daffodil

# Daffodil helps NeGD to maximize e-governance by unifying 2000+ government services on a single application: UMANG

| Customer | Country | Industry |
|----------|---------|----------|
| UMANG | India | Government |

## About The Client

National e-Governance Division (NeGD) is an autonomous division of Govt. of India's Digital India Corporation. UMANG (Unified Mobile Application for New-age Governance) is a marquee programme of NeGD that aims to provide a single platform for all Indian citizens to access e-Gov services ranging from central to local government bodies.

## Business Situation

The Indian government's service delivery system faced considerable challenges, impacting both citizens and government departments. Citizens encountered significant hurdles, including the absence of a centralized service portal, inconsistent service delivery across various departments, and device compatibility issues.

On the other side, government departments dealt with the complexities of operating numerous redundant applications, each lacking a unified access channel. This resulted in duplicated development efforts and significant time spent on learning and implementing various applications.

## Business Situation

To resolve these issues, the National e-Governance Division (NeGD) launched UMANG. This comprehensive platform aimed to centralize and streamline service delivery, providing citizens with a single, unified access point for various government services. UMANG's successful implementation was widely recognized, earning numerous national and international e-governance awards.

With over 500 services already integrated across 100 departments, NeGD envisioned further expanding UMANG's capabilities. The goal was to integrate an additional 1500+ government services from state, central, and local bodies, bringing the total to over 2000 services. Additionally, the plan was to double the number of integrated departments, enhancing the platform's reach and functionality.

To achieve this ambitious vision, NeGD sought a technology partner with proven expertise in scalable and secure application development. Daffodil Software was selected for this critical role, owing to its exemplary track record with other government bodies. Their ability to deliver robust solutions made them the ideal partner to support UMANG's expansion, ensuring the platform could handle increased user demand and maintain high service standards.

**Through collaborative brainstorming sessions, Daffodil Software and NeGD outlined a set of requirements, which included:**

✅ Building an action plan and architecture for integrating application forms and data from 1500+ disparate government services, amalgamating them with the existing UMANG application.

✅ Scaling the platform to support an increase from 500 to over 2000 services while maintaining high performance and responsiveness.

✅ Integrating an additional 100+ departments seamlessly into the UMANG application.

✅ Redesigning the UI/UX of the application to enhance the user experience and ensure ease of use across diverse user bases, making it compatible with different devices and platforms.

✅ Taking over all existing software, code, documents, and related artifacts from the existing partner agency, ensuring a smooth transition and continuity of operations.

✅ Optimizing performance to efficiently manage increased user traffic and data volumes, ensuring the platform operates optimally under heavy load.

✅ Complying with government standards and regulations regarding data handling, privacy, and service delivery.

## The Solution

**Knowledge transfer and code audit**

The project began with an extensive knowledge transfer from the existing software vendor. Daffodil Software meticulously audited the entire codebase to evaluate programming standards, security measures, and performance-related factors. This audit was critical in understanding the application's current state and identifying areas for improvement.

**AngularJS migration: Maximizing efficiency with reusable components**

One of the pivotal recommendations was to migrate the front end of the application from Java to AngularJS. This transition was embraced by the NeGD team due to Angular's capability to create reusable components, which streamlined development processes and enhanced efficiency. Reusable components played a crucial role in integrating diverse services into the UMANG portal.

For instance, when a user accesses any department for e.g. 'Delhi Transport Department' through UMANG to pay toll tax or register a commercial vehicle, the dynamic-form-builder component generates the necessary form. This form, designed using reusable UI components and field components, captures the user's data and is then sent to the respective department for processing. Once processed, the response is sent back to UMANG and displayed to the user. This streamlined process is replicated across various departments and services, ensuring consistency and efficiency.

**Service integration and platform expansion**

To maintain a consistent rollout of services, the team aimed to deliver at least 60 new services each quarter. This was achieved through a well-coordinated Agile approach, involving continuous collaboration with various departments, third-party auditors, and backend teams. With the flexibility provided by reusable components, the Daffodil team was able to integrate up to 100 new services efficiently, ensuring the portal's scalability and adaptability.

The robustness of the system was also tested during peak usage times, such as when Central Board of Secondary Education (CBSE) results were released this year. During these periods, the system efficiently handled high user loads, with thousands of students accessing the portal simultaneously without any performance degradation. According to user activity data, the portal managed over 40,862 users per minute at peak times, reflecting its reliability. Moreover, the platform saw approximately 2 million users in a single day.

**Security and monitoring**

Maintaining the security of the application was a top priority. The Daffodil team implemented a system for constant monitoring to detect and mitigate vulnerabilities like injection flaws, cross-site scripting, and security misconfigurations. Additionally, a 24-hour server monitoring setup was established to identify front-end issues, aggregate errors, and ensure optimal performance. This vigilance included tracking JavaScript errors, network request failures, and user experience problems, ensuring the application remained robust and user-friendly.

**The Impact**

Since its launch, the UMANG application has been downloaded by more than 50 million users and has earned numerous national and international e-governance awards. The application serves over 6,000 users every minute and supports more than 20 languages, becoming a cornerstone of the Digital India initiative. It provides a unified platform for over 2,000 government services across various sectors, including healthcare, finance, education, housing, energy, agriculture, transport, utilities, and employment. The application supports secure payment-based transactions and has processed transactions worth ₹4.3 billion to date.

# Services Used

**Mobile App Development**

**Public Sector Software Solutions**