



A DATAMONITOR WHITE PAPER

Greening Fujitsu Services: How Virtual Meetings Can Improve Your Carbon Footprint and Your Bottom Line

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DATAMONITOR VIEW

Each Fujitsu Services EMEA employee should have the goal of replacing at least 10% of in-person meetings that require travel for over 30 minutes with a virtual meeting. Datamonitor's analysis of Fujitsu Services employees' typical business travels and virtual meetings has demonstrated that the proposed cut would have the following effects:

- the carbon footprint will be reduced by the equivalent emissions of a town of 1,000 people each year;
- £6.6m (€9.5m) will be saved in annual transport costs, contributing to Fujitsu Services's bottom line;
- employee performance, job satisfaction and work/life balance will improve through enhanced control over meeting arrangements;
- the ability to accomplish meeting objectives will not suffer.

EXECUTIVE SUMMARY

In September 2007, Datamonitor conducted an online survey of Fujitsu Services employees across EMEA to examine the environmental, economic and social impact of conferencing within the organisation and to explore the opportunities to replace in-person meetings that require travel with virtual meeting alternatives. Datamonitor's analysis of the survey results reveals the following findings:

- Travelling to meetings is detrimental to the environment, costly to Fujitsu Services and inconvenient to the workforce, yet it is often avoidable.
- Virtual meetings are unified virtual communication and collaboration sessions that include audio conferencing, web presentation, application sharing, instant messaging and, optionally, video conferencing, in a single on-demand application that is delivered through a standard web browser.
- The integration of audio and web capabilities in one multimedia interface allows Fujitsu Services employees to meet remotely with colleagues, customers and suppliers all over the globe from their desktop. Fujitsu Services employees in the UK already have access to virtual meeting facilities, which are provided by Genesys Conferencing through its flagship service Genesys Meeting Center.

Based on the typical journey distance, the mode of travel, associated expenses and the typical number of in-person meetings requiring more than 30 minutes of travel; Datamonitor has calculated that a 10% reduction in in-person meetings that require travel would reduce Fujitsu Services EMEA's annual travel-related carbon footprint by approximately 4,700 tonnes of CO₂, the amount of emissions equivalent to the combustion of over 1,900 tonnes of coal in an industrial process; and save Fujitsu Services £6.6m (or €9.5m) in travel expenses alone (see Table 3).

Datamonitor believes that additional cost and emissions savings could be made if the following groups commit to a higher rate of travel reduction:

Fujitsu Services employee communities that participate in an above average number of in-person meetings;

Fujitsu Services employees in those countries in which replacing in-person meetings with virtual meetings is less common.

- The Fujitsu Services employees surveyed agree that audio conference calls are practically as successful as in-person meetings. The survey returned an average in-person meeting rating of 3.4 (four indicates that the meeting accomplished all of its objectives, one that it has accomplished none of its objectives). Meanwhile, audio conference calls conducted as a replacement for in-person meetings scored an average of 3.2. Therefore, it is clear that replacing in-person meetings with virtual meetings is the easiest way to reduce travelling to meetings.

The environmental and business motivations for reducing travel are complementary, and both the environment and Fujitsu Services's business would benefit from a sustained reduction in business travel.

Virtual meetings can be considered as a form of telecommuting, and the survey results regarding the frequency of and motivation behind virtual meetings confirm that their positive impact upon employee productivity, satisfaction and work/family balance is due to an increased control over business meeting arrangements.

ANALYSIS

Small changes by large groups of individuals can help reverse climate change

The reality of climate change is undeniable

It can no longer be denied that climate change is occurring. Overwhelming scientific evidence shows that the emission of greenhouse gases—particularly CO₂—has seriously impacted upon the natural and human environment. According to the Fourth Assessment Report published by the Intergovernmental Panel on Climate Change (IPCC), a Nobel-Prize winning, UN-backed body with remit to assess the best available information on climate change, average temperatures have risen in the past half century, mostly as a result of an increased concentration of greenhouse gases due to human activities.¹ This global warming is likely to result in more frequent and intense extreme weather events, altered crop production, increased coastal erosion and greater public health threats. The IPCC predicts that, in Europe alone, climate change will lead to retreating glaciers, longer growing seasons, species extinctions and unprecedented heat waves.²

According to the UK Department for Food, Environment and Rural Affairs (DEFRA), road transportation is the second largest source of CO₂ emissions in the UK, following only the energy industries, and accounting for 22% of the CO₂ emissions in the UK in 2005.³ In addition to road transportation, during the same period, 12m tonnes of carbon equivalent were supplied to ships and airplanes in the UK. These emissions are not included in the annual UK quota. If they were included, they would account for 2% of the total CO₂ emissions in the UK in 2005. In addition, the fuel that UK shipping and flight operators obtain outside of the UK, in reality the bulk of their consumption, also remains unaccounted for. Therefore, every time that we travel by car, train or plane, our carbon emissions contribute to climate change, accounting for around a quarter of all CO₂ emissions.

What can you do?

Scientific evidence indicates that although the increase in greenhouse gas concentrations in recent years has led to the acceleration in climate change, collective and cumulative changes in human behaviour could help to mitigate the impacts of climate change. Limiting the amount of business travelling that we do—and thus the amount of CO₂ that we emit into the air—is one easy way that we can reduce our individual carbon footprints.

The environmental costs are not the only costs of business travel. Travelling to in-person meetings for business purposes also has high direct and indirect costs for organisations. Travel expenses and loss of productivity account for a large component of those costs. Although the impact of business travel upon the individual is harder to quantify, there is little doubt that business travel brings additional costs to businesses through employee travel stress, disruptions to the work/life balance and operational inflexibility.

In September 2007, Datamonitor conducted an online survey of Fujitsu Services employees in order to examine the environmental, economic and social impact of conferencing within the organisation and to explore the opportunities to replace in-person meetings that require travel with conferencing tools (audio, desktop collaboration and video conferencing). A total of 1,920 individuals across Europe responded to this survey by answering questions about the typical virtual meetings and in-person meetings in which they participate. This white paper presents the findings from that study and offers recommendations for how Fujitsu Services can use its conferencing and collaboration capabilities to improve both its carbon footprint and its bottom line.

Travelling to meetings is costly to the environment and to Fujitsu Services

Carbon emissions from work-related travel are often avoidable

Meeting with colleagues and customers is critical to any organisation, as professionals must share ideas and provide presentations in order to expand their business. However, travelling for meetings can be counterproductive, as it incurs direct expenses for the company and impacts upon productivity. Travelling also has a negative environmental impact.

For example, a car journey between London and Manchester, the two primary Fujitsu Services locations in the UK, would generate 52kg of CO₂ emissions, equivalent to 99kWh or enough electricity to power seven mid-range servers for a day.⁴ By reducing the frequency and extent of travel and by replacing in-person meetings with virtual meetings, we can reduce our individual carbon footprints and have a positive impact upon the environment.

A typical journey emits 15 times more CO₂ than the daily power consumption of a three bedroom house

Employees in all of the Fujitsu Services communities and countries surveyed travel to meetings using a variety of modes of transport, from cars and buses, to rail and flights. According to the survey, Fujitsu Services's EMEA workforce of over 23,000 employees, working from approximately 200 locations, relies predominantly upon the modes of transportation that emit the most CO₂ per distance travelled—petrol and diesel cars.

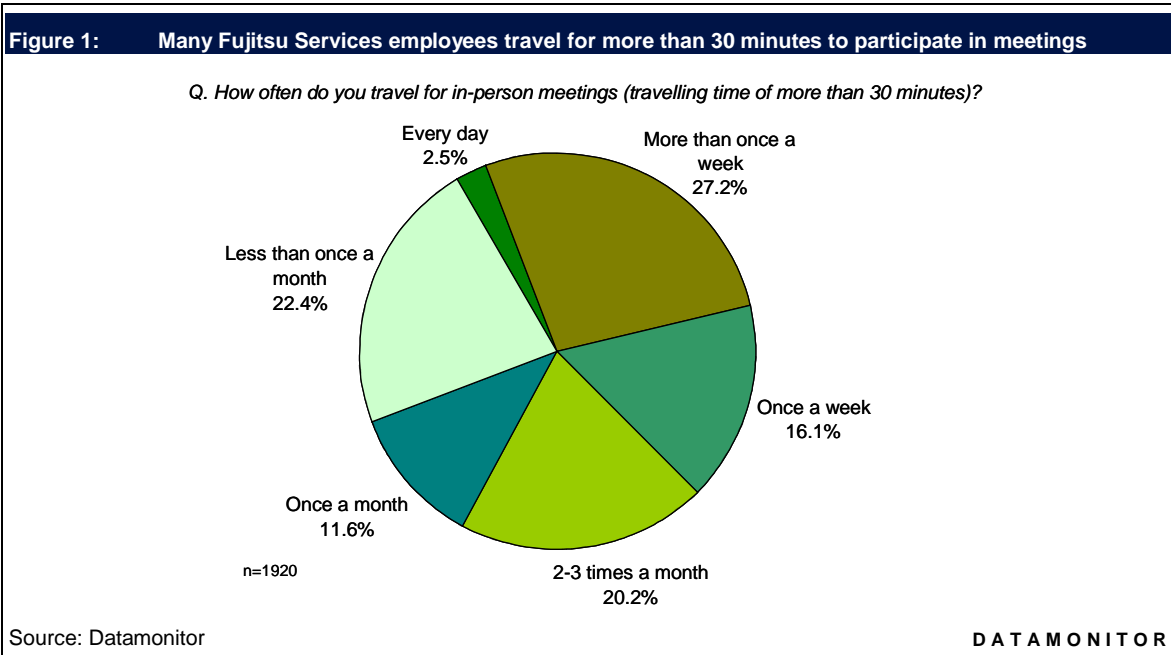
Table 1: CO₂ emissions (in grams) per distance travelled for each mode of transport		
	CO₂ per km	CO₂ per mile
Petrol car	178	287
Diesel car	170	273
Taxi	170	273
Domestic air flight	158	254
Short international air flight (i.e. within Europe)	130	210
Motorcycle/motorbike	107	172
Long international air flight (i.e. Europe to US)	106	170
Bus	89	143
Light rail/tram	65	105
Rail	60	97
Underground/Metro	53	85

Source: DEFRA, UK **DATAMONITOR**

Long-haul flights tend to receive the bulk of the attention in the carbon emissions discussion. However, according to DEFRA statistics, the car has the greater negative impact upon the environment. Furthermore, if travelling is unavoidable, long-haul flights usually cannot be replaced by an alternative mode of transportation, whereas car journeys and short-haul flights have a compelling alternative in trains.

Based on the survey responses, Datamonitor estimates that an average Fujitsu Services employee contributes approximately 83kg of CO₂ per trip to participate in a meeting. However, this could easily be avoided by simply conducting a virtual meeting using web collaboration that allows employees to share documents in real-time. In terms of

CO₂ emissions, this is equivalent to 156kWh, or enough electricity to power an average three bedroom house in the UK for 15 days.⁵



The problem of travelling to meetings is exacerbated by the fact that less than one out of every five Fujitsu Services workers share a car when travelling to meetings. For those meetings that cannot be replaced with conference calls, sharing a car with colleagues that are also travelling to the meeting is the easiest way to reduce emissions. Fujitsu Services employees in the UK are far more accountable for this unnecessary travel, with only 13% of survey respondents car sharing. In comparison, over two thirds of the non-UK survey respondents car share during their typical journey.

The functional requirements of Fujitsu Services communities determine their CO₂ emissions

It is unrealistic to expect that all categories of employees rely on business travel to the same degree. Table 2 shows the breakdown of average annual CO₂ emissions per employee for each principal Fujitsu Services community in the EMEA region. It is no surprise to learn that the sales community travels the most and produces the highest level of CO₂ emissions per employee. Each Fujitsu Services sales community employee typically emits 4.5 tonnes of CO₂ annually through business travel alone. This is seven times more than the typical per employee output of the employees in Fujitsu Services marketing community in the EMEA region. Given that DEFRA considers 1.7 tonnes to be an average annual per capita amount of CO₂ emitted through personal travel in the UK, each Fujitsu Services EMEA sales employee emits almost three times as much CO₂ than an average UK resident through business travel alone.

Table 2: Typical business travel CO₂ output per employee surveyed for each Fujitsu Services community								
Fujitsu Services community	Annual emission per employee (gCO₂)	Petrol car	Diesel car	Rail	Domestic air flight	Short international air flight	Long international air flight	Other†
Sales	4,526,900	11%	12%	6%	15%	36%	19%	1%
Commercial	2,476,166	10%	47%	12%	6%	23%	0%	2%
Technical architecture and consulting	2,359,542	24%	21%	6%	8%	10%	30%	1%
Project management	2,307,784	24%	21%	5%	6%	19%	22%	2%
Service delivery management	2,164,682	28%	30%	9%	5%	8%	19%	1%
Business consultancy	2,137,631	21%	21%	10%	3%	11%	33%	1%
Finance	1,842,758	23%	12%	4%	9%	32%	19%	1%
Account management	1,593,239	45%	23%	17%	11%	2%	0%	1%
Software and solution development	1,320,955	20%	10%	4%	11%	24%	28%	1%
Service delivery	955,399	36%	22%	6%	19%	9%	7%	2%
Business services	783,463	25%	22%	7%	16%	12%	18%	0%
Marketing	627,028	21%	10%	36%	8%	24%	0%	3%
Other*	2,324,636	8%	12%	4%	7%	21%	47%	1%
Average	1,932,338	23%	20%	7%	9%	17%	23%	1%

* - includes *legal, procurement and quality and business effectiveness.*
† - includes *taxi, motorcycle, bus, underground and light rail/tram.*

Source: Datamonitor **DATAMONITOR**

Communities with the highest per employee CO₂ emissions should be targeted for travel reduction

Fujitsu Services employees are not going to stop travelling altogether, as in-person meetings will remain a crucial element of their core operations. However, those Fujitsu Services communities that account for over 1.6m grams of CO₂ emissions per employee each year should be the primary target of emission reduction initiatives. Small reductions in travel or alterations of travel patterns among the largest emission contributors could produce a significant fall in overall emissions.

For example, a 10% reduction in business travel among the Fujitsu Services sales community would yield 453kg of CO₂ emissions saving per capita, whereas a reduction of the same magnitude in marketing would save merely 63kg of CO₂

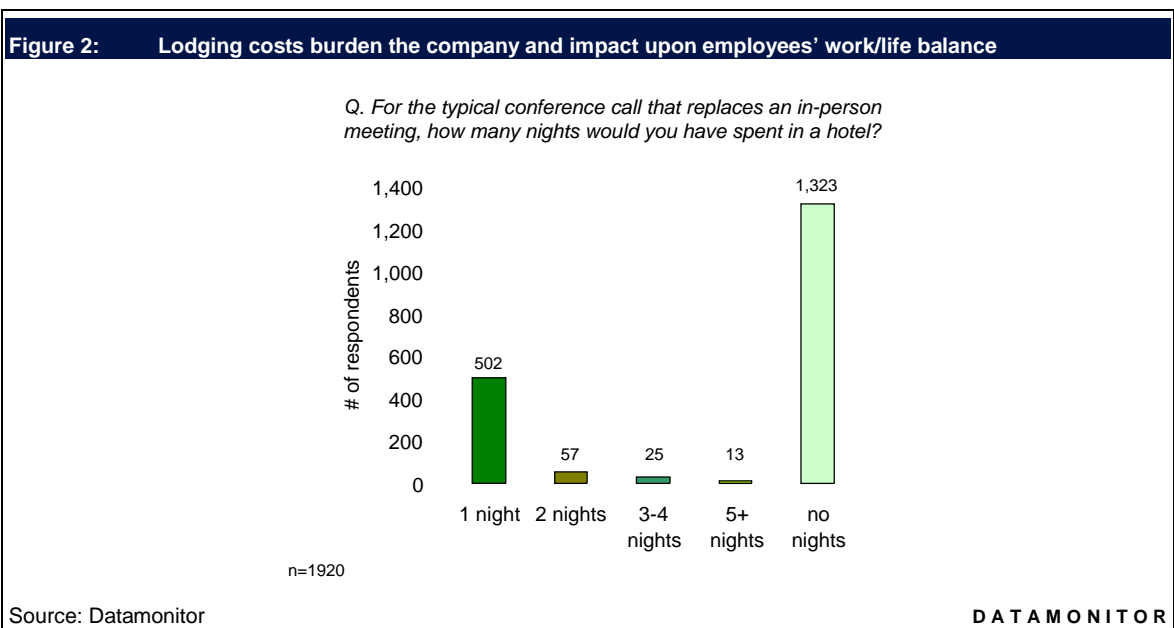
per employee. The per capita difference of 390kg of CO₂ between the two communities is roughly equivalent to the carbon footprint of a return flight from London to Reykjavik, Helsinki or Tangiers.

In addition to reducing the number of in-person meetings involving travel that are attended, the members of those communities with the highest emissions levels should be encouraged to replace environmentally damaging and relatively inefficient short international air flights and car journeys with rail journeys. Substituting just 10% of domestic flights with rail journeys would produce an average annual CO₂ saving of 41kg per Fujitsu Services sales community member, or enough to power the aforementioned average three bedroom house in the UK for over seven days.

Datamonitor acknowledges that the cost differential between domestic and short-haul air travel and rail journeys varies and should be taken into consideration on an individual case basis. Despite the perception that trains are usually a more expensive option in the UK, Datamonitor found that this is not always the case. For a peak-time journey between London and Manchester that is booked two weeks in advance, Datamonitor obtained a quote of £103 (€149) for a return train journey, and £112 (€162) for a flight and airport transport (£83 (€120) flight fare and £29 (€42) return fare for Heathrow Express).

The financial and personal cost of business travel

Environmental damage is not the only consequence of unnecessary travel. Every time a Fujitsu Services employee travels to a meeting, the company incurs transportation, food and/or lodging costs. Datamonitor estimates that Fujitsu Services spends an average of £121 (€176) for each avoidable trip taken by a Fujitsu Services employee to participate in a meeting. Since flights inflate travel costs, a typical spend per journey excluding flights is somewhat lower at £59 (or €85).



In addition, there are productivity costs associated with travelling to meetings. As the Datamonitor survey did not collect data on the loss of productivity due to travel, it is not possible to quantify the impact of business travel upon productivity in this paper. However, a cursory examination of the survey results indicates that, on the basis of a typical journey distance

and depending on the estimates of effective travel time for each transport method, a typical meeting takes up between four and eight hours.

A comparable study of travel and conferencing practices within BT that was conducted by the University of Bradford and Sustain IT found that an average conference saves around five hours and 20 minutes of productive time and is equivalent to about £120 (or €173) in opportunity benefits.⁶ In other words, a typical travel is practically equivalent to a working day, although this does vary depending on personal habits and preferences, nature of workload, availability of mobile productivity technologies and the fact that non-productive gaps may prove productive in the long term.

For nearly a third of survey respondents, travelling to meetings requires at least one overnight stay in a hotel. In contrast, a typical virtual meeting that replaces an in-person meeting lasts less than an hour. Most likely, the time spent by employees travelling to meetings can be spent more efficiently working on other projects. Instead of working more hours to compensate for time lost when travelling, employees may complete their tasks more quickly, achieve a better work/life balance and be more productive workers for the company.

Small changes can have a large impact

Minimal changes in the way that business is conducted can generate large benefits for the environment and for the company itself. No one expects Fujitsu Services employees to stop travelling to meetings completely in an effort to improve the company's impact upon the environment, but small incremental changes can have a large cumulative effect.

On an annual basis, Fujitsu Services's workforce in EMEA can reduce their per capita carbon footprint by approximately 200kg of CO₂ by eliminating as little as 10% of its in-person meetings that require travel. For some employees, this 10% may only be one meeting a month. In addition, this 10% reduction in meetings that require travel can save Fujitsu Services an estimated £283 (€408) per EMEA employee each year in indirect travelling expenses.

Table 3: Estimated CO₂ and travel cost savings projected to the entire Fujitsu Services EMEA			
	CO₂ (Tonnes)	Travel cost - £ (€)	Travel cost excluding flights - £ (€)
Total savings per year	46,885.6	£66,035,764 (€95,289,607)	£32,935,884 (€47,526,480)
Average savings per meeting	0.08	£121.7 (€175.7)	£59 (€85.1)
Projected savings per year based on flat-rate reduction of 10%	42,197.1	£59,432,187 (€85,760,646)	£29,642,296 (€42,773,832)
Projected savings per year based on variable reduction rate (see Table 4)	41,781.6	£58,777,171 (€84,815,458)	£29,328,956 (€42,321,683)
Total savings per year based on flat-rate reduction of 10%	4,689	£6,603,576 (€9,528,961)	£3,293,588 (€4,752,648)
Total savings per year based on variable reduction rate (see Table 4)	5,104	£7,258,593 (€10,474,149)	£3,606,928 (€5,204,798)
Source: Datamonitor			DATAMONITOR

The cumulative effect of a 10% reduction in business travel would prevent 4,689 tonnes of CO₂ from being emitted into the atmosphere, while saving Fujitsu Services EMEA £6.6m (or €9.5m) in travel costs. Since DEFRA currently estimates

that the average annual personal CO₂ emissions in the UK per capita are 4.4 tonnes, the carbon emission savings from a 10% reduction in Fujitsu Services EMEA's travel would amount to an annual carbon footprint of a small town with over 1,000 inhabitants.

Of course, a more aggressive reduction target would have an even larger impact. Considering the current trends, Datamonitor sees scope for a more aggressive travel reduction rate in those countries in which the replacement rate of in-person meetings requiring travel with virtual meetings is lower. Taking a 10% reduction as a baseline to be recommended to countries such as the UK, which has the highest in-person meeting travel replacement rate, reductions of up to 17% can be recommended, namely in Portugal, a country in which just 35% of audio conferences are used as travel replacement.

Table 4: Reduction rates based on surveyed audio conference replacement rate and a recommended minimum reduction rate of 10%		
Country surveyed	Audio conference replacement rate	Recommended rate based on 10% minimum target
Finland	53.2 %	11%
France	43.2 %	14%
Germany	45.5 %	13%
Italy	47.3 %	13%
Portugal	35.1 %	17%
Spain	53.8 %	11%
Sweden	58.7 %	10%
UK	60.3 %	10%

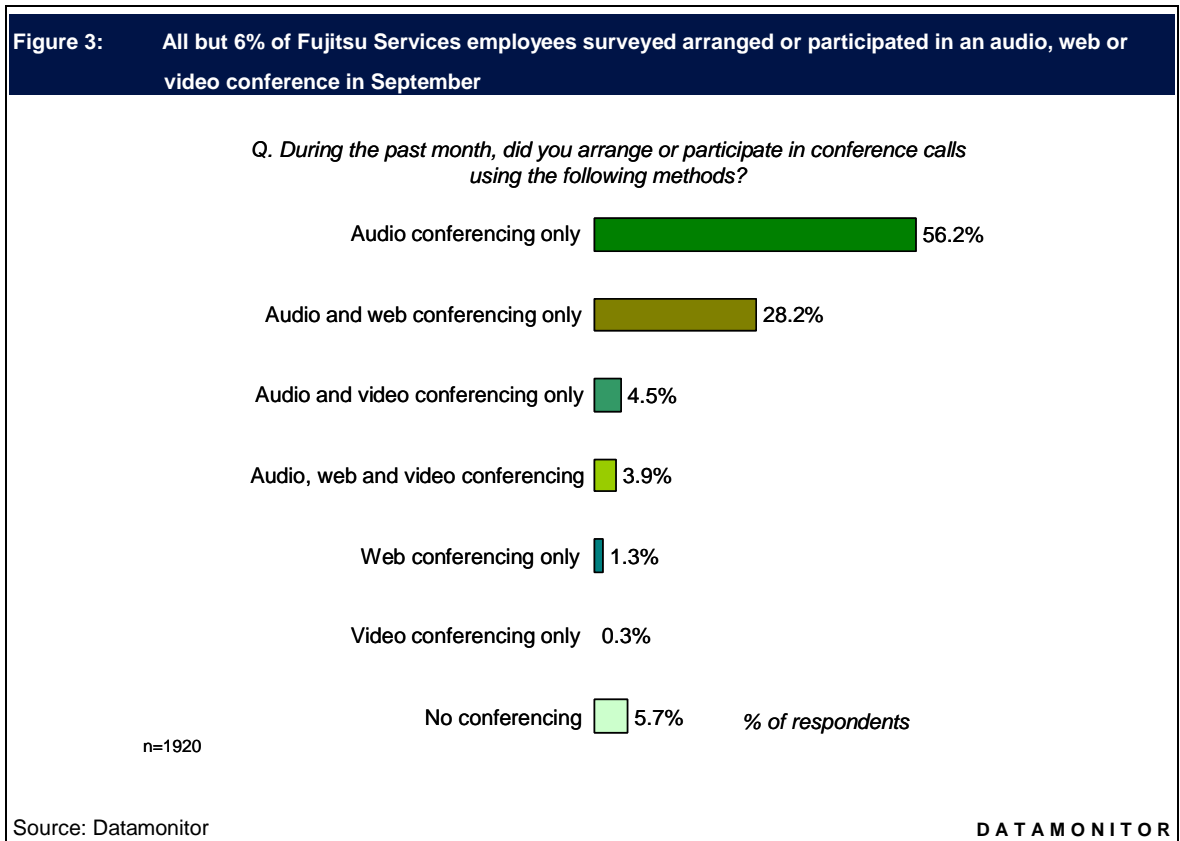
Source: Datamonitor **DATAMONITOR**

Variable replacement rates (Table 4) would push Fujitsu Services's business travel-related carbon footprint below 42,000 tonnes of CO₂ per year and save an additional £200,000 (or €288,600) in travelling costs. Therefore, Fujitsu Services should actively encourage its employees to consider reducing the amount of business travel through the use of communication and collaboration technologies like that of Genesys Meeting Center. Should business travel be unavoidable, Fujitsu Services's workforce should be encouraged to reduce carbon emissions by opting for less harmful modes of transportation whenever possible.

Conferencing is a viable alternative to travelling to in-person meetings

Replacing in-person meetings with virtual online meetings can have a positive impact

While some meetings are unavoidable—such as candidate interviews or contract signings, for example—on many occasions, professionals could accomplish all of their goals for an in-person appointment by meeting virtually through the use of conferencing capabilities.



With virtual online meetings, Fujitsu Services employees can interact using the telephone, Voice over IP (VoIP), desktop collaboration tools and video connections. Furthermore, using dedicated on-demand conferencing applications that unify several modes of communication (i.e. voice, instant messaging, content real-time application sharing), instead of individual communication tools in isolation, could significantly improve the experience.

At present, every other audio conference call replaces an in-person meeting

Table 5: Fujitsu Services employees are more likely to replace a meeting with an audio conference than a web or video conference

Q. How many conference calls have you arranged or participated in during the past month using the following methods? What percentage of these conference calls replaced an in-person meeting?

Country	Audio Conference		Web/Desktop Collaboration & Document Sharing		Video Conference	
	Average conducted last month	Average % replacing in-person meetings	Average conducted last month	Average % replacing in-person meetings	Average conducted last month	Average % replacing in-person meetings
Finland	4.1	53.2	1.3	29.7	1.5	11.6
France	3.5	43.2	0.7	11.7	-	2.4
Germany	9.3	45.5	1.4	17.3	0.1	2.5
Italy	2.5	47.3	2.9	27.0	-	12.5
Portugal	7.7	35.1	1.3	5.8	0.1	5.0
Spain	3.3	53.8	0.5	6.4	0.4	8.8
Sweden	8.8	58.7	1.8	14.6	0.2	11.2
UK	11.1	60.3	0.9	21.9	0.2	18.2
Sample average	9.80	58.30	0.98	21.68	0.34	16.21

Source: Datamonitor **DATAMONITOR**

The most avid users of audio conference facilities are employees in the UK, Germany and Sweden. Although the number of virtual meetings conducted is interesting, the replacement rate of in-person meetings with virtual conference calls is also informative. Analysis reveals that there is scope to increase the number of calls replacing meetings in certain countries.

On average, every other audio conference call replaces an in-person meeting; however, certain countries are replacing in person meetings with audio conferences more frequently. This leaves scope for a more ambitious target for reductions in travel in these countries by increasing the rate at which audio conferences are used in place of in-person meetings that require travel.

Virtual meetings can reduce Fujitsu Services’s carbon footprint and improve its business

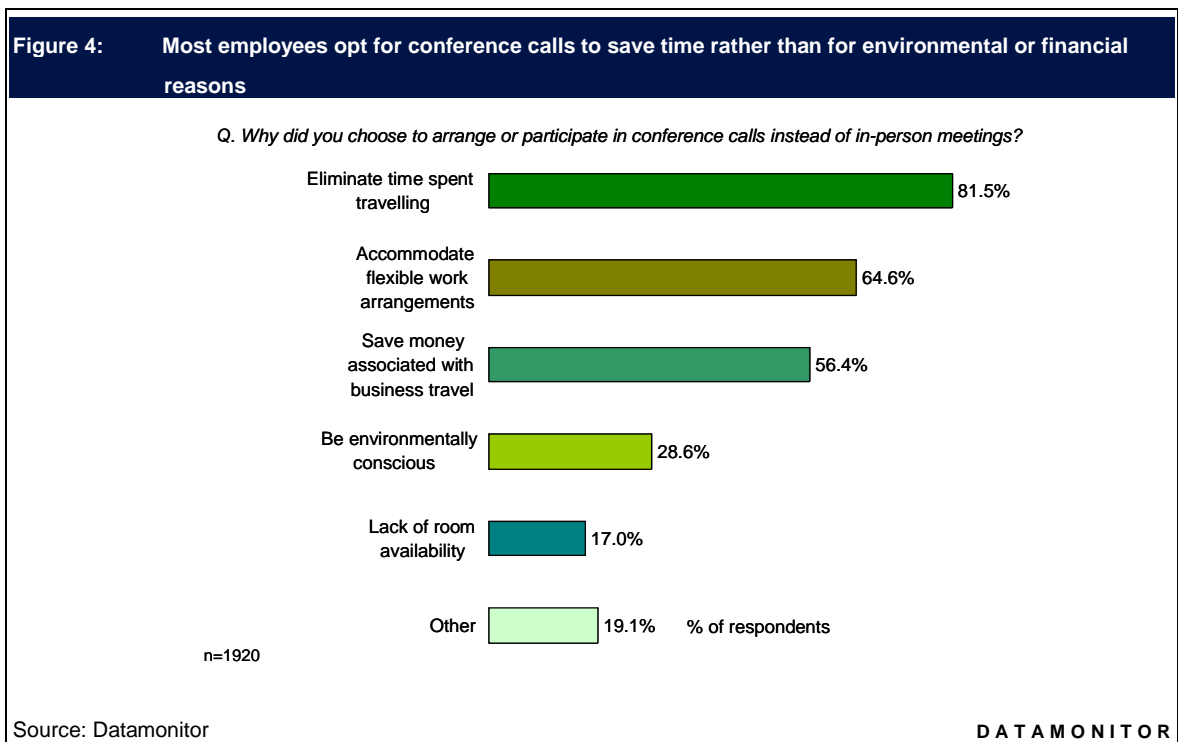
Conferencing to reduce carbon emissions will be an easy change for Fujitsu Services

Using unified communication and collaboration technologies more and travelling to meetings less will not require a significant cultural change for Fujitsu Services. Many employees already opt to meet virtually via Genesys Meeting Center rather than in-person in order to save time, accommodate remote workers and save money. In fact, 94% of the Fujitsu Services employees surveyed replaced an in-person meeting with some form of conferencing—audio, web or video—in the past month.

The majority of survey respondents participated in an equal number of virtual meetings in September as they did in August. However, more than twice as many increased the number of their virtual meetings (27% of respondents) as decreased it (12% of respondents). Given the seasonal patterns of holidays, it is reasonable to suspect that the increase is connected to seasonal holiday patterns and therefore unrelated to the increased reliance on virtual meeting facilities. However, the analysis of conferencing usage trends discards the possibility that the rise can be connected with the holiday patterns.

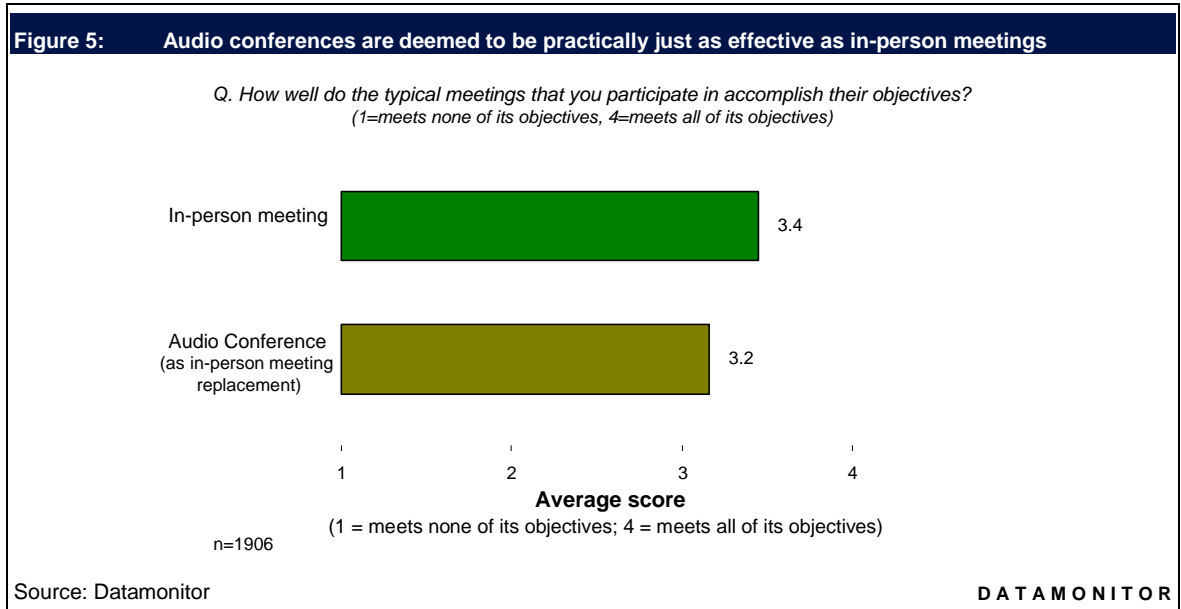
In reducing travel, environmental and business motivations are complementary

Few individuals immediately acknowledge that they intend to help the environment by replacing business travel with online meetings. Less than one in three Fujitsu Services employees who responded to Datamonitor’s survey cited “being environmentally conscious” as the reason why they choose conferencing over travelling to meetings. Instead, more than 80% of employees indicated that saving time was their motivation. This speaks clearly for the need to promote forms of business travel replacement on the basis of productivity concerns, such as flexible work arrangements, and saving time and money spent on business travel, in addition to the environmental issues.



Audio conferences are considered to be as successful as in-person meetings

Fujitsu Services employees consider audio conference calls to be nearly as successful at meeting their objectives as in-person meetings. While the respondents have given face-to-face meetings an average rating of 3.4 (where a score of four indicates that the meeting accomplished all of its objectives and one that it has accomplished none of its objectives), audio conference calls conducted as a replacement for in-person meetings scored an average of 3.2.



If the in-person meeting score was expressed as a relative index of 100, the relative index of an audio conference call would be 92, indicating that the respondents consider audio conferencing as a real substitute for in-person meetings. Of course, other unified communication and collaboration technologies, including web/desktop collaboration, document sharing or video conferencing, could augment audio conferences, improving the personal nature of these calls and enhancing the meeting experience.

Although some of these conferencing technologies are available to Fujitsu Services employees, the occasional quality of service issues, usually related to network or installation problems, harm their perception among users. This means that other secondary conferencing technologies could not be benchmarked against in-person meetings. Nevertheless, the anecdotal information gathered in the survey reveals the considerable degree of interest that Fujitsu Services employees have in unified communication and collaboration technologies such as multimedia desktop conferencing and collaboration tools. However, there is also a sense of frustration, should sporadic technical difficulties preclude the employees from capitalizing fully on the benefits of virtual meetings.

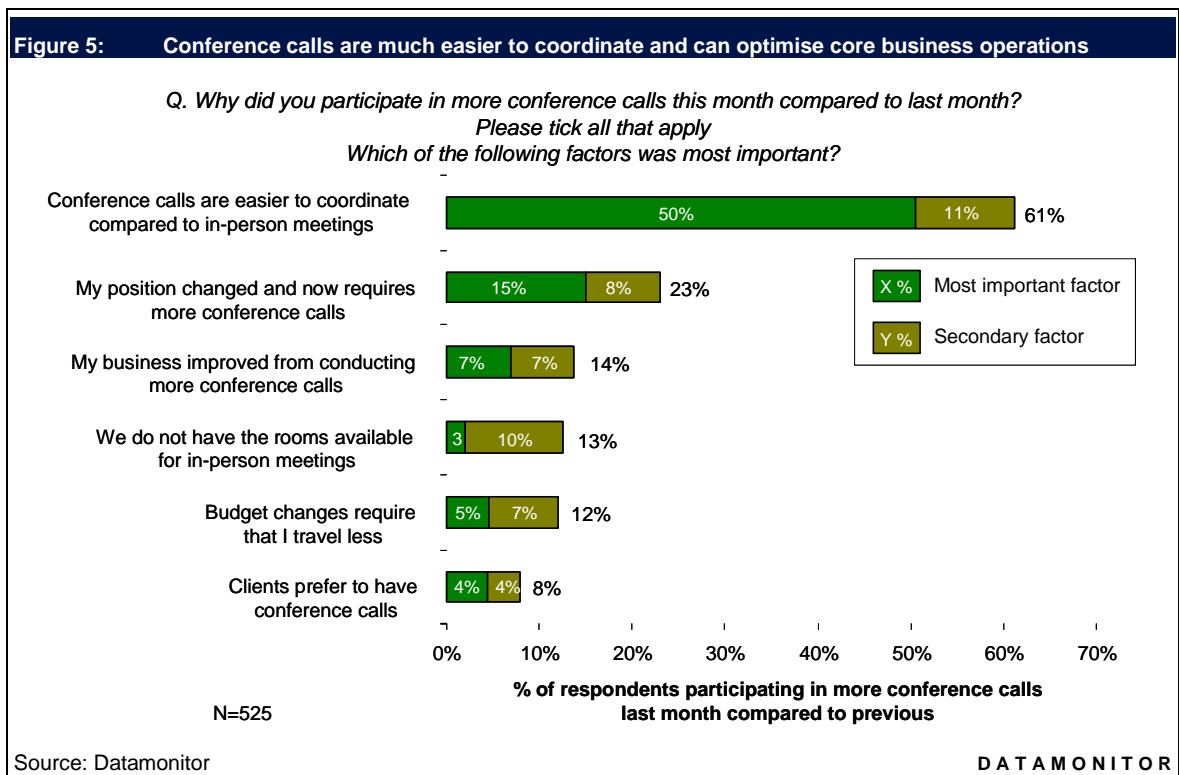
Anecdotal evidence also suggests that the respondents are frustrated by the fact that multimedia conferencing facilities are not widely deployed across Fujitsu Services's clients, effectively excluding the video conferencing component of a virtual meeting. A deployment test manager from the UK explains:

“Fujitsu Services conferencing facilities are adequate, but there are no conferencing facilities in our client’s organisation, therefore face-to-face meetings are required. You need to target our clients too.”

Should Fujitsu Services employees and clients alike be equipped with a consistent set of web/desktop collaboration and video conferencing capabilities with a consistently high quality of service, the personal nature of their virtual meetings would increase, removing the strongest attractive factors in favour of in-person meetings. The survey results indicate that audio conference calls alone compare very favourably to in-person meetings. Nevertheless, it would be important to extend audio capabilities with web collaboration and to ensure that these applications are rolled out to the entire Fujitsu Services EMEA workforce and, whenever possible, to Fujitsu Services clients as well.

Fujitsu Services can promote the use of conferencing tools for a positive impact on both its business and the environment

The employees that increased the number of their virtual meetings from August to September said that the ease of coordinating these meetings compared to in-person meetings was the top reason for opting for the conferencing alternatives.



Recent meta-analysis of 46 studies of telecommuting,⁷ defined as arrangements that allow employees and their tasks to be carried out across settings and independently of physical organisational location, demonstrates that telecommuting has beneficial effects on productivity. The study characterises the impact of telecommuting upon performance, job satisfaction, work/family conflict, turnover intent and job stress, as positive without compromising workplace relationships. Those benefits are considered to be secondary effects, mediated by a primary factor of perceived autonomy.

Datamonitor believes that any form of virtual meeting that replaces an in-person meeting could be considered as a form of low-intensity telecommuting. Consequently, the productivity benefits gained from virtual meetings should be interpreted in a similar light, by identifying the primary benefit of virtual meetings in empowering employees to have a far greater deal of choice and flexibility in arranging and conducting business meetings instead of being forced to travel to in-person meetings.

A certain number of employees claim that increasing the number of virtual meetings has improved their business effectiveness. The fact that 14% of the respondents explicitly acknowledge the positive impact of virtual meetings as opposed to face-to-face meetings signals the potential of conferencing and collaboration tools like Genesys Meeting Center for direct business process optimisation and increased cost savings.

Recommendations

The survey evidence suggests that travelling for meetings is not just counterproductive and costly, but also environmentally unsustainable. Luckily, even small changes in established patterns of individual behaviour can have a real impact on a global scale.

The easiest way for Fujitsu Services employees to avoid business travel is to use virtual meeting facilities. Fujitsu Services employees in EMEA are already doing so in large numbers, as indicated by the increasing rate of employees using unified conferencing and collaboration tools like Genesys Meeting Center. Although the trend towards replacing in-person meetings with virtual meetings is gathering pace, more can be done to promote this trend. Datamonitor makes the following recommendations:

- Fujitsu Services should actively seek to promote conferencing technologies in all levels of its workforce, emphasizing both the positive impact upon environmental issues, as well as the business optimisation potential of conference calls compared to in-person meetings.
- Datamonitor recommends that each Fujitsu Services employee in the EMEA region should target at least a 10% reduction in business travel, replacing one in ten meetings that requires travel for over 30 minutes with a virtual meeting, thus potentially saving £2,540 (€3,665) in travel costs and 1.8 tonnes of CO₂ emissions per employee each year.
- Fujitsu Services employees belonging to communities that currently contribute above average amounts of CO₂ emissions (particularly Sales, Commercial, Technical Architecture and Project Management communities) should consider more ambitious reductions in travel, perhaps even of up to 20%.
- Fujitsu Services employees in countries in which virtual meetings are replacing in-person meetings with reduced frequency (such as Portugal and, to an extent, France) should aim for a more aggressive increase in replacing in-person meetings with virtual meetings, perhaps by as much as 17%.
- Fujitsu Services employees should replace car journeys and domestic and short-haul flights with rail journeys whenever practicable. Every mile travelled by a short-haul flight or a car is equivalent, in terms of CO₂ emissions, to 2.6 or three miles travelled by rail.
- Fujitsu Services should ensure that a common set of virtual meeting capabilities is consistently available to its entire workforce and, where possible, to Fujitsu Services's clients.
- Fujitsu Services should present to its workforce and clients alike the fact that conferencing and collaboration tools frequently work through an extremely light footprint and that audio conferences can be augmented with content via a standard web browser.
- Fujitsu Services UK should consider simple initiatives to encourage car sharing. The survey demonstrates that the aversion to car sharing is a UK-specific trait.

APPENDIX

Methodology

Fujitsu Services EMEA employee survey

Datamonitor designed a questionnaire examining patterns of travel and use of virtual meeting facilities. The questionnaire, translated into eight languages, was sent to all Fujitsu Services employees in the following countries in the EMEA region:

Table I: Survey respondents by country (%)					
Country	Fujitsu Services employees	Survey respondents (count)	Survey respondents (%)	Fujitsu Services EMEA response rate*	
UK	14666	1514	79%	10%	
Finland	2460	200	10%	8%	
Germany	1641	53	3%	3%	
Spain	1443	52	3%	4%	
France	530	48	3%	9%	
Sweden	209	30	2%	14%	
Portugal	157	12	1%	8%	
Italy	66	11	1%	17%	
Total	21172	1920	100%	9%	

* Proportion of total Fujitsu Services employees responding to the survey in each country

Source: Datamonitor

DATAMONITOR

Data model inputs

The data model was based on typical journey estimates, rather than a detailed audit of travel patterns. The EMEA Fujitsu Services employee survey provided other carbon and cost modelling inputs, including:

- Distance and mode of travel for a typical meeting (*For the typical virtual meeting that replaces an in-person meeting, how far would you have travelled using the following modes of transportation for the in-person meeting? (please enter the distance in miles)*);
- Travel cost associated with typical meeting (*For the typical virtual meeting that replaces an in-person meeting, how much money would you have spent to attend the in-person meeting, by type of expense? (please enter the amount in £)*);
- Typical number of meetings per year (*How often do you travel for in-person meetings (travelling time of more than 30 minutes)*).

These three parameters are used to provide cost and CO₂ emissions estimates for a typical journey, which was then multiplied by the typical number of meetings per year in order to derive annual data.

For the CO₂ emission calculations, DEFRA's e-digest statistics on climate change were used; primarily, the data on the average CO₂ output in grams per distance travelled (see Table 1).

Comparisons between carbon emissions and other activities were generated on the basis of DEFRA's e-digest statistics on climate change, primarily on CO₂ emissions per kWh ratios and average personal CO₂ outputs in the UK. For server power consumption, an AMD-sponsored white paper authored by Stanford University was used.

Car share information was collected, but could not be included in the model calculations as the survey does not indicate whether car shares are with other Fujitsu Services employees.

Travel costs were not adjusted for purchase power parity across the countries studied, as the survey respondents all belong to the EU.

The £ to € conversion rate that was used was 1.443, the averaged exchange rate in October 2007.

Extrapolation from the surveyed sample onto Fujitsu Services EMEA workforce was based on the per country response rate of the workforce participating in the survey and average carbon emissions or travel costs per employee. In the absence of survey responses from certain countries, average carbon emissions or travel costs per employee from the appropriate Fujitsu Services operations unit were used. For example, Austria, Belgium, Switzerland, Netherlands and Luxemburg were not represented in the survey, so the average model inputs from the surveyed countries in Fujitsu Services's Continental Operations group were used instead. Exceptions were made for Russia (average emissions from Scandinavian region used), and UAE and Egypt (an arbitrary rate of 50% of the UK levels applied).

Travel reduction recommendations are made on the basis of a recommended minimum replacement rate constant, in this case 10%, adjusted by the percentage of audio conferences used to replace in-person meetings associated with travelling for more than 30 minutes. The formula used is:

$$\text{Recommended minimum replacement rate constant} / (1 - (\text{Surveyed audio conference replacement rate} / \text{maximum surveyed audio conference replacement rate}))$$

For example, the UK, the country with the highest number of travel replacement audio conferences, was assigned the base 10% reduction rate, whereas Portugal was assigned a target of 17%, adjusting for its much lower rate of audio conferences replacing in-person meetings requiring travel for more than 30 minutes.

Travel cost quotes were obtained on November 20, 2007 from www.nationalrail.com, www.kayak.co.uk, www.ryanair.com, www.easyjet.com and www.britishairways.com, for a fixed-fare London to Manchester journey outbound on the morning of December 3 and returning on the evening of December 4.

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Datamonitor consulting

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