

Lecture #37

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Service Processes & Systems
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“Achieving Dematerialization via the Servicizing of Products”

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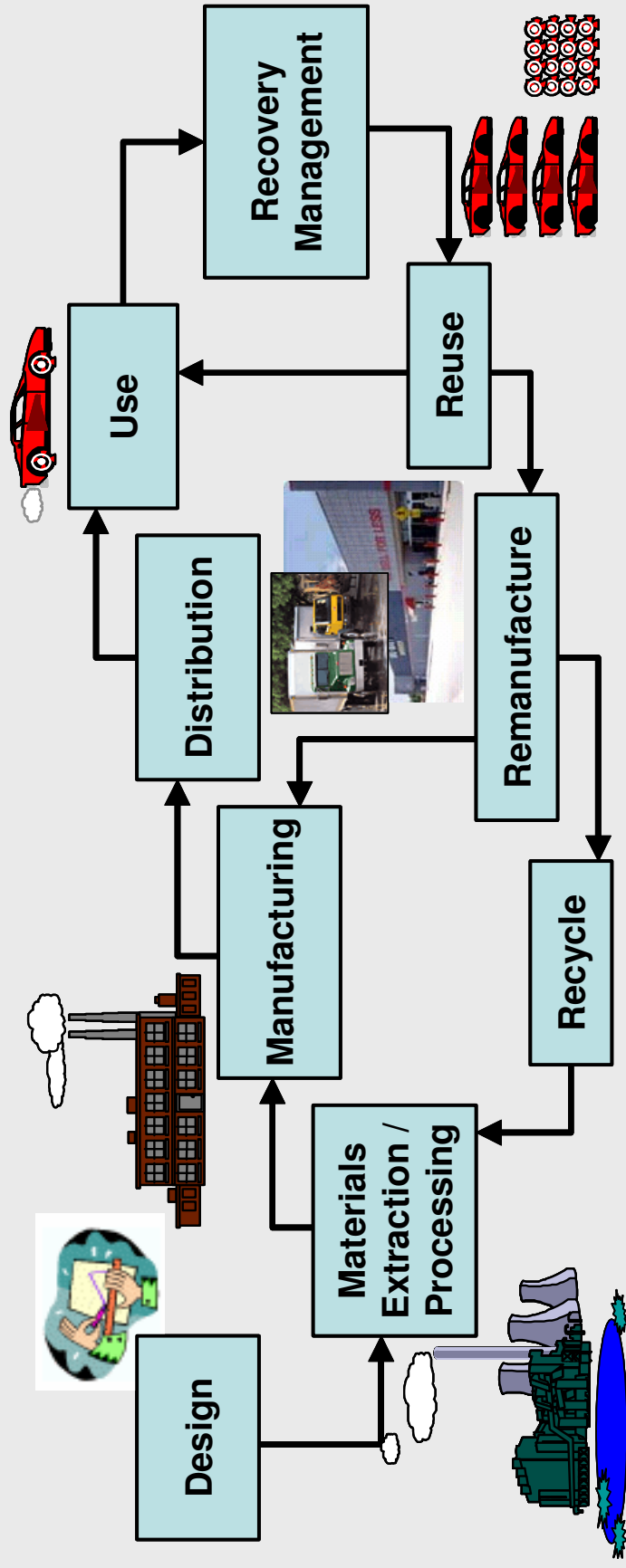
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Introduction

- ❖ Lecture #3 – Sustainability (Check for further details)
- ❖ The Brundtland commission defines sustainable development as “Development that meets the needs of the present without compromising the ability of future generations to meet their needs” [Report of the World Commission on Environment and Development, 1987].
- ❖ Without some fundamental changes, the task of meeting the needs of future generations does not seem achievable...
 - ❑ Increasing demands for materials, oil/energy, and other limited natural resources.
 - ❑ Increasing waste – landfills are full of disposed products created from these precious resources.

Product Life Cycle



Introduction

- ❖ Some strategies [Mont, 2000] to achieve sustainable development are decreasing order of importance:
 - ❑ Reducing the amount of material in products (dematerialization);
 - ❑ Extending product life;
 - ❑ Increasing efficiency during product usage; and
 - ❑ Recycling and reclaiming product material.

Introduction

- ❖ Clearly, all four of these strategies suggest that fundamental changes must occur in the design of products.
 - ❑ The first strategy seeks to directly reduce material resources, and therefore attacks the material extraction stage of the product life cycle.
 - ❑ The second and third strategies are aimed at the usage stage.
 - ❑ The last strategy is aimed at the recovery stage of the life cycle.

Dematerialization

- ❖ Though all these strategies are important to achieve sustainability, it is believed that dematerialization will have the highest impact on achieving sustainability.
- ❖ This strategy enables economic growth to be decoupled from the consumption of raw materials and energy [Reiskin et al., 1999]. Dematerialization also serves to eliminate environmental impact of a product.

Dematerialization

- ❖ The concept of dematerialization is consistent with the notion of "Factor Four" [von Weizsacker, 1997], which is focused on generating double the income and consuming half the resources.
- ❖ Clearly, "factor four" requires some innovative new thinking about i) how to satisfy customer needs, and ii) how to conduct/run a business

Servicizing

- ❖ Servicizing is one approach that can be employed to achieve dematerialization [Ryan, 2000]. Defined as transitioning from selling the product to selling product function.
- ❖ Includes any approach where the need is fulfilled without the customer owning a physical good. When products are associated with servicing, product ownership remains with the supplier/manufacturer, and the customer pays only for the use of the product.
- ❖ Of course, with servicing, the product owner often factors such expenses as maintenance, upgrading, and disposal into the cost of use.

Servicizing Approach

- ❖ Traditional business model: selling a product to a consumer who then uses the product. Manufacturer sells a physical good to satisfy a consumer's need.
- ❖ Traditional model leads to high rates of resource consumption and waste generation.
- ❖ Servicizing – transition to a new business model. There are several scenarios under which this business model can be adopted:
 - ❑ selling product use,
 - ❑ tangible good to service conversion, and
 - ❑ value-upgrade to service

Servicizing Approach

- ❖ In the first scenario, companies basically rent or lease a product and retain product ownership.
- ❖ In the second scenario the specific product (tangible good) is replaced with a service (non-tangible good) and the need for a tangible good is therefore eliminated.
- ❖ Finally, in the third scenario the supplier provides a service that goes along with the product and adds value to it.

Servicizing Approach

Servicizing Type	Examples
Sell Product use	Car rental, Laundromats
Good to service conversion	E-mail, Music Downloads
Value-upgrade service	Computer with upgrades

Benefits	C	M	E
Financial benefits	x	x	
Focus on their primary areas of business	x		
No maintenance and disposal responsibility	x		
Product(s) are managed by the supplier	x	x	x
Establish market niche		x	
Environmental benefits		x	x

Benefits of Servicizing to Consumer (C), Manufacturer (M), and Environment (E)

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Servicizing Approach

- ❖ An important concept that plays a role in making a case for servicizing is the notion of Extended Product/Producer Responsibility (EPR), where the supplier/manufacturer is responsible for environmental impacts throughout the life-cycle [White et al., 1999].
- ❖ The greater the ability of the supplier/manufacturer to affect the various stages of a product life-cycle, the larger the benefit in terms of the environmental impact of the product.

Servicizing Approach

- ❖ Customer needs often satisfied through a Product-Service System (PSS). The concept of a PSS promotes a shift in focus from a pure product model or traditional business model, to an approach where demands are met through a product/service mix that has a smaller environmental impact [Mont, 2000]
- ❖ PSS promotes improved understanding and greater use of life-cycle thinking, and provides a significant opportunity for positive change. Need to consider all costs (economic, social, and environmental) – from material extraction to disposal.

Servicizing Approach

- ❖ Need to consider not only PSS, but also the way that consumer needs/wants are defined and/or fulfilled.
- ❖ Manner in which stakeholders define their roles and relationships is another consideration.
- ❖ Sustainable consumption – commonly accepted living patterns need to be redefined.
- ❖ Economic foundation, upon which patterns are based – traditionally tied to the consumption of material/energy resources – redefine economic foundation??

Servicizing Approach

- ❖ Dematerialization has been identified as one way to reduce the environmental impact of industrialized society. Certainly, less reliance on materials will mean that the earth's material resources will be conserved and that less material will be disposed into landfills.
- ❖ Of course, this then presents us with a question: if virtually all our present needs are met via products formed from materials, and if the materials are reduced/eliminated, then how are we going to meet those needs?

Servicizing Approach

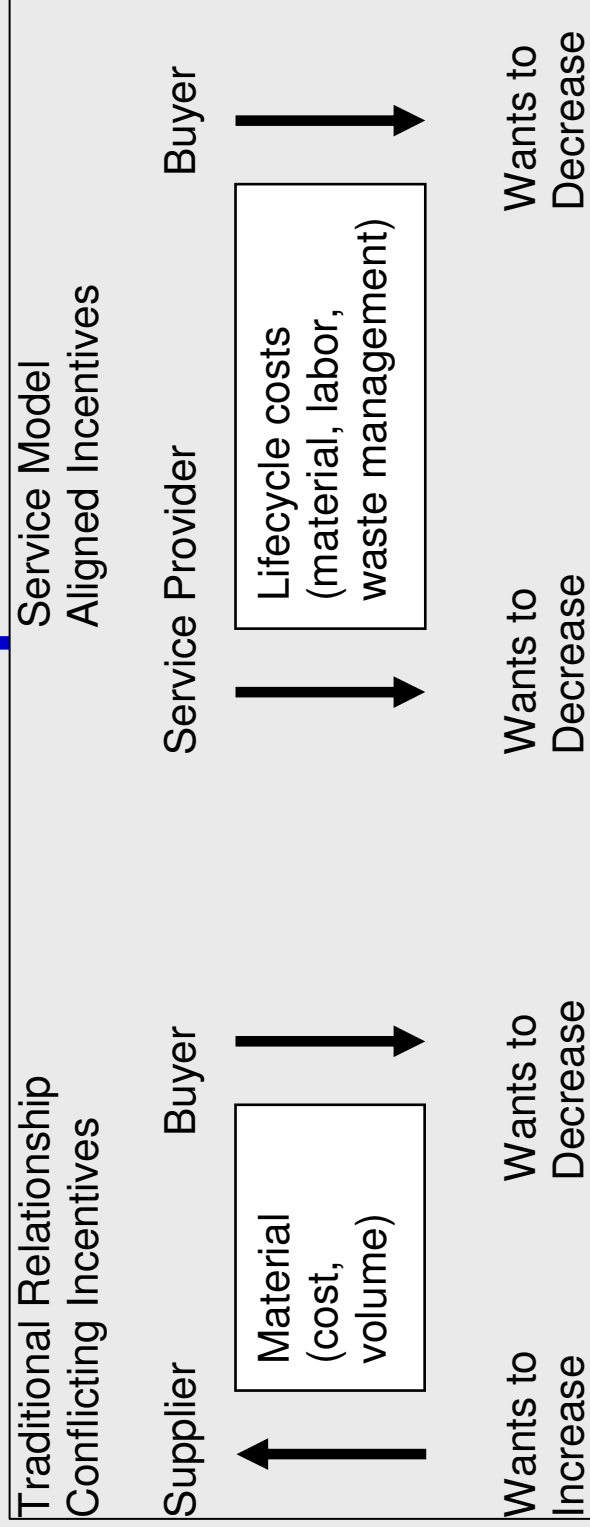
- ❖ Servicizing represents a potential answer to this question. Rather than meeting societal needs with a finished good, needs will be met with a service, i.e., a service-centered product rather than a material-centered product.
- ❖ Servicizing requires a sea change in company thinking and business models.
- ❖ Profound cultural effects? Customers no longer physically own a good – have needs met in some other way.

Outsourcing/Servicizing

- ❖ Occasionally, outsourcing misunderstood as servicizing. Difference between these two concepts:
 - Service process company provides services,
 - A lawyers' office provides legal advice to clients; a school provides education to students.
 - Outsourcing occurs when company decides that they do not want to perform a manufacturing task or undertake a service they normally perform.
 - For example, automotive OEM outsources the manufacturing of seats. Or when an outside firm is hired to manage its cutting fluid system.
- ❖ In either case, no replacement of good with a service – no servicizing transformation.

Servicizing & The Environment

❖ Will the servicizing of a product actually result in reducing the environmental impact?



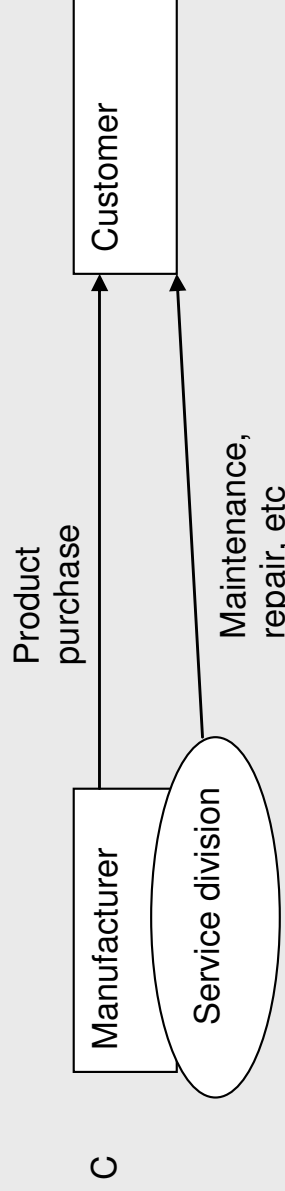
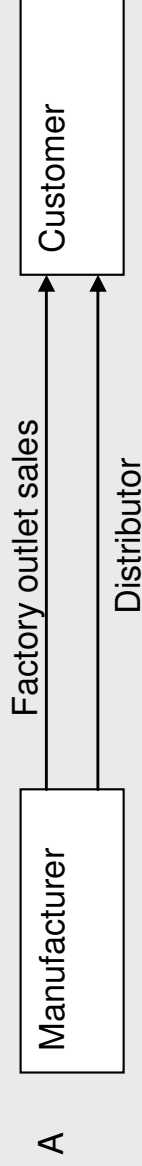
Reiskin et al., 1999

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Servicizing Approach



White et al., 1999

Company	Product characteristic prior to servicing	Product characteristic after servicing	Utilization	Product Degradability	Does outsourcing apply?	Main Driver	Secondary Driver
Dell	Tangible PC acquisition	Contract for upgrading	High	No	No	Customer	Environment
AB Electrolux	Tangible machine acquisition	Product use fee	Medium	No	No	Environment	Customer
IBM	Tangible PC acquisition	Service network	High	No Tangible	Yes	Market	E-business
Honda	Car acquisition and ownership	Fee for rides from place to place	Low	No	Yes	Customer	Space problems (environment)
City CarShare	Car acquisition and ownership	Online leasing	Low	No	Yes	Customer	Space problems (environment)
e-Bay	Retail Stores	Website to buy and sell products	Low	Vary	Yes	Technology	Environment
Elsevier	Hardcopy articles in libraries	Access to softcopy articles under contract	Low/High	Yes	No	Technology	Environment
Ruckus	Retail Music Stores	Membership fees –students share music electronically	High	N/A	Yes	Music Piracy	Customer
Coro	Warehouses and moving companies	Moving and storing furniture, also disposal	Low	Yes	Yes	Customer	Environment
Phillips	Selling the devices	Selling devices plus remote maintenance	High	No	Yes	Customer	Market
Odin	Third party needed (supermarket)	Food provided straight from the fields to household	High	Yes	No	Customer	Environment
Memory Stick	Single use film needed	Reusable device to store pictures	Low/High	No	No	Technology	Customer

Servicizing Approach

- ❖ As we examine opportunities for converting traditional business models to servicized business models, the following issues must be considered:
 - ❑ What revenue opportunities are available for providing a service?
 - ❑ What markets are available for products and services sold/provided?
 - ❑ What drivers exist for moving from product delivery to service delivery?
 - ❑ What environmental benefits exist for transforming to a service provider?

Conclusion

- ❖ Some have examined connection between servicizing & sustainability.
 - ❑ Tischner -- Sustainable Services and Systems (3S) -- services should meet customer needs, avoid negative environmental impacts, and be profitable.
 - ❑ Meijkamp -- Eco-efficient Services (ES) -- fulfill customer needs by selling product utilization. Manufacturer retains some product ownership.
- ❖ Servicizing expands on these concepts – is an emergent business strategy by transforming traditional product-oriented business model into service-oriented business model

Conclusion

- ❖ Servicizing is a relatively new trend that offers significant environmental benefits and major profit opportunities.
- ❖ Requires more attention placed on the life-cycle of products and associated services;
- ❖ Currently several companies lease products instead of selling them – may indeed result in fewer products in usage stage, reduced burden in terms of products demanded by society, and improved materials utilization consistent with the goal of dematerialization.