

**One Source Construction**

Final Year Project Report

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In partial fulfilment of the requirements for the degree of

Bachelor of Science in Computer Science / Software Engineering

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**Faculty of Engineering Sciences and Technology**

Hamdard Institute of Engineering and Technology

Hamdard University, Main Campus, Karachi, Pakistan

### Certificate of Approval



**Faculty of Engineering Sciences and Technology**

Hamdard Institute of Engineering and Technology  
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This project **“One Source Construction”** is presented by **MadadAllah, Hanzala Shahzad and Burhan Haider** under the supervision of their project advisor and approved by the project examination committee, and acknowledged by the Hamdard Institute of Engineering and Technology, in the fulfillment of the requirements for the Bachelor degree of science in computer science and software engineering.

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### Authors’ Declaration

We declare that this project report was carried out in accordance with the rules and regulations of Hamdard University. The work is original except where indicated by special references in the text and no part of the report has been submitted for any other degree. The report has not been presented to any other University for examination.

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**Plagiarism Undertaking**

We, MadadAllah, Hanzala Shahzad and Burhan Haider solemnly declare that the work presented in the Final Year Project Report titled OneSource Construction has been carried out solely by ourselves with no significant help from any other person except few of those which are duly acknowledged. We confirm that no portion of our report has been plagiarized and any material used in the report from other sources is properly referenced.

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**Definition of Terms, Acronyms, and Abbreviations**

*This section should provide the definitions of all terms, acronyms, and abbreviations required to interpret the terms used in the document properly.*

Table 2: Definition of Terms, Acronyms, and Abbreviations

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| **Term** | **Description** |
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### Abstract

The construction industry is often hindered by fragmentation, miscommunication, and inefficiency, leading to delays, increased costs, and inconsistent project outcomes. "OneSource Construction" addresses these challenges by offering an all-in-one platform that integrates essential services such as labor hiring, contractor management, material procurement, and interior design. By centralizing these functions, the platform streamlines the construction process, improving coordination and ensuring projects are completed on time, within budget, and to the highest standards. Advanced features, including AI-driven analytics and real-time communication tools, further enhance the platform's ability to deliver a seamless and efficient construction experience. "OneSource Construction" is poised to revolutionize the construction industry by providing a unified solution that simplifies project management and boosts overall productivity.

**Keywords:**

Construction Services, Online Platform, Contractor Marketplace, Building Materials, Home Renovation, Cost Estimation, Customer Reviews, Simplified Construction, Project Management, Quality Assurance.

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# CHAPTER 1

# INTRODUCTION

## Motivation

The construction industry in countries like Pakistan faces numerous challenges, including fragmented services, lack of transparency, and inefficiencies in communication among stakeholders. Customers often have to engage with multiple contractors and suppliers, leading to delays, increased costs, and inconsistent quality. Additionally, the absence of centralized platforms complicates the decision-making process for users, making it difficult to compare prices, evaluate contractors, and track project progress effectively.

To address these issues, OneSource Construction envisions a comprehensive, user-friendly digital platform that integrates all construction-related services under one roof. This initiative is driven by the goal of simplifying construction processes and providing customers, contractors, and suppliers with a seamless and efficient experience. By combining advanced technology and intuitive design, the platform aims to transform the construction landscape, fostering better coordination, improved quality, and optimized resource allocation.

## Problem Statement

The construction industry is plagued by inefficiencies due to a lack of integration among its key stakeholders. Customers often encounter the following issues:

**Fragmented Services:** Finding reliable contractors, sourcing materials, and managing projects require dealing with separate entities, resulting in a lack of coordination.

**High Costs and Delays:** Without a unified system, unexpected delays and cost overruns are common.

**Inconsistent Quality:** Ensuring uniform quality across contractors and suppliers is challenging.

**Limited Transparency:** Customers have limited tools to compare prices, evaluate services, and track project milestones.

OneSource Construction addresses these pain points by introducing a centralized platform where users can access contractor services, purchase construction materials, and manage their projects in a streamlined manner. This solution is designed to enhance efficiency, transparency, and decision-making in the construction process.

## Goals and Objectives

The primary goals and objectives of the OneSource Construction platform are:

**Integrated Platform:** To develop a unified digital platform that connects contractors, suppliers, and customers.

**Ease of Use:** To ensure the platform is accessible and intuitive, catering to users with varying levels of technical expertise.

**Cost and Time Optimization:** To enable users to compare prices, evaluate options, and make informed decisions, saving both time and money.

**Comprehensive Project Management:** To provide tools that help users manage construction projects efficiently, including tracking timelines, budgets, and quality standards.

**Reliable Recommendations:** To utilize advanced algorithms to recommend optimal pricing, contractors, and materials based on user requirements and historical data.

## Project Scope

The OneSource Construction platform will focus on the following areas:

**Contractor Services:** Providing users with access to a database of contractors categorized by expertise, ratings, cost estimates, and project history.

**Material Marketplace:** Offering a marketplace where suppliers list construction materials such as cement, steel, and bricks, allowing users to compare prices and purchase directly.

**Project Management Tools:** Including features such as budget tracking, timeline management, and quality assurance to streamline project execution.

**Scalability:** Ensuring the platform is scalable to accommodate future expansions, such as advanced analytics and third-party integrations.

Out of scope for this project are on-site construction services, legal documentation for contracts, and machinery rental services.

# CHAPTER 2

# RELEVANT BACKGROUND & DEFINITIONS

#### 2.1 Introduction

The challenges in the construction industry arise from its fragmented nature and reliance on traditional methods for project execution and coordination. This chapter explores the theoretical and practical foundations that inform the development of the OneSource Construction platform, emphasizing the need for digital transformation in this sector.

#### 2.2 Theoretical Background

Theoretical insights into digital platforms highlight their ability to centralize services and enhance user experience through:

**Centralized Data Management:** Integrating contractor and supplier databases to provide a one-stop solution for users.

**Scalable Architectures:** Leveraging technologies such as cloud computing to handle high traffic and data volumes.

**User-Centric Design:** Developing intuitive interfaces to cater to diverse user groups, including non-technical individuals.

Key technologies employed in OneSource Construction include:

**Frontend Development:** Utilizing HTML, CSS, and JavaScript to design a responsive interface.

**Backend Development:** Implementing server-side logic with Node.js or Python/Django to ensure efficient data processing.

**Database Management:** Using MySQL for structured data storage, ensuring scalability and reliability.

#### 2.3 Evaluation Background

The platform’s success hinges on addressing the following considerations:

**Performance:** Ensuring fast load times and smooth interactions, even during peak usage.

**Security:** Protecting sensitive user data through encryption and secure authentication protocols.

**Testing:** Conducting rigorous testing phases to identify and resolve bugs, ensuring a robust and user-friendly platform.

**Scalability:** Designing the architecture to support future enhancements and increased user demand.

# CHAPTER 3

# LITERATURE REVIEW & RELATED WORK

#### Literature Review

The concept of digital platforms in construction is not entirely new, but the integration of end-to-end services is still a developing area. Several studies highlight the benefits of centralizing construction services, such as reducing project delays and improving cost efficiency. However, existing platforms often lack features like real-time price comparisons, user-friendly interfaces, and advanced project management tools.

OneSource Construction builds upon these studies by addressing the shortcomings of current solutions. The platform incorporates innovative features such as contractor ratings, material quality assessments, and personalized recommendations to meet user needs effectively. By leveraging technologies like cloud computing and machine learning, the platform aims to set a new standard for digital construction management.

#### Related Work

Several platforms and tools exist in the construction domain, focusing on specific aspects like contractor hiring or material sourcing. For example:

**Procore:** A construction management tool that offers project tracking and team collaboration but lacks an integrated material marketplace.

**Houzz:** Primarily focused on interior design and home remodeling, this platform connects homeowners with service providers but does not cater to large-scale construction projects.

**BuildSupply:** Provides procurement solutions for construction materials but does not include project management or contractor services.

These platforms address niche areas but fail to provide a comprehensive, all-in-one solution for managing construction projects. OneSource Construction fills this gap by combining contractor services, material sourcing, and project management into a single, cohesive platform.

#### Gap Analysis

The primary gaps in existing solutions include:

**Lack of Integration:** Current platforms often focus on one aspect of construction, such as hiring contractors or purchasing materials, without addressing the complete project lifecycle.

**Limited Transparency:** Many solutions do not provide real-time price comparisons or detailed reviews, making it difficult for users to make informed decisions.

**Complex User Interfaces:** Some platforms are not user-friendly, especially for individuals with minimal technical expertise.

**Inadequate Scalability:** Existing platforms may struggle to handle increased user demand or adapt to future technological advancements.

OneSource Construction addresses these gaps by offering a unified, user-friendly platform that integrates all essential services. Key features include:

**Comprehensive Integration:** By consolidating contractor services, material sourcing, and project management, the platform provides a seamless experience for users.

**Enhanced Transparency:** Real-time pricing and detailed contractor profiles ensure that users can make informed decisions.

**User-Friendly Design:** The intuitive interface is designed for users with varying levels of technical expertise, ensuring accessibility for all.

**Scalability:** The platform's architecture supports future growth, accommodating new features and increased user demands.