

ZERO WASTE EUROPE LIVE!

5 FEBRUARY 2019

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**HOW TO EXTEND THE ELECTRONIC DEVICES LIFESPAN AND REDUCE E WASTE
AT THE CITY LEVEL LEARNING FROM THE BARCELONA EXPERIENCE**



Collaboration for the reuse and traceability of electronics

Introduction to City ereuse.org platforms

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ereuse.org

Agenda

- reuse.org and ZWE Case Study
- The problems of linear electronics
- The barriers and challenges for the reuse of electronics
- Electronics reuse platforms
- Conclusions



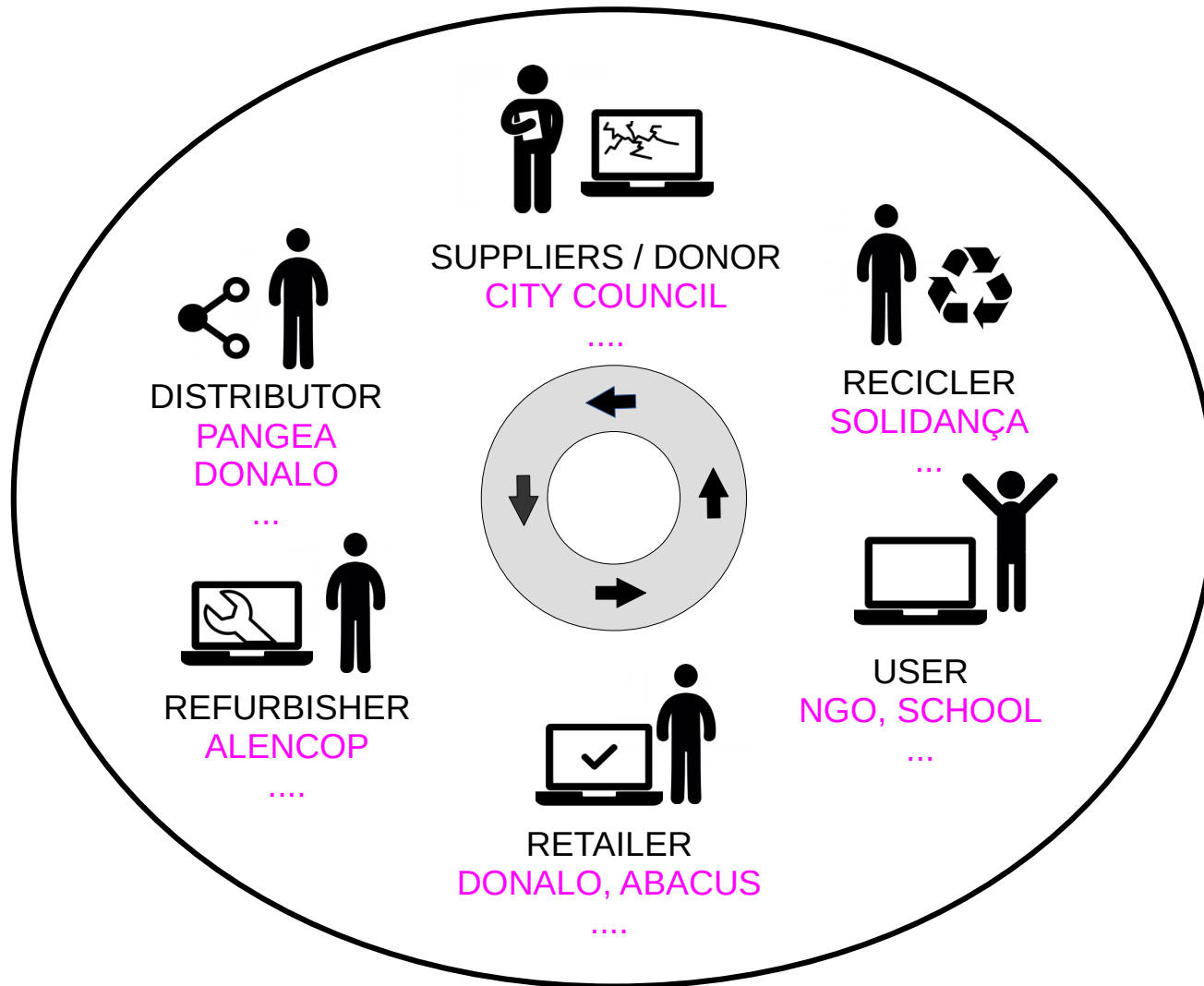
ELECTRONIC REUSE

Open Source Technology for reusing
Digital Devices ensuring final recycling

Ereuse.org's mission is to promote society to avoid the premature recycling of electronics via the practice of reuse. Our members are local groups, business and organizations with the goal to extend the lifetime of products through their repair, refurbishing, and reuse. Our members develop and share open-source resources to increase automatization in refurbishment, transparency and traceability to ensure any refurbished asset is ultimately recycled.

We are a project under Pangea.org, a private, independent non-profit organization founded in 1993 to promote the strategic and environmental use of ICT.

City Reuse Platforms for Electronic Waste Prevention



The problems of linear electronics



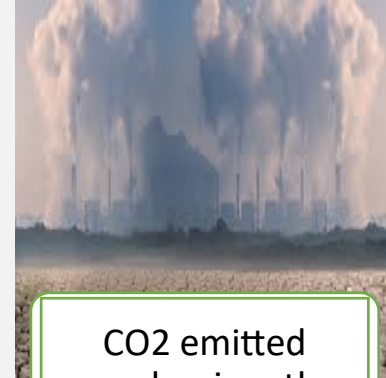
50 billion devices projected by 2020. (1,2)



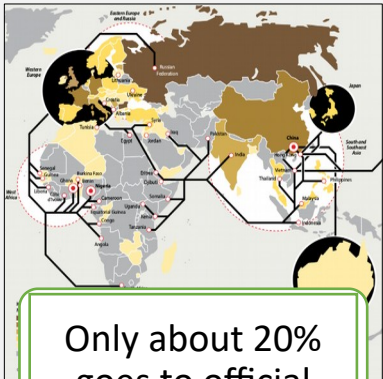
60% world's cobalt is from DRC (3), wars, child labour,



Link between employment conditions and suicide (EW) (4)



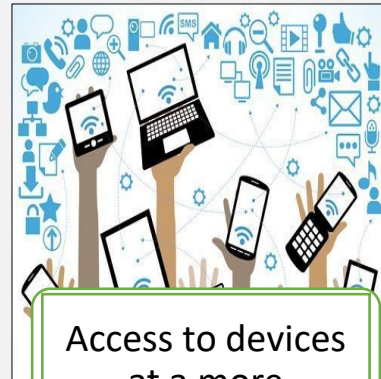
CO2 emitted predominantly on production (5)



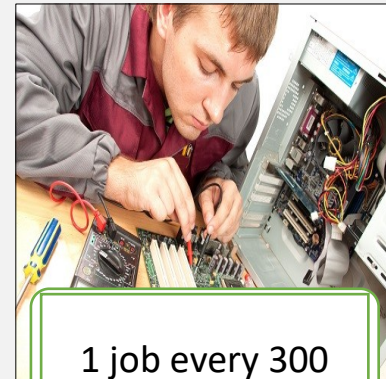
Only about 20% goes to official collection (6)



Exposure to heavy metals of informal-level e-waste (7, 8, 9)

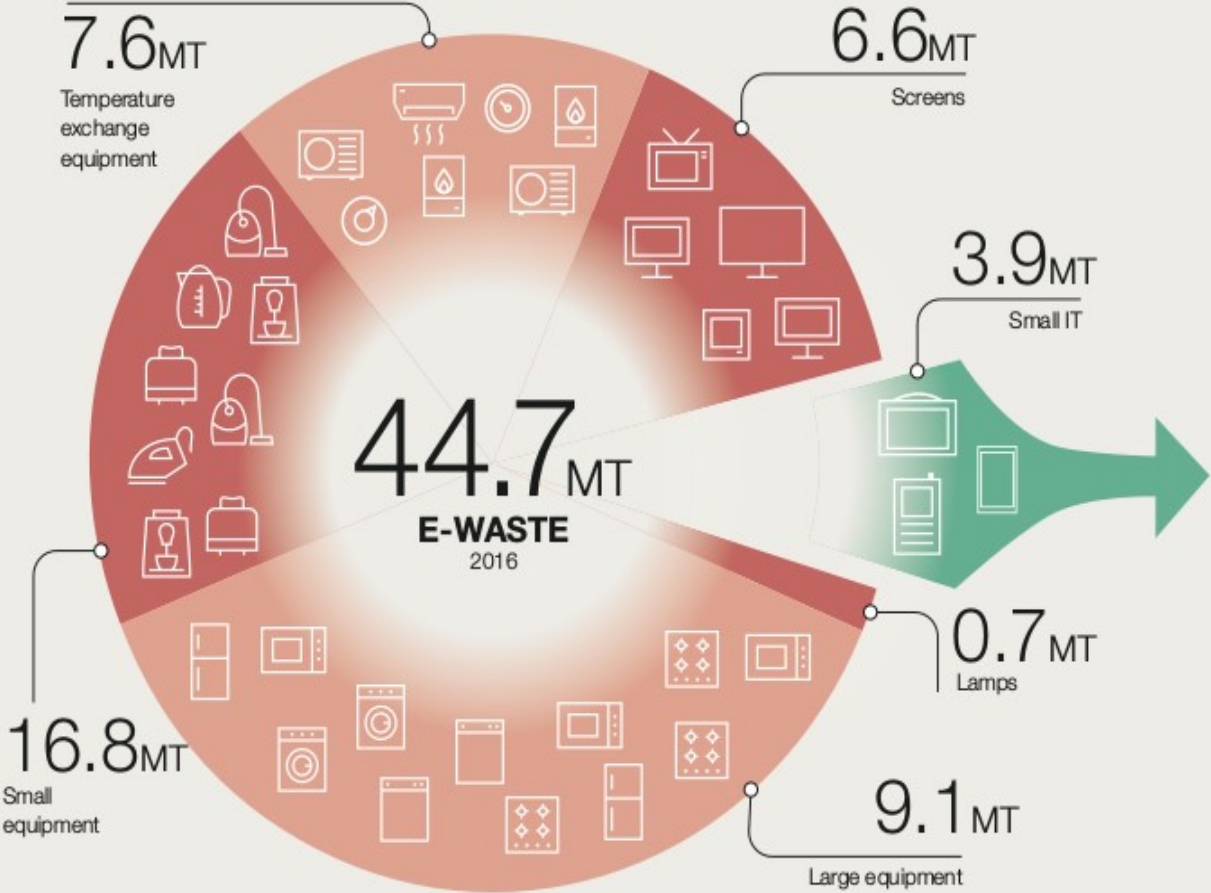


Access to devices at a more affordable price

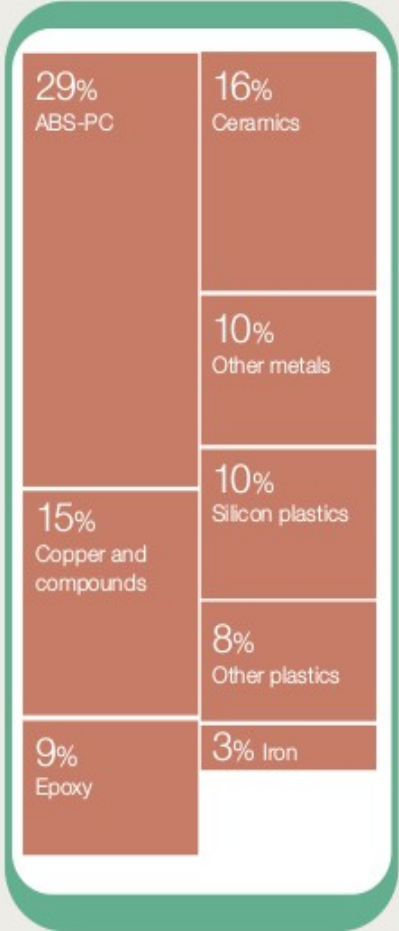


1 job every 300 items reused

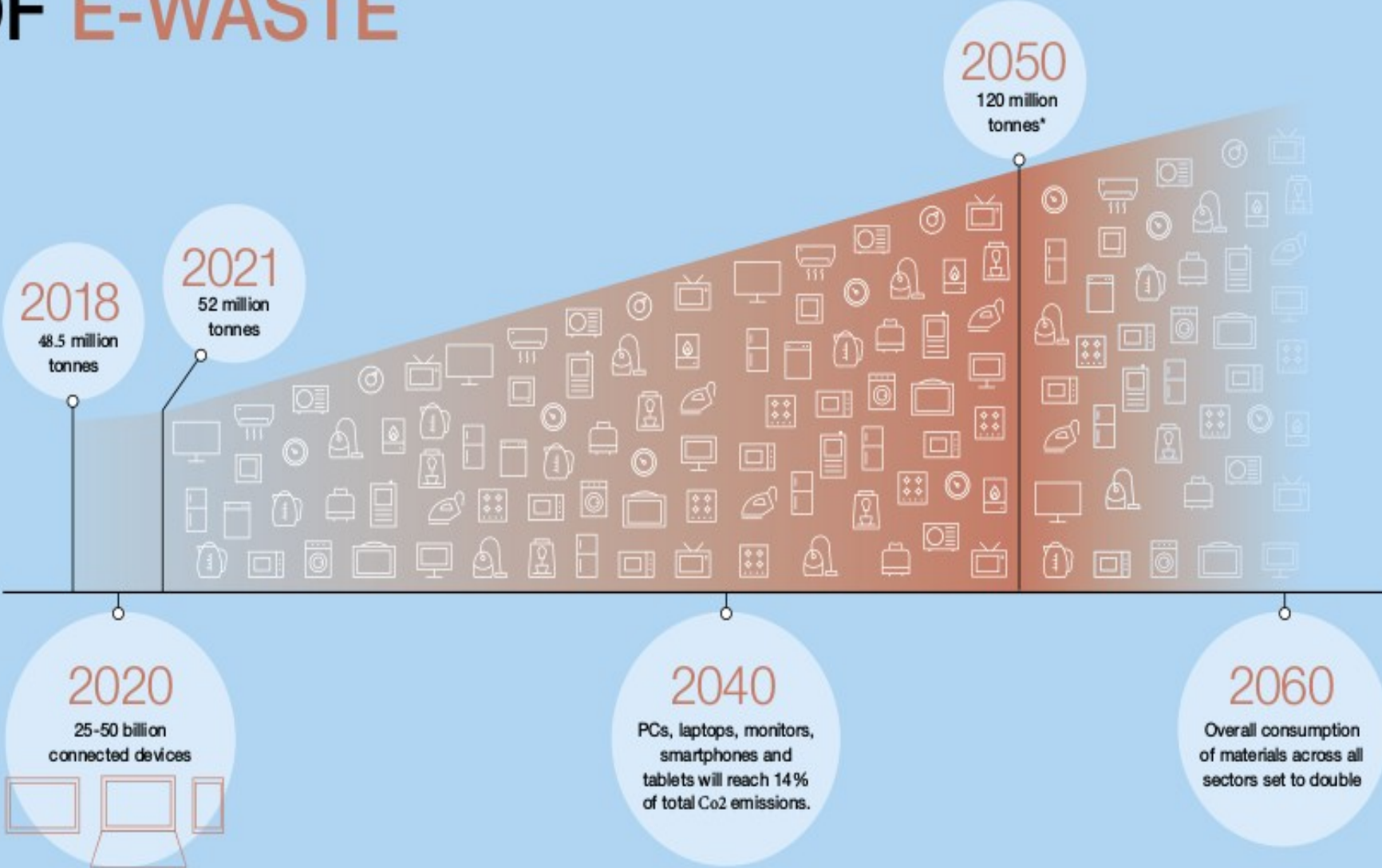
WHAT IS E-WASTE?



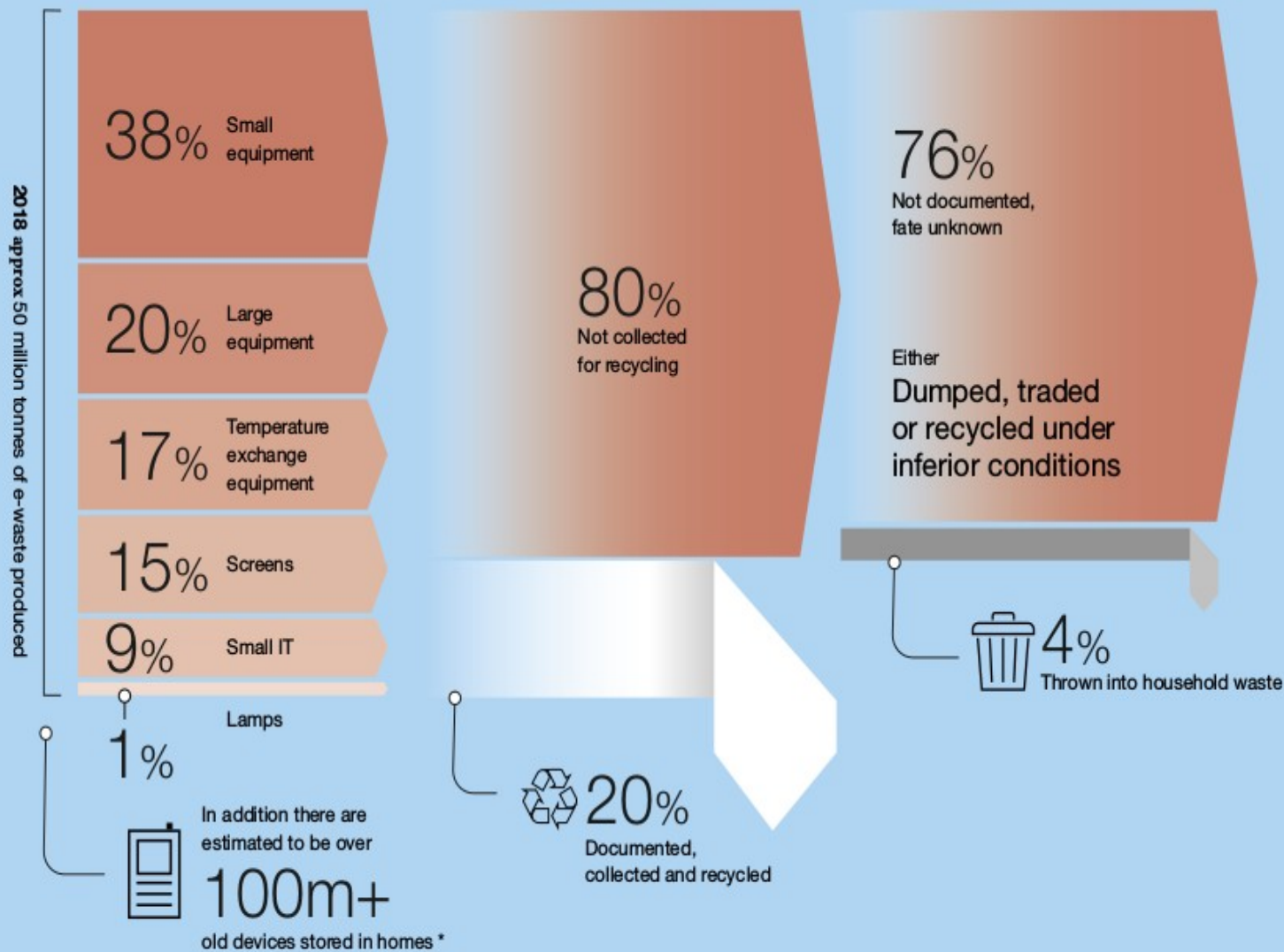
What's in a typical mobile phone?



THE FUTURE OF E-WASTE



GLOBAL E-WASTE FLOWS



Scenario 1

Recycle with no reuse

CIRCULAR ECONOMY

Present Potentials and Limitations of a Circular Economy with Respect to Primary Raw Material Demand

Johann Fellner,¹ Jakob Lederer,¹ Christoph Scharff,² and David Laner¹

¹Christian Doppler Laboratory for Anthropogenic Resources, Institute for Water Quality, Resource and Waste Management, TU Wien, Vienna, Austria

²Circular Economy Coalition for Europe, Vienna, Austria

The limited availability of many natural resources has become a growing concern within the last few decades. Continuous growth in global resource consumption during the last century, which has resulted in an enormous increase of material turnover as well as increases in commodity prices during the last decades, is the main driver of this concern. In addition to existing efforts to intensify exploration for new deposits, proposals for higher efficiency in resource use, substitution of critical raw materials, and the recycling of materials have been put forward to overcome the potential danger of more pronounced material shortages.

Based on the "Raw Materials Initiative"

waste contains quantitative targets for the reduction and recycling of wastes. By the year 2030, for instance, 65% of the municipal waste and moreover 75% of packaging waste

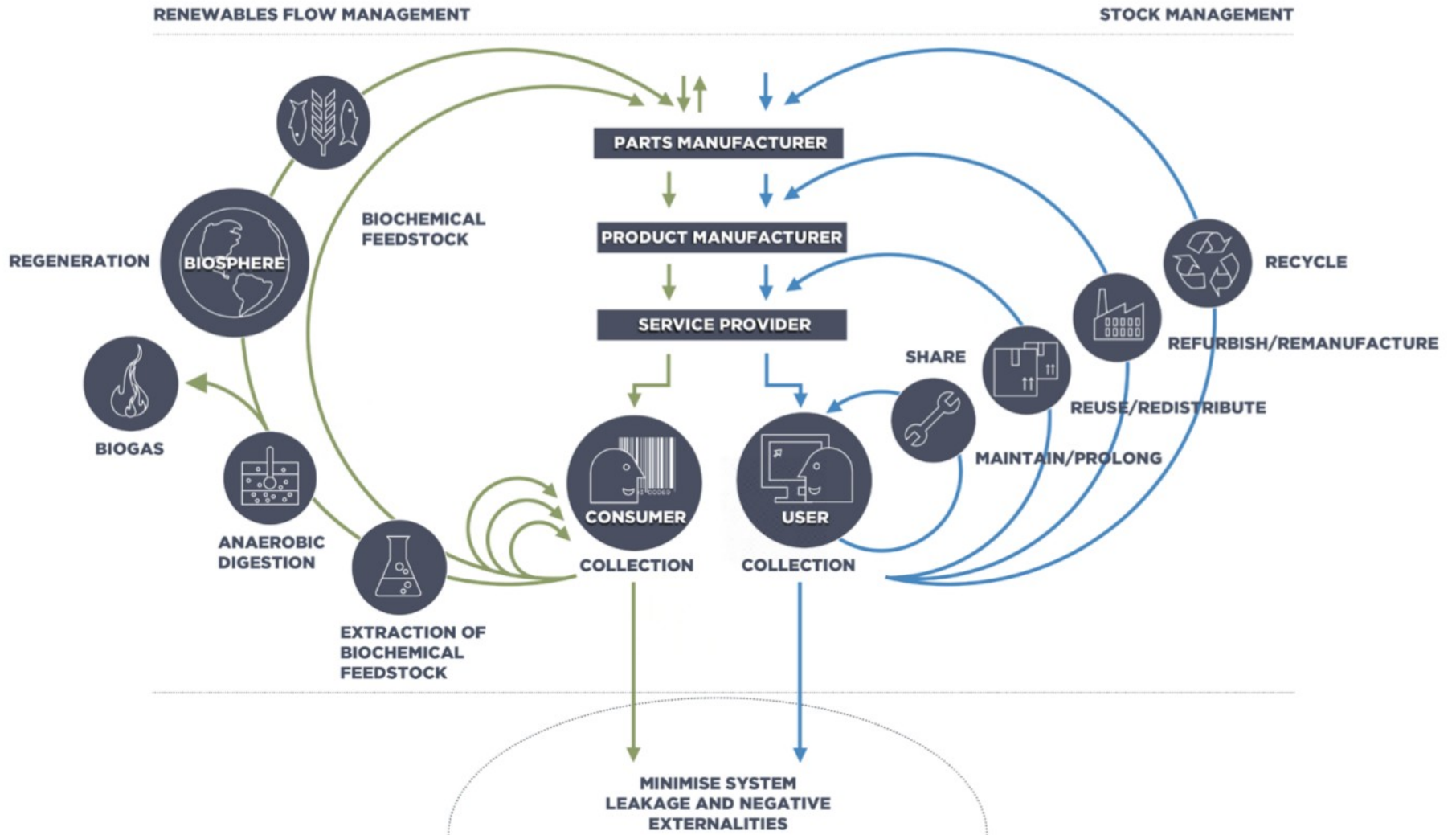
... the results demonstrate that a theoretical implementation of a circular economy (all waste is turned into secondary raw materials) may reduce the demand for primary raw materials and therewith associated environmental impacts (e.g., GHG emissions). However, because

generated should be recycled or prepared for reuse, whereas landfilling of all wastes should be reduced to 10% in each member state. Separately collected wastes are completely banned from landfilling. All these measures are believed to significantly contribute to the development of a sustainable and resource-efficient economy. The expected benefits of a circular economy include reduced demand for primary raw materials and thus lower expenses for material resources, reduced environmental im-

Even with a recycle 100% of what we produce, our CO2 footprint is reduced by 1.6%.

Clearly we will not reach the 40% reduction target by 2030.

Circular economy, systems diagram



Scenario 2

Reuse ensuring Recycle

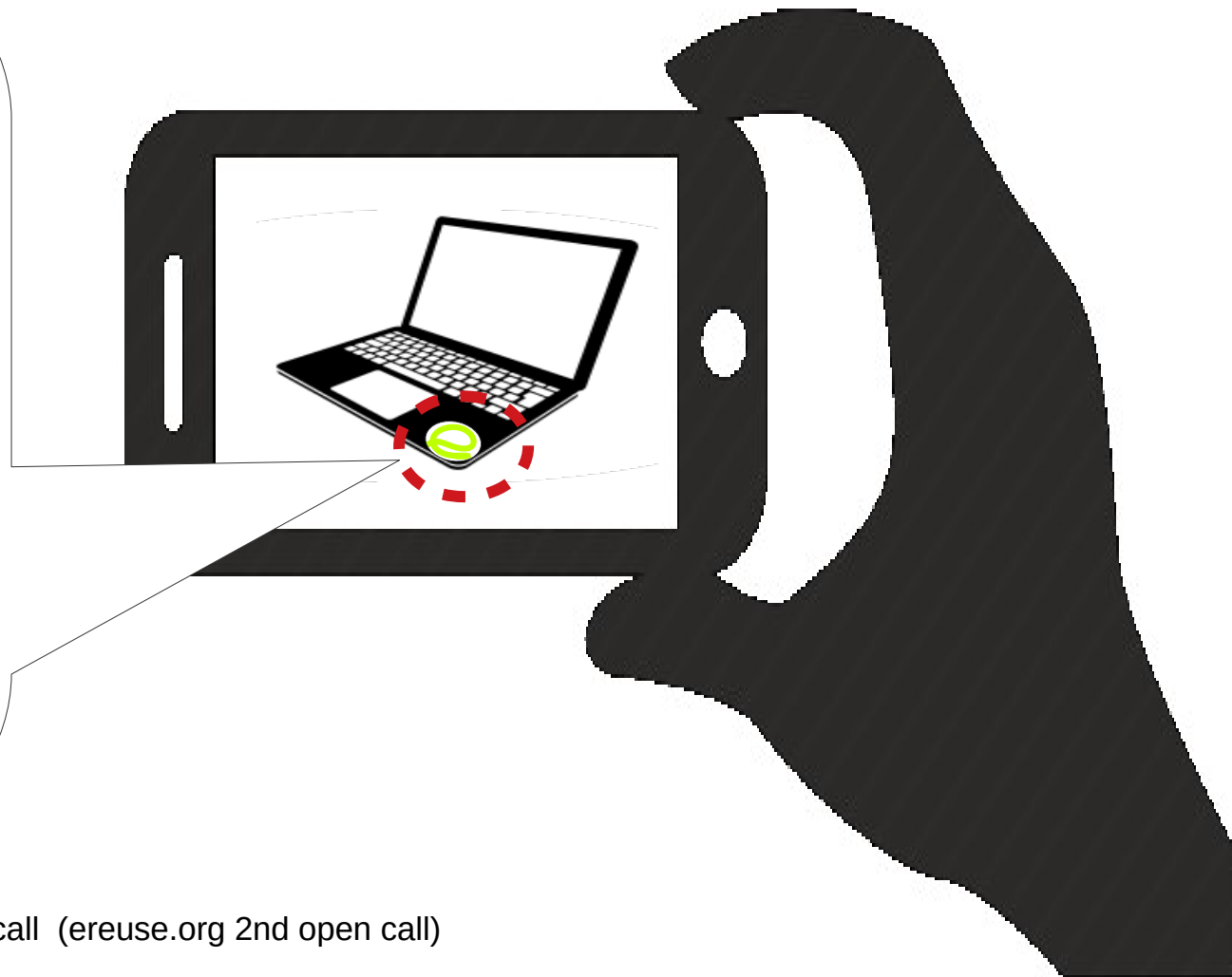


Challenges

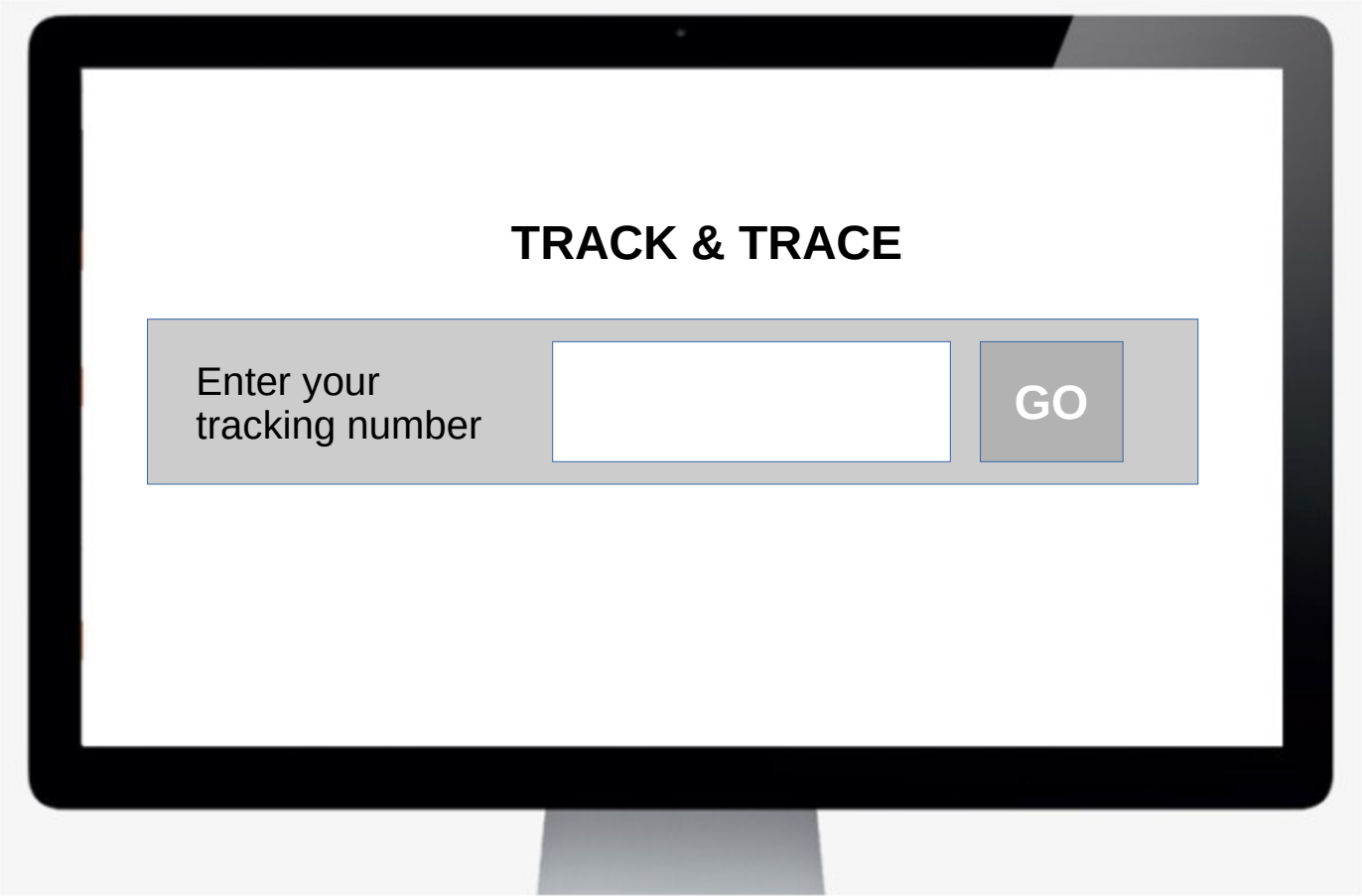
- 1. Second-hand quality:** Transparency on value of use, condition, product specifications, helping on reselling, certify refurbishment...
- 2. Traceability:** Certify stakeholders involved and devices end up being recycled.
- 3. Optimize:** Improve automated processes in refurbishment,...
- 4. Circular Auditability:** Ensure at the time of recycling devices have low use value, so there is no premature recycling

Do you know their story? Let's them speak... Pricing, Value of use, product specifications,

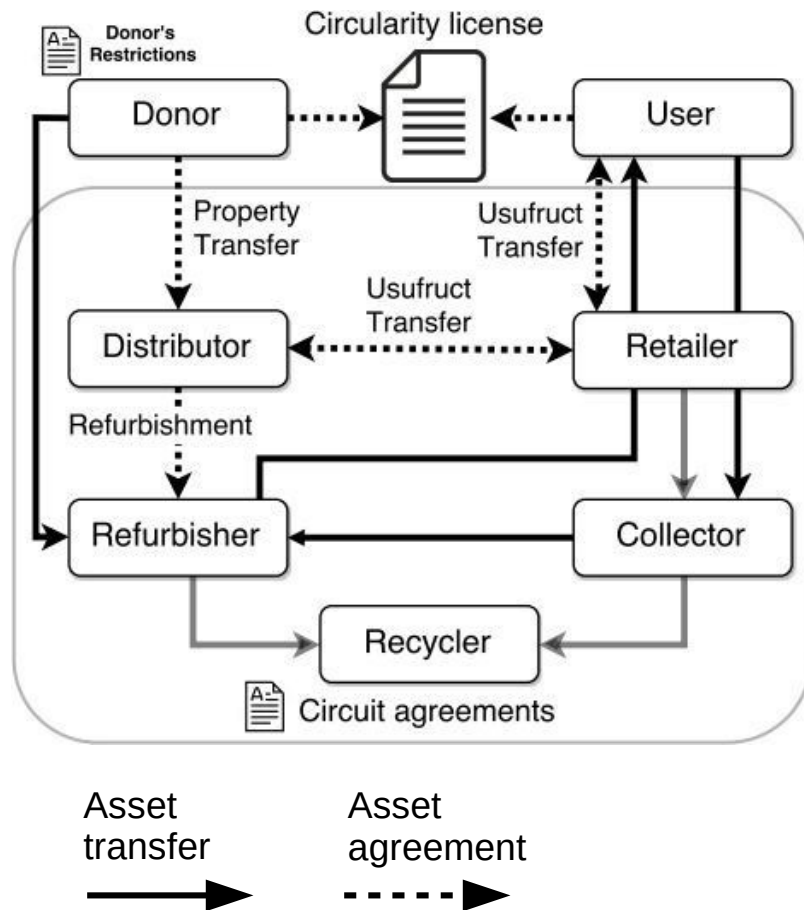
- tests 1/2/3 passed successfully,
- between 1 to 5 I have a 4 of use value,
- my retail price is 120€,...
- my previous owner was the city council of Barcelona



Share chain of custody: agents participating on the reuse loop can see and be seen the reverse supply chain



The operation of a reuse platform



Role	Function
Supplier / Donor	Provision reusable products to a platform
Distributor	Distribute products to reuse centers and retailers most committed to zero waste, report impact to suppliers
Refurbisher	Upgrade, repair and offer warranties (Increase use value)
Retailer	Finding demand, waste prevention and localization until recycling
Collector	Map value and derive to refurbisher if possible
Recycler	Locate and attempt recovery if possible

Why collaborate on a platform?

1. Scale in diversity and quantity of products
2. Process products and waste
3. Better balance supply and demand
4. Single-entry point for suppliers (impact, waste,..)
5. Principle of non-exclusivity
6. Share costs
7. Specialization of refurbishers and retailers
8. Share technology and methodology
9. Common-pool resource approach

Forecast figures of the Barcelona reuse platform

8.900

Registered devices



453.600€ / year

5.670

Devices in Usage

22.680

Units of computational value



16 M. hours / year

3.230

Devices Recycled



**- e-waste
+ recycling**

15

Local Businesses

To date there are more than 20 eReuse.org autonomous platforms

Conclusions and remarks

1. Circular Economy keeps products as products (use value) for as long as possible (much longer)
2. Communities: measured by units of value it throws away (premature recycling)
3. A reuse platform is: collaboration + traceability + certified refurbishment + smart tags + license
4. The distributor (A Zero Waste Org.) enables scalability and excellence in circularity
5. ereuse.org is not a startup, free membership, open-source resources
6. ereuse.org platforms, instantiated locally by independent organizations and business (complement each other)
7. If you want to create a platform in your city we will be happy to help

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