

# **Sustainable Manufacturing in the Consumer Electronics Sector**

John Harland  
Design for Environment Manager  
Intel Corp

# Intel Snapshot

Intel is the world's leading innovator in advanced silicon technology, with more than 35 years of leadership in computing and communications.



Year founded: 1968

Number of employees: 86,000

Revenues: \$38 Billion (2007)

Products and services: over 450

Stock symbol: INTC

Worldwide offices and facilities: 294

According to *BusinessWeek* & Interbrand Intel is the world's 5th most valuable brand

The Intel audio signature is heard somewhere in the world every 40 seconds

# Extending Intel Architecture ...

Ultra Low Power  
Sufficient Performance  
Extreme Integration

Performance  
Performance/watt  
User Valued Features

Intel  
Architecture

*PLATFORMS*

MID



CE



Ultra  
Low-Cost PC



Notebook



Desktop



Server



**Common Element: The Internet**



# Our Environmental Performance



Sustainable  
Operations



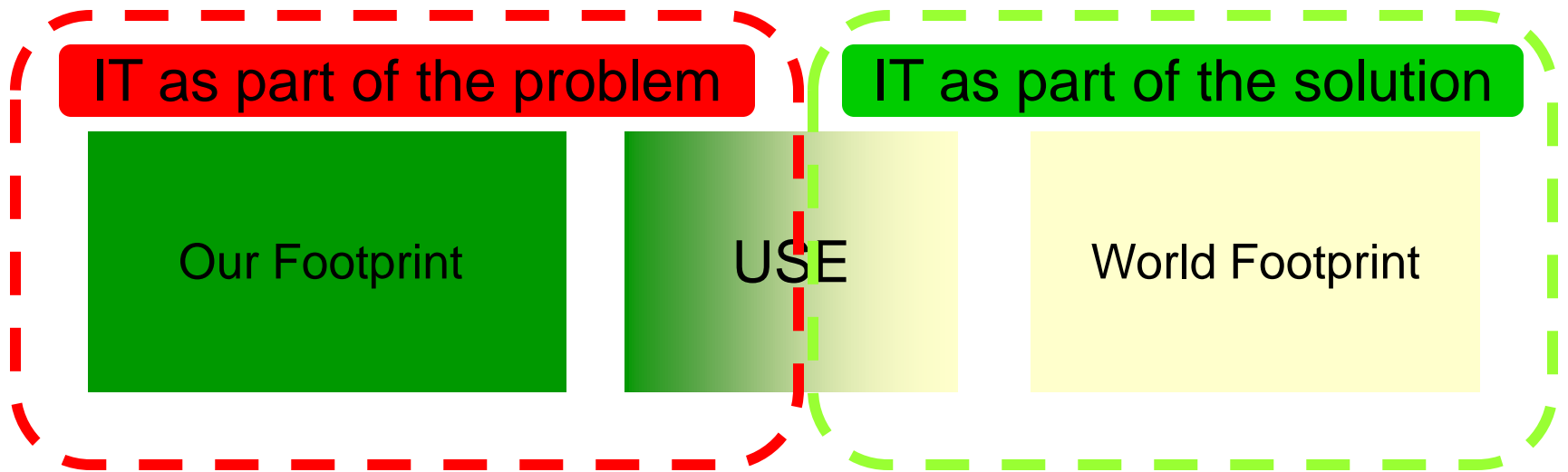
Products &  
Technologies



Industry  
Initiatives

# ECO Computing Scope

## Technology as a solution enabler



# Manufacturing Approach to Sustainability

Understand the business model

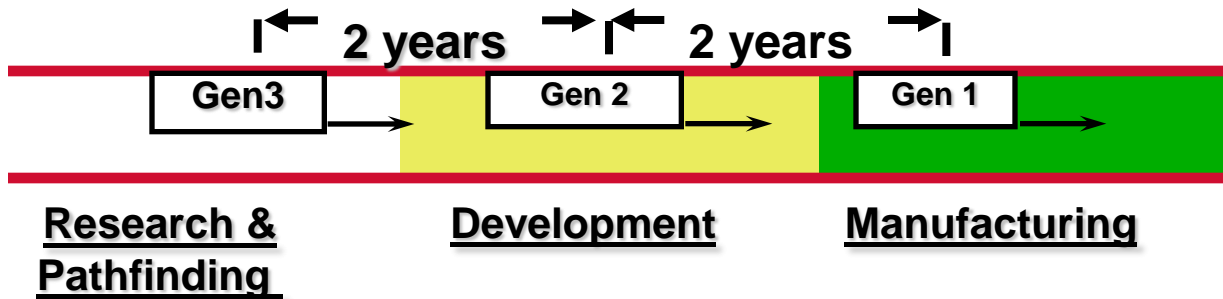
Analyze impacts

Integrate sustainability  
throughout the business model

Accountability

Continuous improvement

# Intel Manufacturing Model



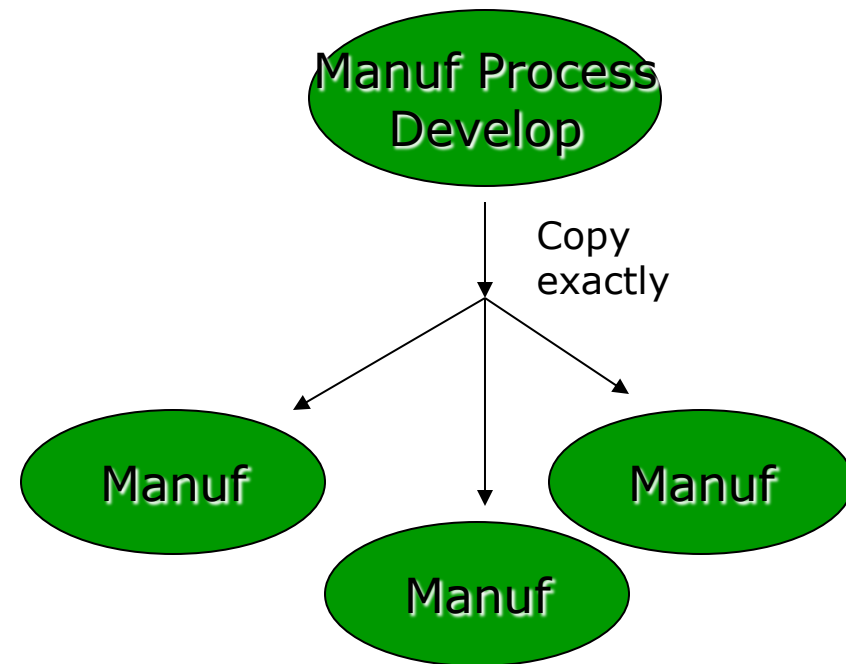
## 2-year "Tick Tock"

- Manufacturing process
- Chip architecture

Long development, short manufacturing cycles

- Copy exactly

Dow Jones Sustainability Index,  
Technology Super-Sector Leader – 8 years



# The Next 5 Years: Our Environmental Goals



Reduce **absolute** global-warming gas footprint by 20% by 2012 from 2007 levels.

Reduce energy consumption per chip<sup>1</sup> 5% per year from 2007 through 2012.

Achieve engineering and design milestones to ensure that Intel products keep the energy-efficiency lead in the market for our next two product generations.

Reduce water use per chip<sup>1</sup> by 2012 from 2007 levels.

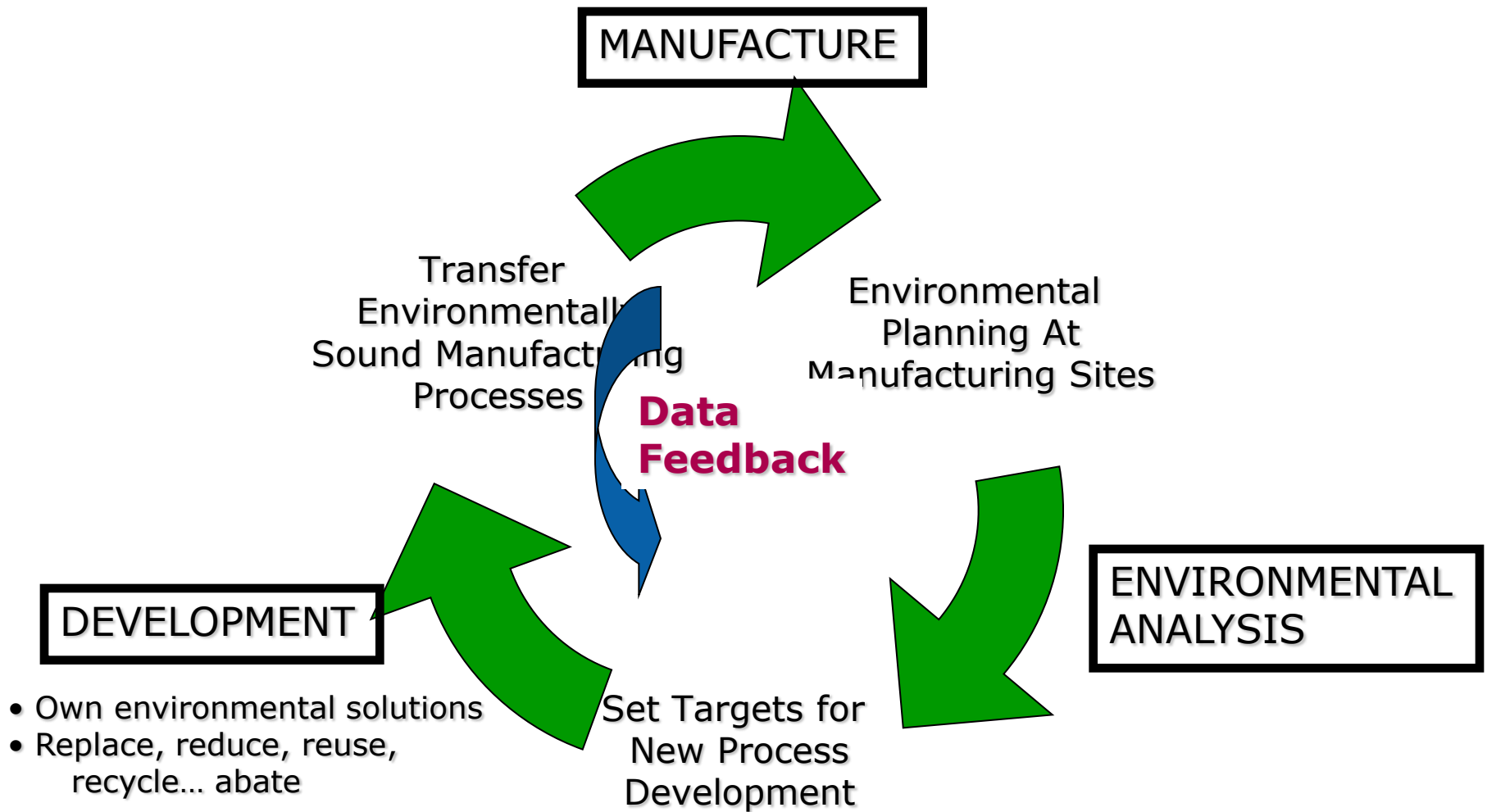
Reduce generation of chemical waste per chip<sup>1</sup> by 10% by 2012 from 2007 levels.

Recycle 80% of chemical and solid waste generated per year.

<sup>1</sup> Assuming a typical chip size of approximately 1cm<sup>2</sup>. (Chips vary in size depending on the specific product.)

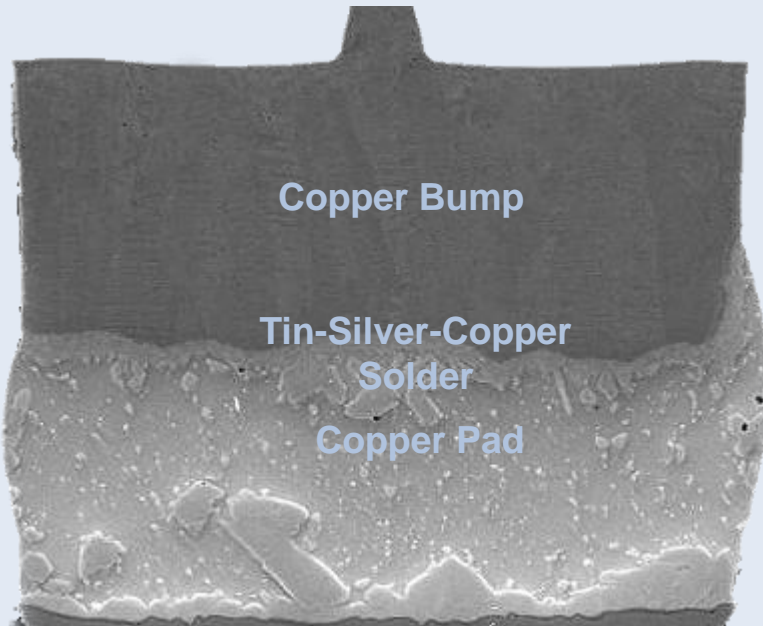


# Continuous Improvement Model

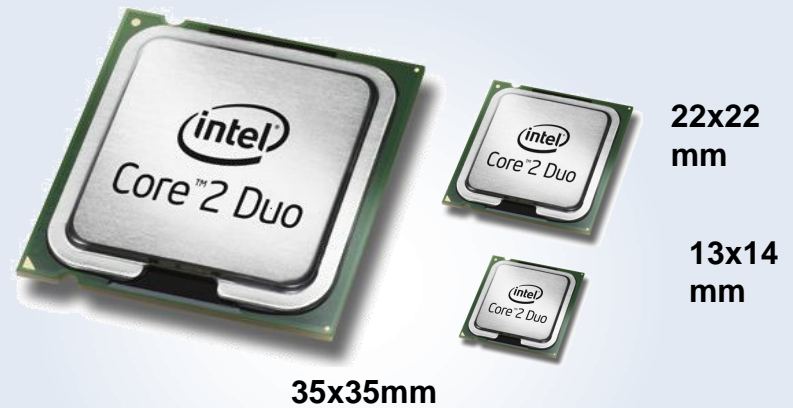


# Minimizing Product Footprint

**100%**  
Lead Free Technology



**60%**  
Smaller Packaging for  
New Market Segments



**All 45nm CPUs Will be Halogen Free in 2008**

# Accountability



Develop indicators  
 Set corporate goals  
 Performance to goals

- Measure
- Audit

Report to management  
 Public reporting

PARAMETER	MEASUREMENT/ TARGET (By 2010)	2007 RESULTS Absolute/ Normalized	COMMENT
Greenhouse Gases	Reduce greenhouse gas emissions per production unit by 30% (2004 Baseline)		Back on track as factory loadings increased in Q4.
Water Use	Reduce normalized water usage below 2005 levels		A CS/PTD team has been formed; 1st team deliverable (new water goal) was approved by C&NRSCS in January.
Chemical & Solid Waste	Recycle > 70%		Chemical recycle now includes fuel blending
Continuous Improvement	Complete > 200 projects in our operations, products and communities that benefit the environment		<a href="#">152 Projects</a> completed in 2007
Product Ecology	Introduce halogen-free materials in new CPU, chipset and flash memory products		Released halogen-free flash products. Pulled in CPU/chipset plans.



# Summary

“Sustainability” depends on business model

Intel rapid changes

- get it right the first time

Manufacturing, product and use of product

Accountability

# Questions?

