent Transportation Systems*, Vol. 12 No. 2, pp. 51-63.
- Balcik, B., Beamon, B.M., Krejci, C.C., Muramatsu, K.M. and Ramirez, M. (2010), "Coordination in humanitarian relief chains: practices, challenges and opportunities", *International Journal of Production Economics*, Vol. 126 No. 1, pp. 22-34.
- Beamon, B.M. and Balcik, B. (2008), "Performance measurement in humanitarian relief chains", *International Journal of Public Sector Management*, Vol. 21 No. 1, pp. 4-25.
- Beamon, B.M. and Kotleba, S.A. (2006), "Inventory management support systems for emergency humanitarian relief operations in South Sudan", *International Journal of Logistics Management*, Vol. 17 No. 2, pp. 187-212.
- Besiou, M., Pedraza-Martinez, A.J. and Van Wassenhove, L.N. (2014), "Vehicle supply chains in humanitarian operations: decentralization, operational mix, and earmarked funding", *Production and Operations Management*, Vol. 23 No. 11, pp. 1950-1965.
- Eftekhari, M. (2015), "Fleet management in humanitarian sector", *Decision Sciences*, Vol. 46 No. 2, pp. 447-453.
- Eftekhari, M., Masini, A., Robotis, A. and Van Wassenhove, L.N. (2014), "Vehicle procurement policy for humanitarian development programs", *Production and Operations Management*, Vol. 23 No. 6, pp. 951-964.

- Eisenhardt, K.M. and Graebner, M.E. (2007), "Theory building from cases: opportunities and challenges", *Academy of Management Journal*, Vol. 50 No. 1, pp. 25-32.
- Karlsson, C. and Åhlström, P. (1995), "Change processes towards lean production: the role of the remuneration system", *International Journal of Operations & Production Management*, Vol. 15 No. 11, pp. 80-99.
- Kunz, N., Reiner, G. and Gold, S. (2014), "Investing in disaster management capabilities versus pre-positioning inventory: a new approach to disaster preparedness", *International Journal of Production Economics*, Vol. 157, November, pp. 261-272.
- Leonard-Barton, D. (1990), "A dual methodology for case studies: synergistic use of a longitudinal single site with replicated multiple sites", *Organization Science*, Vol. 1 No. 3, pp. 248-266.
- McConnell, R. (2011), "UNHCR vehicle fleet management: a review of policy, procedure and practice", Review Commissioned by the UNHCR Division of Emergency, Security and Supply (DESS), Geneva, May.
- OIOS (2007), "Audit of UNHCR fleet management", UN Office of Internal Oversight Services, New York, NY.
- Pedraza-Martinez, A.J. and Van Wassenhove, L.N. (2012), "Transportation and vehicle fleet management in humanitarian logistics: challenges for future research", *EURO Journal on Transportation and Logistics*, Vol. 1 Nos 1-2, pp. 185-196.
- Pedraza-Martinez, A.J. and Van Wassenhove, L.N. (2013), "Vehicle replacement in the international committee of the red cross", *Production and Operations Management*, Vol. 22 No. 2, pp. 365-376.
- Pedraza-Martinez, A.J., Stapleton, O. and Van Wassenhove, L.N. (2011), "Field vehicle fleet management in humanitarian operations: a case-based approach", *Journal of Operations Management*, Vol. 29 No. 5, pp. 404-421.
- Stauffer, J.M., Pedraza-Martinez, A.J. and Van Wassenhove, L.N. (2015), "Temporary hubs for the global vehicle supply chain in humanitarian operations", *Production and Operations Management*. doi: 10.1111/poms.12427.
- UN Board of Auditors (2012), "Report of the Board of Auditors on the 2012 UNHCR financial statements", New York, NY.
- UNHCR (2006), *Evaluation of the Utilization and Management of UNHCR's Light Vehicle Fleet*, UNHCR, Geneva.
- UNHCR (2014), "Fleet strategy 2014-2018", UNHCR Supply Management Logistics Service, Budapest.
- Yin, R.K. (2009), *Case Study Research: Design and Methods*, Sage, Thousand Oaks, CA.

(The Appendix follows overleaf.)

Underlying system and behavior	Negative consequences	Resulting challenges for the organization
<p><i>Fund driven procurement of vehicles:</i> "It is interesting to note that 80% of the vehicle movements out of the strategic vehicle stock held in Dubai in 2009 and 2010 were dispatched in the final quarter of the year implying that these procurements were an attempt to use up remaining project funding rather to meet defined programme transport needs" (McConnell, 2011)</p> <p>Furthermore, UNHCR internal procurement data show that more than 50% of vehicles were being ordered in December to spend unused budgets (see Figure 2)</p> <p><i>Decentralized fleet management:</i> "The ownership of the fleet, decisions on budgetary allocation for maintenance and the redeployment and allocation of staff resources have been substantially vested in UNHCR representations" (OIOS, 2007)</p>	<p><i>Over-aged fleet:</i> "UNHCR is replacing vehicles every eight, or so, years, not every five years as guideline principles advise" (UNHCR, 2006). This leads to several negative consequences: "by retaining in service vehicles that have exceeded their economical lifespan there is significant overspend on maintenance, repairs and fuel" (McConnell, 2011)</p> <p><i>Over-sized fleet:</i> "The uncertainty of if and when vehicles will be replaced leads [field] offices to hoard vehicles in the event of breakdowns or unanticipated changes in the program" (UNHCR, 2006). This leads to over-sized fleets: "In many field offices there are large quantities of end of lifetime vehicles awaiting disposal. These vehicles have often been used beyond their economical lifespan and have limited or no residual value" (McConnell, 2011)</p> <p><i>Low disposal income:</i> "UNHCR is failing to exploit a substantial potential revenue stream by not disposing of end of lifetime vehicles in a systematic and effective manner while the vehicle still have a realizable economic value" (McConnell, 2011)</p> <p><i>Lack of fleet standardization:</i> The new strategy should have the "objective to reduce the number of models in the fleet, selecting standard models" (UN Board of Auditors, 2012)</p> <p><i>Suboptimal procurement:</i> "Purchasing from local dealers, ex-stock, can cost 25% above that which UNHCR gets by ordering directly from the manufacturer" (UNHCR, 2006)</p>	<p><i>Poor cost control/high costs:</i> "No effective global monitoring of fleet management and the associated costs has been established" (OIOS, 2007)</p> <p>The auditors "encountered difficulties in determining the overall cost of UNHCR fleet management activities. In UNHCR's charts of accounts, direct fleet management expenses alone are recorded in over fifteen expenditure codes, and OIOS noticed numerous examples of inconsistent recording of expenditure" (OIOS, 2007).</p> <p>"UNHCR currently lacks a robust and up to date picture of its fleet, its performance and operating costs. [...] Information on operating costs is opaque, mainly because of inconsistent approaches to coding expenses at country level into UNHCR's financial systems" (UN Board of Auditors, 2012)</p> <p><i>High risks:</i> "Road safety risks were not being actively managed [by field office]" (UN Board of Auditors, 2012)</p> <p>"The review identified significant enterprise risk to the agency a result of a generally low level of fleet management professionalism within the organization. This is regarded as a consequence of a failure to recognize the strategic importance of fleet operations to the organizational objectives of UNHCR" (McConnell, 2011)</p> <p>"Mechanisms for ensuring UNHCR vehicles are used exclusively for business purposes, are properly insured and well maintained are weak. There are numerous reported cases where UNHCR registered vehicles have been involved in incidents that</p>

Table AI.
Statements supporting the framework of fleet management before the introduction of the Internal Leasing Program

(continued)

Underlying system and behavior	Negative consequences	Resulting challenges for the organization
<p><i>Low awareness of the importance of fleet:</i> “Very little attention was given to the logistics/fleet management function, a high-risk area due to financial value and the size and variety of a fleet ranging from motorbikes to heavy trucks” (OIOS, 2007)</p>	<p><i>Poor visibility of operational fleet costs:</i> “No effective global monitoring of fleet management and the associated costs has been established” (OIOS, 2007)</p> <p>“Without reliable and complete financial information, it becomes difficult to conduct effective monitoring and provide assurance to management of value for money and adoption of best practices in field operations” (OIOS, 2007)</p> <p><i>Low fleet management capabilities:</i> “Very low levels of capacity for fleet management in terms of staff expertise, specialist guidance to inform vehicle management, and standard tools such as templates or systems analyzing fleet performance. Few staff at country level have formal qualifications in logistics” (UN Board of Auditors, 2012)</p>	<p>have exposed the organization to legal liability and/or reputational damage” (McConnell, 2011)</p> <p><i>High environmental impact:</i> “The emissions of the vehicle fleet contribute a large proportion of the organization’s combined total of greenhouse gases. UN wide commitments to improve environmental performance of fleet operations are not being acted upon and the organization has not developed strategy to reduce fleet emission” (McConnell, 2011)</p>

Table AI.

Goal	Objective	Output
1. Improve the efficiency of the UNHCR fleet	Fleet is right-sized and fit for purpose	<ul style="list-style-type: none"> ✔ Optimized procurement ✔ All vehicle provided under rental scheme ✔ Fleet standardization ✔ Timely supply of vehicles through hubs ✔ Centrally managed vehicle disposal
	Fleet is reliable and well-maintained	<ul style="list-style-type: none"> ✔ Plan vehicle replacement, reduce fleet age ✔ Assure quality of maintenance and compliance ✔ Insurance to ensure vehicles are timely repaired
	Fleet is well-managed	<ul style="list-style-type: none"> ✔ Full vehicle life-cycle management ✔ Design effective tools, guidance and policy ✔ Implement software for fleet management ✔ Fleet management training for fleet managers ✔ Central overview and control of resources
	Fleet is effective and economical to operate	<ul style="list-style-type: none"> ✔ Vehicle tracking system implemented to provide data for targeted action ✔ Implement fleet management system to monitor expenses ✔ Manage and actively monitor fuel usage
2. Improve road safety of the UNHCR fleet	Reduced the number and severity of accidents	<ul style="list-style-type: none"> ✔ Deliver road safety awareness campaign ✔ Provide appropriate training ✔ Selection of safer vehicles
	Reduced occupational health hazard to drivers and passengers	<ul style="list-style-type: none"> ✔ Increase occupational health awareness ✔ Introduce effective journey management
3. Minimize environmental impact of UNHCR vehicles	Reduce emissions	<ul style="list-style-type: none"> ✔ Improved utilization of vehicles ✔ Purchase low-emission vehicles where possible ✔ Driver training
	Improve waste disposal	<ul style="list-style-type: none"> ✔ Ecological disposal of oils and lubricants ✔ Disposal of used parts and tyres

Table AII.
UNHCR strategy of achieving a well-performing and professionally managed fleet

Source: UNHCR (2014)

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