

Instituto Tecnológico y de Estudios Superiores de Occidente

Recognition of official validity of higher education studies as set forth in ministerial agreement 15018, published in the Official Journal of the Federation on November 29, 1976.

Department of Electronics, Systems and Informatics Master's Degree in Electronic Design



ITESO, Jesuit University of Guadalajara

Transitioning to a High-Performance Team that possesses advanced technical skills.

DEGREE-EARNING PROJECT that, in order to earn the **DEGREE** of
MASTER IN INDUSTRIAL ELECTRONIC

Is submitted by: **PAUL PÉREZ HERNÁNDEZ**

Tutor: **Dr. Omar Longoria**

Tlaquepaque, Jalisco. October 2023.

Dedicatoria

A mi madre, por las enseñanzas de perseverancia. A mi padre, por sus palabras de aliento. A mi esposa por ser el centro de mi vida y la piedra angular de fortaleza y apoyo. A mis hijos por su muestra de cariño y apoyo. A mi hermano, por ser mi mejor amigo. A todos, gracias.

Summary

This project is a compilation of various methodologies and tools acquired over many years to continuously improve high-performance organizations. The project uses different industry concepts such as continuous improvement, PDCA model for problem solving (Plan, Do, Check, Act), psychological safety, quality, SWOT model (Strengths, Weaknesses, Opportunities, Threats), client experience, and concepts to define the characteristics of high-performance teams.

The project presentation provides a logical flow to reinforce the basic implementation and understanding of why the project is essential. It emphasizes that cultural transitions in work teams are evolutionary goals, where objectives must be updated, modified, and methodologies adapted to achieve them. It also notes that human beings have a different pace where changes in ideology and behavior can take months or even years, which can't be considered as simple changes, it is a cultural transition.

Working with teams that possess exceptional technical capabilities and are well-prepared can make projects like these quite challenging. The challenge comes from the need to navigate cultural transitions and ensure that knowledge systems are implemented in a way that can be inherited by future generations.

Keywords: *cultural transition, continuous improvement, technical capacities, methodologies*

Resumen

Este proyecto recopila una serie de varias metodologías y herramientas adquiridas en muchos años referente a la mejora continua de organizaciones de alto desempeño. Se utilizan conceptos varios de la industria en términos de mejora continua, resolución de problemas PDCA (Planear, Hacer, Verificar, Actuar – siglas en ingles), seguridad psicológica, calidad, modelo FODA (Fortalezas, Oportunidades, Debilidades, Amenazas), experiencia de cliente y por supuesto conceptos y características de lo que define a un equipo de alto desempeño.

La presentación del proyecto se da en forma lógica tratando de reafirmar un flujo de implementación básico y un entendimiento del porqué del proyecto. Se reafirma que las transiciones culturales en equipos de trabajo son metas evolutivas en donde se tiene que actualizar y modificar objetivos y adaptar metodologías para alcanzar esos objetivos. Además, se observa que el ser humano tiene una cadencia distinta en donde los cambios de ideología y de comportamiento pueden tardarse meses o años.

La experiencia de trabajar con equipos con altas capacidades técnicas y con preparaciones sobresalientes, hacen que proyectos como estos sean un reto, desde el punto de vista de realizar transiciones culturales, así como el convencimiento de implementar sistemas de conocimiento que heredad para generaciones futuras.

Palabras claves: *transiciones culturales, mejora continua, capacidades técnicas, metodologías*

Table of contents

Summary.....	v
Resumen	vii
Table of contents	ix
Introduction.....	xi
1. Problem Statement.....	13
1.1. OVERVIEW.....	13
1.2. PROBLEM STATEMENT	14
1.3. GENERAL OBJECTIVE	14
1.4. SPECIFIC OBJECTIVES	15
1.5. SCOPE OF PROJECT	16
2. Methodology	19
2.1. MATERIALS AND METHODS.....	20
2.1.1 Customer Experience	20
2.1.2 Implementation Plan	21
3. Implementation Results and Analysis.....	24
3.1. PLANNING PHASE	25
3.1.1 Voice of the Customer (VOC)	26
3.1.2 SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis.....	27
3.1.3 PoDOS Identity	28
3.1.4 Resources	30
3.2. DOING PHASE	31
3.2.1 Key Element People – VOC and SWOT	31
3.2.2 Key Element People – Integrate Objectives, OKRs.....	35
3.2.3 Key Element People – Psychological Safety	36
3.2.4 Key Element People – Management Activities, Communication.....	41
3.2.5 Key Element People – Effective Team Leadership	42
3.2.6 Key Element People – Knowledge System.....	43
3.2.7 Key Element Tools – Waste Identification and Automatization.....	48
3.2.8 Key Element Tools – Metrics	50
3.2.9 Key Element Process – Documentation	51
3.2.10 Key Element Process – Innovation	53
3.3. CHECKING PHASE.....	53
3.3.1 Indicators – CXi	54
3.3.2 Task implementation – Project Tracker	54
3.4. ACTING PHASE	55
4. Discussion and Recommendations	56
4.1. DISCUSSION.....	56

4.2. RECOMMENDATION	56
Conclusions	59
Apendix	61
A. ACRONYMS	63
Bibliography	65

Introduction

Intel Guadalajara is actively involved in various activities related to silicon validation. Designing testing platforms is a crucial initiative to support this endeavor. Thus, Intel Guadalajara demands highly skilled technical profiles to execute these activities. The complex tasks require long periods of technical focus, and the skill set required for the execution is more related to passionate people in cutting-edge computer technology.

Intel is a challenging company with exceptionally talented people, and the leadership should be at the same level. Managing talented people is complicated, and retaining those skills is even more difficult. The management and leadership should move as fast as the technology, to make business decisions. However, we can't use the same concept of "changes" when talking about people because people have their pace, and human beings move slower than the implementation of technological changes. People have needs, and they require a vision and leadership to understand the reason for the changes and an environment where they can excel and provide results.

This project addresses the “changes” in the people from the perspective of sustaining the survival of organizations, focusing on those areas that impact employee engagement and values [1]. It focuses on managing and leading complex employee profiles towards a High-Performance Team model.

This project includes several methodologies and tools to guarantee the success of the implementation, all of them aligned to assist the manager and the employee through the cultural transition because, in the end, this is the correct name when we expect “changes” in the employees. Therefore, this project emphasizes the importance of understanding and managing the human factor during changes.

Something that we need to consider is that any organization will have constant movements and challenges to adapt to the evolution of the companies, and the organization with better preparation and understanding of cultural transition will survive or will react quicker and have a fast adoption of changes. A High-Performance Working Team has these characteristics and that is

one of the primary objectives of this project to show how to transform a high technical team to this working model.

This project summarizes the path of transformation for this type of team, addressing the problem statement in Chapter 1 with the planted objectives and the scope of the project considering the initial benefit to the BD Team at Intel Guadalajara. Following the problem statement, the methodology used in the project is defined trying all the time to keep a logical sequence of implementation. In this chapter, the concept of an Operative System is referenced with the plan to provide a technical identity of this transition which could be better understanding for technical people. A wider chapter with the logical implementation will be presented after Chapter 2, where all the activities implemented are summarized with preliminary results. Also, considering the model of PDCA, we identified adjustments in the model of implementation, and new expectations and objectives were redefined. The project concludes in Chapter 4 with a discussion and recommendations about the continuity of this project as well as new implementation in other teams inside Intel.

1. Problem Statement

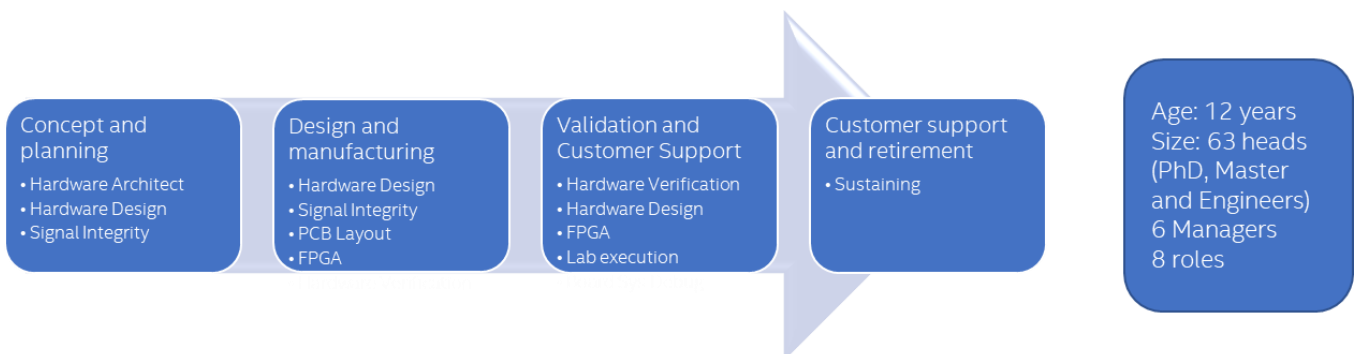
1.1. Overview

Intel Guadalajara is actively involved in a variety of activities related to silicon validation. Among these activities, designing testing platforms is a crucial initiative to support this endeavor.

The primary goal of the Platform Hardware Engineering Division - Board Development (PHED - BD) team is to provide products and services within the realm of high-end computer servers. Its stakeholders share a common context, primarily engaging in technical discussions. Such an organizational structure necessitates a pool of highly skilled technical professionals who can proficiently grasp and oversee complex computer science and electronics technical concepts.

Before joining the BD team, my experience in the post-silicon electrical validation group enabled me to recognize the gaps in technical and people management (Technical Manager and People Manager). During that time, I implemented various methodologies and tools to encourage teamwork and alleviate stress caused by high project expectations. We utilized SCRUM-type tools to plan daily workloads and priorities, created a safe work environment by clarifying roles and expectations, and implemented other supportive measures to motivate the development of this project.

BD has a complex Roles and Responsibilities (R&R) structure. Each role interacts with the other to deliver a server platform ready to be used by our customers, who use it to validate the server silicon developed by Intel. Figure 1-1 illustrates the seamless flow and interplay among the various roles throughout the phases of design, validation, and ongoing support in BD.



1. ¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ.

Figure 1-1 Server development flow in BD organization, summarizing more details about R&R.

1.2. Problem Statement

Within the BD organization, a significant challenge lies in the need to enhance the skillsets of our team members to align with the principles of a High-Performance Working Team (HPWT) while mitigating attrition rates. The absence of a clearly defined and well-documented structure has led to confusion in execution and has had a negative impact on our working environment. Two key indicators signal the need for improvement. The first indicator is a 20% increase in the number of individuals experiencing high levels of stress (burnout) within the team. The second indicator is the **customer experience**, with data indicating a suboptimal positive impact on our stakeholders, scoring below 40 points.

The proposed strategy entails implementing an integrated system that identifies opportunities and triggers actions to alleviate work-related stress and enhance the customer experience. These endeavors will be conducted within an innovative working model with its terminology designed to foster a global understanding among management, employees, and stakeholders. This terminology will further clarify the roles and responsibilities of each party within this transformative process.

1.3. General Objective

Our most valuable asset is our talented workforce, and ensuring their well-being is paramount in maintaining our leadership position. The Post Design Operative System (PoDOS) proposal represents a strategic initiative to bridge this gap through established procedures and a holistic work philosophy. The primary goal is to foster continuous improvement while embodying the principles of an HPWT and prioritizing an exceptional customer experience. As its name indicates, what separates an HPWT from any other team is its ability to perform at the highest level for an extended period and to accomplish its work most efficient and effective manner

1. ¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ.

possible. Although purposes, objectives, and roles can change from one team to the next, HPWTs do the following consistently [2]:

1. Develop goals and plans.
2. Enhance communication among members.
3. Develop and maintain positive relationships among members.
4. Solve problems and make decisions on a timely basis.
5. Successfully manage conflict.
6. Facilitate productive meetings.
7. Clarify roles for team members.
8. Operate in a productive manner.
9. Exhibit effective team leadership.
10. Provide development opportunities for team members.

Senior management has mandated this transformation, and it is crucial for the Hardware Validation (HWV) and Hardware Sustaining (HW Sustaining) roles to embrace this change, ensuring that we continue to set the standard for execution excellence.

Three vectors are affected by this program:

Human factor – training, development of interpersonal skills at the level of high-performance teams, retention schemes, and generation of technical leaders

Technical capacity – process improvement, adequacy of the execution guidelines (Joint Development Process – JDP) to consider specific hardware validation and sustaining activities. Description of roles, training, scheme of perfection of problem-solving skills, and Project Management (PM) techniques.

Automation and systematization – establish mechanisms for innovation (continuous improvement) in processes through automation of support processes, indicators, and automatic escalation systems.

1.4. Specific Objectives

1. ¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ.

Based on the general objective and the vectors of influence, the specific goals to achieve are:

- **Human factor**
 - Identify and redefine the curricula of each role and integrate a system for new members.
 - Identify soft skills gaps considering the concept of a high-performance team, create a system for periodic training (leveling and sustaining process)
 - Document the tracking and retention activities. Review development plans and tracking achievements follow up Objectives and Key Results (OKR) and Individual Development Plan (IDP)
- **Technical Capacity**
 - Identify gaps in the R&R of HWV and HW Sustaining roles and clarify the expectations.
 - Document and track a formal technical training process. Standardize document repository.
 - Identify opportunities to improve the updated Joint Development Process (JDP) revision for HWV and Sustaining role. Stablish a process of revision and cadence.
- **Automation and systematization**
 - Identify and stablish ground rules for the PoDOS initiative.
 - Identify opportunities to create indicators and stablish the process for creating and interacting with them.

1.5. Scope of Project

The project focuses on the internal operations within the Intel platform development architecture. The Business Development (BD) team is the primary target audience for the methodologies and insights presented in this document. Nevertheless, it's important to note that while the study primarily pertains to the BD team, other teams within the PHED organization may find some of the study's findings relevant and applicable. The concept of an Operating System

1. ¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ.

(OS) is a universal framework designed to empower organizations seeking to unlock the full potential of their workforce.

However, it is not limited to other equipment within Intel, such as Post-Silicon validation equipment, because it applies to personnel management areas (People Manager). If we consider using something different from a people manager, we should choose another strategy, which could take some methodologies or tools from this project.

2. Methodology

The methodology employed in this project is a blend of several industry-proven concepts known for their effectiveness in implementation. At a high level, it adheres to the Deming cycle [3], often referred to as PDCA (Plan, Do, Check, Act) [4]. Additionally, this project is characterized as a cultural transition rather than a simple operational change. The distinction lies in the underlying principles and the timeframe required for implementing numerous procedures. A cultural transition aims to foster an organic shift in the organization's mindset and behavior. In essence, it represents the psychological process of embracing and navigating through change, facilitating a smoother transition for individuals. Figure 2-1 visually represents the transition model in organizational changes, as depicted in Bridges' Transition Model (BTM) [5].

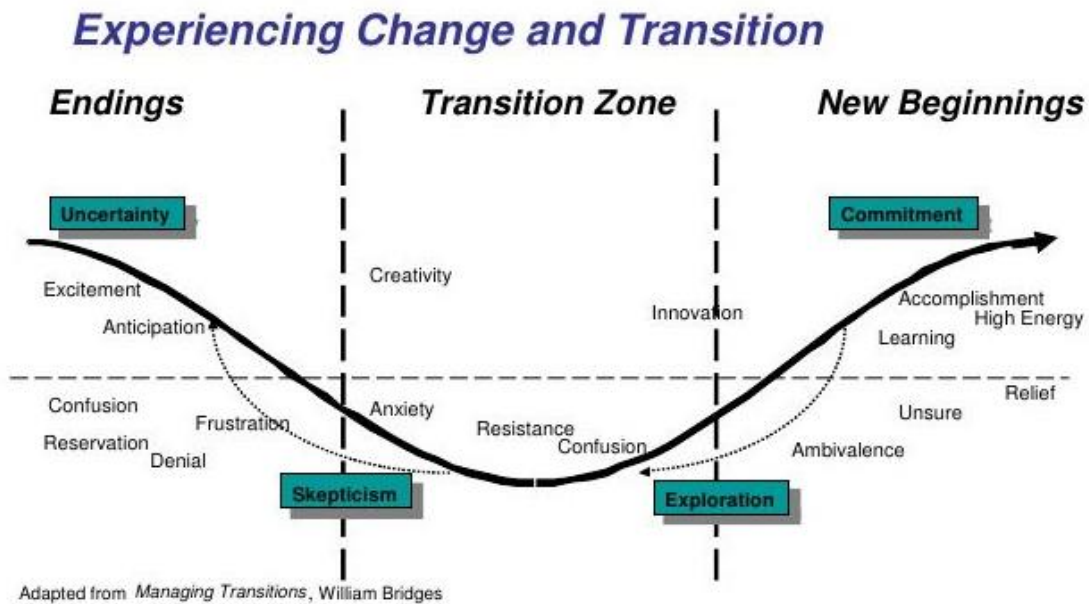


Figure 2-1 Bridges' Transition Model [6]

By integrating BTM with the Deming cycle, we establish a robust strategy to pursue and cultivate a new mindset within the BD team, ultimately striving for high-performance team dynamics.

2. METHODOLOGY

2.1. Materials and Methods

The methodology delineates the course of action, outlining the strategy necessary for the success of this project. Nevertheless, specifying the tools (methods) and resources (materials) employed to yield results while aligning with the predefined objectives. The materials identified for this project encompass the various roles and talents within the team. The team's collective experience and seniority levels will play a pivotal role in balancing the project's activities, and the chosen methods will effectively extract the requisite information for planning subsequent steps.

The main methodology used to measure the achievement of this project is presented in this chapter, and the methodology in detail with the methods used is presented and summarized in this chapter, too. Figure 2-2 describes the mix between the PDCA and the indicator of customer experience, which will give us enough information to know if we are achieving the objectives.

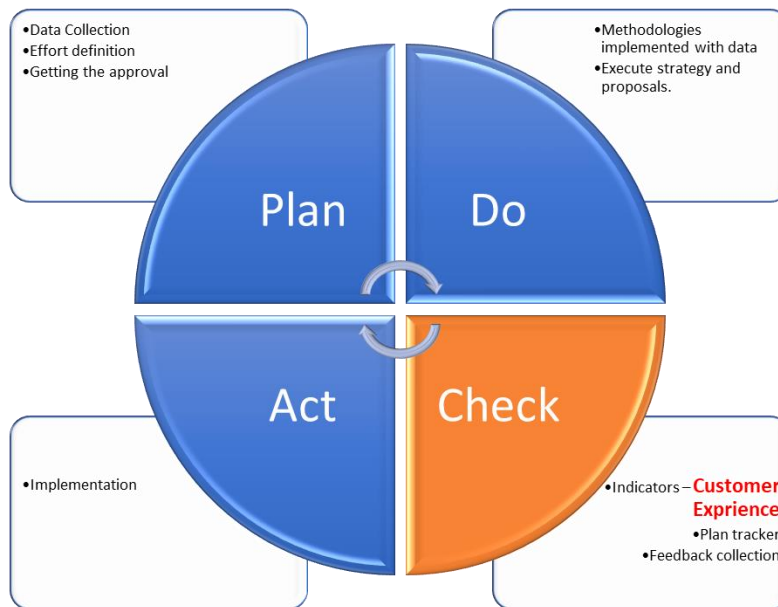


Figure 2-2 PDCA with high-level expectation and the importance of customer experience tool.

2.1.1 Customer Experience

The objective of enhancing customer experience is to standardize the purpose of our daily activities and provide a rationale for our actions. Therefore, it is crucial to grasp this concept collectively among all team members, fostering an everyday sense of purpose. Within our

2. METHODOLOGY

organization, we serve numerous internal customers, all of whom ultimately seek high-quality outcomes from us. Upper management stands out among these customers, requiring a proficient team with strong technical capabilities for problem-solving and innovative product delivery. However, an additional, unspecified requirement is maintaining team members' motivation and reducing attrition.

This hidden challenge currently relies on individual managers, lacking standardization or a cohesive team-wide strategy.

2.1.2 Implementation Plan

The PoDOS will focus on the three key elements of customer experience: People, Processes, and Tools. However, we need to collect the current Experience to know exactly what to add to each key element. Thus, that is the beginning of this PoDOS journey:

Table 1 Planning phase

Activity	Description	Duration Working Weeks (WW)
Voice of the customer (VOC)	Collect high-level information about the expectations of the main internal customers of the BD team. Make a special consideration for upper management.	6
	Classified information into the three key elements to consider: people, tools, and process	2
SWOT analysis	Execute a deep analysis of the BD team regarding how we execute (remove technical details) – starting with a SWOT analysis and Appreciate Inquiry exercise.	3
PoDOS identity	Create a mission statement – Identify the Ideal Final Result (IFR) to make a long-term vision/strategy for this effort.	1
Resources	Sizing the effort and creating a financial plan - budget based on high-level information.	1

2. METHODOLOGY

Table 2 - Doing phase

Activity	Description	Duration Working Weeks (WW)
Key element - People	Communicate VOC and SWOT results. Collect Feedback and generate an action list considering the fundamentals of HPWT - brainstorming session	2
	Integrate objectives and tangible results - OKRs	3
	Activities to reinforce the psychological safety	4
	Management activities to keep the team informed; support and follow up on growth and mindset change (cultural transition).	4
	Effective team leadership and open forums to collect feedback and follow up on progress	3
	Fundament and create a knowledge system	6
Key element - Tools	Waste identification to reduce non-lean activities – automatization opportunities	4
	PoDOS metrics to track customer experience and team execution	4
Key element - Process	PoDOS is a system whose fundamentals are documenting and generating procedures – excellence in execution	3
	Innovation and failing two concepts to fundament risk-taking and expand our technical limits in our people – extend ordered challenges - continuous improvement	6
	Sustainable organization to provide structure for our stakeholders, members, and upper management in the future.	6

Table 3 - Checking phase

Activity	Description	Duration Working Weeks (WW)
Indicators	Review the actions on each key element and determine the time and budget	NA
Planning tracker	Provide a detailed plan for the first implementation phases - management information.	NA

Table 4 - Acting phase

Activity	Description	Duration Working Weeks (WW)
Implementation	Execution phase and provide feedback to the PoDOS	NA

The methodology presented is an established industry standard that has been used for a long time to improve organizations. However, due to a high volume of projects and staff turnover (attrition), the BD team has not yet had the opportunity to implement it and improve the organization. Nevertheless, it is not too late to establish the principles of a sustainable organization and set a precedent.

With the methodology already defined, the next step is to begin implementation. The following chapter provides a summary of the journey so far and outlines a long-term vision for the organization. The key to everything is to create a solid organizational system where everyone provides enough information to achieve a high-performance team based on an efficient system.

3. Implementation Results and Analysis

As mentioned in Chapter 2, the model adopted for PoDOS is the Deming model, in which the phases of execution are represented by Plan, Do, Check, and Act (PDCA) [3]. However, specific deliverables will be presented based on the plan and do phases, while the remaining phases are regarded as monitoring and checking stages. To summarize, Figure 3-1 illustrates the presentation format for this chapter.

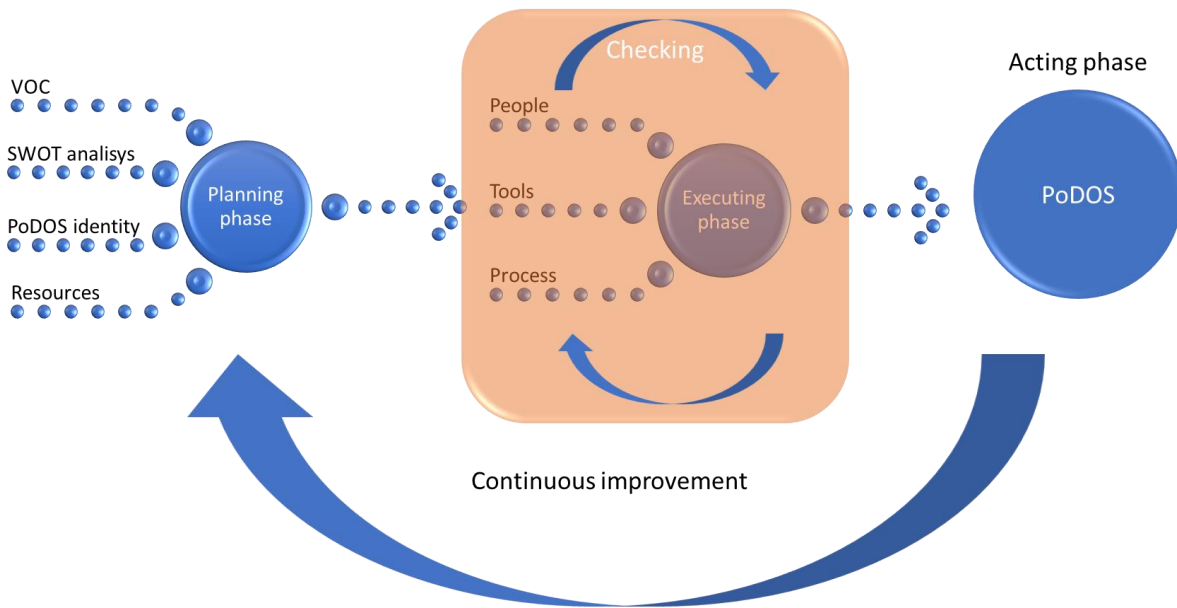


Figure 3-1 PoDOS execution model

The Planning phase extended considerably due to alterations in program schedules and shifting team priorities. The Execution phase is ongoing, with numerous activities during implementation, while data collection and evaluation (Checking) are in progress. Nevertheless, the project has already entered the "Acting" phase, with positive feedback gathered and evident results from this new working model observed in the current programs.

3.1. Planning Phase

Based on the methodology defined in Chapter 2, the first activity to execute is the planning phase, described in Table 1 at a high level. This phase proved to be challenging as it involved more than just initiating a new project from the ground up. We had an existing baseline from which to work, with the Business Development (BD) team having over a decade of experience executing activities related to PHED. These activities were carried out according to each team member's role.

The organization was seeking ways to enhance execution by providing specialized knowledge and expertise, improving quality, and reducing attrition rates. As a result of this reflection, the roles of HWV and HW Sustaining were introduced, necessitating a new identity and a complete restructuring to preserve knowledge, job descriptions, and responsibilities.

To begin with, Table 5 summarizes the definition of these roles within the newly established structure:

Table 5 - Role definition HWV and HW Sustaining

HWV and HW Sustaining Role definition – early version

HWV engineers are responsible of:

- All hardware verification and validation of reference and commercial main board platforms and related system boards (new or re-used designs).
- Hardware verification includes:
- Functional verification (marginality tests)
- Signal integrity measurements
- Signal characterization of all the hardware specified in the related Product Architecture Specification (PAS) document, Product Requirements Document (PRD) and in some cases Software Product Requirements Document (SPRD)
- Debug at system level

HWV Sustaining Lead

Identifies and provides priority of sustaining activities and being responsible to accept and coordinate any BOM and schematic change after Silver phase.

Communication with internal design team and external ODM

Coordinate sustaining resources (assigned to each project) to execute sustaining activities

Reports out sustaining status/progress (Project(s) & sustaining team)

3.1.1 Voice of the Customer (VOC)

The initial consideration involved a shift in the mindset of engineering or professional roles towards a service-oriented perspective. In this paradigm, each engineer delivers a service or product to others. This change in concept had a profound impact on our execution approach, as it necessitated the identification of customers, quality requirements, and a continuous improvement process rooted in customer feedback.

The concept of Voice of the Customer (VOC) [7] encompasses three fundamental elements: customer identification, surveys, and improvement initiatives. To begin, we initiated the development of a survey named the Customer Experience Index (CXi) to gauge customer opinions. This survey employs a standard industry tool with a 5-point scale, where negative percentages are subtracted from favorable rates. The resulting metric provides insight into the effectiveness of our execution, and the industry standard is interpreted and described in Figure 3-2:

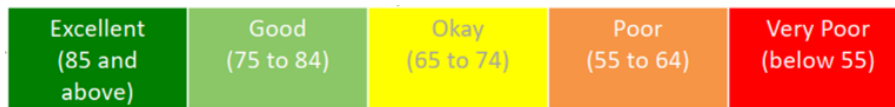


Figure 3-2 Forrester CXi scale.

The survey executed some time ago was not so good for the HWV role, giving us the results presented in Figure 3-3:

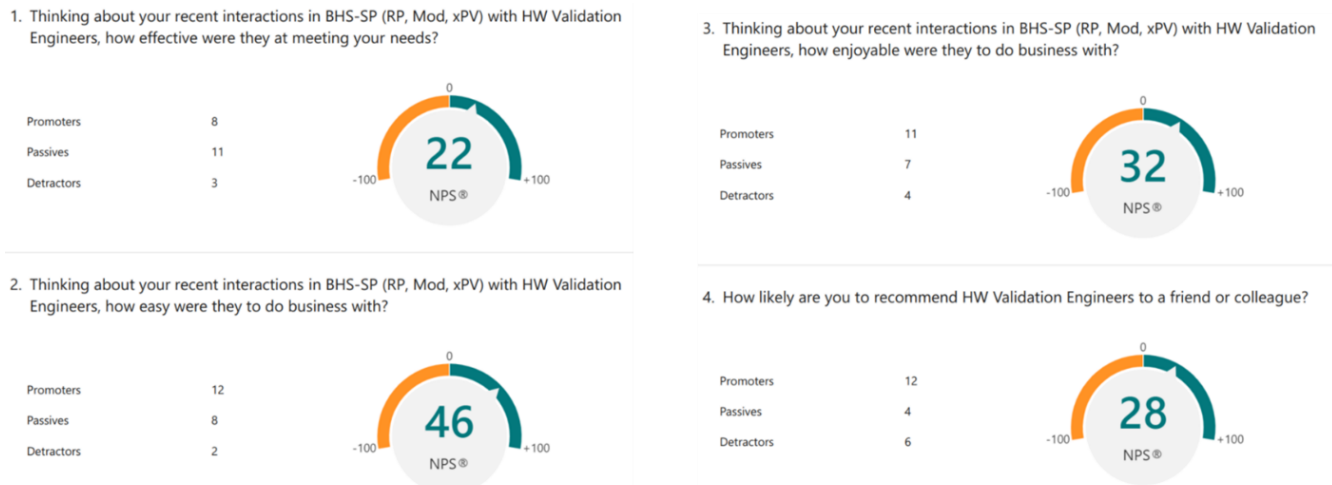


Figure 3-3 Customer experience indicator – survey for HWV role

The analysis of these data indicates a need for us to enhance our execution and clarify role responsibilities. Furthermore, it has brought to light a deficiency in the allocation of resources per project, prompting us to explore innovative ways to improve our tools and execution methodologies. The comments have been categorized as follows:

- Yes, more than having one HWV per project is required.
- HWV is not an enabler for lab platforms. We can coordinate lab support
- ODM (Original Design Manufacturer) requires HWV bandwidth; it is not easy to drive it.
- HWV usually extends the coverage after working hrs.
- HWV engagement - early phases - Review JDP

The team proposed the following steps to improve, and we decided to move to the subsequent implementation phases; the actions to execute are:

- Review HWV "JDP" (HWV Check List) to engage early in the programs. JDP HWV publish is not the same as the HWV checklist.
- Clarify/remind R&R of HWV and stakeholders.

With this feedback, we proceed to the next planning steps to get enough information to execute.

3.1.2 SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis

After gathering information about our customers' opinions and identifying gaps, we critically analyze our team to take inventory of our strengths and weaknesses. We then look for opportunities and potential threats we may face as a team. These tools are commonly known as SWOT analysis. Section 3.2.1 describes the usage technique of this tool.

The information collected helped to determine the next part of the plan to improve the roles:

- A. Who: identify the seniority between the members and find help for mentoring or coaching.
- B. What: identify the gaps and collect information to create the objectives for this work (objective definition)

C. How: choose the proper methodologies to ensure cultural transition success.

D. How long: determine the time and budget (in case we require it).

The SWOT analysis conducted six years ago for HWV and HW sustaining role highlighted the need to change people's mindset to execute in a challenging environment. Figure 3-4 shows the comments collected during this activity, and a single word was assigned to each section of the SWOT to engage the team's commitment.

Analyzing our team... SWOT

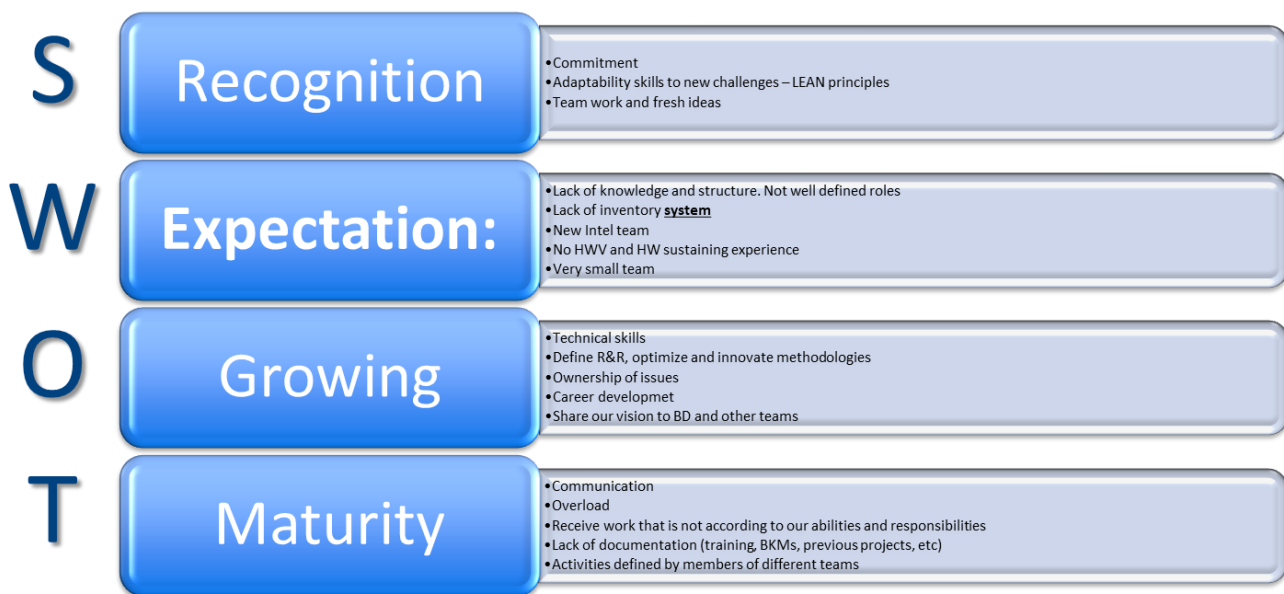


Figure 3-4 SWOT exercise summary.

Now that we have our inventory of resources and the status. We move to the next planning phase, where we have to give a name or identity to the team to create a community commitment.

3.1.3 PoDOS Identity

During the Planning phase, we collected data to identify the team state. The next step was to define the high-level purpose and long-term vision (mission and vision) to guide our transition toward improvement. The vision helps us to prioritize what's essential and align our resources

accordingly. The mission, on the other hand, defines our reason for being and provides direction for our team.

With a clear understanding of our mission and vision, we can establish the foundation of our PoDOS, which will serve as a framework for all the activities required to achieve the cultural transition in HWV and HW Sustaining. The PoOS represents how we execute our plans, and the value proposition summarizes our vision and mission.

The team used a concept of TRIZ (Theory of Inventive Problem Solving) called IFR (Ideal Final Result) to make this task more accessible; the objective is to think at a higher level, eliminating any roadblock from the mind and visualize the ideal objective of the role or ideal reason of being [8]. Figure 3-5 shows this original concept and the transformation of thinking to adapt in this exercise.

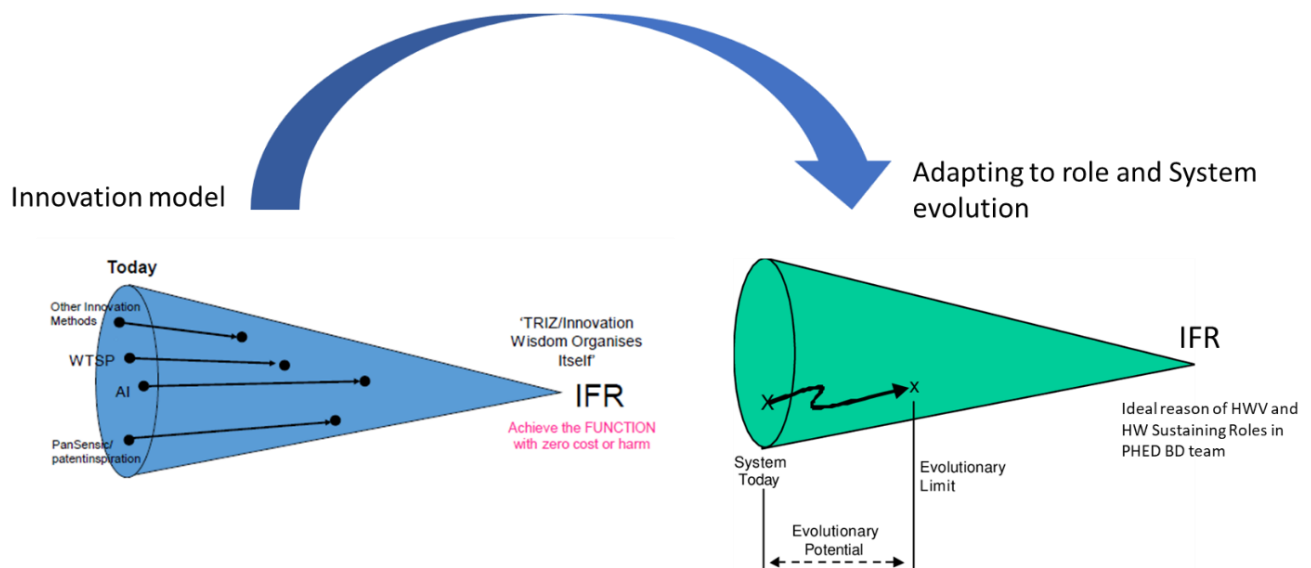


Figure 3-5 Adaptation of the concept of IFR of TRIZ

Let's use the concept of IFR to exercise our thinking and imagine the role in its ideal form. This theoretical exercise helps our brain work better by following a graphical model. Ultimately, the result of exercising to elaborate mission and vision statements is the same. In the new concept, the value proposition replaces the mission and vision.

The value proposition has become the new mission and vision concept. We then utilized the graphical model of FIR to overcome mental boundaries and elaborate on the value proposition

of the new system, PoDOS. We aimed to achieve ideality, which in many cases involves striving towards the concept of HPWT.

- **Value proposition**

To deliver quality server platforms, ensuring hardware functionality

In a Way that our designs fulfill customer expectations and maintain Intel's quality brand based on our thorough, specific test plan.

So That we become the world-class hardware design verification team.

- **Description:**

“... Validation ensures that the product meets the end-user experience and requirements. Sustaining guarantee the customer experience in the usage of our products.”

Now, we have an identity where all the team members understand the high-level purpose of the existence of both roles. The last section of the planning phase is to identify the resources and limits we have in the organization to implement the changes. We must remember that the proposal was made a year ago when the concept of a High-Performance Working Team (HPWT) was incubated.

3.1.4 Resources

In this section, we discussed the available resources, both tangible and intangible, for the successful implementation of the project. The primary objective of this section was to identify a sponsor who could provide these resources and remove any obstacles that might hinder the project's progress.

Intangible resources refer to people's skills, which is why taking inventory and standardizing them is essential. Section 3.2.1, Key Element People - VOC and SWOT, discusses this topic in greater detail. In addition to technical or soft skills, it is also essential to consider the issue of new team members. Opportunities should be given to select members based on the team's needs.

After conducting a thorough analysis and assessing the requirements, we have determined that additional engineers are required to implement PoDOS successfully. This will ensure we have the workforce to execute daily project tasks and improvement activities. We need a more permanent or temporary headcount to meet this requirement.

Moreover, we also need training material and a structured repository to facilitate the communication and storage of information related to the project. These intangible resources will help us enhance the project's overall effectiveness and ensure we can accomplish our goals efficiently.

The BD manager became the project sponsor, and I became the soft skill trainer and coordinator of the PoDOS implementation.

We did not receive monetary support because this program does not require more than communication and rewards systems, which Intel has already implemented.

Adding the resources with team identity (Section 3.1.3), the inventory of the team (SWOT analysis – Section 3.1.2), and the opinion and feedback of customers (VOC – Section 3.1.1), then we can move to the next phase of the plan: Doing Phase.

3.2. Doing phase

Under the key element people, it will consider six sections. Each will be structured as a definition, an action executed, and a short evaluation of the results. Also, a component of the following steps will be added.

3.2.1 Key Element People – VOC and SWOT

In Section 3.1.1, we received feedback from our stakeholders regarding a low CXi, which was consistent with the SWOT analysis results. The analysis identified several gaps:

- A. Shortage of resources to manage multiple projects simultaneously.
- B. Lack of standard technical and soft knowledge.
- C. Insufficient maturity at Intel in HWV or HW Sustaining.

D. Issues with documentation and standard procedures, which lacked uniformity.

The SWOT analysis was conducted in 2019, and a customer experience survey was performed in 2021. Based on the feedback received, we documented the R&R of the HWV and HW Sustaining positions, provided training to the BD team and stakeholders to clarify expectations, and defined open sessions to collect information and clarify both roles during the engagement of new projects. Additionally, we designed a communication strategy to provide regular status updates on the activities executed, critical milestones achieved, and recognitions. The results collected were described in Section 3.1.2 of Chapter 3.

Figure 3-6 summarizes the actions executed in the last years to change the perception of the necessity of the roles in the programs and recognize the value of the HWV and HW Sustaining within the BD team.

The target is to change the CXi from 32, which is very poor according to the standard. By the end of the last quarter of 2023, we are scheduled to repeat the exercise and reach a number above 65, which means that our customer is okay (OK) with our “service”.

With this communication strategy, we partially covered the gaps C and D presented at the beginning of Section 3.2.1

¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ. **IMPLEMENTATION RESULTS AND ANALYSIS**

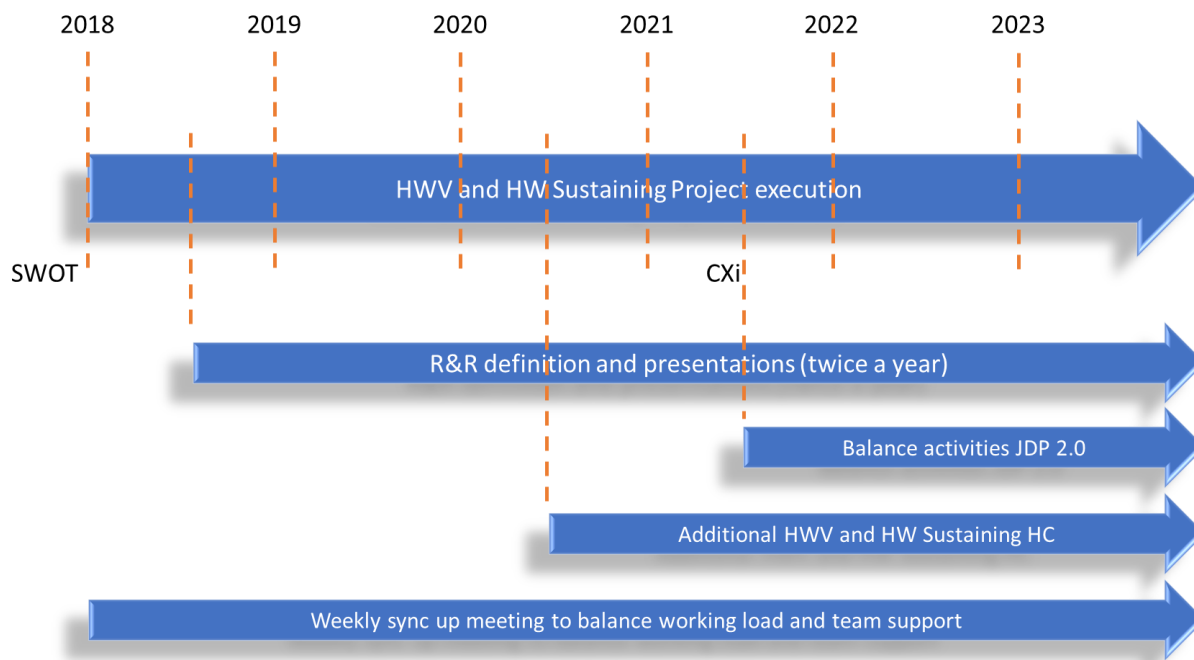


Figure 3-6 Communication and role clarification actions - timeframe

Gap A requires a planning process where the manager must work closely with the program managers to properly size the effort of each role in the different programs. Also, it requires enough planning skills to plan future gaps caused by vacation, attrition, medical leaves, etc. To minimize this impact, we use some PM skills to identify the critical route in the projects in execution and plan to cover the needs 2 or 3 quarters ahead. It is not easy, but by using corporate tools such as Prognos and Gladius, we could manage the need for extra resources to minimize the impact of shortage in the role.

The gap B was worked in parallel with other activities allocated in the key element of Tool. The creation of a framework for the role to identify the R&R and other elements that will help the new or current members improve their performance in the role. In this section, we will show and summarize the different actions or contents in the framework, as well as the impact of the roles.

Figure 3-7 summarizes the effort of this framework and the different actions executed in parallel.

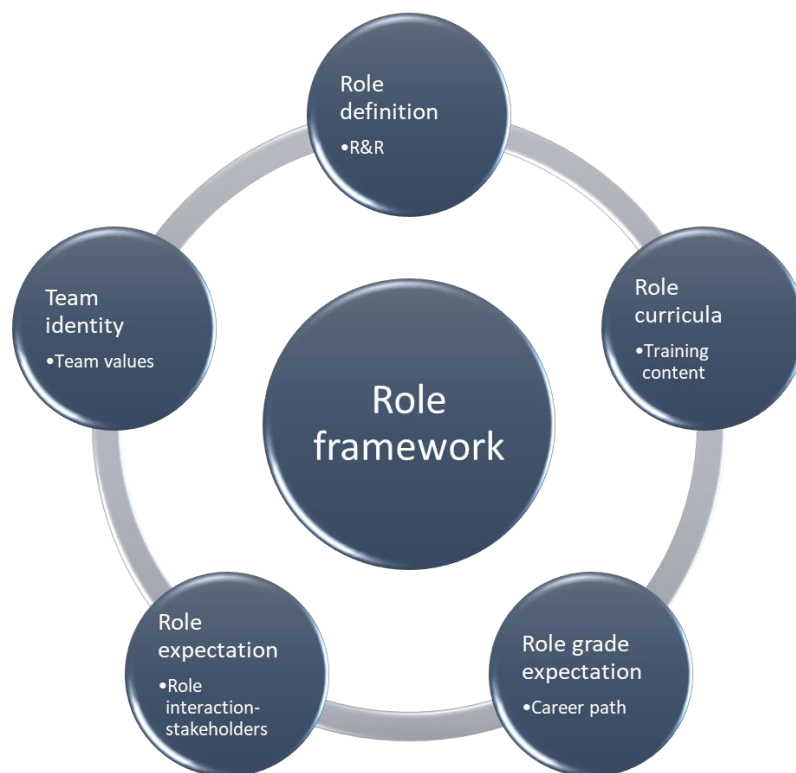


Figure 3-7 Role framework components

The implementation of these actions has helped to strengthen the team by introducing some concepts of HPWT. However, we must acknowledge that we cannot achieve a utopian concept by merely implementing these actions. These actions are aimed at the people who are the most valuable asset in our company, and they are essential in facilitating a cultural transition. Table 6 presents the actions taken, partial results achieved, and the following steps to be taken.

Table 6 Framework activities - status

Activity	Partial results	Next steps
Role definition	Expectations and responsibilities for the role were defined, presented, and communicated periodically.	Other sites should be included, and the roles should be recognized as adding value to the success of the programs.
Role curricula	The curricula were defined at a high level	Work on the content of the curricula - training material

Role grade expectation	The template is defined to track successful career progression.	Track the usage of the template and standardize the process.
Role expectation	Identification of role expectations during the different phases of the UPLC (Unified Product Life cycle)	Reinforce and publish expectations in the coming programs.
Team identity	Ground rules and values were defined and are part of our Operative System.	Promoting our values

The engineer's role framework has been defined, but we need to assist them in prioritizing their activities. The best way to achieve this is by utilizing a planning and tracking tool combined with HPWT methodology, as discussed in the next section.

3.2.2 Key Element People – Integrate Objectives, OKRs

At Intel, we use a methodology defined as Objectives and Key Results (OKRs), which are Intel’s disciplined execution practices and are intended to clarify what we want to achieve, how the company will achieve success, and how employees and teams contribute to the company’s objectives. [9]

OKRs are a collaborative goal-setting framework used by teams and individuals to set challenging, ambitious goals with measurable results that drive business results. Objective (O) is the main thing that you want to achieve. You will make benchmarks based on each objective. Key Results (KRs) are the benchmarks you'll establish to achieve your main objective and help you track your progress [9].

The steps to create the OKRs are:

1. Writing the Objective: it will be the big goal to achieve in a period (defined by engineer and manager/team)
2. Writing Key Results: they are the way/channel to hit your objective. They follow the SMART concept: Specific, Measurable, Aggressive, Realistic, and Timebound.

My team has defined an "onion model" approach for creating effective OKRs. This model, represented in Figure 3-8, helps identify the most valuable milestones that should be tracked. To eliminate any Objectives that lack meaning and to challenge engineers to propose meaningful milestones. By using this approach, we can ensure that our OKRs are well-defined and aligned with our goals. The period of revision is every quarter.

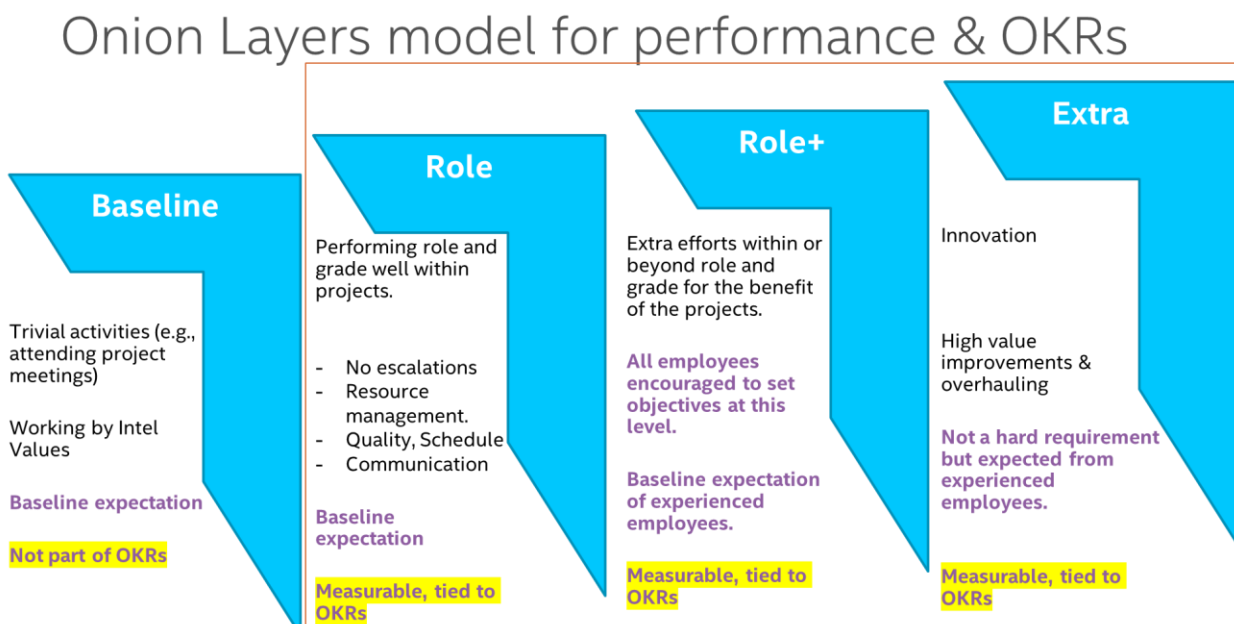


Figure 3-8 Onion model to define Good OKRs

In this section, we discussed the tools that can be used to track objectives and keep the team focused on high-impact activities. The onion model encourages a well-rounded approach to setting OKRs, particularly in the Role+ and Extra categories, emphasizing strategic thinking, innovation, and continuous improvement.

The following section introduces a concept that creates, maintains, and enhances a team environment to facilitate communication, collaboration and reinforce the identity of HPWT as a single team in Intel.

3.2.3 Key Element People – Psychological Safety

The concept of Psychological Safety is not new; it was coined in 1965 by Edgar Schein & Warren Bennis. In 2014, Google conducted a three-year study (180 teams) called Project Aristotle and identified psychological safety as the top factor for high-performing teams [10].

By definition, psychological safety is a social condition in which human beings feel included, safe to learn, safe to contribute, and safe to challenge the status quo. All without fear of being embarrassed, marginalized, or punished somehow [11].

For many years, social scientists have been studying its effects, and it can't be ignored. Psychological safety has a positive impact on organizations in specific:

- A. Improves Cultural Clarity
- B. Increases Retention
- C. Improves Inclusion
- D. Increases Accountability
- E. Improves Performance
- F. Increase Innovation

The first steps are to create a culture of rewarded vulnerability, where all team members (including leaders) are exposed as a human with all the characteristics of things that they can do, like making mistakes, trying something new, and utterly failing while innovating without being punished, shamed, or mocked.

Already knowing the concept of psychological safety, then we planned the implementation process following the four stages to reach a complete environment of innovation and HPWT culture. However, before implementing, we had to build the foundation of respect and permission in the team. We understood these two concepts as follows:

Respect: The general level of regard and esteem we give each other. To respect someone is to value and appreciate them.

Permission: How we allow others to both influence us and participate in what we're doing. Permission requires both autonomy and accountability.

We had/have to keep a balance to avoid breaking the psychological safety. Figure 3.9 summarizes the four stages with examples and a graph showing the balance between respect and permission.

¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ. **IMPLEMENTATION RESULTS AND ANALYSIS**

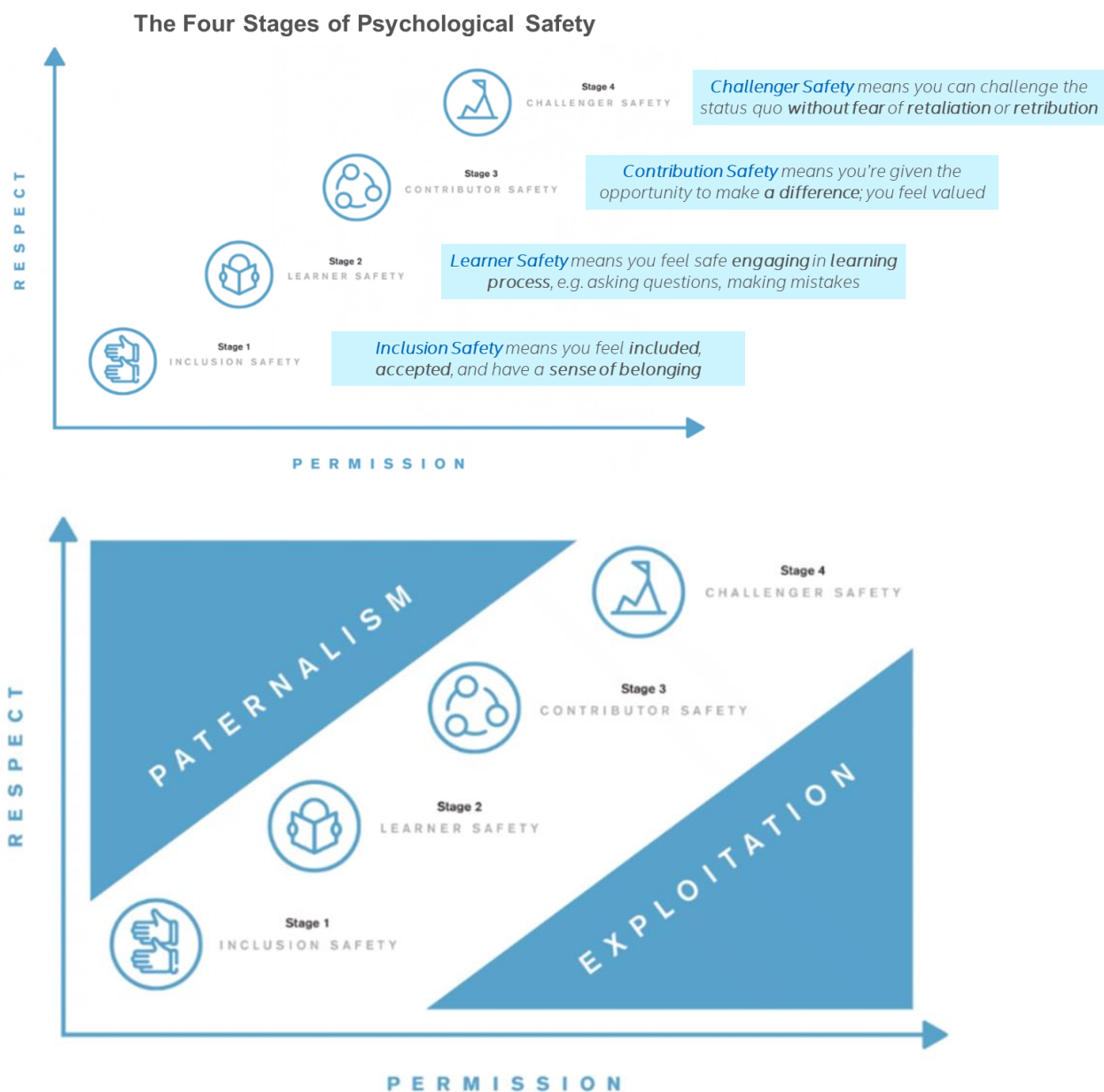


Figure 3-9 The Four stages of psychological safety and the boundaries between Respect and Permission [10].

The implementation of a psychological safety culture began in 2018, but the four stages of implementation were only documented in 2022. The evidence for each stage is summarized in Table 6, which outlines the actions taken by the team to create an environment with the fundamentals of HPWT or a complete psychological safety environment. While many actions are already in place to improve the environment, many more suggested actions per stage can be considered for further improvement.

Table 7 Psychological safety implementation of the four stages

Manager: Paul Perez

Behavior	Status	Examples	Description
Stage 1 Inclusion safety plan			
Respond to messages promptly.	Demonstrating	Quick answer. Keep the Inbox to a minimum, blocking time to review/answer emails.	In part, the timeliness of your response communicates your respect for that person. Although there are times that justify a delayed reaction, try to respond promptly to those who leave you inquiries. When you are consistent in your response pattern, you communicate inclusion.
Define and communicate the purpose and values of your team	Demonstrating	Strategy and role sync-up meetings - OS	To feel a part of the team, the individual must understand why the team exists, how it works, and what it stands for. The team must first define its values, purpose, and goals and continuously communicate them to team members.
Follow through on small commitments.	Demonstrating	Keep/track ARs generated during the weekly sync-up meeting per role	If you commit, follow through, especially if it's small. Sweating the small stuff is an expression that you respect and value others.
Stage 2 Learner Safety Plan			
Celebrate failures	Demonstrating	1:1s and role sync-up meetings Q1 - support the decisions and "protect" the members in case they are being escalated or finger-pointed.	A failure is evidence that an individual is learning through trial and effort. As long as team members fail within defined limits, you should encourage this behavior. We often learn more from failure than success. When a team member fails and learns from it, celebrate it. Communicate the accomplishment to the entire team. Destigmatize failure and create a culture where failure is not seen as an accident, but instead as the way forward.
Share what you are learning	Demonstrating	Continuous Learning and other training material on hand Q1 - giving some soft skills training	One of the most powerful ways to encourage others to learn is to share what you are learning. Share the topic, the insights, and most importantly, the joy and satisfaction you have gained in the learning process. Your optimism and enthusiasm for learning is contagious.

¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ. **IMPLEMENTATION RESULTS AND ANALYSIS**

Challenge your team with hard problems.	In Progress	Planning the support of AVC for HWV/sustaining - doing some changes in roles to support challenges - exploring giving more responsibilities to higher grades	It's essential to customize the learning process based on the needs of each individual. For team members who are confident, capable, and aggressive learners, challenge them with hard problems — problems they may have no idea how to solve. Find tough, thorny problems that you haven't been able to solve yet and let them take a crack at solving them. Based on your priorities and the individual's capability, choose a problem that best fits the situation. Delegate the learning and then check in regularly to provide appropriate coaching and guidance.
Stage 3 Contributor Safety Plan			
Recognize accomplishment	In Progress	Q1 - verbal and team recognition	Certainly accomplishment is its own reward, but receiving genuine recognition from your peers makes it all the sweeter. As a leader, recognize the successes of your team quickly. Never delay or resent the opportunity to show genuine excitement for their accomplishments.
Rotate the conducting of meetings	Demonstrating	Q3. Sync up meeting rotation. Sustaining tracking for AVC and BNC delegated	One of the most powerful ways to empower others to contribute is by allowing them to conduct team meetings. Traditionally, the leader conducts the meeting, but if you rotate that assignment, your team members will gain greater confidence to contribute. Simply giving them the assignment acknowledges their ability to do the job. Of course, you will need to help them prepare the agenda and coach them through the process.
Celebrate small wins	In Progress	Q1 - WIP (recognizing the small achievements)	Small wins increase confidence and build momentum. When your team members see a series of small wins, it creates a sense of forward motion. Ultimate success may be a way off, but small wins represent success at intervals and progress toward your goal. It's the small wins that fuel the team members' efforts to continue contributing at a high level.
Stage 4 Challenger Safety Plan			
Encourage others to think beyond their roles	In Progress	Inviting to have some DOTs/Gigs	Inviting your people to venture out of their tactical and functional silos creates more opportunity for divergent thinking, allowing them to connect things that aren't normally connected. Of course you must manage the process carefully and discern when constructive dissent is giving way to destructive derailment.
Break before breakdowns	Not Started		When interpersonal dynamics start breaking down, immediately take a break. Don't allow the social friction, which is the destructive force, shut down the intellectual friction, which is the destructive force. When the team gets tired, it's easy for social friction to increase. Take a break when you see this happen. Refresh the team before you come back together.

Protect your team from groupthink.	In Progress	Q1 - Discuss the concept of other roles in my team and identify opportunities. Create a strong mentality about continuous improvement.	When team members start to think alike, we call that groupthink. It's dangerous to create an environment that can incubate innovation. Team members sometimes become more concerned about fitting in with the conventional thinking of the group instead of performing the hard labor of critical thinking. Get into the habit of asking your team to disagree with you. Say, "I don't want an echo chamber. What's another way to think about this?"
------------------------------------	-------------	--	---

Now that we have a proper environment to create and develop the HPWT, we proceed to communicate and make forums and mechanisms to collect information from our stakeholders. The following section explains the efforts to gather feedback and create a continuous improvement culture (based on the Lean concept and Black Belt Sigma philosophy).

3.2.4 Key Element People – Management Activities, Communication

To emphasize the significance of leaders in a cultural transition, this section has been created. Chapter 2 Figure 2-1 outlines the different zones that must be navigated during the transition process. The impact of cultural transition is not limited to the team or company executing the plan but also affects the stakeholders. During the Doing Phase, actions are implemented, and the transition zone is where various emotions like anxiety, resistance, and confusion arise.

However, it's essential to acknowledge that all the executed actions are aligned to improve the organization. The book "Managing Transition" by Bridges [5], highlights the importance of reinforcing communication to clarify the purpose of the transition and the objectives of the new PoDOS. The leaders of this change are crucial in conveying and finding resources and spaces to communicate the achievements, challenges, and changes in strategy.

For this project, specific forums were created, and participation in others was increased to inform and provide status about the objectives and purpose of this transition at different levels:

- A. Weekly roles sync up: follow strategy implementation and team follow-up to solve roadblocks on each project and execute immediate adjustments to the risk planning at a role-level implementation.

- B. Yearly strategy meeting: review objectives achievements, and find gaps in our operative system (PoDOS).
- C. Staff meeting at the team level: communicate achievements, get feedback, remind cultural transition, and revalorize the value of PoDOS.
- D. Extended management staff level (BD level): get feedback, analyze the impact of the system in different projects, propose new changes, identify opportunities for our PoDOS, and share BKMs (Best Known Methods) to implement in other sites.
- E. Staff meeting at the group level (BD level): provide information about the transformation of roles and collect feedback.

With the information in this section, we aim to enrich our leadership in executing programs and engaging stakeholders. Our level of influence is crucial to achieving the objective of HPWT.

3.2.5 Key Element People – Effective Team Leadership

A system needs to receive feedback to improve and avoid becoming obsolete. To achieve this, the original design of PoDOS included creating forums or using existing surveys to collect and extract valuable information. This feedback would then fix or improve behaviors, clarify roles and responsibilities, and expand the system.

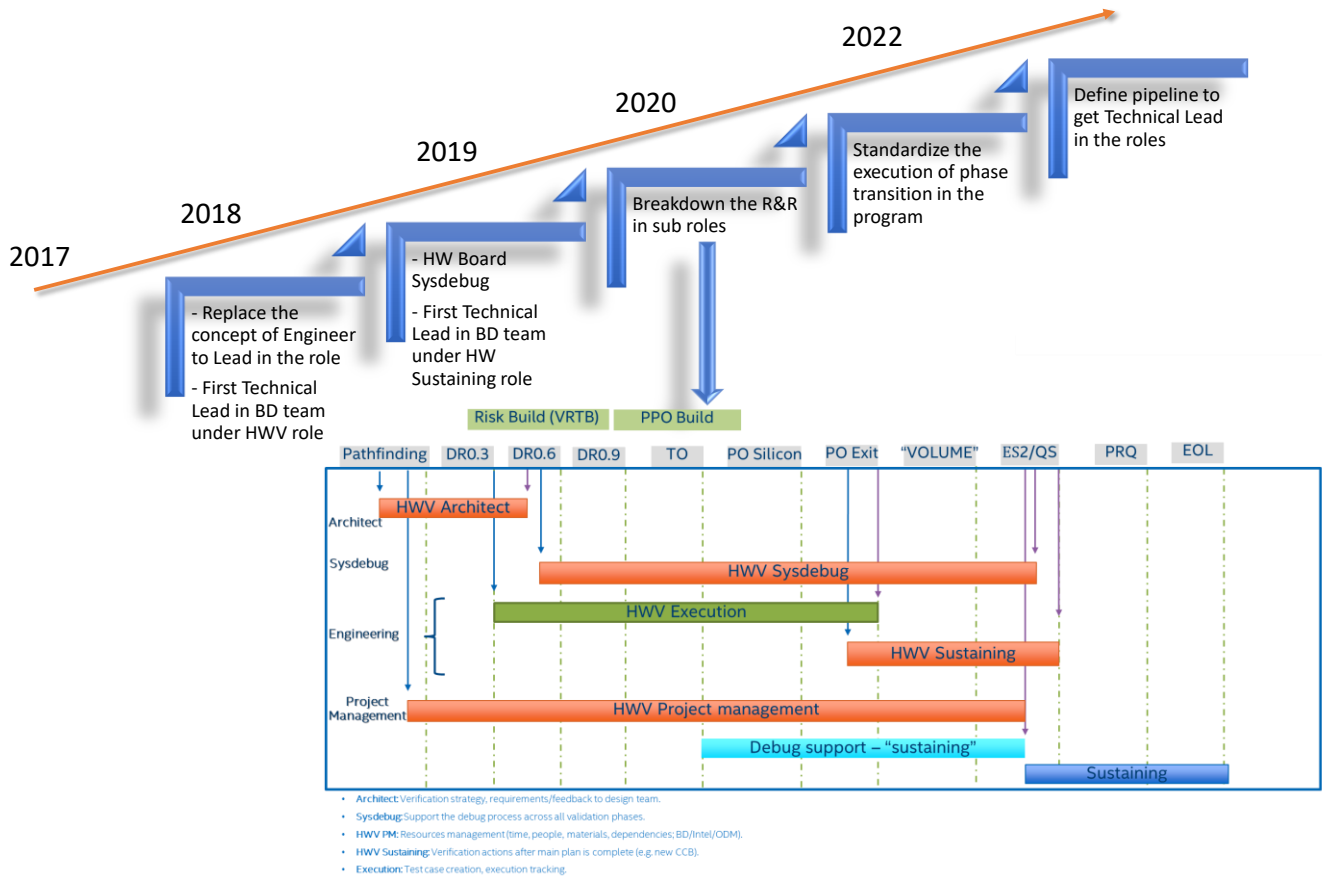
In our case, we decided to use the BD staff meeting to provide updates on our progress and collect customer feedback through surveys. We also hold a yearly strategy meeting where we can provide internal feedback and suggest changes to our organization and system. This meeting follows a well-defined structure based on Kaizen fundamentals. [12] During the meeting, we question our current execution model, break down the concept, and use the IFR to redefine the next improvement in the role. We require a psychological environment, a neutral zone, and external eyes to eliminate our biases.

The roles of HWV and HW Sustaining have evolved in terms of execution and impact on the programs. The leadership of these roles has resulted in improved quality, reduction of attrition, leadership to retain key projects in GDC, and increased influence with stakeholders.

Two significant changes have occurred: the first one after the first strategy meeting in 2018, where the roles changed from HWV and HW Sustaining Engineers to HWV and HW Sustaining

¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ. **IMPLEMENTATION RESULTS AND ANALYSIS**

Leads, and the second one during the second session in 2019, where a new role was defined as a consequence of HWV, the HW Board Sysdebug. Figure 3-10 summarizes the significant evolution



or changes in both roles.

Figure 3-10 Evolution of the role definition and leadership

We have established a mechanism for evolution, but we know many tasks will still be carried out. The following section will cover the actions taken to preserve the knowledge and reinforce a characteristic of the HPWT (Review Section 1.3 Chapter 1).

3.2.6 Key Element People – Knowledge System

As mentioned in Section 3.2.5, High-Performance Teams (HPTW) characteristics are centralized to ensure that a team can perform at a high level for an extended period. However, it is essential to understand that people are the key element. As long as they remain with the company, achieving ambitious objectives and executing effectively will be possible. Nonetheless, we must be realistic and accept that executing with the same team is not always possible. Therefore, we must ensure that the ten characteristics of HPTW, along with the values and objectives of the PoDOS, are well understood through a system of knowledge that can be passed down to future generations and speed up the integration of this working philosophy when attrition happens.

We have decided to collaborate with individuals to generate heritage information concerning role definitions, role knowledge, and project reflections to achieve our objective. This will help us to maintain a consistent environment for the operative system (PoDOS) and enhance job descriptions. We have established a process (Section 3.2.9) and utilize repositories to manage and share knowledge to accomplish this. This knowledge system (BD knowledge model – BD University) was implemented considering three efforts in parallel.

The first one focuses on having a standardized process of “welcoming” new members and reducing the uncertainty of

What is my role?

What does my team do/execute?

What is my team structure?

Who will help me?

What is the reason for being in the group, and who are my stakeholders?

These and more questions came up during the first days in the BD team. The objective was to design an early information process in collaboration with management and team members. Some presentations were created and follow the schema presented in Figure 3-11, where we can identify the corporative welcome package (Intel NEO – New Employee Orientation) and a specific and deep presentation about the vertical group and BD team. The last block considers all the information related to the role and the training and knowledge required to perform the role.

These blocks are logical and executed during the first days at Intel. This action helps to engage the new member with the team and increase his fidelity.

BD knowledge model (BD University)



Figure 3-11 New member integration block diagram

To provide a better understanding of the segments, the Intel NEO (New Employee Orientation) is a well-established process in the Human Resources (HR) department. For the second BD NEO, it is proposed to create a welcome session that the BD management should provide. The following presentation involves the introduction of the role, which the manager should give to clarify the expectations and explain the high-level responsibilities of the new member, including the buddy assigned to help the new member ramp up at Intel. The last two presentations are ongoing and will be evaluated in 2024.

The second part of this knowledge system is related to the skills required to perform the role. This part is crucial for new members as it gives them the knowledge and soft skills to execute their responsibilities immediately. It also reduces the ramping-up process from 6-9 months to under five months. Figure 3.12 shows the blocks related to this second phase.

This part demanded a lot of effort because we had to evaluate each role, generate the topics at a high level, and define standard training and structure to store information (details in Section 3.2.9). The effort is taking a lot of time and resources, and the projection is to complete the whole framework by the end of the quarter of Q2'2024.

BD knowledge model (BD University)

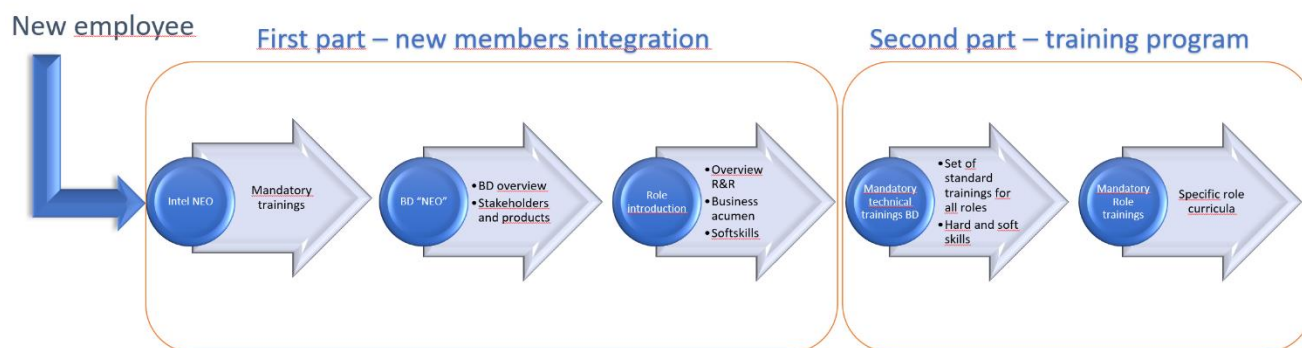


Figure 3-12 Adding the training program to the knowledge system block diagram.

Selecting common material poses a challenge, as new material needs to be created. When creating a role curriculum, it is essential to classify criteria and use the experience of new members and existing material. Table 8 summarizes the criteria for executing topics and content in the creation of role curricula. Figure 3-12 summarizes the effort to select the common curricula, the interaction with continuous learning, and mandatory training.

Table 8 Training level criteria

	Beginner	Medium	Advance
How	Minimum required to start/execute the role - Junior	Knowledge required to perform the role as expected - senior	Knowledge required to lead the role - Mastering
Grade	intern 3	3-5	>5
Time	12 months	12 months	24 months

In the last part of our knowledge system, we have included a continuous learning block. The aim is to share technical and soft skills not covered in the role curriculum. This provides a

platform to communicate complex or complementary knowledge specific to new technologies, projects, or team governance improvements.

This initiative has been active for almost a year and has been very successful. The implementation is running smoothly, with all members of the BD group collaborating by developing or attending to a topic.

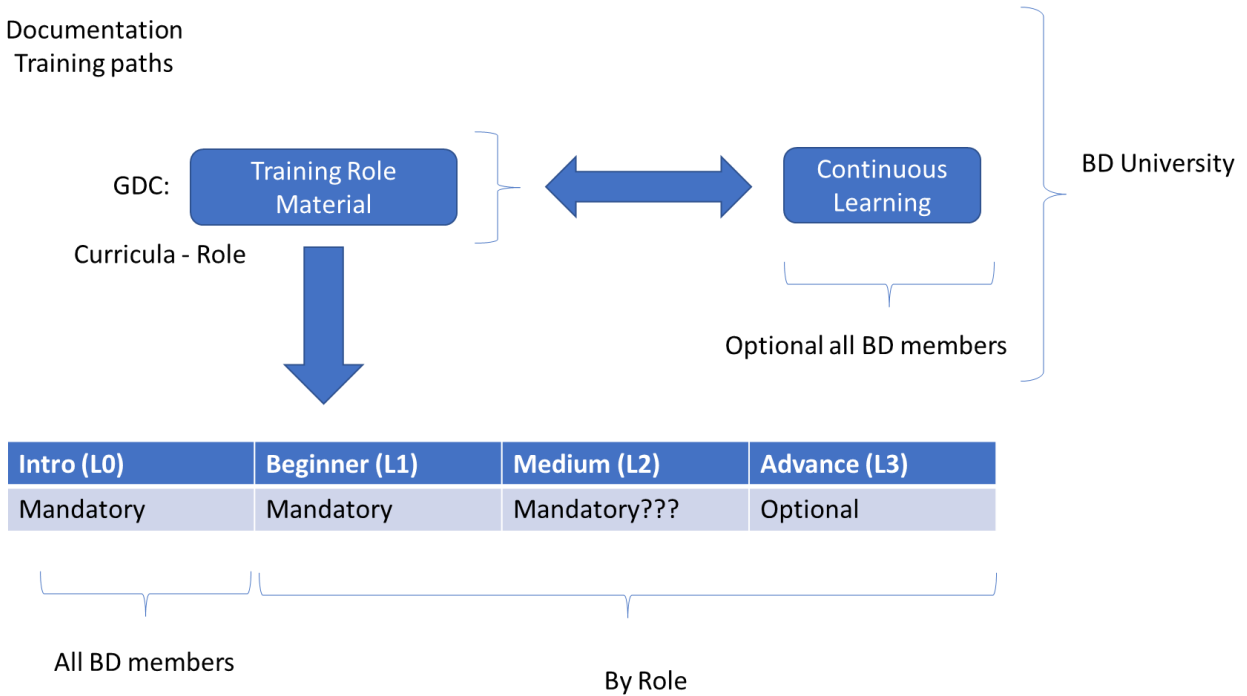


Figure 3-13 Classification of training.

The ground rule for this activity is to schedule a biweekly session of one hour. The topics presented during the quarter are defined in a group meeting, with a balance between hard and soft skills to ensure knowledge acquisition across the BD group.

By adding this section, we can present the entire initiative for the knowledge system, which is running partially. We plan to export this initiative to other stakeholders and replicate it on other sites. Please refer to Figure 3-14 for a visual representation of all the blocks in this section.

BD knowledge model (BD University)

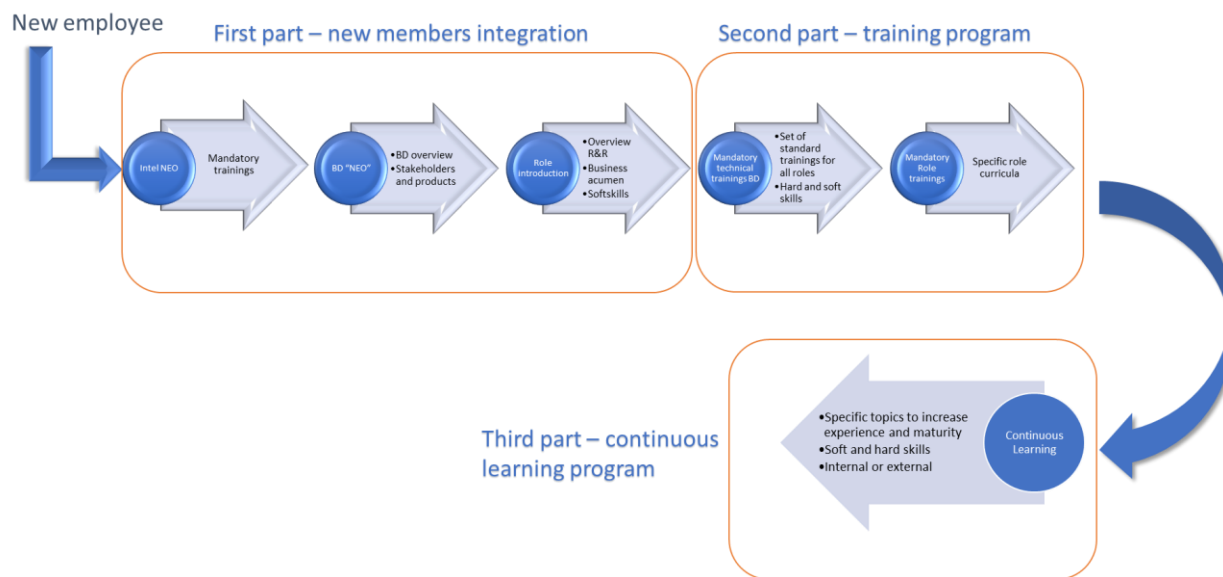


Figure 3-14 Complete knowledge system

We have now finished one part of the doing phase, which is focused on people as a key element. The section summarizes all the actions that need to be executed, some of which are still in progress and some of which depend on the following key elements. People are a crucial aspect of any organization, and taking actions that consider this key element will help ensure the company's or organization's success.

The next section of this chapter will focus on Tools and Process, which complement the total execution of this project.

3.2.7 Key Element Tools – Waste Identification and Automatization

Identifying waste in an organization's activities is relatively easy as it pertains to all the activities that do not add value to the program or role. However, fixing them can be complicated due to the common blockers of resources, time, and adoption for continuous improvement. In this project, we have found opportunities to improve the lab activities. Our objective is to maximize

¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ. **IMPLEMENTATION RESULTS AND ANALYSIS**

engineers' focus on project execution and delegate or automate non-technical activities. We have developed two active proposals or tools with improvement cycles to enhance efficiency.

The first one is called LIS (Laboratory Inventory System), which aims to support material flow in the lab and provide acquired information to respond to corporate audits. LIS is a multifunctional tool that is in charge of

1. Controlling material inventory.
2. Displaying the BD group's time off graphically
3. Rework material control
4. Tracking system training (as part of Section 3.2.6)
5. Internal audit control at the BD group level.

It is still an under-development tool; however, the core modules (inventory, audits, and time off) have been working for a couple of years. Figure 3-15 shows a snapshot of this tool.

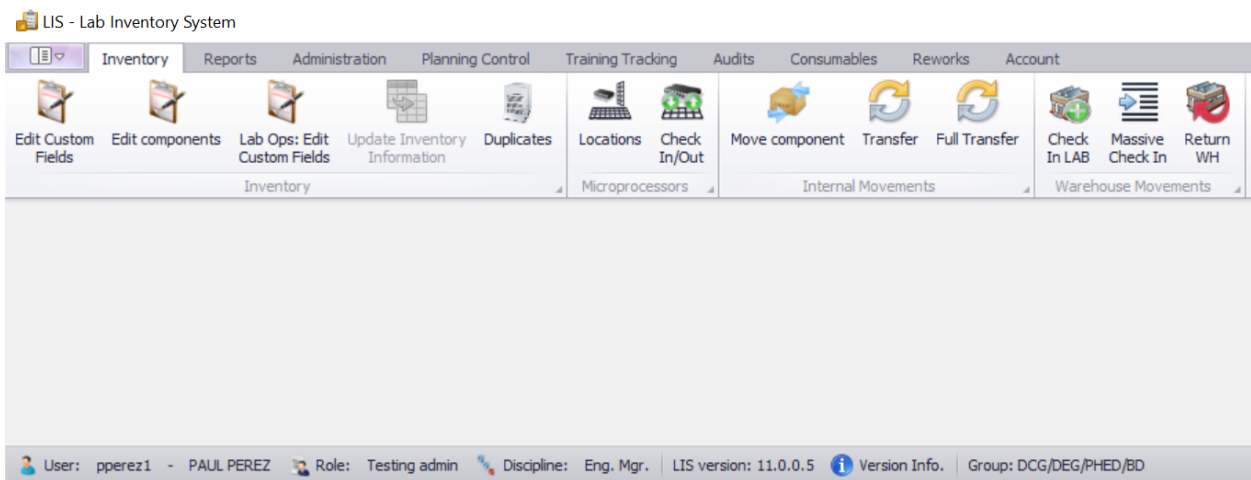


Figure 3-15 LIS Application for lab usage.

The second tool is more like a system, which intends to manage the lab resources (technicians) and provide a time expectation for activities requested. The ticket system has the objective of supporting:

1. Rework activities
2. ITP host Lab requests
3. Material lab searching
4. External BD team support
5. Lab material procurement

¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ. **IMPLEMENTATION RESULTS AND ANALYSIS**

6. Shipping material
7. Share drives access requests.

Each request requires specific information that should be provided by the engineer making the request, and the execution is determined by the availability of lab technicians. Implementing this system has helped minimize uncertainty in demands and allow lab technicians to focus on their core activities instead of administrative tasks. This has allowed everyone to focus on their respective roles, resulting in more efficient execution of tasks. The Figure 3-16 show a snapshot of the tool-

Requirements capture system for BD Lab services.

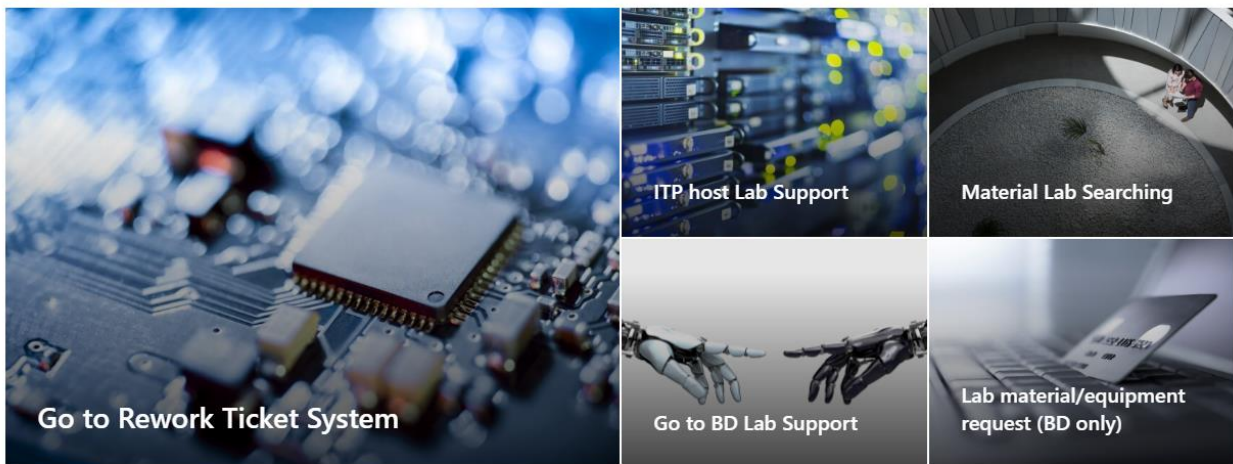


Figure 3-16 BD Ticket System

Both tools are up and running, and as a result, the efficiency of the roles has improved by 10-15%. Since corporate tools like SharePoint and an optimal design architecture of LIS have been used, the administrative effort required has been low, leading to a lower investment.

The following section will discuss the tools utilized to track the project's implementation success.

3.2.8 Key Element Tools – Metrics

As discussed earlier, the CXi (Customer Experience Index) is the metric to track this project's success. It has been derived from a Customer Experience Survey and is an essential tool

to gauge customer satisfaction. This section aims not to elaborate on the definition of CXi, which has already been mentioned in Section 3.1.1, but to reiterate its importance and list other surveys that provide external feedback.

The following corporate indicators are being used to measure the achievement of PoDOS:

1. CXi - It is released at least once yearly and involves collecting direct feedback from users and stakeholders about the role execution.

2. EES (Employee Experience Survey) – It is released annually to collect information about company leadership and execution.

3. MDF (Manager Development Feedback) – It is released annually to collect direct feedback and perspective on the manager’s performance.

The information collected by the manager is shared within the team during strategy meetings to reflect on the high-level strategy of PoDOS implementation.

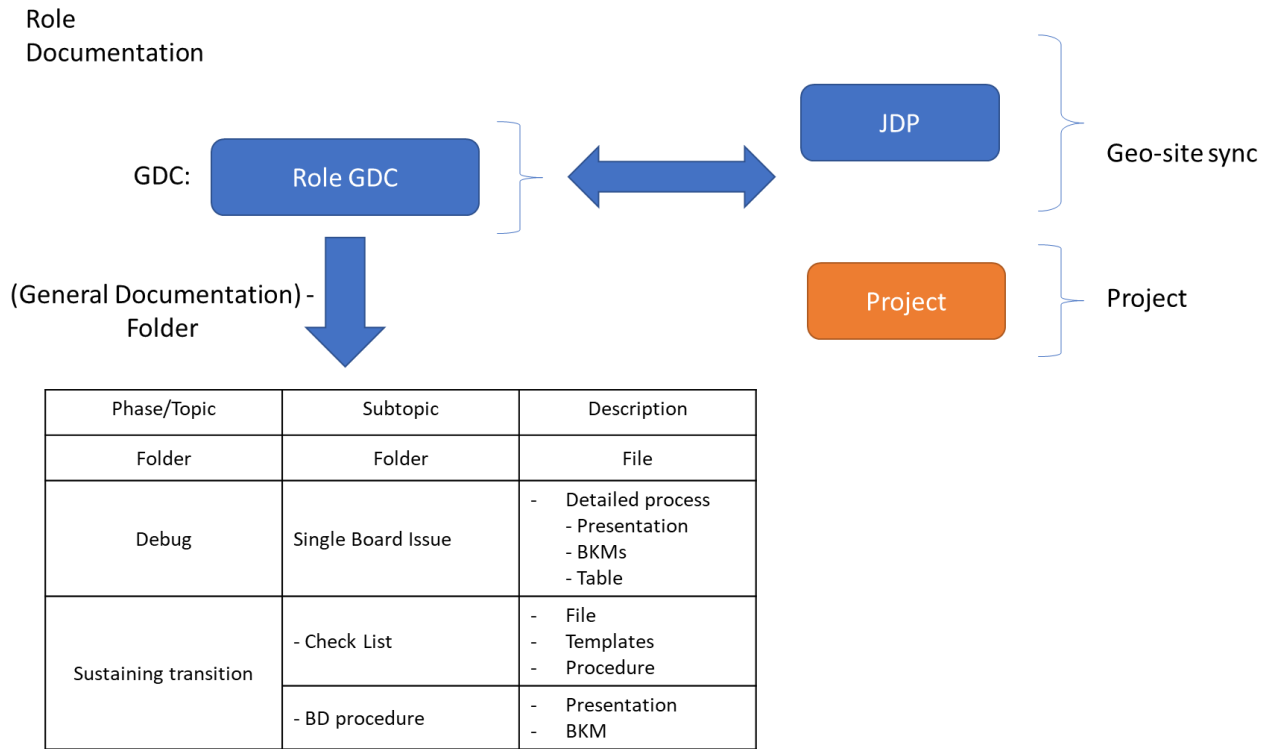
We conclude the sections for tools, and we will move to the procedures where we identify opportunities in the documentation and the discipline from the engineers to document.

3.2.9 Key Element Process – Documentation

The PoDOS system is based on documenting and generating procedures. In previous sections, we discussed the importance of documenting the knowledge and best practices to keep a system on track. However, documenting alone is not enough. We also need to ensure that the information is easily accessible and secure. To achieve this, we chose Microsoft Teams to manage, access, and secure data. We created different channels and rules to collaborate with the team and inform stakeholders where the information was located. The process involved four steps: tool selection, document structure, communication, and repository audit.

We chose Microsoft Teams as it is a corporate tool that offers the flexibility of creating channels and configuring different information access options such as SharePoint and Teams. We created three channels: HWV, Sustaining, and BD University channels. For the different repositories, we defined two document structures: one for role data and the other for training content. The high-level overview of the two structures for training and role documentation is shown in Figure 3-17.

¡ERROR! UTILICE LA PESTAÑA INICIO PARA APLICAR HEADING 1 AL TEXTO QUE DESEA QUE APAREZCA AQUÍ. **IMPLEMENTATION RESULTS AND ANALYSIS**



Information Teams folder structure

BD Training Information

Main content	Secondary content	Details
Folder	Folder/file	File
General documentation BD University	Rules and procedure to Supportadding material	
Common BD training material	- Check List	
	- BD procedure	
Role BD curricula and training material	Role curricula	- Topic content

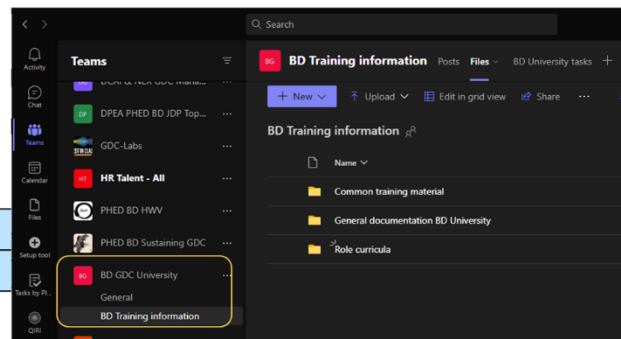


Figure 3-17 Rules for Folder Structure in Teams

The documentation process is defined, the content is in progress, and the communication and audit of the information are still in progress. The following Section is also a planned action that is still awaiting implementation.

3.2.10 Key Element Process – Innovation

The first step is to change the paradigm, redefining the innovation concept to continuous improvement. With this new approach, HWV and HW Sustaining roles will have more opportunities to apply new ideas and execute disruptive concepts based on their daily experience.

This shift in perception and concept requires reevaluating our framework and spreading it inside the team. While new ideas are in the works, we have nothing concrete under this concept yet. Many programs have been launched without positive results, so this section remains open for further definition.

We have just completed the Doing phase of the project, and we understand that many topics are still in progress and are yet to be acted upon. The Checking and Acting phases are underway, and we are confident this project will be fully implemented in the long term. We expect this to be a cultural transition requiring us to invest time and effort to adapt to new company rules and changes in people's mindsets. Despite the challenges, we are committed to making this project a success.

3.3. Checking Phase

The project's performance is evaluated during this phase to determine its success. Figure 2-2 highlights the importance of this stage, as it provides feedback to the entire project team and allows them to adjust their methodology to improve results and align them with project objectives.

To assess the project's success and have a quick reaction, two indicators are used: stakeholder feedback (Customer Satisfaction Index - CXi) and the PoDOS implementation tasks (Objectives and Key Results – OKR). These indicators provide valuable information on how well the project is aligned with its objectives and how we are moving in time.

3.3.1 Indicators – CXi

In the previous chapters and sections, we mentioned using a tool to collect customer data. We conducted a preliminary activity to identify gaps and evaluate the effectiveness of our actions for this project. The information collected was beneficial and considered the main indicator of the project's success.

We plan to conduct a survey by the end of Q4 2023, which will extend the application to stakeholders of the BD group and add the roles of HW Sustaining and Lab Service. The effort applied to one role will be applied to the rest of them, making the process more efficient.

3.3.2 Task implementation – Project Tracker

As part of the Doing Phase, Section 3.2.2 discusses using OKRs, a standardized tool to track objectives and achievements. The tool helps employees focus on their activities and understand their impact.

In the PoDOS implementation, we use the tool to set an objective called Role+, defined as Flawless Execution +1 in the template. This objective is related to the implementation of the project and other strategic growth objectives of the team. Table 9 provides an example of the status and evaluation section of the objective based on specific execution during the quarter.

Table 9 OKR template

Objective	Key Result	Qtr	Current Status	Example of "Met"
Q3: Flawless execution +1: Board Sustaining Role and Structure definition collaboration	Process to request JDP documentation update	Q3	Not started	Prepare a document summarizing the feedback to JDP and present to the JDP coordinator.
	Board sustaining R&R update and OS collaboration (new employees journey)	Q3	WIP	Present the updated document/proposal and collaborate with two trainings/documents of the curricula.
	Define Wiki, Internal Drive, SharePoint, and external structures. Collaboration with the Tiger team for documentation	Q3	WIP	Present progress to the BD team

	Sustaining collaboration/redefining milestones in the BD JDP	Q3	No started	Complete a template/proposal for "Sustaining" JDP
--	--	----	------------	---

The follow-up of the OKRs and the CXi will give us updated information about the project implementation. Cultural transition will leave an open door for improvements, and the ideal implementation is considered a long-term objective.

3.4. Acting Phase

The last phase of the model of PDCA is where the results of the project are standardized and replicated. In this case, the project is still in the phase of implementation, and many things were re-defined; however, some activities have been replicated successfully in other teams:

1. Role curricula
2. Training system
3. Onion layer model for OKR definition
4. Usage of CXi and SWOT analysis

In many ways, this project has suffered many PDCA cycles (at least three cycles), where we added new methods and tools to narrow the project. Figure 3-18 visualize the cycles of PDCA. [13]

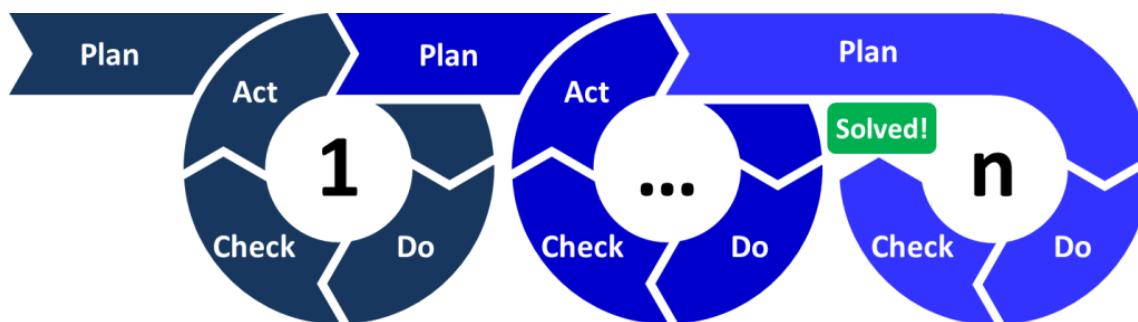


Figure 3-18 PDCA cycles

4. Discussion and Recommendations

4.1. Discussion

The project has shown that any cultural transition requires a considerable amount of time and effort from different actors within the organization. From my previous experiences, I have realized that any organizational change is destined to fail if the human factor is not considered the core of the change. The employees need time to transition from one state to another, and we must have a complete strategy in place to ensure an appropriate environment, tools, and tracking for the change to be implemented successfully. Also, we need to consider that any transition requires time to visualize the results in the organization, like this project that started almost five years ago, and we are still working on the implementation.

During the implementation of this project, I identified some risks that changed the scope and affected the implementation time. One of them was the number of resources per role; I did not have enough resources (more than two) to keep the tactical tasks (execution) and strategical tasks (this project). Thus, the priority was to focus on the tactical activities, and this strategic project was a second priority. However, the objectives remained; I had to adjust the time and reduce the impact on HWV and HW Sustaining roles.

4.2. Recommendation

This project can be interpreted as one formal recompilation of several strategies focused on making the team successful with different grades of expectations and very high technical profiles, where the target is to provide technical results in a complicated area of research, innovation, and design environment.

Some tools and methodologies expressed in this document could be considered common sense; however, they are not. For example, driving the Psychological Safety process requires someone with a management background and some proficient soft skills related to listening, conflict management, negotiation, and communication.

On the other hand, implementing this kind of project takes time; thus, we need a sponsor to activate the changes, negotiate resources, and commit to the time. Again, it is a Cultural transition and should be managed with shallow changes and time investment in the people.

It is important to note that this project may have an impact on other areas, specifically the Project Manager role within the BD team. This role is additional to the People Manager role, which is the main focus of this project. Since you will be working with a multifunctional team, it is valid to incorporate some tools or phases from this project. Some initial criteria that should be quickly integrated into the Project Manager role include generating a work vision, defining and clarifying roles and responsibilities, creating a safe psychological environment, and establishing a feedback mechanism for the team.

It is recommended to use and provide feedback on this project for teams that face varying levels of work demand, such as Post-Silicon validation teams, where there are high workload cycles. In these situations, effective management skills are required to redistribute tasks and prevent stress from affecting the team's performance. Implementing this project, as suggested, can help prevent negative impacts and promote a sustainable team culture that values collaboration and organizational security.

As a suggested part of this project, there is an opportunity to compile a profile of people who want to join teams with this type of high-performance characteristics. Nothing is defining because, to a large extent, the process is linked to a managerial bias about the methodology and objectives of this project, as discussed in Section 3.1.4. Still, it can be incorporated into the implementation of the project.

Conclusions

The current project aimed to improve the organization of the BD team by implementing the fundamentals of High-Performance Working Teams. We established specific objectives categorized into three areas: human factor, technical capacity, and automation and systematization.

After collecting data from surveys and feedback from the team, we discovered that there were still many gaps in our execution as a BD team. We realized that the HWV and HW Sustaining roles were executed with a different mindset compared to the HW Design, PCB Layout, and Signal Integrity roles, despite all belonging to the BD team. Therefore, we needed to extend this project to the rest of the BD team to align mindsets, behaviors, and achievements. Fortunately, the HPWT were already present in the roles where this project started, and the attrition rate was lower than other groups.

The topic of staff rotation, also known as attrition, was discussed in Chapter 1, Section 1.2 as a motivator for the project's development. In later sections, it is mentioned again that certain tools can indirectly reduce these levels. This is because better working conditions tend to help individuals reach their full potential, regardless of the economic aspect.

Although there is not much relevant data due to the low number of resources in the roles, it has been found that the staff turnover rate is relatively low, with a turnover every three years. This may be due to the favorable work environment or technical challenges. Exit surveys conducted by the group suggest that the team's work environment is gratifyingly valued and qualified and that staff turnover is more related to economic factors.

We are on the right track, and we understand that using proven methodologies improves the time of cultural transition and ensures the success of the projects aligned with the proposed objectives. Our suggestion is to create forums to spread the experience of this project and promote methodologies that could be selected to achieve specific objectives quickly.

Apendix

A. ACRONYMS

BD: Board Development

BKMs: Best Known Methods

BTM: Bridges' Transition Model

CXi: Customer Experience Index

EES: Employee Experience Survey

HPWT: High Performance Working Team

HW Sustaining: Hardware Sustaining

HWV: Hardware Validation

IDP: Individual Development Plan

IFR: Ideal Final Result

ITP: Int-Target Probe

JDP: Joint Development Process

KRs: Key Results

LIS: Laboratory Inventory System

MDF: Manager Development Feedback

NEO: New Employee Orientation

ODM: Original Design Manufacturer

OKRs: Objective and Key Results

OS: Operative System

PDCA: Plan, Do, Check, Act

PHED: Platform Hardware Engineering Division

PM: Project Management

PoDOS: Post Design Operative System

R&R: Roles and Responsibilities

SMART: Specific, Measurable, Aggressive, Realistic and Timebound

SWOT: Strengths, Weaknesses, Opportunities, Threats

TRIZ: Theory of Inventive Problem Solving

UPLC: Unified Product Life Cycle

VOC: Voice of the Customer

Bibliography

- [1] B. Ashforth, *Role Transitions in Organizational Life: An Identity-Based Perspective*, Mahwah, NJ: Laurence Erlbaum Associates.
- [2] T. A. Holmes, "Ten Characteristics of a High Performance Work Team," 2 November 2015. [Online]. Available: <https://www.linkedin.com/pulse/10-characteristics-high-performance-work-team-holmes-ed-d-cpt/>.
- [3] t. D. Institute, "The Deming Institute," 2023. [Online]. Available: <https://deming.org/explore/pdsa/>.
- [4] J. P. Womack, *Toyota Kata*, New York: McGraw-Hill, 2001.
- [5] W. Bridges, *Managing Transitions: Making the Most of Change*, Da Capo Lifelong Books, 2017.
- [6] G. Tremolada, "Bridge's Transition Model," 3 July 2015. [Online]. Available: <https://frontlinemanagementexperts.wordpress.com/2015/07/03/bridges-transition-model/>.
- [7] F. M. Gryna, *Quality Planning & Analysis*, New York: McGraw-Hill, 2001.
- [8] "The TRIZ Journal," [Online]. Available: <https://the-trizjournal.com/what-is-triz/>.
- [9] Intel, "Using OKRs to fuel Execution," Oregon.
- [10] T. R. Clark, "What is Psychological Safety," 2023. [Online]. Available: <https://www.leaderfactor.com/>.
- [11] T. R. Clark, *The 4 stages of Psychological Safety*, Berrett-Koehler, 2020.
- [12] "Kaizen," 2023. [Online]. Available: <https://www.lean.org/lexicon-terms/kaizen/>.
- [13] C. Roser, "The Key to Lean – Plan, Do, Check, Act!," 19 April 2016. [Online]. Available: <https://www.allaboutlean.com/pdca/>.