SALALE UNIVERSITY

COLLAGE OF NATURAL SCIENCE

DEPARTMENT OF COMPUTER SCIENCE

Face Biometric Attendance with Leave managment for SLU employees

November 2024

Introduction

Background

- Salale University's Human Resources department relies on manual, paper-based methods to track employee attendance.
- This outdated approach involves employees physically signing a paper document to clock in.
- This method is not only inefficient but also susceptible to human error, fraud, and data loss.

Cont...

Goal:

- To solve and overcome challenges Salale university's HR faces by using its outdated, error-prone manual, paper-based attendance system, we propose to develop a face recognition-based biometric attendance and leave system.
- A biometric attendance system, using face recognition technology, offers a more reliable and tamper-proof alternative to traditional methods.

Problem Statement

Current Issues:

- Inefficiency and time-consuming processes
- Prone to errors and security risks
- No real-time data
- Difficulty in leave management
- Reduced employee satisfaction and inconvenience
- Limited tracking capabilities

Objectives

General Objective:

- Design and develop a face biometric system with leave management for Salale University

Specific Objectives:

- Accurate attendance tracking via face recognition
- Employee mobile app for attendance and leave requests
- Web interface for admin management
- Implement Security and privacy measures

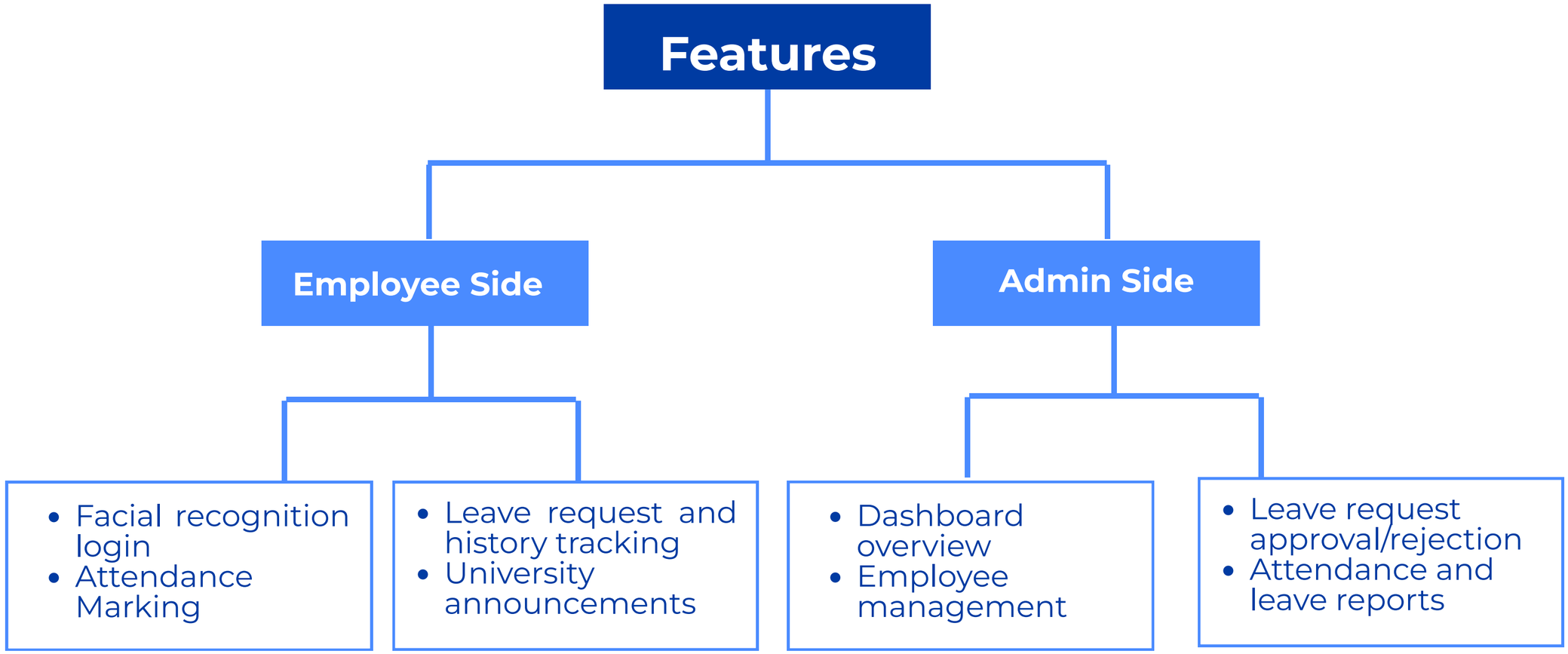
Scope of the Project

- Develop mobile app for employees to mark attendance, view attendance history, request leave, view leave request status, get notifications and view announcements.
- Web interface for administrators to manage employees
- Secure database for attendance and leave data
- Access limited to Salale University's network
- Support local languages

Significance

- Automate leave management and attendance tracking
- Improve efficiency
- Enhance security
- Accurate atendance records
- Data-Driven decision making
- Simplify leave management
- Improve employee satisfaction

System Features and Functionalities



Methodology

Data Collection

Interviews

- Conduct in-depth interviews with key stakeholders
- Understand their specific needs and expectations

Observation

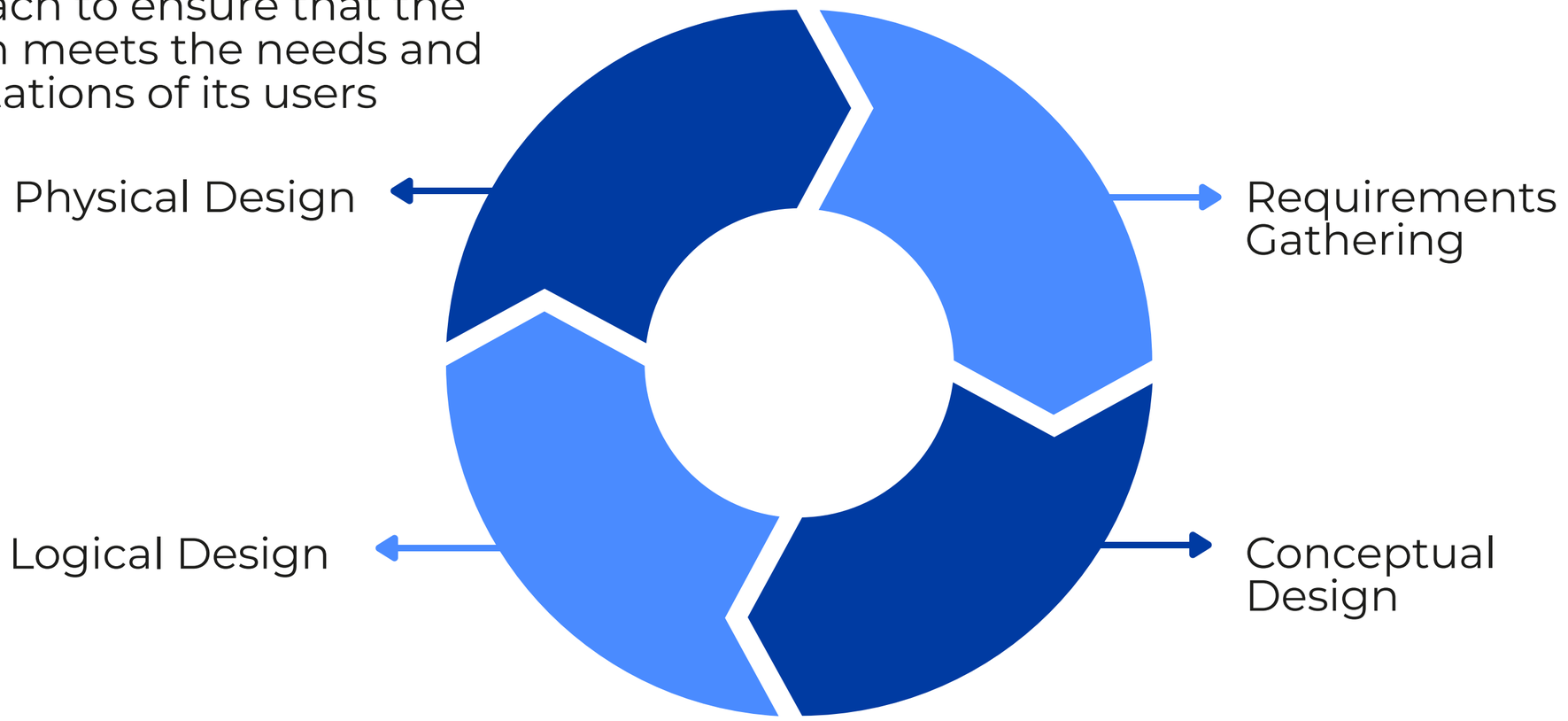
- Observe current attendance processes
- Identify inefficiencies and security vulnerabilities

Document Analysis

- Review existing documentation, such as policies, procedures, and reports
- Gain insights into the current practices and requirements

System Design

- Adopt a user-centered design approach to ensure that the system meets the needs and expectations of its users



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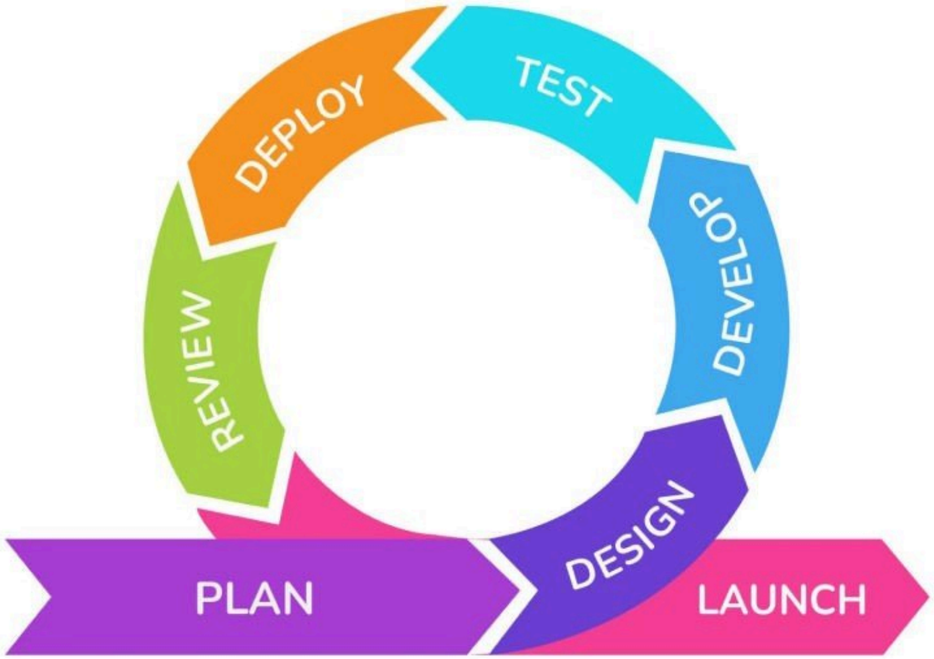
Agile development model

- Employ the Agile development methodology to deliver the project iteratively and incrementally
- This approach allows for flexibility, adaptability, and continuous improvement



System Development Tools

Languages

- JavaScript, HTML, CSS

Frameworks

- React Native for mobile app
- Next.js for web server and react for web interface

Technologies

- face-api.js which uses OpenCV and TensorFlow for face recognition
- MySQL or PostgreSQL for data storage
- Node.js for server

Feasibility Analysis

- **Technical:** Tools and expertise are available and mature
- **Operational:** User-friendly design; security and privacy measures
- **Economic:** Can be implemented with the minimum cost
- **Legal:** In compliance with data privacy regulations

Development Paln

Planing and Design

- Requirement gathering and analysis
- System architecture, Database and UI/UX design
- Duration: 5 weeks

Development and Integration

- Backend API, web frontend, mobile app
- Face recognition module integration
- Duration: 11 weeks

Testing and Deployment

- System testing (functional, security, usability)
- System setup, training, and final deployment
- Duration: 4 weeks

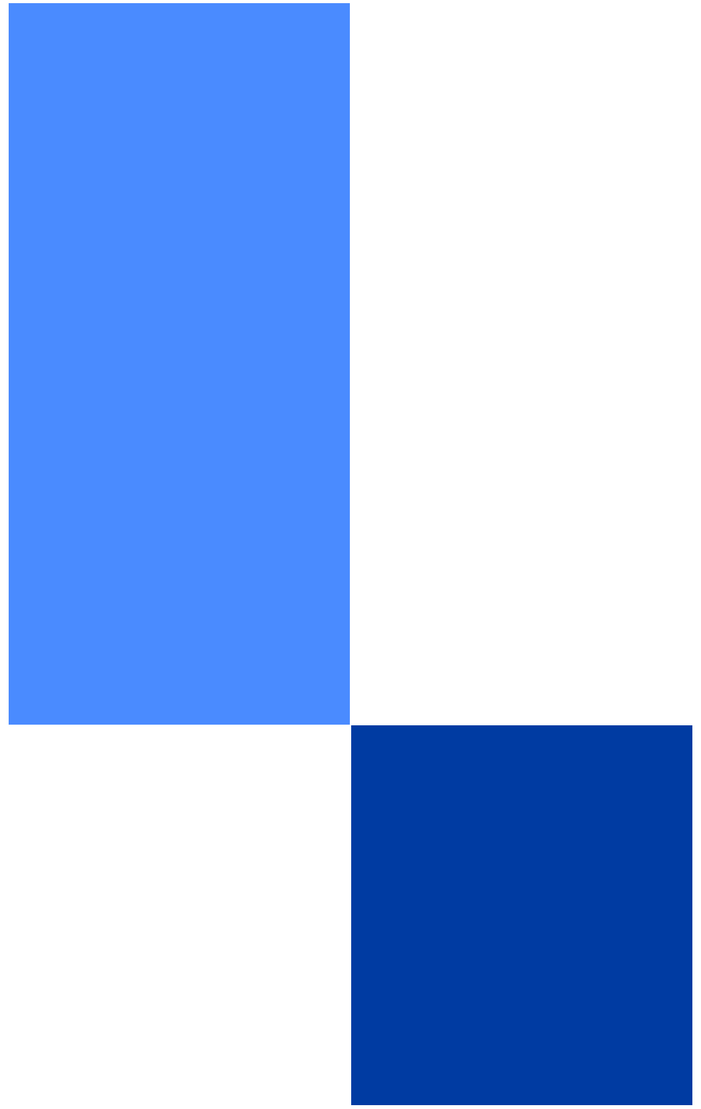
Thanks

Presented By:

Girum Eshetu, Mekete Hailu, Beshana Eshete, Wudinesh Nugusie, Tolera Girma

Fri, Nov 1 2024

Chapter 2: Requirement Specification and Object-Oriented Analysis



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Target

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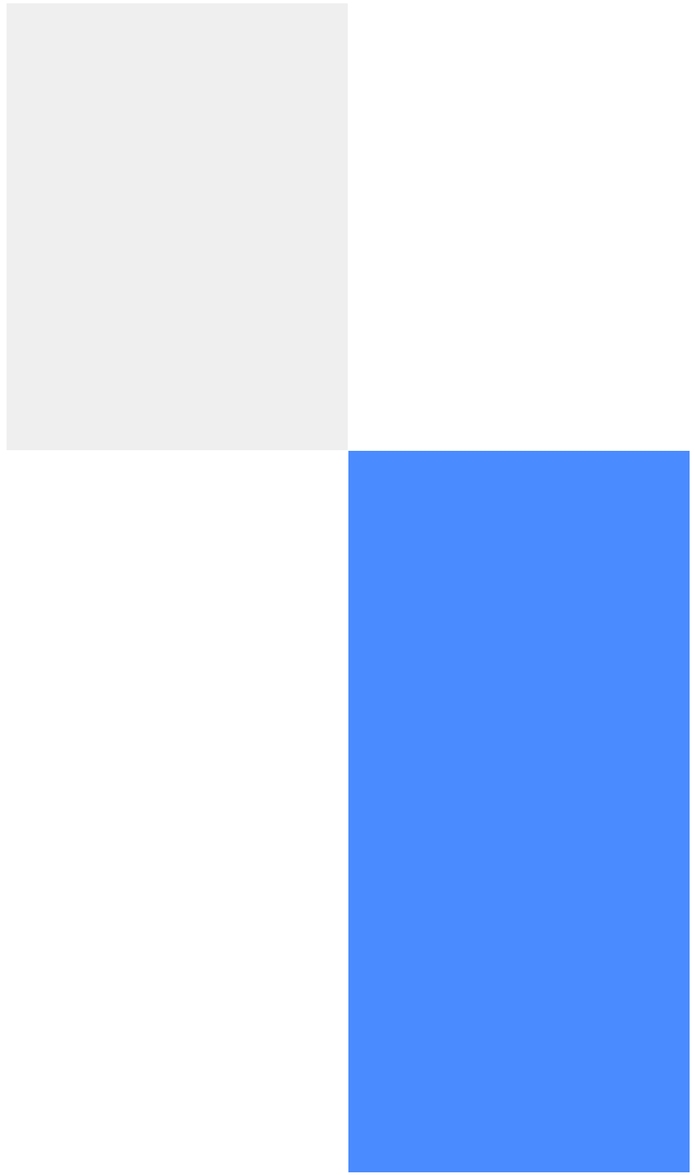


Existing System Overview

- Current system is paper-based.
- Employees sign attendance sheets manually.
- Leave requests are submitted in writing.

Management Consulting Toolkit

Here is where your presentation begins

Our Company

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it’s only a bit larger than the Moon. The planet’s name has nothing to do with the liquid metal, since it was named after the Roman messenger god, Mercury

Understanding the Problem

Jupiter

Jupiter is the biggest planet of them all

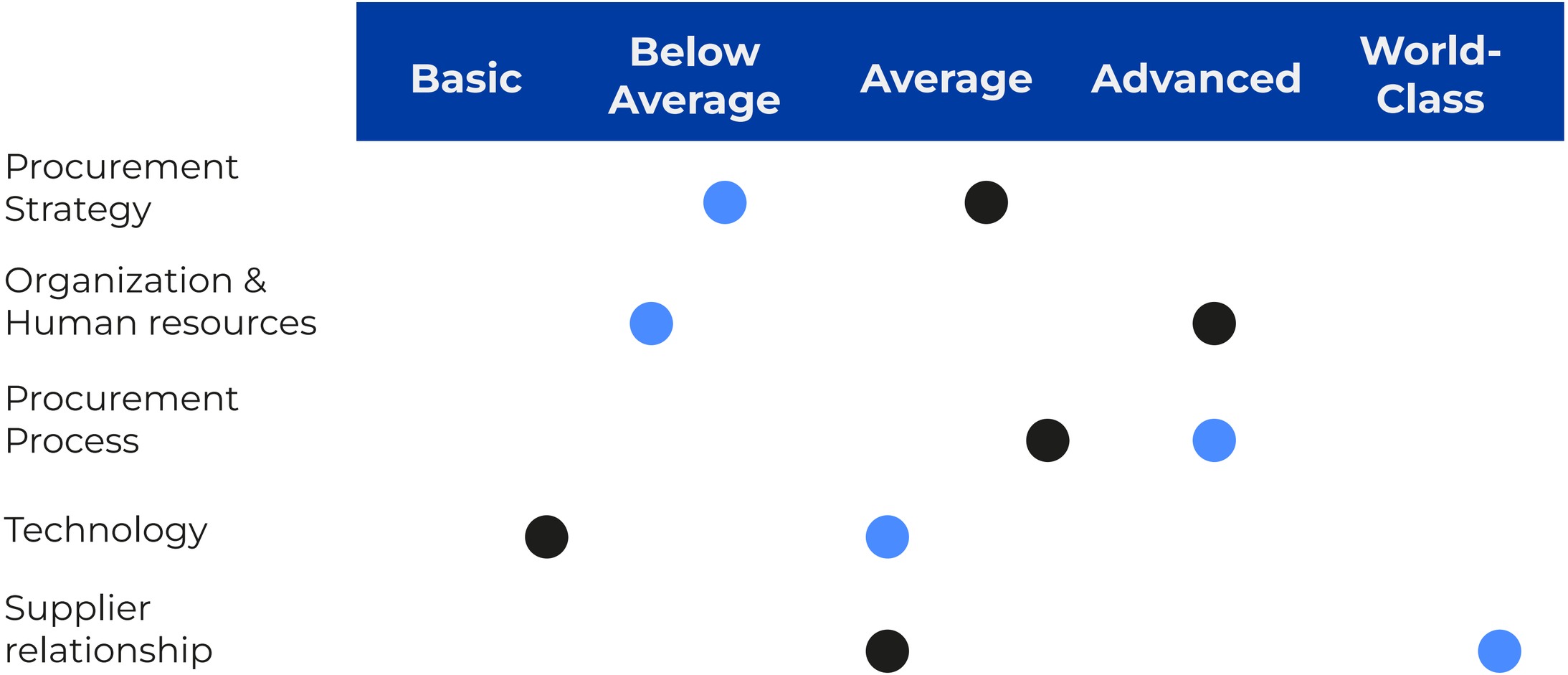
Mars

Despite being red, Mars is a cold place

Saturn

It’s composed of hydrogen and helium

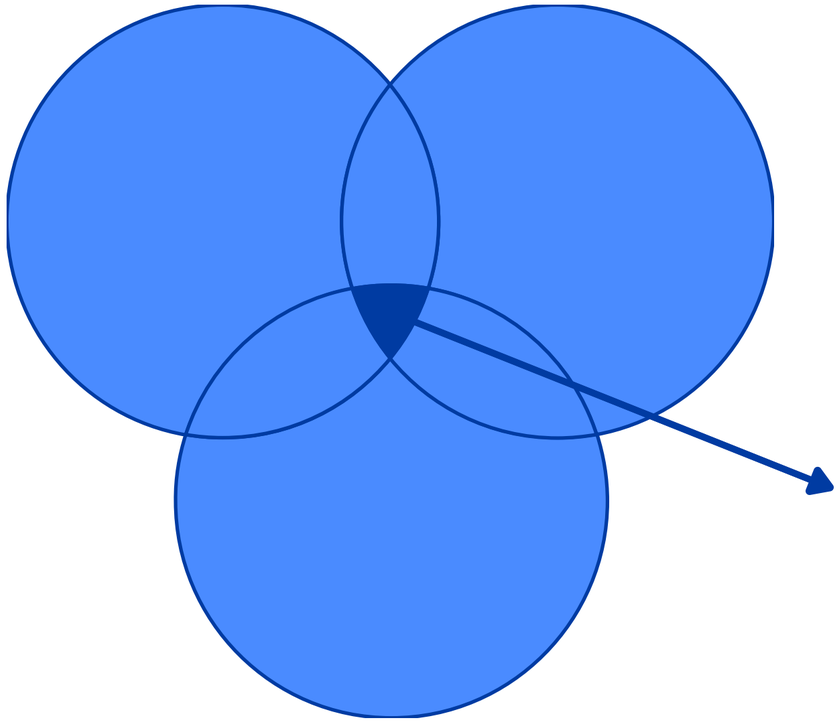
Maturity Model



The “Entering a New Market” Framework Includes 3 Components

Desirability

Feasibility



Profitability

Sweet Spot

SWOT

Internal

External

Strengths

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Weaknesses

- Insert your own text
- Insert your own text

Opportunities

- Insert your own text
- Insert your own text

Threats

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- Insert your own text

Ansoff Growth Matrix

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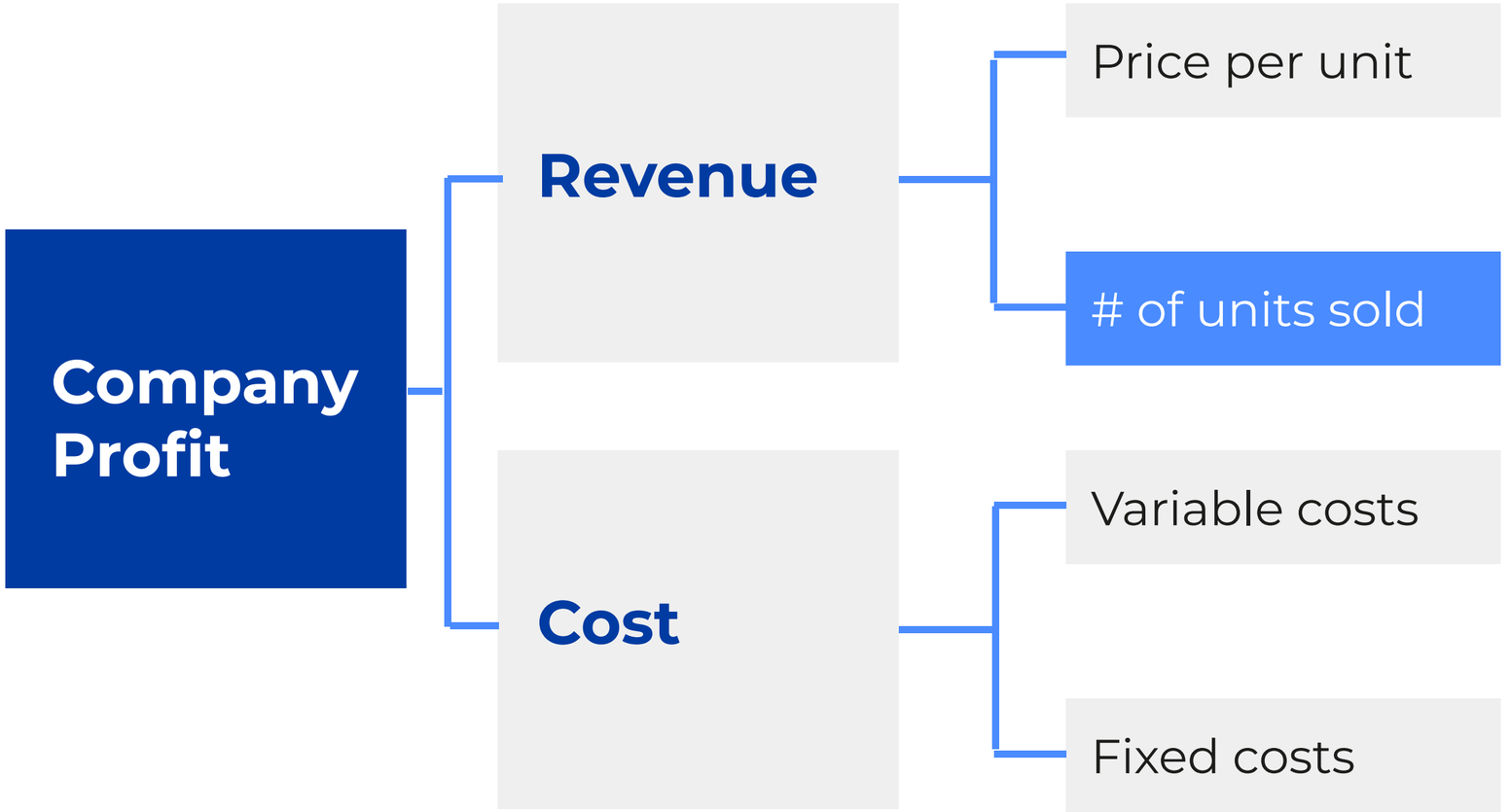
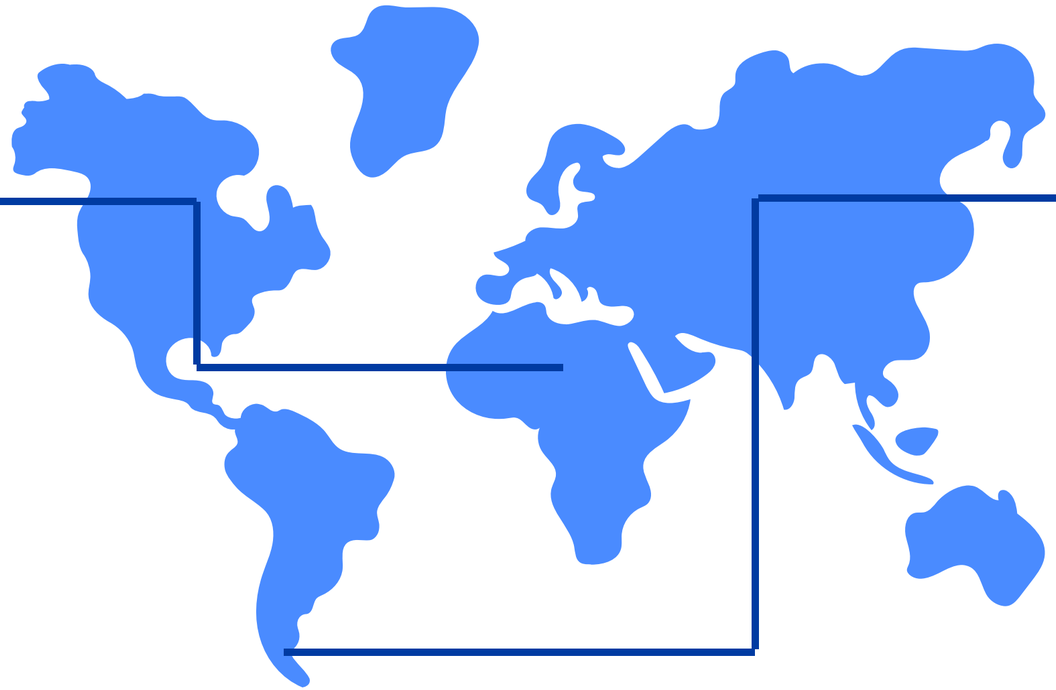
Segmentation by Distribution



Strategy Map



Jupiter

Jupiter is the biggest planet of them all

Mars

Despite being red, Mars is a cold place

Strategy Map

Financial	Increase revenue	Increase profit	Decrease fixed cost
Customer	Increase customer satisfaction	Become a trusted brand	Sell new products
Internal Process	Understand customer segments	Decrease delivery time	
Learning & Growth	Improve employee satisfaction	Improve customer information	

Our Solution

Mercury

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it’s only a bit larger than the Moon

Venus

Venus has a beautiful name and is the second planet from the Sun. It’s terribly hot—even hotter than Mercury

“This is a quote, words full of wisdom that someone important said and can make the reader get inspired”

—Someone Famous

A picture is worth a thousand words

5,600.00

Big numbers catch your audience’s attention

A picture always reinforces the concept

Images reveal large amounts of data, so remember: use an image instead of a long text

Our Target

Gender

60%

40%

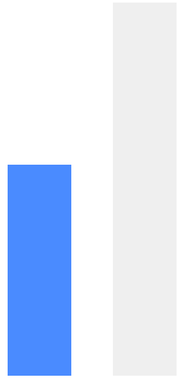
Age

25 - 35

36 - 45

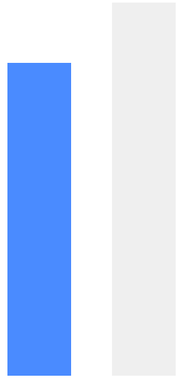
Interests

Percentages



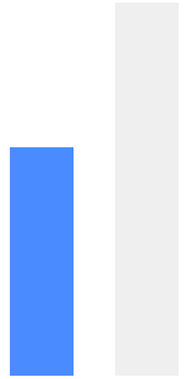
55%

Jupiter is the biggest planet of them all



80%

Despite being red, Mars is a cold place



60%

It’s composed of hydrogen and helium

Our Consultants

John Doe

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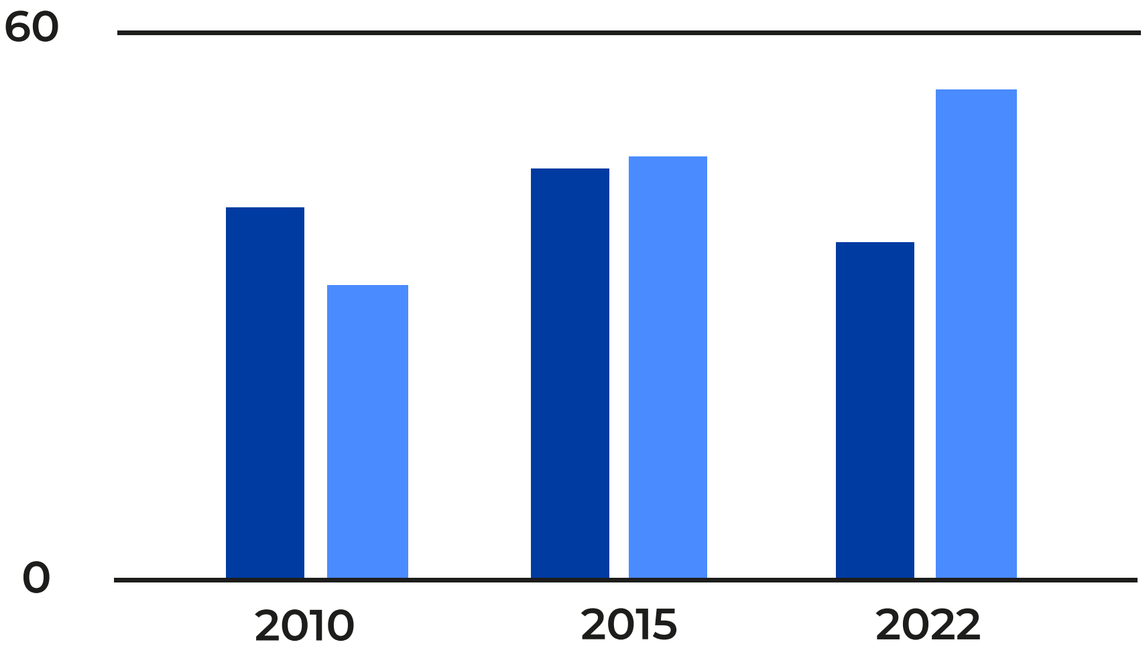
Helena James

You can replace the image on the screen with your own

Market Research



Mars

Venus

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$450,000,000

Our Partners

Mercury

Mercury is the closest planet to the Sun

Venus

Venus has a beautiful name, but it’s hot

Jupiter

It’s the biggest planet in the Solar System

Mars

Despite being red, Mars is a cold place

Testimonials

“Venus has a beautiful name and is the second planet from the Sun. It’s terribly hot”

—John Doe

“Mercury is the closest planet to the Sun and the smallest one in the Solar System”

—Helena Patterson

Awards

Mercury

Mercury is the closest planet to the Sun and the smallest one

Venus

Venus has a beautiful name, but it’s terribly hot

Mars

Despite being red, Mars is actually a cold place

Jupiter

Jupiter is the biggest planet in the Solar System

Saturn

Saturn is the ringed one and a gas giant

Neptune

Neptune is the farthest planet from the Sun

Thanks

Do you have any questions?
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