Course PM

IKA097 Leading in a Digital World

7.5hp, VT2020

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**Course Manager:** Robin Teigland, Chalmers University of Technology

**Examiner**: Robin Teigland, Chalmers University of Technology

## Teachers

* Professor Robin Teigland ([robin.teigland@chalmers.se](mailto:robin.teigland@chalmers.se)), Entrepreneurship & Strategy, Chalmers University of Technology
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* PhD Candidate Adrian Bumann ([adrian.bumann@chalmers.se](mailto:adrian.bumann@chalmers.se)), Entrepreneurship & Strategy, Chalmers University of Technology

## Guest lecturers

* Sanne Ollila ([susanne.ollila@chalmers.se](mailto:susanne.ollila@chalmers.se)), Entrepreneurship & Strategy, Chalmers University of Technology
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## The purpose and learning objectives of the course

The purpose of this course is to expand your knowledge of strategic thinking in a global and digital world. The course provides you with an overview of how digitalization and digital technologies have created profound changes in value-creating activities among companies, industries, and society in recent years as well as an insight into how these can affect value creation in the future.

The course will also enable you to develop your understanding and skills related to strategic thinking in a global and digital world through applying the appropriate strategic frameworks, concepts, and methods in a Live Project for the City of Gothenburg.

## Schedule

The course schedule can be found under the IKA097 course on Canvas. ***Please check Canvas regularly to keep up to date on any schedule or other course changes.***

Please note that the correct information regarding the schedule is on Canvas and not on TimeEdit. We have made some changes to the schedule and we may make further ones during the course.

## Pedagogical structure and organization of the course

The course is organized around the following: 1) various topics presented and discussed in lectures (3h) and seminars based on the lectures (1h per group), and 2) a series of lectures and seminars for the Live Case (lecture and group): The Gothenburg Smart City Challenge, which is run in parallel throughout the course. Please see the Live Case description on Canvas for more information.

1. Course Introduction, Digitalization, and Project Leadership Framework (Robin, Sanne, Ida, Adrian, Maria)
   1. To provide an understanding of the course material and structure, this lecture highlights issues such as:
      * How is the course structured and what are the various deliverables for the course?
      * What distinguishes digitization, digitalization, and digital transformation?
      * What is the Live Case: The Gothenburg Smart City Challenge?
      * What project leadership issues are important for the Live Case?
2. The Fourth Industrial Revolution, Emerging Technologies, & Scenario Thinking (Robin, Ida, Claudia, Lakshmi)
   1. Digitalization brings with it both a wealth of new opportunities and significant threats for firms. Furthermore, many (such as the World Economic Forum) argue that we are now entering the fourth industrial revolution in which companies, labor, and also social structures are changing due to exponential technologies such as the blockchain and artificial intelligence. To better navigate an increasingly uncertain future, organizations are turning to scenario thinking as a strategic tool. This lecture highlights issues such as:
      * How can the aforementioned phenomena affect market offerings and business models respectively?
      * What is the fourth industrial revolution?
      * What are the consequences of the fourth industrial revolution for society?
      * How does scenario thinking help organizations to better navigate the future?
3. Platform-based Business Models & Regional Rejuvenation (Robin)
   1. Digitalization has led to the development of platform-based business models - above and integrated - with digital infrastructures. This affects the relationship between the strategy and the organizational structure of organizations, which in turn changes the basis for competitive advantage. This lecture highlights issues such as:
      * How has digitalization led to business model innovation?
      * How do digital platforms and infrastructures change the nature of the company and the basis for competitive advantage? What are business and data ecosystems and how do they differ?
4. Digital Tools - IoT, Big Data, & AI (Ida, Peter)
   1. Digitalization that occurs within society increases the availability of data and it places many and new demands on how we handle data and create information. Part of digitalization is the emergence of Big Data and other new technologies and tools to support organizations in their efforts to become data-driven and make fact-based decisions. Digitalization and Big Data are strong driving forces for the emergence of more sophisticated analysis as part of decision support systems. This lecture highlights issues such as:
      * What is Big Data and how does it relate to digitalization?
      * What drives the emergence of an increased focus on facts and data-driven organizations with sophisticated analysis as a beacon?
      * How does this affect governance and decision-making in organizations?
5. Smart Cities & Public Policy (Maria, Kristina)
   1. Urban population growth gives rise to new kinds of problems such as waste management, air pollution, traffic congestion, etc. Digital innovation has been at the center of the discourse around “smart cities” to build more efficient and liveable cities. It is predicted that emerging technologies such as additive manufacturing (3D printing), the Internet of Things (IoT), big data analytics, and artificial intelligence (AI) will have strong implications for urban development. Thus, it is more important than ever to learn and understand how to harness the benefits of digitalization to make our cities “smarter” and what it takes to do so from a policy-making perspective.

This lecture will help you answer the following questions:

* + - What is a smart city? What triggers the creation of smart cities?
    - Why make a city “smart”?
    - What are the success factors of smart city initiatives?
    - What is public policy? What are the policy implications for smart city creation? How should the implications be handled to ensure more inclusive and sustainable outcomes?

1. Innovation and Open Data (Adrian, Carl)
   1. “Big Data” has often been mentioned as a major driver for digital innovation, even becoming a buzz word in recent years. The ability to collect, analyze and utilize large amounts of data has become an integral part of many business models. Following this development, many governments have started to publish their own data for the public, hoping to spark innovation, improve transparency, and enable citizen engagement. This lecture highlights issues such as:
      * What is data-driven innovation and how does it differ compared to more traditional innovation terms?
      * What is Open Data? How is it used today to create value?
      * How do you manage and foster digital innovation?
2. Circular Economy and Systems Thinking (Ida, Mats)
3. While many people foresee the benefits of the Circular Economy, the circular economy concept seems difficult to understand and implement. The main challenge of the circular economy concept is its systemic and cluster nature, mainly because it is derived from several schools of thought, such as Cradle-to-Cradle, Blue Economy, Performance Economy, and many more. Understanding the Circular Economy and how it can be implemented can help businesses, entrepreneurs and individuals change their behaviors and create innovative solutions for the sustainability of the world. This lecture will demystify the notion by explaining the following:

* Where did the circular economy come from?
* Why is it important for companies and society in general?
* What are the principles of the circular economy?
* Which frameworks can a business or city use to become circular?
* How does system thinking relate to the circular economy?

## Course literature

The main course literature consists of a collection of free articles and reports found on Canvas or through provided links.

**Please note, however, that you need to purchase one case study from Harvard Business Review for USD 8.95 for the third lecture. This should be the only literature expense you have in this course.**

In addition to articles, it is assumed that students take notes of the lectures as well as the Gothenburg Smart City Challenge lectures and materials.

1. Course Introduction, Digitalization, and Project Leadership Framework
   * Live Case: The Gothenburg Smart City Challenge Description on Canvas.
   * Bloomberg, J. (2018). Digitization, Digitalization, and Digital Transformation: Confuse Them At Your Peril, <https://www.forbes.com/sites/jasonbloomberg/2018/04/29/digitization-digitalization-and-digital-transformation-confuse-them-at-your-peril/#348b4d432f2c>.
   * Unruh, G. & Kiron, D. (2017). Digital transformation on purpose, *MIT Sloan Management Review*, Nov 6, <https://sloanreview.mit.edu/article/digital-transformation-on-purpose/>
   * Briner, W., Geddes, M., & Hastings, C. (1993). Chapter 1: The modem approach to project leadership, In *Project leadership*. Gower Publishing Company, Limited.
2. The Fourth Industrial Revolution, Emerging Technologies, & Scenario Thinking
   * Schwab, K. (2015). The fourth industrial revolution: What it means and how to respond. *Foreign Affairs*, December 12. <https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution>.
   * Exclusive interview with Klaus Schwab, World Economic Forum, 2017, <https://www.youtube.com/watch?v=R-n9Rjp-V2k>.
   * World Economic Forum, (2019), *The top 10 emerging technologies 2019*,   
     <http://www3.weforum.org/docs/WEF_Top_10_Emerging_Technologies_2019_Report.pdf>. (Skim the report)
   * Wilkinson, L. (1995). How to build scenarios. *Wired.* <https://www.wired.com/1995/11/how-to-build-scenarios/>.
3. Platform-based Business Models & Regional Rejuvenation
   * Eisenmann, T., Parker, M G.G., & Van Alstyne, M. (2006). Strategies for two-sided markets. *Harvard Business Review* 84(10), 92.
   * Van Alstyne, M. W., Parker, G. G., & Choudary, S. P. (2016). Pipelines, platforms, and the new rules of strategy. *Harvard Business Review* 94(4), 54-62.
   * 3D Robotics: Disrupting the Drone Market, To be purchased at <https://store.hbr.org/product/3d-robotics-disrupting-the-drone-market/B5826>
   * Teigland, Inspirando o Futuro (2019). <https://www.rtp.pt/programa/tv/p37509/e4>. (Video mostly in English)
   * (Optional) Larsson, A., & Teigland, R. (2019). *The Digital Transformation of Labor. Automation, the Gig Economy and Welfare*. <https://www.routledge.com/The-Digital-Transformation-of-Labor-Open-Access-Automation-the-Gig/Larsson-Teigland/p/book/9780367330705>
4. Digital Tools - Big Data, IoT, & AI
   * Bilgeri, D., Fleisch, E., Gebauer, H., & Wortmann, F. (2019). Driving Process Innovation with IoT Field Data. *MIS Quarterly Executive*, *18*(3).
   * Jones, M. (2019). What we talk about when we talk about (big) data, *Journal of Strategic Information Systems*, 28 (1), 3–16.
   * Pee, L. G. S., Pan, L. & Cui,L. (2019). Artificial intelligence in healthcare robots: A social informatics study of knowledge embodiment, *Journal of the Association for Information Science and Technology*, 70 (4), 351–369.
   * Wilson, H. J., & Daugherty, P. R. (2018). Collaborative Intelligence: Humans and AI Are Joining Forces, *Harvard Business Review.*
   * (Optional) Ashcroft, P. & Jones, G. (2018) *Alive: Digital Humans and Their Organizations*.
   * (Optional) Elements of AI online course, <https://www.elementsofai.se/>.
5. Smart Cities & Public Policy
   * Agbozo, E. (2018). The role of data-driven e-government in realizing the sustainable development goals in developing economies. *Journal of Information Systems & Operations Management,* 12(1), 70-77.
   * Ojo, A., Curry, E., & Zeleti, F. A. (2015). A tale of open data innovations in five smart cities. *In 2015 48th Hawaii International Conference on System Sciences,* IEEE, 2326-2335.
   * Castelnovo, W., Misuraca, G., & Savoldelli, A. (2016). Smart cities governance: The need for a holistic approach to assessing urban participatory policy making. *Social Science Computer Review,* 34(6), 724-739.
   * How can cities benefit from digitalization? <https://youtu.be/8BiXNUFJYik>
   * World Economic Forum, (2015). 5 tech trends that will transform governments <https://www.weforum.org/agenda/2015/09/5-tech-trends-transforming-government>.
   * Deloitte Infographic, The journey to government’s digital transformation, <https://www2.deloitte.com/us/en/insights/multimedia/infographics/digital-transformation-in-government.html>.
   * (Optional) Larsson, A., & Teigland, R. (2019). *Digital Transformation and Public Services: Societal Impacts in Sweden and Beyond,* Routledge. <https://www.routledge.com/Digital-Transformation-and-Public-Services-Open-Access-Societal-Impacts/Larsson-Teigland/p/book/9780367333430>.

1. Innovation and Open Data
   * Carrara, W., Radu, C., & Vollers, H. (2017). Open data maturity in Europe 2017: Open data for a European data economy. *European Data Portal.* **Read Executive Summary. Optional: read Recommendations**
   * Chan, C. M. L. (2013). From Open Data to Open Innovation Strategies: Creating E-Services Using Open Government Data. *46th Hawaii International Conference on System Sciences.*
   * Kitsios, F., Papachristos, N., & Kamariotou, M. (2017). Business models for open data ecosystem: Challenges and motivations for entrepreneurship and innovation. *2017 IEEE 19th Conference on Business Informatics (CBI).*
   * Lyytinen, K., Yoo, Y., & Boland Jr, R. J. (2016). Digital product innovation within four classes of innovation networks. *Information Systems Journal*. **Read p. 1-11 & Conclusion.**
   * Manyika, J., Chui, M., Groves, P., Farrell, D., Van Kuiken, S., & Doshi, E. A. (2013). Open data: Unlocking innovation and performance with liquid information. *McKinsey Global Institute*. **Read Executive Summary**
   * Wellington, B. (2015). How we found the worst place to park in New York City — Using big data. *TED*. <https://www.youtube.com/watch?v=lz_kIDxbzGA>
2. Circular Economy and Systems Thinking
   * Geissdoerfer, M., Savaget, P., Bocken, & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm?, *Journal of Cleaner Production*, 143, 757–768.
   * The Ellen MacArthur Foundation, (2012). *Towards a Circular Economy: Economic and Business Rationale for an Accelerated Transition*.
   * The Ellen MacArthur Foundation (2017). *Circular Consumer Electronics: An Initial Exploration*.
   * Prendeville, S., Cherim, E. & Bocken, N. (2018). Circular cities: Mapping six cities in transition, *Environmental Innovation and Societal Transitions*, 26, 171–194.

## Seminars

Seminars are on Wednesdays. For these seminars, students are divided into four seminar groups with five groups each so that the seminar is 45 minutes per group.

Before each seminar, students are expected to have read the associated literature and be prepared to discuss its contents in their groups and in plenum.

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| Seminariegrupp 1 | Projektgrupp 1-5 | 13:15-14:00 |
| Seminariegrupp 2 | Projektgrupp 6-10 | 14:14-15:00 |
| Seminariegrupp 3 | Projektgrupp 11-15 | 15:15-16:00 |
| Seminariegrupp 4 | Projektgrupp 16-21 | 16:15-17:00 |

## Assessment

The course consists of three elements that are assessed as below.

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| **Deliverable** | **Points** | **Assessment** |
| 1. Live Case (Group) | 2,5 hp | External lecture (Jan 28)  Choice of Development Area (Jan 28)  Initial Idea Submission and Presentation (Feb 17)  Initial Idea Peer Feedback (Feb 18)  Draft Pitch Submission and Presentation (Mar 4)  Draft Pitch Peer Feedback (Mar 5)  Final Report (Mar 12) |
| 2. In-class Exam (Individual) | 3.75 hp | Written Exam (Mar 18) |
| 3. Take-home Exam (Individual) | 1.25 hp | Take-home Written Exam (Mar 20) |

The Live Case is assessed with U/G. The exams are graded according to the below scale:

* For grades (3) minimum 40%
* For grades (4) minimum 60%
* For grades (5) minimum 80%

*To pass the course, you must pass each individual assessment deliverable.*

## “Tentamensgranskning”

Two review sessions will be offered within three weeks of exam results. Time and location will be announced via Canvas. Any request for regrading shall be made by email and have been received no later than two weeks after the end of the review period.

## Course administration

Regarding communication with the teachers, e-mail or personal meetings in connection with the lectures and seminars is recommended.