

# Product Service Systems and Implications for Sustainability

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# Agenda

- Product Service Systems (PSS);
- Collaborative consumption;
- Environmental and social benefits;
- Constraints;
- The consumers' position;
- Conclusions

# Introduction

- Funded by **British Academy**; it looks at consumers' attitudes to eco-efficient product service systems (PSS);
- PSS based on maternity equipment and car clubs;
- Qualitative methodology:
  - Expert interviews;
  - Consumer focus groups

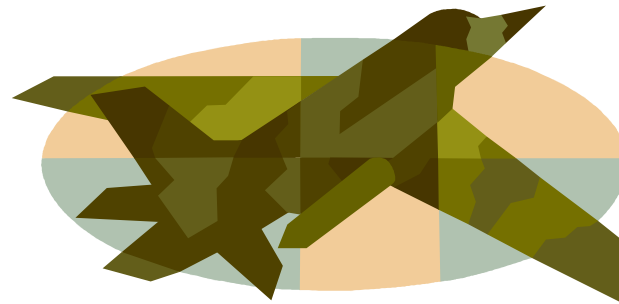
# What is a Product Service System?

- A Product Service System (PSS) is a *“system of products, services, supporting networks and infrastructure (...) designed to be: competitive, satisfy customer needs and have lower environmental impact”* (Mont, 2001).

# Examples of PSS – Business Markets

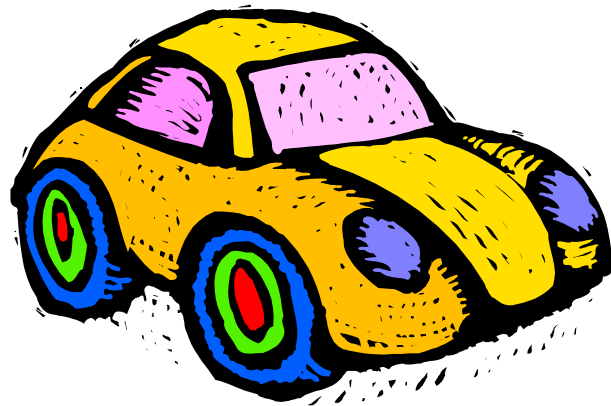
- Xerox document management machines
  - Machines are leased and managed by supplier;
  - Worn out parts are withdrawn and recycled when possible;
  - Supplier builds various “layers” of service
- Rolls Royce
  - Aircraft engines are leased and charged out for air miles and units of power;
  - Supplier builds various layers of service in the provision, especially to do with maintenance

(Shelton, 2009);



# Examples of PSS – Consumer Markets

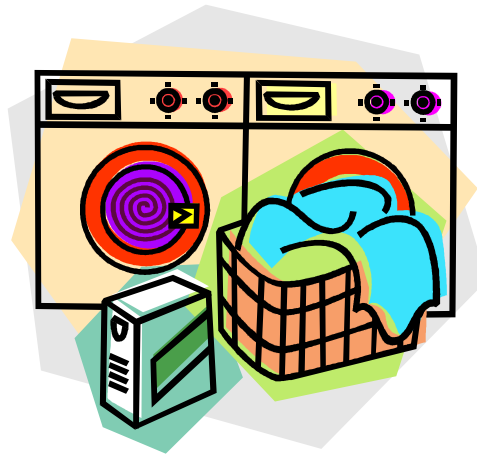
- The old fashioned civic library
- Car Clubs(*City Car Club*, Streetcar ) 50,000 to 112,000 in 2010;



- Telecommunications providers - early adopters of PSS

# Pilot in Italy

- *Merloni Elettrodomestici and ENEL*, part-privatized energy provider (Italy);
  - Washing machines are leased to households;
  - Charging takes into account energy consumption;
  - Opportunities for JV with detergent manufacturers



# Pilot in Sweden

leased out to families



Designed for PSS

Low environmental impact;  
Good income but long payback



# In ICT?

- Shared servers?
- The “cloud”?



# Collaborative Consumption?

Consumers share products and resources, rather than acquiring ownership of these products or resources (Botsman and Rogers 2010).



- [www.whipcar.com/](http://www.whipcar.com/) (peer to peer car sharing);
- [www.liftshare.com/uk/](http://www.liftshare.com/uk/) (Ride sharing)
- [www.thehirehub.co.uk/Rental/](http://www.thehirehub.co.uk/Rental/) (peer to peer rental);
- [www.airbnb.com/](http://www.airbnb.com/) (daily rooms/ house rentals);

# What is the fuss about PSS?

- Considerable attention of policy makers because of its potential to “dematerialize the economy”. Some think it can support decoupling of economic growth and environmental impacts;
- GOs and NGO – e.g. DEFRA – commissioned studies;
- Strongly advocated by the United Nations Environmental Program (UNEP) in a 2005 report

# REBUS position

- This research project, called *Reengineering Business for Sustainability* (REBUS) starts from this premise of advocacy and investigates constraints and enablers

# Environmental Benefits

- If people shared, leased, or rented in proportion to the use they make of products this would reduce environmental impacts (Mont, 2001);
- This addresses the basic fault of marketing : that of having the function of promoting consumption (Peattie, 1999; Peattie and Crane, 2005).

# Environmental Benefits

- It facilitates take back schemes, enabling suppliers to keep responsibility of products during and at end of life cycle (Mont, 2001);
- It supports education towards more sustainable use (Lee et al, 2007);
- It leads to improvement in product design (Manzini and Vezzoli, 2002) with longer life cycles (Mont, 2001);
- It supports closed loop industrial systems and can create new market opportunities (Ibid.);

# Social Benefits

- It encourages communication between supplier and customers, with improved relationship (Mont, 2001)
- it proposes business as well as environmental benefits - decommodification of provision, customer retention, market share protection (Mont, 2001; Kimita et al, 2009).
- It benefits customers as they just pay for the usage they need (Mazzini and Vezzoli, 2002).

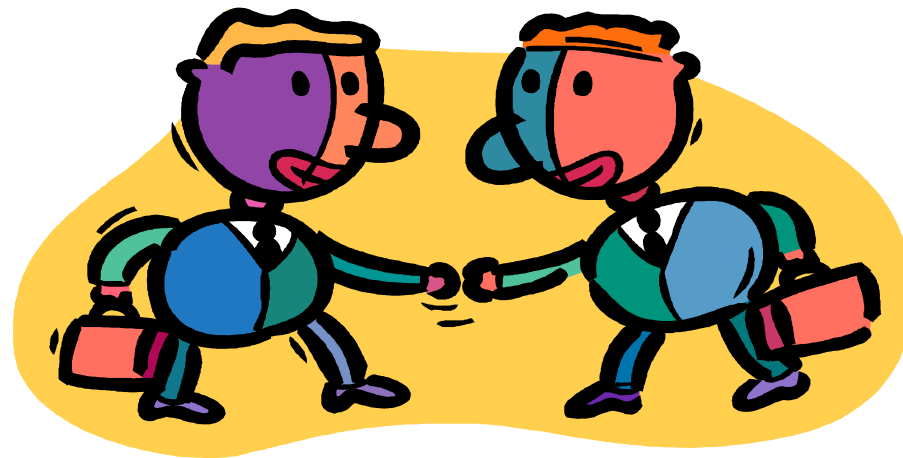
# Constraints

- Possible concerns with product availability at required times and places;
- Consumers might be adverse to ownerless consumption (Mont, 2001) – as they may be interested in status and product meaning more than in the functional characteristics;
- It requires consumer education and incentives from Government in order to be accepted (Mont & Lindhqvist, 2003);
- Possible impact on the economy?



# Constraints

- PSS are built and operated by *networks of companies* (Evans et al, 2007; Lee et al, 2007). companies have problems working as part of an integrated network;



- ICT supported communication systems (Catulli, 2010).

# Focus on Consumers...

- Insecurity on what they are getting and how much it will cost them;
- Consumers are not always good at mental arithmetic's, so it can be hard to compare products Vs service;
- They tend to select tangible products and look at today's cash price rather than the life cycle cost

# Assurance

## Concerns with quality and hygiene

- “... *I wouldn't mind with stuff like a cot if I was to go away, but when it comes to things like a walker or toys, things that are a bit more you know, close to the child, I don't know that it's really hygienic to share toys with someone.*” (female respondent);
- “... *prams are the same, you want everything to be clean and new when you've got a new baby so they'd have to be really good with their cleanliness and health and safety side of things if they wanted to appeal to new mums...*” (female respondent)
- Instructions, advice, warranty, health and safety...

# Reliability

When booking club cars consumers are concerned with availability

- “... *It depends [on] what sort of lifestyle you lead, I’m a parent so I’m always going to need my car to take girls to school, to travel to work and get around, if you were someone who only needs a car once every so often then possibly it is a good idea but as a dad, I don’t think so.*” (male respondent)
- “... *And there’s getting the car seat in if you’re sharing as well ... even if they wanted, if they would agree to do that 45 minute[s], you’ve got to swap the car seats...*” (female respondent)

# Responsiveness

How quick will be response to an order?  
How fast will a complaint be addressed?  
These are all concerns consumers have

- *“And you need to go to the office [laughs]...switch on the computer...exactly, it’s just that it’s going to be lost, you’re going to think, ‘oh, I may as well get in [my own] car’.”* (female respondent)
- *“...It’s got to be instant because sometimes you think ‘oh, I’ve got to go in the next half hour’...”* (female respondent)

# Empathy

Is the supplier's staff sympathetic and helpful?

- *“... I've hired car seats abroad when we've gone to Spain and, because the hire car company with the negligence and everything, they won't fit them for you...”* (female respondent)

# Emotional (non rational) attitudes

Parents want “their own” for their offspring

- *” but that’s quite, when it’s your first baby, they’re so precious that you’re sort of...”* (Female respondent);
- *“And with maternity, I think with your first child it’s like we’re saying you kind of want everything new, like your girlfriend was saying you want everything new with your first child “* (Male respondent)

# Concerns with downmarket image

- “... maybe if you put together a sort of bundle for a new mum who needs it and can't afford it then that would probably work well.” (female respondent)
- “... for parents that can't afford to buy the whole lot.” (male respondent)
- “... I think it's mainly going to be used by people that can't afford to buy everything at once.” (female respondent)



# The anomalies...

- Most respondent – especially at the start of the focus group....
- ... Tended to say that they wanted to buy all new – baby pram, cot, etc. think safety implications of baby car seats;
- Later all said they had bought 2<sup>nd</sup> hand from e-bay;
- Some market reports state that 75% of the market is previously owned!

# Conclusions

- Big challenge of educating consumers – their expectations will be lower in terms of performance;
- Designers need to use service quality measurement tools, e.g. SERVQUAL to anticipate consumers concerns;
- For car clubs the future is in smart mobile phones and an instantaneous “need to leave within 30 minutes” option

# Conclusions

- Companies need to adapt to Implement these modes of consumption. They will need to train employees in marketing, sales and customer service;
- Relationship marketing strategies and supporting technologies are needed to promote and support eco efficient PSS.

# Implications for ICT sector

## Opportunities

- The networking requirements of PSS design creates opportunities for relationship management, front and back office functions, e.g. Billing, customer interface, etc.
- The rise of collaborative consumption – mostly web based – might mean expansion for various ICT support activities;
- Additional requirements can arise from issues of security and liability, e.g. Telemetry.

# Final comments

- This mode of consumption seems to propose the paradigm shift required to move towards a sustainable economy;
- Companies need not to forget that collaborative consumption can be a kind of threat to their business model and business

# Next Steps of Research...

## Looking for Volunteers!

- Respondents need to be Business Directors / Managers
- Companies need to be product companies preferably
  - One – to – one interviews
  - Possibly interactive workshops
  - Companies for partner research (your products / services of your clients')

# Questions...

## ...and suggestions please!

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