MASTERCLASSES MODULE

Developing leaders and Managers.

Module Coordinator: Dr. Beatriz Martinez-Pastor
Mode of delivery: Online

Module Hours: 3 hours (2 sessions x 1.5 hours)

Module summary

The Developing leaders and Managers module under the STRADA Leadership program aims to provide the participants the tools to become better leaders. This module will introduce to the participants concepts related to leadership and management roles in manufacturing. Participants will develop insight into the leadership style, actively exploring the different styles of leaders and managers.

During the sessions of this module, participants will have the opportunity to critically engage with different dimensions of leadership in order for each participant to develop their own personal sense of themselves as a leader.

A range of leadership theories, perspectives and research are explored in this module in order to lead the participants in a critical engagement with the content so as to enable them to develop a range of ideas about leadership and a keen awareness of how to respond to different contexts and situations in appropriate ways different ways drawing on their emergent identity as a leader.

The module draws on a wide-ranging international literature to focus on contemporary policy, practice and leadership challenges.

Module aim

The Developing leaders and Managers module aims to:

A. Understanding Create awareness and entrepreneurial mindset to develop entrepreneurial behavior and skills.
B. Actively exploring the different styles of leaders and managers.

Learning Objectives

- Learn concepts related to leadership and management roles in manufacturing.
- Develop insight into the leadership style.
- Actively explore the different styles of leaders and managers within the manufacturing environments

Module themes

- **Theme 1: What is leadership?**

Lecture on leadership definition and styles

The lecture will focus on understanding what leadership in manufacturing is. This session will introduce the main concepts of leadership to the participants, as well as presenting the differences between leadership and management. During the lecture some of the main leadership dimensions/types will be introduced and examples in the manufacturing context will be presented.

- Theme 2: Developing Leadership Capacity

Lecture on building your own leadership capacity.

This lecture will focus on identifying your own capacities as a leader. The lecture will present some examples on how to identify your strengths as a leader and improve your leadership style. The different motivations and types associated with different leadership styles will be discussed and analysed. Real examples in industry and academia will be presented and a discussion with the class will be performed.

Leading Digitalisation

Module Coordinator: Ruth Kearney, Nightingale HQ (NHQ)

Module contributors: Ruth Kearney, Nightingale HQ (NHQ), Richard Jackson (NHQ), Chris Wilson (NHQ), Angel Dacal (CTAG)

Mode of delivery: Online

Module Hours: 4 hours (4 sessions x 1 hour)

Module summary

This module explores how to lead digitalisation projects within manufacturing and what's involved in making strategic decisions about what technologies to use, what areas to invest in, and how to grow internal digital skills. Lead by industry practitioner participants will take a deep dive into the process of digitalisation drawing from case studies from European automotive, steel, electronics manufacturers. Participants will gain invaluable insights into the practical implementation, quick wins and failings surrounding digitalisation.

The module is underpinned by four themes; Digitalisation Review; Process Mapping and Systems and Integrations and Data Analytics. On completion of the module, participants will understand what's involved in leading digitalisation projects. Starting with insights into why and how factories need to analyse data; the role process mapping plays in digitalisation and extracting tacit knowledge; how systems and integrations support manufacturers in becoming more data driven and sustainable.

Module aim

The overall aim of this module is to develop technology/digitalisation leadership competencies with application to situations emerging leaders face throughout manufacturing.

Learning Objectives

On completion of this module participants will

- Learn about the fundamentals of Digitalisation and what matters most in manufacturing
- Recognise Process Mapping underpins digitalisation and is key to extracting tacit knowledge
- Understand the value of strategic integrations to deliver a more complete business view
- Understand the role of data analytics and how and why we collect data
- Develop leadership skills within the context of supporting digitalisation projects in manufacturing.

Module themes

The module is underpinned by four themes; Digitalisation Review; Process Mapping and Systems and Integrations and Data Analytics. It is delivered through four online classes spread over a one-month period during which participants spend several non-contact hours working on practice-based tasks related to the module where they will develop their own basic process workflow in preparation for digitalisation.

- **Theme 1: Manufacturing Digitalisation**

Lecture on Digital Manufacturing with manufacturing usecases

The overall aim of digitalisation is to helps to eliminate waste by introducing easier, faster processes backed up by automation and/or cloud based digital systems where appropriate. This session will focus on the people, process and tools that drive digitalisation. The session will draw from real world practice of reviewing manufacturers across several sectors.

- **Theme 2: Process Mapping underpinning digitalisation**

Lecture on process engineering with a hands-on exercise developing a basic process map

Digitalising processes effectively requires a detailed knowledge of company processes. It's important that processes are well documented before digitalisation is attempted. Documenting processes has numerous benefits including supporting multiple people and providing the option to critically evaluate the process; such evaluation helps to identify areas of redundancy that can be removed. Once documented and assessed, process maps can then be digitised, replicating them within a digital medium. Participants will get hands on with some of the tools available to develop a basic process workflow chat using online tools.

- **Theme 3: Strategic integration of manufacturing systems**

Lecture on the benefits and challenges of systems integrations, with a guide to managing implementations.

Making systems and applications talk to each other is the first real task of any data driven organisation, lack of integration is one of the primary reasons for digital transformation failure.

This session will cover:

- Expectations for businesses seeking to digitalise
- How to determine what a full business view might look like for your business
- Pain points and strategic concerns when managing a systems integration project
- Security concerns after digitalisation
- Migrating your organisation to a different way of working
- Planning IT and compliance policies to manage your new technology stack

Participants will gain invaluable insights into technical, security, and policy issues when leading digitalisation projects which can be used to help govern their own organisation's push for digitalisation.

- **Theme 4: Data analysis in Manufacturing**

Lecture on why collecting and analysing manufacturing data leads to improved quality, efficiency, and productivity in the factory.

Participants will learn why and how factories need to analyse data and understand the main phases and the applications of analytics within the factory including quality control, predictive maintenance. Students will learn how a data analytics system is integrated into manufacturing drawing from a live use case on Stellantis, one of the largest manufacturers of autos in the world. They will gain valuable insights into the application of the analytics process and a priori algorithms (usage of process data from AUT layer and quality control systems), to find data correlations that may guide production improvements.

Entrepreneurship/Innovation

Module Coordinator: Elisabetta Raguseo

Module contributors: Alessandra Colombelli

Mode of delivery: Online

Module Hours: 4 hours (4 sessions x 1 hour)

Module summary

Module Entrepreneurship/Innovation under the STRADA Leadership program will introduce to the participants concepts related to entrepreneurship and innovation in manufacturing. Participants will learn the effects of the diversity in entrepreneurial and managerial teams, what is a startup, what is a business model in manufacturing and how to apply these concepts on a real case.

Entrepreneurship and innovation topics are really important in a manufacturing context for favoring change, innovation and growth. Entrepreneurs boost industry transformations, and can benefit the society favoring economic growth, social change and community development.

The importance of entrepreneurs in the society is beyond the effect those individuals have on their own companies. They can impact on the communities around them and are good instruments to be put in the hands of women in manufacturing since they can leverage on their professional background in order to identify new market opportunities and create their own start-up. This is particularly important for women since they have less favorable conditions and contracts (e.g., part time, etc..) and they are usually in not leadership rules.

Module aim

The Entrepreneurship/Innovation module aims to:

A. Learn the potential of innovation and entrepreneurship in team composition
B. Create awareness and entrepreneurial mindset for women to develop entrepreneurial behavior and skills
C. Understanding how startups search for a business model

Learning Objectives

- Learn the potential of innovation and entrepreneurship in team composition
- Learn what is a startup and its main features
- Identify how startups search for a business model
- Learning the tools to develop a business model
- Understanding the Customer Development process
- Learning the tools to perform the Customer Development
- Learning the tools to perform Customer Validation

Module Themes

- **Theme 1: Innovation/entrepreneurial potential and team formation**

Lecture on innovation/entrepreneurial teams

The lecture will focus on identifying innovation/entrepreneurial potential in team formation. Team behaviors, dynamics and orientation will be discussed as well as the importance of the diversity in the composition of entrepreneurial and management teams. Furthermore, innovation and entrepreneurial skills of the participants will be mapped during the module.

- **Theme 2 What is a startup and Business Model in Manufacturing**

Lecture on the main features of a startup and on the building blocks of a business model in manufacturing

The lecture will focus on identifying the features of entrepreneurs and the different types of start-ups. Real and innovative examples will be presented and a discussion with the class will be performed. The different motivations and types associated with different strategies will be discussed and how they drive different performance will be analyzed.

The lecture will focus also on understanding how startups search for a business model and on learning the tools to develop a business model in manufacturing. The key aspects of the lean start-up approach will be discussed as well as the impact of following a scientific approach and its effectiveness. During the lecture the business model canvas will be presented in the case of the manufacturing context.

- **Theme 3 Customer discovery and the customer validation**

Lecture on customer discovery and the customer validation

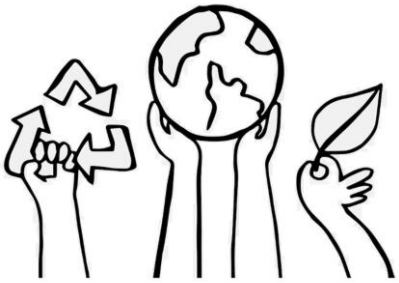
The lecture will focus on analyzing the customer development process by leveraging on the concepts discussed in the previous lectures. Specifically, the customer discovery and the customer validation will be addresses. Key questions to formulate during the customer discovery will be discussed, as well as the key questions to think about during the customer validation, including the different phases that distinguishes both.

- **Theme 4 Business model cases**

Lecture on the application of the business model on real cases

The lecture will focus on applying practically the topics learnt during the previous lectures. People involved will choose a manufacturing company and present the related business model. At the end, all the participants will identify the peculiarities and features of the business models presented by benchmarking them.

Sustainability in manufacturing



Module Coordinator: Elitsa Petkova, Cleantech Bulgaria

Mode of delivery: Online

Module Hours: 3 hours (3 sessions x1 hour)

Module Summary

Module Sustainability under the STRADA Leadership programme will introduce the participants to sustainable development in manufacturing and how to play the leading role in realizing sustainable growth. Participants will learn the fundamentals of the triple bottom line and the role of business in sustainability. They will also learn about the practical implementation of sustainability in manufacturing

The topic is very hot for the EU as climate neutrality underpinned by sustainable development is at the core of the Green Deal – the new growth strategy for Europe. Therefore, for realizing the ambitions for sustainable growth and twin transition, the creation of new generation of leaders recognizing sustainability as a key driver for business development is needed.

According to studies, women tend to be more dedicated to sustainability topics having their evolutionary role as protecters of the future generations. Additionally, it is now seen that females can be change agents when it comes to the adoption of new models and approaches such as circular economy or sustainability as a whole. Therefore, the inclusion of the topic of sustainability is of crucial importance for the STRADA Leadership programme as it will add on a layer of knowledge much needed for the future female leaders in the manufacturing.

Module aim

The Sustainability module aims to:

A. Build understanding of the importance of sustainability for leading the business of the future in line with the policy context on EU level
B. Provide knowledge about sustainability and circular economy as main drivers for sustainable growth of a business

Learning Objectives

- Have understanding about the EU policy context of sustainable development
- Gain knowledge about the basics of sustainability – triple bottom line and the role of business in sustainability.
- Have understanding about the basics of circular economy and how it can support sustainable development.
- Learn about the practicalities of leading sustainability projects within manufacturing

Module Themes

- **Theme 1 EU Policy Context on sustainable development**

Lecture on the EU Policy Context – strategic document and policy developments and examples of how these priorities translate into initiatives on national level

The theme will focus on the policy development in the field of sustainability in Europe – starting from the EU Green Deal and the related strategies and going to the national level where policies are impacting different systems. The entire policy context will be visualized for the participants in order to help them orientate for the relevant policies that impact the manufacturing sector's future development. This will provide participants with better understanding of the context in which the manufacturing companies will operate in the near future as well as what would be the policy trends for the industry and the markets.

- **Theme 2 Basics of sustainability**

Lecture on basic principles of sustainability and cases of manufacturing companies successfully using sustainability approaches for achieving quick wins in sustainable growth.

In this theme, the basics of sustainability will be presented starting with definition of sustainable development and concepts like triple-bottom line. For illustrating the complex systemic set-up of sustainable development, introduction to the UN SDGs will be made with a reference to the EU policies. Special attention will be paid on the role of business and more specifically manufacturing sector in sustainability, how it can be actually implemented and what would be the quick wins for manufacturing companies specifically.

- **Theme 3 Circular Economy and how it can support sustainable development**

Lecture on basic principles of circular economy and its role in driving the sustainable development including practical examples from successful implementation of circular principles in manufacturing companies

The third team will introduce Circular Economy, recognized by the EC as the key approach for achieving climate neutrality and sustainable growth of the European economy. Besides from explaining the principles, the theme will focus on the business case of circular economy i.e. why does it make sense to companies to introduce circular principles in their operations. Another very important aspect to be covered will be on implementing sustainability projects in manufacturing – key steps and processes. The theory will be backed up with practical examples from the manufacturing sector showcasing circularity in manufacturing processes and the impact on the business development of the companies.