Digitalization in circular economy

Marko Petelin

Who Speaker

Marko Petelin

Ceo @ Infordata Sistemi

- Technical Project Partner of Retracking Project for Project Digitalization and Processes tracking
- Team coordinator for analysis, development and integration of IT in our Fiber Glass Circular Economy Pilot Project.

Who Project Partner

- Infordata was founded in 1980
- 20+ employees
- operates in 49 countries worldwide
- Auto ID /tracking
- Tracking with RFID
- Security
- consulting, design and development of software for hardware and software systems related to our area of work

What is digitalisation?

Industry 4.0

Machine Learning AI

Iot

Cloud

Drones

Internet

Robots

Shared KnowLedge

Automation

What is digitalisation?

DEFINITION

digitization is composed by the projects and processes required to increasingly manage information in digital form, whether that information was born digital (e.g. email, Word doc, Excel spreadsheet, eForms) or was converted from hardcopy (e.g. scanned documents).

FACTS

- 1st milestone in **early 80s**: computers and in general digital automation gets popular
- 85% of Business Leaders believe that information is regarded as a strategic asset in their organization, **and 90% agree that information access and integrity is critical for strategic decisions**, less than 25% of line of business executives have any idea of what projects are being or should be undertaken in their organization to improve their ability to manage information. (Forbes 2010)
- This is despite those same organizations believing that **information and data related problems cost** an average of $5M annually with more than 20% of organizations reporting costs in excess of $20M annually. (Forbes 2010)
- The world wide **investments in digitalization** will be 1700 B of $ by 2019, that is **43% more then in 2017.** (source IDC Jan 2018)

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Benefits of digitalisation

1. **Increased Productivity** - It takes an employee an average of 12 minutes to find the paper document he is looking for. With a well-executed digitalization and document imaging plan, this can be reduced to a few seconds or less.

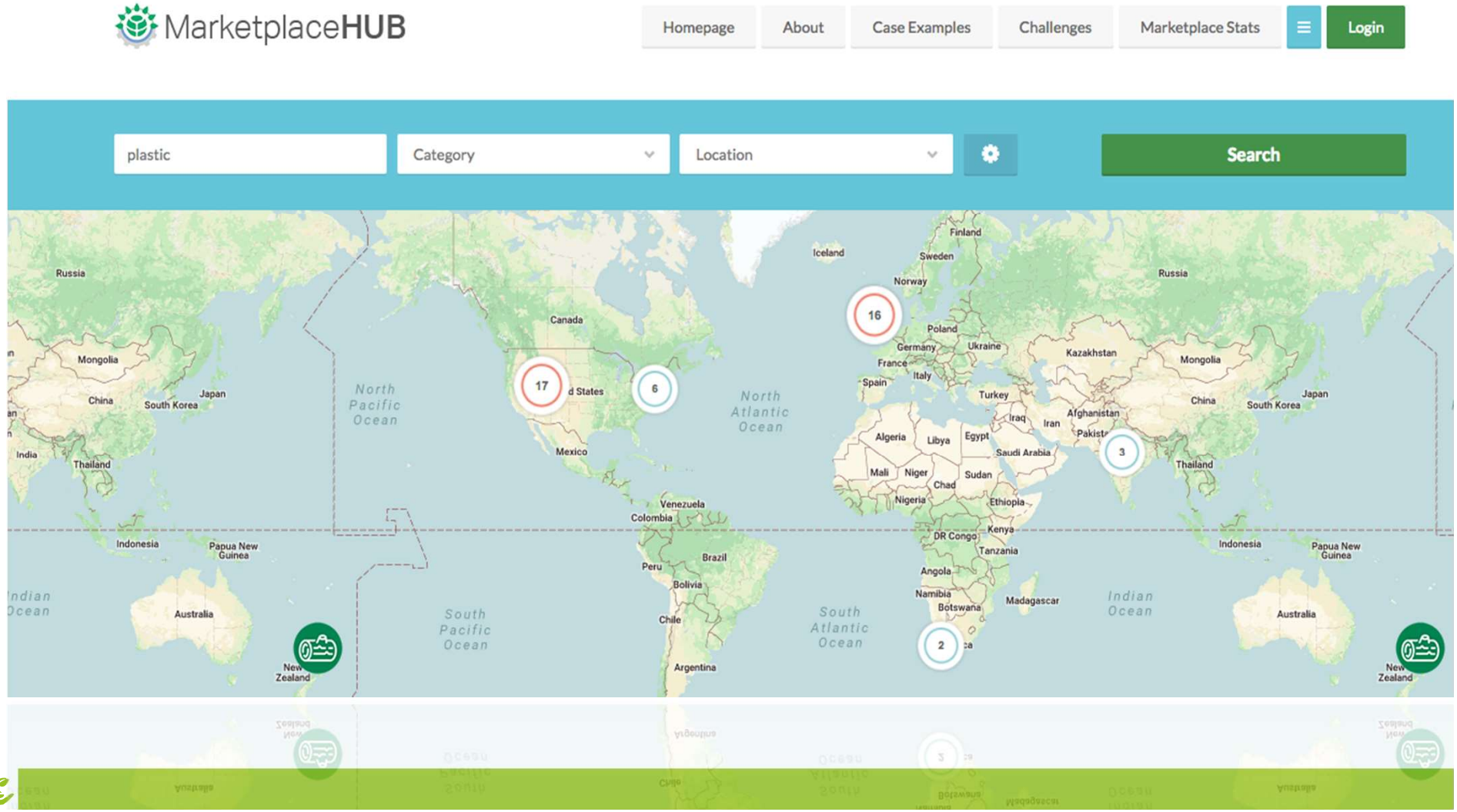
2. **Cost efficiency** - The cost of printing and paperwork can be exorbitant. It involves various sub costs like equipment management, paper records maintenance and cost of space.

3. **Easy to access and always accessible** - Documents that have been converted can be easily accessed through the cloud or system using any device that has internet, anywhere at anytime.

4. **Enhanced security** - A digital document is trackable document. If needed, only certain users can access the documents and workflows can be set up along with permission groups for an individual, which enhances the security and maintains the confidentiality of the document. Reduce human errors and in case of troubles all information and revisions are tracked.

5. **Environmentally friendly** - Document Imaging and overall document digitizing process adds to your green credits and is an environment friendly initiative. It removes the needs of creating multiple backup copies and unnecessary printing, increasing the eco-friendly quotient of your company. Document deduplication and dematerialization.

Digitalization in circular economy: Marketplaces



Digitalization in circular economy: Marketplaces

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Mapping existing Marketplaces - Directory

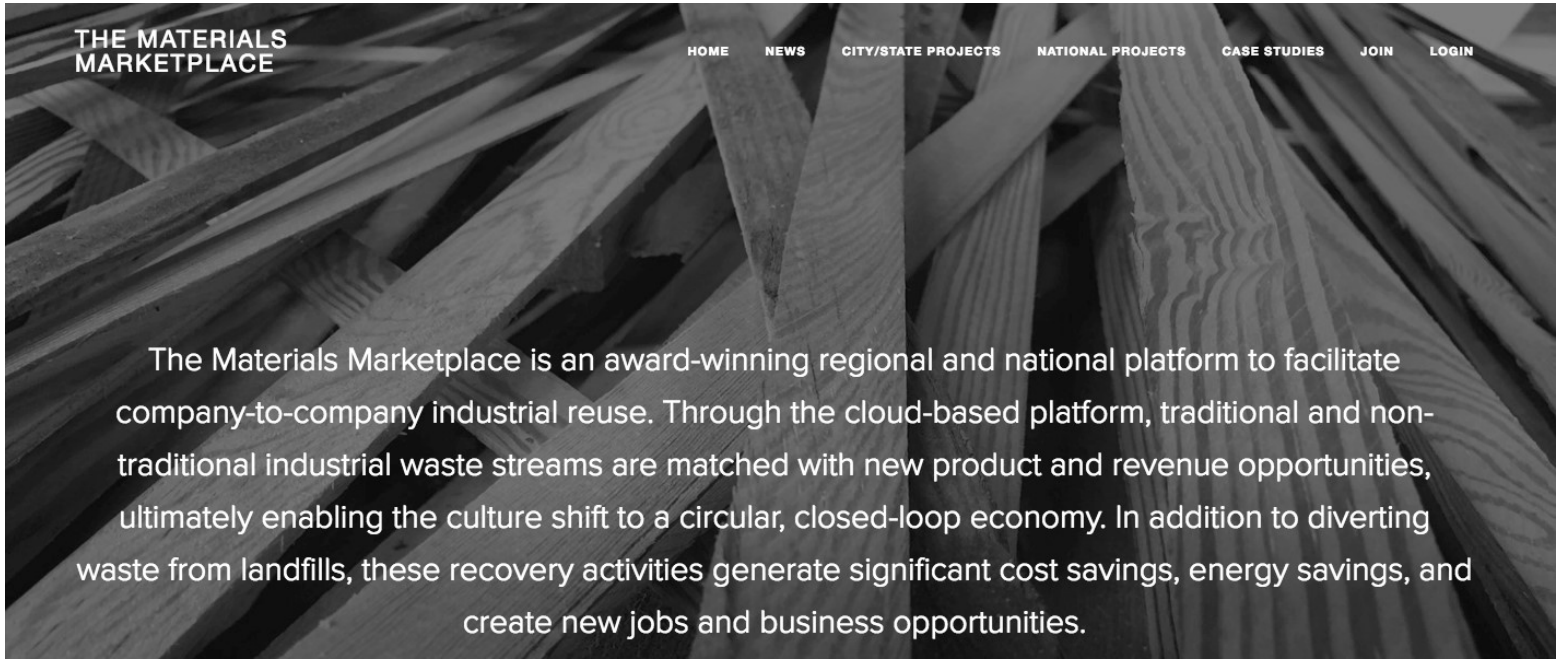
- The MarketplaceHub is a tool designed to foster a sustainable use of resources through accelerating business to business reuse opportunities for secondary materials worldwide. The map gives an overview of existing materials marketplaces and industrial synergy networks around the world, searchable by materials or location. The Hub also provides case studies of marketplaces who successfully addressed some of the challenges encountered operating these platforms.

Contributing to Circular Economy

- This project falls within the concept of circular economy, moving from our current “take-make-dispose” model to one that make the idea of waste obsolete. In such an economy “one company’s waste is another’s raw material”. Circular Economy aims at solving the issue of increasing resource scarcity through a closed loop approach, maximizing the use of existing materials. While this concept brings clear environmental benefits, it could also generate substantial economic gains. As estimated by McKinsey, an adoption of circular economy would bring about 1.8 trillion Euro net benefits by 2030 only in Europe.

Marketplaces in Circural Economy

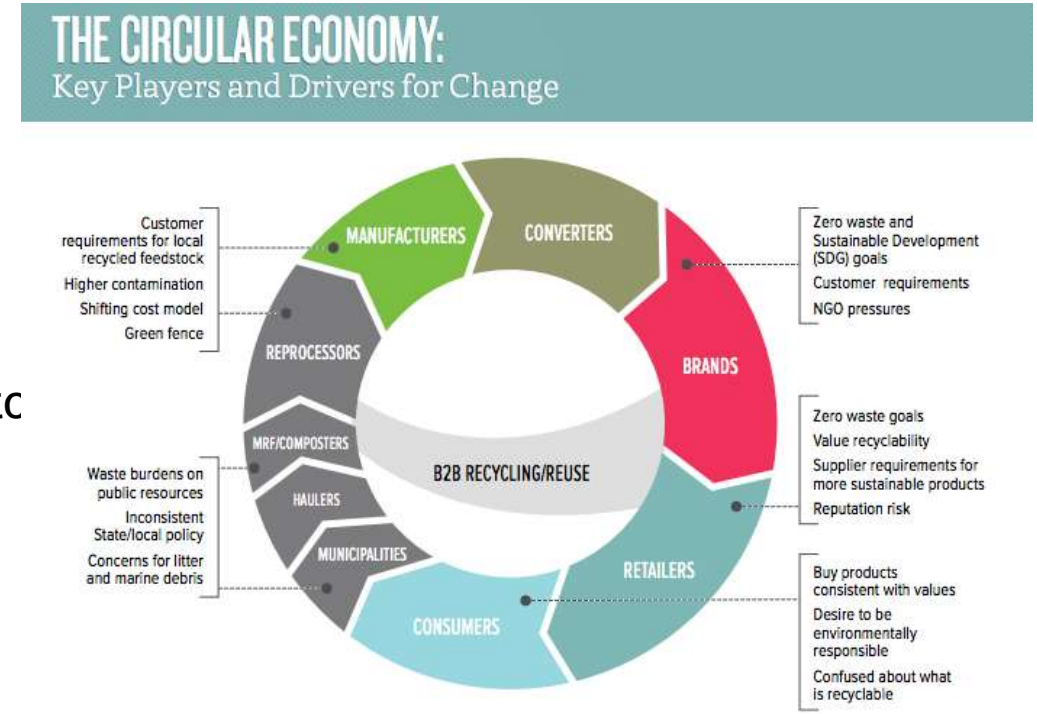
New circular economy program connects businesses, organizations and entrepreneurs to uncover and implement new creative solutions for hard-to-recycle wastes and by-products.



Retracking Project Digitalisation

Goals:

- Manage project digitalization by creating a *Cloud and Mobile Apps* with shared database of all involved actors.
- A new marketplace for hard-tc recycle waste like in our project are Composites and Fiber reinforced composites with pilot project in our Euro Region.
- Collect information with web surveys and other online tools.



Retracking Disposal Protocol

- Manage waste transformation tracking process:
  - waste disposal request → waste analysis → collection and delivery to recycling plant → transformation in 2nd row material → new recycled product
- Transformation process deep tracking with IOT (Internet of Things) devices that collect all sensitive data like machinery and environmental parameters, receipts details used to create new products
  - goal: share in real time all important data with laboratory (ZAG) and receive quick feedbacks to re-tune / correct processes
- RFID Chips for new products (made with secondary raw material)
  - use special rfid chips with sensors for each production lot: track production process temperature, pressure, humidity (environmental parameters). Goal: optimize production processes
  - use standard ISO/IEC RFID chips for:
    - logistics
    - awareness: give details to consumers where the product come from and how is composed
    - **product end of life: gets details of its composition to rebirth it again**

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Project partners

Polo Tecnologico di Pordenone (IT)

Gees Recycling (IT)

Zavod za gradbeništvo Slovenije (SLO)

Infordata Sistemi Srl (IT)

Gospodarska zbornica Slovenije (SLO)