



THE CIRCULAR TRANSITION: DEVELOPMENT OF A CIRCULAR ECONOMY MODEL FOR THE WASHING MACHINE INDUSTRY

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Research & Innovation for Smart Enterprises

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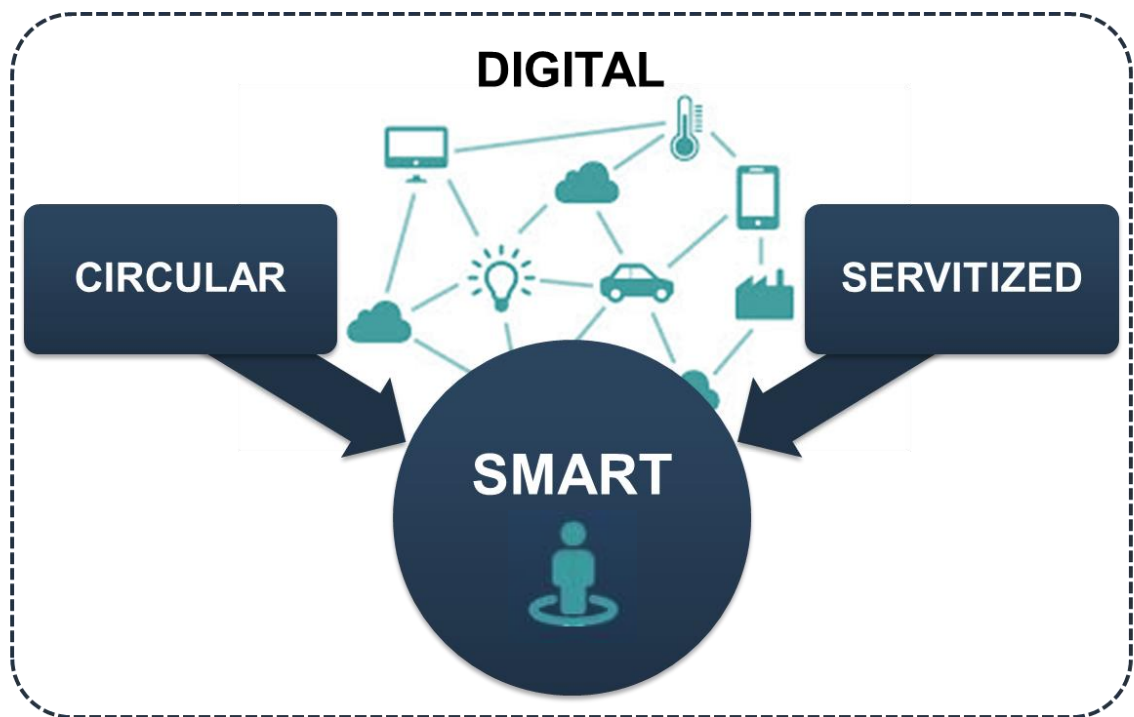
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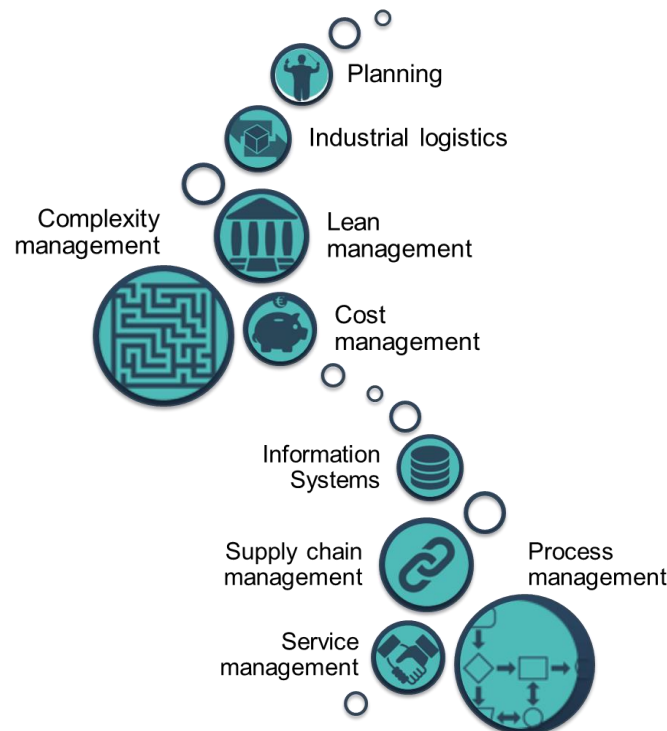
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Our vision: we believe that the supply chain of the future will be *circular, digital* and *servitized*. Therefore we focus our research and dissemination activities mainly towards these three themes.



Our Vision ▲

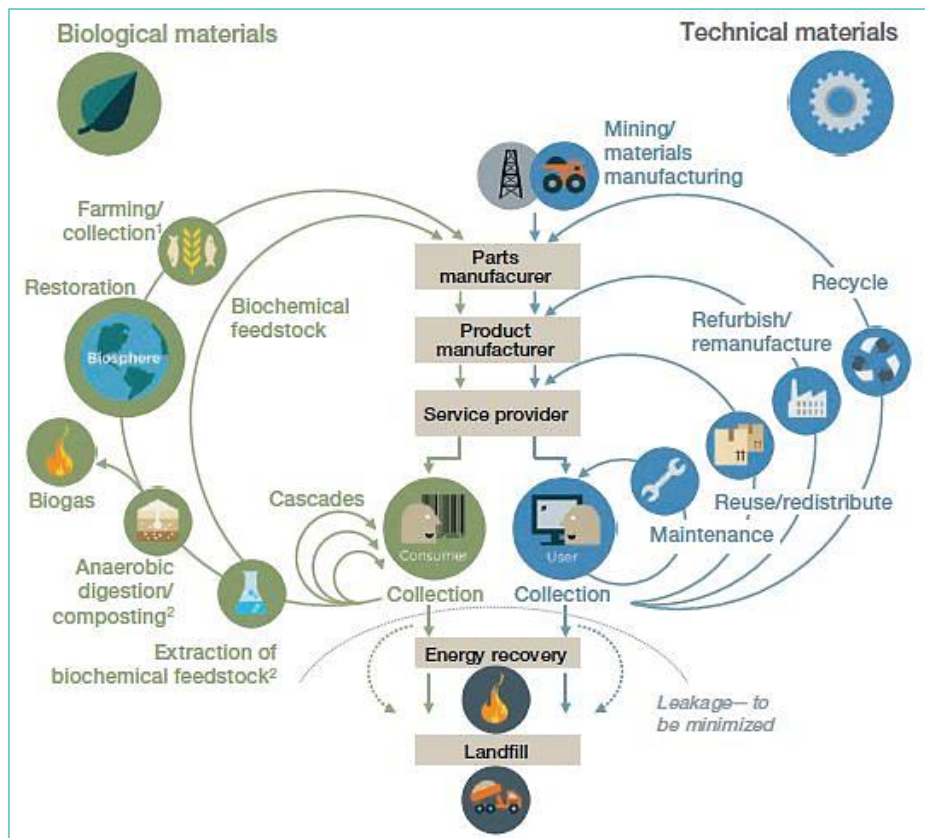


Our competences areas ▲



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The overall scope

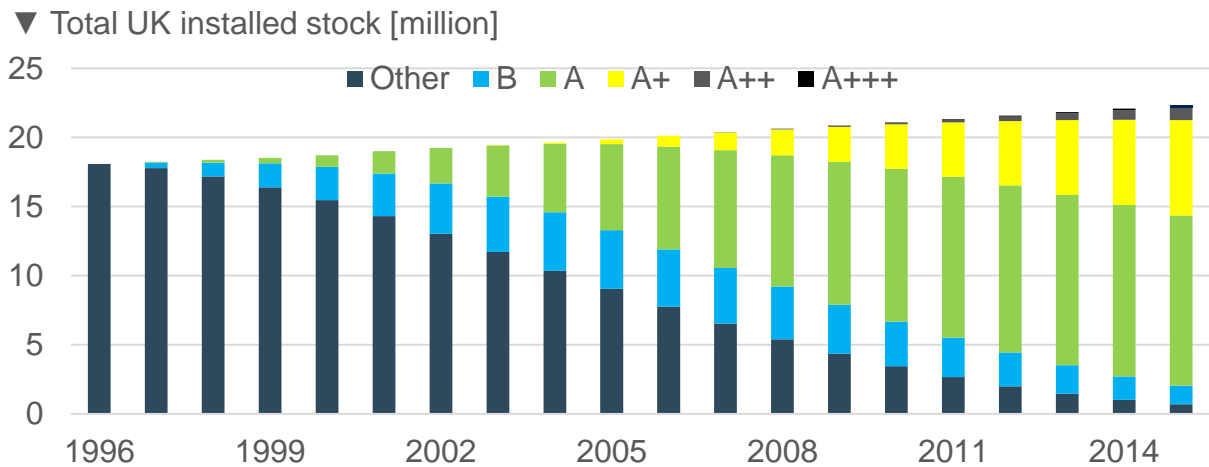
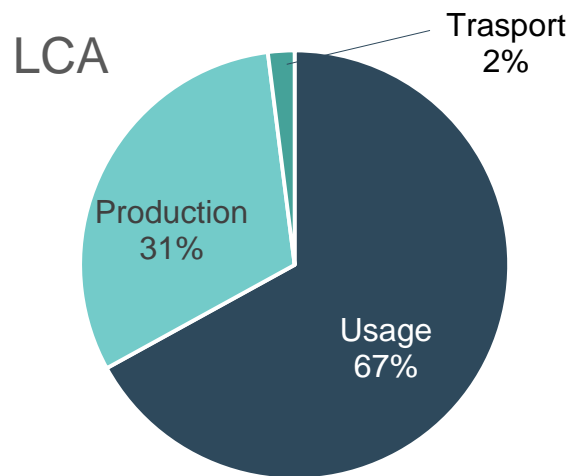
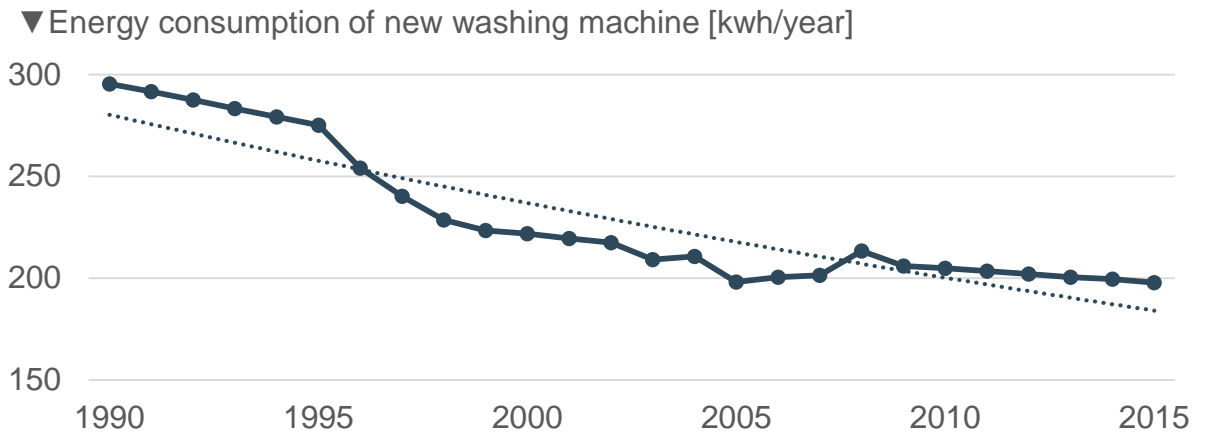
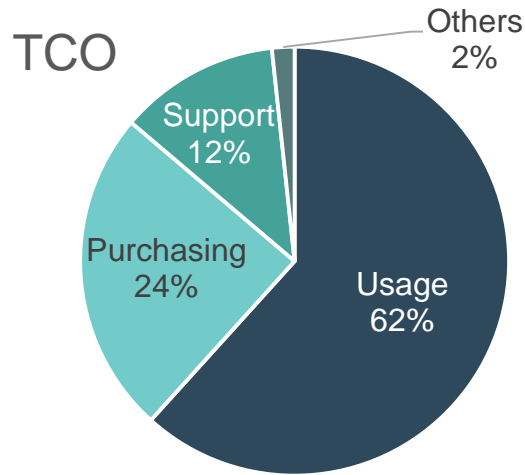


- ▶ To demonstrate:
 - Economical outcomes (for both users and manufacturers)
 - Environmental impacts
 - Social benefits



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Why washing machines



Sources: Sacconi et al, 2017; Devoldere et al, 2009; National Statistics UK, 2016



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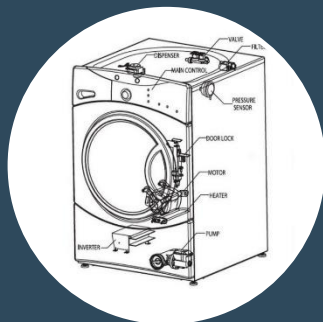
Project objectives



- ▶ To improve the **utilization rate** of washing machines, both in terms of capacity and time utilization
- ▶ To improve the **energy, water and detergents** efficiency of washing machines during their useful lives
- ▶ To improve the **duration** of washing machines' and components useful life
- ▶ To reduce the **amount of waste** generated by applying the principles of the waste hierarchy
- ▶ To create **new business opportunities** in the EU, especially in:
 - ▶ the remanufacturing of washing machines
 - ▶ the provision of logistic services
 - ▶ the sale of refurbished machines and related components, as spare parts



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Circular Design

- Design for durability
- Design for disassembly
- Design for EOL



Business Models

- Sharing
- Pay per use - performance
- Leasing of refurbished appliances



Reverse Logistics

- Spare supply chain redesign (spares parts classification, geo-localization, virtual inventory and distribution)



Technology as enabler

- Internet of Things
- Cloud support
- Big Data and analytics



OUR CONSORTIUM (Under construction))

| Competence | University | WM producer | Component producer | LSP | SW developer | Telecoms specialist | Reconditioner | Automation specialist |
|------------------------------------|------------|-------------|--------------------|-----|--------------|---------------------|---------------|-----------------------|
| Service management | X | | | X | X | X | X | X |
| Washing machine design | | X | X | | | | X | X |
| Manufacturing / remanufacturing | | X | X | | | | X | |
| Logistics & planning | X | | | X | | | | |
| Fault analysis and maintenance | X | X | | | | | X | |
| Industrial economics | X | | | | | | | |
| Industrial Marketing | X | | | | | | | |
| Sw engineering | | | | | X | X | | X |
| Internet of things | | | | | X | X | | X |
| Mechatronics & robotics | X | | | | | | | X |
| Tracking & tracing, georeferencing | X | | | | X | X | | X |
| Regulations & law | X | | | | | | | |



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Thank you for your attention!

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