Droit à la réparation, science ouverte et tiers-lieux

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What is '*Right to repair*' from Engineering perspective?

Repair → European Commission 'New Circular Economy' action plan

CE from EU view:

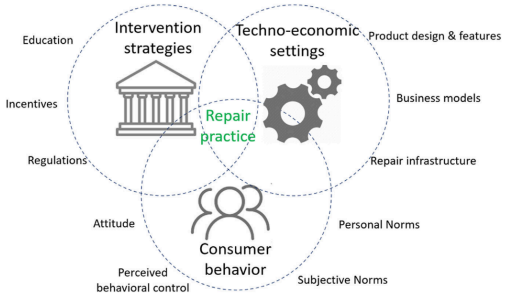
> "*The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended." (European Parliament, 2023).*

Smarter product use and manufacture	**R0**	**Refuse**	Make product redundant by abandoning its function or by offering the same function with a radically different product
	R1	**Rethink**	Make product use more intensive (e.g. through sharing products or by putting multi-functional products on market).
	R2	**Reduce**	Increase efficiency in product manufacture or use by consuming fewer natural resources
Extend lifespan of product and its parts	**R3**	**Reuse**	Re-use by another consumer of discarded product which is still in good condition and fulfils its original function
	R4	**Repair**	Repair and maintenance of defective product so it can be used with its original function
	R5	**Refurbish**	Restore an old product and bring it up to date
	R6	**Remanufacture**	Use parts of discarded product in a new product with the same function
	R7	**Repurpose**	Use discarded products or its part in a new product with a different function
Useful application of materials	**R8**	**Recycle**	Process materials to obtain the same (high grade) or lower (low grade) quality
	R9	**Recovery**	Incineration of material with energy recovery

Fig. 2. CE strategies, from Potting et al. (2017) – colours modified.

(a) Repair as CE strategies.
Source: (Morseletto, 2020)

Repair practice as a complex system



(a) Repair practice is part of a larger production and consumption system. Source: (Parajuly et al., 2023)

Techno–Economic

- **Product design** → Influence on the reparability.
- **Business models**: Ownership, and service models (ie. SAV)
- **Infrastructure:** Physical infrastructure (ie: tiers lieux?)

From "right to repair" to "willingness to repair"

Category	Barrier
Technical possibility of repair	
Convenience to repair	
Willingness to repair	

(a) Consumer Barriers to Repair. Source: (Roskladka et al., 2023)

Barriers to repair practice:

- **Technical** Inappropriate product architecture → Obsolescence"
- **Convenience**:
  - Affordable infrastructure
  - Intangible costs (i.e cost of 'searching', 'waiting', 'frustation')
- **Willingness:**
  - Repair culture built on consumers' trust.
  - Emotional attachement
  - Beliefs on 'repairability'

From "right to repair" to "willingness to repair"

Category	Barrier	
Technical possibility of repair	1.1. Access to diagnostics	
	1.2. Lack of spare parts	
	1.3. Lack of tools	
	1.4. Lack of clear and complete manuals	
	1.5. Safety	
	1.6. Product is nonmodular	
	1.7. Complex and long dis/re-assembly	
	1.8. Fragile materials and damage risks	
	1.9. Digital locks	
	1.10. Product is unopenable	
	1.11. Planned obsolescence	
	1.12. Impossibility of updates/upgrades	
	Average score of Technical possibility of repair	
Convenience to repair	2.1. Legislation and tax programs	
	2.2. Product economic obsolescence	
	2.3. Cost of diagnostics and repair	
	2.4. Consumer's time for repair	
	2.5. Unavailability of repair services	
	2.6. Insufficient quality level of repair	
	2.7. Difficulty of repairing	X
	Average score of Convenience to repair	
Willingness to repair	3.1. Lack of trust	
	3.2. Fear of further failures	
	3.3. Lack of attachment	
	3.4. Desire for new products or features	
	3.5. Lack of clarity on how repair works	
	3.6. Unawareness	
	3.7. Lack of engagement	
	Average score of Willingness to repair	

(a) Consumer Barriers to Repair. Source: (Roskladka et al., 2023)

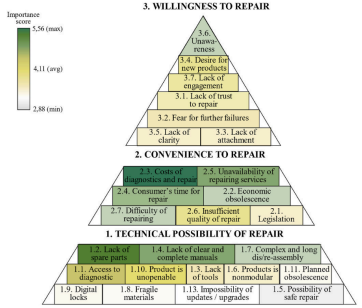


Fig. 3. Consumer barriers to repairing a washing machine, classified within three categories and ordered by importance.

(a) Case study (Italy): Washing machine: (Roskladka et al., 2023)

Repair and the '*Tiers-lieux* et *Espace du faire*'?

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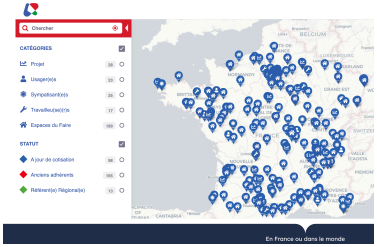
Perspective of:

- Grassroot Innovations (Enarsson et al., 2024)
- Urban commons (Zapata Campos et al., 2020)

Communities of Practice that *reinvent*, *appropriate*, and *foster* urban sustainability transitions.



(a) Espaces du faire: Source RRFLabs

(a) Repair Cafes

Repair and the '*Tiers-lieux* et *Espace du faire*'?

Communities of Practice that *reinvent*, *appropriate*, and *foster* urban sustainability transitions.

- ☑ Engaging people sustainable consumption
- ☑ Foster 'culture of repair' (Creative and improvisation)
- ☑ Re-acquire use and repair skills (open the black box)

- ☒ (Re)production of gender roles that are socially understood as traditional ?

Using citizen science research and Philosophy of Care, (Meißner, 2021)[1] to study of collaborative repair practices among the participants in repair cafes.

[1] Meissner, M., 2021. Repair is care? - Dimensions of care within collaborative practices in repair cafes. Journal of Cleaner Production 299, 126913. https://doi.org/10.1016/j.jclepro.2021.126913

Repair and the Global South?

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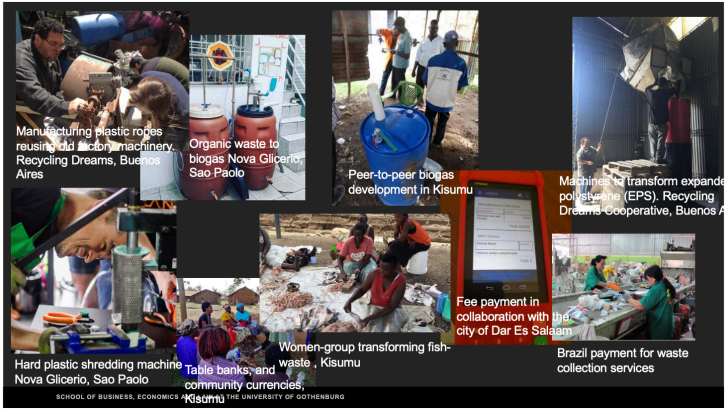

Source. Maria José Zapata.

Open Questions

- Repair from *grassroot* to *mainstream*?
- Design for R-Framework? $\rightarrow$ skills and competences
- Appropriate certification and auditing of repair services ?
- Repair as care for *Object*, *each other*, *Community*, *environment*?

Merci beaucoup !

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