

EXPLORING KEY PERFORMANCE INDICATORS FOR QUALITY ASSESSMENT OF HIGH-RISE BUILDING PROJECTS IN PUNE

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Abstract

The Relative Importance Index (RII) is a statistical method that is used to evaluate the relative importance of different factors influencing outcomes in various fields. This literature review examines studies that have utilized the RII method to identify and rank the most important factors in different contexts, including the adoption of new technologies, consumer behavior, and healthcare outcomes. The review highlights the versatility and usefulness of the RII method in identifying critical factors and prioritizing efforts and resources. Overall, this review demonstrates the value of the RII method as a tool for researchers and decision-makers in identifying and addressing the most critical factors influencing outcomes in different fields.

Keyword- RII method, Likarts Scale, Parameter

Introduction

In recent years, there has been a growing interest in assessing the relative importance of various factors affecting different outcomes in different fields, including social science research, healthcare, marketing, and many more. The RII (Relative Importance Index) method is a statistical approach that has gained popularity in this context. The RII method allows researchers to evaluate the relative importance of different factors and to rank them in order of importance. This method has been applied in various studies to identify the key factors that influence outcomes and to prioritize them based on their importance.

The RII method is particularly useful when researchers want to identify the most important factors influencing a particular outcome. By using this method, researchers can rank the factors in order of importance and focus their attention on the most critical factors. This approach can help decision-makers prioritize their efforts and allocate their resources effectively.

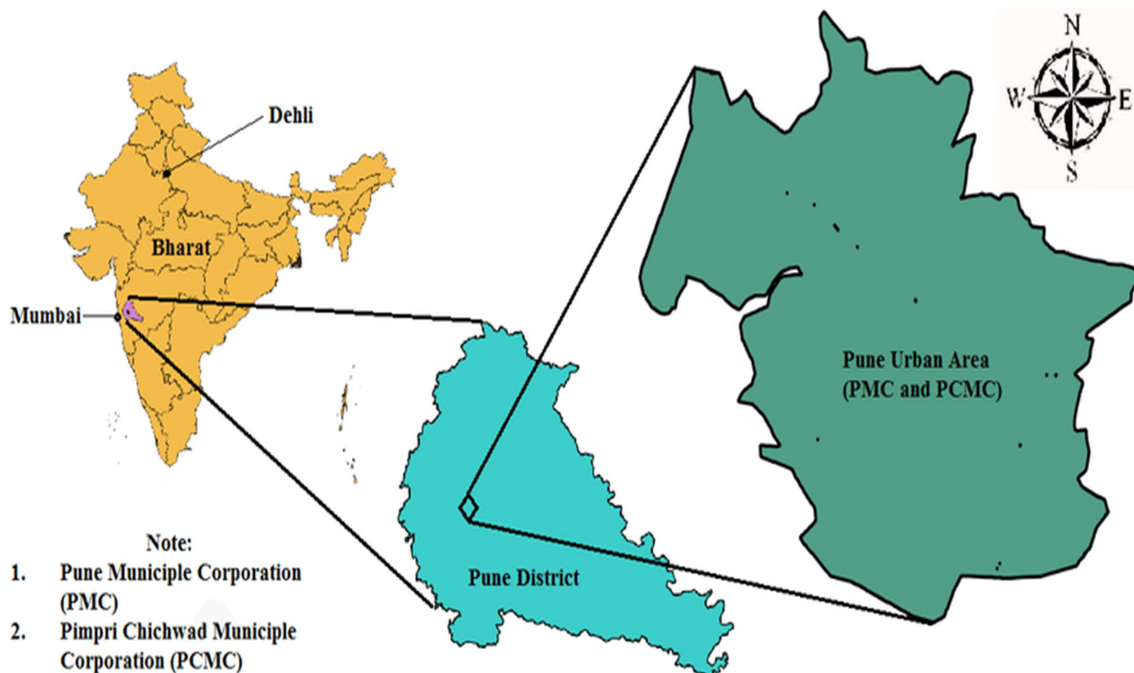


Figure 1 Location of Pune City

Literature Review

This literature review aims to examine some of the studies that have used the RII method and their findings. The studies reviewed here represent a diverse range of fields and outcomes, demonstrating the versatility and usefulness of the RII method. The studies include research on the adoption of new technologies, consumer behavior, and healthcare outcomes.

The RII (Relative Importance Index) method is a statistical approach used to assess the relative importance of various factors in a given situation. The RII method has been used in various fields, including social science research, healthcare, and marketing. This literature review will examine some of the studies that have used the RII method and their findings.

In a study conducted by Choi and Lee (2018), the RII method was used to investigate the relative importance of factors affecting the willingness of healthcare workers to use mHealth technologies. The study found that the ease of use, usefulness, and security of the technology were the most important factors affecting healthcare workers' willingness to use mHealth technologies.

Similarly, a study by Alomari and Abu-Alruz (2019) used the RII method to assess the relative importance of various factors influencing the adoption of electronic health records (EHRs) by healthcare professionals. The study found that the perceived usefulness, compatibility, and ease of use of EHRs were the most important factors affecting their adoption.

In a study by Niu and colleagues (2020), the RII method was used to evaluate the relative importance of factors affecting consumers' intentions to purchase electric vehicles (EVs) in China. The study found that the perceived environmental benefits, performance, and government incentives were the most important factors influencing consumers' intentions to purchase EVs.

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Another study by Yadav and Yadav (2019) used the RII method to evaluate the relative importance of factors affecting the adoption of mobile banking in India. The study found that the perceived usefulness, ease of use, and security of the technology were the most important factors affecting the adoption of mobile banking.

Methodology

The Relative Importance Index (RII) is a method of ranking variables based on their perceived importance or influence in a given situation. RII involves assigning a score to each variable based on a Likert scale, typically ranging from 1 to 5 or 1 to 7, with 1 indicating low importance and 5 or 7 indicating high importance. To calculate the RII for each variable, you first need to sum the scores of each response category for that variable. Then, divide that sum by the maximum possible score for that variable, which is the number of response categories multiplied by the highest score (e.g., if using a 1-5 Likert scale, the maximum possible score is $5 \times 5 = 25$). The resulting RII score will range from 0 to 1, with higher scores indicating greater importance. Once you have calculated the RII for each variable, you can rank them based on their scores. The variable with the highest RII score is considered the most important, and the variable with the lowest RII score is considered the least important.

PLANNING

1. don't learn how to work
2. Construction Process
3. Incomplete information
4. Improper project planning
5. Inadequate planning of quality
6. Other Paper work
7. Improper supply of Labours
8. Improper supply of Material
9. Improper supply of fund

DESIGN

1. Compliance with Codes and Standards
2. Design Requirements
3. Compliance with specifications
4. Design Changes
5. Coordination and contact with the design office
6. Quality-related specifications
7. Misunderstanding of drawings and specifications
8. Lightweight structure
9. Wind load & Earthquake Resistant Design
10. Soil interactions
11. Construction & Fire safety

RULES AND REGULATION

1. Difficulties in work approval
2. Changes in government policies
3. Bidding/bidding misconduct
4. Application of Building Bylaws

5. Refugee area demarcation
6. Fire safety Norms

MATERIALS

1. Rising building material costs
2. Availability of quality building materials
3. Materials management system
4. Cooperation between contractors and material suppliers
5. Inspection and control of incoming materials
6. new building materials
7. Use of modern forwork
8. Material Requirement Planning
9. Inventory control
10. Material Purchasing

EQUIPMENTS

1. Equipment availability
2. Equipment/ machinery management system
3. Optimum use of equipment
4. Maintenance of equipments
5. Breakdown related problems
6. Site characteristics
7. Safety of equipment

LABOUR

1. Untrained labou
2. Income level and wages for work
3. training courses for workers
4. Recession related downsizing
5. Blame Game
6. higher Insurance costs

EXECUTION

1. Appropriate sampling and testing
2. Curing and demoulding plan
3. Onsite la
4. Keep an eye on your regular schedule
5. Not maintaining a good design mix
6. Vibrator in concret
7. Improper construction technique
8. On-site quality manual
9. NDT overall performance
10. Advanced method of construction
11. Design Supervision

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12. Appointment of Project Management Consultatnt
13. Continuous supervision of construction works
14. Commissioning supervision on quality and schedule
15. Testing materials, systems and installations
16. Technical and legal advice

MANAGEMENT

1. Implementing a quality control and quality assurance system
2. Implementing a security program
3. Cost monitored system
4. Scheduling time
5. Inadequate support from management
6. External organisation for first-class checking out
7. Suggestions from structural designers during construction
8. Implementation of proposals from various institutions
9. Implementation of materials used according to specifications
10. Third party Audit work
11. Salary Issues
12. Improper documentation of site layout
13. Compensation issues
14. Bonus/ Incentive

SITE STAFF MANAGEMENT

1. Field Staff Experience
2. Lack of timely monitoring and inspection
3. Coordination between contractors and supervisors
4. inadequate technical expertise
5. Reflection meeting with employees
6. Undefined Goals
7. Changing Scope
8. Lack of Risk Management
9. No Accountability
10. Unrealistic Conditions

FINANCIAL ISSUE

1. cash flow
2. Political interference
3. No delinquency of interim payment
4. Insufficient Financial issues
5. financial market instability
6. Contractors' instable financial background
7. Client's poor financial Management
8. Difficulties in obtaining loan from financiers
9. Inflation

CORRUPTION

1. Buildings without approved drawings
2. Approval of drawings with technical defects
3. undocumented construction
4. Inefficient administrative structures.
5. Political monopolization.
6. Political Stability

SWOT

SWOT analysis for quality control in the construction industry:

Strengths:

1. Strong project management skills
2. Strong reputation in the industry
3. Diversified array of projects and experience

Weaknesses:

1. Dependence on any one client or geographic area
2. Lack of key team member or skill
3. Promotion of managers based solely on on-the-job experience

Opportunities:

1. Adding a new division and leveraging existing operations
2. Anticipating consumer trends and developing expertise in new areas

Threats:

1. Industry slowdown caused by economic factors
2. Increased competition and lower profit margins due to changing market dynamics
3. Shifts in consumer preferences that may reduce demand for certain types of construction projects.

Conclusion

In conclusion, the Relative Importance Index (RII) method has proven to be a valuable statistical approach for evaluating the relative importance of different factors influencing outcomes in various fields. The studies reviewed in this literature review demonstrate the versatility and usefulness of the RII method in identifying critical factors and prioritizing efforts and resources. The RII method has been used in diverse contexts, including the adoption of new technologies, consumer behavior, and healthcare outcomes. In each of these contexts, the method has enabled researchers to identify the most important factors influencing outcomes and to rank them in order of importance. The RII method can be a valuable tool for decision-makers in identifying the most critical factors influencing outcomes and allocating resources effectively. By focusing on the most important factors, decision-makers can prioritize efforts and resources and achieve better outcomes.

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