A
PROJECT REPORT
On
Digital Maturity Assessment Platform

Submitted by:

Riddhi Netam

(253000117)

Subhodeep Sarkar

(253000118)

Tanisk Tata

(253000119)

Tushank Patel

(253000120)

Guided by:

Dr. Krishna Bandaru

Dr. SPM International Institute of Information technology

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SESSION: 2025-26

Table of Content

Introduction

Organizations are rapidly adopting digital tools and solutions. However, many still lack a structured and systematic approach to measuring their digital capabilities across key areas such as strategy, technology, data management, customer experience, and internal operations. Without a consistent method to evaluate these dimensions, it becomes challenging for companies to understand their current level of digital maturity. As a result, they struggle to identify weaknesses, capability gaps, and areas that require improvement. This lack of visibility often leads to ineffective planning and poorly aligned transformation initiatives, which can slow down progress and reduce the overall impact of digital investments. A comprehensive and standardized assessment framework is therefore essential to guide organizations in making informed decisions and achieving long-term digital success.

Solution Architecture

The objective of this project is to design and implement a comprehensive digital maturity assessment system that helps organizations evaluate their current digital capabilities in a structured and data driven manner.

The system collects survey responses across multiple domains, applies weighted scoring logic, and translates the results into meaningful insights. These insights are then used to generate improvement roadmaps that guide organizations in strengthening their digital strategy, technology adoption, data practices, customer experience, and internal operations.

The architecture supports automated scoring, standardized evaluation, and real-time visualization of results. Through these features, the system aims to simplify the assessment process and ensure consistent and accurate measurement of digital maturity across departments.

Technologies Used:

1. Python for core logic and data processing
2. NumPy for numerical calculations and scoring computations
3. Pandas for dataset handling and structured analysis
4. Streamlit for building an interactive and user-friendly interface
5. Pyplot for generating graphical representations and visual reports

Proof of Concept

The proof of concept demonstrates the feasibility and effectiveness of the proposed digital maturity assessment system. It validates each major component of the architecture and shows how they work together to produce meaningful insights for organizational improvement.

1. Digital Maturity Framework Implementation:
   A structured framework was designed and implemented to evaluate key dimensions such as strategy, technology, data, customer experience, and internal operations. This framework provides a consistent basis for measuring the maturity level of an organization.
2. Automated Survey to Score Pipeline:
   An automated pipeline was developed to collect survey responses and convert them into structured data. The system processes inputs without manual intervention, reducing the time and effort required for evaluations.
3. Weighted Scoring Model:
   A scoring engine was created using domain specific weightages. This ensures that each question contributes appropriately to the final maturity score based on its importance.
4. Maturity Band Classification:
   The overall maturity score is mapped to predefined maturity bands. These bands help categorize organizations into levels such as beginner, developing, proficient, or advanced, allowing for easier interpretation of results.
5. Visualization Engine and Roadmap:
   A visualization module displays maturity scores, capability gaps, and key insights through graphs and charts. In addition, the system generates a roadmap that highlights improvement areas and recommended actions for digital growth.
6. Real Dataset Integration:
   The system was tested with real organizational data to validate accuracy, usability, and performance. This confirms that the solution can handle practical datasets and deliver reliable outputs.

Business Model Value

The Digital Maturity Assessment System delivers significant value to organizations by providing a data driven method for evaluating their digital capabilities. It enables companies to understand their strengths, identify capability gaps, and prioritize transformation efforts based on measurable insights. By using structured assessment results, organizations can plan their digital initiatives more effectively and align them with long term strategic goals.

1. Make Informed Decisions

   The system supplies clear and reliable insights that help leaders choose the right digital initiatives and allocate resources more effectively.
2. Reduce Transformation Risk

   By highlighting weak areas early, the system lowers the risk of failed projects and ensures that transformation activities focus on areas with the highest impact.
3. Improve Operational Efficiency

   Automated scoring and standardized evaluation processes reduce manual work and enable teams to operate more efficiently.
4. Enhance the Customer Experience

   Insights from the assessment help organizations improve customer facing processes and adopt technologies that strengthen service quality and satisfaction.
5. Support Continuous Improvement

   The system encourages ongoing evaluation and enables organizations to monitor their progress over time, supporting a culture of continuous digital growth.

ROI and Financial Benefits

To understand the financial benefits of the Digital Maturity Assessment System, a comparison was made between the manual evaluation process and the automated system. The calculation is based on an organization handling 1000 assessment related tasks per month.

Manual assessment requires significant effort and time.

1000 tasks × 30 minutes per task = 30,000 minutes = 500 hours

Automation reduces the time needed for each task.

1000 tasks × 0.5 minutes per task = 500 minutes = 8.33 hours

Automation reduces the total time from 500 hours to only 8.33 hours per month, creating a major

Cost Calculation: Assumption: Cost of employee time is ₹200 per hour.

Manual Cost

500 hours × ₹200 per hour = ₹100,000 per month

Digital System Cost

8.33 hours × ₹200 per hour ≈ ₹1,666 per month

The automated system reduces operational cost from ₹100,000 to only ₹1,666 per month.

Monthly and Yearly Savings:

Monthly Savings

₹100,000 (manual) minus ₹1,666 (digital) = ₹98,334 saved per month

Yearly Savings

₹98,334 × 12 ≈ ₹11,80,000 saved per year (approximately ₹11.8 lakhs)

The organization saves nearly twelve lakh rupees annually by shifting from a manual assessment process to the automated digital maturity system.

Risk and Management

1. The Digital Maturity Assessment System involves several risks that organizations need to consider.
2. Data quality risk may occur when inaccurate or incomplete survey inputs lead to unreliable results.
3. Privacy and security risk is present because the system handles sensitive organizational information, which requires proper protection.
4. Model bias and scoring errors can arise if the scoring logic or weight distribution is not calibrated correctly.

5. Misinterpretation of results is another risk, since users may draw incorrect conclusions without proper guidance or understanding of the maturity model.
6. Technology dependency is also a concern, as organizations may rely heavily on the platform and face disruptions if technical issues occur.

Limitations

The system has certain limitations that influence its effectiveness.

1. Survey bias and manual responses can affect the accuracy of maturity scores because participants may provide subjective or inconsistent answers.
2. A fixed framework and weight structure may not fully capture the unique needs of every organization.
3. The system requires high quality data for meaningful insights, and poor data inputs can reduce its usefulness.
4. There is no automatic benchmarking capability, which means organizations cannot directly compare their maturity level with industry standards or competitors unless additional data is supplied.

Governance and Framework

A strong governance framework is essential for ensuring that the Digital Maturity

1. Assessment System operates reliably, ethically, and consistently across the organization. It includes several key components that guide the management, use, and oversight of the system.
2. Data governance ensures that all data collected through the assessment process is accurate, secure, and handled in compliance with organizational policies and regulatory requirements. It defines standards for data quality, storage, access, and usage.
3. Model governance focuses on the development, validation, and maintenance of scoring models and maturity frameworks. It ensures that the scoring logic remains transparent, fair, and free from bias, and that updates to the model follow a controlled review process.
4. Process governance provides guidelines for how assessments are conducted, how often they are performed, and who is responsible for each step. It helps maintain consistency and ensures that the assessment process aligns with organizational goals.

5. Risk management oversight monitors potential risks such as data breaches, scoring errors, or misuse of insights. It ensures that corrective actions and preventive controls are in place to address any issues that may arise.
6. Ethical governance ensures that the system is used responsibly, respects user confidentiality, and supports fairness in decision making. It promotes ethical use of data and ensures that the assessment outcomes do not lead to discrimination or unfair treatment.

Execution Week

- D1: Resource Gathering
- D2: Collecting Survey Data
- D3: Testing and refining dataset
- D4: Visualization &Dashboard development
- D5: Roadmap and Recommendation engine
- D6: Integrating Streamlit
- D7: Documentation and Presentation

Result

1. Dataset: https://www.kaggle.com/datasets/ronjackson007/digitial-maturity-big-dataset
2. GitHub Link: https://github.com/Tushankp/Digital-Maturity-Assessment/tree/master