



# Hackathon: the circular diaper

Team 3 - Grappies



*Grappies*

# Diapers and incontinence products

A circular business model

# Recollect

## Reverse Vending Machine

### Dispose

Customers **dispose** their sanitary products in **hygienic** and **smell-proof bags** which are **recycled** themselves and **recognized** by the RVM



### Deposit and auto-sorting

In exchange, customers will be provided with a **discount** on future **purchases** or in **monetary** form



Supermarkets

Kindergartens

Pharmacies & hospitals



Truck unloaded with new sanitary products....

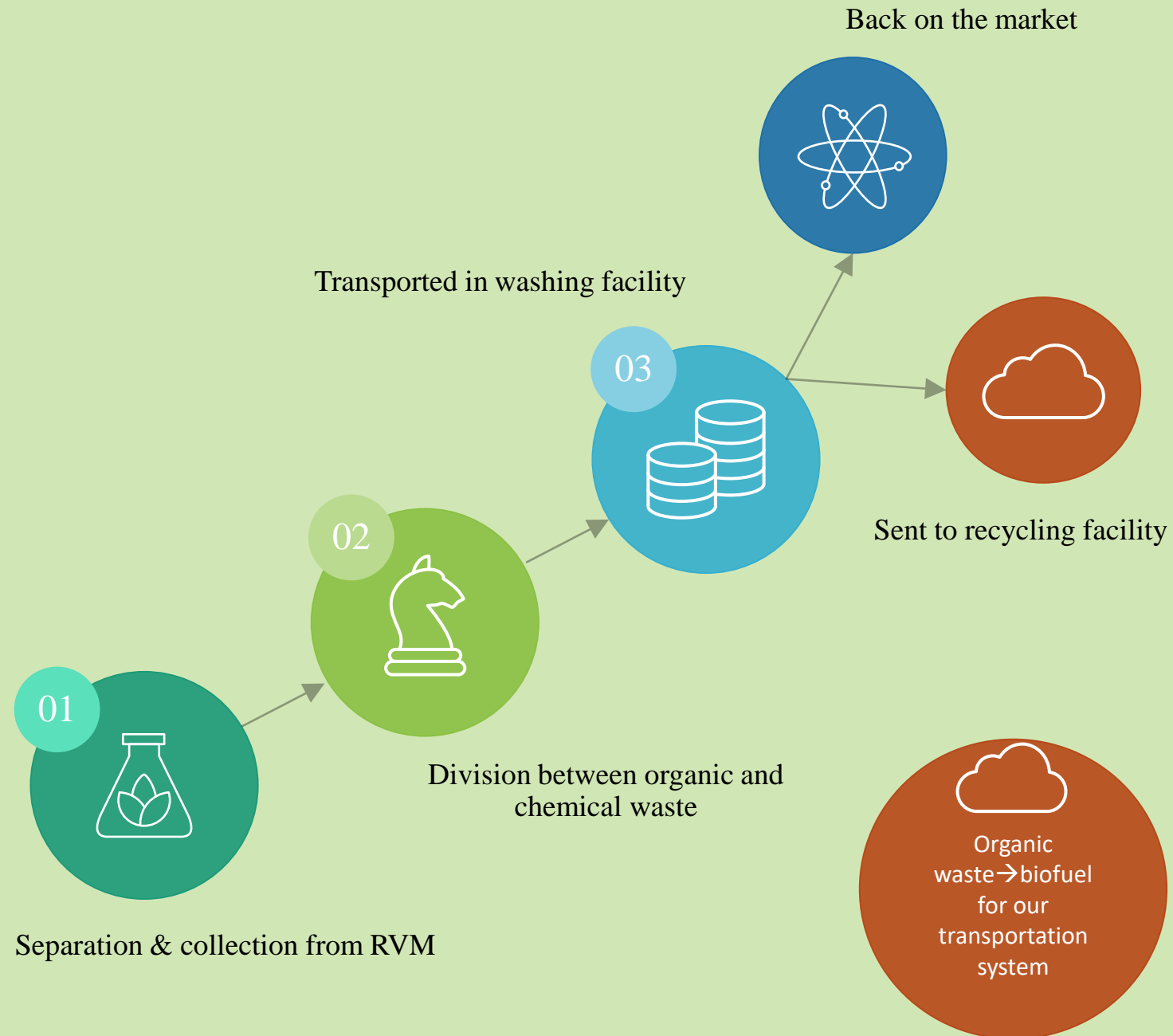


....are then daily reloaded with used ones

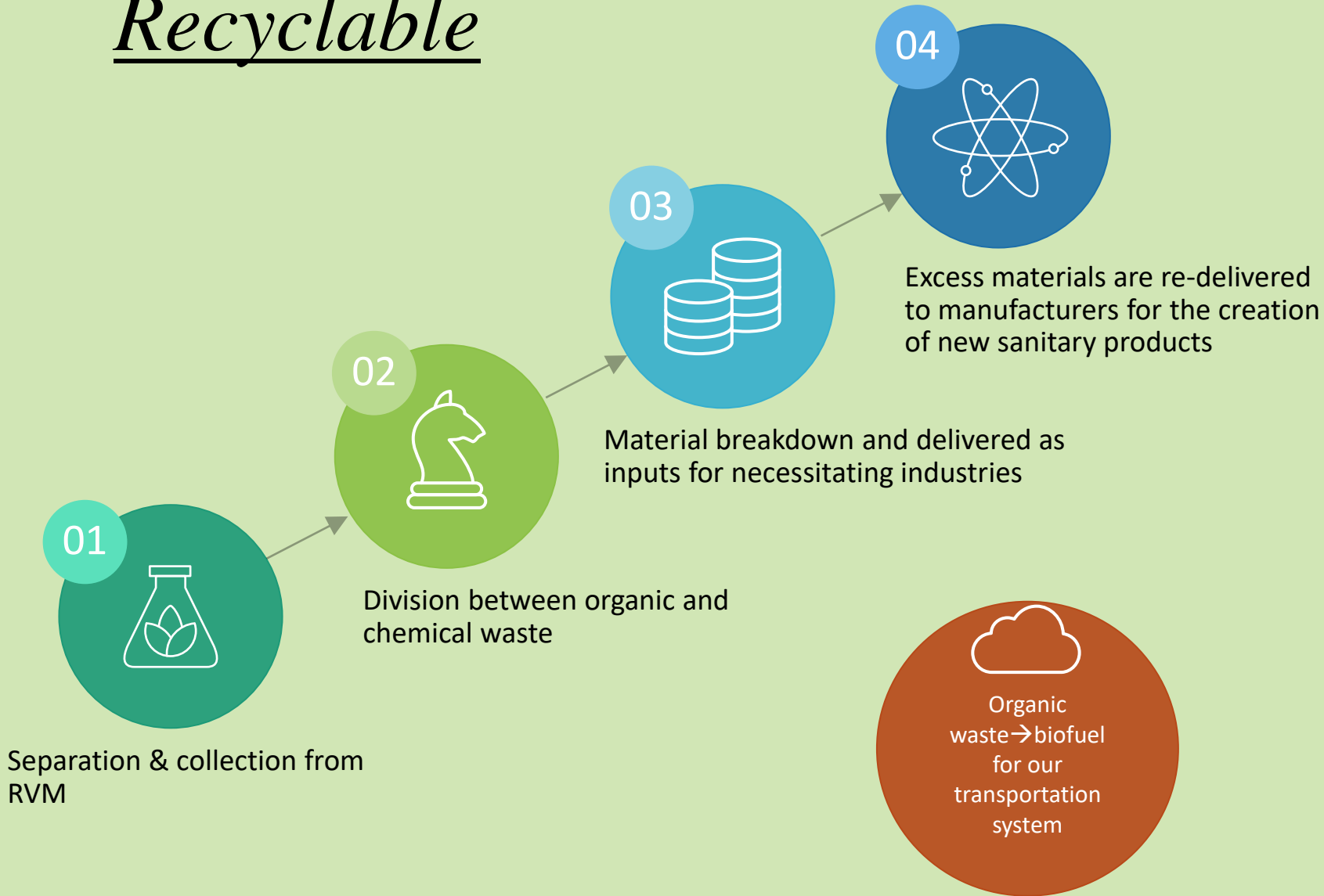


# Reusable

Price premium consumers are willing to spend per diaper	0.20
RVM's yearly capital cost (per RVM)	0.0164
RVM's yearly operational costs (per RVM)	0.0148
Paper yearly roll costs (per RVM)	0.0016
Replacement of compactors (per RVM) (per year)	0.0024
Yearly labour cost of truck's driver (2 hours per day)	0.0125
Operating costs (0.6€ per km)	0.0150
Costs of counting and dividing organic human waste from cloth diapers	0.0600
Reconditioning	0.0600
<b>Marginal profit</b>	<b><u>0.0173</u></b>



# Recyclable



Price premium consumers are willing to spend per diaper	0.22
RVM's yearly capital cost	0.0164
RVM's yearly operational costs	0.0148
Paper yearly roll costs	0.0016
Replacement of compactors	0.0024
Yearly labour cost of truck's driver (2 hours per day)	0.0125
Operating costs	0.0150
Restructuring plant & washing costs	0.15
<b>Profit</b>	<b><u>0.0073</u></b>

# Some sources:

- <https://www.simplergy.com/pfand-germany/>
- <https://liveworkgermany.com/how-does-the-german-pfand-system-work/>
- <https://www.german-way.com/dont-throw-away-your-cash-how-the-pfand-system-works/>
- <https://www.blackforestfamily.com/understanding-pfand-in-germany-all-you-need-to-know/>
- <https://allaboutberlin.com/guides/pfand-bottles>
- <https://www.diva-portal.org/smash/get/diva2:1548241/FULLTEXT01.pdf>
- <https://www.ovam.be/sites/default/files/atoms/files/Report%20TWOL%20study%20final-%20EN-%20OVAM.pdf>
- <https://www.youtube.com/watch?v=u3vQzD2IzXU>
- [https://www.lifecycleinitiative.org/wp-content/uploads/2021/03/UNEP-D003-Nappies-Report\\_lowres.pdf](https://www.lifecycleinitiative.org/wp-content/uploads/2021/03/UNEP-D003-Nappies-Report_lowres.pdf)
- [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/291130/scho0808boir-e-e.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/291130/scho0808boir-e-e.pdf)
- <https://www.apeal.org/wp-content/uploads/2015/04/08-02-Roland-Berger.pdf>
- [https://www.researchgate.net/publication/236622072\\_Evaluation\\_of\\_economic\\_aspects\\_of\\_the\\_deposit-refund\\_system\\_for\\_packaging\\_in\\_Latvia](https://www.researchgate.net/publication/236622072_Evaluation_of_economic_aspects_of_the_deposit-refund_system_for_packaging_in_Latvia)
- <https://www.bloomberg.com/news/articles/2016-02-11/the-adult-diaper-market-is-about-to-take-off>
- <https://www.tomra.com/en/sorting/recycling/tomra-solutions>
- <https://www-portal-euromonitor-com.revproxy.escpeurope.eu/portal/analysis/related>
- <https://www.retorna.org/mm/file/Implementing%20a%20Deposit%20Refund%20System%20in%20Spain%20Technical%20Appendix.pdf>

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