



H&M

H&M GROUP

# GREEN PAPER

EXPANDING IT WHILE REDUCING ITS ENVIRONMENTAL IMPACT

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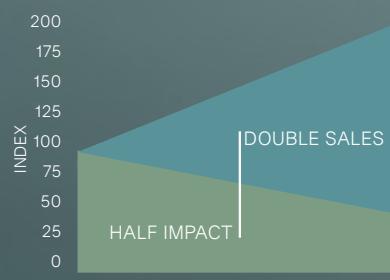
# Summary

## “Double Sales – Half Impact”

Between 2012 and 2017, H&M IT undertook a sustainability initiative known as “Double Sales – Half Impact”.

The aim of the initiative was to halve the environmental impact of IT while the size of the organisation – in terms of the number of stores – was expected roughly to double during the same period.

FIGURE 1: DOUBLE SALES – HALF IMPACT



The initiative was limited to:

- 1 IN-STORE IT SYSTEMS
- 2 OFFICE IT SYSTEMS
- 3 SERVERS
- 4 DATA CENTERS

The focus was on three environmental factors:



CLIMATE



HAZARDOUS SUBSTANCES



RESOURCES

## Results

From the first half of 2012 to the first half of 2017, the following results were achieved:

CLIMATE IMPACT IN TERMS OF ENERGY CONSUMPTION REDUCED BY  
**48 %**

PRESENCE OF HAZARDOUS SUBSTANCES REDUCED BY  
**45 %**

RESOURCE UTILISATION REDUCED BY  
**20 %**



New capacity has been provided to society through the use of solar panels and heat recovery from data centers.

The number of stores grew by 75 percent during this period.

Total energy savings for the given period amounted to just over 27 million kWh. This is the equivalent of 10.9 million kilogrammes of carbon dioxide and electricity cost savings of EUR 4 million.

# Conclusions

At the beginning of 2012, energy use through the running of IT systems grew in line with the expansion of the company, as did the amount of waste generated through worn-out IT equipment. The great results following the measures taken within the initiative make a good ground for both keeping up these efforts and set new reductive goals.

Being able to demonstrate that decoupling is possible, even during a period of strong growth, is a very positive thing. To grow by 75 percent during a five-year period and cut energy consumption by 48 percent, hazardous substances by 45 percent and resource use by 20 percent at the same time is a great achievement.

In 2018, the “Double Sales – Half Impact” goal will be fulfilled in terms of energy and hazardous substances. So far, there has been less progress in terms of resources, but the results still reflect the clear decoupling achieved.

Working with IT and the environment is a complex matter, and competence, a sense of engagement, a budget and clear leadership are all required for efforts to be successful.

Besides this, success is enabled through the implementation of clear system boundaries, effective measurement methods and ambitious goals. The focus should remain on taking measures in areas where we have the power to exercise our influence and to achieve results.



# Implementation – Prestudy

In order for the environmental work to be effective and measurable, a prestudy was carried out to set clear boundaries, analyse the current situation and make qualified assessments in order to identify possible goals.

## Boundaries and definitions

The scope of the initiative was limited to cash registers and computer systems used for administrative purposes, office clients, servers and data centers.

Environmental factors were identified and then restricted to those that can readily be influenced, namely:

1

ENERGY USE BY IT SYSTEMS

2

HAZARDOUS SUBSTANCES FOUND IN THE HARDWARE PURCHASED AND USED

3

THE USE OF RESOURCES

4

THE WAY HARDWARE IS HANDLED ONCE IT HAS BEEN USED

## Analysis of the possibilities

A market analysis revealed that there were significantly more energy-efficient and resource-saving hardware models involving fewer hazardous substances compared with the installed base. The various potential measures identified were as follows:

- The purchase of resource- and energy-saving hardware without hazardous substances
- More effective energy-saving functionalities
- Increased server virtualisation
- More effective data centers.

The analysis (see figure 2) revealed that it would be possible to reduce energy use within each IT area by 76-94 percent.

FIGURE 2: THE POTENTIAL WITHIN SELECTED AREAS



## Setting goals and baseline

“Double Sales – Half Impact” covers both the expansion of the company and the environmental impact of IT use. The number of hardware devices is more or less growing in line with the increasing number of stores, which makes the number of stores a simple and effective unit to use when measuring expansion.

Internal data and information from suppliers were compiled in order to create baselines for energy, resources and hazardous substances. Each baseline was set for the first half of 2012, and the goal was set for the first half of 2017.

Monthly reporting was introduced so that developments could be communicated and used as a basis for half year reporting.

# Implementation – Prestudy

## Measurement methods

### *Environmental information relating to assets*

Environmental information has been added to the asset system currently in use as a basis for measurement and follow-up. Information relating to each model is saved – including energy data, weight measurements, the proportion of recycled material included and details of six selected hazardous materials. This section on environment-related information provides a sound basis for various types of follow-up.

### *Energy*

To calculate energy consumption for office clients, average figures relating to effect are combined with information on the respective mode of clients with regard to energy savings made during a given period.

Calculations of the energy consumption of cash registers were based on the system being up and running around the clock. Here, a weighted average effect measurement for “on” mode was multiplied by the number of devices in question.

Servers are up and running around the clock, and energy use depends on load. Here, Energy Star – the global efficiency standard for the energy consumption of IT products – is used for the assessment of Enterprise Servers.

### *Hazardous substances*

Measurements of hazardous substances are applied in a binary system based on whether or not a substance in question is found in a particular device.

### *Waste and resources*

Weight is used as a unit to measure waste and resources. The assumption is that if a function is carried out on a less heavy piece of hardware, it is more resource efficient; less virgin material has been required in the manufacturing process, less packaging materials have been used, and less waste will be produced at the end of the device's lifecycle. The internal or external reuse of hardware has been prioritised to reduce the level of waste.

For each unit reused, a credit is made for its weight in kilogrammes. The volume of paper printouts is also measured in terms of weight.



# Implementation – Execution

## Purchasing more environmentally friendly hardware

No equipment has been replaced for sustainable reasons; instead a decision was made to make sure that all new and replacement hardware should meet the environmental requirements decided upon.

Guidelines on environmentally friendly purchasing were introduced for office clients, and the cost of future energy consumption was included in the cost estimates made for new products. The best models were then adopted as standard within the internal ordering process.

In the cash register area, a service procurement was made for a global cash register system. Environmental requirements were included in the procurement process. Calculations revealed that reduced future energy use would quickly balance out the modest additional cost of the more energy-efficient cash registers.

Within the server domain, more products are now clearly being developed that make servers more energy efficient. Today's servers offer a combination of improved performance and less than half the energy consumption.

## More effective energy-saving functions

While the initiative was ongoing, the percentage of office clients with active energy-savings rose from 30 to 95 percent. A strict requirement was set for maintaining and developing the energy-saving functionality.

For cash registers, the energy-saving function was mainly configured for screens.

## Server virtualisation

Two major virtualisation projects were carried out during the given period. In May 2017, the virtualisation rate had increased from 1.2 to 4.3. Today, 80 percent of all servers are virtual.

## More effective data centers

Environmental requirements were included in the construction plans for H&M's data centers. Solar panels have been installed and participation in a pilot project connected the data center to district heating network for heat recovery. Even though the data centers were already effective from the outset, they are estimated to be 30 percent more effective in 2017.

## Reduced use of paper

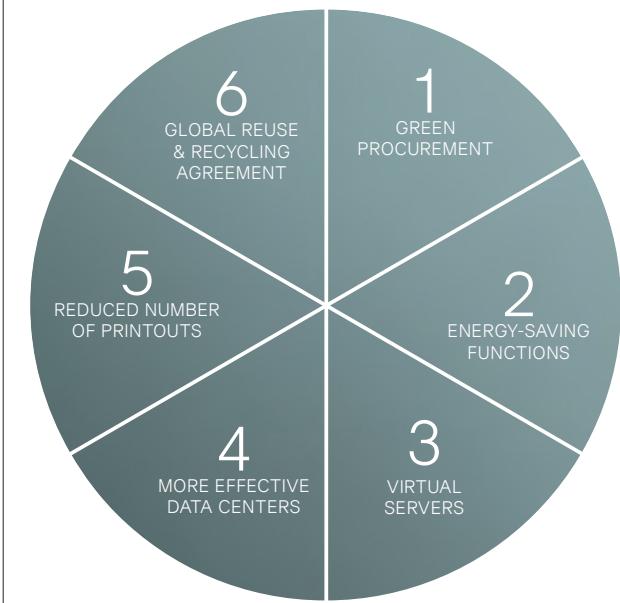
Paper consumption has decreased in H&M's offices owing to initiatives such as "Follow me print" and the basic configuration of double-sided printed pages.

In the warehouses, order picklists have been digitalised through the adoption of a "Pick to voice" solution.

## Issue of global reuse and recycling agreement

A global reuse and recycling agreement has been issued to ensure that worn-out hardware is handled in a secure and sustainable way. The hardware is primarily reused by other organisations. As a secondary measure, the materials of which it is made are recycled. Today, the agreement covers 96 percent of all the worn-out office and data centre equipment. In the spring of 2017, H&M's global asset recovery programme enabled 89 percent of all clients and cash registers to be reused by other organisations.

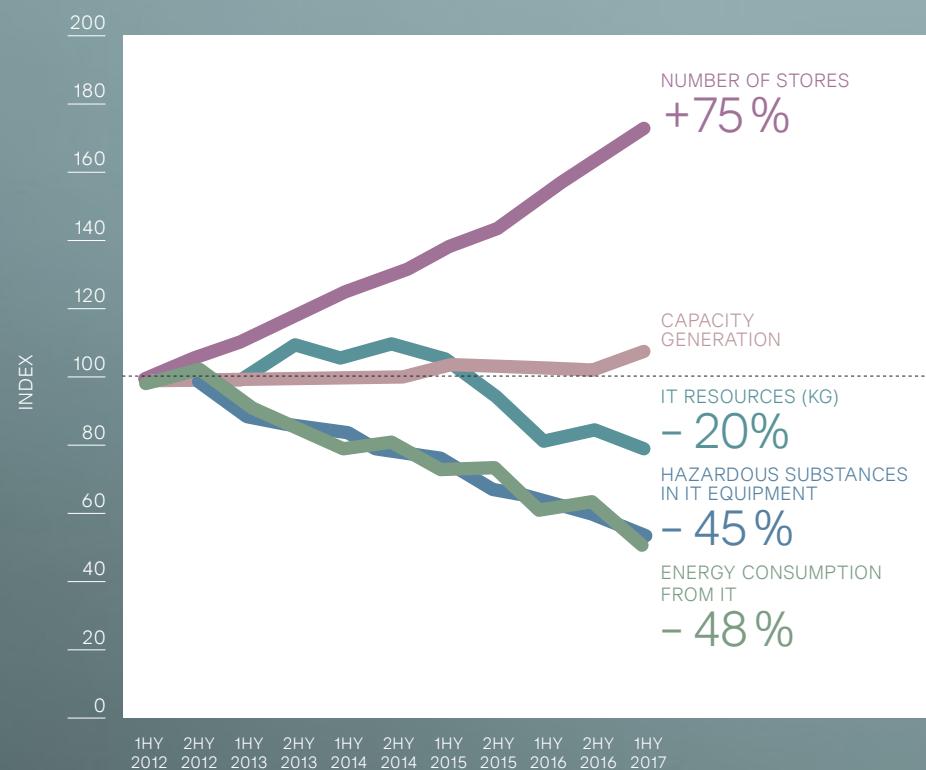
FIGURE 3:  
A HOLISTIC APPROACH TO SUSTAINABLE IT



# Results

The decoupling of energy took place during the first half of 2013. Less IT-related electricity was used by the organisation for the first time, despite the increase in the number of stores. The decoupling of hazardous substances present in IT equipment already took place in 2012. In terms of the resource goal, decoupling was achieved in 2015 on the shift to the paperless handling of orders in warehouses.

FIGURE 4: INDEX DEVELOPMENT OVER TIME (2012-2017)



# Results

## Climate

The climate impact was reduced by 48 percent between the first half of 2012 and the first half of 2017. That is equal to a total reduction in energy consumption of 27.2 million kWh throughout that period, which in turn is the equivalent of 10.9 million kilogrammes of carbon dioxide.

## Hazardous substances

Between the first half of 2012 and the first half of 2017, the number of hazardous substances decreased by an average of 45 percent per installed unit.

The greatest challenge is to get rid of PVC in cable isolation. Mercury, lead, cadmium and brominated flame retardants are no longer present in the equipment purchased.

## Resources

There has been a 33 percent reduction in paper printouts in offices and warehouses from the first half of 2012, and IT equipment weighing a total of 229 tonnes was reused or recycled.

Resource use decreased by 20 percent overall.

## Finances

With an average global energy price of EUR 0.15 per kWh, total electricity cost savings for the whole period amounted to EUR 4 million.

The forthcoming annual cost savings are an estimated EUR 1.7 million compared with the cost figure for 2012.

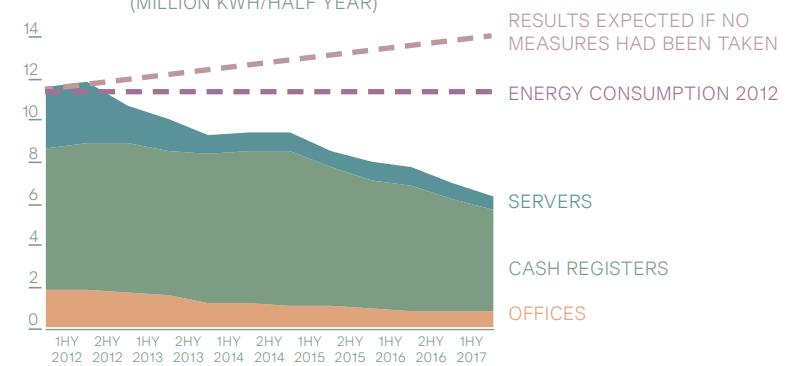
The savings calculation is based on actual consumption for 2012. This environmental initiative has proven to be profitable, even when the staff cost for the Green IT operation is taken into account.

The investment cost relating to the installation of the solar panel system on the roof of the data centre is not included. It is guaranteed to run for 25 years which will make that investment very profitable over that time.

## Forecast

Future results are expected to demonstrate that a 100 percent (index value 200) increase in the number of stores will lead to a 70 percent (index value 30) decrease in energy consumption compared with 2012. The "Double Sales - Half Impact" energy goal will be surpassed in 2018.

FIGURE 5:  
ENERGY SAVINGS OVER TIME  
(MILLION KWH/HALF YEAR)



# Key success factors

## Management support and resources

Green IT has been established based on the H&M group's overall sustainability strategy. Green IT is a focus area included in the IT strategy. Today's core Green IT operation covers development, requirements, support, communication and follow-up, and is run on its own budget.

## Communication and training

Over 1,200 people have been given basic Green IT training. The Green IT operation offers this to any part of the organisation where requests have been made for information on or support from Green IT.

Besides the internal communication efforts that have been undertaken, knowledge relating to the green goals has been transferred to suppliers.

## Participation in strategic projects

Major procurement and development projects were undertaken during this period. A dedicated Green IT resource was involved, making demands on suppliers as well as evaluating and meeting with them, and communicating knowledge both internally and externally. The environmental requirements were added to agreements, steering documents and different kinds of internal forums.

## Clear, measurable goals

An effective visualisation process, good measurement methods and a clearly defined baseline are all key, enabling the follow-up of activities, and allowing both the necessary measures to be taken and progress towards the goal to be followed.

## Steering documents

A Green IT appendix has been developed for inclusion in H&M IT's master agreement. Internal guidelines have been drawn up for strategic projects and areas.





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