Module Specification:

Managing Digital Change (MDC)

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1 Summary

Overall Learning Outcome: Learners will learn how to plan and conduct a change management project in the context of the digital transformation. They will learn how change management is affected by the specifics of the digital transformation and how digital change is happening, also in comparison to traditional change. This involves becoming familiar with both the recent literature on digital change and change management for the digital transformation, and with recent practical examples and cases.

Target Group Analysis: The module addresses **Master's students** with a management-oriented focus, both from technical sciences and business administration. Sufficient prior knowledge in the field of project management and change management is required, in addition familiarity with relevant trends of the digital transformation. Another target group are **practitioners** in the field of management, project management, business development and organizational development & HR.

Competences & Learning Outcomes:

- Understand digital change
- Familiarity with change management and digital transformation
- Ability to plan, lead and conduct digital change projects
- Develop competences of people, teams and organizations for the digital transformation
- Ability to develop digital strategies
- Ability to manage digital change sustainably and responsibly

Selection of Content:

- What is Digital Change?
- Manage the Pace – Practice - Collaboration: Business Model Transformation, Change Management, Organizational Maturity
- Manage the Learning – People - Agility: Leadership, Entrepreneurship, Competence Development
- Manage the Uncertainty – Perspective - Innovation: Strategy, Disruption, Lean, Sustainability

Activities and Teaching/Learning Methods:

- Online Courses, Videos, Literature for the Knowledge Transfer (mainly online)
- Case Studies (online) analysis
- Plan and conduct a digital change project as practical assignment (groupwork: workshop or virtual project)
- Write a digital change case study as a scientific assignment (individual or group work)

Teaching Materials/Literature/Media/Technical Requirements/Lab Equipment:

No specific requirements.

Tailoring & Educational Tracks (Practical, Entrepreneurial, Scientific):

- Practical Track: see 3.7
- Entrepreneurial Track: see 3.7
- Scientific Track: see 3.7
- Company Track: see 3.7

Competence Assessment:

- Knowledge: oral/written exam or online test
- Case Studies: analysis of a case study as individual homework
- Digital change project: groupwork, review and pitch presentation
- Own digital change case study: homework (individual or group) written with case study method, review and colloquium

Curricula Integration: Elective in the 2nd or 3rd semester of a Master programme, part of a specialization on Digital Transformation Management, e.g. an educational package on organisational development, project management, or sustainable development.

Quality Evaluation: Quality review by experts, evaluation of teaching activities

Change History & Ownership:

Release V2.0: Initial Version (20.7.2024), Carsten Wolff (FHDo), Chingiz Garayev (ASOIU), Nhiem Lu (FHDo)

Table of Content

2   Introduction to the module

The module "Managing Digital Change" is intended to give students or practitioners from technical or management fields a deeper insight on how to manage the transformational and change related aspects of the digital transformation. It is not a technical module, but a managerial module which extends change management according to the specific characteristics of the digital transformation. The module has 4 core areas and can be extended with a number of special topics (see 5. in content overview). The first element of the core areas deals with the definition of "digital change". The goal is to describe the relevant characteristics of the digital transformation which lead to the need for change in projects, organizations, business models, people and strategies. Based on this analysis of the digital transformation the relevant areas of adaptation of traditional change management approaches are defined. The first element of the core areas describes how and what is changed by the digital transformation, and it describes why change management has to be adapted. The following 3 elements (2.-4. in the content overview) take the structure of the IPMA competence baseline (ICB) and focus on the 3 domains "practice", "people" and "perspective". The element 2 is the "practice" chapter which introduces the change management methods adapted to the characteristics of digital change. The core question of this chapter is "how to manage the pace" of the digital change. Traditional change management (e.g., Lewin, Kotter) is introduced and modified according to the digital transformation of organizations and business models. A core assumption is that collaboration is an underlying pattern of the upcoming diverse and dynamic networks which replace traditional, hierarchic and stable organizations. The element 3 is the "people" chapter which puts a focus on how people's and teams' competences need to change and how mindsets and cultures of organizations have to change. People have to become entrepreneurial, more innovative and agile. The people domain is dealing with how to manage the learning. The element 3 is the "perspective" chapter which deals with the goals and strategies of digital transformation. It investigates the impact of digital transformation projects which is linked to the sustainability of such projects. The concepts of "disruption" and "lean" are introduced and methods for strategy development are described. The module can be extended by additional specialties (or electives) which are relevant for digital change. This involves a deeper analysis how the digital transformation changes society and humanity, the field of data ethics and new concepts of work (linked to Work 4.0).

Therefore, the module is structured as follows:

1. Introduction to the concept of digital change
2. Change management methods and practices for digital change as the "practice" domain with a focus on collaborative forms of organizations
3. People development and learning for the adaptation to the digital change as the "people" domain with a focus on agile mindset

4. Strategy and sustainable ways of change as the "perspective" domain with a focus on innovative and disruptive transformations

5. Selected additional topics (to be extended).

3   Module Description

3.1   Overall Learning Outcomes

- **Knowledge:** Upon completion of this module, students will be able to:
    - explain the basics of the digital transformation in organizations
    - explain and compare digital business models
    - know methods and tools for change management
    - know the characteristics and specifics of digital change
    - explain the various aspects involved in setting up and running a company
    - know maturity models and leadership concepts
- **Skills:** Upon completion of this module, students will be able to:
    - analyze and develop digital transformation projects
    - apply change management to organizations
    - design people development and trainings concepts
    - develop tailored concepts for sustainable digital transformation
- **Ability & Attitude:** The students have the ability/have developed the attitude to
    - develop and discuss concepts in teams
    - support teams as change agent or technology steward
    - communicate, facilitate and motivate digital change
    - present the results to companies and discuss in a professional context
    - foster and promote digital change
    - develop an ethical sense towards digital change and an entrepreneurial mindset
    - think strategically in an uncertain environment
    - work in teams and set up a digital transformation project for the respective case study

Learning Outcomes/Competences need to consider several competence domains [4]:

- **Technical Competence**: project and change management methods, maturity models, competence models, business model analysis (e.g. business model canvas), technology stewardship, sustainability standards & criteria
- **Professional Competence**: management competences, negotiation and presentation skills, team-related competences, critical thinking, analytical skills, strategic thinking, ethical behavior
- **Global Competence**: intercultural and international competences

Overarching Learning Outcomes (EIT OLO) in Masters programmes according to [5]

- Value judgments and sustainability competencies (EIT OLO 1):
    - The ability to identify the short- and long-term future consequences of plans and decisions from an integrated scientific, ethical and intergenerational perspective and to merge this into a solution-focused approach, moving towards a sustainable society.

- Entrepreneurship skills and competencies (EIT OLO 2):
    - The ability to translate innovations into feasible business solutions.
- Creativity skills and competencies (EIT OLO 3)
    - The ability to think beyond boundaries and systematically explore and generate new ideas.
- Innovation skills and competencies (EIT OLO 4)
    - The ability to use knowledge, ideas and technology to create new or significantly improved products, services, processes, policies, new business models or jobs.
- Research skills and competencies (EIT OLO 5)
    - The ability to use cutting-edge research methods, processes and techniques towards new venture creation and growth and to apply these also in cross-disciplinary teams and contexts.
- Intellectual transforming skills and competencies (EIT OLO 6)
    - The ability to transform practical experiences into research problems and challenges.
- Leadership skills and competencies (EIT OLO 7)
    - The ability of decision-making and leadership, based on a holistic understanding of the contributions of higher education, research, and business to value creation, in limited sized teams and contexts.

The module can be delivered with a mainly practical focus, as a training for change managers, change agents and project managers in the digital transformation domain. In addition to this (mandatory) practical part, it can be extended with a scientific element based on recent research in the respective thematic fields (see 3.4). Furthermore, an entrepreneurial variant of the module with a focus on business model changes and disruption can be conducted.

3.2 Target Group Analysis

Master students from technical sciences, e.g., informatics, engineering with a focus on related management competences:

- Studied a previous Bachelor's degree in a technical field, put focus on technology management, innovation, entrepreneurship in their Master's, want to select a management oriented elective
- Good technical background in relevant fields of digital transformation (e.g., informatics, programming, databases), sound project management competence, some business administration knowledge
- Need a focus on change management, project management, and people management in addition to their technical competences
- Competence goals: be able to lead digital change, conduct projects and lead people
- Targeted job-field: project manager for digital transformation projects (technology focus), entrepreneurs in technology domain

Master students from business field, e.g., management, project management, business administration/computing/engineering with a focus on related digital transformation competences:

- Studied a previous Bachelor's degree in a business-related field, put focus on new business models, organizational development, entrepreneurship in their Master's, want to select a technology oriented elective
- Good technical background in relevant fields of digital transformation (e.g., informatics, programming, databases), sound project management competence, some business administration knowledge
- Need a focus on the digital transformation and technology related aspects of management in addition to their business competences
- Competence goals: be able to manage business transformation and organizational transformation, strategic view, people management
- Targeted job-field: project manager for digital transformation projects (business focus), HR consultants, organizational developers

Practitioners from industry, both from business and technology field, professionals (3-5 years' experience) and (junior) executives:

- Studied a previous Bachelor's or Master's degree in a business-related or technology-related field, put focus on business model transformation, organizational development, digital transformation projects => need an intensive training (40-60 hours)
- Professional background in one of the relevant fields
- Need a focus on the practical competences, scientific competences are interesting but not mandatory, might need a certification
- Competence goals: be able to manage digital change in various fields and to understand the implications of digital change
- Targeted job-field: take next career step, might want to re-focus on different career path.

3.3 Competences & Learning Outcomes

See 3.1, split into overall learning outcomes and detailed competences and learning outcomes has to be done while refining the module ...

3.4 Content

3.4.1 Definitions & Characteristics of Digital Change

Digital change management as a process differs from traditional change management, e.g. due to the VUCA/BANI world, the pace of the emergence of digital technologies, etc..

3.4.2   Manage the Pace – Practice - Collaboration

1) New Digitalized Forms of Management, Iterative & Incremental
2) Business Models and Business Relations in the Digital Era
    a) Business Model Canvas
    b) Business Model Transformation
3) Change Management (Lewin, Kotter …)
    a) Change Management according to Lewin
    b) Change Management according to Kotter
    c) Kotter vol. 2
4) Digital Transformation of Organizations – Maturity Models
    a) The ultimate goal of Maturity Models is to provide companies with guidance to transform the company into a learning, agile organization and enable rapid decision-making and adaptation processes throughout every part of the business.

3.4.3   Manage the Learning – People - Agility

1) Leadership in the Digital Age
    a) Leadership styles: Ability of executives and managers to successfully meet the challenges associated with the execution of digital transformations (DT) in their organizations.
2) Entrepreneurial Mindset, Culture & Ethics
    a) Organizational Culture and Climate
3) Developing Competences, People and Teams
    a) Learning & Competences: The digital transformation and hereby mandatory change processes pose a multitude of challenges for organizations. L&D professionals can, and must, actively shape these processes and provide guidance to the organization tackling these changes.
    b) Learning Organizations, Absorptive Capacity
4) Change Agents & Technology Stewards
    a) Change Agent
    b) Technology Steward

3.4.4   Manage the Uncertainty – Perspective - Innovation

1) Strategy in the Digital Era - Scenario Based Strategy
2) Disruption (Clayton Christensen)
3) Sustainable Digital Transformation – Impact & Responsibility
4) Lean Startup (Eric Ries)

3.4.5   Selected Topics and Specializations

1) Change vs. Transhumanism vs. AI
2) Data Ethics
3) New Work based on Frithjof Bergman

3.5 Teaching & Learning Activity Plan

A) Teaching/learning methods per competence

- Knowledge: online courses, videos, literature: books and scientific papers, recent articles from blogs and media (mainly online)
- Knowledge and scientific methods: case study analysis (case materials provided online)
- Practical skills, professional ability & attitude: Plan and conduct a digital change project (groupwork: workshop or virtual project)
- Scientific competence, scientific ability: Write a scientific case study on a real-word digital change case (individual or group work)

B) Didactic concept:

- Online courses, videos, e-book, distance learning for the knowledge, possibly (virtual) lectures, provide material for further reading => use flipped/inverted classroom for discussion of topics, use exams (written, oral, online test) for competence assessment
- Project- and problem-based learning for the digital change project:
    - based on a company case provided by industry expert
    - own entrepreneurial startup project => work-integrated learning (WIL), challenge-based (e.g. with real investor pitch)
    - internship in a company => work-integrated learning (WIL)
- Case-writing method + surveys and interviews for elaboration of scientific case study => use regular reviews by teachers and industry experts, possibly peer review by other student teams => motivate to publish result as scientific paper (+ open data)

C) Learning Activity Plan:

Activity 1: Theory courses *on change management, digital transformation, managing digital change (30 h in total, e.g. 15 x 2h)*

The theory courses are online courses, videos or tutorials, and reading materials (e-books, scientific papers, published media). They are conducted during the whole semester or on the first 3-4 weeks of the semester.

Activity 2: Case study project simulation in teams *(e.g. 3-4 students) as a practical assignment (15 h contact time + 60 h team and individual work)*

Students conduct digital change project based on the types of cases outlined below:

- *conduct a digital transformation project in an existing company or organization with a focus on organizational change*
- *conduct a digital transformation project in an existing company or organization with a focus on the digital transformation of a business model*
- *develop a start-up project with a focus on a new, disruptive digital product or service*

As part of the practical assignment students are required to work in groups (of 3-4) which do an analysis of the as-is-situation (e.g., market analysis, maturity assessment of an organization), develop an idea for the future to-be-situation (e.g. a new business model) and a transformation and change management plan. The learning activities can include:

- *to write a business plan including financial planning.*
- *present a 90 second elevator pitch of the business idea => project kick-off presentation*
- *perform a 15 minute pitch presentation to a fictional panel of potential investors => project end presentation*

Roles are assigned and students produce the relevant project documents and artefacts.

Activity 2 can be conducted in an intensive block week, e.g. summer school. In that case, activity 1 has to be finished beforehand. Activity 3 concluded the block week.

***Alternative A for Activity 2: Project internship in a company** (e.g. 2 weeks - 1 month) with a written report and presentation*

***Activity 3: team presentations**: a "project kick-off presentation" and a "project end presentation" are provided on activity 2 (see above).*

***Alternative B for Activity 3:** Present a project case from own job*

***Activity 4: Group or individual homework**: writing a case study on a digital change project (15 h contact time + 60 h individual work)*

Students write a scientific case study on an approved (industry/real) project case (can be provided an industry partner, by university or submitted by student) and by using the case writing methods.

Students have to gather the relevant information by themselves, e.g. doing interviews or surveys.

The result is a written case study (e.g. in a wiki) and the respective data (provided as open data) and tools.

Contact time is used in individual consulting and intermediate reviews.

Activity 5: presentation of case study

Students present the case study in a petcha-kutcha pitch format, e.g. 20 slides in 60 seconds in front of teachers, industry partners and students.

To do: Describe predefined "student journeys" through the module, link it to learning trajectories and competence development paths.

3.6 Teaching & Learning Resources

- Learning Management System, e.g. moodle
- Collaboration and video conferencing platform, e.g. MS Teams

- Wiki-System (e.g. for developing the case study), e.g. Atlassian Confluence
- System for online surveys, e.g. google forms

3.7   Tailoring & Educational Tracks

Educational Tracks support the tailoring of the module to specific target groups:

- Practical: In order to focus the module on practical skills, learning activity 4 and 5 could be omitted and the learning activities 2 and 3 could be extended, e.g. by involving companies, by using a challenge-based approach, or by switching to alternative A and/or B.

- Entrepreneurial: In order to focus the module on entrepreneurial skills, the practical assignment could be a start-up project, an innovation project, or the development of a new business model. Learning activity 4 and 5 could focus on topics like market research or a customer application scenario.

- Scientific: In order to focus the module on scientific competences, the theoretical part (e.g. in learning activity A) could be increased by looking deeper into current research. The learning activities 2 and 3 could be omitted. Activity 4 and 5 could be expanded to a comprehensive scientific case study which may be published.

- Company: In order to convert the module into a training in a company, learning activity 1 could be conducted as a 2-3 day training instead of classes. Learning activity 4 and 5 could be omitted or shortened to an individual or team reflection session. Learning activity 2 and 3 could be conducted as described in alternative A and B.

3.8   Assessment Methods

FORM	%	REMARK
Knowledge: Oral or written exam, online test	30	Based on theory classes
Groupwork: simulation of change project (see cases) => project review	25	Project review is conducted by teachers/industry experts
Team presentation 1 for change project (activity 3)	10	Pitch format with industry partners
Groupwork or individual homework: write a case study (company case)	25	Written report following case study method, possibly publication
(Team) presentation 2 for case study (activity 5)	10	Petcha-Kutcha (with industry partners)

3.9   Curricula Integration

Integrate in which study programs?

- Project Management, Informatics, Digital Transformation, Business Computing, Business Engineering

- FH Dortmund: European Master in Project Management (EuroMPM), Master Digital Transformation (MDT)
- UPV/EHU: European Master in Project Management (EuroMPM)
- NUZP: Master in Transportation Technologies (MTT)

How to integrate into the curriculum?

- FH Dortmund: Elective (6 ECTS) in 2nd or 3rd semester, presence/workshop in block week, e.g., Spring School, Summer School
- UPV/EHU: Elective (3 ECTS) in 3rd semester, focus on practical track
- NUZP: part of the obligatory course "Urban Transportation Systems" (2 ECTS) in 1st semester

Integrate in which Educational packages (e.g. minor)?

- MA+ Project Management (KTU)
- Agile & Projectized Organizations in the Digital Era (see ProDiT project)
- Specialization on Entrepreneurship & Innovation (see ManDEE project)

3.10 Quality Assurance - Evaluation

Quality assurance - Evaluation

- expert review and release of specification and module by IEB/QMB
- pilot teaching with peer review and evaluation survey (students, teachers)
- via student survey after each teaching of the module
- after curriculum integration: accreditation review

4   Syllabus/Module Handbook

Managing Digital Change (MDC)					
Module Owner xxx	**Workload** 180 h	**Credits** 6 ECTS	**Semester** *2*	**Frequency** *summer semester*	**Duration** 1 Semester
1	**Course Title** Managing Digital Change		**Contact hours** 4 hours per week / 60 h in total	**Self-Study** 120 h	**Planned Group Size** 25 students
2	**Course Description** The digital transformation is to a relevant extent a change process with a huge impact on organizations, processes, business model, the socio-economic environment and finally the affected hum beings. Managing the digital change means doing change management in a very specific context by implementing change projects. The module intends to give students a scientific insight into the relevant underlying mechanisms of the digital change process.				

3	**Course Structure**
	
	1) What is Digital Change?
	   a) Digital Transformation – Incremental Change & Disruption
	   b) Definitions & Characteristics of Digital Change
	2) Manage the Pace – Practice - Collaboration
	   a) New Digitalized Forms of Management, Iterative & Incremental
	   b) Business Models and Business Relations in the Digital Era
	   c) Change Management (Lewin, Kotter …)
	   d) Digital Transformation of Organisations – Maturity Models
	   e) Chances and Risks of Digital Transformation in Organizations
	3) Manage the Learning – People - Agility
	   a) Leadership in the Digital Age
	   b) Entrepreneurial Mindset, Culture & Ethics
	   c) Developing Competences, People and Teams
	   d) Change Agents & Technology Stewards
	4) Manage the Uncertainty – Perspective - Innovation
	   a) Strategy in the Digital Era - Scenario Based Strategy
	   b) Disruption
	   c) Lean (Startup)
	   d) Sustainable Digital Transformation – Impact & Responsibility
	5) Selected Topics and Specializations
	   a) Change vs. Transhumanism vs. AI
	   b) Data Ethics
	   c) New Work based on Frithjof Bergman				

4	**Application Focus**
	The practical skills are trained by conducting a **change project based on a real-world case study**. This case study is elaborated in cooperation with companies or other partners from industry. The following case studies are foreseen (select one):
	• conduct a digital transformation project in an existing company or organisation with a focus on organisational change • conduct a digital transformation project in an existing company or organisation with a focus on the digital transformation of a business model • develop a start-up project with a focus on a new, disruptive digital product or service
	As part of the practical assignment students are required to work in groups (of 3-4) which do an analysis of the as-is-situation (e.g., market analysis, maturity assessment of an organisation), develop an idea for the future to-be-situation (e.g. a new business model) and a transformation and change management plan. The learning activities can include:
	• to write a business plan including financial planning. • present a 90 second elevator pitch of the business idea • perform a 15-minute pitch presentation to a fictional panel of potential investors
5	**Scientific Focus**
	For the scientific component, students **write a case study** based on a real company of their choice to highlight how it managed its digital transformation. Students are encouraged to perform interviews or surveys with their case study company to gain detailed data for their case study. Student will write a scientific report in the form of an academic case study description. The case study will be presented at the end of the course as a Pecha Kucha presentation, meaning that they only have 20 slides which automatically change after every 20 seconds.
	Methods are: Literature review, Case study method, Semi-Structured Interviews and Survey. Deductive own research based on the literature. Scientific reflection and discussion in the teams.
6	**Parameters**

	• ECTS: 6 (tailoring option: content 1-4 + one topic from 5, change project as groupwork, case study as group work)
	• Hours of study in total: 180
	   – Weekly hours per semester: 4
	   – Contact hours: 60
	   – Self-Study hours: 120
	• Course characteristics: elective
	• Course frequency: every year - summer semester
	• Maximal capacity: 25 students
	• Course admittance prerequisites: prior knowledge of project management and change management, prior knowledge about digital transformation trends
	• Skills trained in this course: theoretical, practical and scientific skills and competences;
	• Assessment of the course: contributions within case study project (team presentation) (50%) and written paper (literature review, report or survey, approx. 25 pages) and presentation (in class or at a student conference) (50%)
	• Teaching staff: teachers from Open Community of Practice

7	**Learning outcomes**
	Knowledge and understanding: The students • can explain the basics of the digital transformation in organizations • can explain and compare digital business models • know methods and tools for change management • know the characteristics and specifics of digital change • can explain the various aspects involved in setting up and running a company • know maturity models and leadership concepts *Application and generation of knowledge:* The students are able to • analyse and develop digital transformation projects • apply change management to organizations • design people development and trainings concepts for digital change • develop tailored concepts for sustainable digital transformation *Communication and cooperation:* The students have the ability to • develop and discuss concepts in teams • support teams as change agent or technology steward • communicate, facilitate and motivate digital change • present the results to companies and discuss in a professional context *Scientific self-understanding / professionalism:* The students have developed the attitude to • foster and promote digital change • develop an ethical sense towards digital change and an entrepreneurial mindset • think strategically in an uncertain environment • work in teams and set up a digital transformation project for the respective case study
8	**Teaching and training methods**

	Students will be guided through a case study project. They form agile teams and collaborate in the project execution via IT tools. In addition, they write a scientific case study as group work.
	• Online courses, videos, e-book, distance learning for the knowledge, possibly (virtual) lectures, provide material for further reading => use flipped/inverted classroom for discussion of topics, use exams (written, oral, online test) for competence assessment
	• Project- and problem-based learning for the digital change project:
	   o based on a company case provided by industry expert
	   o own entrepreneurial startup project => work-integrated learning (WIL), challenge-based (e.g. with real investor pitch)
	   o internship in a company => work-integrated learning (WIL)
	• Case-writing method + surveys and interviews for elaboration of scientific case study => use regular reviews by teachers and industry experts, possibly peer review by other student teams => motivate to publish result as scientific paper (+ open data)
	• Presentations to communicate results

9	**Curricula Integration**
	Elective, e.g. in 2nd or 3rd semester

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