



**DIPARTIMENTO DI INGEGNERIA DELL'ENERGIA DEI SISTEMI
DEL TERRITORIO E DELLE COSTRUZIONI**

**RELAZIONE PER IL CONSEGUIMENTO DELLA
LAUREA MAGISTRALE IN INGEGNERIA GESTIONALE**

***Analysis and development of Operational Excellence
training in Körber***

SINTESI

RELATORI

Prof. Ing. Marcello Braglia
Dipartimento Di Ingegneria Civile E Industriale

Ing. Leonardo Marrazzini
Dipartimento Di Ingegneria Civile E Industriale

Ing. Marco Omeri
Körber Tissue

IL CANDIDATO

Stefania Renda
s.renda2@studenti.unipi.it

Sessione di Laurea Magistrale del 26/04/2022

Sommario

Questo lavoro di tesi è il risultato di un tirocinio della durata di sei mesi svolto nel reparto di Operational Excellence della Körber Tissue SpA, azienda operante nel settore della fabbricazione della carta Tissue. L'obiettivo del progetto di tesi è stato quello analizzare ed ampliare il portfolio training del reparto con particolare attenzione allo sviluppo di un corso Lean Six Sigma Yellow Belt e uno di Operational Excellence per i leader. Il materiale progettato durante il tirocinio servirà per effettuare i futuri corsi aziendali.

La strategia adottata si è basata sullo sviluppo di strumenti di analisi al fine di identificare i bisogni formativi relativi ai due corsi. Successivamente, sono stati determinati gli argomenti, la durata e il target dei corsi, in modo da garantirne la pertinenza alle esigenze dell'azienda e dei partecipanti. Sono stati poi sviluppati i contenuti del corso, includendo sia una parte teorica che pratica, con esercitazioni ed esempi reali. Dopo aver effettuato le sessioni pilota per entrambi i corsi, sono state programmate numerose sessioni in diverse aziende del gruppo. Sono stati altresì sviluppati specifici strumenti di raccolta dei feedback in modo da verificare l'efficacia del corso. Infine, sono stati sviluppati strumenti per il monitoraggio dei suddetti.

Abstract

This thesis work is the result of a six-month internship carried out in the Operational Excellence department of Körber Tissue SpA, a company operating in the Tissue paper manufacturing sector. The aim of the thesis project was to analyze and expand the department's training portfolio, with particular attention to the development of a Lean Six Sigma Yellow Belt course and an Operational Excellence course for leaders. The material designed during the internship will be used for future company courses.

The strategy adopted was based on the development of analysis tools to identify the training needs related to the two courses. Subsequently, the topics, duration, and target of the courses were determined to ensure their relevance to the company's and participants' needs. The course contents were then developed, including both theoretical and practical parts with exercises and real examples. After conducting pilot sessions for both courses, numerous sessions were scheduled in different companies within the group. Specific feedback collection tools were also developed to verify the effectiveness of the course. Finally, tools were developed for monitoring the courses.

1. Introduction

1.1 The Company

Körber Group is an international technology group founded in Hamburg, Germany, with over 12000 employees and more than 130 locations worldwide. The group is divided into five main areas: Technologies, Tissue, Supply Chain, Digital and Pharma.

1.2 Körber Tissue

The Tissue Business Area distinguishes itself as a singular, all-inclusive, and worldwide provider of tissue paper processing solutions. It boasts the most cutting-edge assortment of offerings across the entire value chain, from raw materials to packaging, encompassing roll to folder and converting operations.

1.3 K.Excellence

K.Excellence is the official name of the Operational Excellence department at Körber Group. It is a group-wide initiative aimed at improving processes and working environments, and leveraging potential in the organization, products, services, and solutions.

1.4 The project

The thesis project focuses on training portfolio analysis, development, and implementation of missing courses. For the definition of the courses, it was necessary to establish contact with Operational Excellence referents of each Business Area to develop content according to their needs. It is important to determine the duration and number of sessions for each course, target group, language, and trainer.

1.5 The AS-IS Situation

The project began with an analysis of the AS-IS Situation, which involved examining the courses offered by the company. To develop effective training courses, it was necessary to evaluate the current state of the organization's training program and assess its effectiveness. Körber provides a combination of in-house courses and courses from an external company. The internal courses include basic and intermediate training on Operational Excellence, while the external courses consist of Green Belt LSS, Black Belt LSS, and Master Black Belt. The analysis started with the basic course, which aims to provide fundamental knowledge on Continuous Improvement Methodologies. The course was launched in February 2020, and at

the time of the study, the status of trained personnel had been analyzed for each Business Area and Company. The results are presented in Figure 1.

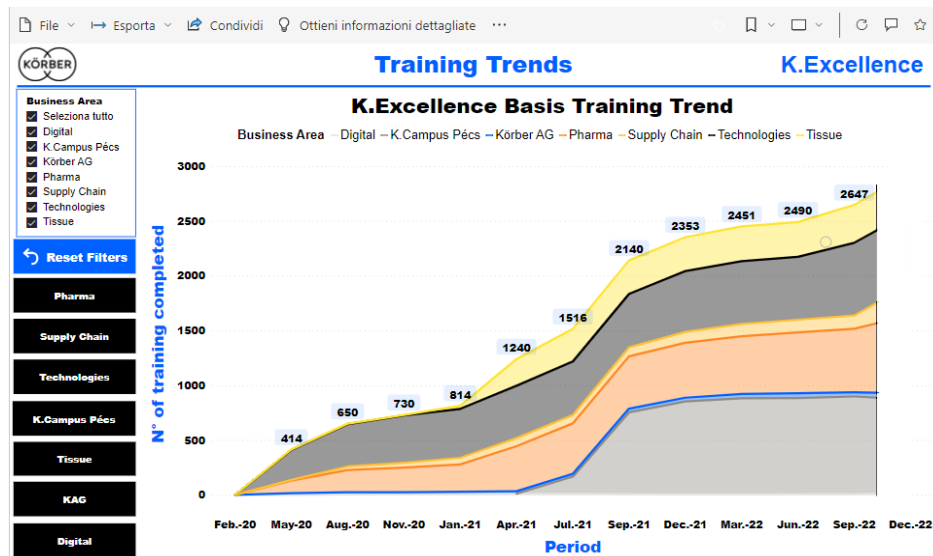


Figure 1: K.Excellence Basis Training Trend

The second internal course is an intermediate training that aims to provide more in-depth knowledge on continuous improvement methodologies compared to the basic training. The course was launched in April 2022, and at the time of the study, the status in terms of trained personnel had been analyzed for each Business Area and each Company. In particular, the growth rate of courses based on Business Areas is shown in Figure 2.

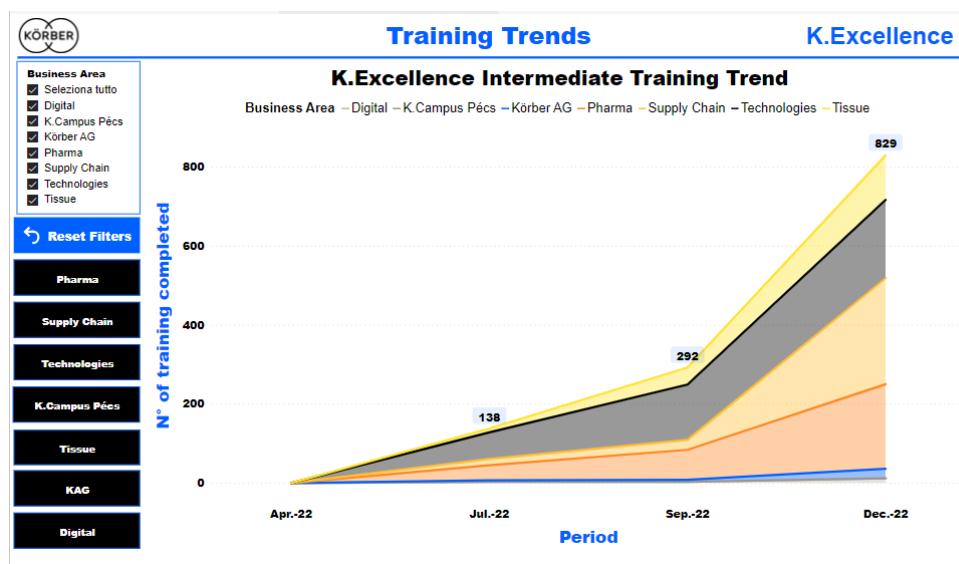


Figure 2: K.Excellence Intermediate Training Trend

2. Identification of missing trainings

After analyzing the available training programs, it became evident that there were some gaps that needed to be addressed.

To address these gaps, the company decided to develop an internal Yellow Belt course and an Operational Excellence course for leaders. The decision to develop an internal Yellow Belt course was based on the analysis of the company's training needs and the gaps identified in the current training programs.

This course is important because it provides a foundation of knowledge and skills in Six Sigma methodologies to employees who may not be directly involved in leading process improvement projects but still play a critical role in their success.

The decision to develop the K.Excellence for leaders course was based on the analysis of the managers needs, who want to know more about Operational Excellence and leaderships tips. The course will be designed to be more time-efficient than the other certification programs and to provide leaders with practical tools and knowledge that can help them improve their leadership style and support continuous.

3. Yellow Belt analysis and development

When designing a training course, the first step is to determine the topics to be covered, the duration, and the target group. Selecting the topics depends on the prior knowledge and expertise of the target audience, which can be challenging in a large organization like Körber. To determinate the Yellow Belt course content, a needs assessment was conducted to identify the knowledge gaps and needs of the target audience. Data was gathered through interviews, surveys, and focus groups. A questionnaire was initially administered to Black Belt and Master Black Belt to identify the areas to be covered in the course. The questionnaire also helped determine the appropriate length of the course and the number of participants for each session. According to the survey, the number of participants per session should be 10-12 and the duration 8 hours.

3.1 Yellow Belt course design

Thanks to questionnaires, interviews, and other studies, the topics to be included in the Yellow Belt course have been determined. The course will focus on topics such as Operational Excellence Introduction, Continuous Improvement Methodology, Problem Identification, Root Cause Analysis, Solution Creation, Lean Tool and Standardization.

The decision was made to explore the topic mentioned above in varying degrees of detail, in order that the course is tailored to the needs of the participants. Additionally, it was decided to adopt a modular approach for the course since participants have different levels

of knowledge and experience. To deliver the course content, a PowerPoint presentation and accompanying PDF file will be prepared, which will cover both the theoretical and practical aspects of the course, including individual and group exercises and a series of questions. Once the course topics were defined, numerous research efforts were needed to develop and refine the materials. To ensure that participants have a comprehensive understanding of the Lean Six Sigma methodologies, a final test will be required to obtain certification. An agenda has been created to ensure that the course runs smoothly within the allotted time and that all topics are covered. The agenda is shown in the figure 3.

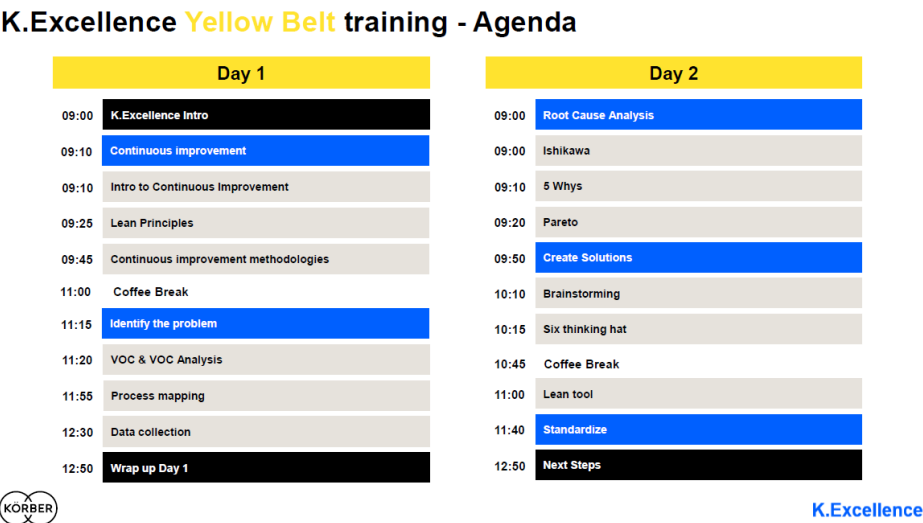


Figure 3: K.Excellence Yellow Belt training - Agenda

3.2 Yellow Belt Implementation

The pilot session of the Yellow Belt course was held at Körber Tissue headquarters in Lucca on December 14th and 15th, 2022, with a class of eight participants. The course was conducted over two mornings, from 9am to 1pm. At the end, a satisfaction questionnaire was administered to gather feedback from the participants. The results of the questionnaire related to the topics are shown in Figure 4.

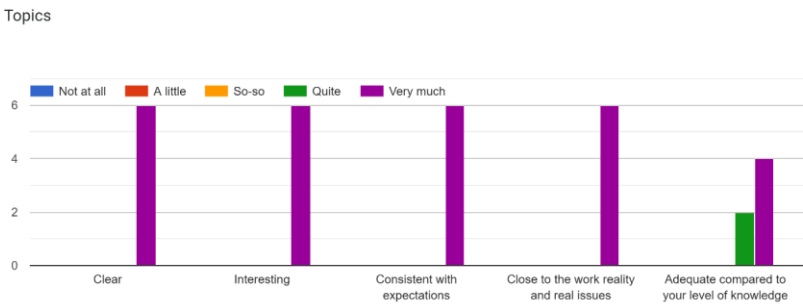


Figure 4: Yellow Belt - questionnaire – Topics

The results of the questionnaire related to the teaching methodology are shown in Figure 5.

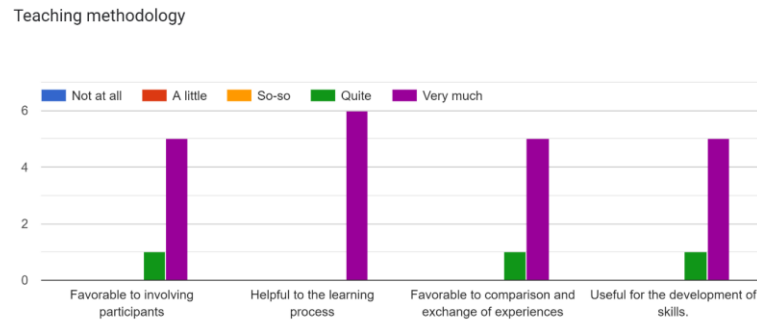


Figure 5: Yellow Belt - questionnaire - Teaching Methodology

The results of the questionnaire related to the organizational methods are shown in Figure 6.

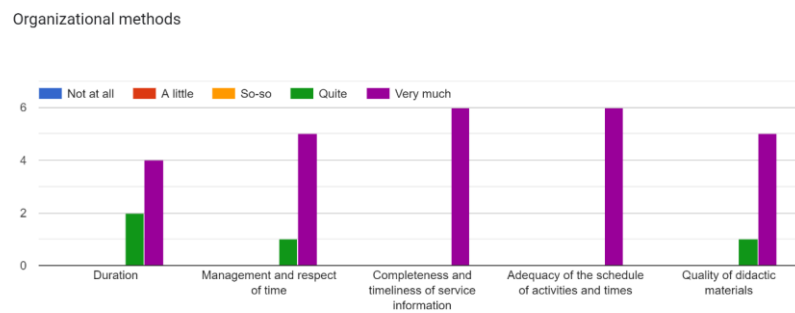


Figure 6: Yellow Belt - questionnaire - Organizational Methods

The results of the questionnaire related to the trainer are shown in Figure 7.

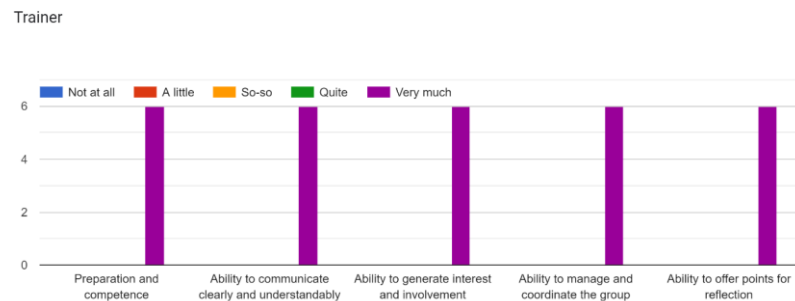


Figure 7: Yellow Belt - questionnaire – Trainer

The results of the questionnaire related to the results are shown in Figure 8.

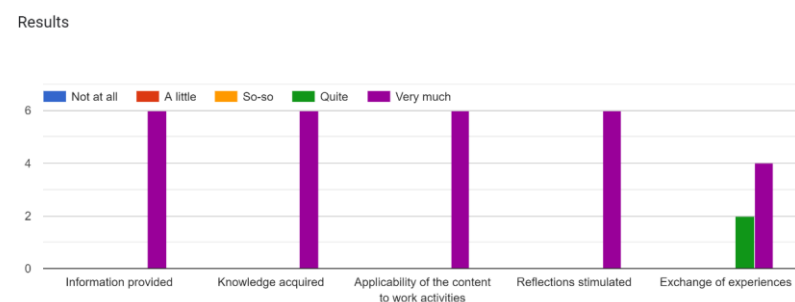


Figure 8: Yellow Belt - questionnaire - Results

The positive feedback received from almost all participants indicates the high effectiveness of the Yellow Belt training course. After the pilot session other two trainings were held, one in Treviso and one in Lucca.

4. K.Excellence for leaders analysis and development

K.Excellence for Leaders is a course focused on Operational Excellence, specifically designed for leaders. To determine the appropriate course content, a needs assessment was conducted through interviews and surveys to identify the knowledge gaps and needs of the target audience. A survey was initially administered to Black Belt and Master Black Belt to identify the course topics, length, and number of participants per session. According to the survey, the number of participants per session should be 6-8 and the duration 4 hours.

4.1 K.Excellence for Leaders course design

After conducting questionnaires, interviews, and other studies, the content of the K.Excellence for Leaders course has been finalized. The course will primarily cover the following topics: Operational Excellence Introduction, Continuous Improvement Methodology, Operational Excellence Internal and External Journeys, Project Identification and Prioritization, Change Management, and Emotional Intelligence. To provide a comprehensive learning experience, a PowerPoint presentation and a PDF file were prepared, which will cover both the theoretical and practical components of the course. The course is designed to be informative, engaging, and practical, and the agenda will help ensure that the course runs smoothly. The agenda is shown in the figure 9.

K.Excellence for Leaders training - Agenda

09:00	Intro
09:15	Continuous Improvement Methodologies
09:45	OpEx Journeys and K.Excellence
10:15	Project identification and prioritization
10:45	Coffee Break
11:00	Embrace and Manage the Change
11:40	Scaling performance
12:10	Scaling the impact
12:30	Open Discussion



K.Excellence

Figure 9: K.Excellence for Leaders training - Agenda

4.2 K.Excellence for Manager implementation

The pilot session of the training was held at Körber Tissue headquarters in Lucca on February 22nd, 2022, with a diverse class of leaders in attendance. The course was conducted over one morning, from 9am to 1pm, to make it easy for participants to attend.

After the course, a satisfaction questionnaire was administered at the end to gather feedback from the participants. The results of the questionnaire related to the topics are shown in Figure 10.

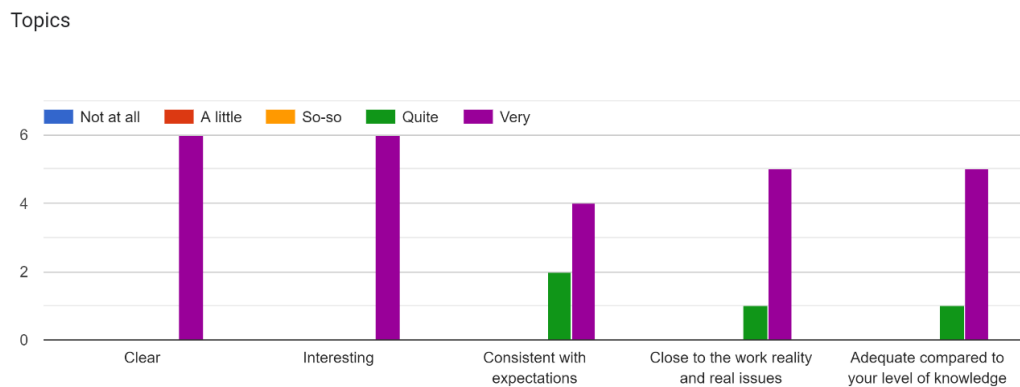


Figure 10: K.Excellence for Leaders - questionnaire – Topics

The results of the questionnaire related to the organizational methods are shown in Figure 11.

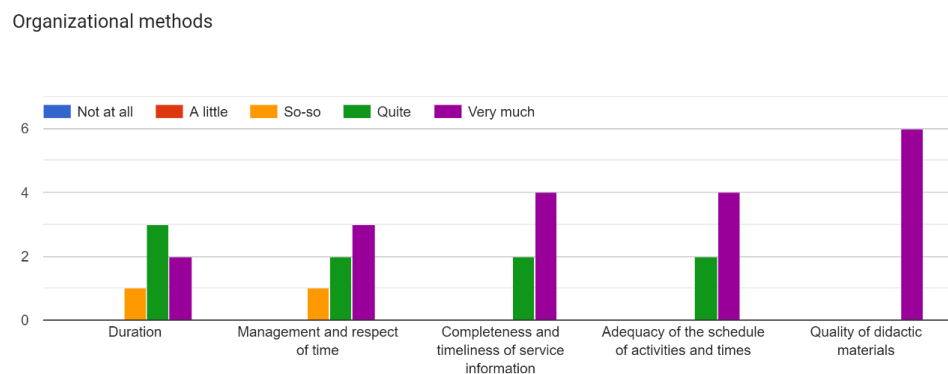


Figure 11: K.Excellence for Leaders - questionnaire – Organizational methods

The results of the questionnaire related to the teaching methodology are shown in Figure 12.

Teaching methodology

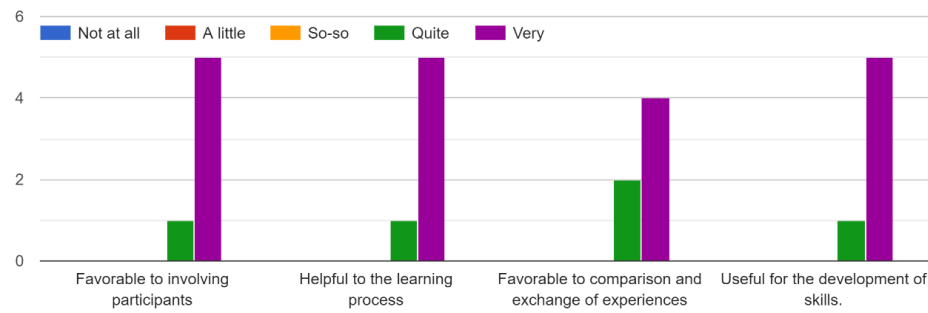


Figure 12: K.Excellence for Leaders - questionnaire – Teaching methodology

The results of the questionnaire related to the trainer are shown in Figure 13.

Trainer

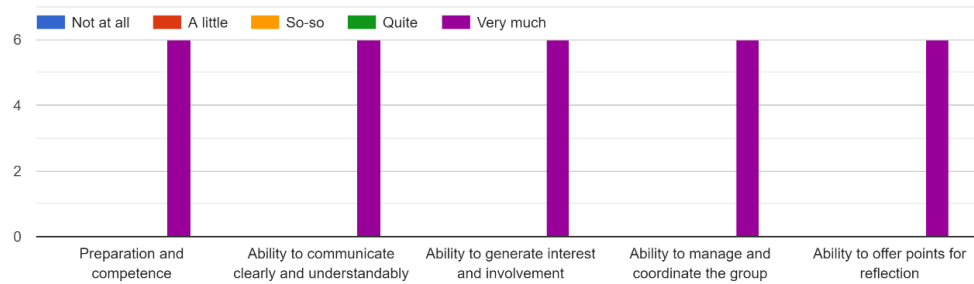


Figure 13: K.Excellence for Leaders - questionnaire – Trainer

The results of the questionnaire related to the results are shown in Figure 14.

Results

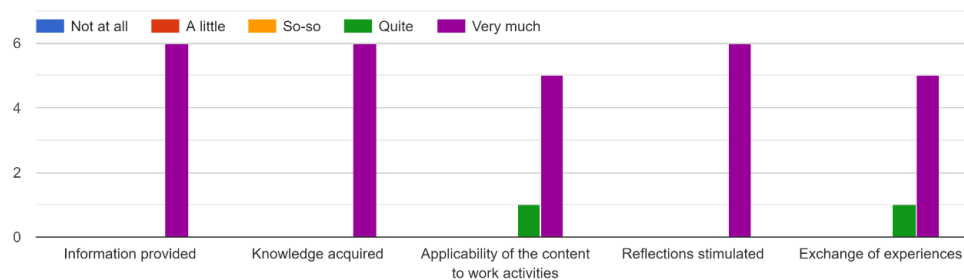


Figure 14: K.Excellence for Leaders - questionnaire – Results

The questionnaire revealed a critical issue in time management and course duration adequacy. This suggests that the course duration should be extended, or some topics should be cut.

4.3 K.Excellence for Manager modification

Following the pilot session, a meeting was held with the council members to discuss the necessary adjustments for the K.Excellence for Leaders course. It was decided to extend the course duration from 4 to 6 hours, dividing it into two mornings, to provide more in-depth coverage of the topics. Additionally, it was decided to shorten the first part of the course, which focuses on Continuous Improvement. With these modifications and adjustments, the K.Excellence for Leaders course is now ready to be offered to managers.

5. Future developments and conclusions

The two courses, Yellow Belt and K.Excellence for Leaders, have been redefined and modified, and as a result, numerous sessions have been planned.

5.1 Yellow Belt

In addition to the English version, the Yellow Belt course has been translated into German, Italian, and Hungarian to make learning easier for participants. The courses will be conducted in person at the respective company locations, with Black Belts and Master Black Belts serving as trainers. Numerous sessions have been scheduled at various company locations, defining the trainer, date, location, and participants. The course's objective is to train 25% of the employees.

5.2 K.Excellence for Leaders

The K.Excellence for Leaders course is available in English and can be taken both in person and online, providing flexibility for participants. The course is aimed at leaders starting from the middle management level and is taught by Black Belt and Master Black Belt trainers who are knowledgeable in leadership topics.

5,3 Growth trend

At the end of the internship program, completion rates for all the offered courses were analyzed using data from March 2023. A dashboard was created to display the number of course completions and the target numbers for each business area within the company, as shown in Figure 15

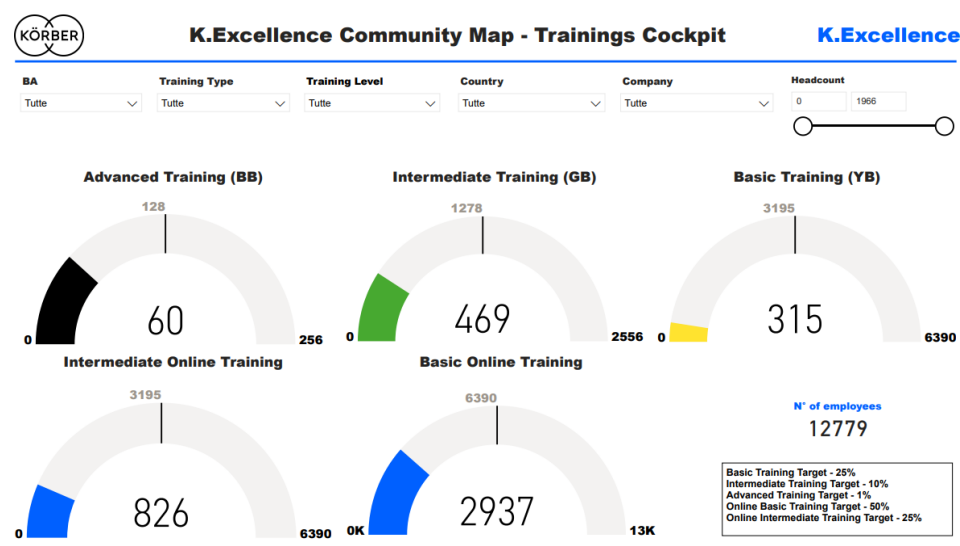


Figure 15: K.Excellence training complited

The dashboard revealed that Körber is close to achieving the target completion rates for Black Belt courses and Basic Training. The number of Yellow Belts trained is currently 315, and it is expected to increase as the course has recently become operational. However, a closer look at individual business units revealed that some were more advanced in their course completion rates. For example, in the Business Area Tissue, the percentage of training employees is higher than the rest of the company, as shown in Figure 16.

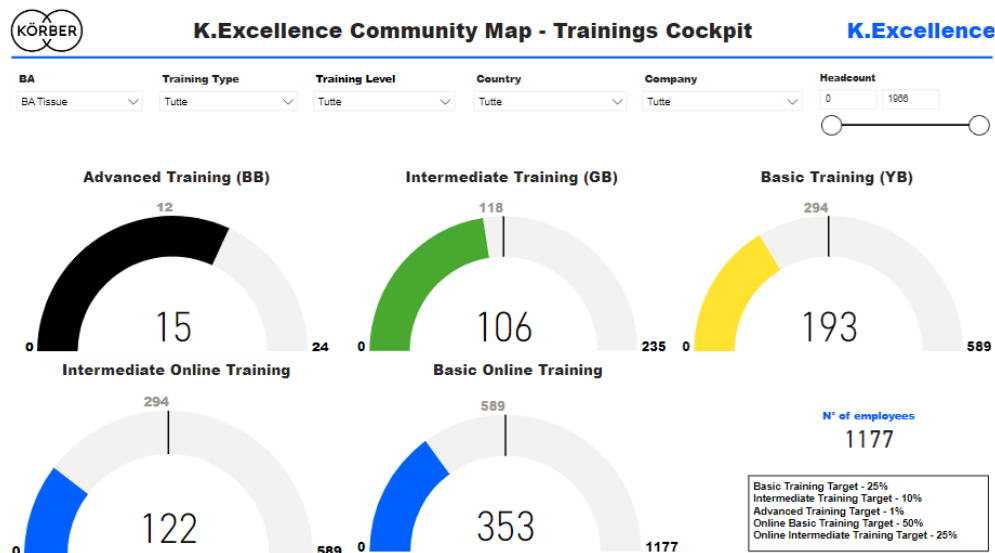


Figure 16: K.Excellence training completed at BA Tissue

From the dashboard, it is evident that the Business Area Tissue has achieved its target completion rate for Black Belt courses and is close to achieving the target for Green Belt courses. The completion rate for the Yellow Belt course in this area is also good, with 192 employees completing the course so far.