

# The SDGs, supply chains and the ICT sector: critical reflections



Tim Unwin

27<sup>th</sup> May 2017

*SDGs and Sustainable Supply Chains in the post-global economy* symposium,  
Royal Holloway, University of London



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London

# Accenture (2017) *Using digital to solve supply chain issues*



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

accentureconsulting

Type to search



SIGN IN

MENU

124 Shares Print Download

**DELIVERING  
AT THE SPEED  
OF BUSINESS:**  
USING DIGITAL TO SOLVE  
SUPPLY CHAIN ISSUES

**MAKING THE MOVE  
TO DIGITAL**

[https://www.accenture.com/us-en/insight-digital-supply-chain?c=prod\\_caslscfy17tw10000031&n=smc\\_0317](https://www.accenture.com/us-en/insight-digital-supply-chain?c=prod_caslscfy17tw10000031&n=smc_0317)

<http://unwin.wordpress.com>

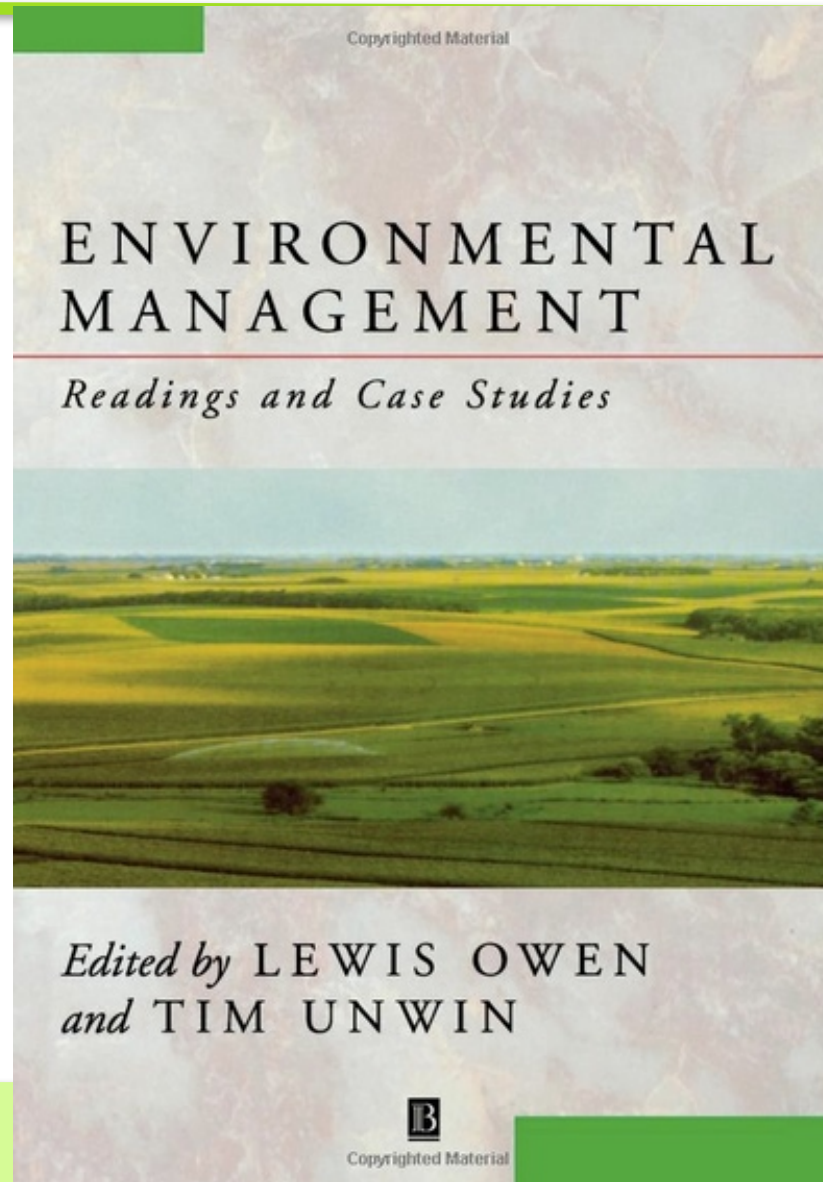
# Published 20 years ago!



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London



**Joseph – thanks for  
your inspirational  
keynote...**



***But poverty alleviation should be  
about reducing inequality rather  
than increasing  
affluence/economic growth...***



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London  
•

# Outline: critical context for supply chains



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

- The dream of sustainable development
- The SDGs: a flawed agenda
- The ICT sector: built on explicit non-sustainability
- Environmental impacts of ICT sector
- Implications for supply chains





<https://i.ytimg.com/vi/Q07laokNXeU/maxresdefault.jpg>

# The Sustainable Development dream



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London  
•

<http://unwin.wordpress.com>

# The dream of Sustainable Development

- Formal origins in Bruntland Report *Our Common Future* (1987)
  - development that meets the needs of the present without compromising the ability of future generations to meet their own needs
- But the concept is purely aspirational, and includes a fundamental tension
  - *Sustainability*
    - Implies maintenance of certain characteristics
  - *Development*
    - Implies change or growth
- What is to be maintained; what is to be changed?
  - Rarely addressed in these terms
- Something that everyone can agree on, but defined in their own ways!

# “Sustainable Development”



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

- Reflects powerful underlying interests
  - Global capital and the charming bourgeoisie
- Maintaining the economic growth agenda
- Whilst trying to be “nice” to the environment
- Three core concepts underlying SDGs
  - Bringing the environment into the discussion
  - Focusing on needs, especially of the poor
  - Limitations imposed by existing technologies
- Can ICTs make a positive difference?
  - Especially in the context of supply chains



1972



# The fundamentally flawed Sustainable Development Goal agenda



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London

# The ITU and WSIS Action Lines



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London



<http://www.itu.int/en/itu-wsis/Pages/Roadmaps.aspx>

<http://unwin.wordpress.com>

# Problems with the SDGs

- The numbers game:
  - How many can you remember?
    - How many are there?
  - And how many targets are there?
    - 17 Goals and 169 targets!
- Countries are meant to set their own targets
  - Very few have done so, yet we are already two years in to them!
  - Means of effective monitoring and evaluation are also not in place

# Problems with the SDG

- Built on the failed MDGs 2000-2015
  - How valid is the argument that if they had not been set, progress to them would not have been achieved?
  - Might a completely different set of targets have achieved greater poverty reduction?
- SDGs
  - Primarily exist as a justification for UN agencies to have a role.
- Yet the private sector drives most economic growth
  - And now has a key role in international governance
  - With strong interests in the SDGS

# ICTs and the SDGs



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

	C1	C2	C3	C4	C5	C6	e-gov	e-bus	e-hea	e-ssa	e-emp	e-env	e-agr	e-oci	C8	C9	C10	C11
SDG 1																		
SDG 2																		
SDG 3																		
SDG 4																		
SDG 5																		
SDG 6																		
SDG 7																		
SDG 8																		
SDG 9																		
SDG 10																		
SDG 11																		
SDG 12																		
SDG 13																		
SDG 14																		
SDG 15																		
SDG 16																		
SDG 17																		

Of course WSIS Action Lines will deliver the SDGs!

<http://unwin.wordpress.com>



# The ICT sector drives unsustainability



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London

<http://unwin.wordpress.com>

# Myths and half-truths

- Video-conferencing is transforming meetings and is environmentally friendly
- ICT companies are now leading the carbon neutral agenda
- Initiatives such as the Global e-Sustainability Initiative show how ICT sector is delivering sustainability
- Yet, there remains no comprehensive environmental audit of the ICT sector



# Apple



United Nations  
Educational, Scientific and  
Cultural Organization




UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

“We take the same innovative approach to the environment that we do with our products. We’re creating new solar energy projects to reduce our carbon footprint. We’re switching to greener materials to create safer products and manufacturing processes. We’re protecting working forests and making sure they are managed sustainably. We’re even creating a more mindful way to recycle devices using robots”



(<http://www.apple.com/environment/>)

<http://unwin.wordpress.com>

Google "unsustainable ICTs" 

[All](#) [News](#) [Images](#) [Videos](#) [Shopping](#) [More](#) [Settings](#) [Tools](#)

2 results (0.49 seconds)

**Inequalities made worse by ICTs - University World News**  
[www.universityworldnews.com/article.php?story=2009071010111569](http://www.universityworldnews.com/article.php?story=2009071010111569) ▼  
12 Jul 2009 - While admitting to enjoying the teaching benefits of the new technology, Hopkinson warned it might be **unsustainable**. **ICTs** produced a "high ...

**View/Open**  
[https://open.uct.ac.za/bitstream/handle/11427/11089/thesis\\_com\\_2011\\_makoza\\_f.pdf?...](https://open.uct.ac.za/bitstream/handle/11427/11089/thesis_com_2011_makoza_f.pdf?...)  
by F Makoza - 2011 - [Cited by 4](#) - [Related articles](#)  
As a result, microenterprises in some cases are **unsustainable**. **ICTs** are perceived to be an enabler which can increase the survival chances of microenterprises ...

# Business model based on unsustainability



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London

<http://unwin.wordpress.com>

# A business model based on unsustainability

- Deliberate limited lifespan design to enhance profit
  - When did you last buy a mobile device?
- Hardware and software regularly requiring upgrades
  - Each then requiring an upgrade of the other
  - Microsoft XP and WannaCry
- Business model ensures continued purchasing
  - Linked with modernity and fashion
- Increasing global inequality
  - With older, less-advanced technology being sold to the poor, whilst the rich remain several steps ahead with the latest high-end technologies

# Business model based on unsustainability



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

- Has some positive outcomes:
  - Recycling sector for hardware
    - But interestingly not for software
  - Potential growth industry for some poorer countries
- But overwhelmingly negative
  - Devices and systems are designed to change
  - A certain kind of “development” (as change), but not “sustainable” (as maintenance)



<http://www.recyclingyourit.co.uk/images/recycling-cost1.jpg>



<http://www.humanium.org/en/wpcontent/uploads/2016/04/child-labor.jpg>

# Environmental impact



United Nations  
Educational, Scientific and  
Cultural Organization



- UNESCO Chair in
- ICT for Development
- Royal Holloway, University of London

<http://unwin.wordpress.com>

# Environmentally damaging

- Direct impact on increased electricity demand
  - Server farms and data centres
  - Energy required in production
- E-waste
  - Often exported to poorer countries
  - But opportunity for new industries to emerge
- Satellite waste
  - Exploitation of the “commons”
- Some indirect benefits in helping other sectors reduce energy demand and adverse impacts on environment



# NTT Japan: ICTs and energy consumption

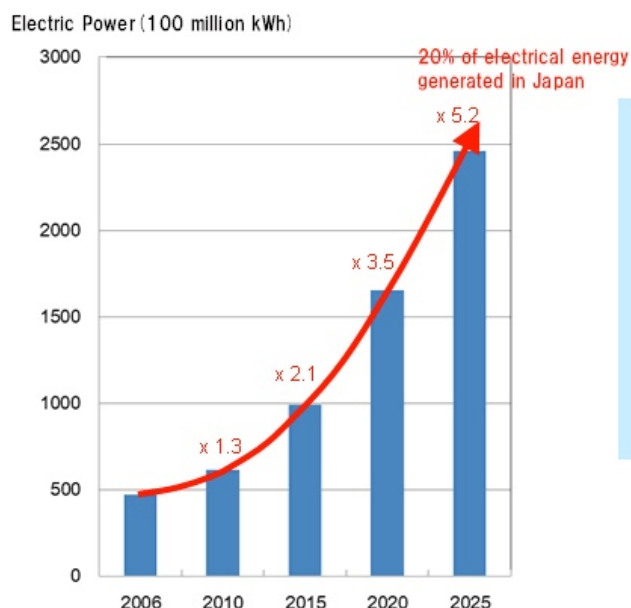


United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

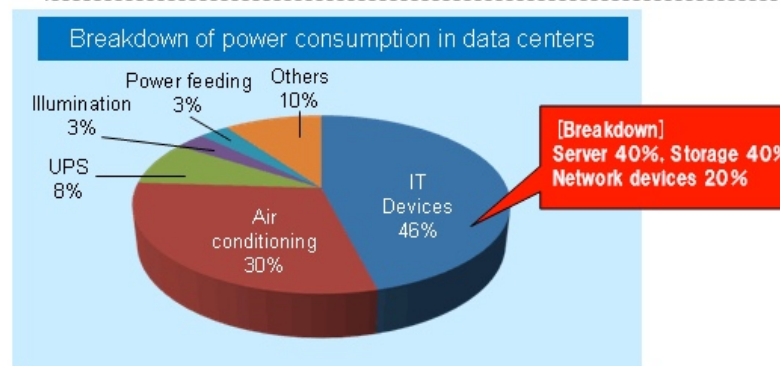
## ●Forecast of power consumption of ICT-related devices in Japan



Ref. METI/Green IT Promotion Council (2008)

## ●Power consumption of data centers and ICT-related devices

Reduction in power consumption of ICT-related devices will solve the problem since cooling equipment power consumption will also be reduced.



Ref.  
Hitachi CoolCenter50  
[www.hitachihyoron.com/2008/05/pdf/05a12.pdf](http://www.hitachihyoron.com/2008/05/pdf/05a12.pdf)

Reduction of power consumption in CMOS (\*) is important since most of operating power for servers and storage is consumed by microprocessors and memories.

\*Elementary transistor structure with low power consumption constitutes large-scale integrated circuit.

[http://www.ntt.co.jp/news2012/1202e/120213a\\_1.html](http://www.ntt.co.jp/news2012/1202e/120213a_1.html)

<http://unwin.wordpress.com>

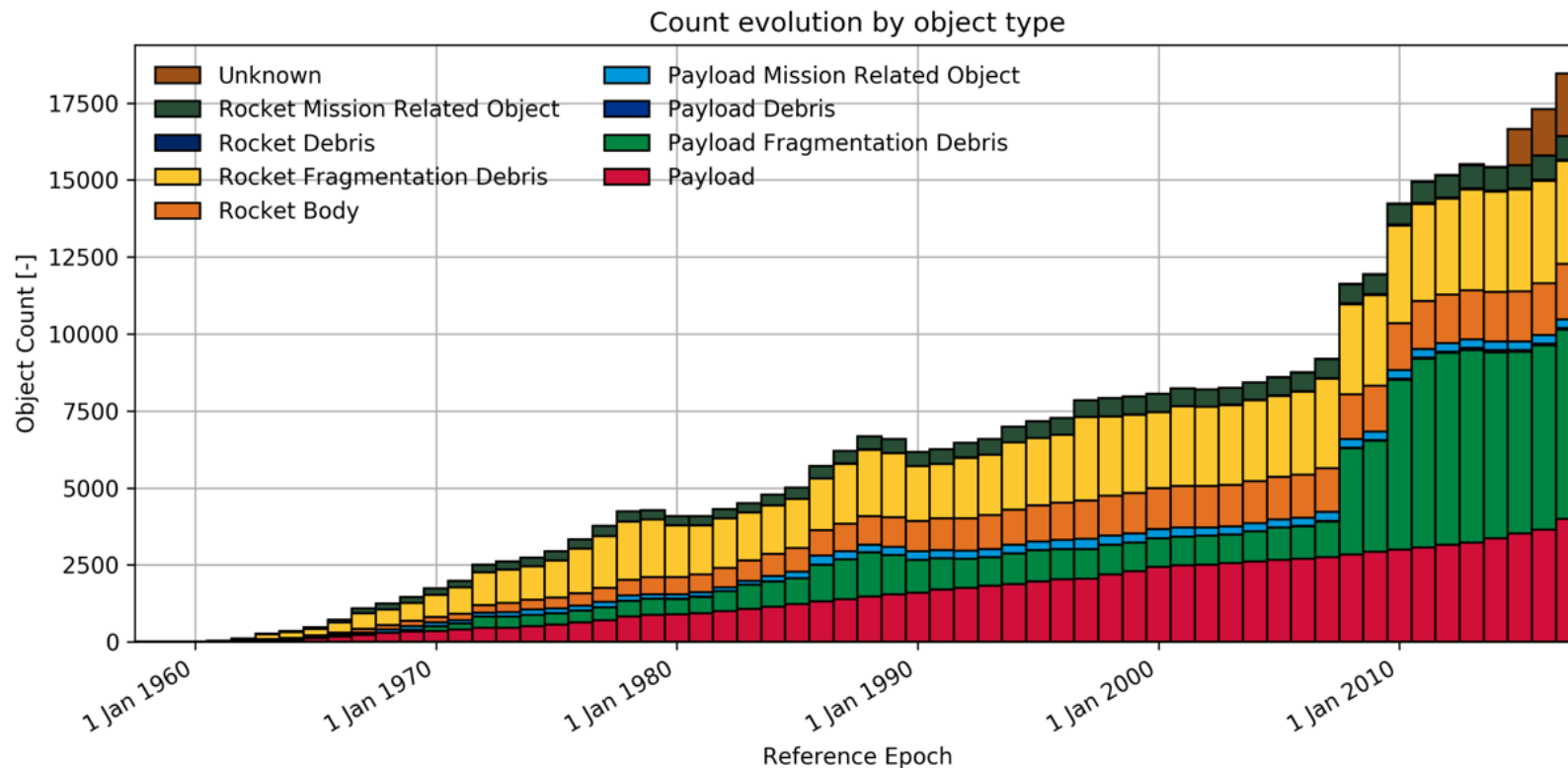
# Space debris evolution



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London



[http://www.esa.int/Our\\_Activities/Operations/Space\\_Debris/About\\_space\\_debris](http://www.esa.int/Our_Activities/Operations/Space_Debris/About_space_debris)

<http://unwin.wordpress.com>

# Space debris: needs a global response



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

## DEALING WITH SPACE DEBRIS



<http://unwin.wordpress.com>



[http://www.supplychain247.com/article/why\\_are\\_we\\_letting\\_digital\\_marketers\\_define\\_the\\_future\\_world\\_view\\_of\\_supply](http://www.supplychain247.com/article/why_are_we_letting_digital_marketers_define_the_future_world_view_of_supply)

# And so to supply chains...



United Nations  
Educational, Scientific and  
Cultural Organization



• UNESCO Chair in  
• ICT for Development  
• Royal Holloway, University of London

<http://unwin.wordpress.com>

# Many definitions



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

"A typical supply chain begins with the **ecological, biological**, and political regulation of **natural resources**, followed by the human extraction of **raw material**, and includes several production links (e.g., component construction, assembly, and merging) before moving on to several layers of storage facilities of ever-decreasing size and increasingly remote geographical locations, and finally reaching the consumer."

# Accenture (2017): digital technologies and supply chains

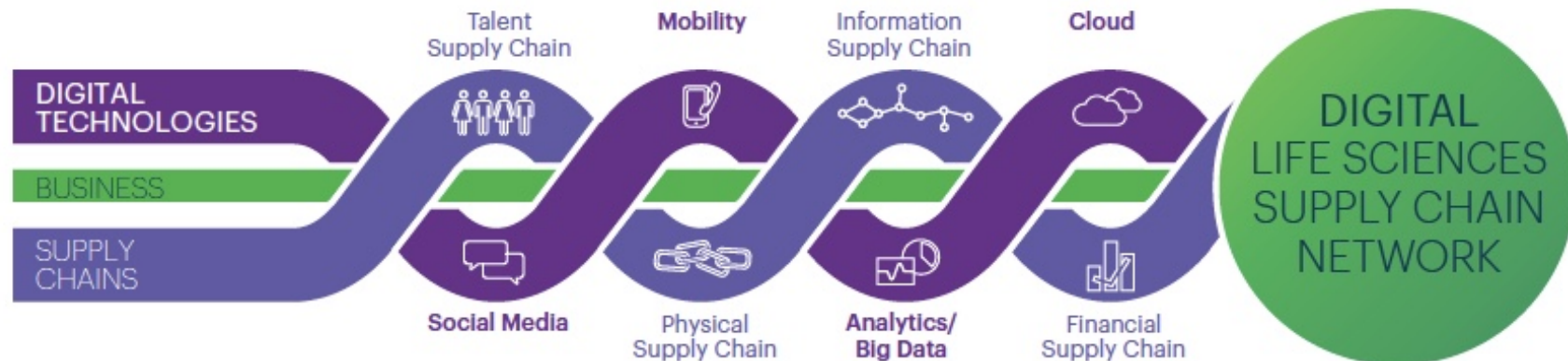


United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

**FIGURE 3.** Evolution of digital Life Sciences supply network  
Examples of Convergence



Source: Accenture

[https://www.accenture.com/us-en/insight-digital-supply-chain?c=prod\\_caslscfy17tw\\_10000031&n=smc\\_0317](https://www.accenture.com/us-en/insight-digital-supply-chain?c=prod_caslscfy17tw_10000031&n=smc_0317)

<http://unwin.wordpress.com>

# Is mobile phone production “sustainable”?



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London



<https://az734552.vo.msecnd.net/cache/9/2/0/3/4/e/92034e1b98c3a81a03deef66bb51495a0a9abc13.jpg>

<http://unwin.wordpress.com>

# Many examples of positive impact of ICTs in supply chains

- Use of drones to deliver to remote places
  - My new project on drone hacking!
- AI management of distribution processes
- Driverless delivery vans
- Virtual delivery of content



# But challenges in context of sustainable development

- Who do these benefit the most?
- Need for comprehensive and holistic environmental analysis
- Ensuring more sustainable ICT business models
  - Restart example
- Need to focus on real development outcomes
  - For the poorest and most marginalised



Halim (left) builds a foxhole radio at a women's skill share event.

<https://therestartproject.org/restarters/restarter-profile-meet-halima/>

# Conclusions



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

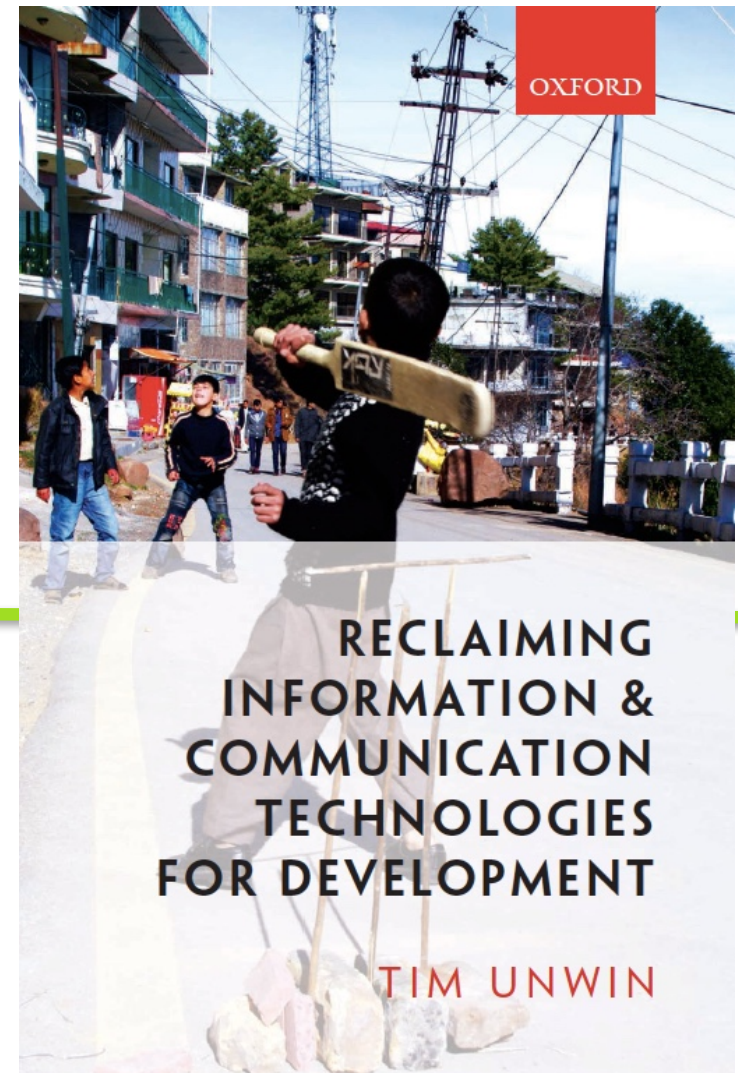
- Challenging the assumption that SDGs are “good” and will reduce poverty
- Highlighting the interests behind the SDGs
  - UN agencies and private sector
- Emphasising unsustainability of ICT sector
  - Especially need for comprehensive environmental audit



# To explore these ideas further...

<http://www.ict4d.org.uk>

<http://unwin.wordpress.com>



<http://unwin.wordpress.com>

# ESA videos



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
ICT for Development  
Royal Holloway, University of London

- Space Debris – a journey to earth
  - [http://www.esa.int/spaceinvideos/Videos/2017/04/Space debris - a journey to Earth](http://www.esa.int/spaceinvideos/Videos/2017/04/Space_debris_-_a_journey_to_Earth)
- Space debris problem needs 'global response'
  - [http://www.esa.int/spaceinvideos/Videos/2017/04/Dealing with space debris](http://www.esa.int/spaceinvideos/Videos/2017/04/Dealing_with_space_debris)
- Active debris removal mission
  - [http://www.esa.int/spaceinvideos/Videos/2016/05/ESA's active debris removal mission e.Deorbit](http://www.esa.int/spaceinvideos/Videos/2016/05/ESA's_active_debris_removal_mission_e.Deorbit)

