Number of ECTS credits : 3
Course language : Anglais
Course leader : EL AMRANI REDOUANE
Speakers : EL AMRANI REDOUANE

COURSE DESCRIPTION

Digital Disruption is shaking up the *status quo* of every industry and redefining the way consumers engage and companies compete. However, many firms, large & SMEs, try to transform their business without changing their “business as usual” culture, process, and capabilities. Digital transformation is no longer a question of ‘if’ but rather ‘how fast?’ Digital Transformation is the profound change of business and organizational models to fully leverage the changes and opportunities brought by digital technologies. Therefore, companies need to establish a digital transformation strategy to govern and manage these complex challenges and changes. In this course, emphasis will be on the management of digital transformation, from both process and system perspectives, as well as issues and opportunities in innovating through technology.

No technical *prerequisites* are required to join the *course*.

COURSE OBJECTIVES

The aim is to understand the digital disruption, to analyze how digital transformation is impacting industries and business models and to build a unique digital strategy for your company. Upon completion of this course, participants will be able to:

- Clarify and precise basic concepts of Digital disruption, Digital Economy, Digital Transformation
- Understand the concepts of Digital Transformation vs Organizational Transformation and apply them to business processes
- Define main pillars and blocks Digital Transformation Strategy
- Analyze Digital Technologies use in back-office and front office (IA, Big Data, Blockchain and Cloud Computing) and explore their role in obtaining a strategic competitive advantage.
- Change Management for Digital Transformation : Human Capital & Digital Talent Gap
- Understand the organizational, behavioral, and political issues surrounding digital transformation in organization.

TACKLED CONCEPTS

- Digital disruption, Digitization and digital transformation
- Digital strategies and Digital business models
- Data & Artificial Intelligence
- Data Anlytics & Big Data
- Cloud computing
- Enterprise Systems
- CSF for digital transformation projects
- Case studies on digital transformation
- Sustainbility & Ethics In Digital Strategy

LEARNING METHODS

This course will combine discussions of current digital transformation concepts, principles and practices in use in the organization and its environment. Each session is designed to explore practical issues in the use of digital technologies to influence or implement corporate and competitive strategy of an enterprise. In order to gain maximum benefit from the course, course participants are expected to:

- Complete all assigned reading prior to the designated class
- Prepare assigned activities in advance of the class for which they are assigned.

All class sessions are designed to augment, rather than repeat/duplicate assigned reading.

EXPECTED WORK AND EVALUATION

Participant's grade will reflect the way in which they present and support their topics and positions in the various learning activities used in this course.

- Class Participation : 10%
- Case Study : 40%
- Final Exam : 50%

BIBLIOGRAPHY

- Schiuma, G.; Schettini, E.; Santarsiero, F. (2021), "How Wise Companies Drive Digital Transformation", J. Open Innov. Technol, Mark. Complex. Vol. 7
- Hess, C. Matt, A. Benlian, F. Wiesboeck, (2016), "Options for formulating a digital transformation strategy **",** MIS Quart. Execut., 15 (2), pp. 123-139

- Barthel, P. (2021), "What is Meant by Digital Transformation Success? Investigating the Notion in IS Literature". Wirtschaftsinformatik 2021 Proceedings.
- El Sawy, O; Amsinck, H; Kraemmergaard, P; and Lerbech V, (2016) "How LEGO Built the Foundations and Enterprise Capabilities for Digital Leadership," *MIS Quarterly Executive*: Vol. 15 : Iss. 2

- Van der Meulen, Nick; Weill, Peter; and Woerner, Stephanie L. (2020) "Managing Organizational Explosions During Digital Business Transformations," *MIS Quarterly Executive*: Vol. 19 : Iss. 3, Article 4.
- Bordeleau, Fanny-Ève and Felden, Carsten, (2019). "Digitally Transforming Organisations: A Review of Change Models of Industry 4.0". In Proceedings of the 27th ECIS, Sweden, June.
- Meske, Christian; Osmundsen, Karen S.; and Junglas, Iris (2021) "Designing and Implementing Digital Twins in the Energy Grid Sector," *MIS Quarterly Executive*: Vol. 20 : Iss. 3 , Article 3.

- Gurbaxani, Vijay and Dunkle, Debora (2019) "Gearing Up For Successful Digital Transformation," *MIS Quarterly Executive*: Vol. 18 : Iss. 3 , Article 6.
- M.D. Jones, S. Hutcheson, J.D. Camba, (2021), Past, present, and future barriers to digital transformation in manufacturing: a review, Int J Ind Manuf Syst Eng.

- Jonny Holmstrom (2021), "From AI to digital transformation: The AI readiness framework", Business Horizons, in press.
- Mayer, Anne-Sophie; Strich, Franz; and Fiedler, Marina (2020) "Unintended Consequences of Introducing AI Systems for Decision Making," *MIS Quarterly Executive*: Vol. 19 : Iss. 4 , Article 6.
- A.I. Canhoto, F. Clear (2020), "Artificial intelligence and machine learning as business tools: A framework for diagnosing value destruction potential", Business Horizons, 63 (2), pp. 183-193
- Asatiani, Aleksandre; Malo, Pekka; Nagbøl, Per Rådberg; Penttinen, Esko; Rinta-Kahila, Tapani; and Salovaara, Antti (2020) "Challenges of Explaining the Behavior of Black-Box AI Systems," *MIS Quarterly Executive*: Vol. 19 : Iss. 4 , Article 7.

- Dremel, Christian; Herterich, Matthias; Wulf, Jochen; Waizmann, Jean-Claude; and Brenner, Walter (2017) "How AUDI AG Established Big Data Analytics in Its Digital Transformation," *MIS Quarterly Executive*: Vol. 16 : Iss. 2 , Article 3.
- Chen, Hong-Mei; Schutz, Roland; Kazman, Rick; and Matthes, Florian (2017) "How Lufthansa Capitalized on Big Data for Business Model Renovation," *MIS Quarterly Executive*: Vol. 16 : Iss. 1 , Article 4.
- Martin, Kirsten E. (2015) "Ethical Issues in the Big Data Industry," *MIS Quarterly Executive*: Vol. 14 : Iss. 2 , Article 4.

- Iyer B and Henderson J.C (2012) "Business Value from Clouds: Learning from Users", *MIS Quarterly Executive,* Vol. 11 No. 1, pp. 51-60.
- Stamas PJ, Kaarst-Brown ML, Bernard S.A – (2014), "The Business Transformation Payoffs of Cloud Services at Mohawk", *MIS Quarterly Executive*, 13/4, pp. 177-192.

- Liu L, Feng Y, Hu Q and Huang X, (2011) "From transactional user to VIP: how organizational and cognitive factors affect ERP assimilation at individual level", *European Journal of Information Systems*, 20, pp.186–200.
- Mocker, Martin and Boochever, John O. (2020) "How to Avoid Enterprise Systems Landscape Complexity," *MIS Quarterly Executive*: Vol. 19 : Iss. 1 , Article 6.
- Cram, W. Alec; Proudfoot, Jeffrey G.; and D'Arcy, John (2020) "Maximizing Employee Compliance with Cybersecurity Policies," *MIS Quarterly Executive*: Vol. 19 : Iss. 3 , Article 5.
- Kabanov, Ilya and Madnick, Stuart (2021) "Applying the Lessons from the Equifax Cybersecurity Incident to Build a Better Defense," *MIS Quarterly Executive*: Vol. 20 : Iss. 2 , Article 4.

- Gerster, Daniel; Dremel, Christian; Conboy, Kieran; Mayer, Robert; and vom Brocke, Jan (2021) "How Fujitsu and Four Fortune 500 Companies Managed Time Complexities Using Organizational Agility," *MIS Quarterly Executive*: Vol. 20 : Iss. 2 , Article 5.
- Tabrizi, B. N., Lam, E., Girard, K., & Irvin, V. 2019. Digital transformation is not about technology. Harvard Business Review, 13.A

EVALUATION METHODS

50 % : Individual Final Exam
40 % : Case Study
10 % : class participation

SESSIONS

1

Managing Businesses in the digital world

LECTURE : 02h00

- Challenges of Operating in the Digital World : Why Digital Disruption Matter?
- Digital Transformation : Physical, Digital & Phygital.
- What is the price of your organization's survival: the most critical questions about Digital Transformation?
- Incumbents' Dilemma : how to deal with Digital Disruption ?
- Role of Digital Transformation in achieving competitive advantage and operational efficiency

2

Opening the Black Box of Digital Transformation

LECTURE & PRACTICAL WORK : 02h00

- What's Digital transformation ? What is not Digital Transformation ?
- Why Companies are reinventing themselves ?
- Digital transformation is a journey, not a destination
- Why Digital Transformation is complex & risky ?
- Digital Transformation of Manufacturing in the 4th Industrial Revolution : Digital Platforms, Digital Twin, Industrial IoT, Digital Ecosystems

3

Main Pitfalls of Digital Transformation and How to Avoid them

LECTURE & CASE STUDIES : 02h00

- Digital Transformation & Technological Determinism
- Digital Transformation & Strategic Alignement
- Digital Transformation & Organizational Maturity
- Digital Transformation & Human Assets vs. Digital Skill Gap
- Digital Transformation & Data Quality
- Digital Transformation & Operational Backbone Integration

4

Accelerating Digital Transformation through Artificial Intelligence (Part 1/2)

LECTURE : 02h00

- How AI and Digital Transformation will change the Business
- Demystifying AI in the digital age: AI pillars, challenges and strategies
- Explore the role AI technologies have in obtaining a strategic competitive advantage and act on the tremendous opportunities AI offers.
- How to apply AI in Business Context : AI use in back-office and front-office
- Understand the basic concepts of AI (ML, DL, RL) in business
- AI Project : what is the difference with IT traditional projects?
- Human-AI Collaboration: Understand ethical and privacy issues surrounding AI in organization and the limits and dangers of blindly relying on algorithms.

5

Accelerating Digital Transformation through Artificial Intelligence (Part 2/2)

LECTURE : 02h00

- How AI and Digital Transformation will change the Business
- Demystifying AI in the digital age: AI pillars, challenges and strategies
- Explore the role AI technologies have in obtaining a strategic competitive advantage and act on the tremendous opportunities AI offers.
- How to apply AI in Business Context : AI use in back-office and front-office
- Understand the basic concepts of AI (ML, DL, RL) in business
- AI Project : what is the difference with IT traditional projects?
- Human-AI Collaboration: Understand ethical and privacy issues surrounding AI in organization and the limits and dangers of blindly relying on algorithms.

6

Data, Data Explosion and Big Data Analytics

LECTURE : 02h00

- Why Organizations need Big Data Analytics within Digital Transformation?
- Data, Information, Knowledge & Decision
- Big Data strategy, technics and tools
- Business Analytics to Support Decision Making
- Big Data Ecosystem & Solutions (Hadoop, MongoDB, MapReduce)
- Data Analytics and Visualization

7

How blockchain powers energy digital transformation

LECTURE : 02h00

- Understand the fundamentals of blockchain technology : from bitcoin to industry.
- Explore real business use cases and applications of blockchain : why and how blockchain is used in organizations.
- Key areas where blockchain technology adds the most value.
- Analyze leading technology players in blockchain
- Ability to identify and assess perspectives of enterprise blockchain applications

8

Enterprise Systems & Cloud Computing : The Operational Backbone of any Digital Transformation

LECTURE : 02h00

- Whey Enterprise Systems & Cloud Computing are the Operational Backbone for Digital Transformation?
- Operational Excellence in the Digital Transformation Age : Implementation strategies / Operations and Post-Implementation
- The role of Cloud Computing in supporting Digital transformation : Value, Limits and challenges
- On-Permise vs. Cloud computing : Cloud types & Characteristics : SaaS / PaaS / IaaS