

Methodological report “e-cleaning days” operation

Co-produced by:
Orange and Carbone 4



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I. Introduction

As part of international negotiations, France has made a commitment to reduce its greenhouse gas emissions by a factor of 4 by 2050, compared with 1990, in order to limit climate change and its impacts. This commitment has been further strengthened with the French energy transition act (*Loi de transition énergétique*) of summer 2015. Among other aspects, this act targets a 20% reduction in final energy consumption by 2030, compared with 2012.

In addition, the French environment and energy management agency (ADEME) observed in 2012¹ that digital, information and communication technologies (DICT) "could represent 13.5% of electricity consumption in France and 5% of French greenhouse gas emissions. (...) The electricity consumed by DICT has more than doubled in the past decade, increasing by +10% per year", despite the improvements made with energy efficiency.

Faced with this situation, the ADEME published a public guide² in 2014 to make individuals and professionals more aware of the links between the climate, energy consumption and DICT use. In particular, it recommended the following actions:

- powering down your internet connection at least during the night and unplugging your computer
- targeting the recipients for your messages
- managing your mailbox by only keeping what is necessary

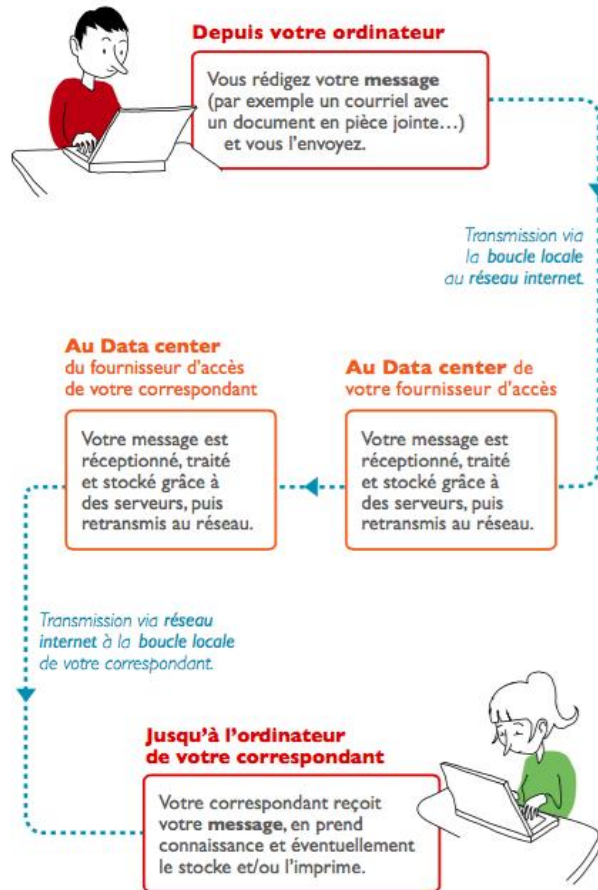
As illustrated by the ADEME, all messages that have been sent are stored by their sender ("messages sent") and their recipient ("messages received"). To be accessible anywhere in the world, any time, these sent or received messages are stored in data centers.

Of course, the ADEME is not looking to promote traditional mail over email, but to explain how to use email in a more environmentally-friendly way. The storage of emails and attachments on a server is also an important issue, while remembering that one of the key components with this approach is to reduce printouts of emails.

¹ 2012 sector guide: greenhouse gas emissions review, digital, information and communication technologies - ADEME

² Internet, email: reducing impacts - limiting our consumption of energy and raw materials, ADEME, Feb. 2014

Diagram for sending and storing email



To ensure they are quickly accessible, these data centers consume energy continuously. McAfee estimates³ the energy required to store 1 GB of emails for one year at 32.1 kWh.

The ADEME therefore recommends not storing any unnecessary emails on servers, “**while trying to keep just the emails that are necessary and just for the period when they are actually needed. I regularly sort through my mailbox. I delete any spam messages immediately!**”

³ The Carbon Footprint of Email Spam Report, McAfee & ICF International, 2009.

II. Orange's approach

The Orange Group, as a mailbox hoster and a business using an email system internally, is covered by this last recommendation and wants to help reduce the level of email stored unnecessarily, by its employees (internally) and by people throughout France (externally).

As an official partner of the COP21, Orange also wants to be engaged in the agenda for solutions working towards a low-carbon world. To achieve this, Orange's teams, with support from Publicis, want to put together a communications campaign that is based in particular on a positive message, advocating a simple and accessible solution for members of the public.

On account of the large numbers of Orange subscribers in France, and considering that each item of data stored on its servers consumes energy and, indirectly, produces greenhouse gas emissions, it was decided that the message would focus on the positive impact of users deleting this stored data (such as emails). Several formulations are possible for this topic.

From November 18 to December 11, 2015, Orange is launching an “e-cleaning days” operation. Three weeks to hunt down any email unnecessarily stored in our mailboxes.

Commentaire [N1]: Same as source however this is November 16 in the rest of the document

What are the “e-cleaning days”?

This operation involves an awareness campaign focused initially on employees in the Group's 29 countries. The aim with this campaign is to share information on the efficient use of professional email and, through this, personal email as well.

For the launch of this first initiative, Orange is capitalizing on the schedule for COP21 to effectively promote the growing collective awareness concerning email use. The aim is to position the deleting of unnecessary, obsolete or very heavy emails as a responsible action, in line with the sorting of waste, applied for its core business: digital and new information and communication technologies.

Orange understands that it will take time to establish this movement, but it still firmly believes that, as a major player in the digital world, it is important to show the way forward for responsible and sustainable email consumption. That is why this operation will first be launched in-house, with an ambition to renew it each year, several times.

Orange has therefore chosen to work with a specialist consultancy - Carbone 4 - for this initiative. Carbone 4 is the leading consulting firm for taking carbon constraints into consideration for businesses. These constraints include issues relating to both change and the growing scarcity of fossil energies. Carbone 4 has carried out carbon footprint analyses or helped set up carbon accounting systems in more than 40 businesses or business groups.

Long-term approach

- Orange is committed to supporting users with this approach and, from early 2016, it wants to promote the tools that are already integrated into webmail, but that they may not necessarily be familiar with:
 - Sorting by date
 - Sorting by sender
- End of 2016, Orange plans to raise awareness on use of the cloud, which makes it possible to avoid heavy attachments being stored at multiple locations.

III. Overview of actions taken

A group-wide awareness campaign for the in-house target (29 countries) from November 18 to December 11, 2015.

During this period, the group's employees will be made more aware of "responsible" email use and invited to delete messages that they no longer need to keep. To illustrate this approach, an internal communications kit has been put together to clearly show how each individual can take action at their own level.

The aim is to encourage email users to regularly delete messages that are too heavy and too old in order to optimize data storage on servers and therefore limit the energy consumed by these servers.

The internal communications kit includes:

- Internal posters based on a principle for simple illustrations
- Animatic to raise awareness
- Wallpaper images incorporating the illustrations

The campaign will be opened up to the general public when the COP21 conference opens in Paris, from November 30 to December 11, 2015.

Orange intends to open up this initiative externally in order to increase the scope and impact of this operation to build awareness. Indeed, few people are aware that the digital world is not immaterial. The aim is therefore to make everyone aware of this new simple action that must be taken on a regular basis.

To support this action, an external communications plan has been drawn up and rolled out on the Orange.com corporate site, with extensive information for members of the public.

DAYCAUSE module: crowdspeaking supporting email cleaning operations:

Orange is using the Day Cause platform for "e-cleaning days". This platform makes it possible to generate support for the initiative and encourage participation in the collective movement.

The call for action approach is based on inviting people to join the "e-cleaning days" cause by making a commitment to delete 50 unnecessary emails. This "support & act" approach has major potential for going viral on social media;

The complete media plan is appended, but the main channels are as follows:

- Posters will be deployed in the metro (metro, stations, airports, taxis)
- Press inserts will be published in general and specialist titles
- The message will also be promoted with a digital media plan, in line with the campaign's focus

IV. Overall methodology for formulating the message

Both internally and externally, independently from the exact formulation of the communications for this operation, we have sought to:

- 1/ assess the quantity of energy not consumed by deleting one email,
- 2/ translate this quantity of energy into a more easily understandable equivalent.

For the first step, we need to know:

- 1/a the energy required for storing emails (kWh / GB stored);
- 1/b the average size of an email.

For simplicity and cost reasons, the option of installing meters and instantly translating emails deleted into energy that has not been consumed was not retained. We are therefore working with an average email size.

	1/a – Storage energy (kWh / GB stored)	1/b – Average size of an email (KB)
Internal (Orange employees)	32.1 (McAfee 2009)	131.867 (Orange employees) ⁴
External (Orange customers)	32.1 (McAfee 2009)	230 (Orange customers) ⁵

A presentation of the method used to assess Orange's data is appended.

As the energy consumed or avoided – expressed in kWh - is not information that can be easily understood by everyone, we wanted to give equivalents with simpler or more visible actions. To do this, we have taken:

- A 9W energy-saving light bulb. One hour of lighting therefore corresponds to 9 Wh.
- The Eiffel Tower, which consumes 580,000 kWh per year for its lighting, with a daily average of 1,589 kWh.⁶

⁴ For comparison, Slovakia - 108 KB; Mobistar – 165 KB.

⁵ Average size of emails in the 30 million mailboxes hosted by Orange: 230 KB.

⁶ "Everything about the Eiffel Tower" (toureiffel.paris.fr)

a. Internally

The following technical content has been selected to formulate a message for Orange employees: “if all Orange employees deleted 50 unnecessary old emails, this would be equivalent to:

- 2 million light bulbs being turned off for 1 hour.
- the Eiffel Tower’s lights being turned off for 1 day every month”.

The following considerations have been used for these estimates:

- 97,000 employees in France (at June 30, 2015);
- average figures for email size and energy consumption per GB stored: see above;
- consumption figures for an energy-saving light bulb and the Eiffel Tower (lighting section): see above;

This gives the following equivalences:

- 50 emails deleted by employees;
- 640 GB of storage saved;
- 20,528 kWh saved over the year;
- 2,280,906 hours of lighting with an energy-saving light bulb, i.e. more than the 2 million used;
- 12.9 days of the Eiffel Tower’s lights, i.e. more than the “1 day per month” used;

b. Externally

Formulation of the external message

The following technical content has been selected to formulate a message for French people: “if everyone in **France** deleted 50 unnecessary old emails, this would be equivalent to turning off:

- 2.7 billion light bulbs for 1 hour.
- 310,000 light bulbs for 1 year.
- the Eiffel Tower for 42 years.
- Or equivalent to:
- Nantes not consuming any electricity for 2 days (53 hours).
- Paris having no public lighting for 1.5 years.
- Parisians not turning any lights on at home for nearly one month (27 days).
- Paris not consuming any electricity for 20 hours (20.73).
- New York City not consuming any electricity for nearly 4 hours (3.57 hours).
- Tokyo not consuming any electricity for nearly 1 hour (50 minutes).

V. Checking the message's impact

a. Internally

Orange intends to check the campaign's impact by checking the number of emails stored on its servers. To do this, several technical issues need to be taken into account.

- The volume of email stored on servers is constantly increasing (around +1TB / week).
- There are significant day-to-day differences. On the two-week sample available when preparing this report, the inter-day delta ranges from +526 GB (max) to -53 GB (min) (cf. Appendix).
- It takes one month for emails that have been deleted to actually be definitively deleted. So it is impossible to measure the communication campaign's impact in real time.

Orange will therefore aim to measure changes on a retrospective basis. Taking daily measurements, we can see that the impact of the communications campaign will only be able to be measured if its effect is less than $\text{max-min} = 580$ GB. However, we previously established that if all Orange employees deleted 50 emails, this would represent 640 GB on average. If 10% of employees do not take this simple step, we will not be able to certify this campaign's impact.

For its internal e-cleaning days, which will be taking place from November 16 to December 11, the Orange Group is calling on the IT teams in countries across Europe, AMEA and OBS to formalize the systematic reporting of data concerning email storage on employees' workstations. This project to measure the impact of employees' actions (deleting unnecessary emails and data that are blocking up servers). The DISU will measure the data for France.

- **International: Orange Group and OBS entity level**

As this is a major, complex initiative, it has been agreed that six pilot countries will be identified to take part in this first operation.

- For the AMEA region, the target countries are Ivory Coast, Senegal and Jordan.
- For the Europe region, the target countries are Spain, Romania and Poland.

A script form has been sent out to the target countries by the DISU in order to standardize the information reporting framework. This protocol indicates that measurements will need to be taken at 1 am every day from November 16 to December 11.

The figures collected will be indicated in the Excel file, which will be consolidated at the headquarters by the DISU on Monday each week (i.e. November 16, 23 and 30, and December 7 and 14) before 12 midday.

With the company's security system, it takes 32 days before emails that have been deleted are definitively removed. As a result, Orange will not be able to check the impact of its campaign until December 18 for the first day of the in-house e-cleaning days campaign. The company will therefore be in a position to communicate on its consolidated results from January 12 (32nd day after the campaign's final day).

b. Externally

The following considerations have been used for these estimates:

- 66,318,000 inhabitants in France (INSEE 2015).⁷
- Electricity consumption of the French city of Nantes: 4 TWh / year.
- 2,243,833 inhabitants in Paris (INSEE 2010); 12 million inhabitants in the Paris region (INSEE 2014).
- Consumption for lighting per household: 330 kWh / year; number of people per household: 2.3 (INSEE 2007).
- Residential and commercial electricity consumption in the Paris region: 55.332 TWh / year (SOeS 2014). We consider that electricity consumption in Paris is primarily residential and commercial: it is calculated based on the pro rata population in relation to the Paris region.
- Parisian public lighting: 15.84 GWh / year (calculated based on the City of Paris' Climate Plan).
- Annual electricity consumption for the city of New York: 60 billion kWh.⁸
- Annual electricity consumption for Tokyo: 257 billion kWh. Value estimated based on Japan's electricity consumption and prorated to the population levels.⁹
- Average figures for email size and energy consumption per GB stored: see above;
- Consumption for an energy-saving light bulb and the Eiffel Tower (lighting section): see above.

⁷ Not all French people have a mailbox, but many have several mailboxes. A survey by ContactLab estimated that 68 million mailboxes were in regular use in 2011.

⁸ <http://engineering.mit.edu/ask/how-many-wind-turbines-would-it-take-power-all-new-york-city>

⁹ Japan's population: 126,919,659; Tokyo's population: 38,001,000; Japan's annual electricity consumption: 859.7 billion kWh (CIA Factbook, resp. data for 2012, 2015, 2015).

VI. Support module

To rally together large numbers of people and encourage them to delete their unnecessary emails, Orange has called on DayCause to develop a support module. To take into account the group logic and the differences between the size of internal email (132 KB) and external email (230 KB), four related campaigns needed to be mapped out:

- an internal campaign in French (oran.ge/e-cd)
- an internal campaign in English (oran.ge/e-cdays)
- an external campaign in French (oran.ge/ecd)
- an external campaign in English (oran.ge/ecdays)

a. Internally

The module determining support for the internal campaigns is based on the following calculation:

Average email size = 132KB¹⁰

If each person who supports this cause makes a commitment to delete 50 emails

We get 131 KB X 50 = 6500 KB deleted through support for this cause

With help from the consultancy Carbone 4, we have been able to convert the KB deleted into kilowatt hours saved.

If all Orange employees in France¹¹ take part in this action and make a commitment to delete 50 emails, this would be equivalent to freeing up 640 GB.

Considering that it takes 32.1 kWh to store 1 GB¹²: 640 GB x 32.1 = 20,544 kWh

Since members of the public may struggle to understand the concept of kilowatt hours, it has been agreed to focus communications on thresholds that correspond to more concrete elements.

Threshold 1: number of energy-saving light bulbs

From 0 KB to 2,062,618 KB

“So far, we’ve turned off 0-7357 energy-saving light bulbs for 1 hour”

To achieve this threshold, we need 0 to 312 supports.

Threshold 2: turning off the Eiffel Tower’s lights for a given time

From 2.062 GB to 99.005 GB

“So far, we’ve turned off the Eiffel Tower’s lights for 1-48 hours”

To achieve this threshold, we need 313 to 15,001 supports.

Threshold 3: turning off a city with x inhabitants

From 99.005 GB to 9,198 GB

“So far, we’ve turned off a city with 3791 - 352,203 inhabitants for 1 hour”

To achieve this threshold, we need 15,002 to 1,393,711 supports.

Threshold 4: turning off Paris for x minutes

From 9,198 GB

“So far, we’ve turned off Paris for 15-X minutes”

To achieve this threshold, we need more than 1,393,712 supports.

¹⁰ 132 KB is the average size of an email, based on information from internal IT systems for Orange employees

¹¹ 97,000 employees in France in June 2015

¹² McAfee "The Carbon Footprint of Email Spam Report", 2008

b. Externally

The module determining support for the external campaigns is based on the following calculation:

Average email size = 230KB¹³

If each person who supports this cause makes a commitment to delete 50 emails

We get 230 KB X 50 = 11,500 KB deleted through support for this cause

With help from the consultancy Carbone 4, Orange has been able to convert the KB deleted into kilowatt hours saved.

If 60,000¹⁴ people support this cause, this would be equivalent to deleting 575 GB

Considering that it takes 32.1 kWh to store 1 GB¹⁵: 690 GB x 32.1 = 22,149 kWh

Since members of the public may struggle to understand the concept of kilowatt hours, it has been agreed to focus communications on thresholds that correspond to more concrete elements.

For instance, if one person takes part, this is equivalent to 41 energy-saving light bulbs being turned off for 1 hour.

Threshold 1: number of energy-saving light bulbs

From 0 KB to 2,062,618 KB

“So far, we’ve turned off 0-7357 energy-saving light bulbs for 1 hour”

To achieve this threshold, we need 0 to 180 supports.

Threshold 2: turning off the Eiffel Tower’s lights for a given time

From 2.062 GB to 99.005 GB

“So far, we’ve turned off the Eiffel Tower’s lights for 1-48 hours”

To achieve this threshold, we need 181 to 8,609 supports.

Threshold 3: turning off a city with x inhabitants

From 99.005 GB to 9,198 GB

“So far, we’ve turned off a city with 3791 - 352,203 inhabitants for 1 hour”

To achieve this threshold, we need 8,610 to 799,869 supports.

Threshold 4: turning off Paris for x minutes

From 9,198 GB

“So far, we’ve turned off Paris for 15-X minutes”

To achieve this threshold, we need more than 799,870 supports.

¹³ Average size of emails in the 30 million mailboxes hosted by Orange: 230 KB

¹⁴ 60,000 people is equivalent to 10% of the French population

¹⁵ McAfee “The Carbon Footprint of Email Spam Report”, 2008

VII. Appendices

Appendix 1 – data collected for the internal message

Data collected by Orange's IT department, with a script taking measurements on internal servers (employee emails). There is no means of differentiating between the type or age of data stored.

Measurement date (1 am)	No. of emails stored on D (number)	Average size (pro rata storage)	Stored on D (MB)	Storage differential D- (D-1) (MB)
Oct 7, 15	452359674	131.9006708	57428038	147138
Oct 8, 15	454695492	131.6968757	57717040	289002
Oct 9, 15	455547160	131.7190837	57836904	119864
Oct 10, 15	456781580	131.8820019	58070037	233133
Oct 11, 15	457162189	131.8404218	58094533	24496
Oct 12, 15	457430021	131.8053834	58108661	14128
Oct 13, 15	456760695	131.8738271	58055488	-53173
Oct 14, 15	457474602	131.9096073	58152462	96974
Oct 15, 15	458684733	132.0385778	58371873	219411
Oct 16, 15	459747413	132.027614	58502793	130920
Oct 17, 15	464112683	131.9541529	59029575	526782
Oct 18, 15	464505046	131.9173629	59058533	28958
Oct 19, 15	464806486	131.8228409	59057135	-1398

In the end, the figure of 132 has been used for the average size of a professional email stored on Orange's servers.

Appendix 2 – data collected for the external message

A similar approach has been applied for the external message to measure the average size of email in the 30 million mailboxes of Orange customers. As Orange is the leading mailbox hoster in France, 230 KB / email is used for the entire French population.

Appendix 3 - Awareness video

Storyboard (WIP)



Appendix 4 – Campaign visuals

a- Internal



b- External



Appendix 5 – Visual for the integrated module on Orange.com (currently being developed)

The screenshot displays the Orange.com website interface. At the top, there are three buttons: "Vous êtes client", "Vous êtes une entreprise", and "Vous êtes un candidat". Below these is the Orange logo, a menu icon, "Le Groupe", a search bar with "Rechercher", and social media icons for Twitter, Facebook, YouTube, Google+, and LinkedIn. The page title is "orange.com > E-cleaning days" with a play button icon. The main heading reads "E-cleaning days : envoyons un message à la planète en supprimant nos e-mails inutiles". The content area features a dark box with the text "Lorem ipsum dolor sit amet, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. http://dcau.se". Below this are two buttons: "soutenir avec" with a Twitter icon and "soutenir avec" with a Facebook icon. A note states: "Tous les messages seront publiés le lundi 30 novembre 2016, 17:00. Plus il y a de soutiens, plus la campagne sera visible. Alors invitez vos amis à soutenir aussi". To the right is an illustration of the Eiffel Tower and a street lamp at night. At the bottom right, there is a "SOUTIENS" counter showing a checkmark icon and the number "0".