

AKVA CONSULT

Totalløsninger innen vann & miljø

COMPANY PRESENTATION

Kjetil Hermansen, Founder and CEO
AKVA CONSULT AS

WWW.AKVACONSULT.NO

28.02.2019

KH@AKVACONSULT.NO

+47 99 22 74 33

GLOBAL WASTE GENERATION

A photograph showing a massive pile of waste, primarily plastic bags and debris, in an urban setting. In the background, there are brick buildings, some with corrugated metal roofs, and a satellite dish. The foreground shows some green plants and a concrete curb.

2 billion tons of waste produced globally each year.

70% growth in waste generation by 2050

Source: World Bank

MARINE PLASTICS

8 million tons entering our ocean every year

Source: UNEP



OCEAN LIFE AT RISK

NOW



2030



2050



Source: WE FORUM



the guardian

THE CONVERSATION

THE VERGE





WHAT DOES AKVACONSULT DO?

CONSULTING COMPANY WITH FOCUS ON WATER-
AND ENVIRONMENTAL PROJECTS

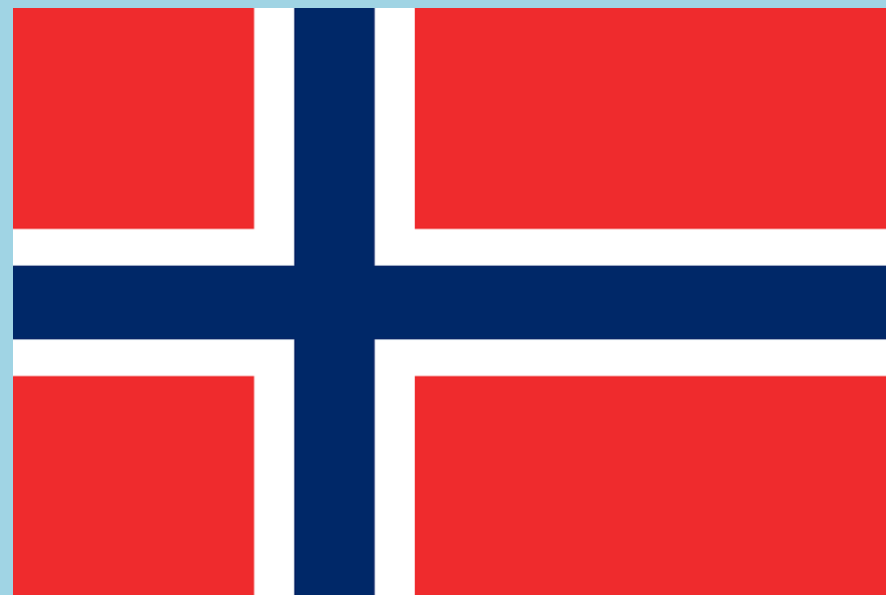
AKVACONSULTs OFFERING

- Consulting service with EEA grants
- Good hourly prices
- Network and overview of Norwegian solutions
- Linking business with right solutions
- Negotiation(s) with suppliers
- Available staff with engineering and business background.





+



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LETS CONNECT



LINKEDIN: KJETIL HERMANSEN

E-MAIL: KH@AKVACONSULT.NO

T H A N K  Y O U

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sic

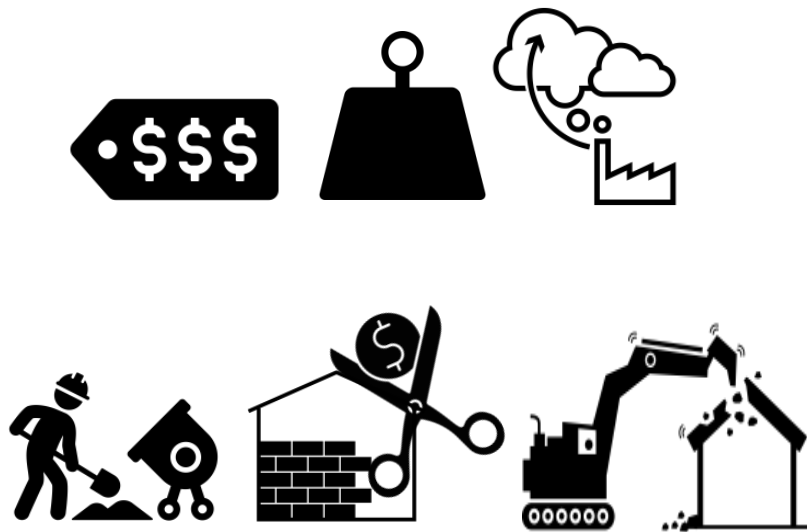
An intelligent **BUILDING SYSTEM** made from
STRUCTURAL INSULATED COMPONENTS
based on
CORK

Resource Efficiency in Construction presents

Problems & Opportunities

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Conventional Building Materials & Systems are:



Opportunities:



Solution

Our Value Proposition

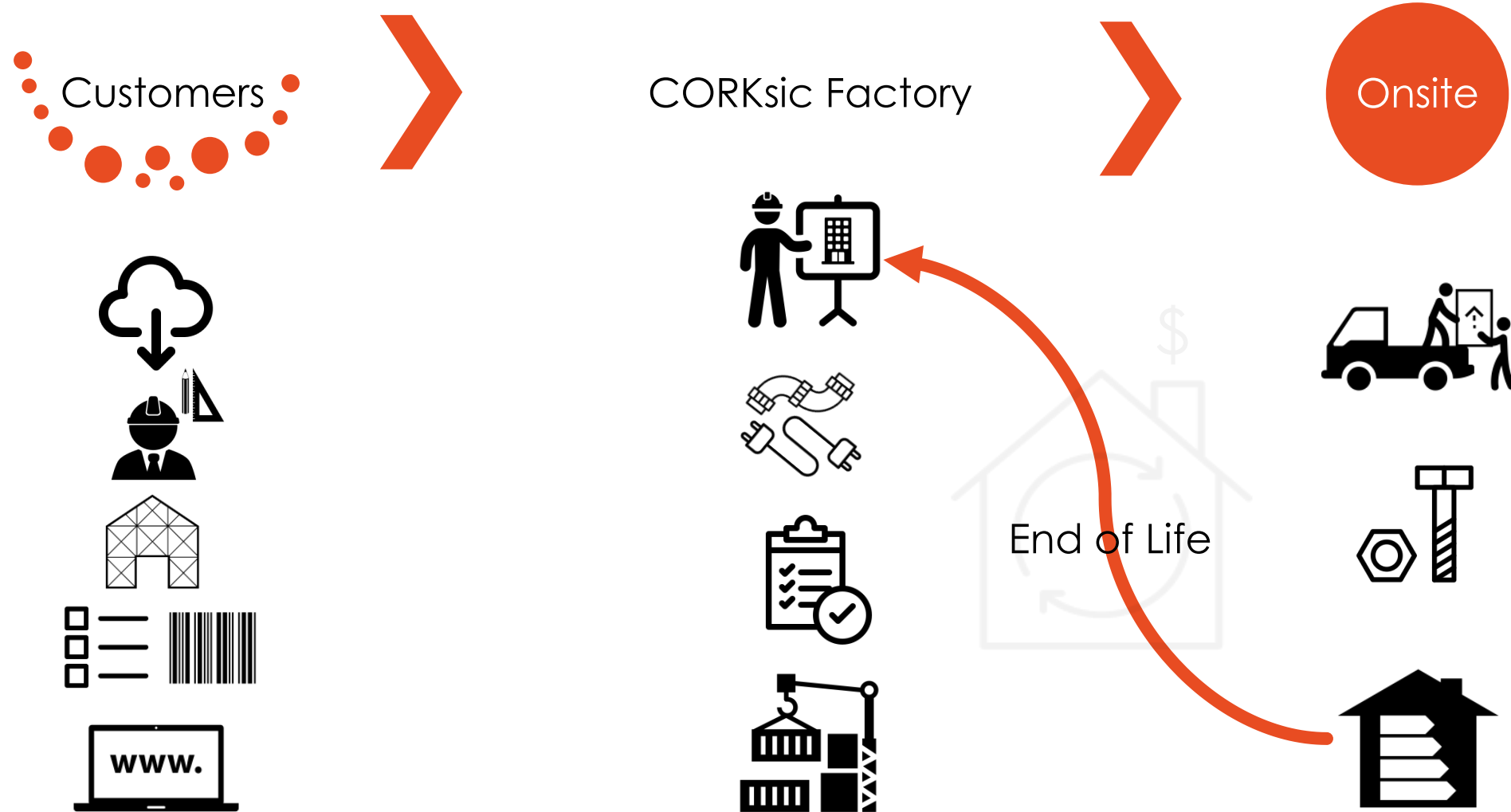
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Cork Bark + CORKsic Process = CORKsic Rapid Building System

- Large, light-weight building components (**CORKsics**)
- Preinstalled conduiting for electricals and plumbing
- Predesigned by architects using the **CORKsic-CAD-Plugin**
- Manufactured offsite
- Delivered to builders just in time for rapid and easy assembly.

CORKsic Process

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B2C Business Model

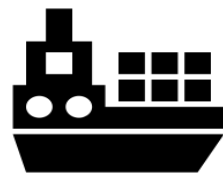
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40%



On Sale

40%



On Shipment

20%



On Delivery

Competitive Edge

C
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OUR MATERIAL

Weight

Concrete: Normal	3600 kg / m ³
Light	900 kg / m ³
CORKsic	345 kg / m³

Structural Strength

Concrete	10 and 35 Mpa
Bricks	5 Mpa
CORKsic	3 - 6 Mpa

Insulation

20cm thick = U value of **0.35**

OUR LARGE SCALE COMPONENTS

OUR BUSINESS MODEL

OUR ADVANTAGES



10 to 20% cheaper



60% Reduction in Construction Errors / Time / Work



95% Recyclable



Better interior air quality



Use of natural material & Carbon capture feature

Low embodied energy manufacturing process



Reduction in Lifetime Costs of **Cooling & Heating**

Go To Market Strategy

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Target Customer Segments:

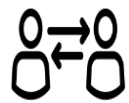
- Architects
- Schools of Architecture
- Builders
- Real Estate Developers
- Green Building Certifiers
- Government Housing Entities
- End Users & Home Owners



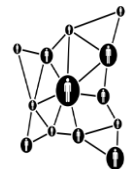
Invite Influencers to Design
w/ CORKsic-CAD-Plugin



Targeted **Social Media**
Marketing



Co-referral & Commission for
Partners



Attend Industry & Trade
Events



Loyal
&
Educated
Prospect
Customers



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Analysis of Competition

C
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	Building Systems	Cost of Material	Cost of Onsite Labour	Total
ALT 1	Two layers of bricks and mortar with 3 layers (9cm) of extruded polystyrene in the cavity	€ 23.00	€ 16.00	€ 39.00
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Assumptions

Size:

1 m²

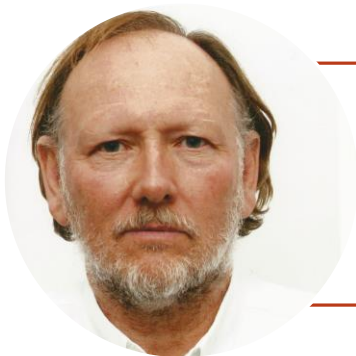
Thermal
efficiency:

U value of 0.35

10%

20%

Team & Current Status



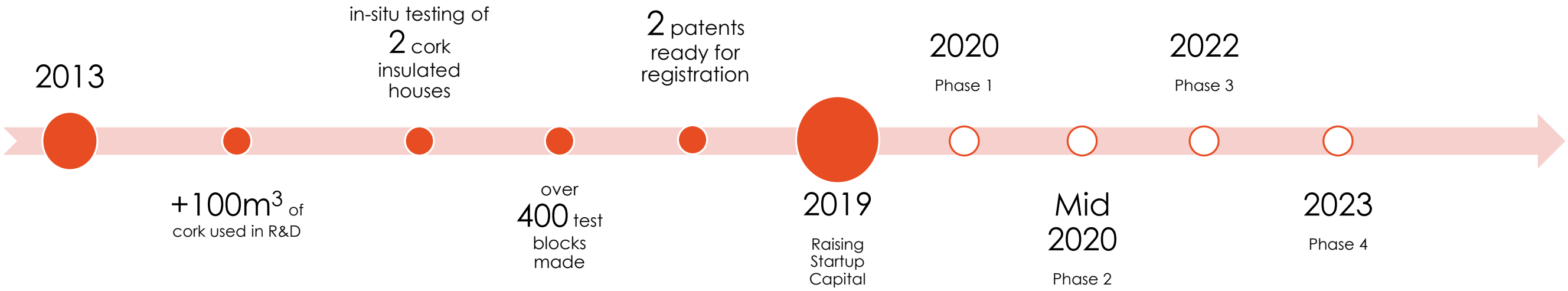
Founder, John Dommett | Independent Researcher | Civil & Agricultural Engineer



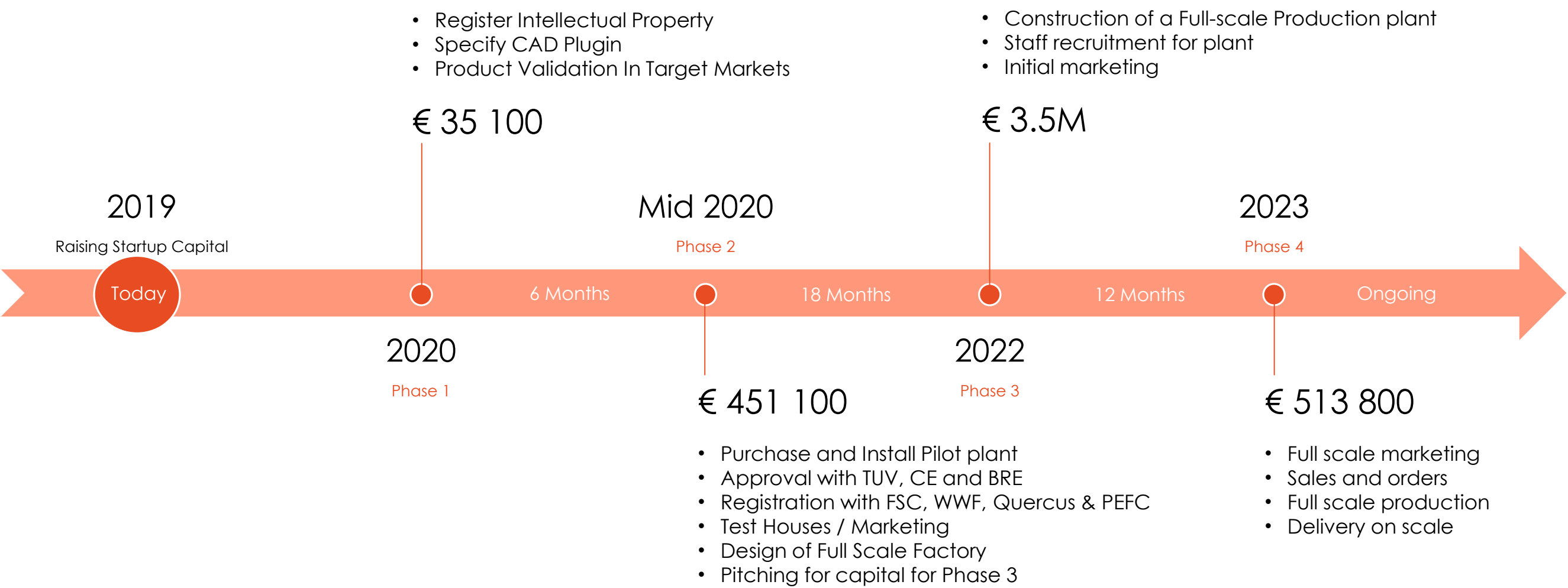
CORKsic is inviting applicants for the **Executive Management & Engineering** Teams



Upon launch, CORKsic will **Recruit Personnel**



Our Action Plan:



Financial Projections and Key Metrics

Breakeven Point for € 4.5M Investment

= is **1250 houses**

= **6 years** after building full scale factory

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Over the first 9 years:

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= **€ 3.82M per annum**

(with 33% overhead costs)

Gross Profit on 1m³ of CORKsics

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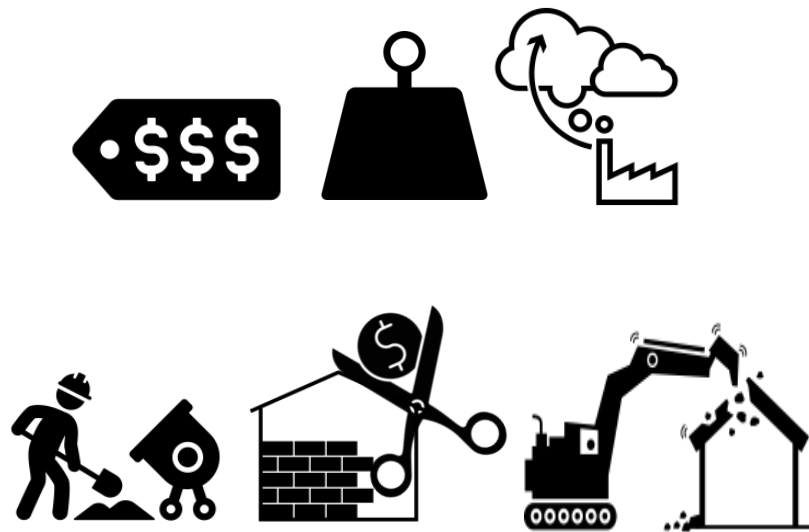
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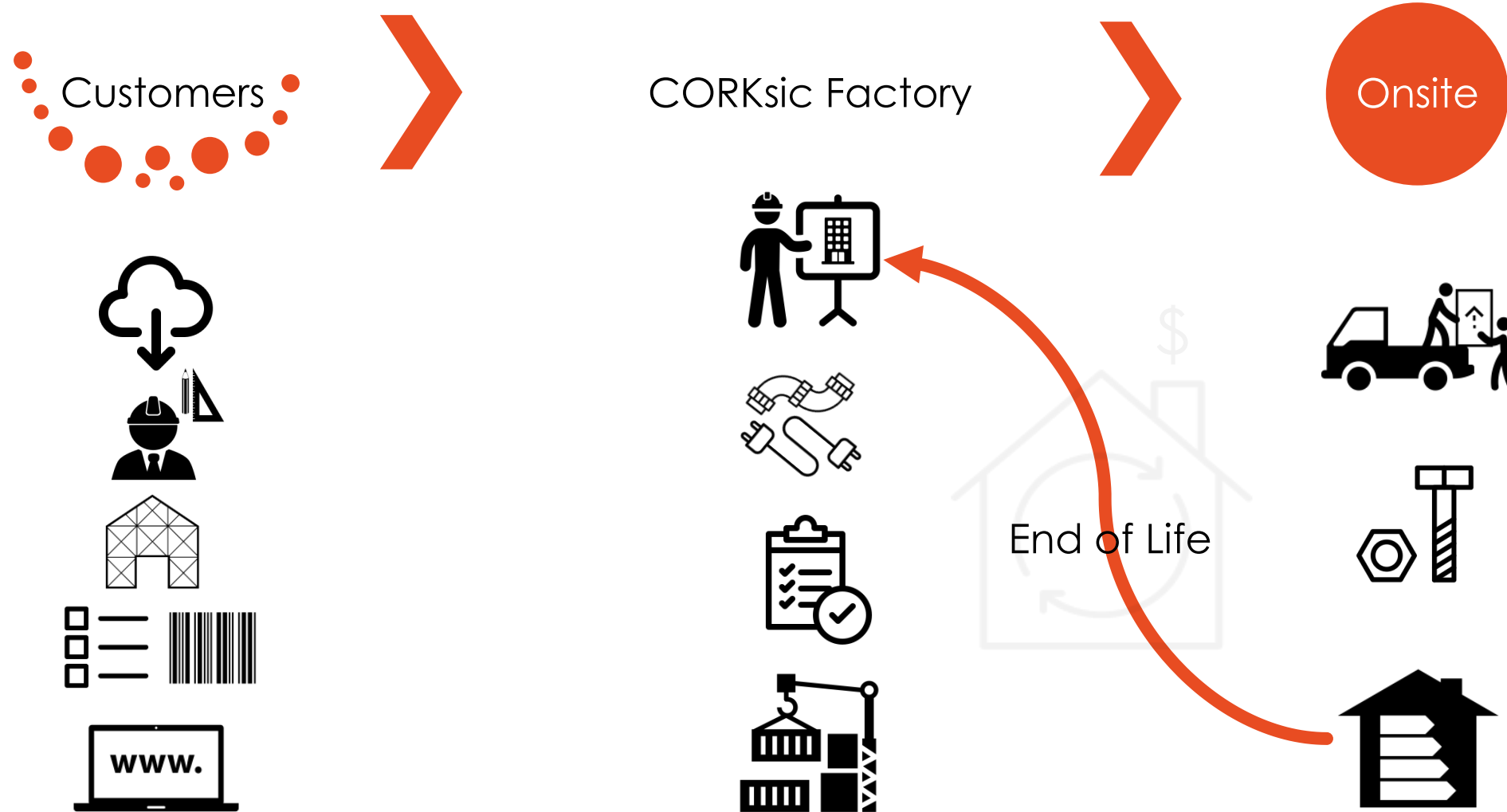
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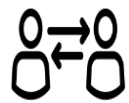
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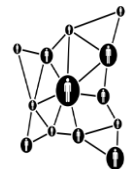
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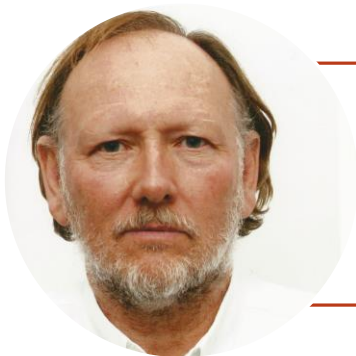
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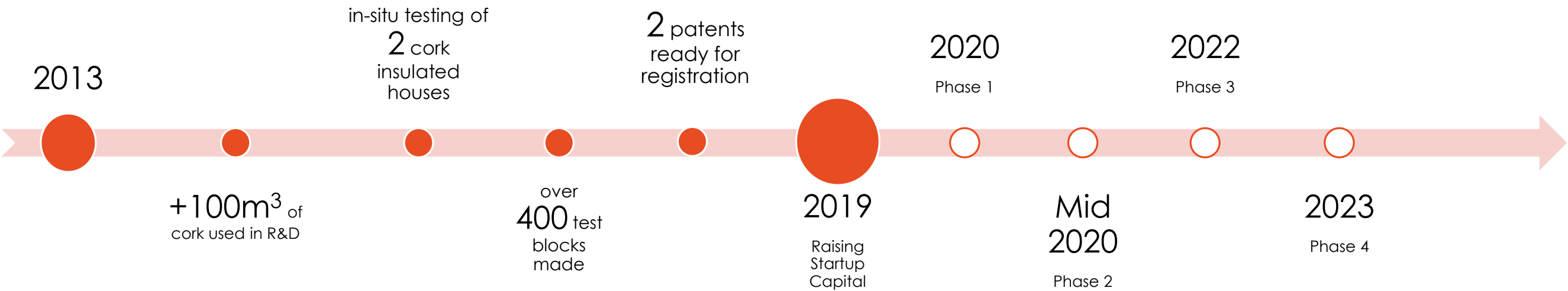
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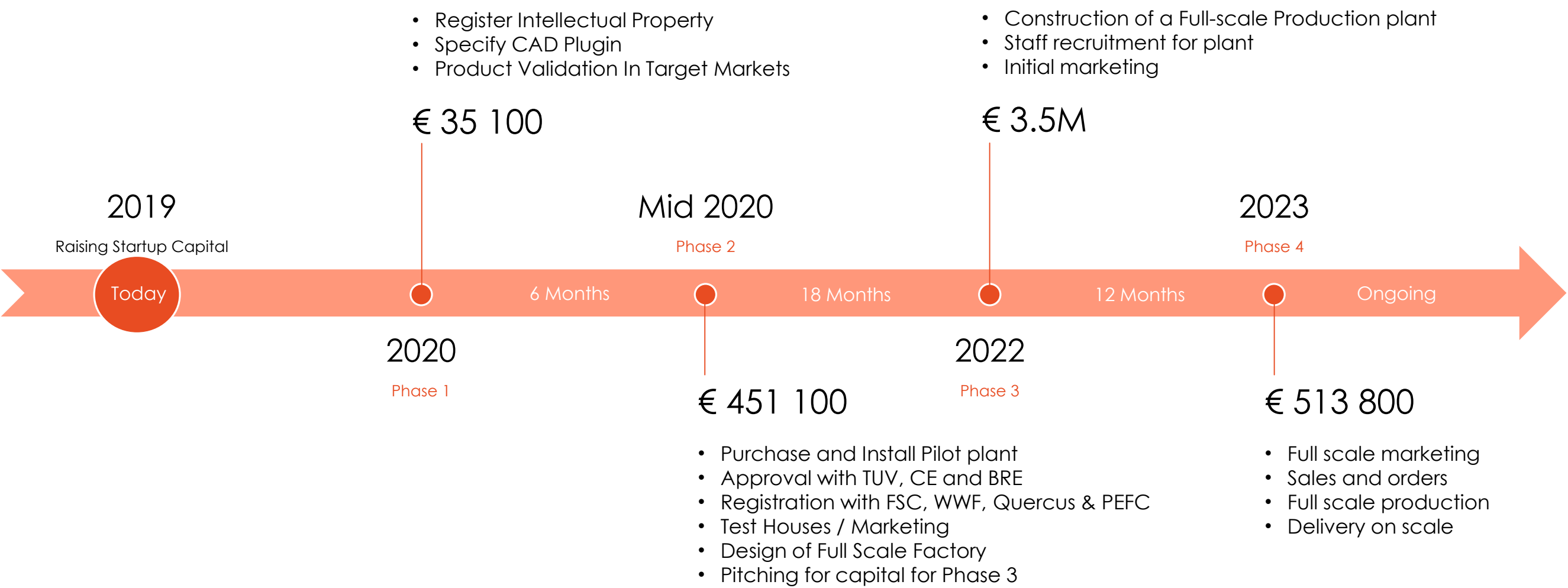
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Empower

A global plastic waste recycling ecosystem
powered by blockchain technology

Matchmaking Event on Circular Economy
Lisboa, Portugal, February 2019



Close the tap



Clean it up

Recycling aid

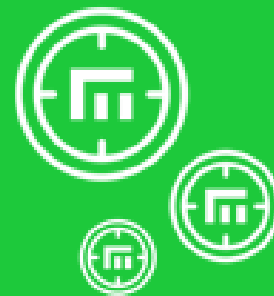
give plastic a value



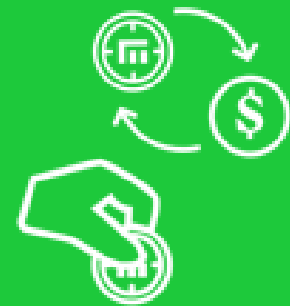
1. gather



2. deliver



3. get paid in tokens



4. use or exchange
for local currency



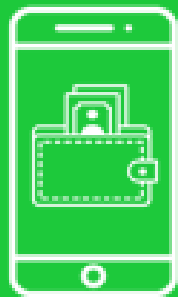
real impact



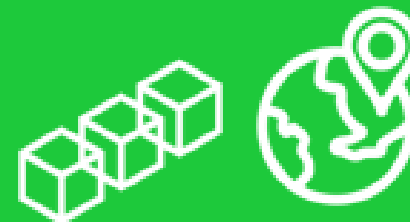
Reduce plastic waste



Create jobs



Bank the unbanked



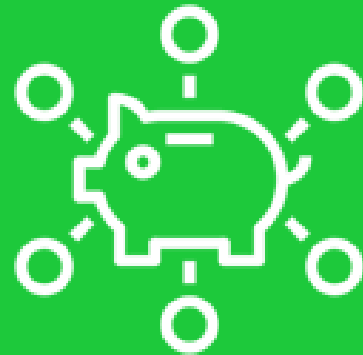
Transparent, cost-efficient aid



plastic fund



Sponsors



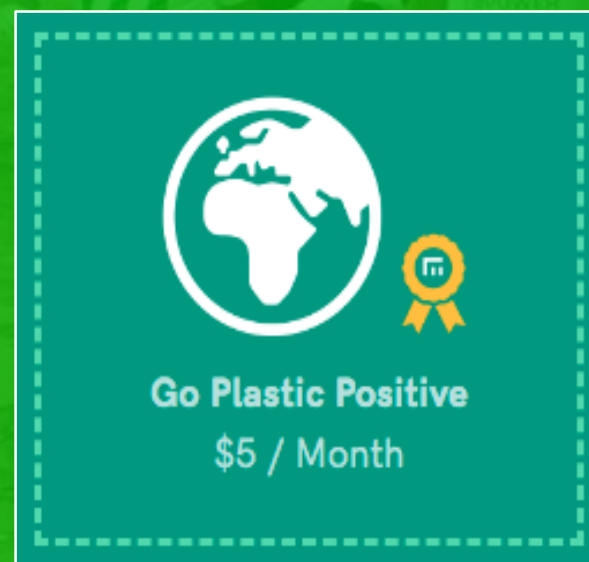
Plastic fund



Plastic collector



**Remove your plastic footprint
at www.empower.eco**



Go plastic positive!



project partners

Ceylon Ocean Keepers

SILWAL FOUNDATION

Empowerment, Environment & Education



OSLO
FREEDOM
FORUM





OECD Blockchain forum in
Paris, September 2018



75 tons





www.empower.eco
[#plasticwastemovement](https://twitter.com/plasticwastemovement)

**We provide
global knowledge and project cooperation,
with focus on
Entrepreneurship,
Green Business Innovation
& Local Economic Development.**



INTERNATIONAL DEVELOPMENT NORWAY

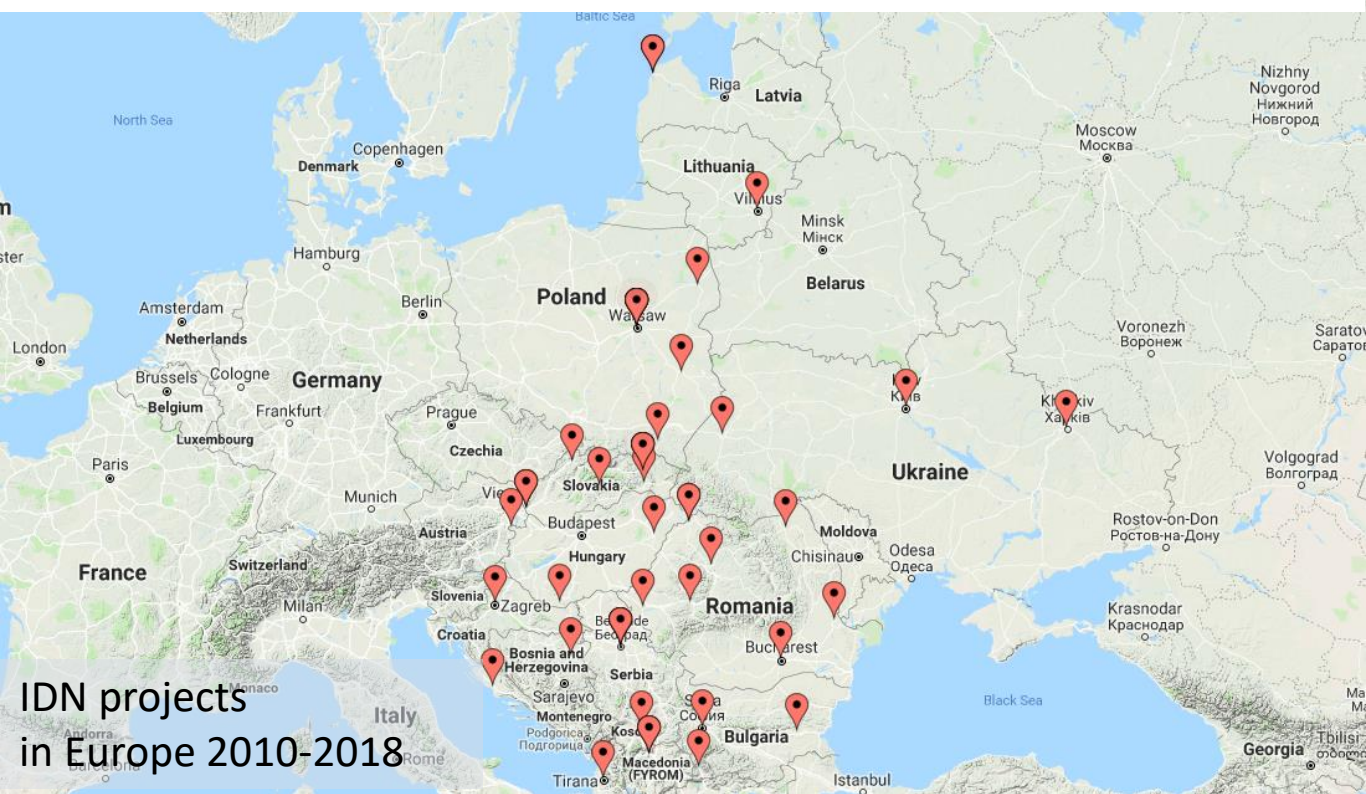
www.id-norway.com



International Development Norway

post@id-norway.com

www.id-norway.com



Brief about IDN:

- Not for profit consulting company
- Spin-out from SINTEF in 2010
- Business Partnering
- Engage experts in Norway and locally based on clients needs
- Whole Project Life Cycle
- Green Innovation in Energy & Environmental Solutions
- Innovation & Entrepreneurship
- Business projects with local impact
- Since 2010 we have participated in more than 25 EEA/Norway Grant projects in 9 countries

Key Staff



Anders Stølan
CEO/President



**Katarzyna Anna
Kazimierczuk**
Project Director



Torkel Ystgaard
Special Advisor, Innovation
Support Systems



Igor V. Podoliev
Senior Advisor,
Commercialization of
Technology



Rune Stølan
Project Manager,
Consultant



Leif Estensen
Senior Advisor, SME
Development



Emilie Olderskog
Special Advisor, Corporate
Sustainability/CSR



Kia Luise Klavenes
Special Advisor, Innovation
and Circular Economy



Mila Marinkovic
Senior Advisor, Innovation
Management



Tatjana Volarev
Legal Advisor, Business
Development



Jana Lukacova
Project Manager, SME
Development



Trond Hammeren
Senior Advisor, Bioenergy
Systems



Laszlo Szabo
Senior Advisor, Research



Cristian Teodorrescu
Senior Advisor,
Environmental
Management



Artur Jerzy Badyda
Senior Advisor,
Environmental Managment



Johnny Aak
Senior Advisor, Energy
Project Management



Michał Klepka
Senior Advisor, Innovation
and regional development



Cathrine Skonhoft
Senior Advisor, Program
and Project Management

IDN Business Areas

- **Circular Economy**
 - Circular Business Model Innovation
 - Industrial Symbioses
 - Product Life Cycle Assessment
 - Waste Management
 - Recycling
- **Green Energy**
 - Renewable Energy Systems
 - Hybrid Local Energy Solutions
 - Thermal Energy & Heat pumps
 - Industrial Energy Efficiency
 - Intelligent Public Lighting
- **Entrepreneurship**
 - Entrepreneurship & Job Creation
 - Social Inclusion
 - Training & Mentoring
 - Incubator & Accelerator Advisory
 - Innovation
- **Manufacturing**
 - Lean Production
 - Smart Maintenance
 - Industrial Internet of Things
 - Production Engineering
 - Zero Emission Factory
- **SME Development**
 - Lean Management
 - Business Process Innovation
 - Digitalization
 - Production Management & Engineering
 - Market Research & Partnering
- **Strategy & Policy Development**
 - Regional Innovation Analysis
 - Sector & Industrial Analysis
 - Local Environmental Plans
 - Program Evaluation and Assessment
 - Local Economic & Social Development

Circular Economy related projects completed

Circular Economy potential – Ukraine/Slovakia

Main partner: Center For Innovation
Partnerships
Country: Slovakia/Ukraine
Year: 2016
Funding: EEA & Norway Grants

- Scope:
- Explore potential for an industrial ecosystem network in the cross-border region
- IDN Role:
- Lead partner
 - Analysis of status quo and the potential for the establishment of industrial ecosystem



Circular practices for construction and demolition waste treatment in the region of Prešov (Slovakia)

(IDN Strategic Project 2017)



Partnerships for Zero-Waste Industrial Activities (PAZEWAIA) – Romania

Company: GEC Bucovina
Country: Suceava, Romania
Year: 2014-2016
Funding: EEA & Norway Grants

- Scope:
- Establish an industrial ecosystem in local communities. Use of Industrial Symbiosis methodology. WEB based trade system.
- IDN Role:
- Assisting in the establishment of the network
 - Assisting in the establishment of online platform



Plastic Recycling Plant

Company: RITMIC
Country: Suceava, Romania
Year: 2015-2016
Funding: 49% from EEA Grant

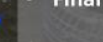
- Scope:
- Invest in washing and shredding line to produce higher priced product (+120%)
- IDN Role:
- Give technical recommendations before tendering.
 - Conduct training of operator
 - Financial Management and Reporting



Used Tyres Recycling

Company: Vinderen
Country: Warszawa, Poland
Year: 2014-2016
Funding: 49% from EEA Grant

- Scope:
- Innovative production process for high quality green products based on used tyres.
- IDN Role:
- Assist in Corporate Social Responsibility
 - Market Assessment & Partnering
 - Financial Management & Reporting



What we offer (possible roles)

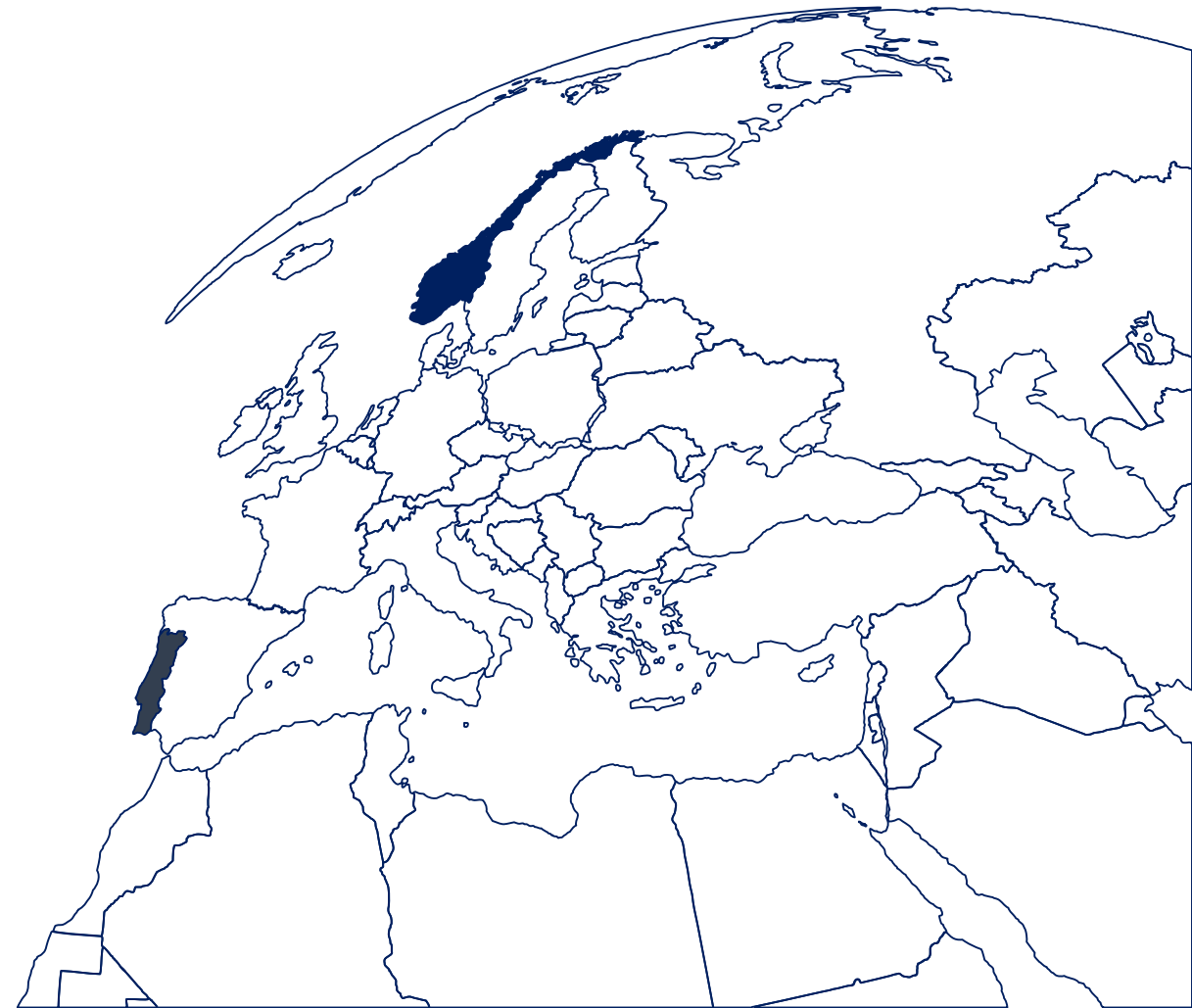
- **Project Development & Partnering**
- **Identify/engage suitable experts**
- Project Management
- Financial Management and Reporting
- **Study trips & Partnering in Norway**
- Workshops & Trainings
- Dissemination
- Market Assessment & Partnering
- Investment Analysis
- Risk Assessment & Mitigation
- Innovation & Product Development
- **Business Model Innovation**
- Technical Recommendations
- Production/Lean Management
- Operation Management
- Energy Efficiency
- **Environmental analysis**
- **Life Cycle Assessment**
- Future Business Directions
- Local Economic Effects
- Corporate Social Responsibility

Thank you for your attention!

Anders.Stolan@id-norway.com

+47 92442175

www.id-norway.com



From CDW to construction materials – supporting circular economy at regional level

Cristina Sousa Rocha, Ana Paula Duarte, Joaquim Duque, LNEG

Matchmaking event on the application of circular economy principles | 28 February 2019, Lisbon, Portugal



Mission

LNEG is a State laboratory of the Ministry of Environment and Energy Transition that performs **R&D oriented to the needs of society and enterprises.**

LNEG's mission is **to promote innovation in science and technology oriented for economic development** contributing to increase competitiveness of economic agents in the context of **sustainable progress** of the Portuguese economy.



Activities

- R&D Projects;
- Provision of services and contracts to entrepreneurs and to the state itself in different forms.
- Technical assistance and contracted research;
- State assistance in international fora representation, providing science and technology foundations in sectorial policies for emergent societal issues

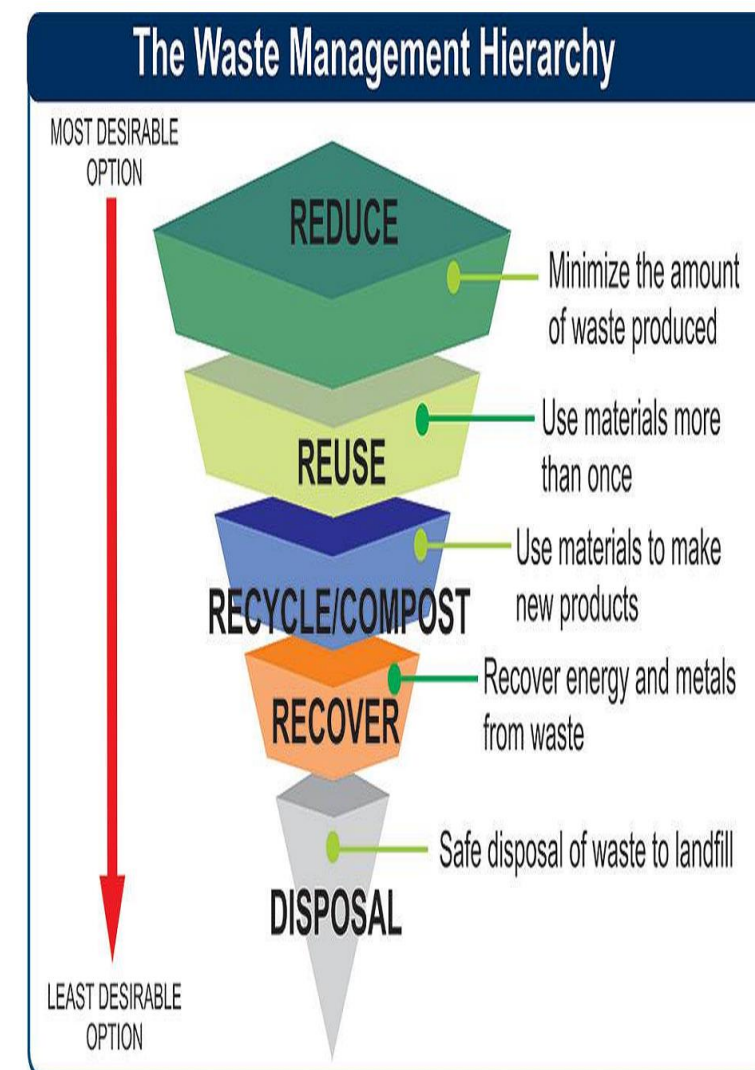
Construction and demolition waste in Portugal

- Between 2015 and 2016: Increase of 47% (from 1,2 Mio t to 1,8 Mio t)
- 2016: Construction sector waste represents 19,1% of total production of non-hazardous waste and 3,1% of hazardous waste
- Typical valorization options for CDW:
 - Material for building foundations
 - As raw-materials in the cement industry
 - For landfill cover
 - Landscape restoring of quarries
 - Sidewalks
 - Filling of pipework trenches

Sources:

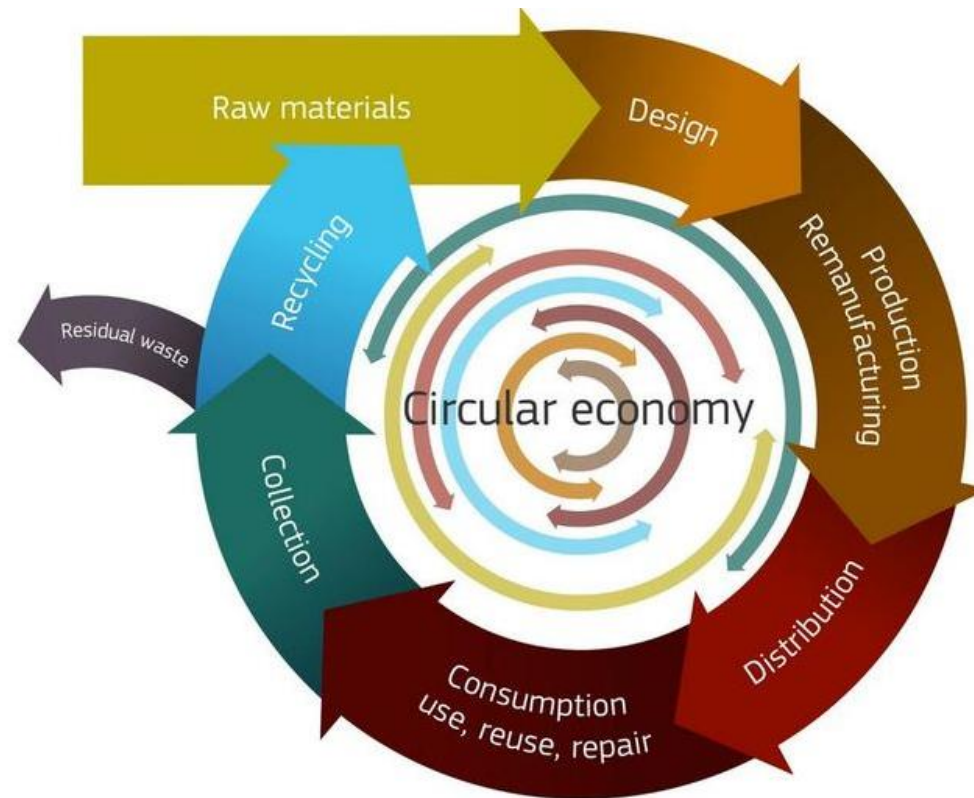
INE (2016). Estatísticas do ambiente 2016.

Oyenuga and Bhamidimarri (2017). Upcycling ideas for Sustainable Construction and Demolition Waste Management: Challenges, Opportunities and Boundaries. International Journal of Innovative Research in Science, Engineering and Technology.



Objective

- To demonstrate the feasibility of the application of circular economy principles in the building sector where public authorities lead by example and promote a market for secondary materials, regional development and job creation.



Source: <http://eco.nomia.pt/pt/economia-circular/estrategias>

Project idea

- Establishment of a system to upcycle and reuse construction and demolition waste (CDW) in public buildings at regional level, including:
 - Auditing procedures for selective demolition works
 - Waste management plan
 - Definition of requirements for materials passports
 - Upcycling of construction products and materials with the involvement of third sector organizations
 - Establishment of design requirements to facilitate future deconstruction of building materials
- The whole system will be optimized through a mathematical model that assesses the environmental, economic and social effects and supports decision making for the design and functioning of the reuse, recovery and upcycling/recycling network.

Previous work (selected)

- **BuS.Trainer** - Building up green Skills for Trainers from the Construction industry (www.ecotrainers.eu)
- **KATCH_e** - Knowledge Alliance on Product-Service Development towards Circular Economy and Sustainability in Higher Education (target sectors: construction and furniture industries) (www.katche.eu)
- **FORMAR** - Vocational Training on Sustainable Buildings Maintenance and Refurbishment (www.formarproject.eu)
- **SInnDesign** – Sustainable Innovation through Design (target sectors: construction, textiles and furniture industries) (www.sinndesignproject.eu)
- **InEDIC** – Innovation and Ecodesign in the Ceramic Industry (including cladding, tiles and bricks industries)
- **Master thesis** coordination:
 - “New approach to optimize the management of construction and demolition waste, applied to the Lisbon metropolitan area”, IST/UTL, 2015;
 - “Management optimization of construction and demolition waste, applied to the Lisbon metropolitan area”, IST/UTL, 2013

Thank you.

cristina.rocha@lneg.pt
paula.duarte@lneg.pt
joaquim.duque@lneg.pt

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