

Report for Systems Engineering

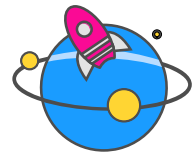
Typst Template Example



HES-SO Valais//Wallis
Systems Engineering - Infotronics
Digital Design - Silvan Zahno
Fall Semester 2025 - S1fα

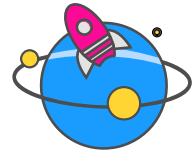
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1 Introduction

This chapter provides an overview of the project, including its background, motivation, and objectives. It should clearly state the problem being addressed and why it is relevant.

Key elements:

- **Introduce the goal** – What do you want to achieve with the project?
- **Provide context** – Why is this project relevant? What problem does it solve?
- **Define the scope** – What are the boundaries and limitations of your project?
- **Outline the structure** – How is this report organized?

Always place yourself in the point of view of the reader. For who is the report intended? What do they need to know to understand the project? Create and follow a red thread that guides the reader through the report.



Welcome to the template's introductory chapter! Instead of boring you with lorem ipsum, here's a quick guide to what you can do in Typst and, more specifically, in this template.

Need more? Check out the Guide to Typst.

1.1 Basic markup

Typst lets you create bold, italic, or monospaced text with ease. You can also sprinkle in equations like $e^{i\pi} + 1 = 0$ or even inline code like `fn main() { println!("Hello, World!") }`. And because life is better in color: pink, blue, yellow, orange, green, and more! **Boldly colorize!**

You can also write numbered or unnumbered lists:

- First item
- Second item
 1. First Subitem
 2. Second Subitem
- Third item

Need equations? Sure! They look great as blocks too:

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \dots = \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!} x^{2n+1} \quad (1)$$

1.2 Images

As they say, a picture is worth a thousand words. Let's add one:

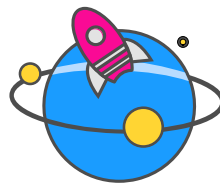
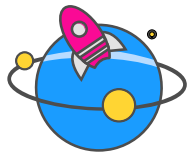


Figure 2 - Project logo



1.3 Tables

Tables are great for organizing data. From simple to complex, Typst handles them all:

| Name | Age | City |
|-----------------|-----|--------|
| Albert Einstein | 25 | Bern |
| Marie Curie | 22 | Paris |
| Isaac Newton | 30 | London |

Table 1 - Simple table

| [31:27] | | | [24:20] | | [19:15] | [14:12] | [11:7] | [6:0] |
|---------|----|----|---------|-----|---------|---------|--------|-------|
| funct5 | aq | rl | rs2 | rs1 | funct3 | rd | opcode | |
| 5 | | | 5 | 5 | 3 | 5 | 7 | |

Table 2 - Complex table

1.4 Boxes

Highlight key points with these fun boxes (and more):



Infobox: For highlighting information.



Ideabox: Share a brilliant idea.



Warningbox: Proceed with caution!



Firebox: This is 🔥!



Rocketbox: Shoot for the moon!

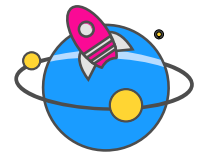


Todobox: Just do it!

1.5 Citations, Acronyms and Glossary

Add citations with @ like [1] (stored in `/tail/bibliography.bib`).

Acronym terms like Infotonics (IT) expand on first use and abbreviate after IT. Glossary items such as Rust Programming Language (Rust) can also be used to show their description as such: Rust is a modern systems programming language focused on safety, speed, and concurrency. It prevents common programming errors such as null pointer dereferencing and data races at compile time, making it a preferred choice for performance-critical applications.. Acronyms and glossary entries auto-generate at the document's end (defined in `/tail/glossary.typ`).



1.6 Code

Besides writing inline code as such `fn main() { println!("Hello World") }` you can also write code blocks like this:

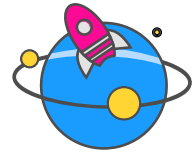
```
1 fn main() {
2     let ship = Starship::new("USS Rustacean", (0.0, 0.0, 0.0));
3     let destination = (42.0, 13.0, 7.0);
4     let warp = ship.optimal_warp(ship.distance_to(destination));
5
6     println!("👉 {} traveling to {:?} at Warp {:.2}", ship.name, destination, warp);
7     if warp <= 9.0 {
8         println!("🚀 Warp engaged!");
9     } else {
10        println!("⚠️ Warp failed!");
11    }
12 }
```

Listing 1 - First part of the USS-Rustacean code

or directly from a file

```
1 struct Starship {
2     name: String,
3     position: (f64, f64, f64),
4 }
5
6 impl Starship {
7     fn new(name: &str, position: (f64, f64, f64)) -> Self {
8         Self {
9             name: name.into(),
10            position,
11        }
12    }
13    fn distance_to(&self, dest: (f64, f64, f64)) -> f64 {
14        ((dest.0 - self.position.0).powi(2)
15         + (dest.1 - self.position.1).powi(2)
16         + (dest.2 - self.position.2).powi(2))
17        .sqrt()
18    }
19    fn optimal_warp(&self, distance: f64) -> f64 {
20        (distance / 10.0).sqrt().min(9.0)
21    }
22 }
```

Listing 2 - Second part of the USS-Rustacean code from `/resources/code/uss-rustacean.rs`



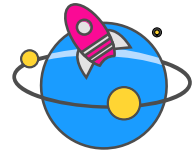
2 | Analysis

*This chapter defines the project requirements and presents the theoretical background. If applicable, it should also include a **State of the art** review to compare existing solutions and justify the chosen approach.*

Key elements:

- **Define the requirements** – What must the system/process be able to do?
- **Describe the architecture** – What are the key components of the solution?
- **Review existing solutions** – What approaches already exist? How does yours compare?
- **Explain design choices** – Why did you choose this approach? What alternatives were considered?

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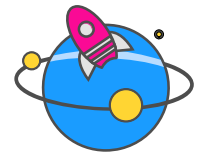
3 | Design

This chapter defines the overall system architecture, core components, and interactions between different parts. The goal is to translate the specifications into a concrete, actionable blueprint for development.

Key elements:

- **Define the architecture** – What are the main components of the system, and how do they interact?
- **Select technologies** – What programming languages, tools, or frameworks will be used? Why?
- **Design data structures** – How will data be organized and processed?
- **Create process flow** – What are the key steps or workflows in the system?
- **Plan modularity & scalability** – How can the design adapt to future needs or extensions?
- **Address constraints** – What design choices were made due to performance, security, or usability considerations?

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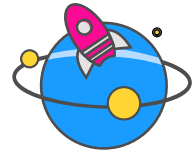
4 | Implementation

This chapter details the development and execution of the project. It describes actual implementation from a top-down or bottom-up approach depending on the project.

Key elements:

- **Describe the implementation** – How was the project developed?
- **Explain technical decisions** – What tools, frameworks, or methods were used and why?
- **Highlight key components** – What are the most important parts of the implementation?
- **Address challenges** – What difficulties arose, and how were they solved?

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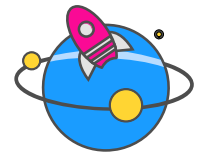
5 | Validation

This chapter assesses the correctness and performance of the implementation. It includes testing methods, simulations, and any validation techniques used to ensure the system meets its requirements.

Key elements:

- **Explain verification methods** – How do you ensure the system functions correctly?
- **Describe validation techniques** – How do you prove that the solution meets its objectives?
- **Present test results** – What experiments, simulations, or benchmarks were conducted?
- **Discuss findings** – What do the results show? Were there unexpected outcomes?

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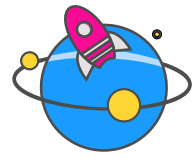
6 Conclusion

This final chapter summarizes the project outcomes, comparing them with the initial objectives. It also reflects on encountered difficulties and discusses possible improvements or future developments.

Key elements:

- **Summarize the results** – What are the key takeaways from the project?
- **Compare with objectives** – Did the project meet its original goals? Why or why not?
- **Reflect on challenges** – What were the biggest difficulties, and what was learned?
- **Discuss future work** – What are possible improvements or next steps?

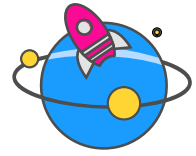
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Glossary

Rust – Rust Programming Language: Rust is a modern systems programming language focused on safety, speed, and concurrency. It prevents common programming errors such as null pointer dereferencing and data races at compile time, making it a preferred choice for performance-critical applications. 4

IT – Infotronics 4



Bibliography

- [1] S. Zahno *et al.*, “Dynamic Project Planning with Digital Twin,” *Frontiers in Manufacturing Technology*, vol. 3, May 2023, doi: 10.3389/fmtec.2023.1009633.