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# NCC — Construction Cost Estimation System

National Construction Council, Tanzania

5 months + 6 months support

## 65% reduction in manual calculation time

**65%**

Calculation Time Reduction

**All regions**

Coverage

**6 months**

Post-Launch Support

## The Challenge

The National Construction Council was responsible for establishing base unit rates and costs for road construction and maintenance across all of mainland Tanzania. The government relies on these rates for resource allocation and project budgeting.

The entire costing workflow was built on Microsoft Excel spreadsheets. While the calculations were correct, the spreadsheets posed serious challenges: limited visibility for non-engineering users, poor accessibility for users in remote locations, and difficult maintenance as volatile construction material prices required constant regional updates.

## Our Approach

I joined the project as Business Analyst and Quality Assurance lead, working with a team under Finsys Tech Solutions.

**Business Analysis:** Analyzed NCC's existing Excel-based costing methodology and translated complex engineering-domain requirements into technical specifications — construction resource libraries (materials, labour, equipment), construction methods linked to resources, regional pricing variations, and rate computation formulas.

**Quality Assurance:** Designed and executed test cases ensuring the web platform accurately replicated the complex engineering calculations from the original Excel models across all regions and construction activity types. Validated data integrity for every computation path.

Post-Implementation Support: After delivery, I became the primary system maintainer for the 6-month post-implementation support period, handling updates, bug fixes, user support, and regional data updates as construction material prices changed.

## Outcomes

65% reduction in manual calculation time for construction cost estimation — automated computations that previously required engineering expertise in Excel.

Web-based platform accessible from any device, replacing region-locked spreadsheets. Users can search and filter by construction activity, method, region, and tender mark-up.

BOQ upload and auto-population feature — users upload a Bill of Quantities and unit rates are automatically populated from the system's established rates.

System covers all administrative regions of mainland Tanzania with regularly updated material pricing. Live and operational at [cces.ncc.go.tz](https://cces.ncc.go.tz).

## Technology Stack

Angular

Java Spring Boot

PostgreSQL