VALUE CHAIN EXPERIENCES AND CHALLENGES FROM A DOWNSTREAM PERSPECTIVE

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1. Challenges in repair and recycling of (W)EEE

Continuous introduction of new products in the market // Devices of new generation – not (yet) designed for repair and recycling

REPAIR

- Information Gaps between different Stakeholders (OEM/Retailers/PROs)
- Resistance of OEM in sharing information
- Spare parts availability
- Marketing of Repaired Products
- Guarantee issues
- Tools and Labor costs

RECYCLING

- Complexity of input waste stream
- Technical limits in material separation and recovery
- Regulatory Framework for waste management
- Reporting to PROs
- HSE risks in recycling facilities (explosions, contamination)
- Insurance, Energy and Labor costs

Can DPP address the main challenges of EEE downstream operators?

2. Digital Product Passport in the repair sector

CRITICAL DATA ON A DPP FOR REPAIRERS:

- Full Commercial Information at product and component level
- Regulatory Compliance at product level (eg. RoHS)
- Disassembly instructions
- Compatible Spare Parts, Software and Tools
- Health and Safety Information (e.g. Li-batteries, withdrawal orders)
- Waste management options (e.g. toners and cartridges EPR systems)

CRITICAL CHARACTERISTICS OF A DPP FOR REPAIRERS:

- Repairers must be able to update and edit the DPP
- Open access and Interoperability through the whole value chain including technicians and end-users (customers)
- Value Chain Critical Stakeholder: OEM

2. Digital Product Passport in Recycling Sector

CRITICAL DATA ON A DPP FOR RECYCLERS:

- Full Product Information at material level (BoM)
- Regulatory Compliance at material level (e.g. REACH) // hazardous and toxic substances (e.g. BFRs)
- Location of CRMs
- Secondary Raw Materials Management and Marketing Options
- Take Back Scheme Details in collection, transport and processing steps

CRITICAL CHARACTERISTICS OF A DPP FOR RECYCLERS:

- Restricted Access to recyclability information for different users
- Interoperable: Unique product identifier across value chain, directly linked to ERP systems
- Value Chain Critical Stakeholder: PROs

3. DPP implementation in the repair sector

OPPORTUNITIES	RISKS
• Upgrade and Formalize of **the Spare Parts Market -** Application of **Right to Repair Directive** provisions • **OpEx Control** by estimating products durability and repairability • **Increase Social & Environmental awareness** of customers and Improve products reliability • **New Business Model is being developed**	• **Resources required** for implementation of DPP (cloud-based storage, personnel training, code identification systems, new data carriers etc.) • **Reshaping of the Repairing Market** // Large and Authorized repairing businesses might only have the technical expertise to follow • **Increase labor costs** due to extra data entry requirements after repairing

4. DPP implementation in the recycling sector

OPPORTUNITIES	RISKS
• **Limit HSE risks** (e.g. Explosions by embedded batteries) • **Control contamination** of recycling by toxic substances (e.g. BFR plastics) • Sustainable and effective **CRM recovery** • Control of **informal recycling**	• Collection and Processing of WEEE are **in bulk and not per device.** Most of the material comes from **scrap dealers and scavengers** which means…**QR Codes might not be even scannable** • **Technological maturity** of engineering in recycling and recovery lags that of information systems • Confidentiality issues arise regarding material treatment methods • Multiplication of Reporting to PROs and to upstream operators (R/D certificates) • **New Business model is required**

Conclusions

- DPP must be combined with sustainable business models and financial incentives
- DPP can potentially be **A POWERFUL TOOL** for upgrading the **repair, refurbish and reuse sector of EEE in Europe**
- The benefits of implementing DPP in the recycling industry are unclear so far
- The technological maturity in recycling (e.g. separation and recovery of CRMs) is lagging the information systems progress
- Resistance from original EEE Producers (EU/non-EU countries) and retailers poses delays to DPP effectiveness and should be addressed
- PROs' role is crucial for WEEE **sustainable collection** and pricing
- DPP initiatives must be related to the public consultation on the **evaluation of the WEEE Directive**
- **Reparability and Recyclability can be (also) competing concepts**

Thank you!

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