



Connectivity as a Service (CaaS)

Daniel Escobar Castañeda

Internship report to obtain the title of Systems Engineer.

Mentor

Luis Hernando Silva, Msc

University of Antioquia

Engineering Faculty

Systems Engineering

Medellín

2023

Cita	(Escobar Daniel, 2023)
Referencia	Escobar, D (2018). <i>Connectivity as a Service</i> [Business Internship]. University of Antioquia, Medellín.
Estilo APA 7 (2020)	



Centro de Documentación Ingeniería (CENDOI)

Repositorio Institucional: <http://bibliotecadigital.udea.edu.co>

Universidad de Antioquia - www.udea.edu.co

Rector: John Jairo Arboleda Céspedes.

Decano/Director: Julio Cesar Saldarriaga Molina.

Jefe departamento: Diego José Luis Botia Valderrama.

El contenido de esta obra corresponde al derecho de expresión de los autores y no compromete el pensamiento institucional de la Universidad de Antioquia ni desata su responsabilidad frente a terceros. Los autores asumen la responsabilidad por los derechos de autor y conexos.

Dedicatory

To my mother who gave me my life and has been with me during these 24 years of my life, for showing me what unconditional love is, I want to dedicate not only this degree but this whole process because without her it would be impossible to get here.

To my uncle Etelberto who has been my guide and second father since my father passed away, for his constant motivation when on this journey I considered giving up and with his advice this dream has become a reality.

To the most important person in my life, the one who besides being my academic mentor since I was a child, is my father and above all my friend, for teaching me to be brave no matter how hard the reality is, to be resilient and always be smiling, for showing me that even beyond this dimension he is still by my side supporting me and giving me the necessary strength to move forward. Since November 30, 2014, when you left this dimension, I promised you that I will be a professional and 9 years later I can finally say, this is for you dad.

Acknowledgments

To Luis Hernando Silva who has been my mentor during my projects and during my internship, for his constant support, motivation and advice to always give the best image of our beloved University of Antioquia.

I want to thank the professor Aldrin Jaramillo (Q.E.P.D), who in those conversations prior to his classes taught me many concepts that I applied in this internship and most of all to understand the importance of the value of people within organizations.

I will always be grateful to Professor Roberto Florez for giving me the opportunity to be a teacher, for trusting me and allowing me to share my knowledge with other students during the last 4 years.

To Procter and Gamble, for letting me do my internship and begin my professional life in the best way, allowing me to empower myself personally and professionally.

To Alejandra Villegas and Nohaly Perez, who gave me the opportunity to be in this important company and to feel part of it since the very beginning. I will be deeply grateful for helping me to fulfill my lifelong dream, for trusting me and believing in my potential.

My dear alma mater, who taught me values, principles and allowed me to enrich myself with its cultural exchange and its undoubted academic quality, I want to thank you because during these years I was happy, and I will go away proud to be a graduate of the University of Antioquia.

To my country, which I feel proud to be part of and to be able to proudly say "I'm Colombian", because thanks to the experiences I've had here I've been able to develop skills that I wouldn't have anywhere else. Now in this next step of my life I hope to be able to leave the name of Colombia high abroad.

Table of contents

Abstract	7
Introduction	8
1 Objectives	9
1.1 General objectives	9
1.2 Specific objectives	9
2 Theoretical Framework	10
3 Methodology	11
3.1 Calendar of activities	12
4 Results	13
5 Analysis	14
6 Conclusions	15
References	16

Acronyms

P&G	Procter and Gamble
CPS.	Critical path scheduling
CaaS.	Connectivity as a Service
HS&E	Health, safety and environment

Abstract

There is a global network strategy to improve the connectivity of plants and distribution centers around the world. The objective of my internship was to lead the first stages of the project for the distribution center located in Rionegro, Antioquia, allowing the following phases to be carried out successfully thanks to the elicitation of requirements and planning of these first stages.

As project manager I executed the first stages of the project using agile methodologies, providing constant communication between suppliers and P&G to meet the technical and time requirements established by the company.

I was able to detect new opportunities that will be taken into account in the development of the project in addition to ensuring the initial coverage scope. This project allowed me to evidence the importance of a good elicitation of requirements prior to the beginning of a project, and how soft skills allow the solution of opportunities that occur in the ongoing of large projects.

Introduction

As part of P&G's global digitalization strategy, one of the objectives is to improve connectivity in all of its plants, enabling them to improve their performance. This process will follow the guidelines and high-quality standards provided by the company's policies and will also take into account the feedback based on the previous experiences of the same implementations in other P&G plants. The project has different stages (evaluation and analysis, design, bidding, adaptation and implementation), during my internship I fulfilled the role of project manager for the evaluation, design and bidding stages.

1 Objectives

1.1 General Objective

Redesign the current network infrastructure to obtain a coverage of close to 100% of the Rionegro distribution center's surface, allowing to lay the foundations for the company's digital future.

1.2 Specific Objectives

- Lead the network design.
- Supervise compliance with the requirements established in the network design.
- Lead the logistics for each stage of the project, complying with the established technical and safety standards.

2 Theoretical Framework

Project Manager

A project manager is a professional who organizes, plans, and executes projects while working within restraints like budgets and schedules. Project managers lead entire teams, define project goals, communicate with stakeholders, and see a project through to its closure. The project manager is responsible for the success or failure of the project. [1]

Connectivity

Connectivity is the ability to connect systems or application programs. Ideally, these connections are established without requiring many changes to the applications or the systems on which they run. Application programs may need to communicate with each other to complete transactions or to effectively balance resources at an installation. [2]

Network Infrastructure

Network infrastructure refers to the hardware and software that enable network connectivity and communication between users, devices, apps, the internet, and more. [3]

Agile Methodology

Agile is an iterative approach to project management and software development that helps teams deliver value to their customers faster and with fewer headaches. Instead of betting everything on a "big bang" launch, an agile team delivers work in small, but consumable, increments. Requirements, plans, and results are evaluated continuously so teams have a natural mechanism for responding to change quickly. [4]

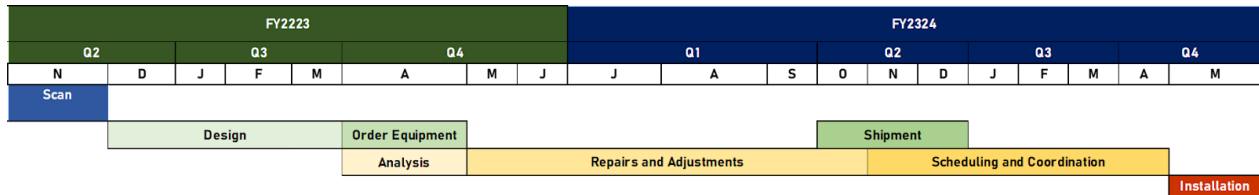
3 Methodology

At the beginning of the first stage of the project there was a meeting where the team discussed all the relevant details and requirements in order to start the project and to keep it on track. After this meeting there was an agreement to have a daily meeting where I suggested which areas are going to be covered on the next day taking into account the operation of the plant.

Also, in addition to these meetings, there's was a CPS (Critical path scheduling) to be followed, this CPS (See Figure 1) was updated by me each day in order to keep track of the delays or problems that could happen, this tool is really useful to avoid delays or at least to predict these delays and make them as short as possible.

Figure 1

CPS



The details of this CPS do not correspond to reality.

Calendar of activities

The first phase of the project was carried out in November; during this month measurements were taken at the distribution center to check the actual coverage of the new devices, considering the factors that may affect their connectivity.

After this stage and during the months of December to March we proceeded with the design phase of the project, in this part is where the network is designed based on the results of the previous phase, once the network was designed by the specialized supplier we proceeded to verify the proposal of the supplier, this part is vital for the following phases of the project, since it is checked not only the network but the existing devices and the entire scope of the project.

Once the agreement with the specialized supplier was reached, we proceeded to request the necessary hardware for the implementation and execution of the project. We also started with the bidding process to get the best company capable of implementing the network designed with the standards, requirements and specifications defined after the agreement with the specialized team.

4 Results

After this internship period the project is on time according to the initial CPS, the evaluation and design phases were successfully completed and the bidding process is underway with the requirements correctly defined, ensuring that the next phases can be completed successfully.

HS&E's requirements were established for the implementation of new system rooms, thus ensuring that employees can operate in the rooms without risk and at the same time ensuring that the rooms can be protected from external agents such as forklifts.

During these stages we have been able to establish a more adjusted CPS, considering the timing of critical factors such as customs and the human factor that can lead to delays. This was adjusted with the contractors ensuring that the planned schedule can be met on time.

The constant communication with the contractors has allowed not only to keep the project on schedule, but also their constant and opportune help for other projects led by the IT area, achieving in this way a positive impact for the whole organization and allowing a better work environment due to this good synchronization.

5 Analysis

It is essential to carry out periodical reviews (daily) in large scope projects. In these reviews there must be direct communication with the involved parties in each aspect of the project, avoiding triangulations in the communication and loss of time derived from them.

In addition to these reviews, it is important to supervise the development of daily activities, avoiding security risks and ensuring that everything that has been estimated to be delivered is done within the established times.

Upgrading the technology in the distribution plant will improve not only the connectivity but also the time in which daily tasks are performed, achieving a positive impact on delivery times and productivity, allowing this to become a competitive factor in the long term when compared to plants in other countries in the region.

6 Conclusions

The work performed during these stages allowed the next stages to be developed in an efficient and precise way, and in addition to this we ensured that the real objective of the project was achieved and even managed to cover new requirements that were not established at the beginning of the project.

The experiences gained in this project will be very useful for projects of the same size or even greater that will occur during the following years as established in the digital renovation plan of the company.

By documenting every aspect of the project, the person who will continue with this project in the following phases will be able to train quickly and lead it in an objective way, avoiding mistakes that have been detailed in the same documentation.

Thanks to this project and my impact within the company, I have been hired permanently within the company and transferred to the company's technology hub in Warsaw, Poland.

References

- [1] “What Is a Project Manager? A Career Guide.” Coursera, www.coursera.org/articles/what-is-project-manager. Accessed 01 March. 2023.
- [2] “What Is Connectivity?” IBM, www.ibm.com/docs/en/zvm/7.1?topic=connectivity-what-is. Accessed 01 March. 2023.
- [3] “What Is Network Infrastructure?” Cisco, www.cisco.com/c/en/us/solutions/enterprise-networks/what-is-network-infrastructure.html. Accessed 01 March. 2023.
- [4] “What Is Agile? | Atlassian.” Atlassian, www.atlassian.com/agile. Accessed 01 March. 2023.