



**system concepts**

## Measuring Productivity for Car Booking Solutions

Value Creation Study

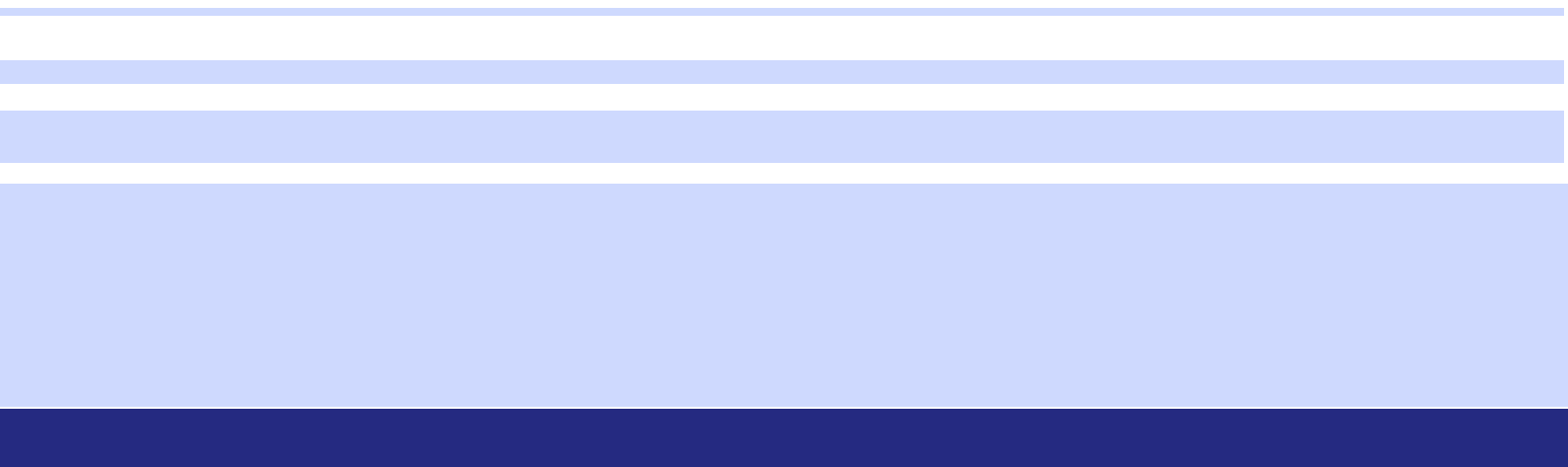
Rebecca Bartlett

20th January 2014

# Table of Contents



Executive Summary	3
Introduction	4
Method	5
Productivity Analysis	5
Scenario 1	6
Scenario 2	8
Scenario 3	9
Ease and Speed of Use Perception	11
What Agents Valued Most about Amadeus	12
Conclusion	13
Appendix	14



# Executive Summary

This white paper outlines the results of a **study** completed in **Italy and the USA in October 2013**. The study was commissioned by Amadeus and carried out by an **independent research company: System Concepts Ltd**. The aim was to **compare Amadeus' Cars Plus** product against the most commonly used **car providers' B2C websites** in each market. In particular, we assessed the sites for **productivity** when making typical bookings that included a car rental segment. The analysis will help Amadeus to understand where their Cars Plus product sits in terms of **productivity, advantages** and **areas for improvement** to add value to the product, compared to car rental suppliers' own solutions (dot coms).

This study indicates that the **Amadeus' Cars Plus product** was the **most effective solution** for making car rental bookings. This was particularly true when the booking was combined with an air or hotel segment, when comparing offers from different providers and when searching for a rental office close to a known address. **To book a flight and search and book a car was 39% faster** using **Amadeus Cars Plus** than using the car providers' dot coms. **To book a hotel and search and book a car was 23% faster** using Amadeus Cars Plus than using the car providers' dot coms.

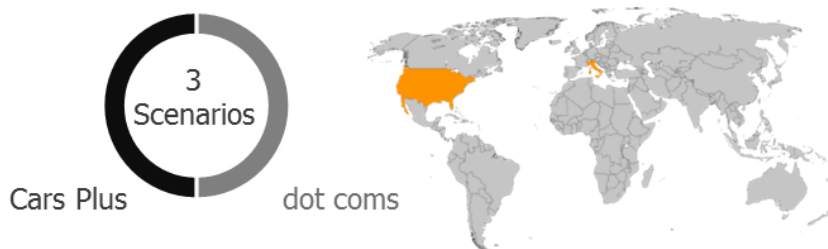
Agents also rated Amadeus as **easier and faster** to use than the car providers' dot coms.

The features that agents valued most about Amadeus were:

- **provider comparison**
- **booking integration**
- **prepopulated search fields.**

## Method

39 agents, 18 travel agencies, 243 measurements.



## Results

Search/Compare/Book

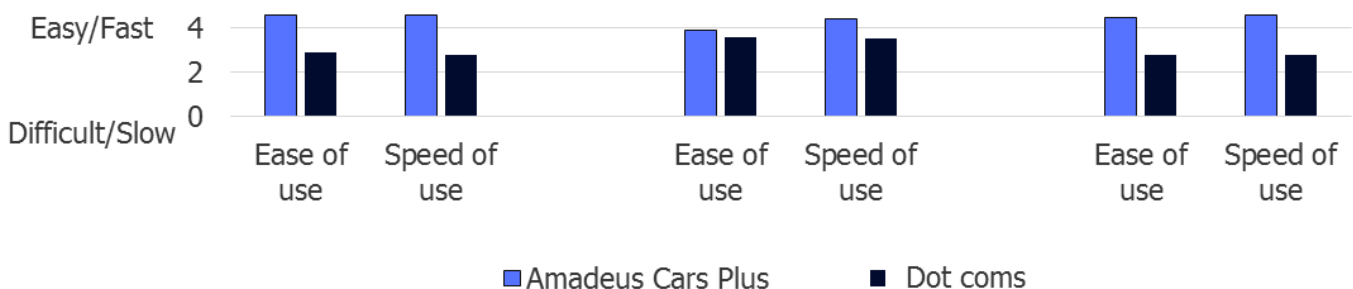
Cars Plus  
**39%**  
Faster

Modify booking

Dot coms  
**8%**  
Faster

Search by landmark

Cars Plus  
**23%**  
Faster



# Introduction

This white paper outlines the results of a **study** completed in **Italy and the USA in October 2013**. The study was commissioned by Amadeus and carried out by an **independent research company: System Concepts Ltd**. The aim was to **compare Amadeus' Cars Plus** product against the most commonly used **car providers' B2C websites** in each market. In particular, we assessed the sites for productivity when making typical bookings that included a car rental segment. The analysis will help Amadeus to understand where their Cars Plus product sits in terms of **productivity, advantages and areas for improvement** to add value to the product, compared to car rental suppliers' own solutions (dot coms).

The global car rental market is an estimated **€44 billion industry** and is predicted to grow in the coming years. The industry is heavily concentrated in the USA and Europe. The **USA** market alone accounts for approximately **€17.8 billion** of the industry total. **Italy** is a key player within Europe, accounting for approximately **€1.4 billion** of the estimated industry total. In 2012, over 105,000,000 car rental transactions were made in the USA and over 4,500,000 car rental transactions were made in Italy.

For Amadeus, Italy and the USA make the **second and third highest number of bookings** using Amadeus Cars Plus, a product that sits on Amadeus Selling Platform. Both markets have big growth potential for Amadeus, providing Amadeus can prove the value to travel agents of using their Cars Plus product.

Travel agents have a choice when it comes to making a car reservation for their customer. They can book cars through the suppliers' B2B or B2C sites, depending on what agreements their agency has with the suppliers, through Amadeus, or through an alternative third party supplier.

Over 50% of the market share is split between four key car rental suppliers: **Enterprise Holdings, Hertz Corp., AvisBudget Group** and **Europcar Group**. Competition between these suppliers is fierce. This forces suppliers to offer lower prices to customers and offer extra services free of charge or at a reduced price; for example, free GPS systems, comprehensive insurance and refuelling services.

This study aimed to identify the **benefits and value to travel agents** of using Amadeus Cars Plus (graphical interface), over and above the other options available to them. The study provided quantitative and qualitative analysis of Amadeus Cars Plus and key car rental suppliers' own solutions in order to answer the **following key questions**.

- Which is the **most time efficient** solution to make a car booking?
- What are the **tangible benefits** and **values** to travel agents of **Amadeus Cars Plus**?
- How does **Amadeus Cars Plus** (Graphical Interface) **compare** with the car rental companies' **own solutions**?
- How can **Amadeus Cars Plus be improved** to make it always a better alternative than using car provider dot coms?



Focus on efficiency,  
tangible benefits, and  
room for improvement

# Method

In October 2013, **39 travel agents**, within **18 travel agencies**, in Italy (15 agencies) and the USA (3 agencies) took part in this study. Each agent completed **three scenarios**, twice each; once using Cars Plus and once using car providers' dot coms. The car providers' dot coms used in this study represented the **top three suppliers** in each market. To correct for treatment order bias we alternated in which condition (with Cars Plus or using the dot coms) agents completed each of the three scenarios first. The outcome was to give us a paired comparison between the two conditions.

Prior to the first scenario we provided agents with the passenger information for Mr Amadeus (our customer for all three scenarios) that they required: name, contact details and car provider loyalty card and login details. By using the loyalty card numbers and login details on the car providers' dot coms and in Amadeus Cars Plus, agents had access to Mr Amadeus's address and credit card details that were required to complete the bookings.

Agents were asked to complete the scenarios as they would as part of a normal day's work; making use of their own Amadeus system and other resources, as required. Each agent was also interviewed to gather their **qualitative feedback**. The sessions took place within the **agents' own work environment**.

The **appendix** contains more detailed information about the method used (page 15).



## Sample

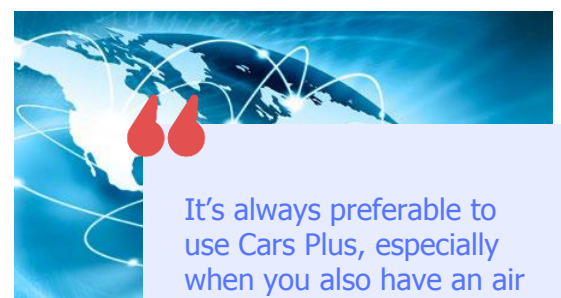
The sample of agents who took part in this study covered a **spread of agents** who were **experienced users** of Amadeus Cars Plus to those who **had never used** it before. Those who were experienced users of the car providers' dot coms and those who had never used them before. We included **both business and leisure agents** from **small size** travel agencies through to **Travel Management Companies (TMCs)**.

## Productivity Analysis

The productivity analysis is based on the **time measurements** collected from **the three common scenarios** that were completed by each agent twice, once using Amadeus Cars Plus and once using the car providers' own dot coms.

For each scenario a **paired t-test** was used to compare the difference between paired values in the two conditions; completing the scenario with and without using Amadeus Cars Plus, taking into account the variation of values within each sample.

All of the measurements in this study are validated with **confidence levels of 95% or higher**.



It's always preferable to use Cars Plus, especially when you also have an air booking"

# Scenario 1

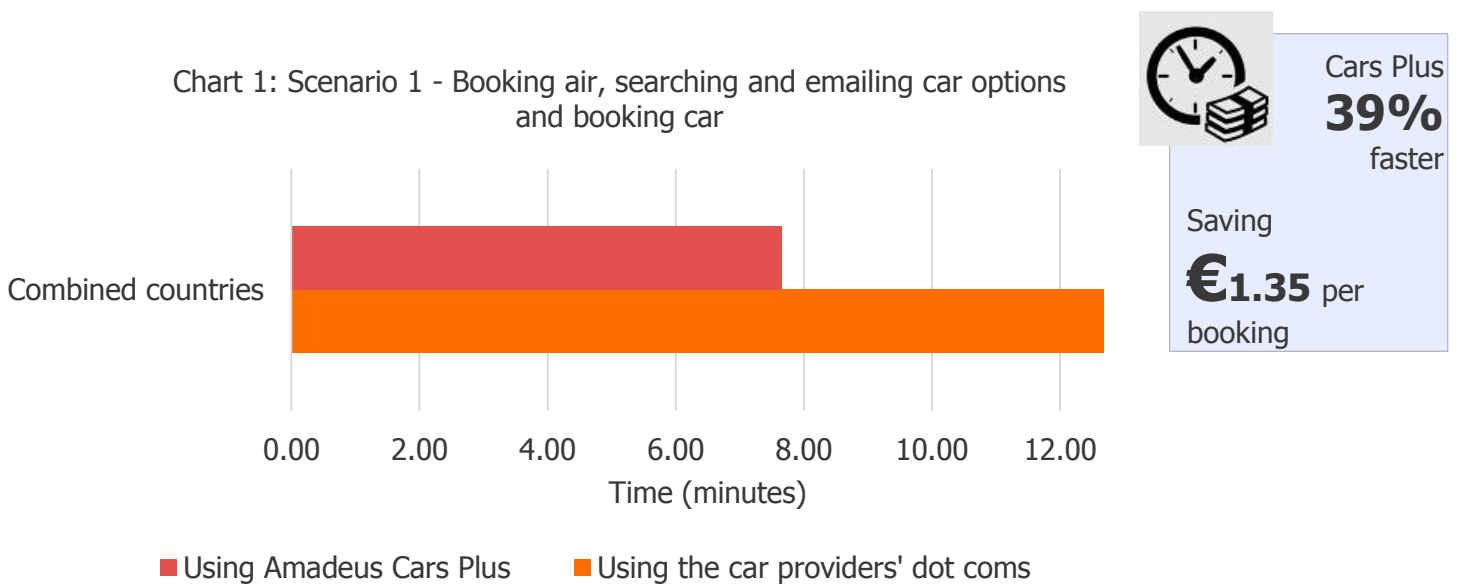
Agents were asked to **make an air booking**, on Amadeus, **search for a car**, **email car offers from two suppliers** to the customer and then **book one of the two cars**.

The appendix contains the full scenarios (1, 2 and 3), as presented to the agents (page 16).

Results show that completing this scenario using Amadeus Cars Plus was **39% faster** compared with the dot coms. When using Amadeus Cars Plus, participants were able to complete the scenario in **7 minutes 42 seconds** on average. When using the dot coms, it took an average of **12 minutes 42 seconds**. A paired t-test showed that this difference was statistically significant (1).

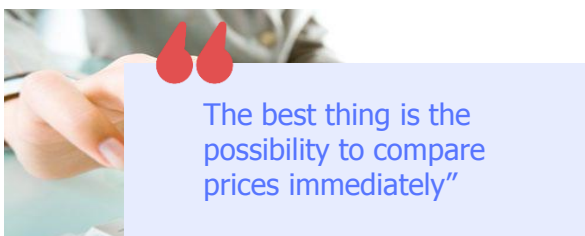
(1) -  $t(37)=-9.41, P<0.05$

Based on an average working week of **40 hours**, and the average labour cost of a travel agent in Europe and the USA of **€2600 per month\***, this time saving equates to a revenue saving of approximately **€1.35 per booking**.



**Small sized travel agencies** who make an average of **1000 car rental transactions** per month which include an air and a car booking can achieve an estimated saving of up to **€1,350 per month**, resulting in savings of up to **€16,200 per year**.

**Larger sized agencies** who make approximately **5,000 car rental bookings** per month which include an air and a car booking can achieve a monthly saving of **€6,750**, resulting in savings of up to **€81,000 per year**.



\* Figures for the average labour cost for a travel agency in USA and Italy and working hours were taken from an independent study by Hermes Management Consulting in 2010.

# Scenario 1

**Amadeus Cars Plus** was the **most time efficient solution** to complete scenario 1. The main reasons for this are listed below.

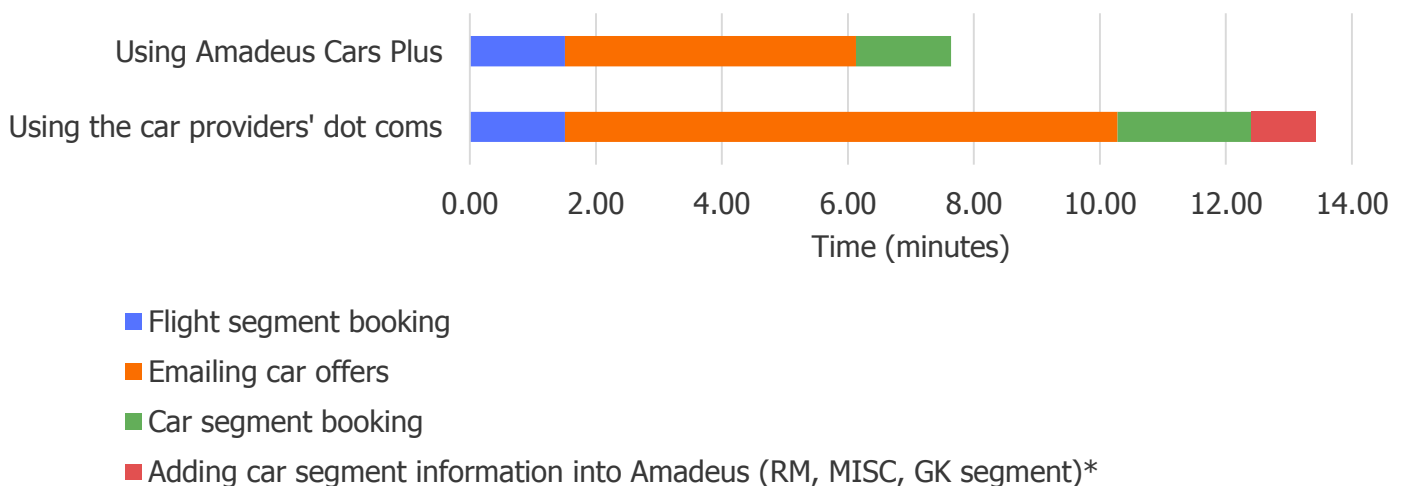
- **Flight segment information;** date and departure/arrival times were **carried over to Cars Plus automatically**, meaning agents did not need to spend time entering these details manually to make their car search, nor did they need to spend time swopping between products (Amadeus Selling Platform and the car providers' dot coms) to check the information.
- **Amadeus Cars Plus allowed comparison** between **multiple providers** simultaneously, meaning agents only needed to make one search to see the offers from all providers, rather than two separate searches on the car providers' dot coms to compare two providers.
- **Amadeus Cars Plus** had an **inbuilt email function**, allowing agents to email car rental offers to their customer directly from the product. When using the car providers' dot coms, agents often relied on an additional email solution (e.g. Microsoft Outlook) to email the rental offers to their customer.
- When using **Amadeus Cars Plus**, the **booking was integrated** into the **same PNR** (passenger name record) as the air segments associating the two reservations. When using the car providers' dot coms to make a car booking, 11/39 agents then created a GK (ghost) or MISC (miscellaneous) segment or made a remark (RM element) in the passenger's PNR in Amadeus; to associate the flight and car segments. This took extra time.

Our data analysis showed that the **biggest time savings** were made in the **search and emailing of offers**, and in the booking elements.

- On average agents took **4 minutes 37 seconds** to search and email two offers using Cars Plus. On the car providers' dot coms agents took on average **8 minutes 48 seconds** to complete the same task (search and email two offers).
- To make the car booking, using Cars Plus took on average **1 minute 31 seconds**, using the car provider dot coms took **2 minutes 20 seconds**.

Both of these time savings were statistically significant.

Chart 2: Scenario 1 - Booking air, searching and emailing car options and booking car, split into the separate elements.



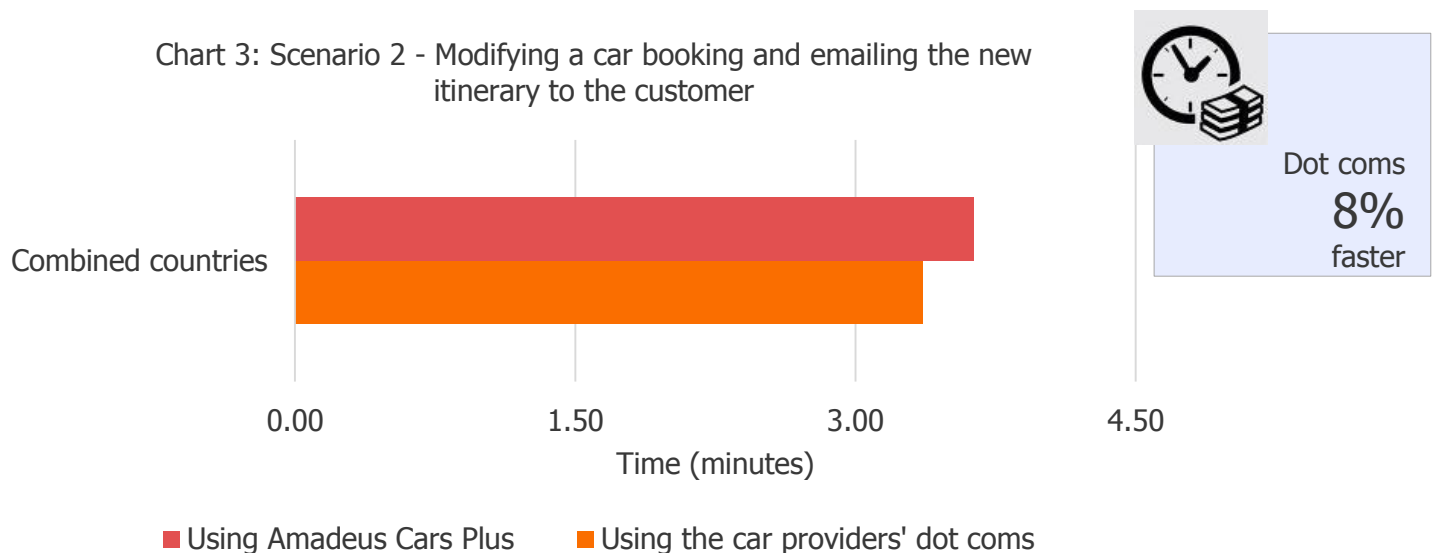
\*In Amadeus Cars Plus, element 4 - Adding the car segment information into Amadeus was done automatically as agents made the reservation. Only 11/39 agents made this entry.

## Scenario 2

Agents were asked to **modify the car booking** that they had made in scenario 1; changing the dates and upgrading the car type, and email the new itinerary to the customer.

Results show that car providers' dot coms perform better completing this scenario. When using Amadeus Cars Plus, participants were able to complete the scenario in **3 minutes 38 seconds** on average. When using the dot coms, it took an average of **3 minutes 22 seconds** to complete the scenario. However, a paired t-test showed that this difference was not statistically significant (2).

(2) -  $t(38)=0.85$ ,  $P>0.05$



The car providers' websites were the most time efficient solution to complete scenario 1. The main reasons for this are listed below.

- Agents who were successfully able to modify the car booking using the modification popup in Amadeus Cars Plus commonly had difficulties emailing the new itinerary to the customer. They expected a graphical way to do this; similar to how they had sent the comparison email (scenario 1) or the original confirmation email (scenario 1) to their customer. Agents did not expect to email through the command page.
- The car providers' dot coms had a modification function that agents generally discovered and interacted with easily.
- On the car providers' dot coms, there was a way to send the booking confirmation to the customer directly from the dot com, or this was done automatically once the modification was confirmed.
- When modifying on the car providers' dot coms very few agents made an elements in Amadeus (e.g. a RM, GK or MISC element).



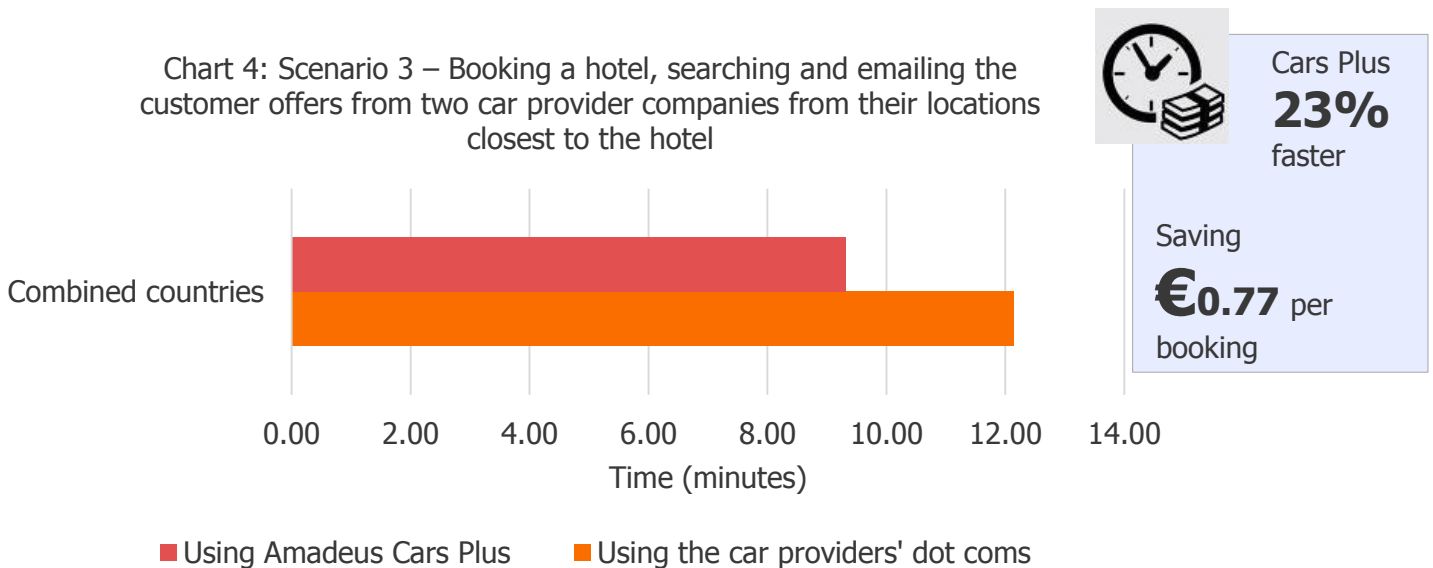
# Scenario 3

Agents were asked to make a **hotel reservation** for a specified hotel, then **search for car rental** companies closest to that hotel and email Mr Amadeus two offers.

Results show that completing this scenario using Amadeus Cars Plus was **23% faster** compared with the provider websites. When using Amadeus Cars Plus, participants were able to complete the scenario in **9 minutes 19 seconds** on average. When using the dot coms it took an average of **12 minutes 8 seconds** to complete the scenario. A paired t-test showed that this difference was statistically significant (3).

$$(3) - t(37) = -6.64, P < 0.05$$

Based on an average working week of **40 hours**, and the average labour cost of a travel agent in Europe and the USA of **€2600 per month**, this time saving equates to a revenue saving of approximately **€0.77 per booking**.



**Small sized travel agencies** who make an average of **1000 car rental transactions** per month which include a car booking by landmark can achieve an estimated saving of up to **€770 per month**, resulting in savings of up to **€9,240 per year**.

**Larger sized agencies** who make approximately **5,000 car rental bookings** per month which include a car booking by landmark can achieve a monthly saving of **€3,850**, resulting in savings of up to **€46,200 per year**.

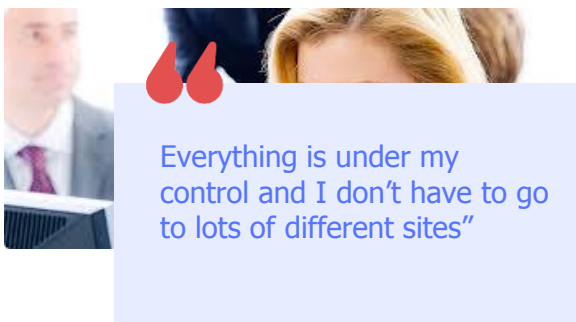
\* Figures for the average labour cost for a travel agency in USA and Italy and working hours were taken from an independent study by Hermes Management Consulting in 2010.

# Scenario 3

**Amadeus Cars Plus** was the **most time efficient solution** to complete scenario 3. The main reasons for this are listed below.

- **Pick-up and drop-off dates** were carried over to **Cars Plus automatically** to correspond with the hotel reservation, meaning that agents did not need to spend time entering these details manually to make their car search.
- **Amadeus Cars Plus** allowed agents to **search for car rental companies close to a specific address** (that of the hotel) and the search results were presented in order of distance from the specified address.
- **Amadeus Cars Plus** allowed **comparison between multiple providers simultaneously**, meaning agents only needed to make one search to see the offers from all providers rather than separate searches on each car provider's dot com to compare two providers.
- **Amadeus Cars Plus** had an **inbuilt email function** allowing agents to email car rental offers to their customer directly from the product. When using the car providers' dot coms, agents often relied on an additional email solution (e.g. Microsoft Outlook) to email the rental offers to their customer.

Chart 5: Scenario 3 - Booking a hotel, searching and emailing car offers close to that hotel split into the different elements



# Ease and Speed of Use Perception

Agents who took part in this study were also asked for their perception regarding the ease of use and speed of use of Amadeus Cars Plus and the car providers' dot coms for completing each scenario. We asked for their general feedback and the advantages and disadvantages of Amadeus Cars Plus and the car providers' dot coms.

## Ease of use perception

On a scale from 1 (difficult to use) to 5 (easy to use) we asked agents to **rate Amadeus Cars Plus** and the **car providers' dot coms** for completing each scenario. For scenarios 1 and 3, agents rated Cars Plus as **much easier** to use than the dot coms.

For **scenario 2** there was **very little difference** in the ratings. One third of the agents reported that making a modification was easier and more intuitive in the car providers' dot coms compared to in Amadeus Cars Plus. A quarter of the agents chose to **cancel and rebook in Cars Plus** rather than modifying, however they reported this as easy and quick to do.

## Speed of use perception

On a scale from 1 (too slow) to 5 (fast enough) we asked agents to rate Amadeus Cars Plus and the car providers' dot coms for completing each scenario. For scenarios 1 and 3, agents rated **Cars Plus as much faster** to use than the dot coms. For scenario 2 there was very little difference in the ratings.

Chart 6 – Agents' perception of ease of use of Amadeus Cars Plus and the car providers' dot coms to complete each scenario

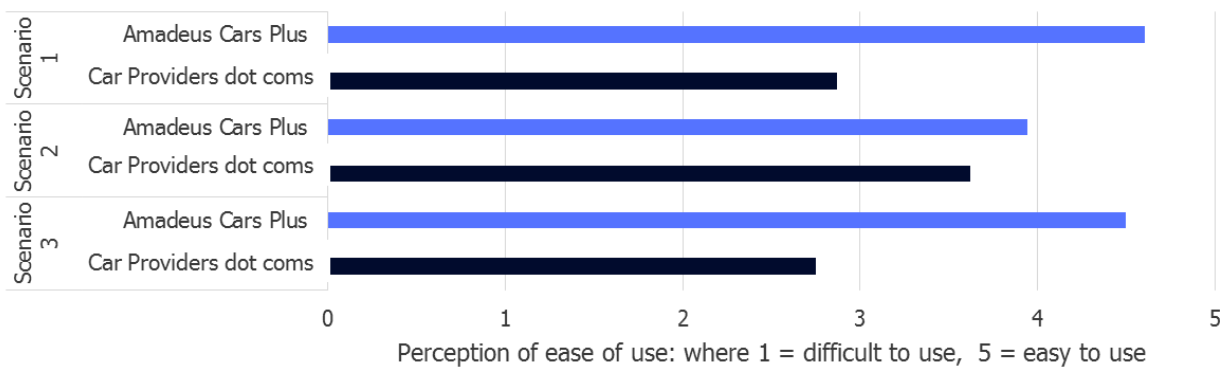
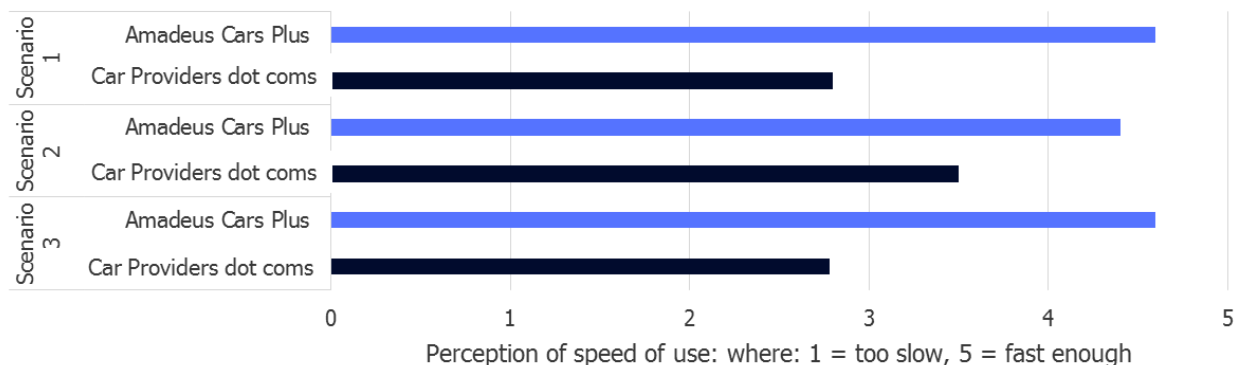


Chart 7 – Agents' perception of the speed of use of Amadeus Cars Plus and the car providers' dot coms to complete each scenario



# What Agents Valued Most about Amadeus

**Three key advantages**, listed below, emerged from the qualitative analysis.

- Having the ability to **compare** all of the car rental providers in a **single search**.
- Having the car segment **integrated** into the **same PNR** and associated with any other segments booked for the passenger's trip.
- Having the **search fields prepopulated** to match the flight destination, dates and times if a flight segment was already booked, or check-in and check-out dates if a hotel segment (and not a flight) was already booked.

## Ability to compare providers

The **ability to compare** providers was the strongest advantage (considered an advantage by the most agents) of Amadeus Cars Plus. Agents particularly liked that in a single search they could see offers from all of the car providers in a **single screen**. This was seen as particularly advantageous for customers looking for **the lowest price possible**. This comparison ability saved agents a lot of time and effort that they would have spent going to individual provider sites.

## Integrated PNR

The second strongest advantage was that by booking through Amadeus Cars Plus, the car segment was **integrated into the passenger's PNR**. This was particularly useful if the passenger had any other segments booked in that PNR, as it kept everything together; making **invoicing and other back office processes easier**. In addition, by having the car segment included in the passenger's PNR meant that all of the agents within an agency had **access to the information** and could deal with a customer's enquiry. This was particularly important in the case of holiday or sickness cover.

## Prepopulated search fields

Upon opening Cars Plus, certain search fields were **pre-populated**, determined by segments already booked in the passengers PNR. This meant that agents did not need to spend time filling these out, nor did they need to refer back to other segment bookings to check that the details matched.

The image below displays **features of Amadeus Cars Plus** that agents considered an **advantage**. The **size** of the word represents the **number of agents** who spontaneously reported the feature as an advantage or as a positive aspect of Amadeus Cars Plus.



# Conclusion

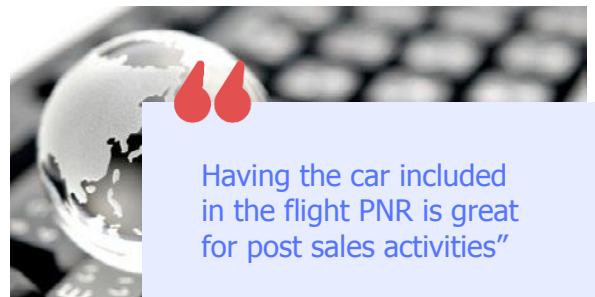
Based on the time measurements collected, we have found that **making a car booking** that:

- required an **air and car segment** or a hotel and car segment booking or
- required the agent to **compare** car rental suppliers or
- required the agent to search for a car rental supplier **close to a landmark**

were **on average faster to** complete in Amadeus Cars Plus.

Our qualitative analysis revealed the **major benefits** of using Amadeus Cars Plus to be:

- having the ability to **compare** all of the car rental providers in a single search
- having the car segment in the **same PNR** and associated to any other segments booked for the passenger's trip
- having the search fields **prepopulated** to match the flight destination, dates and times if a flight segment was already booked, or check-in and check-out dates if a hotel segment was already booked.



# Appendix

## Method

Each one to one user research session lasted approximately 60 minutes. Each agent completed three scenarios, twice each; once using Cars Plus and once without using Cars Plus, instead relying on car providers' dot coms. The car providers' dot coms used in this study represented the top three suppliers in each market. In the scenarios listed below, we refer to these as 'provider w' (Italy only), 'provider x', 'provider y' (Italy and USA) and 'provider z' (USA only). Each agent also took part in a one to one semi-structured interview.

In scenario 1 (as below) each agent searched two suppliers; we alternated which two between the three suppliers for each market. This gave us six variations of scenario 1:

- Search provider x and y – book x
- Search provider x and y – book y
- Search provider x and w/z – book x
- Search provider x and w/z – book w/z
- Search provider w/z and y – book y
- Search provider w/z and y – book w/z.

For scenario 2, agents were asked to modify the booking that they made in scenario 1. Therefore four different dot coms were used across the 39 participants.

In scenario 3, for Italy we used only providers x and y. In the USA we alternated two of x, y and z, giving us three variations of scenario 3 in the USA:

- Provider x and y
- Provider x and z
- Provider y and z.

To correct for treatment order bias we alternated in which condition (with Cars Plus or using the car providers' dot coms) agents completed each of the three scenarios first. For example:

Participant 1:

- Completed scenario 1 first using Amadeus Cars Plus
- Completed scenario 2 first using the dot coms
- Completed scenario 3 first using Amadeus Cars Plus.

Participant 2:

- Completed scenario 1 first using the dot coms
- Completed scenario 2 first using Amadeus Cars Plus
- Completed scenario 3 first using the dot coms.

For all three scenarios, in Amadeus Cars Plus we asked agents to search for and book, as appropriate, the same suppliers as the dot coms that they had used/would be using. The outcome was to give us a paired comparison between the two conditions.

## Scenarios

Below we include the three task scenarios as they were presented to the agents.

### Scenario 1

Mr Amadeus needs a return flight from Milan to Paris CDG departing on 1st of December around 8am and returning on 10th of December around 1pm. He prefers to fly with Air France. Mr Amadeus will also need to rent a car during his stay. He would like to rent the car for the duration of his trip, picking it up from Paris CDG and returning it to Paris CDG.

Mr Amadeus does not care about the car type, he just wants the cheapest offer which is NOT prepay. He has a loyalty card with car provider x and car provider y which, should get him discount rates. He'd like you to email him the offers from the two car providers, showing his discounts.

We will then imagine that he replies to your email asking you to please proceed to book car provider x.

### Scenario 2

Mr Amadeus has an air and car booking with you. He would like to amend the car booking, but not the flight (this is the booking that we made in scenario 1). The original car booking was from 1<sup>st</sup> December to 10<sup>th</sup> December. Mr Amadeus now needs the car from 2nd December to 8th December. He still needs to pick the car up from Paris CDG airport and drop it off at Paris CDG airport. However, he would also like to upgrade the car type to a bigger car. Mr Amadeus needs you to email him the new itinerary.

### Scenario 3

Mr Amadeus has a flight booking with you. He is going to Miami, flying from Milan, departing on 10th of January and returning on 12th of January.

He would like you to make a hotel reservation for the Delano Hotel South Beach Miami and add a car hire to this trip. To book the Delano Hotel South Beach Miami, please use a fake credit card number (4444333322221111. Exp. 01/2015).

He needs to pick the car up from a rental station close to the hotel on 10th of January and drop it back to the same place on 12th of January. He would like a compact car and he would like to prepay for the rental. Mr Amadeus needs to have the two offers emailed to him (one from company x and one from company y) so he can see which rental company is closest to the hotel and which is cheapest.

## Time Saving Analysis

We measured exactly how long it took agents to complete each scenario under the two conditions. We used Morae recording software to add markers to the time measurement where each element of the scenario started and finished. This allowed us to break each scenario down into its separate elements.

The data was analysed to produce an average time taken to complete each whole scenario and each individual element of the scenarios in both conditions (using Cars Plus and using the car providers' dot coms). We analysed the data as a whole dataset (combined countries) and also split by country (Italy and USA). For each comparison we used a paired t-test calculation to test for significance in the time differences. The paired t-test takes into account the variation of values within each sample and the sample size.

All of the measurements in this study were validated with confidence levels of 95% or higher, meaning that where the result is reported as significant there is only a 5% chance that the variation seen between the two conditions was due to chance.

### Scenario 1 elements



### Scenario 2 elements



### Scenario 3 elements



## Cost Saving Analysis

We estimated the revenue savings using the time saving measured during this study and the figures as below.

- Average labour costs for a travel agent in Europe: €2,500 per month.
- Average labour costs for a travel agent in the USA: \$3,700 per month.
- Average working week of 40 hours.
- For a small travel agency 1,000 car rental bookings per month.
- For a large travel agency 5,000 car rental bookings per month.

Average minutes saved per booking using Amadeus Cars Plus (average scenario 1 and scenario 3)



Average labour cost for a travel agent per minute



Average revenue saving per booking



## Results

The tables below shows the productivity results split by country for each scenario and split by element where appropriate.

### Scenario 1

	Average time taken to complete Scenario 1 - Using Amadeus Cars Plus (mm:ss)	Average time taken to complete Scenario 1 - Using the car provider's dot coms (mm:ss)	Average time difference (time taken using the dot coms – time taken using Cars Plus) (mm:ss)	Statistically significant	t-test result*
Combined countries	07:42	12:42	05:00	Yes	T(37)=-9.41, P<0.05
Italy	07:22	12:02	05:10	Yes	T(23)=-7.08, P<0.05
USA	08:10	12:53	04:43	Yes	T(13)=-6.31, P<0.05

Table i: Productivity results for scenario 1- Complete scenario, split by country.

### Scenario 1, element 2 – search, compare and email

	Average time taken to compare and email two car offers - Using Amadeus Cars Plus (mm:ss)	Average time taken to compare and email two car offers - Using the Car provider's dot coms (mm:ss)	Average time difference (time taken using the dot coms – time taken using Cars Plus) (mm:ss)	Statistically significant	t-test result*
Combined countries	04:37	08:48	04:11	Yes	T(37)=-9.41, P<0.05
Italy	04:56	08:52	03:57	Yes	T(23)=-6.01, P<0.05
USA	04:06	08:40	04:35	Yes	T(13)=-6.27, P<0.05

Table ii: Productivity results for the time taken to compare and email two car offers (scenario 1, element 2), split by country.

### Scenario 1, element 3 - book

	Average time taken to compare and email two car offers - Using Amadeus Cars Plus (mm:ss)	Average time taken to compare and email two car offers - Using the Car provider's dot coms (mm:ss)	Average time difference (time taken using the dot coms – time taken using Cars Plus) (mm:ss)	Statistically significant	t-test result*
Combined countries	01:31	02:20	00:49	Yes	T(37)=-2.57, P<0.05
Italy	01:16	02:29	01:13	Yes	T(23)=-2.30, P<0.05
USA	01:56	02:05	00:09	No	T(13)=-0.27, P>0.05

Table iii: Productivity results for the time taken to complete the car booking (scenario 1, element 3), split by country.

### Scenario 2

	Time taken to complete the Scenario - Using Amadeus Cars Plus (mm:ss)	Time taken to complete the Scenario - Using the Car Provider's dot coms (mm:ss)	Average time difference (time taken using the dot coms – time taken using Cars Plus) (mm:ss)	Statistically significant	t-test result*
Combined countries	03:38	03:22	-00:16	No	T(39)=0.85, P>0.05
Italy	03:48	03:31	-00:17	No	T(24)=0.71, P>0.05
USA	03:20	03:05	-00:14	No	T(13)=0.46, P>0.05

Table iv: Productivity results for scenario 2 - Complete scenario, split by country.

# Results

## Scenario 3

	Average time taken to complete the Scenario - Using Amadeus Cars Plus (mm:ss)	Average time taken to complete the Scenario - Using the Car Provider's dot coms (mm:ss)	Average time difference (time taken using the dot coms – time taken using Cars Plus) (mm:ss)	Statistically significant	t-test result*
Combined countries	09:19	12:08	02:29	Yes	T(36)=-6.64, P<0.005
Italy	08:47	11:21	02:37	Yes	T(22)=-5.17, P<0.005
USA	10:11	13:26	03:15	Yes	T(13)=-4.13, P<0.005

Table v: Productivity results for scenario 3 - Complete scenario, split by country.

\*A paired sample t-test is used to determine if two sets of data are significantly different from each other. The calculation is based on the differences in the 'time taken' measurements for each participant (using Amadeus Cars Plus and using the car providers' .coms) and on the number of participants in the dataset.

As the average time difference gets bigger, so too does the T value. As the number of participants in the dataset gets bigger, so too does the T value. However, if there is a lot of variation in the time differences measured, the T value gets smaller.

Measuring Productivity for Car Booking Solutions  
Value Creation Study

Rebecca Bartlett  
Rebecca@system-concepts.com

3<sup>rd</sup> January 2014

020 7240 3388

[www.system-concepts.com](http://www.system-concepts.com)



Thank you