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Evolution of Critical Success Factor in Residential Project

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Abstract

The dynamic transformation of Critical Success Factors (CSFs) in residential initiatives over time is emblematic of the evolution of CSFs. The recognition as well as ranking of Critical Success Factors (CSFs) are of utmost importance in the domains of real estate and construction, as they directly impact the timely and effective completion of residential projects. The methodology utilized in this study is comprehensive, as it includes primary data collected via surveys. At first focused on conventional project management metrics, Critical Success Factors (CSFs) have undergone a paradigm shift in recent years to incorporate elements that address current socio-economic and environmental issues. The results of a comprehensive examination of data indicate that sustainability, community involvement, and technological integration have surfaced as pivotal elements influencing the achievement of residential undertakings. The primary data further supports the intricate relationship among shifting market demands, regulatory environments, and technological progress, offering significant perspectives on the developing realm of CSFs within the residential development sector. This study enhances comprehension regarding the determinants of success in residential construction projects, providing policymakers and industry professionals with applicable implications.

Major Findings: *Dynamic Adaptation of Success Factors – Over time, Critical Success Factors (CSFs) in residential projects have evolved from cost and schedule adherence to incorporating sustainability, smart technologies, and customer-centric designs. Stakeholder Prioritization Shift – Earlier CSFs focused on financial viability and contractor efficiency, whereas modern projects emphasize regulatory compliance, environmental impact, and end-user satisfaction. Integration of Digital Tools – The adoption of BIM, AI-driven analytics, and IoT has significantly improved project planning, risk management, and operational efficiency, redefining success criteria in residential developments.*

Keywords: Critical Success Factors (CSFs), Evolution, Market Trends, Project Management, Residential Projects, Stakeholder Engagement, Sustainability, Technological Advancements

1.0 Introduction

Researchers in project management have been examining the determinants of successful projects since the late 1960s. Their findings have since been incorporated into a great deal of literature aimed at project management professionals. Not-withstanding the aforementioned widely recognised research findings and the extensive

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literature dedicated to project management, decades of combined and individual project management experience, the exponential expansion of project management professional organizations, and the substantial surge in project work within the industry, stakeholders persistently encounter unsatisfactory project outcomes[1]. The initial finding that emerged from the analysis was that although specific projects exhibited the anticipated significant correlation between schedule delays and the influence of the schedule delay on the escalation of costs was negligible. As illustrated in Figure 1, each data point represents a distinct project and its performance relative to its budget (on the y-axis) and schedule (on the x-axis). Two significant observations can be made in relation to this phenomenon: Firstly, the mean performance in terms of cost escalation (4%), which is against budget, is consistently superior to the mean performance in terms of schedule adherence (16 % delayed). Secondly, a noteworthy correlation can be observed between the degree of development of project management processes and the performance pertaining to each of the aforementioned criteria as well as the sufficiency of particular project management practices[1]. Punctual performance is associated with the subsequent practices:

F1 Sufficient company-wide education regarding risk management concepts.

F2 The level of development of a company's risk ownership allocation procedures[2].

F3 the degree to which a visible risk register is upheld.

F4 Suitability of a current risk management strategy.

F5 Sufficient documentation on organisational responsibilities regarding the undertaking.

F6 Keep the duration of the endeavour (or any of its stages) to a minimum of one year, as well as no morethan three years[2]. Conversely, those that exhibit a correlation with on-cost performance are:

F7 Permit scope modifications only via an established scope change control procedure.

As demonstrated in Figure 2, An observable and substantial enhancement in the achievement of the project is evident in each of these instances with respect to the criterion. The concept of time predictability is visually depicted along the vertical axis as a multiple of the forecast duration. (e.g., 1.5 indicates a 50% delay)[3]. The range of outcomes for which a 95% confidence interval is computed is represented by each vertical bar. The F5 results are represented by the four values along the horizontal axis, which range from "completely inadequate" to "not at all adequate". Identical patterns were detected in each of the eleven factors (F4–F11). Additionally, a clear correlation was observed between the intensity of the aggregate group of success factors F1 through F7 and the predictability of outcomes for various initiatives within a specific organisation. As previously mentioned, achievement in project management is not synonymous with accomplishment in the project itself. To address and reconcile this division, it is crucial to take into account the goals and apprehensions of the individuals who initiated the project. (the stakeholders) and how they intended for the endeavour to be realised. (the benefits)[3]. In accordance with the findings of an examination of six recent "bodies of knowledge" in project management, there are sixty fundamental components that form the basis of a project manager's work philosophy. Upon organising these into eleven topic areas and establishing relationships between them using a "system gramme," it becomes evident that "anticipated benefits in addition to functioning as the benchmark for official "stage gate" project evaluations, they also function as a senior management's ongoing "informal assessment" of the probable success of initiatives. This influence affects determinations concerning the allocation of resources and the establishment of priorities[1]. An analysis of the eleven subject areas in relation to prior scholarly works on the determinants of project success reveals a scarcity of discussion regarding the concept of "benefits." The lack of discussion on benefits management or benefits realisation prior to this point may explain this omission. On the other hand, the discourse surrounding "project purpose" or "project goals" might have overshadowed the topic of "benefits." Two factors must be considered in relation to this acknowledgment of the significance of benefits management:

The achievement of benefits by the project manager as well as project team is not realised; operations management is responsible for this, as illustrated in Figure 3. Effective collaboration between the project team and the "sponsor" or "customer" is essential in this context[3].

Ensuring project success inherently presents a greater challenge than project management success, as the former solely entails "first order control" (maintaining

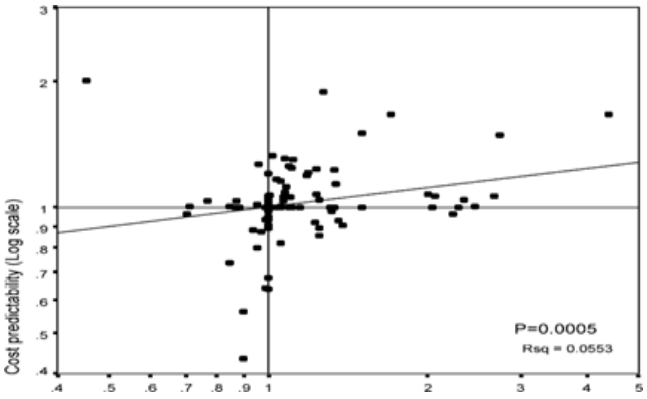


Figure 1. Relationship between cost predictability and time predictability.

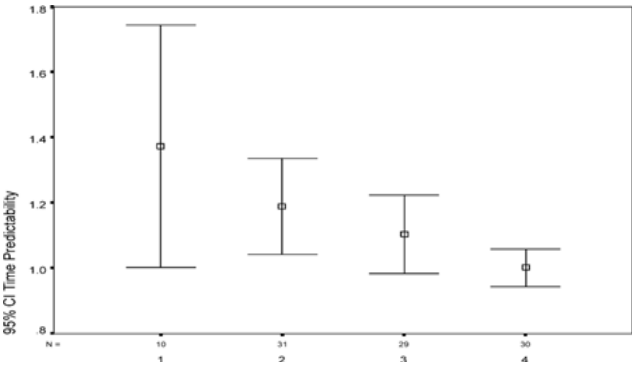


Figure 2. Improved project success with improving the adequacy of factor F5.

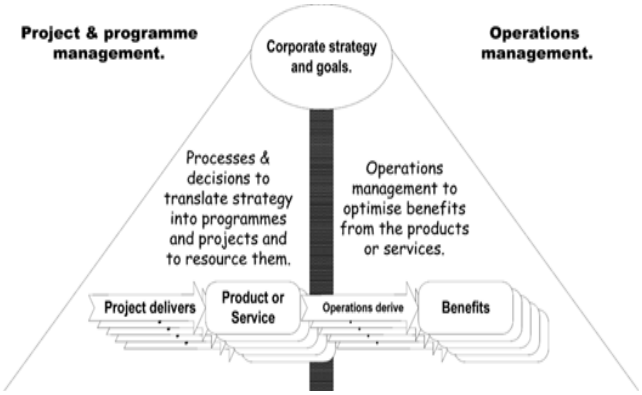


Figure 3. The importance of project management and operations management is working together to deliver beneficial change from projects.

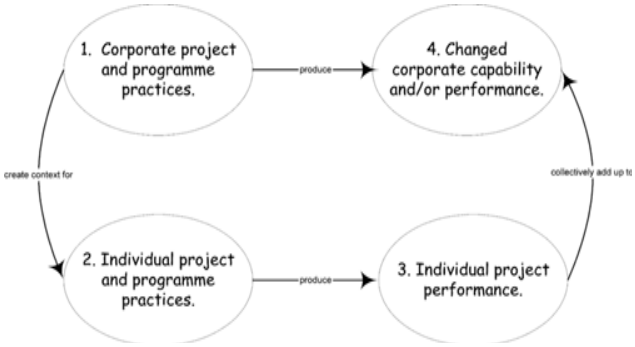


Figure 4. The corporate context for project success.

constant objectives and modifying practices to align with predetermined targets), while the former invariably necessitates "second order control" (methods and objectives susceptible to modification).

As the chain reaction from successful project management to prosperous projects to successful corporations transpires, an entirely new array of processes and methodologies arises as the determinants of consistently prosperous projects[4]. The "decisions and processes to implement strategy into programs and projects" referred in Figure 3 are an assemblage of the "corporate project management practices" that are visually represented schematically in Figure 4. These practices form the basis for the management practices that are specific to individual projects. A significant proportion of individuals involved in the network have implemented and consistently adhere to well-defined procedures and approaches for their principal undertakings spanning multiple departments[4]. Nevertheless, the present condition of implementation in sizable organizations reveals three domains where substantial advancements are challenging to attain, and which seem to be indispensable for sustained corporate prosperity. The following are:

1.1 Objectives of the Study

Explore the dynamic evolution of critical success factors in residential projects to enhance understanding and improve project management strategies for sustainable success.

- To identify historical critical success factors in residential projects for foundational insights.
- To analyze current industry trends influencing project success in the residential sector.
- To evaluate the impact of technological advancements on critical success factors in residential projectmanagement.
- To examine the role of stakeholder collaboration and communication in ensuring project success.

2.0 Literature Review

Young-Gul Kim *et al.,* delves into CSFs for Enterprise Resource Planning (ERP) implementation, emphasizing organizational fit. It explores factors like readiness, management support, user involvement, and customization, highlighting the pivotal role of aligning ERP systems with organizational structures, processes, and cultures for successful outcomes[5]. Kam Jugdev *et al.'s,* project success definitions have evolved beyond the implementation phase to encompass the entire life cycle. This study explores success frameworks, components, and changing perceptions over 40 years, emphasizing the growing importance of distinguishing projects from routine work for strategic project management development[6]. Rosanna Garcia *et al.,* evaluates existing typologies and terms in technological innovation, exploring their strengths, weaknesses, and implications across disciplines. It discusses various typologies like incremental vs. radical innovation, examining methodological considerations and advocating for a nuanced approach to understanding innovation dynamics[7]. Terry Cooke-Davies *et al.,* analyzes project success, going beyond traditional frameworks. Drawing from literature on project management, organizational behavior, and systems theory, it identifies key success factors like leadership, communication, and adaptability. Emphasizing their dynamic interplay, the paper questions conventional success metrics, advocating for a holistic approach[1].

Ronald R Haft *et al.'s,* ERP systems streamline business processes across departments. This paper outlines ERP implementation phases, emphasizing critical success factors like top management support andeffective change management. It offers practical guidance for successful ERP adoption, addressing technical, organizational, and human factors[8]. Musa M Mukhtar *et al.,* investigates key success factors for public housing projects in Nigeria, emphasizing government support, funding, community engagement, and sustainability. It addresses challenges like corruption and inadequate infrastructure, proposing strategies such as multi-stakeholder partnerships and transparency for sustainable housing solutions[9]. Ahmed Farouk Kineber *et al.,* delves into Critical Success Factors (CSFs) for value management in sustainable residential building projects, examining stakeholder engagement, design processes, life cycle cost analysis, energy efficiency, and more. Emphasizing integration and management, it explores challenges, opportunities, and strategies for optimizing outcomes and ensuring long-term viability[10]. Nicholas Chileshe *et al.,* investigates essential success factors for PPP infrastructure and housing projects in Kenya, emphasizing government commitment, regulatory clarity, stakeholder engagement, and risk management. It addresses contextual challenges like corruption and political instability, offering insights and recommendations for effective project governance and sustainable development[11].

Alireza Moghayedi *et al.'s,* achieving Sustainable, Innovative, and Affordable Housing (SIAH) is hindered by a lack of common understanding among stakeholders. This study establishes Critical Success Factors (CSFs) through systematic review, identifying facets such as housing design, elements, production methods, and technology. The resulting CSF framework highlights key factors, including energy efficiency, tenure security, and affordability relative to income, guiding SIAH implementation in construction projects[12]. Ogunsanmi Olabode Emmanuel *et al.'s,* explores the impact of infrastructure deficits on Nigeria's development, emphasizing the use of Public-Private Partnerships (PPP) to address this gap. Critical Success Factors (CSFs) for successful PPP implementation include transparent regulations, thorough feasibility studies, and proper risk allocation. The findings suggest the need for a robust legal framework, engagement of competent concessionaires, and public awareness on infrastructure payment[13]. Abiodun Kolawole Oyetunji- despite Nigeria's diverse housing policies, sustainable housing delivery falls short of global standards. This study, utilizing the Analytic Hierarchy Process survey, identifies critical success factors such as government funding, affordable loans, community participation, stakeholder involvement, and the use of sustainable materials for improvement[14]. Long Li *et al.,* identifies Critical Success Factors (CSFs) for Prefabrication Housing Production (PHP) projects through literature review, interviews, and surveys in China. Top CSFs include designers' and manufacturers' PHP experience, project manager's problem-solving ability, mature techniques in detailed design, and persistent policies. The findings offer a holistic approach for effective PHP project planning and control[15].

Jarosław Szreder, introduces a novel model for real estate development investment projects, identifying 18 key success factors in Polish development activities. The study analyzes these factors across four projects, emphasizing the impact of a competent project leader in shaping and influencing project success. Valuable insights for future real estate development endeavors are derived from the author's firsthand project management experience[16]. The implementation of these systems is a difficult and high cost proposition that places tremendous demands on corporate time and resources. Many ERP implementations have been classified as failures because they did not achieve predetermined corporate goals[17]. Many businesses explore outsourcing for certain services[18].

3.0 Research Methodology

The research methodology employed for investigating the evolution of Critical Success Factors (CSFs) in residential projects encompasses a systematic approach to data collection and analysis. This study adopts a primary data collection method, engaging with stakeholders directly involved in residential projects. The primary data collection involves surveys conducted with project managers, architects, contractors, and otherkey personnel in the residential construction industry. The sample size for this study comprises 80 participants, carefully selected to ensure representation across various roles and experiences within the industry. The selection criteria aim to capture diverse perspectives and insights into the evolving CSFs in residential projects. Furthermore, qualitative and quantitative analyses will be employed to discern patterns, trends, and shifts in the identified CSFs over time. This research methodology ensures a comprehensive understanding of the factors influencing the success of residential projects and provides valuable insights for project management practices in the construction industry.

4.0 Result and Discussion

4.1 Frequencies

The given data represents the distribution of gender within a sample of 80 individuals. Among the respondents, 56.3% identified as male, totaling 45 individuals, while

Table 1. Gender

		Frequency	Percent
Valid	Male	45	56.3
	Female	35	43.8
	Total	80	100

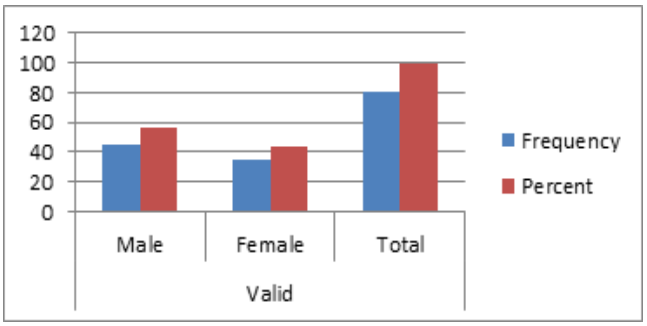


Figure 5. Gender.

43.8% identified as female, comprising 35 individuals. The total percentage accounts for the entire sample size. This information provides a snapshot of the gender composition, indicating a slightly higher representation of males in the surveyed group.

4.2 Age

Table 2. Age

		Frequency	Percent
Valid	18-25	15	18.8
	26-35	25	31.3
	36-45	20	25
	46-55	10	12.5
	56 and above	10	12.5
	Total	80	100

The age categories range from 18 to 25, 26 to 35, 36 to 45, 46 to 55, and 56 and above. The corresponding frequencies indicate the number of individuals within each age bracket, with percentages reflecting the proportion of the total sample. Notably, the largest portion of respondents falls within the 26-35 age range,

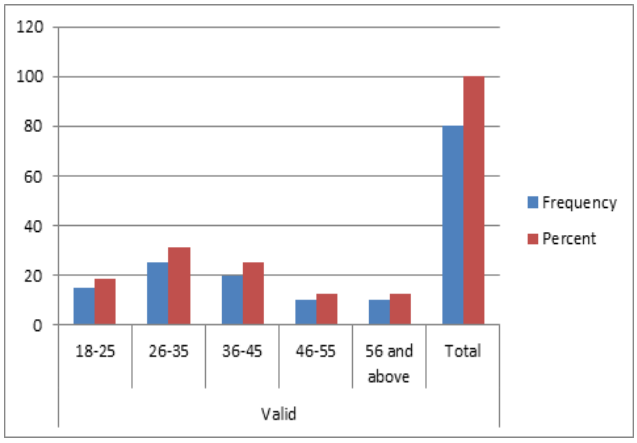


Figure 6. Age.

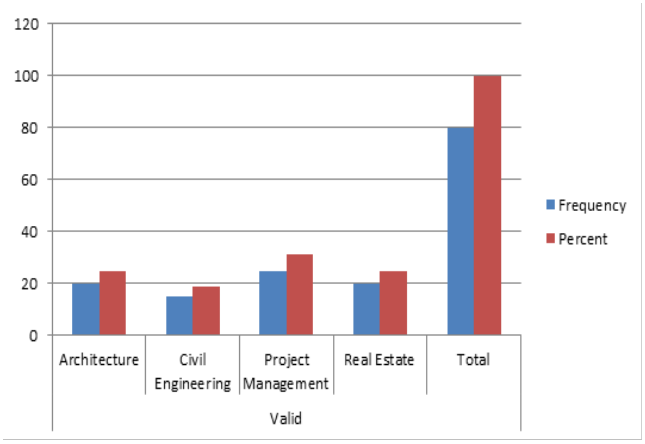


Figure 7. Professional background..

comprising 31.3% of the total, followed by the 36-45 age group at 25.0%. The 18-25 and 56 and above categories each account for 18.8% and 12.5%, respectively, while the 46-55 age group also represents 12.5% of the surveyed population. This distribution provides valuable insights into the age demographics of the study population, highlighting the diversity of age representation within the sample of 80 respondents.

4.3 Professional Background

Table 3. Professional background

		Frequency	Percent
Valid	Architecture	20	25
	Civil Engineering	15	18.8
	Project Management	25	31.3
	Real Estate	20	25
	Total	80	100

The data presented illustrates the distribution of academic credentials among the participants of a survey or study, comprising a sample size of 80 individuals in total. Architecture, civil engineering, project management, and real estate are the categories. The frequencies and percentages provide insights into the quantity and proportion of participants affiliated with each academic field. It is worth mentioning that Project Management is the most prevalent category, comprising 31.3% of the entire sample of respondents. Architecture and real estate each contribute 25.0% to the total, whereas civil engineering comprises 18.8%.The provided data provides valuable insights into the educational diversity of the sample, with a particular emphasis on the participants' strong expertise in Project Management.

4.4 Years of Experience in Residential Projects

Table 4. Years of experience in residential projects

		Frequency	Percent
Valid	Less than 1 year	5	6.3
	1-5 years	15	18.8
	6-10 years	20	25
	11-15 years	20	25
	16 years and above	20	25
	Total	80	100

The data that has been provided illustrates the participant distribution according to the duration of their experience in a specific context. "Less than 1 year," "1-5 years," "6-10 years," "11-15 years," and "16 years and above" comprise the categories. The proportions and frequencies provide an indication of the quantity of individuals occupying each experience range. Significantly, the proportion of participants possessing expertise ranging from 6 to 16 years is considerable, as each category encompassing "1-5 years" to "16 years and

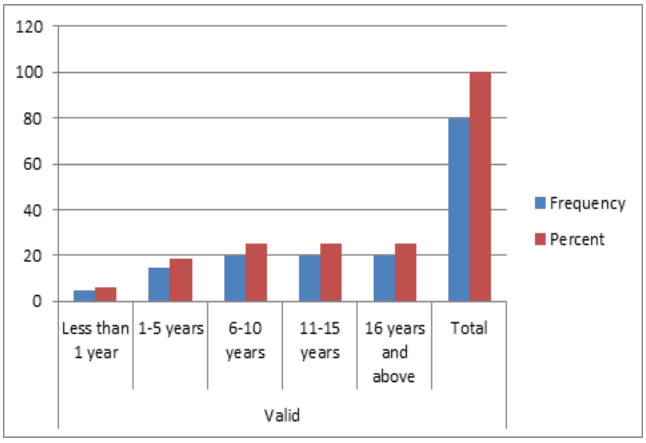


Figure 8. Years of experience in residential projects.

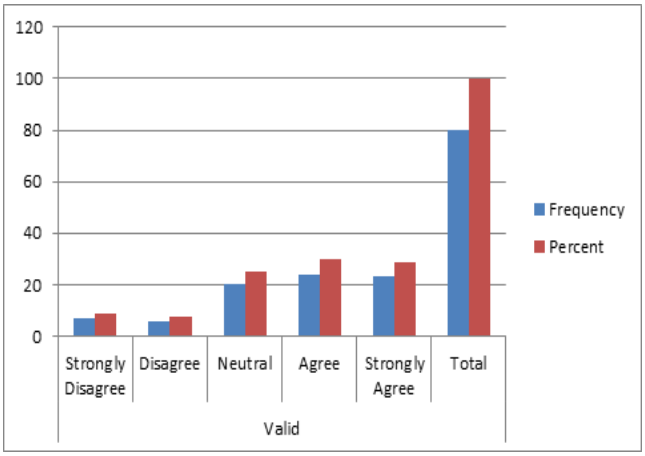


Figure 9. How well do you understand the concept of CSFs in residential projects?

above" represents an equivalent 25%. The data offers valuable insights into the samples varied experience levels, emphasising a comparatively equitable representation across distinct spectrums.

4.5 How Well do you Understand the Concept of CSFs in Residential Projects?

Table 5. How well do you understand the concept of CSFs in residential projects?

		Frequency	Percent
Valid	Strongly Disagree	7	8.8
	Disagree	6	7.5
	Neutral	20	25
	Agree	24	30
	Strongly Agree	23	28.7
	Total	80	100

The data that has been presented is the outcome of an evaluation or survey involving a sample size of 80 individuals. Five response options were provided for the participants' evaluations of a particular statement or set of statements: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." The response with the highest percentage of participants selected "Agree" at 30.0%, with "Strongly Agree" coming in at 28.7%. The option labelled "Neutral" was significantly represented with 25.0% of the total votes, whereas "Strongly Disagree" and "Disagree" had comparatively lower percentages of 7.5% and 8.8%, respectively. The data presented in this distribution offers valuable insights into the general attitude of the participants towards the statements. It indicates that a significant proportion of the participants maintained a neutral stance.

4.6 To what Extent do you Believe that Identifying and Understanding CSFS is Crucial for the Success of Residential Projects?

Table 6. To what extent do you believe that identifying and understanding CSFs is crucial for thesuccess of residential projects?

		Frequency	Percent
Valid	Strongly Disagree	6	7.5
	Disagree	3	3.8
	Neutral	17	21.3
	Agree	20	25
	Strongly Agree	34	42.5
	Total	80	100

The information provided comprises the results of a survey or questionnaire completed by eighty individuals in total. The participants were requested to provide their viewpoints regarding a specific statement or collection

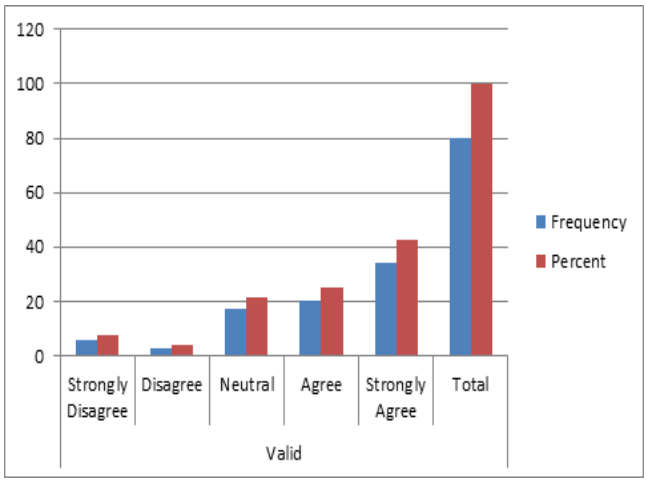


Figure 10. To what extent do you believe that identifying and understanding CSFs is crucial for the success of residential projects?

of statements. Their responses were classified into the following five categories: "Strongly Agree," "Strongly Disagree," "Neutral," and "Strongly Disagree." A significant proportion of the participants (42.5%) expressed firm agreement with the statement, signifying a considerable degree of consensus. Additionally, 21.3% remained neutral, whereas 25% concurred. 7.5% of the respondents firmly disagreed, while 3.8% held an opposing view. In general, the data indicates that the participants held a predominantly positive attitude or were in accord, with a considerable percentage expressing strong agreement.

4.7 How would you rate the importance of integrating the latest technologies in residentialprojects for achieving success?

The data that has been presented illustrates the frequency and percentage distribution of responses to a survey query that inquiries about the perceived significance of a specific variable. The participants were provided with the following response choices: "Very Important," "Not Important," "Slightly Important," and "Neutral." A substantial proportion of the participants (33.8 %) or 35.0 %) rated the variable as "Important" or "Very Important," respectively, signifying that the variable was regarded with considerable significance. In contrast, a comparatively lesser percentage deemed it "Neutral" (23.8 %), while a minority deemed it "Not Important" (5.0 %) or "Slightly Important" (2.5 %). In general, the

Table 7. How would you rate the importance of integrating the latest technologies in residential projects for achieving success?

		Frequency	Percent
Valid	Not Important	4	5
	Slightly Important	2	2.5
	Neutral	19	23.8
	Important	27	33.8
	Very Important	28	35
	Total	80	100

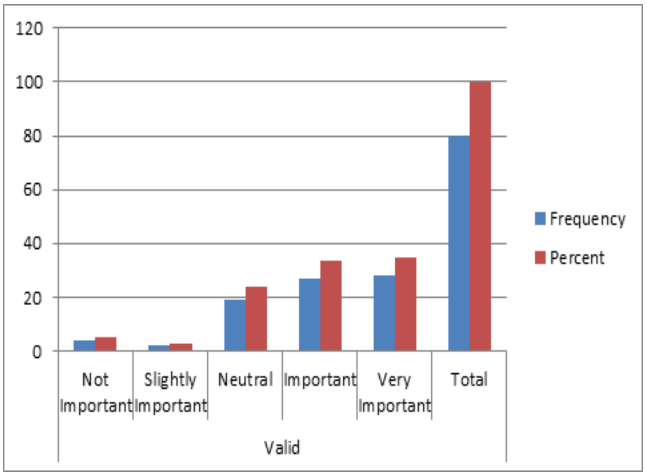


Figure 11. How would you rate the importance of integrating the latest technologies in residential projects for achieving success?

data indicates that a significant majority of respondents (68.8 %) recognise the variable as "Important" or "Very Important," suggesting that it is widely accepted as having considerable significance.

4.8 To What Extent do you think Collaboration with Various Stakeholders Influences the Success of Residential Projects?

The data in this table is a classification of responses according to their degree of influence; the sample

Table 8. To what extent do you think collaboration with various stakeholders influences the success of residential projects?

		Frequency	Percent
Valid	Negligible	5	6.3
	Slightly Influential	5	6.3
	Neutral	16	20
	Influential	26	32
	Highly Influential	28	35
	Total	80	100

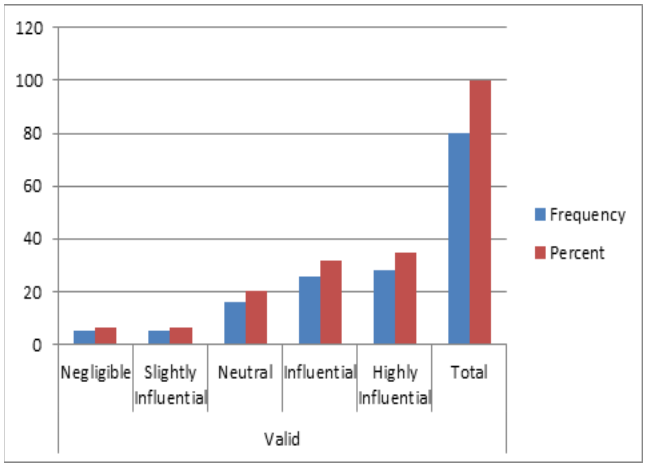


Figure 12. To what extent do you think collaboration with various stakeholders influences the success of residential projects?

size is eighty in total. A 67.5% proportion of the total respondents hold the perception that the influence is "Highly Influential" or "Influential." More precisely, 32.5 percent of respondents classify the factor as "Influential," whereas 35.0 percent classify it as "Highly Influential." Conversely, a fractional 12.6% of the participants perceive the influence as "Negligible" or "Slightly Influential." The remaining 20% maintain an impartial position. The insights gained from this distribution regarding the subjective perceptions of influence among the surveyed group underscore the considerable importance that a considerable proportion of the participants ascribed to the factor.

4.9 How Well do you Believe that the Ability to Adapt to Changing Market Trends is a Critical Factorfor Success in Residential Projects?

Table 9. How well do you believe that the ability to adapt to changing market trends is a criticalfactor for success in residential projects?

		Frequency	Percent
Valid	Strongly Disagree	6	7.5
	Disagree	5	6.3
	Neutral	19	23
	Agree	19	23
	Strongly Agree	31	38
	Total	80	100

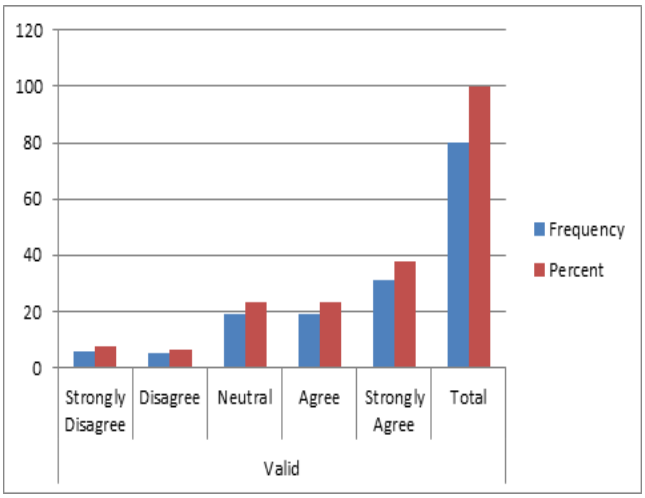


Figure 13. How well do you believe that the ability to adapt to changing market trends is a critical factor for success in residential projects?

The data presented comprises the replies to a survey query or assertion, in which participants were requestedto choose one of five alternatives that varied from "Strongly Disagree" to "Strongly Agree." The analysis of the frequency and percentage distribution reveals that a significant proportion of the participants, comprising 38.8% of

the entire sample, fit the "Strongly Agree" category. The categories "Agree" and "Neutral" follow closely behind, comprising 23.8% each. Conversely, a reduced number of participants conveyed dissent, as reported by 6.3% for "Disagree" and 7.5% for "Strongly Disagree." In general, the data indicates that the respondents held a predominantly favourable opinion or were in agreement, as a considerable percentage expressed firm support for the provided statement or question.

4.10 To What Extent do you Feel that a Culture of Continuous learning within Project Teams Contributes to the Evolution of CSFs in Residential Projects?

Table 10. To what extent do you feel that a culture of continuous learning within project teamscontributes to the evolution of CSFs in residential projects?

		Frequency	Percent
Valid	Not at All	4	5
	Slightly	3	3.8
	Neutral	22	27.5
	Moderately	21	26.3
	Significantly	30	37.5
	Total	80	100

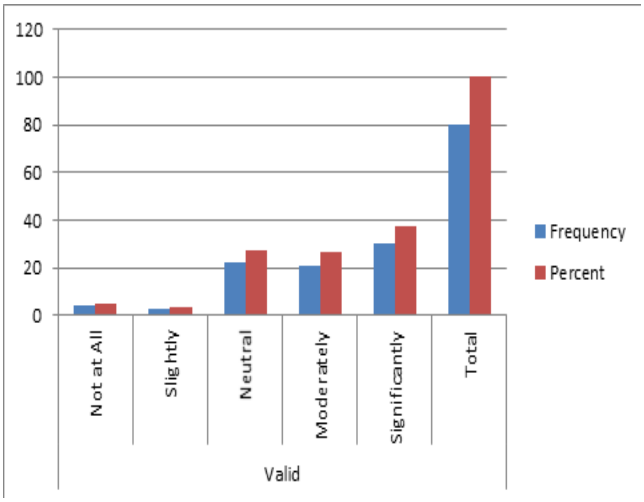


Figure 14. To what extent do you feel that a culture of continuous learning within project teams contributes to the evolution of CSFs in residential projects?

The data that has been presented comprises the responses to a survey query, which classifies the participants according to the prevalence of a specific experience. The participants were provided with the following five ratings to delineate the intensity of their encounter: "Significantly," "Not at All," "Slightly," "Neutral," and "Moderately." Out of the total of 80 participants, 5.0% stated that they had not encountered the phenomenon "Not at all," whereas 3.8% reported a "Slight" incidence. A "Significant" experience was reported by the largest proportion of respondents, 39.5%. Furthermore, 27.5% of respondents indicated a "Neutral" experience, while 26.3% reported a "Moderate" frequency. The analysis of response distribution offers valuable insights into the diverse range of experiences that individuals have had with the phenomenon. A significant portion of the respondents attribute importance to their personal encounters.

5.0 Reliability Test

Table 11. Reliability test

Case Processing Summary			
		N	%
Cases	Valid	80	100
	Excluded[a]	0	.0
	Total	80	100

The "Case Processing Summary" indicates that there are a total of 80 cases under consideration. All 80 cases are deemed valid, representing 100 % of the total. Notably, there are no cases excluded from the analysis. This summary provides a concise overview of the status of the cases, emphasizing a 100 % validity rate and an absence of exclusions in the dataset under review.

Table 12. Reliability statistic

Reliability Statistics	
Cronbach's Alpha	N of Items
.867	14

The reliability statistics provided indicate that a set of 14 items has a Cronbach's Alpha coefficient of 0.867. Internal

consistency is measured by Cronbach's Alpha, which indicates how closely related a set of items is collectively. Within this particular framework, the coefficient of 0.867 signifies a comparatively elevated degree of dependability, signifying robust internal consistency across the fourteen items. This implies that the items in the dataset are measuring a common underlying construction consistently. Researchers and practitioners often consider a Cronbach's Alpha above 0.70 as acceptable, so the observed value of 0.867 suggests a robust reliability for the measurement instrument in question.

5.1 Mean and Standard Deviation

The provided statistics represent key variables in a study related to residential projects, categorized by gender, age, professional background, and various perceptions about Critical Success Factors (CSFs). The mean values provide a central tendency, while the standard deviations indicate the variability within each category. Notably, respondents generally exhibit a moderate to high understanding of CSFs (mean = 3.63) and emphasize the importance of identifying and understanding these factors for project success (mean = 3.91). Additionally, the perceived significance of integrating the latest technologies and collaborating with stakeholders is relatively high (mean = 3.91 and 3.84, respectively). The respondents also acknowledge the importance of adaptability to changing market trends (mean = 3.8) and value a culture of continuous learning within project teams (mean = 3.88). These statistics provide insights into the perceptions and priorities of the surveyed population in the context of residential project management.

5.2 Chi- Square Test

The chi-square values for the questions related to Critical Success Factors (CSFs) in residential projects are 19.375,

Table 13. Mean and standard deviation

Statistics		
	Mean	**Std. Deviation**
Gender	1.44	0.499
Age	2.69	1.269
Professional Background	2.56	1.123
Years of Experience in Residential Projects	3.44	1.231
How well do you understand the concept of CSFs in residential projects?	3.63	1.226
To what extent do you believe that identifying and understanding CSFs is crucial for the success of residential projects?	3.91	1.214
How would you rate the importance of integrating the latest technologies in residential projects for achieving success?	3.91	1.07
To what extent do you think collaboration with various stakeholders influences the success of residential projects?	3.84	1.163
How well do you believe that the ability to adapt to changing market trends is a critical factor for success in residential projects?	3.8	1.237
To what extent do you feel that a culture of continuous learning within project teams contributes to the evolution of CSFs in residential projects?	3.88	1.118

Table 14. Chi-square test

Test Statistics					
	How well do youunderstand the concept of CSFs in residential projects?	To what extent do you believe that identifying and understanding CSFs is crucial for the success of residential projects?	How would you rate the importance of integrating thelatest technologies in residential projects for achievingsuccess?	To whatextent doyou think collaboration with various stakeholders influences the success of residential projects?	How well do you believe thatthe ability to adapt to changing market trends isa critical factorfor success in residential projects?
Chi-Square	19.375[a]	38.125[a]	38.375[a]	30.375[a]	29.000[a]
df	4	4	4	4	4
Asymp. Sig.	.001	.000	.000	.000	.000

Table 15. Chi- square test

Test Statistics					
	To what extent do you feel that a culture ofcontinuous learning within project teams contributes to the evolution of CSFs in residential projects?	How much impact do you think government regulations have on the identification and adherenceto CSFs in residential projects?	How important aresustainability practices in residential projects for achieving long-term success?	To whatextent doyou believe effective cost managementis a criticalsuccess factor in residential projects?	How wouldyou rate theoverall evolution of critical success factors in residential projects over the past fewyears?
Chi-Square	35.625[a]	39.125[a]	52.875[a]	39.750[a]	37.750[a]
df	4	4	4	4	4
Asymp. Sig.	.000	.000	.000	.000	.000

38.125, 38.375, 30.375, and 29.000, with degrees of freedom (df) being 4 for each. The associatedasymptotic significance values are all below 0.001. These results suggest a statistically significant relationship between the respondents' understanding of CSFs, the perceived importance of identifying and understanding CSFs for project success, the integration of the latest technologies in residential projects, collaboration with stakeholders, and the belief in the criticality of adapting to changing market trends. Therefore, the hypothesis is accepted, indicating a strong association between these factors and the success of residential projects, emphasizing the significance of considering CSFs, technological integration, collaboration, and adaptability in project planning and execution.

The Chi-Square test results suggest a significant relationship between the variables under consideration. The low p-values (all < .001) indicate that there is a strong association between a culture of continuous learning within project teams and the evolution of Critical Success Factors (CSFs) in residential projects. Similarly, government regulations exhibit a substantial impact on the identification and adherence to CSFs

in these projects. The statistical significance ($p < .001$) also highlights the crucial role of sustainability practices in residential projects for achieving long-term success. Additionally, effective cost management is revealed to be a critical success factor, as indicated by the low p-value ($p < .001$). Overall, these findings support the acceptance of the hypotheses, suggesting that these factors are intricately linked and contribute significantly to the evolution of CSFs in residential projects over the past few years.

6.0 Conclusion

In conclusion, the evolution of Critical Success Factors (CSFs) in residential projects reflects the dynamic nature of the construction industry and the changing demands of stakeholders. Over time, factors such as cost control, timely completion, and quality assurance have remained fundamental pillars of project success. However, the advent of advanced technologies, sustainability concerns, and the increasing focus on stakeholder engagement have introduced new dimensions to the concept of success in residential projects. The integration of innovative construction methods, digital tools, and sustainable practices has become imperative for achieving long-term success in the industry. As residential projects evolve, project managersand stakeholders must continually adapt their strategies and embrace emerging CSFs to navigate challenges, enhance efficiency, and meet the evolving expectations of homeowners, regulatory bodies, and the broadercommunity.

Moreover, recognizing the interconnectedness of various success factors and the importance of a holistic approach is crucial for project success. The ability to balance cost-effectiveness with environmental sustainability, maintain transparent communication with stakeholders, and harness the potential of technological advancements will be pivotal in shaping the future trajectory of residential projects. As the industry continues to evolve, stakeholders should remain vigilant, flexible, and open to embracing innovative solutions to ensure that residential projects not only meet the current standards of success but also contribute positively to the communities they serve.

7.0 References

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