

THE ROLE OF ICT TO COMBAT CLIMATE CHANGE

...IS THERE A DANGER WE FALL INTO A TRAP ?

An exploration of humans future use of ICT tools to combat climate change and the need for a secure ICT Telecom Network foundation.

LEONARD DONNELLY, LOCATION BRIDGE
COPENHAGEN, DEC 2009

Animals “...solve the trap problem when the confound of tool-use is removed” ...however, results went on to ...“show that including a tool in the trap problem profoundly affects the ability of animals to solve it.”

Journal of Experimental Psychology: © 2009 American Psychological Association
Animal Behavior Processes
2009, Vol. 35, No. 1, 23–34



“Ireland has a long history of understanding man made and natural calamities.”

Chairman UNESCO World Heritage Site Working Group,
The global consequences & lessons of Ireland's Great Famine 1845 – 1850

LEONARD DONNELLY - Professional History

- 20 years in the International ICT Industry
- Executive Chairman: LocationBridge, Smart Digital Economy Networks
- Chairman: National Digital Hub Development Agency, Ireland
- Former Roles:
 - Executive Chairman: Intune Networks, Cinehub, Dublin Bay Capital
 - VP Network Management: Ericsson Marconi
 - Executive Director: Euristix Telecoms Ireland



A Personal experience of Climate Change

“November’s flooding in the Irish Republic was the worst the country had experienced in 800 years, Environment Minister John Gormley said.”

BBC November 2009



Cork City
Planning
Office

James Lovelock,
of GAIA fame,
recently
described Ireland
as a “lifeboat for
humanity”.
Irish Times 2009

Photo; John Herriott
www.irelandairialphotography.com

Dichotomy of a ICT Digital Revolution in Combating Climate Change !

- The Global Republic of Climate Change : **Liberty, Equality, Fraternity ?**
- Developed countries embark on a new digital economic age while some of the LDC's have to begin a process of **coping with the consequences** of a global economic expansion, many of which had NO HAND, act or part in ??
- **The Questions:**
 1. Does the use of ICT combat climate change ?
 2. Should the approach be driven by digital economics alone ? and,
 3. Is the use of ICT going to have a beneficial outcome for those least prepared?



ICT Versus Digital Entertainment Networks or both?

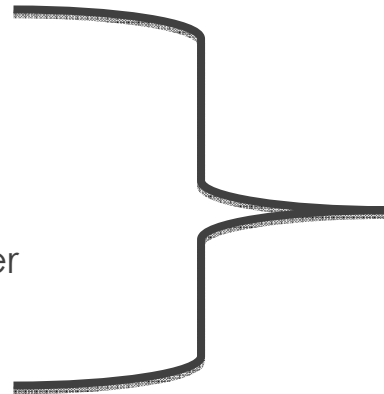
The role of the Network Debate takes a Major Twist

Smart use of Adaptation funds for ICT infrastructure in Developing Countries is of key importance

- Video centric Entertainment Versus Smart & Multi Functional Networks...can we come up with a **plan** for all?

- **Real Life ICT Network Imperatives:**

- Education, R&D and Monitoring
 - Political and Cross Cultural Exchange
 - E-Commerce
 - Knowledge Sharing/ Technology Transfer
 - A sense of One



We all need to
tell the truth about
what it takes to
actually combat
Climate Change
with ICT

- ICT Networks for LDC's need to be the **best, value for money** and **Smart low carbon oriented**.
- Moving in unison to a Smart Economic Framework via Low Carbon ICT Networks should be a **common goal**.

ICT & Climate Change - A Hot Topic ?

The use of ICT is predicted to reduce total global GHG's by 15% by 2020
...and *grow* to 40% by 2050.

The full potential of ICT cannot be harvested given a fundamental problem with the design of the current ICT Network Infrastructure, don't bet just yet on the role of ICT.

The Looming ICT Network Power Surge Problem

A major uptick in ICT Network CHG Emissions

- What's driving it ?
- **Broadband penetration, shift to video centric traffic and mobility**
- Why is Modern Network Technology an Issue ? Stanford 40 Years on !
- **ICT's 2020 role to reduce C02 emissions is in jeopardy**
- ICT's 2020 Net Gain of 15% may become a Net Loss of 15% ? = 0 Benefit

New ICT Solutions over a Legacy Network?

Just to follow blind is dangerous.....

- **4G Mobile Networks** will lead the Power Consumption spike 2010 – 2020
- Ambitious Universal **NGN broadband Plans** e.g. *Singapore's In2015 Plan*
- Humans will be **addicted to video**, e.g. *BBC iPlayer = 20 – 25% of UK telecom traffic after 2 years from only 1.5m subscribers in 2008. UK population 60m.*
- What happens **next** ?
- The Key: Metro Fibre Rings are congested, **2nd last mile is the new choke point** of the Internet.
- **“A video Tsunami is going to hit the Telecom’s Network, brownouts will be common and power consumption will soar”.**

The Battle for a better ICT Network is central

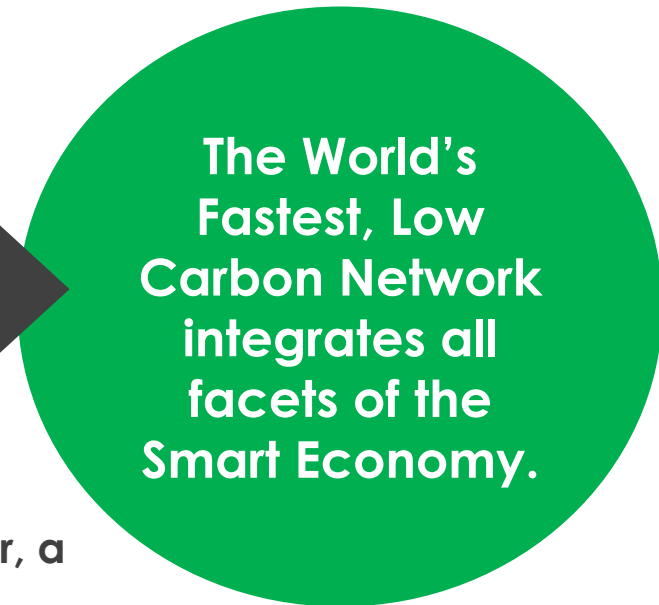
The Melting Pot: Digital Economics, Smart Economics and Climate Change Imperatives

- Digital content will multiply by a factor of **10** over the next five years to take the volumes into Zetabytes.
- Linares has concerns “over how networks could cope with such traffic in this new ‘**Zetabyte era**’”, *Telefonica's Chief Operating Officer: Julio Linares. B. Forum 2008*
- Everyone gets the cause & power consequences, but what is **the ICT Network solution ?**
- Ireland understands the mission statements of the Worlds Leading ICT giants - targeting **Low Carbon, Renewable/Clean Power sources to drive their ICT Networks.**
- Why? *because our **future livelihood depends on it !***

“The Smart Economy will be developed via a transition to a low carbon economy.”

Irish Government 2009

- Ireland has made a deep ICT choice
- Irish Government intends to act at the level of fundamentals
- **Smart Economic Framework – Vertically Integrated Foundation**
 - Smart People (Education & R&D focus)
 - Smart Energy & Sensing
 - Smart Bay Renewable Energy
 - Smart Electricity Network
 - Smart Exemplar Network
 - Smart Data Centre (low carbon)
 - Smart Transportation
 - Smart Government
 - Smart Entertainment



- “You can’t make a product greener – whether it’s a car, a refrigerator or a traffic system – without making it smarter.” *Thomas Friedman, NYT 2007*

Ireland is Building a Smart Exemplar Network

“A Multi Terabit Capacity Low Carbon Network” developed by Intune Ireland

- An Open Government is an essential to creating a Smart ICT Digital Economy
- Irish Engineers have solved the Stanford 40 Year Network Technology Problem
- Ubiquitous Wireline/ Wireless Network is planned for 2010
- **75% reduction in ICT Network power consumption**
- CAPEX/OPEX Cost reduction: 50-80%
- **350% Internet Capacity/ Performance uplift**
- **World's first intelligent programmable optical network**

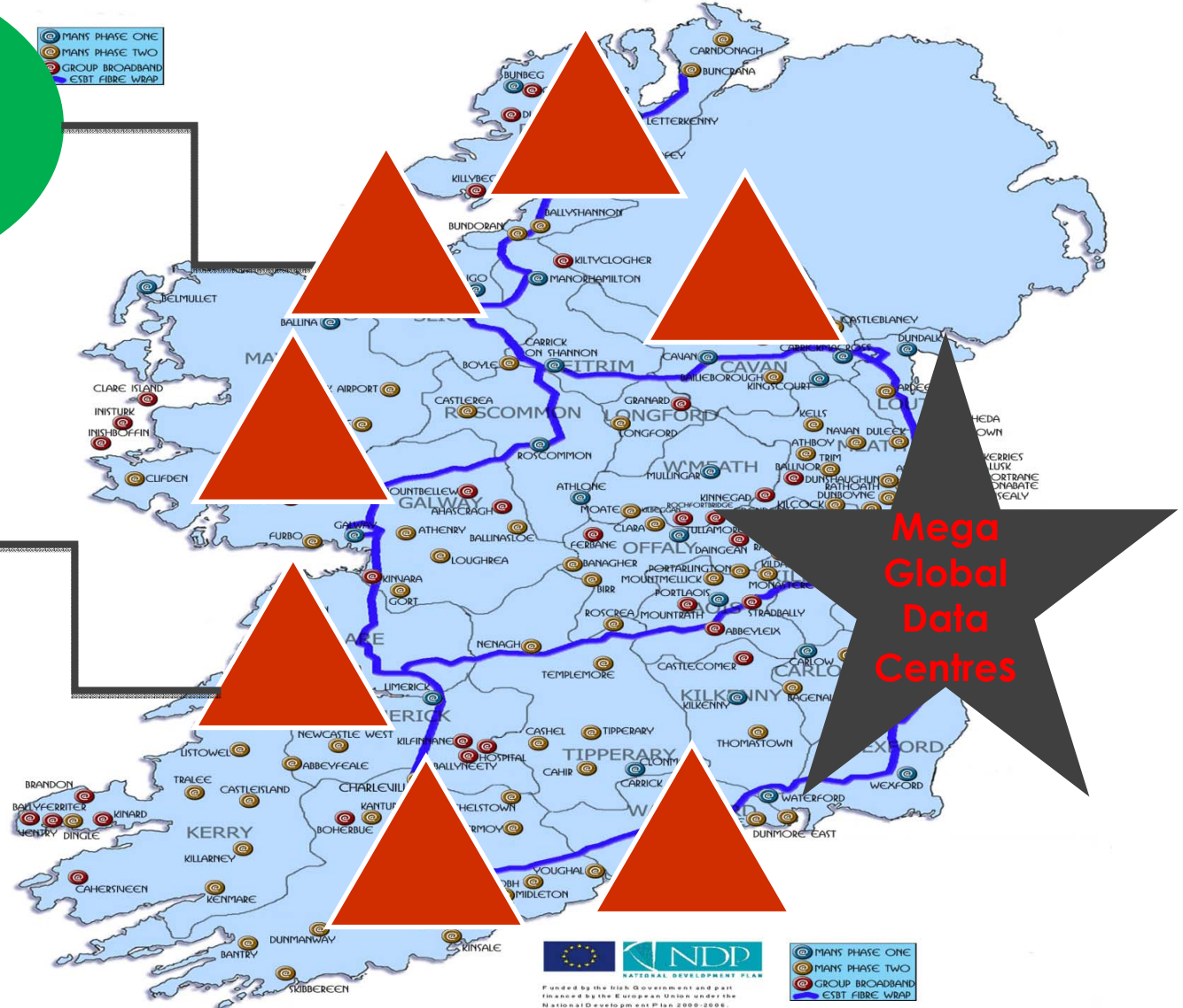
CEÁD MÍLE FÁILTE!

The land of 100,000 Welcomes will be open to assist all to embrace a New Network Foundation for Global ICT solutions.

A Vertically Integrated Plan & Smart ICT Network Foundation

Major Wind Energy Farms

Major Wave Energy Farms



Renewable Energy pioneering ICT Networks in Ireland

- One Smart Farm will deliver 20% of total electrical power by 2020
- A cluster of Smart Farms could generate all Ireland's power requirements by 2020
- Wave power has **“650 times more energy in a cubic meter of moving water than a cubic of moving air.”** *OceanEnergy Ireland*



Smart ICT Networks as a catalyst for Monster Economies of the future

How can India benefit from a Smart Irish Plan? A Case Study.

- **India** has **488M mobile subscribers (2G)** & circa 500m to go...
- ICT Network Power consumption will **spike** when India **moves millions of Subscribers to 3G and 4G** Mobile broadband enabled services.
- **Mobile Broadband over the conventional ICT Telecoms network is a clear danger to CGH emissions reduction goals from one major country alone.**
- **Guiding all Countries** to avoid an old ICT Network paradigm and its High Power Consumption impact is where the **ITU has a major role to play.**



The Smart ICT Networked Economic Model

Rapid ITU ICT Reaction Force for good...Carbon Zero ICT Strategies for all.

- Developed Countries & New Stars need to **retrofit** a Smart Networked Economy plan over plaid Entertainment oriented Digital Economy Plans.
- Developing Countries need to **embrace Smart Economies**, new ICT Network Technologies & Education strategies.
- **Developed Countries have to help, leading by example has served humanity well in the past.**
- Using **Adaptation and Mitigation funds**, LDC's can aim for Carbon Zero ICT Networks from Day One.
- Why waste money on the past?
- Ireland is putting the Horse before the Cart: ICT Fuel, **Network Engine** & Vehicles have to be right before the Digital Highways of the next Era can work to attain ICT goals to combat Climate Change ...**an Enhanced Role for the ITU is key.**

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THANK YOU

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