



Documentation of pilots

Global Business Performance, AAU

Spring 2020

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Introduction



This document contains the documentation of the pilot course Global Business Performance for the AAU case, for the Spring 2020 semester. The document contains a description of the settings and the motivation of the case, as well as an overview of the key performance indicators (KPIs) for the pilot. The execution and documentation of pilots are part of a larger process, named Educational Framework, aimed at transforming educational programmes for future Industry 4.0 capabilities. The case/pilot is chosen based on two initial analyses, respectively focused at industry and the institution. For further information regarding the overall process, please see the document 'Educational Framework'.

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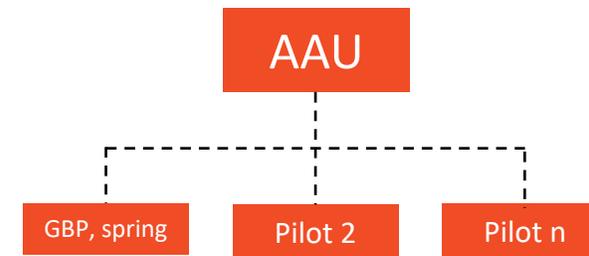


Fig. 1. The figure shows the relationship between the two terms: *case* and *pilot*.



Description of the pilot (summary)



This case addresses the course Global Business Performance at Aalborg University, which is taught in the master programme Operations and Innovation Management on the second semester. This specific course focus on addressing business performance issues at various levels (individual performance, firm performance and network performance). During the course, various models, theories and tools are presented to the students on how to assess and improve performance.

The GBP course has a workload of 5 ECTS. The course currently covers the following 8 lectures; 1) Supply Chain Performance, 2) Individual Performance, 3) Decision-Making in Supply Chains, 4) Activity-based management, 5) Total Cost of Ownership, 6) Target Costing, 7) Strategic Cost Management, and 8) LEAN and accounting.

The course currently focuses on process based improvements and techniques, with limited focus on the technical solutions and opportunities that is achievable with the introduction of Industry 4.0. The course cases and examples are in need of representing the digital reality. The same can be said of the educational methods applied, which are outdated in terms of enhancing learning.

The aim of this pilot is to introduce new teaching approaches into the course to reduce the gap between what is taught theoretically and what can be applied in real world problems by the students.

The success criteria are:

- More relevant and applicable cases and examples
- Students with enhanced learning and elimination of teaching gaps
- Better teaching methods, that engages students.



Description of the pilot (summary)



KNOWLEDGE

- Understand complexity management principles and tool kits based on systems science and systems methodology
- Account for various orientations of companies' operations systems (technology, innovation, cost, quality, flexibility) and can explain how these orientations affect performance management and control
- Understand risk types (both internal and external) and their impacts in extended enterprises
- Understand the principles of value stream costing, using value stream mapping and business process re-engineering
- Understand and can explain value engineering, target costing and chained target costing in cooperation between the focal company and its 1st, 2nd, etc. tier suppliers
- Understand total cost of ownership (TCO), differentiated on the basis of product-/supplier type, techniques in the form of 'Monetary-based method' (Activity Based Cost Systems), 'Cost-ratio/value-based method' and 'Mathematical programming decision model'
- Understand and can explain supply chains financial and non-financial performance and its sensitivity as a function of the market and selected divide between push and pull operations
- Understand and can explain conflicting and colliding cases of Lean and the company's financial management and reporting, as well as possible solutions, including financial reporting that complies with Lean's seven waste categories



Description of the pilot (summary)



SKILLS

- Conduct analysis and evaluation of operations performance in the context of extended enterprises
- Use tools and techniques for measuring and managing performance of activities that cross both geographical and organizational boundaries
- Initiate performance improvement programs and their implementation in contemporary extended enterprises

COMPETENCES

- Identify and diagnose problems with performance management systems in contemporary extended enterprises
- Conceive appropriate performance management system designs
- Take responsibility for implementation and control of operations performance management systems in contemporary extended enterprises



KPIs and how they are measured



- The students' ability to relate to more applicable examples and cases
 - This is examined by qualitatively assessing the feedback from the prior years (2018/19) with the pilot (2020) – i.e. qualitative feedback have been continuously collected following each lecture since Spring 2018.
- The students' enhanced learning and elimination of teaching gaps
 - Notes from exam (2018/19 compared to pilot 2020) is qualitatively compared towards which areas did the students struggle with.
 - Quantitative analysis of grades for 2018/19 to pilot 2020.
- Better teaching methods that engages students
 - Measured by examining the % of students that have actively answered questions to the reading/viewing/listening material prior to classes
 - Number of new teaching methods
 - This is examined by qualitatively assessing the feedback from the prior years (2018/19) with the pilot (2020) – i.e. qualitative feedback have been continuously collected following each lecture since Spring 2018.



Implementation of the Educational Framework

Various methods are used for the different classes

- flipped classroom,
- blended learning,
- group work,
- cases,
- and active learning.

Most one-way communication/lectures are recorded and viewed in advance.

Increased used of various digital tools:

- Videos
- Podcasts
- Articles (Academic, books chapters, news)



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Results and Evaluation



[A description of the results (KPIs) and an overall evaluation of the pilot. This is filled in after the pilot is executed]

The pilot was implemented according to the plan in the Spring of 2020, all changes were implemented and tested. Due to the COVID-19 lockdown, half of the courses were held as online seminars, for which qualitative feedback was not collected. Thus, the qualitative feedback received after each lecture is limited to only four lectures, while the semester reports cover the entire timeline, with one being prior to the lockdown, and two conducted during the lockdown.

The assessment of the goal of increasing *the students' ability to relate to more applicable examples and cases*, it was found that the students enjoyed the cases, and even requested more. They were asked to share their own experiences from their projects with companies, which further added to the number of examples presented. The use of videos and podcasts gave another view on the cases and was rated higher than standard cases in articles.

To assess *the students' enhanced learning and elimination of teaching gaps* another approach than planned was used. Here, three students who due to failed exams took the class in both 2019 and 2020 were interviewed. During this interview, they were asked about the changes made to the course, and how it improved their learnings. The most iterated point was the ability to re-watch the videos at their own time as many times needed, as some learning points was difficult to understand the first time. They iterated that they might miss some points during the lecture, or forget point prior to the lecture, but the ability to re-watch these videos was the key change. Several of the other initiatives were also rated highly, the reflective questions they felt forced more people to prepare, which in the end lead to better lectures as more people engaged in discussions and this provided additional insights.

To assess the goal of using *better teaching methods that engages students*, several aspects can be evaluated. The design of the course asks the students to write reflective comments and questions for articles, videos, cases and podcasts during their preparation. Here, it was found that on average, 56% of the students had answered those questions prior to the start of the lecture. Since the task was not asked for 2019, it is difficult to compare, but the experience is that the preparation for this semester was significantly higher than in previous years. All lectures had elements of blended learning, where students were asked to prepare prior to the lecture, with more discussing during the face-to-face/online lecture. One lecture was held as a flipped classroom, where each group was assigned reading material and would have to present to the other groups during the lecture. Generally, the comments from the collected post-its and the semester evaluation reports were positive.

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