The Circular Economy Internet

One of the potentially most impactful activities towards the Circular Economy

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What is our ambition?

We believe that digitisation will accelerate the journey towards the circular economy, and will be fundamental in the realisation of the circular economy

We know that a shared digital infrastructure will exponentially accelerate the digitisation, as such infrastructure offers far more value when shared than when used in isolation.

- The Internet
- Apples App Store
- The telephone network

We will realise the shared digital infrastructure to become the backbone of the circular economy

- **We think** it should be politically, commercially, and competitively neutral
- **We believe** seamless business ecosystem interoperability is critical in a **value chain exercise** like the Circular Economy

An open software platform governed as a global public good

A digital tool box to support circular economy business models

Let a thousand flowers bloom - Allows innovators around the globe to realise applications on top, that are immediately available globally, extending the commercial potential and the speed of global realisation of the best Circular Economy solutions

Allows small and medium-sized enterprises and emerging markets to efficiently participate in the circular economy.

A global public good - No one person, company, organisation, or government controls the Circular Economy Internet

Interoperability by design
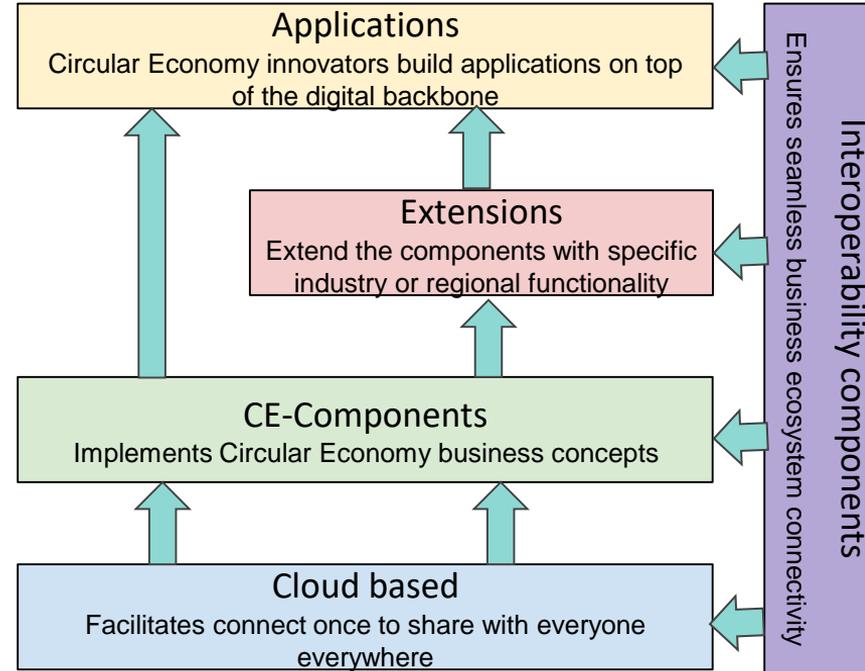
Circular Economy Internet

The Circular Economy Internet is cloud based that ensures connect once to share with everyone everywhere.

CE-components facilitate generic circular economy concepts.

Industries, regions, and others create extensions to the components with specific industry or regional functionality.

The digital circular economy innovators develop individual applications on top of the common components and extensions, thereby making digital circular economy applications immediately available globally and interoperable by design.

Interoperability components ensures seamless business ecosystem connectivity

Applications
Circular Economy innovators build applications on top of the digital backbone

Extensions
Extend the components with specific industry or regional functionality

CE-Components
Implements Circular Economy business concepts

Cloud based
Facilitates connect once to share with everyone everywhere

Interoperability components
Ensures seamless business ecosystem connectivity

Applications - Circular Economy innovators build applications on top of the digital backbone

Mobile app.for predicting and resolving obligations for fashion sold in NYC	Interface for trading obligations, proofs and rewards for foresting in Sweden	IoT capturing logistic industry's proofs during a container transport	...	Product life cycle analysis that have immediate access to authorized data

Extensions - Extend the components with specific industry or regional functionality

Predicting and resolving obligations and proofs within the fashion industry	EU specific upcycling extensions	Maritime sectors Material Ship Passport	...	The logistic industry's requirements for proofs

Components - Facilitate Interoperability and implement Circular Economy business concepts

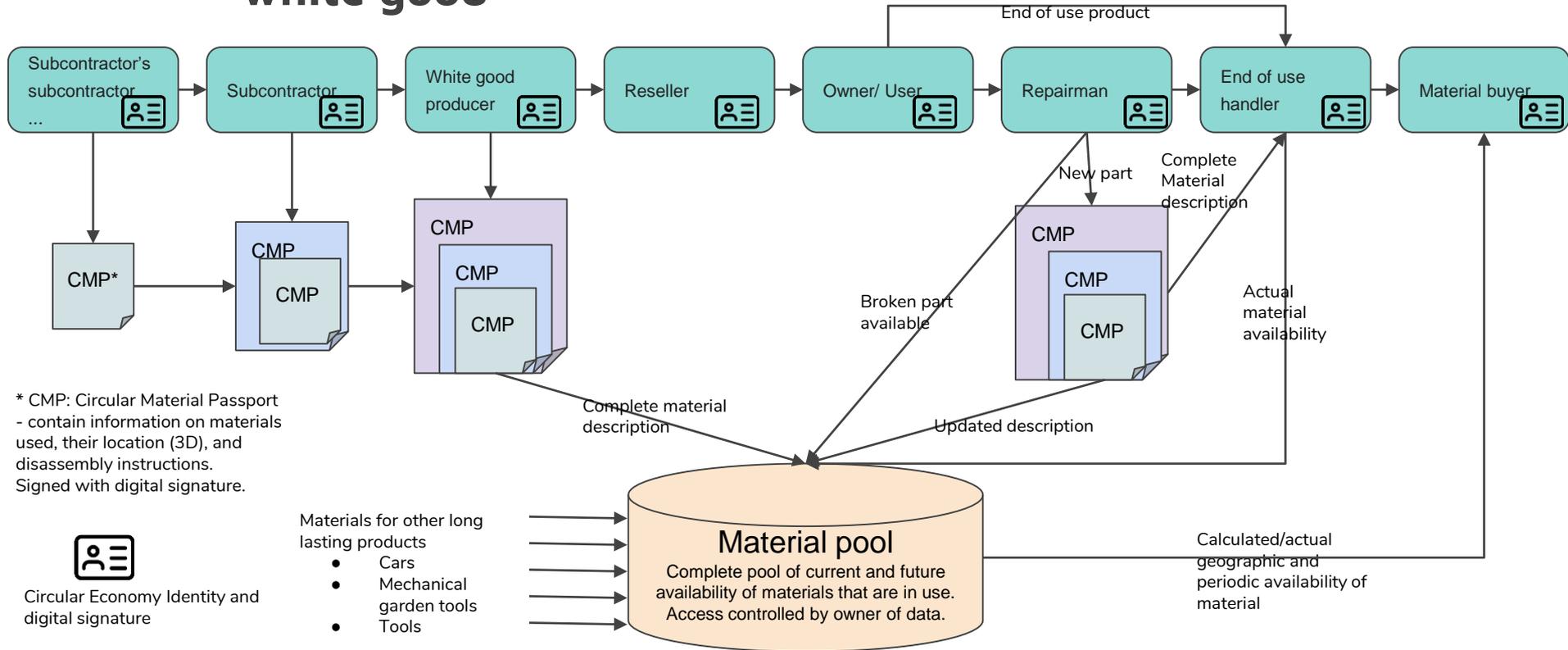|				
Proof provider - Proofing resources utilized or waste generated has been recycled, refactored, etc,,	Part tracking - Common engine for tracking parts in a product	Upcycling - How technical parts retain their high quality in closed-loop industrial cycle	Exterior packaging - Aggregated DB with information on how packaging can be reused	Product of Service - Engine supporting buying product functionality as a service
Living system effect - Aggregated DB of chemical substances' and technical mix's effect on living systems	Predicting and resolving obligations and proofs	Hazardous packing lot - Aggregated DB of location of hazardous material waiting until they can be detoxified	Repair facilitator - Engine that enables matching need for repair and repair shops	Material substitution - Aggregated DB of materials substitution
Material pool - Overview of current and future availability of materials that are currently in use	Urban Mining	Value Chain Flow- Enables distribution of cost/rewards for environmental impacts throughout the value chain	...	Circular Material Passport - Description of material used - under control of data owner

Cloud based - Facilitates connect once then share with everyone everywhere
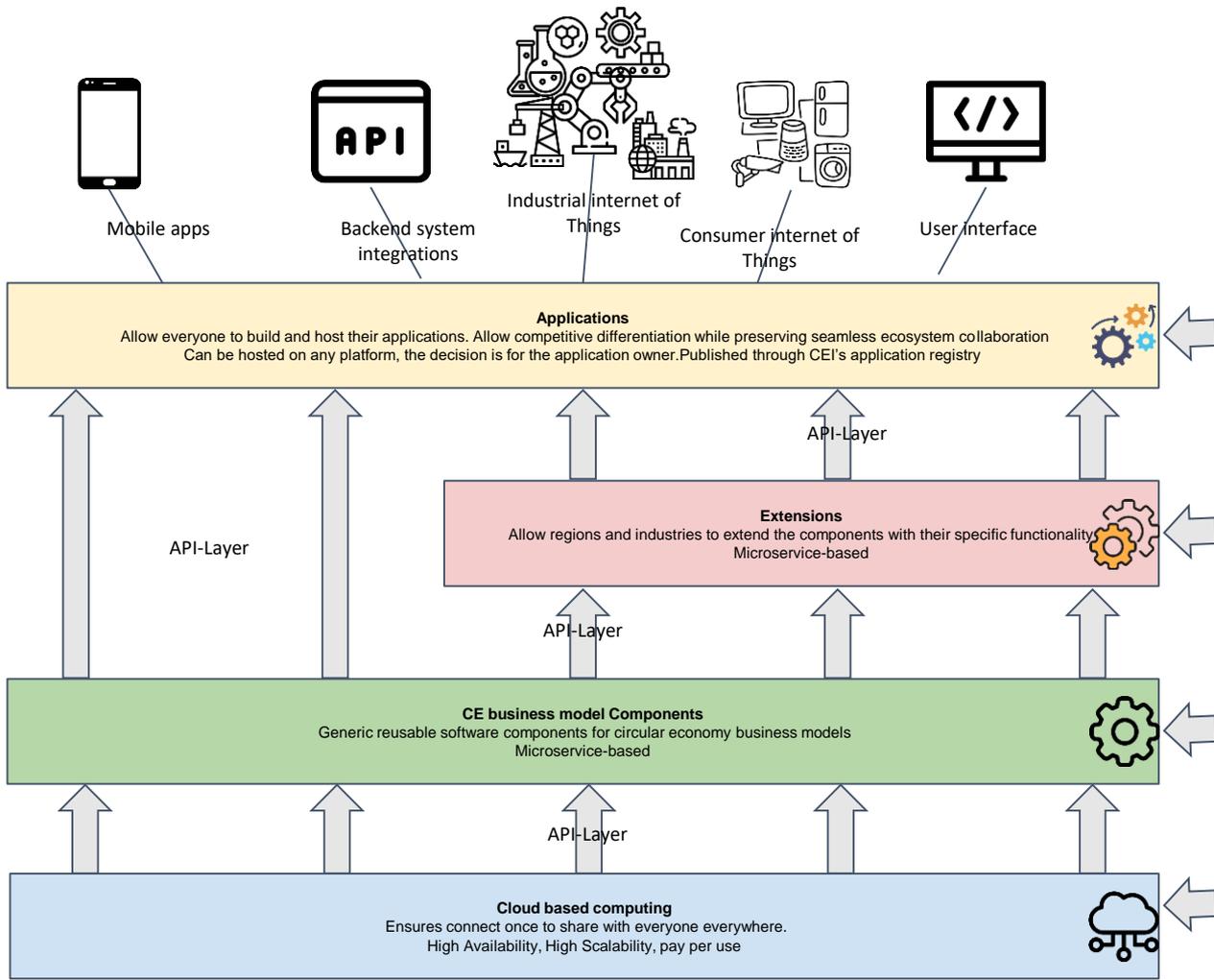
Circular Material Passport and Material Pool flow for white good

* CMP: Circular Material Passport - contain information on materials used, their location (3D), and disassembly instructions. Signed with digital signature.

Circular Economy Identity and digital signature

Subcontractor's subcontractor ... — **Subcontractor** — **White good producer** — **Reseller** — **Owner/ User** — **Repairman** — **End of use handler** — **Material buyer**

End of use product

CMP*

CMP

CMP

CMP

CMP

CMP

CMP

CMP

CMP

New part

Broken part available

Complete Material description

Actual material availability

Complete material description

Updated description

Materials for other long lasting products
- Cars
- Mechanical garden tools
- Tools

Material pool
Complete pool of current and future availability of materials that are in use. Access controlled by owner of data.

Calculated/actual geographic and periodic availability of material

Thank you

Interoperability components to ensure seamless business ecosystem collaboration

Mobile apps

Backend system integrations

Industrial internet of Things

Consumer internet of Things

User interface

Applications
Allow everyone to build and host their applications. Allow competitive differentiation while preserving seamless ecosystem collaboration
Can be hosted on any platform, the decision is for the application owner. Published through CEI's application registry

API-Layer

API-Layer

Extensions
Allow regions and industries to extend the components with their specific functionality
Microservice-based

API-Layer

CE business model Components
Generic reusable software components for circular economy business models
Microservice-based

API-Layer

Cloud based computing
Ensures connect once to share with everyone everywhere.
High Availability, High Scalability, pay per use

Event engine to publish and subscribe business event - Ensures common situational awareness

Circular Economy Identity and digital signature for citizen, authorities and business - Ensures Authentication Authorisation Confidentiality Non-repudiation Tamper resistant

Financial flow - Ensures seamless cross border flow of capital as well as trading of obligations, proofs, rewards, etc,

Registry - Allows suppliers to register their application, and others to discover solutions to their needs

Platform decision depends on the chosen business model

Centralised Platform - Winner takes it all - Centralised platforms are a growing feature of digital competition, and the typical operating model of most of the largest Internet companies.

Decentralised Platform/Blockchain - Shared ownership/governance - Trust enforced by digital protocol, the programmable economy, and a shared ledger.

Distributed Platform - No central control - Several independent providers use standards to connect behind the scene to give the impression of one platform. Like the Internet where many ISPs together offer a *connect once to share with everyone* experience