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The Influence of Result-Based Monitoring on the Performance of Housing
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The Influence of Result-Based Monitoring on the Performance of Housing Projects in Nairobi

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Abstract

Purpose: The purpose of the article is to establish the influence of result-based monitoring on the performance of housing projects in Nairobi. Projects, including construction, aim to meet diverse stakeholder needs and are evaluated based on quality, time, and cost. The Project Management Institute (PMI) asserts that successful projects must be completed within budget, on schedule, and to the desired quality. Globally, many struggle to meet these benchmarks. Benchmarking evaluation approaches significantly influence housing project performance, yet their absence often leads to inefficiencies, cost overruns, delays, and quality issues. This study assessed the impact of benchmarking on housing projects in Nairobi, guided by Construction Management Theory.

Methodology: A descriptive research design was used, targeting 127 projects by 15 real estate developers between 2019–2024. Data were collected from 254 registered architects using structured questionnaires and analyzed using SPSS to generate descriptive and inferential statistics.

Findings: The findings underscore the widespread adoption and favorable perception of Result-Based Monitoring (RBM) as a project management approach in housing developments. The majority of respondents affirmed the use of RBM practices. The empirical evidence from the study aligns with international and regional findings on the positive relationship between RBM and housing project performance. While high levels of adoption and satisfaction prevail, the responses also highlight areas where targeted improvements in implementation fidelity, tool functionality, and feedback application could further enhance the impact of RBM systems.

Unique Contribution to Theory, Policy and Practice: The study recommends the institutionalization of standardized RBM protocols across all housing projects. To address technical challenges, it is also recommended that organizations invest in modern monitoring tools and digital systems capable of real-time data tracking, analytics, and feedback generation. The unique contribution of the study is that Feedback loops should be institutionalized, with clear mechanisms for translating monitoring insights into actionable strategic decisions.

Keywords: *Result-Based Monitoring, Housing Projects, Project Performance, Construction Management*

1.0 Background of the Study

Projects are considered as the pursuit of any undertaking that meets the needs of different stakeholders, which includes construction projects (PMI, 2018). The construction projects' performance is often considered in terms of quality, schedule, and cost. Project Management Institute (PMI) acknowledges that successful projects are finished within budget, on time, and meets the desired quality. Across the world, different projects struggle to meet these performance parameters. In the Construction Extension of the Project Management Body of Knowledge (PMBOK), it is noted that most construction projects are unique because they are fraught with uncertainty and are often highly complex, especially because of the complex project environment. They are expected to respond to the different weather, site, economic, community, and physical conditions prevalent at the times of execution. As such, these projects inherently complete beyond the time schedule and outside the budget.

In Africa, the challenge has been extensively studied, but it is yet to be fully addressed. Ineffective project evaluation approaches have led to time delays and cost overruns that have continued to affect the performance of public projects, as is evidenced by the Ugandan Civil Aviation Authority (CAA) (Moyo & Msimang, 2021). Projects in Botswana, Egypt, Zambia, and South Africa face the persistent challenge of effective project evaluation. Saleh et al. (2019) highlighted the causes of delay in construction projects in Libya, noting that it affects the performance of the projects and is often linked to project evaluation approaches. The challenge is experienced in Nigeria (Aibinu & Odeyinka, 2016; Amusan, Dolapo, & Joshua, 2017).

In the recent past, the government of Kenya has embarked on a renewed focus on the construction industry. The focus has been heightened by the government's Big 4 Agenda which has placed affordable housing and infrastructure at the centre of the country's economy. With such a focus from the government, the county governments and the private sector have taken up different initiatives to support and participate in the development agenda. The construction industry in Kenya has been examined before (Boru, 2016; Gituro & Mwawasi, 2016; Kwatsima, 2016; Seboru, 2015), but there is a lack of sufficient focus on the performance of housing projects in Nairobi. Sector-specific research is necessary to understand the influence of project evaluation approaches on the project's time and cost performance. The result-based monitoring need to be examined, especially focusing on their influence on housing projects' success, which has not been done before. As such, it is necessary to study the construction sector because its unique environment poses different challenges to the performance of construction projects.

1.2 Statement of the Problem

The project evaluation approaches, specifically result-based monitoring, have a substantial influence on the performance of housing projects. The lack of proper result-based monitoring involvement has continually led to the poor performance of construction projects as given by (Oladipo et al., 2015). Lack of proper project result-based monitoring significantly impacts the

performance of housing projects by leading to inefficiencies and suboptimal outcomes. Without result-based monitoring, it is challenging to set realistic performance targets or measure progress accurately, resulting in potential cost overruns, delays, and quality issues. This study addresses these gaps by investigating how result-based monitoring influences the performance of housing projects in Nairobi. By identifying and profiling ongoing and completed housing projects, analyzing key stakeholders' roles, and assessing the effectiveness of result-based monitoring, the research provides actionable insights for improving project delivery. The findings contribute to better decision-making in housing project management, ultimately supporting sustainable urban development in Nairobi.

1.3 Objective of the Study

The objective of the study is to investigate the influence of result-based monitoring on the performance of housing projects in Nairobi.

2.0 Literature Review

2.1 Application of Construction Management Theory in Result-Based Monitoring Approaches

Construction Management Theory has evolved through significant contributions from various scholars and institutions. Early 20th-century industrial engineer Henry Gantt is one of the notable proponents, known for the Gantt chart, a tool essential for project scheduling. The Project Management Institute (PMI), established in 1969, formalized many principles of project management, publishing the first "A Guide to the Project Management Body of Knowledge (PMBOK Guide)" in 1996. Harold Kerzner, through his extensive work and publications in the late 20th and early 21st centuries, further advanced methodologies and practices within the field (Saleh et al., 2018).

The theory operates on several assumptions: predictability and control, suggesting that thorough planning and control mechanisms can lead to predictable project outcomes; linear progression, where projects are seen to advance through distinct phases sequentially; stakeholder alignment, assuming that all parties involved share common goals and effective communication can manage their interests; and fixed scope, presuming that project requirements are well-defined at the outset and remain stable throughout the project lifecycle (Pinha & Ahluwalia, 2019).

The focus on communication and stakeholder management within Construction Management Theory is particularly relevant to project evaluation. Effective evaluation necessitates robust mechanisms for feedback collection and consideration of all stakeholder perspectives (Moyo & Msimang, 2021). Recognizing the criticisms of the theory can also prompt evaluators to adopt a more flexible and adaptive approach, accommodating iterative assessments and adjustments throughout the project lifecycle.

2.2 Empirical Literature Review

In Brazil, Silva & Pereira (2019) conducted a study on the impact of Result-Based Monitoring (RBM) on housing project performance. The researchers used a mixed-method approach, combining quantitative data from 30 housing projects with qualitative interviews of project managers. The study focused on the correlation between RBM practices and project outcomes such as cost efficiency, time management, and quality standards. The findings demonstrated a significant positive relationship, showing that projects with robust RBM frameworks had better performance in terms of meeting deadlines and adhering to budget constraints (Silva & Pereira, 2019).

Sharma & Rao (2021) investigated the effectiveness of RBM in housing projects across various states in India. The study employed a quantitative research design, analyzing data from 50 housing projects that used RBM approaches. The methodology included statistical analysis of project performance indicators such as cost, time, and quality. The results indicated a significant positive relationship between RBM and project performance, highlighting that projects with systematic monitoring frameworks were more likely to achieve their objectives and maintain high standards of quality.

A study by Kamau & Karanja (2022) investigated the role of RBM in improving the performance of housing projects in Nairobi. The researchers adopted a quantitative approach, analyzing performance data from 15 housing projects that had implemented RBM systems. The study found a significant positive relationship between RBM and project outcomes, noting that projects with effective monitoring frameworks had better cost control and timely completion rates.

Njiru & Otieno (2023) conducted research on the impact of RBM on public housing projects in Kenya. Using a mixed-method approach, the study combined quantitative analysis of project performance reports with qualitative interviews of project stakeholders. The findings indicated that RBM significantly improved project transparency, accountability, and overall performance. The study emphasized the importance of continuous monitoring and feedback mechanisms in achieving project success.

3.0 Methodology

3.1 Research Design

The research design adopted in the study was a descriptive research design based on the nature of the data collection tools used and the type of data that was collected by the study. A descriptive study is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way in order to get a general overview about the subject of investigation (Obwatho, 2014).

3.2 Population

The population targeted in this study was 127 housing construction projects within Nairobi City County under 15 real estate developers with projects between 2019 and 2024. There were 254 respondents from registered architects from the construction project. The housing project was for those with over Kshs. 100 million and above and have Registered Architects. The study therefore went for at least 2 Registered Architects in each project.

3.3 Sampling

The research adopted systematic random sampling in reaching out to the study respondents. This is because of the nature of the organization structure for housing projects where one project may consist of very many technical personnel and their representatives. The study therefore utilized Yamane (1967) formulae for sample size calculations:

The Yamane (1967) formula for sample size:

$$n = \frac{N}{1 + N(\epsilon^2)}$$

Where:

N= Total populations

n= required sample population

€=significance level of 5%

Therefore:

$$= \frac{254}{1 + 254 (0.05^2)}$$

Sample size n = 155

The researcher then collected data from 155 architects based on professional categories from selected housing projects based in Nairobi.

3.4.1 Data Collection Method

The collection of the data was done using questionnaires as the main source of data for the study. The data collection process was a primary data collection method that employed the usage of structured questionnaires that were designed according to the study objective administered by trained research assistants.

3.4.2 Data Collection Tools

The study used a carefully constructed questionnaire to ensure that the respondents provided information about the issues they had detailed knowledge about. The questionnaires were

structured according to the study objective, where closed questions were used. The likelihood of obtaining fully completed questionnaires was increased by the use of trained research assistants who had been trained on the content of the questionnaires in order to clarify to the respondents any section of the questionnaire that was unclear or ambiguous. The participants in the study were approached in their natural environment to make them more confident about disclosure.

3.5 Data Analysis and Presentation

The study employed a quantitative method of data analysis to present the results from the field. The questionnaire was composed of closed questions. In order to perform statistical analysis, the researcher used quantitative data that was transformed into numerical form for ease of analysis. Data from surveys with closed-ended questions measured using Likert scales were translated into numeric data and ranked on a 1–5 scale based on the relative importance of the constructs under evaluation. First, the questionnaires collected from the field were subjected to an editing process to check for errors and omissions; this was followed by coding. The data entry was then done in SPSS to compute the generated descriptive statistics such as mean scores and standard deviations for each variable, both dependent and independent. Frequencies and percentages were computed to highlight the demographic information of the participants according to their role in the organization, age, gender, marital status, and education. The Pearson Product-Moment Correlation Coefficient was calculated to establish the relationship's that existed among the independent and dependent variables. The study aimed to determine the associations among various study variables. Pearson Product Moment Correlation (r) was conducted in SPSS to establish whether there was a substantial link between the dependent and independent variables in the sampled data at a 95 percent level of confidence.

3.6 Ethical Issues

The researcher obtained a letter of authority from the Jaramogi Oginga Odinga University of Science and Technology Institutional Ethics Review Committee department, after which a similar letter was obtained from the National Commission for Science and Technology (NACOSTI). The researcher then used the letters of authority to collect data and seek permission from the relevant respondents of the respective housing construction companies. Once authority to collect data had been obtained from the respective companies, the staff identified to participate in the study were contacted and given a consent form to sign. The consent form outlined their rights, including their right not to participate in the study. In the consent form, they were also reminded that no respondent would be victimized on account of the information provided and that no one would be identified with any particular response, as the questionnaire was anonymous and did not capture any personal identifiers such as names or phone numbers. For interested parties, the study results were to be shared once the study had been published.

4.0 Analysis and Presentation of Findings

4.1 Response Rate

The number of questionnaires that were administered was 155. A total of 128 questionnaires were duly filled and returned. This represented an overall successful response rate of 83 %, which is good enough to serve as a representative of the population. This conforms to Babbie (2004) asserted that response rates of 50% are acceptable to analyse and publish, 60% is good and 70% is very good and based on this assertion 83% response rate was found to be adequate for the study.

4.3 Demographic Characteristics

The study analysed the demographic characteristics of the respondents in terms of age brackets, gender, level of education, and profession to enable the researcher know the respondents characteristics and assess whether the respondents possessed information relevant to the study in line with level of education and professionalism and the results were as follows;

4.3.1 Age Distribution of Respondents

The age distribution of respondents indicates that the majority, 53% (n=68), fall within the 36-45 age range. The 26-35 group accounts for 25.78% (n=33), showing a strong presence of younger professionals. Moreover, the 18-25 makes up 10.94% (n=14) while the 56 and above age groups make up 10.16% (13). This distribution suggests that the workforce is dominated by mid-career professionals, with a smaller but notable presence of younger and older individuals, reflecting a mix of experience and emerging talent in the field.

4.3.2 Gender of the Respondents

The respondents were asked to indicate their gender. Results reveal that the majority (84%, n=108) of the respondents were male, while 16% (n=20) were female. This implies that most of the employees working in the construction sector are male. However, the number of female employees in the building industry is reasonable as the number is not very low.

4.3.3 Education Level of the Respondents

The findings indicate that the majority of respondents (67.19%, n=86) held a Bachelor's degree, highlighting a highly educated sample population. Diploma holders made up 17.96% (n=23), while those with a Master's degree accounted for 9.38% (n=12). Respondents with a Doctorate were 3.91% (n=5), and only 1.56% (n=2) had other forms of education. This distribution suggests that most participants possess substantial academic qualifications, likely equipping them with analytical and managerial competencies relevant to housing projects. The high concentration of degree holders enhances the credibility of the data, as their responses are presumed to reflect informed perspectives on project evaluation and performance in the housing sector.

4.3.4 Years of Experience in Housing Projects

The respondents were asked to indicate the number of years they had worked in their current employment. Results in Figure 4.3 reveal that 40.62% (n=52) of the respondents had worked in their current employment between 6 – 10 years, followed by those who had worked between 11 – 15 years (25%, n=32), those who had worked between 16-20 years accounted for 15.63%, (n=20) while employees with experience of 0-5 years were 12.5% (n=16). The study also revealed that respondents with over 20 years were 6.25 (n=8%). The results therefore indicate that the majority of the respondents have adequate experience in the housing sector as they have worked for more than 6 years. The study results can then be relied upon as the respondents have experience and knowledge in the performance of housing projects in Nairobi, based on the duration they have worked in the industry.

4.4 Influence of Result-Based Monitoring on the Performance of Housing Projects in Nairobi

The responses indicate widespread implementation and favorable perceptions of result-based monitoring practices among housing project stakeholders in Nairobi. For the statement “Our organization utilizes result-based monitoring techniques for project management,” 81.25% (n=104) agreed or strongly agreed—41.41% (n=53) agreed and 39.84% (n=51) strongly agreed. A small group, 11.72% (n=15), reported lack of result-based monitoring use—4.69% (n=6) strongly disagreed and 7.03% (n=9) disagreed—while 7.03% (n=9) were undecided, suggesting near-universal uptake with a few exceptions.

Regarding result-based monitoring’s impact on achieving project goals, 72.66% (n=93) agreed or strongly agreed—41.41% (n=53) agreed and 31.25% (n=40) strongly agreed—while 16.4% (n=21) disagreed—7.81% (n=10) strongly and 8.59% (n=11) disagreed—and 10.94% (n=14) remained neutral. These figures point to general satisfaction with result-based monitoring’s effectiveness but also hint at challenges in goal alignment or implementation depth in some institutions.

For the frequency of monitoring activities, the largest share of respondents, 82.81% (n=106), agreed or strongly agreed—46.09% (n=59) agreed and 36.71% (n=47) strongly agreed. Very few disagreed—3.91% (n=5) strongly and 3.91% (n=5) disagreed—while 9.38% (n=12) were neutral. This reflects confidence in the regularity of monitoring practices.

Lastly, on the use of feedback from RBM to inform decisions, 77.35% (n=99) of participants agreed or strongly agreed—35.16% (n=45) agreed and 42.18% (n=54) strongly agreed—while 15.63% (n=20) disagreed—6.25% (n=8) strongly and 9.38% (n=12) disagreed—and 7.03% (n=9) were neutral. This suggests that most organizations act on result-based monitoring insights, though a small portion may face bottlenecks in applying feedback effectively.

Table 1: Result-Based Monitoring

| STATEMENTS | | SD | D | N | A | SA | Totals |
|--|-------|------|------|-------|-------|-------|--------|
| Our organization utilizes result-based monitoring techniques for project management. | Count | 6 | 9 | 9 | 53 | 51 | 128 |
| | % | 4.69 | 7.03 | 7.03 | 41.41 | 39.84 | 100 |
| Result-based monitoring has a positive impact on achieving project goals. | Count | 10 | 11 | 14 | 53 | 40 | 128 |
| | % | 7.81 | 8.59 | 10.94 | 41.41 | 31.25 | 100 |
| The frequency of result-based monitoring activities is sufficient. | Count | 5 | 5 | 12 | 59 | 47 | 128 |
| | % | 3.91 | 3.91 | 9.38 | 46.09 | 36.71 | 100 |
| Result-based monitoring tools and systems are effective in tracking project performance. | Count | 9 | 12 | 10 | 48 | 49 | 128 |
| | % | 7.03 | 9.38 | 7.81 | 37.5 | 38.28 | 100 |
| Result-based monitoring helps in identifying areas for improvement in projects. | Count | 7 | 10 | 9 | 49 | 53 | 128 |
| | % | 5.47 | 7.81 | 7.03 | 38.28 | 41.41 | 100 |
| Feedback from result-based monitoring activities is used to make informed decisions. | Count | 8 | 12 | 9 | 45 | 54 | 128 |
| | % | 6.25 | 9.38 | 7.03 | 35.16 | 42.18 | 100 |

5.0 Discussion of Key Findings and Recommendations

5.1 Demographic Information

Demographic information of the respondents was captured in terms of age, gender, level of education, and years of experience in housing projects. A total of 155 questionnaires were issued for the survey, and 128 were duly completed and returned. This represented a strong response rate, which was considered adequate for analysis and ensured that the data collected was representative of the target population. In terms of age, the majority of respondents were between 36 and 45 years old, indicating that most participants were mid-career professionals. This group was followed by individuals aged 26 to 35, then those between 18 and 25, while the smallest group consisted of respondents aged 56 years and above. This mix of age groups suggests a workforce comprising both experienced personnel and younger professionals, offering a balanced perspective on the

sector. Regarding gender, the survey revealed that most of the respondents were male. However, a notable number of female participants were also represented, reflecting growing gender inclusivity in the construction and housing sector, despite its traditionally male dominance. On educational qualifications, the largest proportion of respondents held a Bachelor's degree, indicating that most of the participants were well-educated. This group was followed by diploma holders, then those with Master's degrees, with a few having Doctorate qualifications or other forms of education. This academic background suggests that the respondents had the necessary knowledge and analytical capacity to provide informed insights into housing project performance. When asked about their professional experience in the housing sector, most respondents reported having worked in their current employment for between 6-10 years. This was followed by those with 11-15 years of experience, then those with 16-20 years. Fewer respondents had been in their positions for less than 5 years or for over 20 years. Overall, the data indicates that the majority of the respondents had significant work experience in housing projects, enhancing the credibility of their responses.

5.2 Result-Based Monitoring

The findings underscore the widespread adoption and favorable perception of Result-Based Monitoring (RBM) as a project management approach in housing developments. The majority of respondents affirmed the use of RBM practices, consistent with Silva and Pereira's (2019) findings in Brazil, where RBM significantly enhanced cost efficiency and adherence to project timelines. The study respondents similarly perceived RBM as instrumental in achieving project goals, although a small portion highlighted implementation inconsistencies—suggesting that while the framework exists, execution depth may vary across organizations. The frequency of RBM activities in the study was perceived as sufficient by majority of respondents, echoing the sentiments of Sharma and Rao (2021), who found that systematic RBM practices in India correlated positively with high-quality and timely project delivery. This suggests that routine monitoring is not only prevalent in the study but also valued for maintaining performance benchmarks. However, a minority of respondents expressed neutrality or disagreement, pointing to potential disparities in monitoring intensity or the standardization of RBM protocols. Tool effectiveness for tracking performance also received strong support in the study, with a majority of the respondents affirming their utility, yet a small proportion expressed concerns.

5.3 Recommendations

The study recommends the institutionalization of standardized RBM protocols across all housing projects. This should include the development of sector-specific RBM guidelines that clearly define key performance indicators (KPIs), monitoring cycles, data collection methodologies, and reporting standards. National and County Governments, in collaboration with regulatory bodies, should coordinate these efforts to ensure consistency and coherence across different project contexts. To address technical challenges, it is also recommended that organizations invest in

modern monitoring tools and digital systems capable of real-time data tracking, analytics, and feedback generation. Integration of these tools should be accompanied by capacity-building programs to ensure personnel are proficient in their application and interpretation. Moreover, feedback loops should be institutionalized, with clear mechanisms for translating monitoring insights into actionable strategic decisions. This will not only improve project responsiveness but also reinforce a culture of evidence-based planning and accountability. Ultimately, embedding robust and consistent RBM practices will strengthen transparency, support adaptive management, and significantly enhance the performance of housing projects throughout Nairobi.

5.4 Suggested Areas for Further Study

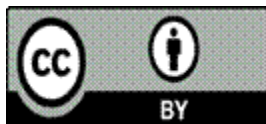
Building on the need to strengthen RBM tools and feedback loops, future research could focus on the role of digital technologies and real-time data analytics in improving monitoring accuracy, responsiveness, and decision-making in housing projects. Additionally, studies could assess how digital platforms facilitate stakeholder involvement, transparency, and accountability, identifying technological innovations that best support sustainable and participatory housing development in Nairobi's urban context.

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