Circular Advantage
Innovative Business Models and Technologies to Create Value in a World without Limits to Growth

Nobuko Asakai
Introduction to Accenture

Committed to delivering innovation, Accenture collaborates with its clients to help them become high-performance businesses and governments. With deep industry and business process expertise, broad global resources and a proven track record, Accenture can mobilize the right people, skills, and technologies to help clients improve their performance.

**Accenture (Global)**

- **Establishment**: 1989
- **Employees**: Approximately 246,000 in more than 120 countries

**Clients**

- Accenture serves 92 of the Fortune Global 100 and more than three quarters of the Fortune Global 500
- 99 of our top 100 clients in fiscal year 2011, have been clients for at least five years, and 92 have been clients for at least 10 years
Accenture Sustainability Services Projects – Driving Growth and Innovation for Business and Smart Cities, Globally

- **Madrid**
  - “Urban Community of Madrid - Energy Efficiency & Waste Management”

- **London**
  - “Building Energy Efficiency Programme”

- **Malmo**
  - “A global model for sustainable urban development”

- **City in Southeast China**
  - “A showcase for best practice sustainability technologies”

- **Songdo**
  - “Compact, smart and green man-made island”

- **Copenhagen**
  - “Redevelopment of industrial harbour land for clean energy living”

- **Ontario**
  - “Multi-modal fare card system for the region’s public transit”

- **Amsterdam**
  - “City initiatives to meet an ambitious carbon reduction goal”

- **City in the Middle East**
  - “Renewable energy & Intellectual Property creation”

- **City in Mexico**
  - “A creative digital city driving Mexico’s audiovisual creative services industry”

- **Baerum, Norway**
  - “Champion the Smart City model by enhancing a sustainable project”

- **Yokohama**
  - “CO₂ emissions reduction through smart energy systems and behaviour”

- **Fujisawa**
  - “A model project of an environmentally-minded city in action”

- **Kuala Lumpur**
  - “A new international financial district in the heart of the city”

- **Green field**
- **Brown field**
Sustainability
Incremental change or transformation?
UN Global Compact Accenture Study on Sustainability 2013

a survey of CEOs globally

1,000 CEOs  103 COUNTRIES  27 INDUSTRIES
Only 32% of CEOs believe the global economy is on track.
33% of CEOs feel that business is doing enough on sustainability.
Importance of Sustainability?

45% very important

48% important

1% unimportant

6% neither important or unimportant
The link between economic development and resource use is strong

Log plot of Resource use and Economic development (2010, 166 countries)\(^1\)

2.5 billion new consumers to join the middle class by 2030 (+100% vs. 2013)

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2 OECD Development Centre, Working Paper No. 285, The Emerging Middle Class in Developing Countries

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Unfortunately supply seem unlikely to catch up with our growth aspirations

Global supply and demand for *constrained* resources to 2050

Sources: Accenture analysis, Global Footprint Network
The supply / demand imbalance is bad news for business

GDP and commodity price development 1960-2014

1975-2000
+1% growth in GDP →
-0.5% commodity prices

2000-2014
+1% growth in GDP →
+1.5% commodity prices

Price index, 2010=100

Let’s take a 4-dimensional view on waste instead!

Wasted embedded values
- Components, material and energy not recovered at disposal
- Value: $1.3tn

Wasted resources
- Material and energy that cannot be continually regenerated
- Value: $1.7tn

Wasted capacity
- Underutilized or unused products and assets
- Value: $0.6tn

Wasted lifecycles
- Premature end of working life of products
- Value: $0.9tn

Elimination potential 2030
- Total: $1.3tn

Accenture circular advantage program
Circular Economy – the emerging approach

Framework

From linear…

Make

Linear Value Chain

Waste

Take

…to circular

Sell & Resell

Use & Reuse

Circular Value Chain

Restore & Re-process

Manufacture & Remanufacture

Take back

Repurpose

Key focus areas

Return & recycling

Full lifecycle revenues

Reduce waste: waste management

Monetize waste: material management

Sell volume

Sell performance

Manage resources in production

Manage resources in markets

Resource efficiency

Decoupling – resource productivity

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The ‘Circular Advantage’ program

Example companies studied

- DSM
- kpn
- Nike
- Cisco
- Walmart
- Michelin
- vodafone
- airbnb
- Gazelle
- BMW
- Patagonia
- Veolia
- Carlsberg
- Electrolux
- Peerby
- 'Turn too'
- Timberland
- AkzoNobel
- IKEA
- ThredUp
- Ecover
- Puma
- Desso
- True Value
- GameStop
- CAT
- H&M
- Terracycle
- Car2Go
- Sprint
- Philips
- Optus
- Unilever
- Alcoa
- Maersk Line
- Aveda
- Canon
- de Lage Landen
- Xerox
- van Gansewinkel
- Coca-Cola

50 executive interviews
120 case studies
5 business models
5 capability shifts
10 enabling technologies
In our research we found five circular economy business models

Business models of the circular economy

- Circular Supply-Chain
- Recovery & Recycling
- Product Life-Extension
- Sharing Platform
- Product as a Service

Source: Circular Economy book project
## Success stories are becoming many

### Circular Economy success stories

<table>
<thead>
<tr>
<th>Examples</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Circular Supply-chain</strong></td>
<td>Project Liberty plant opened with $75m annual production value</td>
</tr>
<tr>
<td>Sustainable biofuels and bio-based materials</td>
<td></td>
</tr>
<tr>
<td><strong>Recovery &amp; Recycling</strong></td>
<td>$1bn in annual revenue from byproduct recycling and reuse</td>
</tr>
<tr>
<td>Landfill-free manufacturing facilities</td>
<td></td>
</tr>
<tr>
<td><strong>Product Life-Extension</strong></td>
<td>$3bn turnover¹, 4000+ employees, 50% lower price, 60% less CO₂</td>
</tr>
<tr>
<td>Remanufacturing of industrial equipment</td>
<td></td>
</tr>
<tr>
<td><strong>Sharing Platform</strong></td>
<td>$250m rev., 100% growth (2013)</td>
</tr>
<tr>
<td>Leisure rental of unused properties</td>
<td></td>
</tr>
<tr>
<td><strong>Product as a Service</strong></td>
<td>13k lightings upgraded at 0 cost in WDC, $2m per year value split</td>
</tr>
<tr>
<td>Lighting as a Service – pay for lux</td>
<td></td>
</tr>
<tr>
<td>“Pay for power, not panels” home energy systems</td>
<td>$6bn market capitalisation</td>
</tr>
</tbody>
</table>

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¹ Estimated from company data

Source: Circular Economy book project
CHAPTER ONE

A Secret Origin Story

Eisman entered finance about the time I exited it. He’d grown up in New York City, gone to yeshiva schools, graduated from the University of Pennsylvania magna cum laude, and then with honors from Harvard Law School. In 1991 he was a thirty-year-old corporate lawyer wondering why he ever thought he’d enjoy being a lawyer. “I hated it,” he says. “I hated being a lawyer. My parents worked as brokers at Oppenheimer securities. They managed to finagle me a job. It’s not pretty but that’s what happened.”

Oppenheimer was among the last of the old-fashioned Wall Street partnerships and survived on the scraps left behind by Goldman Sachs and Morgan Stanley. It felt less like a corporation than a family business. Lillian and Elliot Eisman had been giving financial advice to individual investors on behalf of Oppenheimer since the early 1960s. Lillian had created their brokerage business inside of...
Three types of technologies are key

Digital
Enabling entirely new ways to access and understand product use-phase and aid customers in use efficiency

Hybrid
Enabling moving physical objects back and forth from value chains with digital services to drive down cost

Engineering
Enabling production and supply of new types of resources as well as new product designs to use them

Circular economy enabling technologies

- **Google**: 380m supporters for $50 modular handset to be released in 2015
- **UBER**: $40bn taxi company in 45 countries with zero cars
- **verizon**: Launching a share anything platform starting with cars
- **Cisco**: $300m refurbished equipment take back and remarketing
- **Life & Material sciences**
- **采购**
- **Advanced recycling tech**
- **Cloud**
- **Analytics**
- **Mobile**
- **Social**
- **M2M Communication**
- **Cloud**
- **Life & Material sciences**
- **Procurement**

**Source**: Circular Economy book project
Three types of technologies are key

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**Circular economy enabling technologies**

**Digital**
- POSHMARK
  - $60m revenue
  - 2013, ‘style genome’ sales
  - 1m shares per day

**Hybrid**
- thredUP
  - +1m members, 20k brands
  - 30% month over month growth

**Engineering**
- I:CO
  - Processes 700t of used items every day in more than 90 countries.

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**Source:** Circular Economy book project

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Leading adopters experiment with 5 new business capabilities

Circular economy capability shifts

2. Innovation & product development
Design for many lifecycles and users

3. Sourcing and manufacturing
Cascade resources

5. Return chains
Do opportunity driven take-back

Source: Circular Economy book project
Resource ‘cascades' can be used to get started on identifying opportunities.
Thank you!

Questions?
Circular economy success is broad and varied: Across all circular business models, across industries, from start-ups to big business

<table>
<thead>
<tr>
<th>Circular supplies</th>
<th>Resource recovery</th>
<th>Product life extension</th>
<th>Sharing platform</th>
<th>Product as a service</th>
<th>Enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSM</td>
<td>TERRACYCLE</td>
<td>ecoATM</td>
<td>Floow2</td>
<td>MUD JEANS</td>
<td>tado°</td>
</tr>
</tbody>
</table>

**Start-ups**
- Packaging material from agricultural waste and mycelium (ecovative)
- Engages people globally to collect waste for up-cycling and new products (TERRACYCLE)
- Automated machine buying used electronics for repair and resell (ecoATM)
- Floow2-community for the sharing of industrial equipment
- Leasing of Jeans and other fashion items, including free repair (MUD JEANS)
- Smart phone enabled heating optimization of homes to save energy (tado°)

**Established companies**
- Sustainable biofuels and bio-based materials (DSM)
- New carpets from old carpets through DESSO Refinity®.
- Remanufacturing of industrial equipment (CAT)
- Global rental of private homes for travelers to utilize unused space (airbnb)
- World leading tire company offering “pay by the mile” service (MICHELIN)
- The C2C Institute offers trainings, certifications and licensing of C2C products (cradle to cradle)

Source: Circular Economy book project

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