# Project Introduction

**1**

The internet is a beneficial tool that nowadays is used by people constantly. However, it is imperative to be aware that the more this network evolves, the more risks are present for the user to experience. For this reason, Cyber Security is important within our society to combat these challenges and provide a safe use.

**2**

# Why we chose Cyber Security:

We selected Cyber Security for the Career Readiness Challenge because the protection from malicious entities is needed in the 21$^{st}$ century to maintain an attack free system and therefor continue with our innovative future.
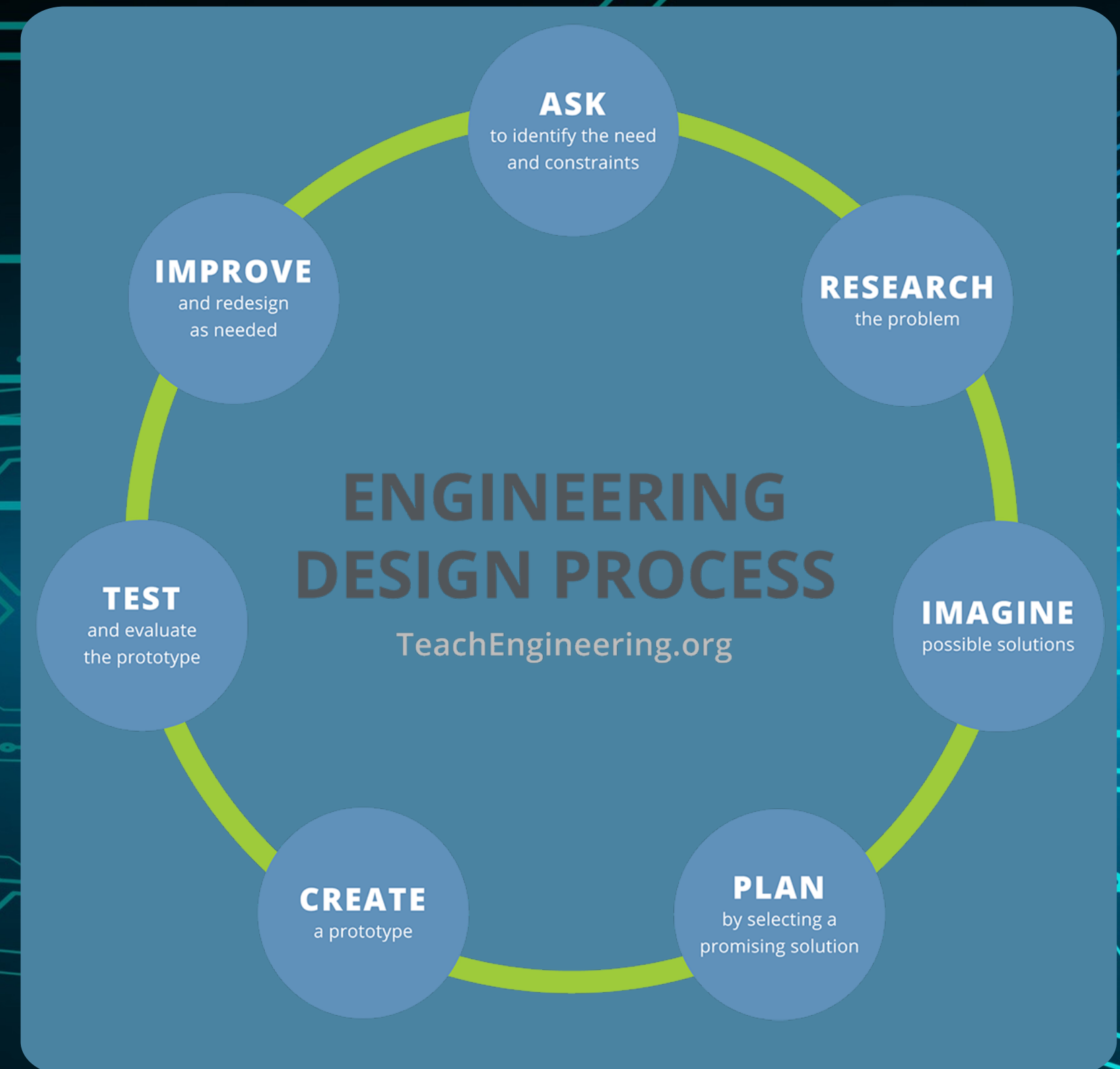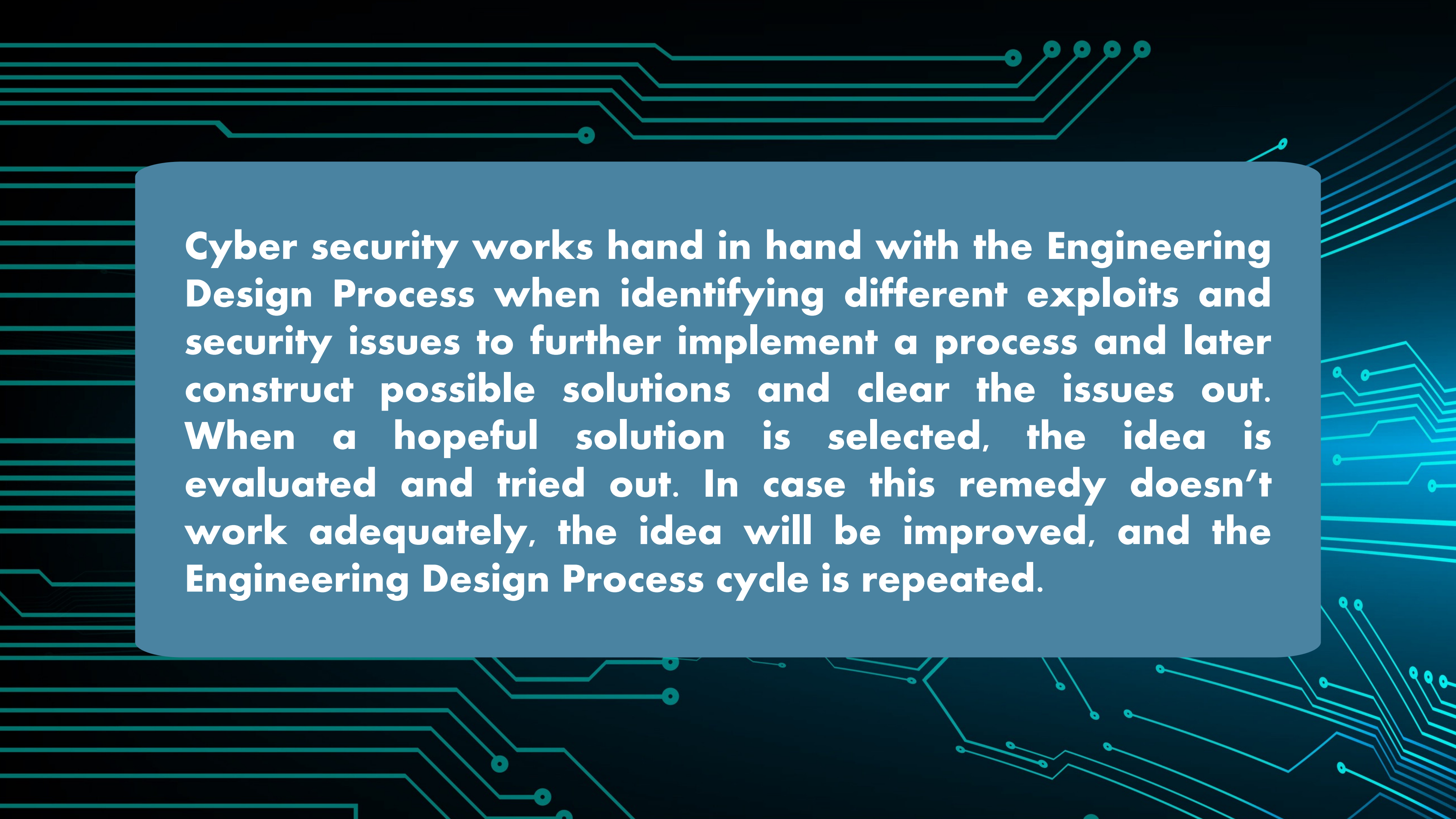
# 3

## The Engineering Design Process:
## How does Cyber Security apply these steps?



**ENGINEERING DESIGN PROCESS**

TeachEngineering.org

- **ASK** to identify the need and constraints
- **RESEARCH** the problem
- **IMAGINE** possible solutions
- **PLAN** by selecting a promising solution
- **CREATE** a prototype
- **TEST** and evaluate the prototype
- **IMPROVE** and redesign as needed

Cyber security works hand in hand with the Engineering Design Process when identifying different exploits and security issues to further implement a process and later construct possible solutions and clear the issues out. When a hopeful solution is selected, the idea is evaluated and tried out. In case this remedy doesn't work adequately, the idea will be improved, and the Engineering Design Process cycle is repeated.

# 4

## The Engineering Design Process:

## How does the career's process compare to our team's process?

| Similarities | Differences |
|---|---|
| Generally, both Cyber Security professionals and Vex Robotics teams, put into practice the basic structure of the Engineering Design Process when it comes to producing ideas, forming up opinions about generated solutions and especially the thorough testing. Both work teams focus on continuous improvement and the research for most efficient solutions. | One of the few differences may be the specialized use and implementation of science and mathematics which tends to be more rigorous when working on Cyber Security than in Vex Robotics since Vex teams normally go through a test and fail process until obtaining the desired result. In Cyber Security, professionals also prefer to have a plan with the problem at hand already resolved to then execute it. |

**5**

Our Source:

How do they apply the

Engineering Design

Process?

Fernando Alvarado Silva

**Technology and Infrastructure Director at Cimatec**

Fernando Alvarado shared with us that throughout the years of him working with technology that constantly evolves, there has been no change on how he applies the Engineering Design Process. The Technology and Infrastructure Director stated that when it comes to cyber security it's all about this process, deciphering what the problem is and what the user needs, to then devise a work plan and look for a creative way to solve the problem and run constant tests to evaluate if improvements are needed.

# 6

# **P**articipation in Vex Robotics:
# How it prepares students for a future career.

Through the participation of Vex Robotics competitions and challenges, the Engineering Design Process is essential when preparing and executing mechanisms to further make new innovative improvements. This procedure is implemented to many careers including Cyber Security. Participating in Vex Robotics provides us with a base of what is working whilst applying this process. Vex Robotics also opens our minds to a creative way of formulating solutions and many other skills and experiences like:

**a)** The ability to adapt to any challenge that may be present in the future.

**b)** Maintaining a fresh mindset to develop new ideas.

**c)** Problem solving dexterity and embracing risks.

**d)** Experiencing a process of trial and error.

# Conclusion

Cyber Security is described as an ever-growing industry, meaning jobs within this area have no end in sight. Learning about the Engineering Design Process through the participation in Vex Robotics gives youth a head start to continue the upswing Technology related careers have been experiencing and possibly have a safer online community in the future.

Thank You!