



Abu Dhabi:  
Defining Standards

# **SUSTAINABILITY OF GREEN IT: LONG TERM PERSPECTIVE**

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# Green IT Statistics

The amount of CO<sub>2</sub> that datacenters worldwide currently produce per year-**170 mil metric tons.**

Expected by 2020: **670 mil metric tons**

Google Controversy

ICT industry accounts for approximately 3.5 percent of global carbon dioxide (CO<sub>2</sub>) emissions.

Equivalent to Aviation Sector



Source: Gartner, Forrester and McKinsey Reports

# Sustainability of Green IT

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graph TD; A[Sustainability of Green IT] --> B[Sustained Environmental Performance]; A --> C[Continuity of Green IT initiative];
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Sustained Environmental  
Performance

Continuity of Green IT  
initiative

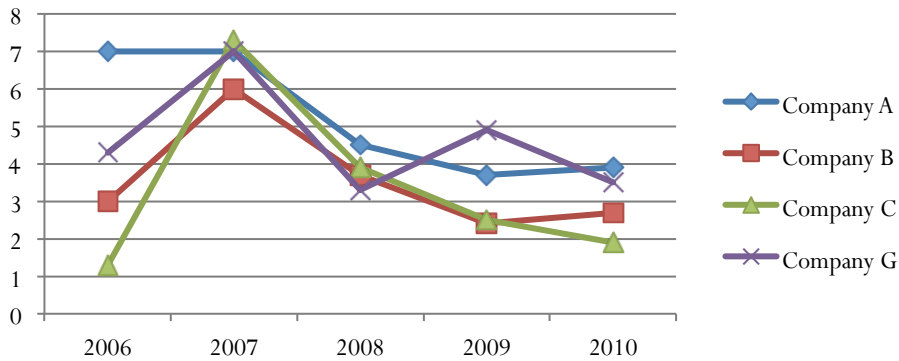
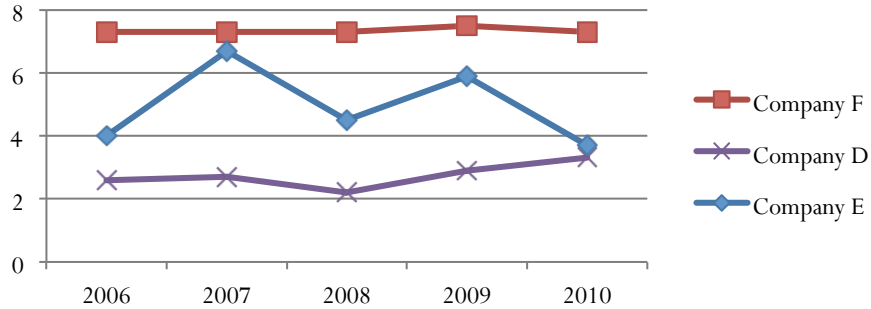
# Where lies the Problem?



- Tangibility factor: Energy consumption of IT equipment and its disposal are not readily visible as pollution when compared to other forms of negative environmental impact.
- Given the potential benefits of Green IT, it is surprising to note that implementation level of Green IT is low on a global scale (Fujitsu 2010, Molla et al., 2009) and particularly low in developing countries.

# Sustainability in Green IT: A problem- E1

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Only 2% of the firms have been consistently rated over 7 in Greenpeace rankings.

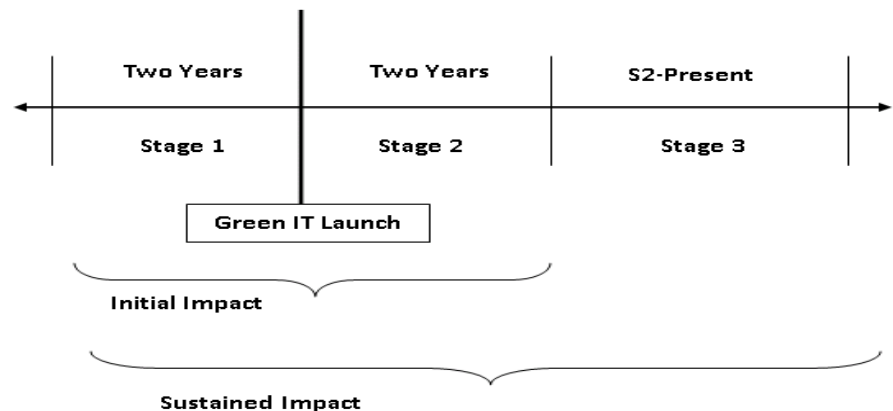
Only 6% of the firms have featured consistently in Computerworld list of top Green IT firms.

Literature : 40% (average) social and health programs sustained (Bracht et al. 1994; Chovav & Weinstein 1997)

| Company          | Sector                             | Mean Score  | Maximum Score | Minimum Score | Standard Deviation |
|------------------|------------------------------------|-------------|---------------|---------------|--------------------|
| Company A        | ITeS/Computer Manufacturing        | 5.22        | 7             | 3.7           | 1.651              |
| Company B        | IT                                 | 3.56        | 6             | 2.4           | 1.447              |
| Company C        | Computer Manufacturing             | 3.38        | 7.3           | 1.3           | 2.394              |
| <b>Company D</b> | <b>ITeS/Computer Manufacturing</b> | <b>2.74</b> | <b>3.3</b>    | <b>2.2</b>    | <b>0.404</b>       |
| <b>Company E</b> | <b>Electroncis</b>                 | <b>4.96</b> | <b>6.7</b>    | <b>3.7</b>    | <b>1.288</b>       |
| <b>Company F</b> | <b>Electroncis</b>                 | <b>7.34</b> | <b>7.5</b>    | <b>7.3</b>    | <b>0.089</b>       |
| Company G        | Electroncis                        | 4.6         | 7             | 3.3           | 1.487              |
| Company H        | IT                                 | 4.64        | 6.7           | 3             | 1.369              |
| Company I        | Computer Manufacturing             | 4.36        | 6.1           | 2.2           | 1.498              |
| Company J        | ITeS                               | 5.2         | 7.3           | 3.9           | 1.584              |
| Company K        | Electroncis                        | 4.52        | 6             | 2.5           | 1.355              |
| Company L        | Electroncis                        | 5.5         | 7.5           | 4.2           | 1.384              |
| Company M        | ITeS/Computer Manufacturing        | 4.35        | 5.45          | 2.5           | 1.329              |
| Company N        | IT/ITeS                            | 5.36        | 7.4           | 4             | 1.506              |
| Company O        | IT/ITeS                            | 4.92        | 6.5           | 3.1           | 1.446              |
| Company P        | IT/ITeS                            | 3.52        | 5.3           | 2.2           | 1.344              |

# Sustained Environmental Performance-E2

- Finding out the Green IT launch date.
- Introduction of three stage process evaluating the Sustained impact and the initial impact. Methodology adopted by Kettinger et al. (1994).
- Finding out an evaluation parameter for measuring the environmental performance (Literature on Green IT and Environmental initiatives).
- Ratio  $-\text{[Carbon Emission/Sales]}$  selected as a parameter (Scope 1). (Epstein & Roy, 2001, <http://www.global100.org>, Stanwick & Stanwick, 1998 and others)
- Framing a rule for classification into “Sustainers” and “Non-Sustainers”.



# Trend Analysis on Secondary Data-E3

- As a part of deeper examination -the trend of carbon emissions in IT firms over the period of time was examined.
- Carbon Disclosure Project (CDP) was chosen for collection.
- EMIS database breaks the IT industry into two parts: 1) Part-A: '*Computer and Electronic Product manufacturing*' (375 firms) and 2) Part-B: '*IT Services*' that includes- Data Processing, Hosting and Related Services, Other Information Services, Software Publishers (672 firms).
- Only those firms were retained in the data set for which Green IT initiatives could be tracked.

# Results

| Category   | Frequency | Percentage (%)                  | Improving Trend (#) | Declining Trend (#) |
|--|-----------|---------------------------------|---------------------|---------------------|
|  |           |                                 | (*, **, ***)        | (*, **, ***)        |
| <b>Sector</b>  |           | (*p<0.05; **p<0.01; ***p<0.001) |                     |                     |
| Part-A: <i>Computer and Electronic Product manufacturing</i> | 38        | 26.4                            | 5                   | 29                  |
| Part-B: <i>IT Services</i>                                   | 106       | 73.6                            | 13                  | 47                  |
| B.1 Data Processing  | 20        |                                 | 2                   | 8                   |
| B.2 Hosting and Services                                     | 36        |                                 | 6                   | 13                  |
| B.3 Other Information Services                               | 38        |                                 | 4                   | 17                  |
| B.4 Software Publishers                                      | 12        |                                 | 1                   | 9                   |
|  |           |                                 |                     |                     |
| <b>No. of employees</b>                                      |           |                                 |                     |                     |
| <1000  | 41        | 28.5                            |                     |                     |
| 1000-5000  | 32        | 22.9                            |                     |                     |
| 5000-10000   | 22        | 15.3                            |                     |                     |
| 10,000-50,000  | 32        | 22.2                            |                     |                     |
| >50,000  | 16        | 11.1                            |                     |                     |



# Results

- It was found that 76 firms demonstrated increasing carbon emission trend accounting for 52.78 % of the firms in the dataset.
- On the other hand, only 18 firms (12.5%) demonstrated significant negative trend (improving environmental performance), indicating only a small proportion of firms being able to sustain their environmental efforts.

# Heading to Solutions!

- Moving away from ROI- Short Term
- Use of Data Analytics- Align technologies in Green IT with business objectives + Number Crunching
- Culture – Sustainability Tree
- Standards that encourage rather than enforce
- ISO/IEC JTC 1/SC 39 Sustainability for and by Information Technology- Green ICT and Data Centres.



# Framework for Sustainability of Green IT initiatives

