Connected Devices Alliance: Key Projects

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About the Connected Devices Alliance (CDA)

- Conceived in 2015 by G20 Networked Devices Initiative
- Informal alliance between governments and industry
- 350+ representatives
- 19 government agencies (below)

Australia	Germany	Spain
Austria	Japan	Sweden
Canada	Korea	Switzerland
Denmark	Netherlands	Turkey
European Commission	Mexico	United Kingdom
France	Singapore	USA

About the CDA [2]

- Focus on energy efficiency opportunities provided by connected devices
  - Device standby mode energy savings
  - Energy savings enabled by connectivity (intelligent efficiency)
- Recognize need for globally co-ordinated action to:
  - Realize a world where devices and networks optimize energy management while delivering increased energy productivity across all sectors
  - Maximise network-enabled energy savings and minimise the energy consumption from all networks and networked devices

IEA Report: *More Data, Less Energy: Making Network Standby More Efficient in Billions of Connected Devices*

Key CDA Initiatives

- CDA Centre of Excellence*
- “Energy Aware” Devices
- Awards
- CDA Design & Policy Principles*
- Intelligent Efficiency*
  - Measurement protocols
  - Policy opportunities

*covered in this presentation

CDA Centre of Excellence

CDA Design Principles for Energy Efficient Connected Devices

1. Networked device design should follow standards-based communication and power management protocols to ensure compatibility and interoperability, and should take advantage of standards and protocols that actively support energy efficiency.
2. Networked devices should not impede the efficient operation of a network (for example by injecting bottlenecks or faults, or impeding power management activities in other devices).
3. Network-wide energy efficiency optimization should be a primary development consideration. Network power management should coordinate with individual device power management techniques to achieve this.
4. Connection to a network should not impede a device from implementing its internal power management activities.
5. Networks should be designed such that legacy or incompatible devices do not prevent other networked devices on the network from effective power management activities.
6. Networks and networked devices should have the ability to scale power levels in response to the amount of the service (level of functionality) required by the system.
7. Edge devices without networking functionality should enter network standby, if appropriate[a], after a reasonable period of time when not being used. Edge devices with networking functionality should provide power management capabilities for each function consistent with that function's role in the network[b].
8. Networking and networked infrastructure devices should not autonomously go to network standby mode. These devices should support power scaling.
9. Consumers should be informed about and have control over device power management, when applicable, including networked device low power modes that may affect the user experience.
10. The design and operation of networked devices should be compatible with, and promote the positive effects of, using consumer electronics and information and communication technology (ICT) to enable energy to be used more efficiently, often referred to as "Intelligent Efficiency."

CDA Policy Principles for Energy Efficient Connected Devices

1. Government and industry should seek harmonized policy approaches that benefit the global marketplace for consumer and commercial technology products and services, and that enhance the productivity and efficiencies achieved via networks.
2. Policy, including government procurement and best-practice sharing, should support continued device, network and intelligent efficiency innovation.
3. Energy efficiency requirements should be performance-based and technology neutral. Policy should account for the different capabilities of networked devices.
4. Policy should neither impede the functionality of networked devices or efficiency of the network nor impair the implementation of standards for enabling device or network security.

Intelligent Efficiency – Potential (US)

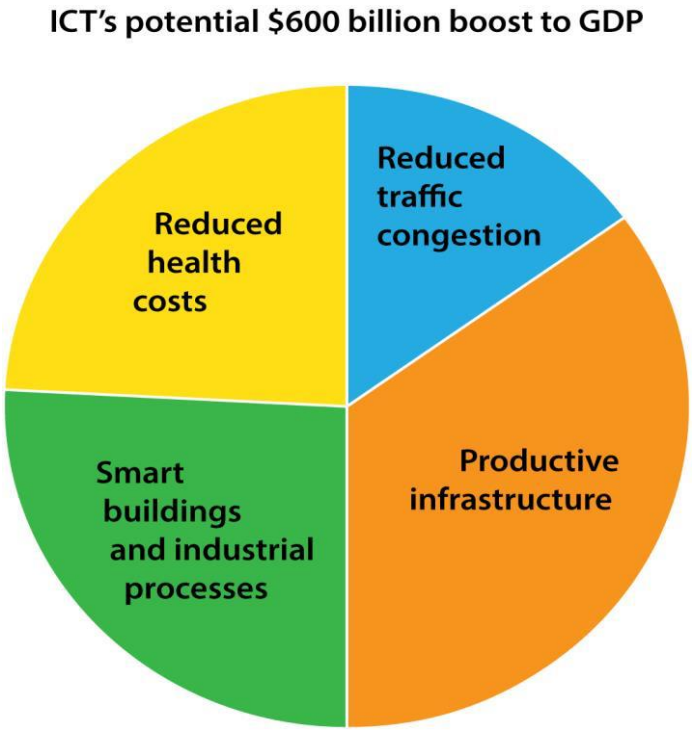

Figure ES1. ICT's potential boost to GDP

Intelligent Efficiency – Potential (US) [2]

- Estimated that building automation industry will reach $43 billion in sales by 2018[1]
- Growth of manufacturing sector automation may reach $120 billion by 2020[1]
- Estimated that intelligent efficiency could **save** these sectors **$50+ billion p.a.** in **energy costs**[1]
- Accelerating the development of the Industrial Internet might **add another $200 billion to the economy**[2]

[1] Intelligent Efficiency: Opportunities, Barriers, and Solutions, Ethan A. Rogers, R. Neal Elliott, Sameer Kwatra, Dan Trombley, and Vasanth Nadadur, for ACEEE, October 2013
[2] Annunziata, M., and P. C. Evans. 2012. Industrial Internet: Pushing Boundaries of Minds and Machines. Fairfield, CT: General Electric.

CDA Project: Intelligent Efficiency Measurement

- Scope
  - Residential and commercial buildings
  - Not including dematerialization
  - Not studying *potential* for IE (others have studied)
- Objectives
  - Scope (& promote appropriate) measurement methodologies for quantifying energy savings from real-world IE projects & products
  - Determine where new methodologies might be required
  - Recommend a forward plan

CDA Project:
Intelligent Efficiency Policy Opportunities

- Being implemented by IEA-4E EDNA
  - Electronic Devices and Networks Annex (EDNA)
- Identify and analyse the range of government policy options that could be used to stimulate greater intelligent efficiency

More Information

- Connected Devices Alliance
  - http://cda.iea-4e.org
- IEA 4E EDNA Annex
  - http://edna.iea-4e.org