



# Sustainability in the Age of Digital Revolution

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Partners in Building UAE's Security & Economy

**Our Vision:** To be a role model and reference point in proofing individual identity and build wealth informatics that guarantees innovative and sophisticated services for the benefit of UAE

# Agenda

- Introduction: ICT and Environment
- e-Government
- Sustainability in e-Government
- Conclusion

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# Introduction: Environmental Dimension of ICT

- Although ICT can contribute to enabling a **low carbon economy**, the energy and carbon impact of the sector itself is **significant**.
- A worrying fact! As the ICT-sector continues to grow, the **energy consumption** and **carbon emissions** are also **growing**.



# IT Sector impact on Environment



The **carbon footprint** of  
one **Google search**

\_\_\_\_\_ similar to \_\_\_\_\_



**11W** energy savings  
**light bulb** operating  
one hour



# IT Sector impact on Environment



The **carbon footprint** of  
one **Google search**

\_\_\_\_\_ similar to \_\_\_\_\_



Google processes  
**100 billion**  
queries every  
month!

**11W** energy savings  
light bulb operating  
one hour

# Lifetime of ICT

- Another fact related to ICT, is in its lifetime! The fast development pace, is constantly shortening device lifespan.
- Ever-growing flow of **e-waste**... **50m** tones pa.  
e.g., computers, televisions, VCRs, stereos, copiers, and fax machines are common electronic products. Many of these products can be reused, refurbished, or recycled.
- Most e-waste is exported to **developing countries**  
.. hidden under the umbrella of charity ('computers for the poor').
- **70%** of global e-waste is dumped in **China**, with most of the rest going to **India** and to **African** nations.





# e-Waste Statistics

- **USA:** discards **30 million computers** each year.
- **Europe:** **100 million phones** discard each year.
- **Worldwide:** **e-Waste** could rise by **500%** in the next 10 years (india), according to United Nations Environmental Program (UNEP) report.



# The Problem!

- Only **15–20%** of e-Waste is recycled, rest go into **landfills and incinerators.**
- Informal **processing**, and no clear standards may cause **serious health** and contribute towards higher **pollution problems.**





# ICT & Global Carbon Emissions

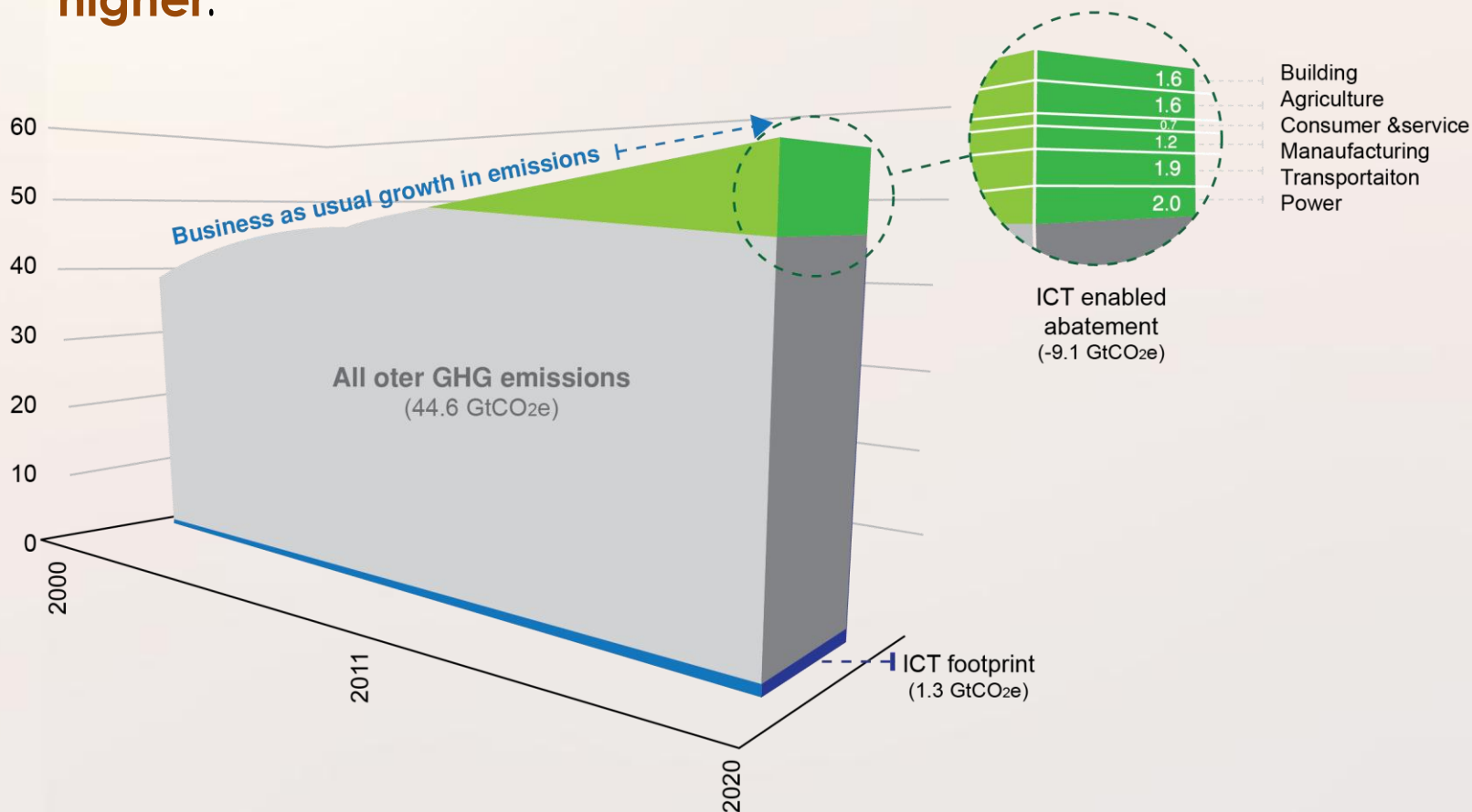
- ICT could **reduce global emissions** by a significant amount through enabling reductions **in other sectors**.
- **e.g., Reduction in consumption** of **non-renewable resources**.
- Play key role in **monitoring, optimising and managing** domestic and industrial **energy usage** that could save nearly **\$1 trillion in 2020**.





# ICT to address Climate Change Challenges

- While ICT's own **footprint is projected to rise** to 1.27 GtCO<sub>2</sub> e by **2020**, its abatement potential is **7 times higher**.



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# e-Government ?

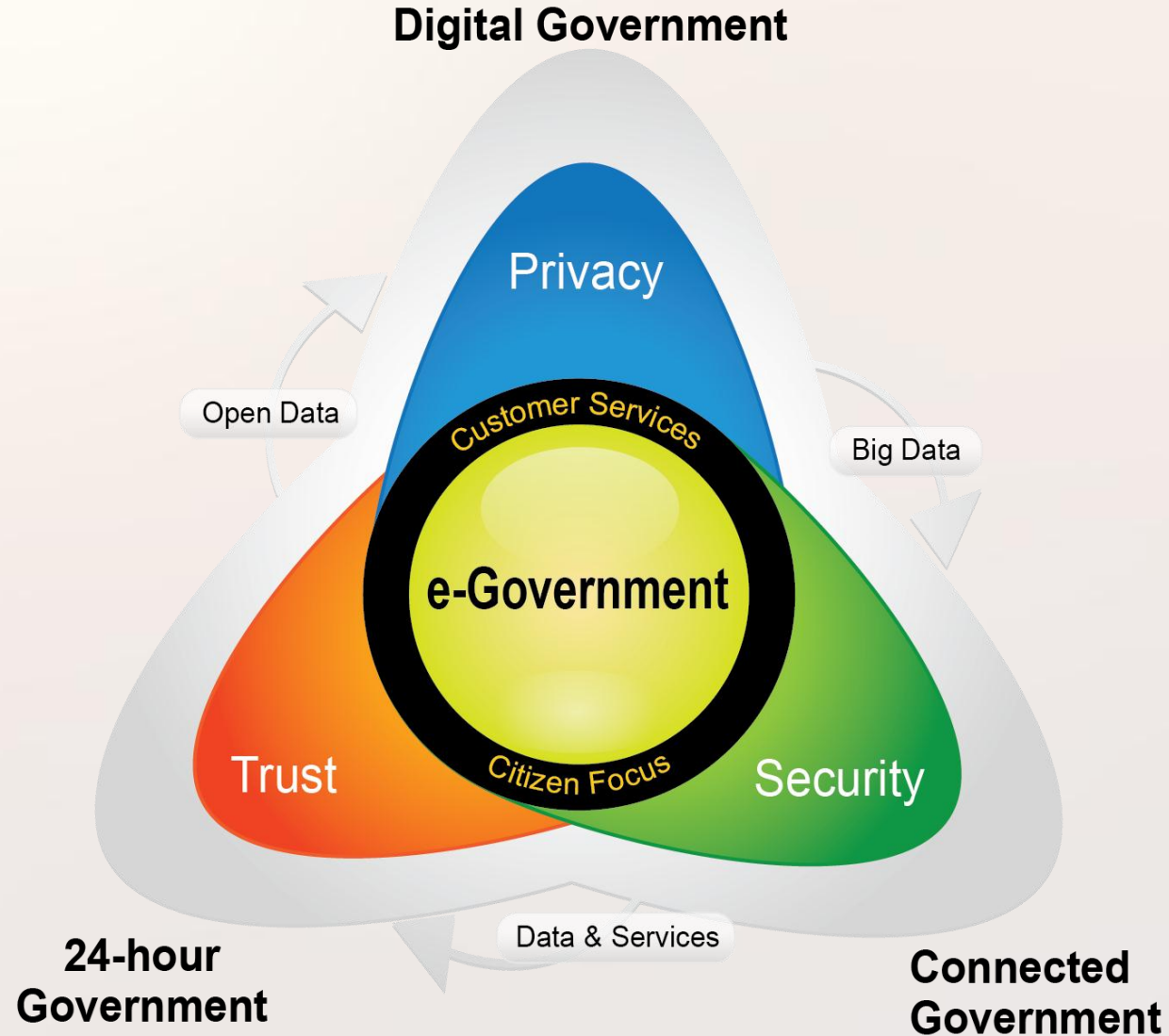
.. a Government  
**Service Delivery engine** that allows  
services to be requested and delivered  
over **various electronic channels** by  
enabling a **connected government**  
resulting in all round **efficiencies** in  
Government Operations.





# Is this all there is to e-Government ?

Various reported benefits & associated terminologies



# Is this all there is to e-Government ?

- e-Government is not limited to the often quoted: **(services, convenience, availability, etc.)**.
- Big impact on the **socio-economic landscape** & **environment sustainability**.
- **Direct impact** of e-Government on the environment, contributing to a **GREEN WORLD**.





# Impact of e-Government on the Environment?

- The **time saving** in transactions and **interactions** contribute to millions of dollars of **productivity** increase.
- **Productivity** increases due to redeployment of resources to the **Information and Knowledge** domains contribute to the **socio-economic** demographics.





# Contribution to Environment?

- **Online Transaction** Transformation using **non-polluting media**.
- Reduction in **paper**  
(saving millions of **trees** = Environment conservation).
- Reduction in paper = Reduction in **power consumption**.
- Savings in costs due to **transportation** –  
obviated by the need to visit government  
offices, contributes to reduction in fossil **fuel  
usage, and pollution**.



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# e-Government & Environment Sustainability?

## Environment Sustainability in e-Government Initiatives

**NONE!**





# e-Government & Environment Sustainability?

environment conservation and sustainability

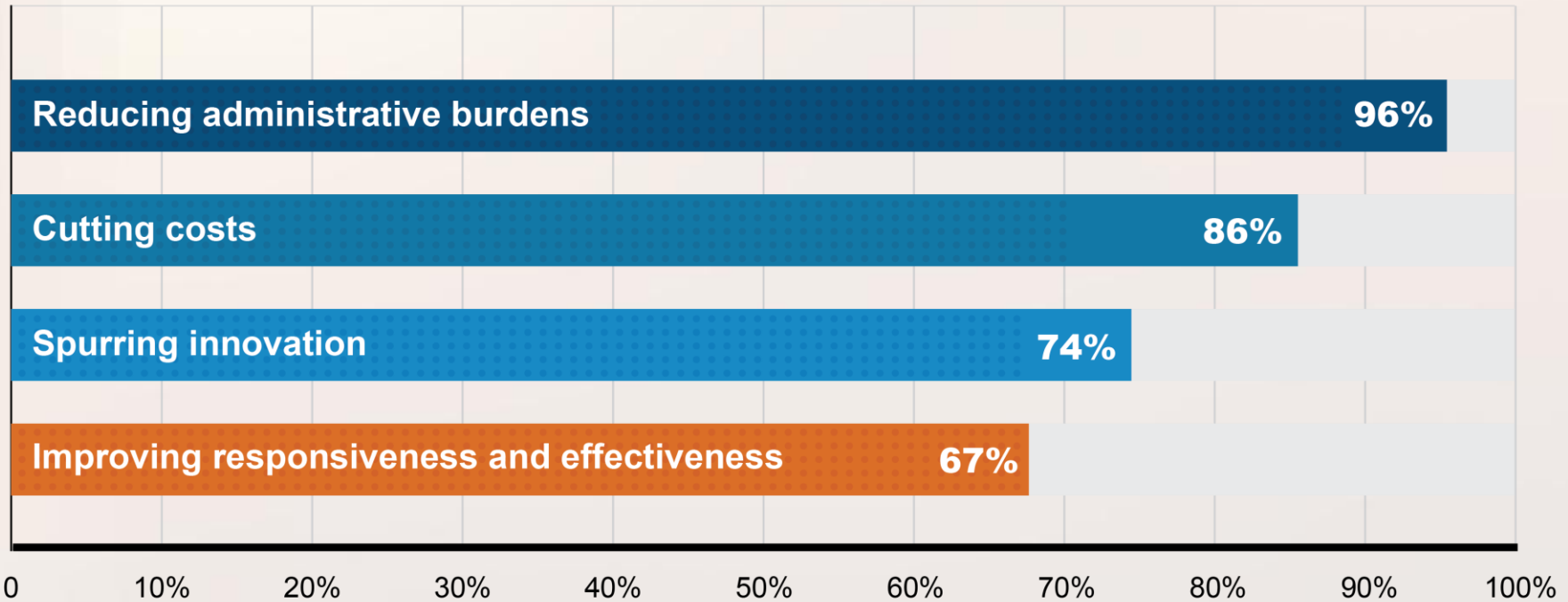
- **Governments have failed** in their strategic endeavors to **include environment sustainability** in their e-government efforts.
- Lack of **environmental conservation initiatives** in e-Government.
- **Complete dilution** of National Government environmental strategies in e-Government.
- Lack of **alignment** with National Government.



# Top e-Government Objectives in Central Gov.

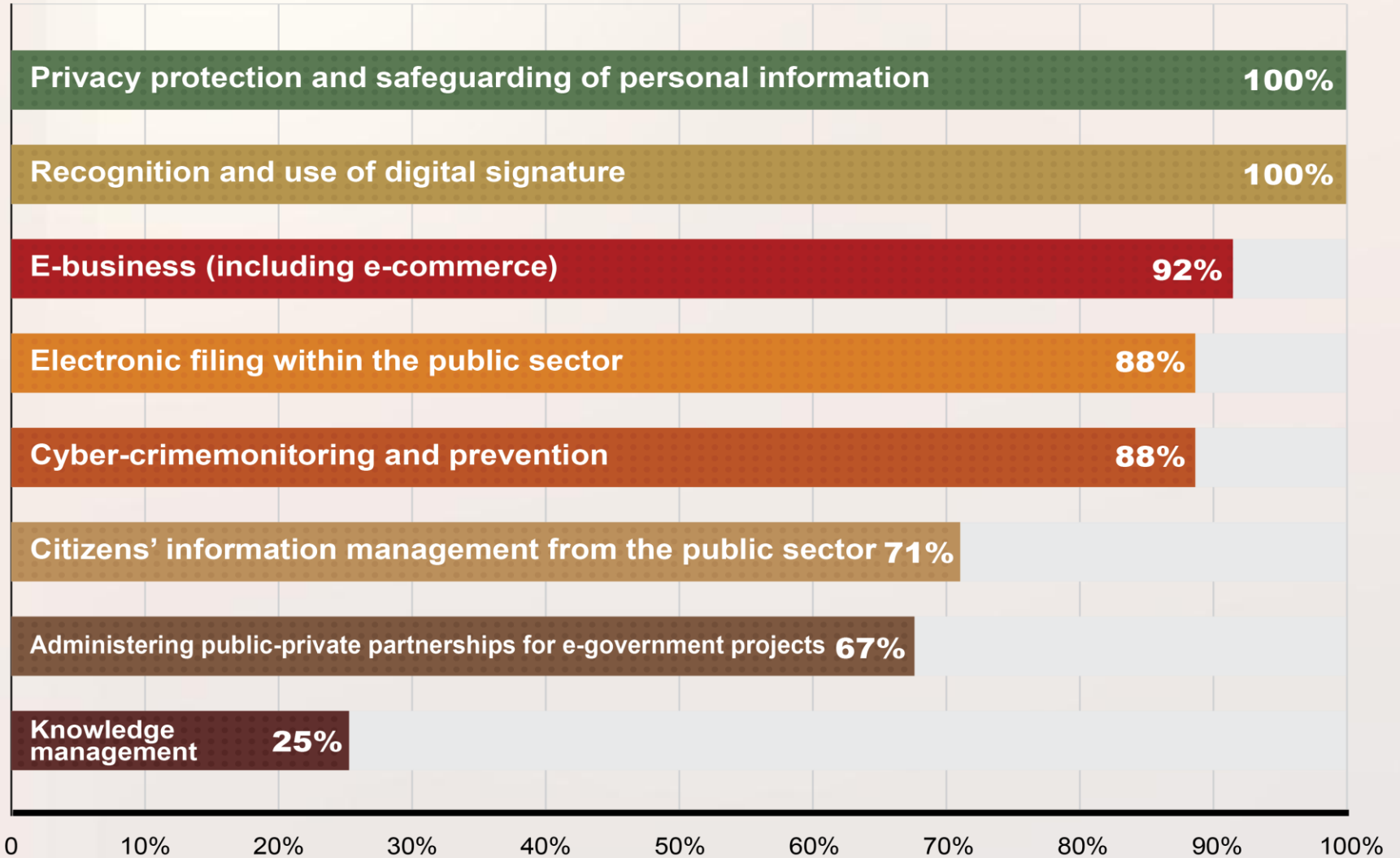
Report by Organisation for Economic Cooperation & Development (OECD)

Recent report published by OECD.. depicts the following main e-government objectives :



# e-Government Drivers

Underlying policies & laws do not include environmental strategies





# e-Government & Government Strategies

Why do we have this misalignment?



Why do we have this  
**misalignment?**

# e-Government & Environment Sustainability?

Research & Studies in the Field

a study carried out in 2005 that linked e-Government strategies and the environmental sustainability states:

“.. results indicate that while positive environmental **outcomes** were sought in **high level strategies**, they **dissipated** as they made their way down to the e-Government **strategy level**”.



**Andrew Griffith**

Professor, University of Queensland

# e-Government & Government Strategies

## Dilution of Environmental Considerations

### Government Strategy Framework

Government Priorities



Department Priorities & Strategies



Organizational Strategies



E-Government Priorities & Strategies



Professor Griffith explains his point through the 4 layers of Government Strategy and Implementation.



# e-Government & Government Strategies

## Dilution of Environmental Considerations

Government Strategy Framework

Government Priorities



at the **National Level**,  
**large considerations** is given to  
**Environment Sustainability**  
in Strategic Initiatives.

# e-Government & Government Strategies

## Dilution of Environmental Considerations

### Government Strategy Framework

Government Priorities



Department Priorities & Strategies



at the implementation stage..  
**strategic intents get diluted,**  
though there are **clear**  
**initiatives under Green**  
**Environment.**

# e-Government & Government Strategies

## Dilution of Environmental Considerations

### Government Strategy Framework

Government Priorities



Department Priorities & Strategies



Organizational Strategies



At the **3<sup>rd</sup> level**, strategies are driven more by **operational requirements** than **National requirements**..

Environmental considerations get **diluted substantially!**



# e-Government & Government Strategies

## Dilution of Environmental Considerations

### Government Strategy Framework

Government Priorities



Department Priorities & Strategies



Organizational Strategies



E-Government Priorities & Strategies



At **last level** of e-Government Strategies, the Environmental Considerations are **virtually non-existent!!!**

So what  
do we need  
to do?!





# e-Government & Environment Strategies?

Need for Environmental Considerations in e-Government

- e-Government **initiatives** need to **reflect** national **government environmental priorities**
- If **not regulated**, potentially will result in **counter productive and misaligned** e-Government initiatives with national environmental strategies.





# e-Government & Environment Strategies?

Avoiding counter productive & misalignment

i.e., e-Government contributes to **paper reduction**, reducing the need of paper **processing, storing**, making **copies** of it and thus contributing to **further reduction of physical paper**.

But! **e-transactions** generate a lot of **content**. However, if all this content were to be **printed again** for let say as a reason for **archival**, the very purpose of environment conservation and sustainability would be **defeated!**



# A question that you must ask!



**How does your  
organisation  
practice  
e-Government?**



# e-Government & ICT Practices

From Paper to More Paper Work Environments!



I tend to believe that e-Government & ICT practices have resulted in **cutting off more trees** than ever because of **wrong practices!**



# e-Government & Environment Strategies?

Areas that need attention ...

- Proliferation of electronic channels and **polluting devices** (Laptops, desktops, mobiles, cables, etc).
- This need clear policy to **regulate disposal of devices**, especially in relation to the overall management of **e-Waste**.
- Need to re-evaluate ICT infrastructure to minimise **inefficient power consumption**, i.e.,
  - Badly designed **Data Centers** may increase energy usage.
  - Poorly designed or over designed **servers and storage** may also lead to the same results.



# e-Government & Environment Strategies?

Areas that need attention ...

- Proliferation of electronic channels and **polluting devices** (Laptops, desktops, mobiles, cables, etc).

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Studies indicate that organisations can reduce energy usage by 20% in their data centres even with existing IT equipment, with little fixes!

- Poorly designed or over designed **servers and storage** may also lead to the same results.



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# Conclusion

- **e-Government** without environment sustainability as a key strategic objective **leads to misalignment** with **national environment strategies** and is **unacceptable**.
- **Imperative** that e-Government strategies & objectives need to **explicitly** include Environmental Sustainability.
- Environmental Sustainability needs to be **managed diligently** across all the **layers of strategic prioritization** in a country (i.e., laws, policies, regulations, compliance).



# Conclusion: Transitioning towards lower carbon world

- Need to **work together**, at national and international levels, to create **standards and practices** in relation to **ICT usage in different sectors**.
- This should be seen as a **critical activity** for supporting the transition towards a **lower-carbon world**.



## Conclusion: Governments Role ..

Governments need to create a balance between the need to improve the **life quality** of people, and addressing the demand for increased ICT **access** and **services** provisioning...

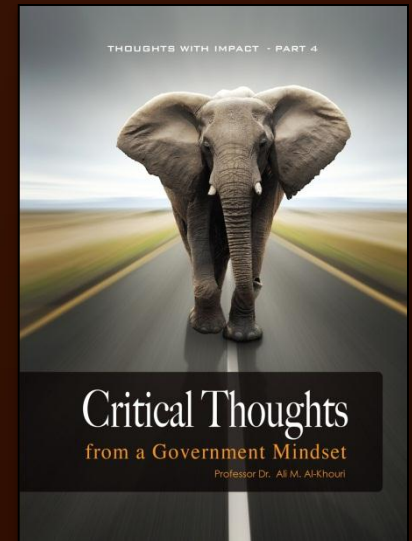
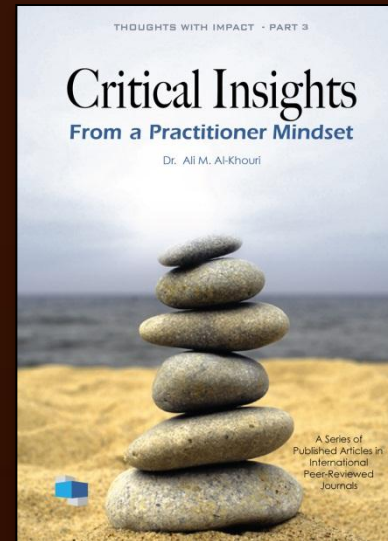
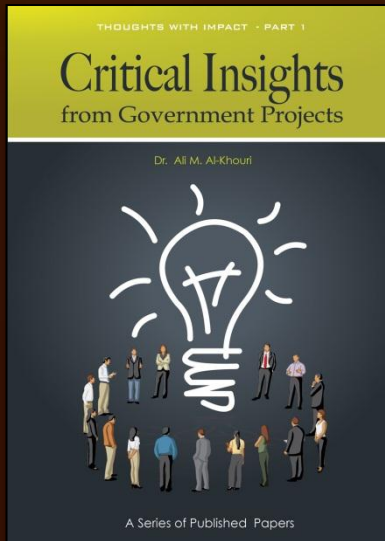
But, simultaneously, they need to **work harder to reduce** the **overwhelming** environmental footprint of their current practices, and the environmental impact associated with **electronics** they use!





Read our recent research from:

[www.id.ae](http://www.id.ae)



<http://www.emiratesid.gov.ae/ar/media-center/publications.aspx>



” إذا اختفى النحل من على وجه الأرض،  
فلن يملك الرجل أكثر من أربع سنوات  
ليعيش بعدها!“

ألبرت أينشتاين

“If the bee disappeared off the face of  
the earth, man would only have four  
years left to live!”

*Albert Einstein*

# THANK YOU.

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