



Green datacentres in the Netherlands

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Green data centers in the Netherlands.

1. The reason to concentrate on data centres
2. Definitions and research set-up.
3. The interviewed stakeholders
4. Two types of stake holders in more detail
5. Conclusions

Full paper on: <http://www.ict-management.com/eng/beheer/Fontys%20onderzoek.htm>

1. The situation.

Data center (DC) : place where the ICT servers and storage are operated

Airconditioned rooms for : storage and processing units		
In- and output processing	Operations	Planning
Office space for: engineers (capacity, continuity etc. Mngmt) account- en service managers service desk		

Study : 70 large data centers in the Netherlands
period 2002-2006: no floor space extension, but 74% growth in
energy consumption
in a city as Amsterdam 4-6% of energy consumption goes to the DC's

2. Definition and research setup.

Bruntland (1987) : *sustainability is managing the earth and its natural resources in such a way, that it meets the need of the present generation without compromising their ability for meeting the needs of future generations.*

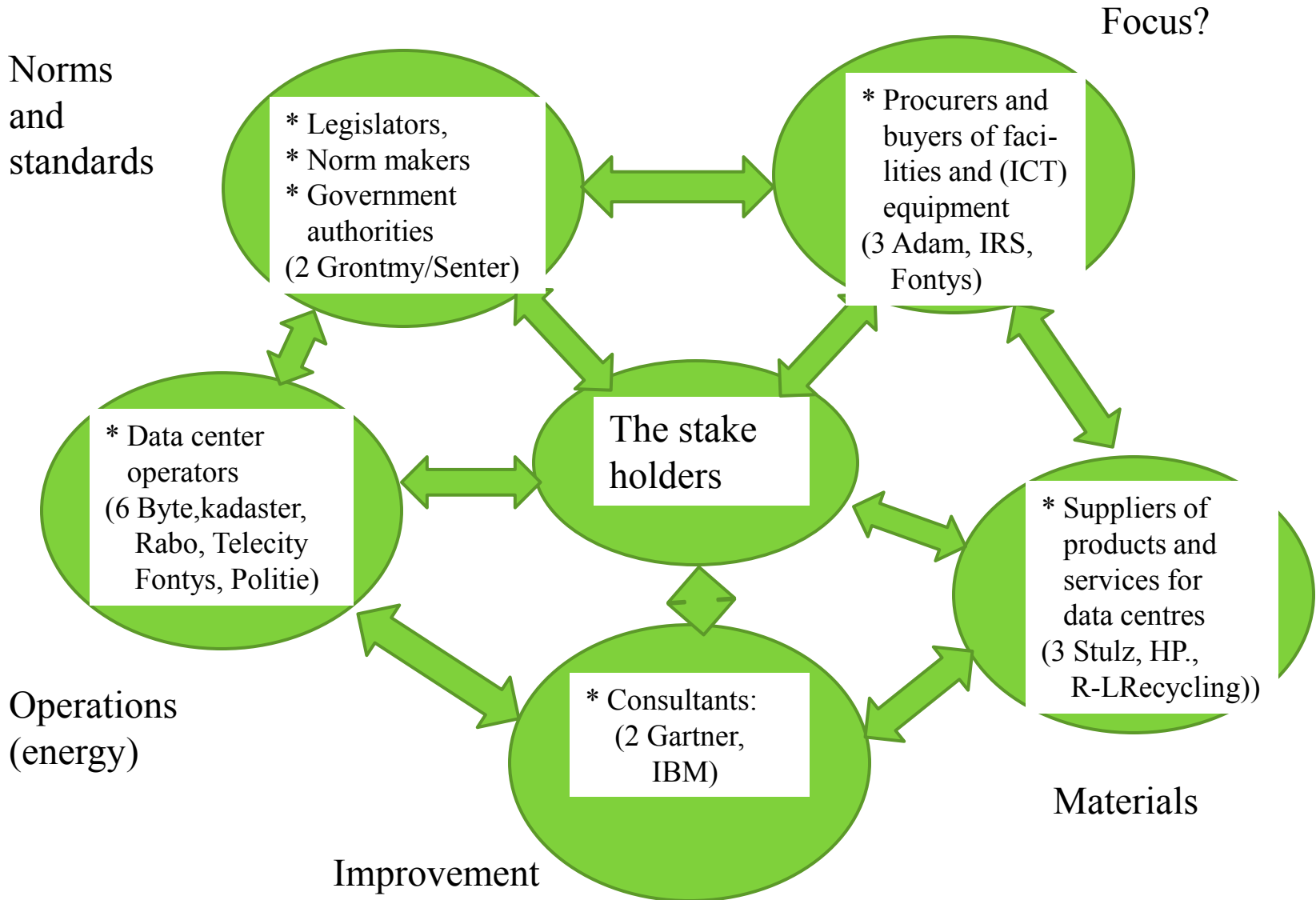
Two types: * realisation sustainability within IT
* realisation sustainability by means of IT



Research set up:


- groups of lecturers defines field, its stakeholders and the research questions → focussed on the status quo
- students perform the data collection (6 groups, totally 23 students interviewed all participating organizations (16)
- presentation of results in a seminar, a booklet and 7 articles.

3. The interviewed stakeholders.



4.1. The legislators.

5 types of measures:

- a. **European legislation** - immediatily applicable (REACH)
- translated to national law (Eco design e.o.)
→ materials
- b. **Norms from ISO**, EMAS, NEN381888 e.o. : fe. Energy star label
- c. **Codes of conduct** : - global reporting initiative raising reporting level
- EU regarding energy consumption 
- d. **Agreements between f.e. sector and government** : in 25 years saving 2%
energy a year counted form the 2005 level
- e. **Subsidy systems** by tax deduction and tenders f.e. for research and
innovation, investments etc. (60 a year)

4.2. The operators of data centers.

The theory:

- cooling 10-50%
- virtualisation and concentration 10-40%
- optimizing layout DC 5-30%
- optimizing cabling and power 4-15%
- modern ICT >50%
- Small sustainability (switch off etc) >30%

But less energy in operation, does not mean less energy to produce (for example LCD screens)

In practice:

Major actions found:

- Location : *concentration*
- Virtualization: *yes*
- Use of free air: *partly*
- Use energy measurements:
separate billing by hosting
- Data centre layout: *hardly*

Small sustainability:

- Workstations: *yes, but..*
(hardly automatic switch off found)
- Double sided printing/less printers: *yes*
- Reuse of equipement organized: *partly*
- Data centers:
 - remote operations *yes*
 - adjusted temperature *yes*
 - lights out : *yes*

5. Conclusions.

- **Legislation** originates from the EU. The Dutch government concentrates on codes of conducts, long term agreements and subsizing.
- **Procurers** take in their requirements for workstations also sustainability requirements into account. But all A class suppliers currently fulfill the energy requirements. Government procurers add requirements for social contributions (work, education)
- **Suppliers** have to give attention to sustainability. For cooling and power this means modular set up, use of free cooling, attention for toners and its removal.
- **Operators of datacenters:**
 - In house : concentration, consolidation and virtualisation
 - Hosting companies: separate charging for floor space and energy consumption plus attention for consulting capabilities
- **Consultants** like IBM and Gartner: using data databases as a base of consultancy

Sustainability is in early stages of development: few organizations give attention to it in their organizational structure as for example the city of Amsterdam and the Rabobank.