



Grant Agreement Number: **101074204**

Project acronym: **RESIST**

Project full title: **Resilience through Sustainable processes and production for the European automotive InduSTry**

## **D. 5.5 RESIST MOOC**

**Due delivery date: 31/10/2023**

**Actual delivery date: 15/11/2023**

Organisation name of lead participant for this deliverable: **Autoklastr**

<b>Project funded by the European Commission within Horizon Europe programme</b>		
<b>Dissemination level</b>		
<b>PU</b>	Public – fully open (automatically posted online on the Project Results platforms)	x
<b>SEN</b>	Sensitive – limited under the conditions of the Grant Agreement	
<b>EU classified</b>	EU-RESTRICTED, EU-CONFIDENTIAL, EU-SECRET under Decision 2015/444	



Co-Funded by the  
European Union

## Document Control Sheet

<b>Deliverable number:</b>	D5.5
<b>Deliverable responsible:</b>	Autoklastr
<b>Work package:</b>	WP5
<b>Editor:</b>	Adam Priechodský

Author(s) – in alphabetical order		
Name	Organisation	E-mail
Adam Priechodský	Autoklastr	a.priechodsky@autoklastr.cz
Libor Dobeš	Autoklastr	l.dobes@autoklastr.cz
Jana Nevřelová	Autoklastr	j.nevrelova@autoklastr.cz

Document Revision History			
Version	Date	Modifications Introduced	
		Modification Reason	Modified by
V.1	15/11/23	Draft version	Adam Priechodský
V. 2	15/11/23	Final version	Adam Priechodský, Auriane Agard, Sonia Piñeiro, Álvaro lombardo, Eva Breuer
V.3	01/12/23	Final version with annexes	Auriane Agard

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those for the European Union or EISMEA. Neither the European Union nor the granting authority can be held responsible for them.

## Table of Contents

Table of acronyms and abbreviations .....	4
List of figures .....	4
Executive Summary .....	4
1. Introduction .....	5
1.1 Purpose of Document .....	5
1.2 Intended audience.....	5
1.2.1 ASA Platform for training content.....	6
1.3 Registration process to the learning platform .....	7
2. An overview of MOOCs.....	10
2.1 METHODOLOGY .....	10
2.2 AUTHORS.....	10
2.3 The importance of a unified structure and design.....	11
MOOCs (Massive Open Online Courses) as a condition for obtaining funding for a training course. ....	11
3. 10 MOOCs presentation.....	12
3.1 Understanding digital transformation. Guidelines for SMEs in the MTA ecosystem.....	12
3.2 Infrastructure for digital transformation.....	13
3.3 Data and information management .....	14
3.4 Digital strategy and competencies .....	15
3.5 Use of AI in manufacturing companies.....	16
3.6 Introduction to cyber-security .....	17
3.7 Energy savings .....	18
3.8 Decarbonisation in the industry .....	18
3.9 Cyber security for employees .....	19
3.10 Circular economy fundamentals.....	20
4. Certificate .....	22
Annexes .....	23

## Table of acronyms and abbreviations

MTA	Mobility, Transport and Automotive
SMEs	Small and Medium-Sized Enterprises
ASA	Automotive Skills Alliance
MOOCs	Massive Open Online Courses

## List of figures

Figure 1: Skills framework.....	6
Figure 2: Landing page of the ASA learning platform .....	7
Figure 3: Examples of RESIST courses on the platform.....	7
Figure 4: Registration process .....	9
Figure 5: Example of certificate.....	22

## Executive Summary

RESIST project focuses on enhancing the resilience of the European automotive industry through sustainable processes and production. It introduces the Automotive Skills Alliance (ASA) learning platform, which offers a comprehensive suite of over 120 online courses aimed at upskilling and reskilling workers within the automotive-mobility ecosystem. The Massive Open Online Courses (MOOCs) developed by RESIST partners cover essential topics such as **digital transformation, cybersecurity, energy savings, decarbonisation, and circular economy fundamentals**. These courses are **designed to support Small and Medium-sized Enterprises (SMEs) in their green and digital transitions**, equipping them with the necessary skills to adapt and thrive in a rapidly changing economic landscape.

## **1. Introduction**

### **1.1 Purpose of Document**

In summary, developing portfolio of RESIST MOOC is essential for awareness and importance of developing skills and competences which will help SMEs in their green and digital transformation. By investing time in training, SMEs can ensure that they will be prepared to succeed in the rapidly evolving economy and becoming leaders in MTA ecosystem.

### **1.2 Intended audience**

This deliverable is mainly addressed to the following audience:

- Clusters, relevant associations, companies and any other stakeholder working in our target ecosystem or with interest in the involved sectors, so they can access to ASA learning platform and participate in the MOOC within the scope and objectives of the RESIST initiative created by RESIST partners.
- Our project officer in the European Commission, to review that this deliverable contains the main aspects to be covered and fulfils the objectives established in the RESIST proposal.

### 1.2.1 ASA Platform for training content

ASA is a Large-Scale Partnership for collaboration on the skills agenda in the Mobility-Automotive Ecosystem Partnership. ASA was created in November 2020 under the Pact for Skills, the first flagship action of the European Skills Agenda, firmly anchored in the principles of the European Pillar of Social Rights. The pact aims to mobilise and incentivise private and public stakeholders to invest and take concrete action for the upskilling and reskilling of people.

The Automotive Skills Alliance (ASA) is focused on the re-skilling and up-skilling of workers in the automotive-mobility ecosystem, developing intelligence and fostering dialogue among all relevant partners and stakeholders in the ecosystem, and supporting the elaboration of specific plans for re-skilling, up-skilling and training of workers in the EU automotive-mobility ecosystem. The ASA supports collaboration and sharing the best practices in order to ensure continuous, pragmatic and sustainable cooperation on the skills agenda in the ecosystem.

The Skills Framework is a one-stop-shop for trainings in Automotive-mobility ecosystem with integrated framework for definition and recognition of job roles and skills / competence concepts using microbadges. The training courses linked and advertised by providers according to coherent structure and mapping exercise – more than 120 courses linked through the platform covering topics in the following areas:



Figure 1: Skills framework

Online platform containing more than 30 online courses now and growing. The first set of training courses were developed by the ERASMUS+ co-funded project DRIVES. The Eurocluster RESIST will be the pilot content provider for ASA platform.

Skills Framework – the platform is available on website: [skills-framework.eu](https://skills-framework.eu), for more features, such as learning account or course creation, register as a user or training provider on the website.



Figure 2: Landing page of the ASA learning platform



Figure 3: Examples of RESIST courses on the platform

### 1.3 Registration process to the learning platform

The registration process on the ASA Learning Platform (<https://learn.skills-framework.eu>) involves the following steps:

1. **Choose your username and password:** You need to create a username and a password for your account. The password must meet the following criteria:
  - At least 8 characters long
  - At least 1 digit
  - At least 1 lowercase letter
  - At least 1 uppercase letter
  - At least 1 non-alphanumeric character (such as \*, -, or #)
2. **Enter your email address:** You must provide a valid email address and then enter it again for confirmation.



3. **Provide personal details:** You are required to enter your first name, surname, city/town, and select your country from a dropdown list.
4. **Site policy agreement:** You need to read and agree to the site policy. There is a link provided to the site policy agreement, and you must check the box that states "I understand and agree".
5. **Submit the form:** After filling in all the required fields (marked with a red asterisk), you can submit the form to create your new account.

Please note that the page content indicates that there are required fields in the form that are marked, and you should ensure all of these are filled in before submitting the form.



# LEARNING PLATFORM

[Home](#) / [Log In](#) / [New Account](#)

## New account

Have an account? [Log In](#)

[Collapse all](#)

### Choose your username and password

Username

The password must have at least 8 characters, at least 1 digit(x), at least 1 lower case letter(x), at least 1 upper case letter(x), at least 1 non-alphanumeric character(x) such as !, -, or #

Password

### More details

Email address

Email (again)

First name

Surname

City/Town

Country

### Site policy agreement

[Link to site policy agreement](#)

I understand and agree

Figure 4: Registration process

## **2. An overview of MOOCs**

RESIST project partners developed ten MOOCs courses for green and digital transition, which are available on ASA platform and serves as a prerequisite for RESIST Open Call Training.

The current topics have undergone some modifications, with notable changes including the withdrawal of Euro7 due to political influences. This has led to a series of adjustments across various topics. Additionally, the subject of cybersecurity has been expanded and divided into two separate courses. Despite these changes, the total number of MOOCs being offered remains at ten. These alterations have been made to ensure that the content is up-to-date and relevant to the needs and interests of the SMEs.

Regarding the duration, the courses vary, ranging from 1 hour for the shortest to 10 hours for the longest."

### **2.1 METHODOLOGY**

Each chapter or module of this course has specific documentation, an explanatory (video) and a final questionnaire. The student must watch the video and read the documentation provided in order to complete the final questionnaire. Once you complete the first module, you will need to move on to the next and so on. It is recommended to follow the pre-established order of the chapters for a correct understanding of the information. The course will be considered 100% passed when the student has viewed all the videos and completed all the quizzes.

### **2.2 AUTHORS**

Those courses have been developed within the framework of the Eurocluster RESIST: "Resilience through sustainable processes and production for the European automotive industry". A European initiative launched in 2022 with the approval of the European Commission. This is the first Eurocluster created with a focus on the mobility, transport and automotive ecosystem. It is made up of four benchmark clusters in Europe: Galician Automotive and Mobility Cluster – CEAGA (Spain), Pôle Véhicule du Futur – PVF (France), Aragon Research, Development and Innovation Association – IDiA (Spain), Moravskoslezský automobilový klastr – Autoklastr (Czech Republic) and Business Upper Austria – Biz-Up (Austria).

Its objective is to help SMEs in their green and digital transition process, as well as increase their level of resilience in the face of upcoming challenges. To do this, it mobilises more than 1 million euros in cascading funds through different calls related to five specific areas: networking, innovation, adaptation, training and internationalisation. In addition, participating SMEs benefit from access to key information and studies focused on analysing future challenges, opportunities, needs, etc., as well as meetings with partners from other ecosystems.

## 2.3 The importance of a unified structure and design

Consistency: A unified structure and design provide a consistent learning experience for all learners, regardless of which RESIST MOOC they are taking. Consistency makes it easier for learners to navigate through the course content and understand the flow of the course. This helps learners to focus on learning the content rather than figuring out how to use the provided ASA platform or where to find specific information.

RESIST Branding: A unified structure and design can help establish a recognisable brand for the MOOC provider. By using consistent design elements and branding, learners will be able to recognise the MOOC provider and associate it with a particular style or quality of education. This is important for building trust and reputation in the educational market.

Efficiency: A unified structure and design can make it easier to create and launch new MOOCs quickly. By having a **standardised template**, content can be created and added more efficiently, allowing the provider to create new MOOCs on a larger scale.

The template for each MOOC has been prepared by CEAGA and been used by all partners.

MOOCs (Massive Open Online Courses) as a condition for obtaining funding for a training course.

By requiring MOOCs enrolment, we are setting a standard for preparation and engagement, ensuring that all applicants are adequately prepared and fully aligned with the objectives of the RESIST project goals, ultimately contribution to the success and impact of the training programs and twin transitions of European SMEs.

The provided platform is: <https://learn.skills-framework.eu/?lang=en> where preferred RESIST courses are available.

### 3. 10 MOOCs presentation

Topics:
1. Understanding digital transformation. Guidelines for SMEs in the MTA ecosystem
2. Infrastructure for the digital transformation
3. Data and information management
4. Digital strategy and competencies
5. Use of AI in manufacturing
6. Introduction to cyber-security
7. Energy savings
8. Decarbonisation in the industry
9. Cyber security for employees
10. Circular economy fundamentals

#### 3.1 Understanding digital transformation. Guidelines for SMEs in the MTA ecosystem

The course “Understanding Digital Transformation. Guidelines for SMEs in the Mobility, Transport and Automotive ecosystem (MTA)” aims to provide a clear vision of the benefits of digital transformation for companies, specifically for SMEs. It is about offering guidelines and recommendations that help SMEs in the MTA ecosystem to start a transformation process by incorporating new digital technologies that improve their processes, products or business models.

#### DURATION

Approximately 2 hours.

#### CONTENT STRUCTURE

The course is structured in four chapters or modules.

- Chapter 1: Introduction – What do we mean by Digital Transformation?: In the first chapter, the concept of Digital Transformation is defined, starting from the first industrial revolution to the present moment. The basic principles of digital transformation, its benefits for companies and the obstacles and challenges that different experts have detected are explained.
- Chapter 2: Digital transformation trends driving the future of the industry: In chapter 2 of the course, the main trends in the field of digital transformation are defined, both in the short and long term. A review is made of the technologies that are changing the mobility, transport and automotive ecosystem, as well as those that will mark its future.

- Chapter 3: How to start a Digital Transformation process?: In chapter 3 of the course, the main steps that an SME must follow to correctly start a digital transformation process are established. The objective is to encourage companies in the MTA ecosystem to take the step and help them start the process.
- Chapter 4: Next step – The Industry 5.0 revolution: The course ends by introducing the concept of Industry 5.0, which will mark the future of mobility, transport and automotive companies. Although the concept already emerged in 2010, companies are still beginning to learn its basic principles. For this reason, this chapter explains how it arises, what it implies and what its benefits are for companies.

## 3.2 Infrastructure for digital transformation

The course “Infrastructure for the Digital Transformation. Guidelines for SMEs in the Mobility, Transport and Automotive ecosystem (MTA)” aims to provide a clear vision of the benefits of the use of Artificial Intelligence in Manufacturing for companies, specifically for SMEs.

### DURATION

Approximately 10 hours.

### CONTENT STRUCTURE

The course is structured in four chapters or modules.

- Chapter 1: Essentials of AI in Advanced Manufacturing: In the first chapter, the essentials of AI applications in advanced manufacturing are explored, providing a comprehensive overview of the key concepts, technologies, and methodologies.
- Chapter 2: Infrastructure Requirements This chapter outlines the necessary infrastructure requirements, addressing the hardware, software, data and networking components essential for the optimal functioning of AI systems in advanced manufacturing settings.
- Chapter 3: Roadmap to Implementation: this chapter presents a step-by-step roadmap for the effective implementation of AI in advanced manufacturing.
- Chapter 4: Future Trends and Sustainability: this chapter explores emerging trends in AI for advanced manufacturing and examines their potential impact on sustainability. It discusses how evolving technologies and practices can contribute to a more environmentally friendly responsible future.

### 3.3 Data and information management

#### DURATION

Approximately 2 hours.

#### CONTENT STRUCTURE

This course is structured in four chapters or modules:

Module 1: Fundamentals of Data Management: This course will provide SMEs with an introduction to Data Management including:

- a definition and significance of Data Management and the history and evolution of Data Management
- Basic Concepts and Data Models: Data Structures and Data Types and introduction to Data Modeling and Data Schemas
- Principles of Data Quality and Life Cycle: Data Management and Quality Principles and Data Life Cycle and Its Phases
- Fundamentals of Database Systems: Overview of Database Systems and Basics of SQL

Module 2: Technologies and Tools for Data Management including:

- Database Technologies: In-depth Look at Relational and Non-Relational Databases and Fundamentals of Database Query Languages
- Big Data and Technologies: an overview of Big Data Technologies (Hadoop, Spark, etc.) and Data Analysis and Visualisation
- Cloud Services for Data Management: Basics of Cloud Computing and Cloud Services and Their Use in Data Management
- Applications of Business Intelligence and Data Warehousing: Principles of BI and Data Warehouses and Overview of ETL Processes and Tools

Module 3: Data Governance and Security:

- Introduction to Data Governance: Importance and Principles of Data Governance and Roles and Responsibilities
- Creating Data Policies and Standards: Policy Development and Implementation and Standardisation and Regulatory Requirements
- Data Security and Privacy: Security Measures and Strategies for Data Protection and Legal and Ethical Aspects of Data Management

- Maintaining Data Quality: Techniques for Data Cleansing and Maintaining and Monitoring Data Quality

#### Module 4: Practical Applications and Trends in Data Management

- Current Trends in Data Management: Artificial Intelligence and Machine Learning and the Internet of Things (IoT) and Its Impact on Data Management
- The Future of Data Management: Prediction of Future Trends and Technologies and Preparation for Upcoming Challenges in Data Management

### **3.4 Digital strategy and competencies**

#### **DURATION**

Approximately 2 hours.

#### **CONTENT STRUCTURE**

This course is structured in four chapters or modules:

##### Module 1: Fundamentals of Digital Transformation and Strategy

- Fundamentals of Digital Transformation: The significance of digital transformation and trends and challenges
- Digitalisation Strategy: Creating a digital strategy and digital readiness audit
- Managing Digital Transformation: Processes and structure of management and the role of CDO and the change-driving team

##### Module 2: Innovation and Technology in Businesses

- Utilisation of Cutting-edge Technologies: Technological trends and the impact of technology on innovation
- Innovation of Products and Services: Digital-first design of products and services and Case studies of innovations
- Changing Business Models: Transitioning to new digital models and digitalisation of customer relationships

##### Module 3: Leadership and Team Dynamics

- Role and Importance of CDO: Characteristics of the CDO role and Building and leading teams
- Preparation and Development of Teams: Key groups and educational programs and Communication strategies to support change

##### Module 4: Implementation and Competencies

- Mapping and Digitalisation of Processes: Methods and design of digitalisation and Optimisation of processes
- Agile Implementation of Technologies: Agile principles in practice and Examples of successful agile implementation
- Development of Digital Competencies: Definition and development of key competencies and Adapting work roles in the digital era

### **3.5 Use of AI in manufacturing companies**

The course “Use of Artificial Intelligence in Manufacturing. Guidelines for SMEs in the Mobility, Transport and Automotive ecosystem (MTA)” aims to provide a clear vision of the benefits of the use of Artificial Intelligence in Manufacturing for companies, specifically for SMEs.

#### **DURATION**

Approximately 10 hours.

#### **CONTENT STRUCTURE**

The course is structured in six chapters or modules.

- Chapter 1: Introduction to Artificial Intelligence (AI) and Manufacturing: This chapter provides an overview, introducing the intersection of AI and manufacturing.
- Chapter 2: Fundamentals of AI Technologies: this chapter explores the core principles and technologies that underpin artificial intelligence. It covers machine learning, neural networks, and deep learning and data management providing a solid understanding of the tools driving innovation in manufacturing.
- Chapter 3: AI Applications in Advanced Manufacturing: this chapter showcases real-world examples of AI in action within the advanced manufacturing sector. It explores how AI is revolutionising processes such as predictive maintenance, quality control, and automation and robotics.
- Chapter 4: Implementation Strategies for SMEs: this chapter offers strategic insights into the effective integration of AI technologies.
- Chapter 5: Ethical, Legal, and Social Implications of AI in Manufacturing: this chapter delves into the ethical, legal, and social considerations surrounding the use of AI in manufacturing.
- Chapter 6: Future Trends and Closing Remarks: this last chapter offers a glimpse of the future of AI in manufacturing. It discusses emerging technologies and summarises key learnings of the course.



## 3.6 Introduction to cyber-security

This MOOC is designed to provide SMEs with a solid foundation in the field, equipping them with the knowledge and skills necessary to navigate the complex landscape of cyber threats and defences.

### DURATION

Approximately 2 hours.

### CONTENT STRUCTURE

This course is structured into three insightful chapters, each building upon the previous one to offer a well-rounded education in the realm of cyber security:

- **Chapter 1: Introduction to Cyber Security**
  - This initial chapter will lay the groundwork by introducing the fundamental concepts of cyber security. SMEs will gain an understanding of the basic principles, terminologies, and the significance of protecting digital assets in today's interconnected world.
- **Chapter 2: State of the art in Cyber Security**
  - Building upon foundational knowledge, Chapter 2 delves into the current state of cyber security. SMEs will explore the latest trends, emerging threats, and cutting-edge technologies shaping the field. Real-world case studies will be discussed to provide them with a practical perspective on the ever-evolving cyber landscape.
- **Chapter 3: Defence in Depth, IEC62443**
  - In the final chapter, we will explore the concept of "Defense in Depth" and delve into the internationally recognised IEC62443 standard for industrial automation and control systems security. SMEs will learn how to implement layered security measures to safeguard critical infrastructure and gain insights into best practices for protecting industrial systems.
  - Throughout this MOOC, SMEs will have access to expert-led lectures, interactive quizzes, hands-on exercises, and a vibrant online community of learners. Whether they are new to the field or seeking to enhance your existing knowledge, this course will provide them with the tools and insights needed to excel in the realm of cyber security.
  - Join us on this educational journey as we equip you with the skills to defend against cyber threats and contribute to the safety and security of our digital world. Enrol today and embark on your path to becoming a cyber security expert!

### **3.7 Energy savings**

The course “Energy Savings tackles how energy efficiency can reduce environmental impact and operating costs of SMEs” aims to introduce the concept of energy savings in the mobility, transportation, and automotive ecosystem. During this course, the reasons that caused the current global energy crisis will be explained. In addition, how energy consumption works will be explained and strategies will be provided to companies to manage their energy consumption, saving money and reducing their environmental footprint. Finally, examples of pioneering companies in sustainable energy management will also be provided.

#### **DURATION**

Approximately 2 hours.

#### **CONTENT STRUCTURE**

The course is structured in four chapters or modules.

- Chapter 1: Introduction: in the first chapter, the main objective is to know the reasons why the global energy crisis broke out and how it is impacting the European automotive industry. We will also learn about the main political actions launched by Europe to confront the crisis and we will understand why energy saving is a key tool to promote the sustainability of companies.
- Chapter 2: Understanding energy consumption: in the second chapter, the main objective is to understand the concept of energy consumption and how it relates to the use of energy resources. We will learn about the energy consumption in the mobility, transport and automotive ecosystem and what are the advantages for SMEs of reducing energy consumption.
- Chapter 3: Key strategies related to energy: in this third chapter, the main objective is to learn about the key strategies related to energy. We will explain the main tips for manufacturing plants, structured in six different strategies.
- Chapter 4: Success stories: The course ends by introducing main success stories on energy savings in the mobility, transport and automotive ecosystem.

### **3.8 Decarbonisation in the industry**

This course provides a comprehensive overview of the essential concepts, strategies, and technologies associated with reducing carbon emissions in industrial processes. This course serves as a vital introduction to the critical field of decarbonisation, offering SMEs the knowledge and insights needed to understand and address the environmental challenges facing various industrial sectors.

#### **DURATION**

Approximately 1 hour.

## CONTENT STRUCTURE

The course is structured in four chapters or modules.

- Chapter 1: Introduction to decarbonisation in the industry: This course provides a comprehensive overview of the essential concepts, strategies, and technologies associated with reducing carbon emissions in industrial processes. This course serves as a vital introduction to the critical field of decarbonisation, offering students the knowledge and insights needed to understand and address the environmental challenges facing various industrial sectors.
- Chapter 2: ESG reporting: This chapter will focus on understanding the significance of Environmental, Social, and Governance (ESG) reporting within the context of industrial sustainability. They explore how ESG reporting serves as a vital tool for measuring, tracking, and disclosing an organisation's environmental and social performance, as well as its governance practices.
- Chapter 3: Key strategies for decarbonising the industry: This chapter focuses on key strategies for decarbonising the industry delve into the core strategies that drive the transformation of industrial processes toward a more sustainable and low-carbon future. This chapter provides a comprehensive overview of the key methodologies, technologies, and approaches that industries employ to reduce their carbon emissions.
- Chapter 4: Best practices and case studies: this last chapter delves into real-world examples of how a prominent French company has successfully embarked on its journey toward decarbonisation.

## 3.9 Cyber security for employees

The course "Cyber security for employees", is an extension to the RESIST course about Cyber-security.

It is a comprehensive course designed to equip individuals with the fundamental knowledge and practical skills needed to navigate the digital landscape securely. Covering essential cybersecurity concepts, threat recognition, best practices for password management, safe browsing, email security, and incident response, this course empowers participants to protect themselves and their organisations from a wide range of cyber threats. It is ideal for employees and general users who play a crucial role in maintaining digital security, fostering a culture of awareness, and ensuring personal and professional online safety in today's technology-driven world.

### DURATION

Approximately 1 hour.

## CONTENT STRUCTURE

The course is divided into three chapters and covers the following key topics:

- Chapter 1 : Introduction to Cybersecurity: This chapter initiates the exploration by providing a foundational understanding of cybersecurity.
- Chapter 2: Introduction to NIS II: Protecting critical infrastructure and digital services from cyber threats has become a top priority. To address this challenge, the European Union has introduced the Network and Information Security (NIS) II directive. Building upon its predecessor, NIS II aims to strengthen the cybersecurity of essential services and digital service providers, promoting a harmonised and resilient approach to cybersecurity across EU member states.
- Chapter 3: This chapter will provide SMEs employees with some best practices to help them secure their digital environment.

### **3.10 Circular economy fundamentals**

In this Training, the participants get to know the fundamentals of Circular Economy principles and learn how to exploit circular economy opportunities for their business.

Circular Economy (CE) fundamentals represent a transformative shift from linear consumption to sustainable resource management. CE principles include designing for durability, optimising resource use, and establishing closed-loop systems. These principles aim to reduce waste, conserve resources, and promote economic growth with a reduced environmental footprint. CE provides a vital framework for addressing today's sustainability challenges and fostering a more resilient future.

#### **DURATION**

Approximately 2 hours.

#### **CONTENT STRUCTURE**

The course is structured in six chapters:

- Chapter 1: Introduction: This chapter offers an initial overview and context of the circular economy. It sets the stage for understanding the significance of transitioning towards more sustainable and circular business practices.
- Chapter 2: Circular economy from a company's perspective: Focused on practical applications, this chapter provides a company-centric view of the circular economy.
- Chapter 3: Two key paths for the transition to a Circular economy: This chapter explores the shift from a linear to a circular economy through two key paths: the biological cycle, emphasizing products designed for natural return, and the technical cycle, promoting durable and service-based consumption. This transition aims to minimize waste, enhance sustainability, and align with evolving consumer values, fostering economic opportunities and innovation in resource management.

- Chapter 4: Circular economy framework - part 1: Reuse and Repair: this chapter delves into the Circular Economy framework, highlighting its core focus on promoting reuse and repair practices.
- Chapter 5: Circular economy framework - part 2: Refurbish and Remanufacture: delves into crucial strategies within the Circular Economy framework: refurbishing and remanufacturing.
- Chapter 6: Basic Strategies and Conclusion: This chapter explores the synergy between Circular Economy and sustainability strategies, highlighting their combined power to address resource scarcity and environmental issues.

## 4. Certificate

After successfully passing the course, participants will receive a certificate that will resemble the provided template. This certificate must be presented when registering for the open call for training.



Figure 5: Example of certificate

## **Annexes**

- Annex 1: MOOC: Understanding digital transformation. Guidelines for SMEs in the MTA ecosystem
- Annex 2: MOOC: Infrastructure for the digital transformation
- Annex 3: MOOC: Data and information management
- Annex 4 : MOOC: Digital strategy and competencies
- Annex 5: MOOC : Use of AI in manufacturing
- Annex 6: MOOC: Introduction to cyber-security
- Annex 7: MOOC: Energy savings
- Annex 8: MOOC: Decarbonisation in the industry
- Annex 9 : MOOC: Cyber security for employees
- Annex 10: MOOC: Circular economy fundamentals