**Project Charter Document**



**Project Name:** Machine Downtime

**Industry:** Manufacturing

**Department:** Technical Resolution Department

**Product/Process:** Data Analysis



**Prepared By**

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| **Document Owner(s)** | **Project/Organization Role** |
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**Project Charter Version Control**

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# PROJECT CHARTER PURPOSE

The purpose of this Project Charter is to formally authorize the project, "Minimization of Unplanned Machine Downtime," and outline the project's objectives, scope, and overall approach. This charter serves as a key document throughout the project lifecycle, from initiation to planning, execution, control, and assessment. It acts as a central point of reference, detailing project goals and objectives, scope of work, approach and methodology, key project deliverables, stakeholder responsibilities, and budget and resource estimates. Additionally, this charter serves as a contract between the project team and sponsors, ensuring mutual understanding and agreement on the project's deliverables, constraints, and success criteria.



# PROJECT EXECUTIVE SUMMARY

* **Business Problem:** The client, a leading vehicle fuel pump manufacturer, is experiencing significant unplanned machine downtime, which adversely affects productivity.
* **Business Objective:** The primary goal is to minimize unplanned machine downtime to enhance productivity.
* **Business Constraint:** Maintenance costs must be kept low while achieving the objective.
* **Success Criteria:**
  + Business Success Criteria Reduce unplanned downtime by at least 10%.
  + Economic Success Criteria: Achieve cost savings of at least $1M.
* **Data Collection:** Data will be collected from the client's historical machine performance records and sensor data. Regular inspections and maintenance logs will be reviewed to identify patterns and causes of unplanned downtime.
* **Scope:** The project focuses on the production department, where the majority of machine downtime occurs.
* **Assumptions:**
* Data required for analysis will be provided by the client.
* Cloud & GPU resources necessary for data analysis will be supplied by the customer.
* The required team and resources will be available throughout the project duration.
* **Risks:**
* Availability of required data might be limited.
* Server connectivity issues could disrupt data analysis.
* Unexpected changes in production schedules might impact project timelines.
* **Costs:**
* The estimated project costs include:

**Human Resources**: X number of hours, categorized by cadre.

 **Hourly Cost**: Calculated based on the hourly rates of different cadres.

 **Other Costs**: Additional resources and tools required for data analysis.

* **Timeline:** The project is expected to be completed within 20 to 25 days, with key milestones and deliverables outlined in the project plan.
* **Approach:** The project will follow a data-driven approach, utilizing advanced analytics and machine learning techniques to identify patterns and predict potential downtime events. Regular monitoring and proactive maintenance strategies will be implemented to minimize downtime.



# PROJECT OVERVIEW

* The primary objective of this project is to address the significant productivity loss caused by unplanned machine downtime in the manufacturing of vehicle fuel pumps for a leading vehicle fuel pump manufacturer. By minimizing machine downtime, the project aims to improve productivity and reliability in the manufacturing process while keeping maintenance costs low.
* To achieve this, data will be collected from machine sensors, maintenance logs, and production records to analyze patterns and identify the root causes of unplanned downtime. Advanced analytics and machine learning techniques will be employed to predict potential downtime events and implement proactive maintenance strategies. The project will be executed across the entire manufacturing department to ensure a comprehensive approach to minimizing machine downtime.
* Key success criteria for this project include achieving at least a 10% reduction in unplanned downtime and generating cost savings of at least $1 million. The scope of the project encompasses the entire manufacturing department, with data and resources provided by the client. Assumptions include the availability of required data and resources throughout the project duration, while potential risks include limited data availability and server connectivity issues.
* The estimated project timeline is 20 to 25 days, with specific milestones and deliverables outlined in the project plan. The project will follow a data-driven methodology, leveraging advanced analytics to enhance machine reliability and productivity. This strategic approach aims to significantly reduce unplanned downtime, thereby achieving the project's business and economic objectives.



# PROJECT SCOPE

## Project Deliverables

|  |  |
| --- | --- |
| **Milestone** | **Deliverable** |
| * Identifying Constraints and Design the Project Architecture | * **Deliverable 1.1**: Identify constraints and design the project architecture. * **Deliverable 1.2**: Explore various public forums to collect relevant data. * **Deliverable 1.3**: Data preparation. |
| * EDA and Descriptive Analytics | * **Deliverable 2.1**: Perform Exploratory Data Analysis (EDA) and Descriptive Analytics. * **Deliverable 2.2**: Document the insights gathered during the analysis. |
| * Showcase, Review, Final Presentation, and Documentation | * **Deliverable 3.1**: Showcase the results and review the findings with stakeholders. * **Deliverable 3.2**: Prepare and present the final presentation and documentation. * **Deliverable 3.3**: Handover and Knowledge Transfer (KT) to the relevant teams. |

## Deliverables Out of Scope

The following items are not included in the scope of this project:

* Web Application
* Mobile App
* Cloud based deployment

## Project Duration (start date: 02/02/2025 End date: 13/02/2025)

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Milestone** | **Date Estimate** | **Deliverable(s) Included** | **Confidence Level** |
| * Identifying Constraints and design the project architecture, explore various public forums to collect relevant data, Data Preparation. | [02/02/2025]  -  [06/02/2025 | * Deliverable 1.1—Identifying Constraints and design the project architecture. * Deliverable 1.2—Explore various public forums to collect relevant data. * Deliverable 1.3— Data Preparation | [High] |
| * EDA and Descriptive Analytics | [07/02/2025]  -  [10/02/2025] | * Deliverable 2.1— EDA and Descriptive Analytics * Deliverable 2.2--- Insights documentation | [High] |
| * Show case and review, Final Presentation and documentation, Handover and KT. | [11/02/2025]  -  [13/02/2025] | * Deliverable3.1 – show case and review * Deliverable3.2 – Final Presentation and documentation * Deliverable3.3 – Handover and KT | [Medium] |



# PROJECT CONDITIONS

## Project Assumptions

* Data will be extracted from public sources and then client provided data is mapped and finally one master data will be shared by AiSPRY for further analysis.
* Dashboards and insights are mandatory.

## Project Issues *– Fill it as and how project progresses.*

**Priority Criteria**

1 − High-priority/critical-path issue; requires immediate follow-up and resolution.

2 − Medium-priority issue; requires follow-up before completion of next project milestone.

3 − Low-priority issue; to be resolved prior to project completion.

4 − Closed issue.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Date** | **Priority** | **Owner** | **Description** | **Status & Resolution** |
| 1 |  | High |  |  |  |
| 2 |  | High |  |  |  |

## Project Risks – *Identify if there are any risks that you foresee.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Risk Area** | **Likelihood** | **Risk Owner** | **Project Impact-Mitigation Plan** |
| 1 | [Project Risk] | [High/Medium/Low] |  |  |
| 2 | [Project Risk] | [High/Medium/Low] |  |  |



# PROJECT REFERENCES – Any previous projects you have referred. If yes, please share the details.

|  |  |
| --- | --- |
| **Project** | **Description** |
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# APPROVALS

**Prepared by** Shivanshu Prajapati\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project Manager

**Approved by** Praveen Kumar Burra\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project Sponsor

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Executive Sponsor

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Client Sponsor

