Partnership

The project brings together seven partners from 4 EU Member States with diverse interest and backgrounds, each having a clearly defined role to contribute to the CLEAR project. These consist of one 3rd age college (University) two Municipalities, one technical consultancy with expertise on eco-design, one social enterprise and two training providers (one expert in CE). Collectively, the partners have the expertise to design, implement and test a modular digital training toolbox complete with augmented reality based e-learning content.

Abstract Guide about the project CLEAR
Circular Economy Adult Training ToolBox- Knowledge ReUse

http://projectclear.eu/

@projectclear   /project_clear_eu

On behalf of Korydallos citizens I am very glad to welcome this toolbox to our digital technology environment. My colleagues and I we are very satisfied for having the opportunity to attend CLEAR project.

As members of the European Community, we all have to try hard to work – doing our best - on such sensitive project.

CLEAR project provides the EU directives relating to technological innovation, environmental sustainability and ………….. I hope that CLEAR will bring new thoughts and practice about Green Entrepreneurship in Greece as well the rest EU countries producing a rethinking Europe about the sustainable existence of our next generations. I hope that new practices of understanding on circular economy – advantages and challenges - will provide all of us with rich knowledge about our cosmos, helping us to make our living better thinking our children's future.

I'd like to express my deepest respect to all of our partners and to congratulate the people in Department of Research, Local Development and Planning for their great job. Considering the problems that Greece had faced the last ten years I' m grateful to them that they are working hard and making real such projects. I strongly believe that our work to attend European projects is a deep political praxis of extroversion. This leaflet is the idea of an abstract guide (main ideas and concepts) for our CLEAR Circular Economy Adult Training ToolBox- Knowledge ReUse and we hope that you will enjoy to have a look as to attract you to log in CLEAR platform.

Please do not hesitate to contact with us for further details,

mayor@korydallos.gr and/or projects@korydallos.gr

Yours Sincerely,

Mayor of Korydallos

Nikos Hoursalas

Few lines about the CLEAR project

The CLEAR project is motivated by the problem that the vast use of resources used by mankind is growing due to global population growth and increasing living standards. Although Europe leads the world in recycling and is a major player in manufacturing, the service aspect and service innovation is very low. This can be improved through a 'Circular Economy (CE) Servitisation Business Model' approach that is based on a vision of shift towards services. The EU Action Plan for the Circular Economy, 'Closing the Loop', provides a critical step forward towards a sustainable, low carbon, resource efficient, and yet competitive EU economy. For this paradigm shift to be achieved, there is a need that servitisation principles and benefits be disseminated as widely as possible. There is thus an urgent need that adult education stakeholders (at different levels) be equipped with the right knowledge about a CE servitisation approach, its principles, its benefits to both society and industry as well as the concept that a CE approach can foster a novel breed of 'Green Entrepreneurs'.

The CLEAR Toolbox is a freely open to all, repository of all the training material adult trainers can use to engage and help adult learners to catch up with digital like skills. The material can be freely used as long as the source being CLEAR project no. 2017-1-ES01-KA204-038172 is acknowledged. In the CLEAR toolbox you will find:

- the curriculum designed by the partners

- the learning framework guiding you to form training paths

- Augmented Reality case-studies

- the CLEAR E-learning management system

- CLEAR Repository with raw content that can be customised.

More information about the TooBox can be found at the link : http://projectclear.eu/ in Unit "ToolBox". Feel free to contact us sending an e-mail to: info@projectclear.eu

Circular Economy as an attitude

The circular economy requires the involvement of public actors responsible for sustainable development and territorial development strategies; of the companies; and of the society that is the final beneficiary.

We are all aware of the importance of energy saving and recycling, but at the same time, we are consumers and generate a significant amount of waste that, in many cases, are technological and seriously damage natural resources.

To stop this dying, the answer is a change of productive model. Thus the circular economy must carry with it an attitude and awareness at all levels.

Circular Economy promotes shared use against ownership, the reuse of products and materials "useless" against their waste, significantly reducing the generation of waste.

Activities, programs and events aimed at primary and secondary education centers and other academic centers, dedicated to fostering a responsible culture and society in a circular economy at a young age.

Efficiency and sustainability they are essential elements.

Media

Creative processes applied to education and sustainability need continue **researching and developing.**

Environmental education proposal generates awareness of the reuse of knowledge and its dissemination to society, to all citizens.

What is Circular Economy

Circular Economy (CE)

a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing energy and material loops, **can be achieved** through long-lasting design, maintenance, repair, reuse, remanufacturing, and recycling.

This is in contrast to a linear economy which is a 'take, make, dispose' model of production."

Circular Economy is continuously gaining interest by people, organizations and countries. Consumers and businesses as increasingly concerned on product lifecycles and the environment.

Understanding the Concept of Circular Economy

In real life we see this as recycling, re-use and other forms of using material and products but also services. Moving away from the linear economy, Circular Economy is here to stay.

The CE concepts touch on various topics such as:

- Waste management,

- Renewable energy sources and energy efficiency,

- Becoming a competitive Low-Carbon Economy

CE guides organisations and consumers to think differently in the way they are conducting business and consume products.

The Concept of Circular Economy in Business as a multiple level collaborative process

CE is a promising new paradigm in favor of sustainable development goals (environment, society, economy). CE has raised new challenges to the way towards the transition from a linear to a circular model of production and consumption in the urban context. This should be perceived as an integrated and collaborative process facilitating behavioral changes and adaptation grounded on multiple level rapprochement, individual, organizational, sectoral, national, transnational. CE has to be developed due to participatory empowering of social and business communities and promoting their knowledgeable and active engagement in planning such a transition.

See further https://eur-lex.europa.eu/resource

In real life we see this as reducing, re-using and recycling of products as well the improvement of several services towards a new cycle of the life of products and the sense of consumerism.

Business industry and entrepreneurship constitute the basis of this transition. Beyond the linear economy, Circular Economy is here to let generations to share our world in the future:

Environment Reduce, Reuse, Recycle are the 3R that construct the core of Waste management for a sustainable future for environment against the extraordinary pollution that our planet faces nowadays. Following the institutional framework waste management comes to the front as a crucial point for public and private sector to confront uncontrollable pollution.

Business profit and Social wellfare. Every person can be part of this process in many ways. Either as individual, either as member of a social group, or business association everyone can provide CE benefits improving business and social life.

Social Importance of Circular Economy in Business Our planet is a non disposable cosmos. We are constantly sharing this world with our future generations. CE in business practically means the establishment of the social justice for the humanity in future. It's a process of giving birth.

Perspectives of Circular Economy in Business Circular Economy in Business is a challenge "to think out of the box". There is an ongoing research that enriches our daily life based on a way of thinking that is oriented to comprise. The focal point is to connect every contemporary use of products or services to its future circle life through several options of usage.

Shift Towards Services: What is Servitisation?

 Servitisation process describes the strategy of creating value by adding services to products or even replacing a product with a service. It transforms the product to an "outcome as a service" rather than a one-off sale. Servitisation in the manufacturing industry can consist of companies proactively offering repair and overhaul services, spare parts and training in addition to their core products. Broader services such as consultancy, financing, insurance and logistics services are included too. This developed out of the necessity for businesses to remain profitable and competitive. The financial aspects of design and manufacturing are becoming increasingly challenged by emerging markets and the life-cycle of manufactured products increases. The technology which develops the products improves them resulting in the need to replace them less frequently.

Characteristics of servitisation Many companies have started their servitisation by increasing the range of services they offer to the customer, such as: spare parts, helpdesk, periodic maintenance, repair and overhaul. These intermediate services solidify relationships between business and customer, capture revenue throughout the lifetime of the product, and help retain customers for future sales.

Benefits of Servitisation for the Customer: An office buys document management, rather than a photocopier and printer. An airline buys thrust rather than a jet engine. Rather than simply selling a product, the manufacturer offers the capability that their products enable. They bundle together a range of products and services tailored to the customer's own business process and delivered as a partnership. **Environmental Benefits of Servitisation:** Manufacturers are incentivised to invest in newer and cleaner technologies which require fewer materials and less energy to produce and maintain Manufacturers move from product-based firms to service-based business models means that a firm can maintain the ownership of the products it manufactures.

This process   is leading to fewer buy-use-discard product cycles. Additionally, manufacturing companies can also offer the service of taking back the product at the end of its useful life. Therefore, less waste is produced and manufacturing companies can then make use of the available material/resources of the product in new products or for other processes.

Main characteristics of Servitisation Business Model

Organizational infrastructure

Effective servitisation requires inter-organizational integration by coordinating logistic systems, maintenance systems, spare parts supply and manufacturing systems. The organization also needs to create a service delivery infrastructure and a resource configuration that has the ability to establish relationships with customers, capture their needs and provide an efficient interface with them.

Characteristics of the Servitisation Business Model

Knowledge and resources must be used effectively and efficiently in order to support the successful integration of integrated product-service offerings. Companies should also be more conscious of the customers' processes. This could eventually lead to co-production of services. Companies should be able to promote and explain servitisation propositions and how these propositions differ from traditional product offerings. Relationship building competences must be developed, particularly in service sales and delivery, and should include a focus on proactivity, continuity and the ability to capture specific customer needs. Customer operations and profitability become a priority if the supplier is to derive long-term sustainable advantage from service provision.

Understanding Servitisation

1. Philips & Amsterdam-Schipol Airport

Dutch electronics firm Philips offer a fantastic example of a servitisation. Amsterdam-Schiphol, as part of their ambition to be one of the most sustainable airports in the world, is now receiving LED lighting-as-a-service from Philips. LED lamps are incredibly efficient however expensive to buy. Under this business model, Schiphol will benefit from a 50% reduction in electricity consumption, but without the upfront cost of buying the lamps. Philips retain ownership of the equipment and instead sell light as the product rather than the units. Add to this the "internet of things" connectivity and Philips are able to monitor each lamp and replace any faulty units often before the fault occurs, providing the complete servitisation package

Caterpillar's Cat Connect offering helps Caterpillar's customers monitor the use and health of their equipment so that their customers can identify areas where productivity can be improved.

Circular economy & servitisation

- the process of expanding the capabilities of a company to offer a greater experience for the final consumer, meeting ambitious growth plans.
- repair, refabrication and servitization.
- the culture of use versus that of property.

Servitisation levels in the Industry:

Level 1: provision of products only - all manufacturers are currently doing so.

Level 2: after sales services: everything from field service to product repairs and product status monitoring.

Level 3: advanced services: pay-per-use contracts and integrated solutions.

IoT and servitisation in the industry

Effective programming of resources and visibility of all services and activities..

Industry 4.0: one-to-one after-sales service with the client. Design, produce and sell products in less time.

Tangible benefits for companies:

- -stabilize their income,
- -smoothing the peaks and valleys that often affects the sale of products.
- -improve business performance: Clients, Competitive Advantage, Economic, Environmental.
- Frees customers of responsibilities on the product.
- A new long-term relationship is created.
- The focus is on the user experience.
- By sharing responsibilities, the risk to the client decreases.
- Manufacturers play an intrinsic role throughout the life of the product and beyond.

The C. E. is a pragmatic and effective proposal for decoupling economic growth from the increase in the consumption of matter and energy through the redefinition of industrial processes so that resources can circulate for much longer in the market. Each time a waste is reintegrated into the economic system it becomes a resource for a new productive process generating value creation and enabling new business opportunities and creation of employment.

The concept of service chain

Value chain

«… the idea of seeing a manufacturing or service organisation as a system, made up of subsystems each with inputs, transformation processes and outputs. Inputs, transformation processes, and outputs involve the acquisition and consumption of resources- money, labour, materials, equipment, buildings, land, administration and management".

Value Stream Mapping – Definitions

"Value-stream mapping (VSM) is a lean management method for analyzing the current state and designing a future state for the series of events that take a product or service from its beginning through to the customer with reduced lean wastes as compared to current map. A value stream focuses on areas of a firm that add value to a product or service, whereas a value chain refers to all of the activities within a company"

Lean focuses on five fundamental concepts

1. Specify what creates value, from the customer's perspective

2. Identify the value stream, that is all the activities performed to generate the end product

3. Support continuous flow, by minimizing queues and interruptions

5. Strain for perfection

4. Apply a pull approach, by delivering what is actually demanded by the customer

Service chain

Raw material supplier

Manufacturer

Distribution network

Supplier

Technology

Service Producer

Distribution

RECYCLING ECONOMY   CIRCULAR ECONOMY
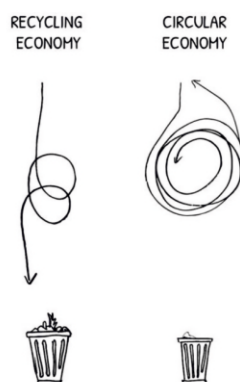
Circular Economy and the customer

Shifting from "ownership" to "sharing".

Thinking that companies work, above all, because of their customers is crucial to know them.

The economic recession which affected the purchasing power of the customer, an increased awareness about the environmental issues and the digital revolution has changed the demands of the current customers.

Why companies should involve customers?

It is crucial to acknowledge and make the customer aware of the "green" initiatives the company is implementing. Thus, a good communication and marketing strategy specially designed to reach the target group. Addressing to a public which is environmentally concerned may lead to more loyal customer. Implementing servitisation and green initiatives contributes to a more sustainable development but making the customers aware of it may be also translated into benefits.

Besides, companies may opt for directly involving the customer in some of the stages in order to make sure their needs are fully meet. This way, the company gets to know better its customer, its potential clients, their concerns and wishes. In addition, involving customers during the whole designing phase of a product/service would ensure the final result is what customers really need or want.

Customers engagement and Circular Economy

The key is to make the customer aware of that effort and the fact that benefits are not only for the company or the customer but also for the whole society´s wellbeing.

In line with the strategies to engage the customer, it is essential to explain the reasons behind the implementation of these measures and promote it.

A marketing strategy needs to be put in place in order to show everybody the changes and the possibilities the company offers
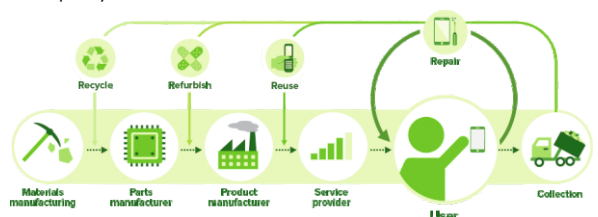
Customers may collaborate by:

Putting in place the 3 Rs strategy: reduction, reuse and repairment of products.

Green Entrepreneurship

Green Entrepreneurship (GE) is a response to the challenge of achieving compatibility between economic prosperity and environmental protection.

Green economy - a distinction between 2 categories

- companies that produce environmental goods and services

- companies that do not have an environmental motivation but endevour to reduce their negative impact on the environment.

Advantages and Challenges

- from financial profit to social impact

- from an exploitation model to cooperation and sharing

- from linear processes to circular processes

- from a top-down to a bottom-up approach (focusing on the community)

- from consumer to prosumer (producer and consumer)

- from a global approach to a 'glocal' approach (decentralised, but related to the challenges existing globally)

New Service Development (NSD)

get the right service.

at the right moment.

with the right price.

Main stages of NSD

· Identification and selection of opportunities

· Identification of latent customer needs

· Concepts / Ideas generation

· Concepts/ ideas selection

· Service technical features

Business Plan (BP)

Every plan needs to include components such as:

Overview of the business

The marketing plan

The financial management plan

The operations and management plan

The Canvas Business Model

Seven common parts of a good business plan are:

Executive Summary

Business Concept

Market Analysis

Management Team

Marketing Plan

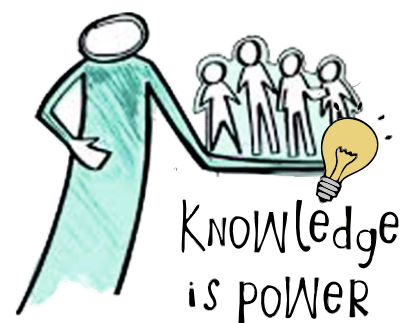Equipment list

Financial Plan

Business Value in Circular Economy and Servitization

Business value includes economic value as well employee, customer, supplier, channel partner, alliance partner, managerial, and societal value.

Business Value by Applying CE Concepts

The Circular Economy concepts touch on various topics:

- Waste management,

- Renewable energy sources and energy efficiency

- Becoming a competitive Low-Carbon Economy,

The application of the circular economy directly introduces certain business values, for example, the perception of both the client and the employee of an environmental improvement of the production process of the company.

New business values are introduced and other internal ones are improved in the company itself.

Aspects such as the organization of the different processes are improved, this means that the productive processes are streamlined to reach the final product or service.

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Circular Economy Adult Training
ToolBox-Knowledge ReUse

Introduction to environmental management systems

Eco-Management and Audit Scheme (EMAS) and International Organization for Standardization (ISO) standards are voluntary environmental management systems (EMS that provide an official transnational recognition, supporting companies to their development process differentiating from their competitors and attracting customers.

But, what are exactly EMAS and ISO standards?

According to the definition provided by the European Commission:

EMAS is open to every type of organization eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide.

ISO creates documents names ISO standards or rules that provide requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes, and services are fit for their purpose.

two important new approaches of the utilization of those standards in connection with the principle of circular economy:

• Management of environmental risk and their control.

• Consideration in the perspective of life cycle of the product.

The main goal of the implementation of these systems is to continuously improve, as most companies are somehow obliged to comply with the requirements of those standards.

The benefits of implementing an EMS for the company

• Better legal and regulatory compliance

• Identification and control of the environmental impact of the activities of the company

• More efficient use of resources

• Increased commitment of the employees

• Improvement in communication through the whole company

• You can use these standards for marketing and improve your reputation

• Proof of commitment with the environment

• Increase of attractiveness for customers, investors and shareholders.