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Critical Success Factors for IT Projects in South Africa

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Abstract:

IT projects have faced high failure rates over the years. This study aimed to explore stakeholders' role in the success or failure of IT projects, identify the complexities of stakeholder management in IT development projects, and develop a robust stakeholder management process specifically tailored to the context of developing economies. This research looks at different factors that impact IT project success in South Africa. A quantitative research approach was utilised using Structural Equation modelling (SEM). The success factors that were found critical included the following: The project being completed within the allotted budget; the project outcomes being utilised by the end-users; the project should have a noticeable impact on beneficiaries; project specifications must be met by the time the project is handed over to target beneficiaries; project team members must also be satisfied the project execution process and the project should have minimal start-up problems.

Keywords:

Critical Success factors, IT Projects, Stakeholder.

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Introduction

Research has shown the importance of interaction between project stakeholders for project success (Niebecker, Eager, & Kubitza, 2008; Freeman et al., 2010) (Hatamleh, 2021). In information systems projects, stakeholders bring different perspectives and views. As a result, it isn't easy to realise universal satisfaction. The stakeholders' perspective is arguably one of the most important factors influencing IS project success (Marnewick, C., Erasmus, W. & Joseph, N., 2017). This suggests a growing complexity in managing stakeholder expectations and achieving overall project success. A trend in contemporary literature reflects the foregone sentiments as stakeholder management is considered key in both Agile Methodologies and traditional waterfall method (Joseph & Marnewick, 2014; Todorovic´ et al., 2015; Williams, 2015). The fourth Industrial revolution in developing economies, particularly in South Africa, is still relatively in its infancy. The momentum in the fourth industrial revolution is undoubtedly gathering pace (Mlanga, 2023). Over the years, IT projects, locally and internationally, have experienced high failure rates (CHAOS Report, 2020). 'Business IT' projects are projects in the business sector that involve an information technology element. Traditionally, these projects encounter various challenges in meeting clients' demands, resulting in 36% of project failures, according to a global survey by PMI (2017). The success rate of these projects has been deemed unsatisfactory. This has led to billions of dollars in yearly wasteful expenditure (Einhorn et al., 2019). The identification, analysis, and proactive engagement of stakeholders from the initial stages to closure enables project success (PMBOK, 2022). Effectively managing stakeholders is key to achieving success in project and process management (Marnewick et al., 2017). Efficiently managing stakeholders is very important for the success of any project, regardless of what type of project it is (Nguyen et al., 2018). There is not much research about the future of IT project stakeholder management (Aliu et al., 2023). The research question was "What are the critical success factors for stakeholder engagement and satisfaction in IT projects, considering the influence of AI and the evolving landscape of the Fourth Industrial Revolution?". Thus, the objective of the research was to identify the critical success factors for stakeholder engagement and satisfaction in IT projects, considering the influence of AI and the evolving landscape of the Fourth Industrial Revolution.

Definition of Stakeholders

Freeman's (1984) definition of a stakeholder entails "any group or individual who has the potential to influence or is influenced by the organisation's goal accomplishment." According to Burke (2023) and Oosthuizen and Venter (2018), a project stakeholder may compromise a group or individual who might impact the project's outcome and whom the project manager depends on for the project's success. Shafique and Gabriel (2022) define a stakeholder as an entity, human or non-human, that can affect

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and is being affected by the decisions of other stakeholders and their resultant actions or non-actions. This study adopts this definition as it captures the tenets of the research topic and problem.

Measuring Project Success

There is no established method widely recognised in project management literature to measure project success, sparking ongoing discussions about what defines success in a project. Pinto et al. (2022), citing Lundin et al. (2015), say the need to periodically reassess the nature of project success is a recognition that projects and the project society are constantly evolving and reconfiguring.

A concrete, universally accepted definition of project success is absent (Yohannes and Mauritius, 2022). The success of IT projects is evaluated differently by various stakeholder groups. Project success is contingent on the individual perspectives of each stakeholder.

Empirical studies commonly utilise varied definitions of project success, leading to comparison challenges. Within the literature, project success can denote completion "on time, within budget, to specification," the success of the resulting product, or achieving the project's business objectives. Chipulu et al. (2019) found that stakeholders tend to emphasise project effectiveness when evaluating the project's successes. Conversely, they focus more on efficiency when assessing project ‘failure’. For project managers, it is vitally important to understand how stakeholders evaluate and prioritise project outcomes. This helps them gain a clearer insight into the individual interests of various stakeholders. These measures are frequently debated, making it challenging to identify if a problem exists (Sauer et al., 2007). Adding to the complexity is the subjective nature of success, similar to quality, which varies based on stakeholders' perspectives and changes over time following project completion. Despite these complexities, resolving the issue of defining project success is crucial for advancing project management research and expanding the knowledge within this emerging field (Bannerman, 2008). Varajão et al. (2020) point out that there have been significant strides in PM processes. Still, this has not impacted project success rates as stakeholder expectations are constantly unmet and continue to be disappointed by their results.

A Four-Dimensional Model of Success

Although the assessment of project success may not always capture its multidimensional nature, it is a complex phenomenon that changes over time based on the project type, stakeholders involved, and the broader context (Ika & Pinto, 2022). Their four-dimensional model of project success is presented in Figure 1 below.

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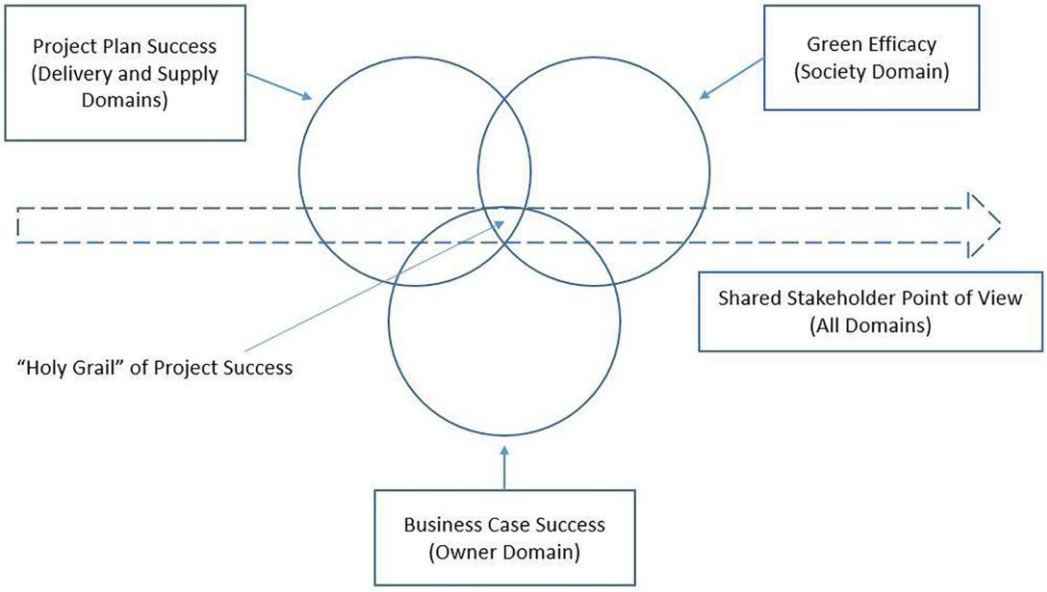

Figure 1: A four-dimensional Model of Project Success (Ika and Pinto, 2022)

Hypothesis: There is a relationship between critical success factors and IT project performance in the 4th Industrial Revolution.

Objective: Identify the critical success factors for stakeholder engagement and satisfaction in IT projects, considering the influence of AI and the evolving landscape of the Fourth Industrial Revolution.

The Different Needs and Interests of the Various Stakeholders

As varied as the stakeholders involved in software projects are, their diverse needs and interests contribute to various criteria used to measure project success. Consequently, defining project success has become a challenging and shifting target, influenced by these distinct measurement criteria aligned with stakeholder groups' needs. However, despite this complexity, the assessment and attainment of project success remain pivotal in project management, particularly for satisfying stakeholders, including software project teams (SPTs) (Hans and Marebane, 2023).

Many research studies have looked at project success or failure from various stakeholder perspectives, and this has been collaborated with research that indicates that crucial stakeholders tend to be sidelined or overlooked during projects. Hans and Marebane (2023) conducted a systematic literature review (SLR) investigating whether empirical studies on evaluation software projects' success from stakeholders' perspectives have been done over recent years. According to the authors, limited research has been conducted to explore this aspect.

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Methodology

The quantitative approach was adopted to identify causal relationships between dependent and independent variables. The dependent variable was Project Success, and the independent variables were Stakeholder Management Challenges, Effective Management of Stakeholders, and Stakeholder Satisfaction. Using descriptive and inferential statistics, a quantitative approach involves collecting and analysing data to derive insights from relationships among the variables (Soiferman, 2010). Quantitative research uses deductive methods to analyse theories to get numerical evidence to validate or contradict a hypothesis (Clark & Creswell, 2008).

While some researchers advocate for the potential benefits of adopting multiple or mixed strategy approaches, others remain inclined toward mono methods for different reasons. An article by (Aguirre and Robles, 2020) delves into a descriptive study that examines the research strategies employed by top-ranked researchers by reviewing publications over the 2018-2019 period in the International Journal of Project Management, which serves as the premier journal in the field of project management and organisational studies. As depicted in Figure 3, out of the 127 articles reviewed, 96 were found to have adopted a mono-strategy approach, 19 utilised a multi-strategy, and 12 adopted a mixed-strategy (Aguirre and Robles, 2020). The mono-strategy approach is the most employed method among the reviewed articles.

The data collection in this research aimed to understand IT stakeholders' opinions, experiences, and attitudes toward 4IR platforms, making it a descriptive study. The goal was to utilises gathered data to identify and interrogate variables within the IT stakeholder management area. The researcher designed the questionnaire to align with the research question and study objectives.

One limitation of snowball sampling is the inherent bias, where participants tend to refer others who share similar perspectives, potentially leading to a homogeneous sample (Saunders et al., 2019). Self-selecting sampling was employed, thus empowering potential respondents to decide their participation, and reducing the chances of a homogeneous sample (Aga et al.2016).

Findings

Project Success (Dependent Group)

Correlation Matrix

[a]Determinant = .084

Table 1: Correlation Matrix

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Factor Analysis Summary

The correlation matrix in Table 1 showed that the determinant value was not close to 0, and therefore, the data set was deemed appropriate for factor analysis. The determinant value 0.084 implied the variables had sufficient variance for meaningful factor extraction. This also proved the validity of the factor analysis results that we calculated, which included the component matrices, patent matrices and the correlations.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.706
Bartlett's Test of Sphericity	Approx. Chi-Square	114.618
	df	15
	Sig.	<.001

Table 2: KMO and Bartlett's Test

The KMO value in Table 2 implied that the data set had enough sampling for factor analysis. This meant that the correlations across the variables were strong enough to extract meaningful factors.

The chi-square statistic is significant at $p < 0.001$. An important result ($p < 0.05$) indicated that the variables were sufficiently correlated to go ahead with factor analysis. The result ($p < 0.001$) suggests that the correlation matrix is not an identity matrix; thus, there are correlations between variables. This supports the appropriateness of factor analysis because it implied that it would most likely yield meaningful factors.

Communalities

Communalities

	Initial	Extraction
The outcomes of the project being used by its intended end users	1.000	.760
The project makes a visible positive impact on the target beneficiaries	1.000	.792
Project specifications being met by the time of handover to the target beneficiaries	1.000	.712

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Project team members are satisfied with the process by which the project was implemented	1.000	.778
The project has minimal start-up problems	1.000	.551
The project directly leads to improved performance for the end users/target beneficiaries	1.000	.791

Extraction Method: Principal Component Analysis.

Table 3: Communalities

The commonality Table 3 gives an insight into how the extracted factors in the analysis explain the variances in each variable. The table shows most variables have extraction communalities ranging from 0.551 to 0.792, suggesting the factors extracted explained a considerable portion of the variance in these variables. In general, high extraction and communalities across variables support the effectiveness of the factor analysis process (O'Leary, 2017). The inference is that the extracted factors reflect significant aspects of the original variables. "The project having minimal start-up problems" has the lowest extraction communality of 0.551, suggesting less variance in this variable is accounted for by the extracted factors compared to others. This variable is either not well represented by the factors or may have a unique variance that is not captured.

	Initial Eigenvalues			Extraction Sums of Squared Loadings			
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	ums Rotation of Squared Loadings
1	2.969	49.476	49.476	2.9	49.4	49.4	2.58
2	1.416	23.597	73.072	1.4	23.5	73.0	2.33
3	.650	10.834	83.906				
4	.401	6.677	90.583				
5	.342	5.695	96.278				
6	.223	3.722	100.00				

Extraction Method: Principal Component Analysis.
When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 4: Total Variance

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The total variance explained in the table above shows that the first component is responsible for about 49.5% of the total variance in the data, implying that it captures almost half of the variability in the data. The second component accounts for 23.6% of the variance, and Component 1 and Component 2 combined account for most of the overall variance in the data. Component 3 explains 10.8% of the variance whilst combining Component 1. Components 4 to 6 combined explain lesser amounts of the variance in the data and hence contribute less significantly than the first three components.

Component 1 and component 2 still capture the same percentage of variance as before extraction. The Extraction Sums of Squared Loadings show this in the table above. Components 3 to 6 are not indicated in the extraction sums, suggesting that only the first two components are retained after extraction in the final solution. These are the principal components explaining most of the variance in the data set. Rotation did not fundamentally change the significance of these two components.

Pattern Matrix

	Component	
	PSFact 1	PSFact 2
The project makes a visible positive impact on the target beneficiaries	.919	
The outcomes of the project being used by its intended end users	.871	
The project directly leads to improved performance for the end users/target beneficiaries	.847	
Project team members are satisfied with the project's implementation process.		.903
Project specifications being met by the time of handover to the target beneficiaries		.809
The project has minimal start-up problems.		.748

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization

[a]Rotation converged in 3 iterations.

Table 5: Patten Matrix

The pattern matrix above in the table shows PSFact1 as having high load-ings in the following aspects. It can be seen from Table 5 that PSFact1 is strongly associated with the impact and effectiveness of the project. It cap-tures how well the project achieves its intended outcomes and, thus, bene-fits the end users. PSFact 2 has high loadings in the following aspects: “Pro-ject team members being satisfied with the process by which the project was implemented”, “Project specifications being met by the time of handover to the target beneficiaries”, and “The project having minimal start-up prob-lems,”. This factor reflects project management and operational efficiency.

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Structure Matrix

	Component 1	2
The project makes a visible positive impact on the target beneficiaries	.885	
The project directly leads to improved performance for the end users/target beneficiaries	.884	.401
The outcomes of the project being used by its intended end users	.872	.306
Project team members are satisfied with the project's implementation process.		.880
Project specifications being met by the time of handover to the target beneficiaries	.371	.840
The project has minimal start-up problems.		.742

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

Table 6: Structure Matrix

From the above Structure Matrix Table 6, Component 1 has a highly fa-vourable loading for all the variables linked to the project's effectiveness and impact. It is high loadings in the following: “Project making a visible positive impact on the target beneficiaries”, “The project directly leading to improved performance for the end users/target beneficiaries”, and “The outcomes of the project being used by its intended end users”. It is evident that Compo-nent 2, as reflected in the Structure Matrix, can be seen to represent project management and operational efficiencies as it has high loadings in the fol-lowing: “Project team members being satisfied with the process by which the project was implemented,” “Project specifications being met by the time of handover to the target beneficiaries,” and “The project having minimal start-up problems”.

Component Correlation Matrix

Component	1	2
1	1.000	.349
2	.349	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

Table 7: Component Correlation Matrix

The positive correlation in Table 7 indicates a moderate relationship be-tween the two components. The implication is that Components 1 and 2, whilst different aspects of the data, can overlap. However, the components remain distinct despite the moderate correlation mentioned above, in that each captures different dimensions of project performance, namely effec-tiveness and management.

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Model Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Project outcomes successful – PSFact1	50	1.33	5.00	4.5067	.67424
Stakeholder Communication & Feedback, - SSFact1	51	1.00	5.00	4.5020	.70583
Effective Project Management – EMFact1	51	1.29	5.00	4.4258	.62824
Proactive Management & Active Stakeholder Involvement – SSFact3	51	1.67	5.00	4.4052	.71589
Data Analytics & AI; Digital Platforms & Agile PM Methods – SSFact2	51	2.00	5.00	4.1275	.81144
Leveraging AI & Data Analytics – EMFact2	51	1.50	5.00	4.1176	.84610
Project Team Satisfaction, targets met & minimal start-up problems – PSFact2	50	2.67	5.00	4.0533	.72644
Stakeholder management – NEQFact3	58	1.50	5.00	3.7414	.87480
Data Security, privacy, & ethical concerns – NEQFact1	58	1.25	5.00	3.5948	.91026
Stakeholder identification – NEQFact2	58	1.00	5.00	3.2931	1.00888
Valid N (listwise)	50				

Table 8: Descriptive Statistics

Table 8 above of descriptive statistics gives a snapshot of the various pro-ject-related factors. It summarises how the respondents perceived the dif-ferent aspects of the project. Generally, the mean score is above 4.0. This implies that most respondents responded in the affirmative to the other questions. They strongly agree on the project outcome, effective manage-ment communication practises and the use of technology. Those moderate scores below 4 suggest more variability in the respondents' perception of these aspects' importance in measuring project success. These include factors such as stakeholder management, data security, and stakeholder identification. Consideration of the standard deviations, Effective Project Management, EMFact1 with 0.62824), reflect consistency in how the re-spondents perceive project management effectiveness. Stakeholder Identifi-cation (NEQFact2) with 1.00888 indicates significant response variability, implying that the respondents had differing opinions.

Since most factors are rated positively, respondents strongly agreed on project success, communication, and management practices. Lower mean scores (i.e., for Stakeholder management, data security, and

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stakeholder identification indicate that respondents felt that they did not have a signifi-cant bearing on overall project success and stakeholder satisfaction.

Summary of Reliability Analysis

Factor	No Items	Cronbach's	Result
NEQFact1	4	0.809	Very Good
NEQFact2	2	0.691	Good
NEQFact3	2	0.637	Moderate
EMFact1	7	0.872	Very Good
EMFact2	2	0.843	Good
SSFact1	5	0.949	Excellent
SSFact2	4	0.890	Very Good
SSFact3	3	0.862	Very Good
PSFact1	3	0.850	Very Good
PSFact2	3	0.710	Good

Table 9: Reliability analysis using Cronbach's alpha values (Source: Author)

Table 9 summarises reliability analysis using Cronbach's alpha values for various factors. The table indicates the internal consistency of the items that make up each factor. Crobach's alpha values show how closely related a set of items are within a group. The values range from 0 to 1, whereby a higher value indicates better reliability. Some guidelines for interpreting Cronbach's alphas are given in Table 10, according to Taber (2018).

Value Range	Inference
≥ 0.9:	Excellent
0.8 – 0.89:	Very Good
0.7 – 0.79:	Good
0.6 – 0.69:	Moderate
< 0.6	Poor

Table 10: Cronbach's Alpha (Taber, 2018)

According to Cronbach's alpha, most factors in the Summary of Reliability Analysis table indicate good internal consistency. This shows the reliability measurement of the constructs they are intended to represent. A few fac-tors, though, search is in NEQFact2 and NEQFact 3 have lower Cronbach's alpha values. PSFact 2 has good internal consistency, though on the lower side of the continuum. Overall, most of the scales exhibit good reliability, especially those with a higher number of items.

PS Factor

The model contains the following variables: Observed, endogenous varia-bles: PS2; PS3; PS8; PS4; PS5; PS6; PS1; S7. These are elaborated on in Table 11.

Unobserved, exogenous variables: PS2; PSDim2; ePS3; ePS8; ePS4; ePS5; ePS6; ePS1; ePS7

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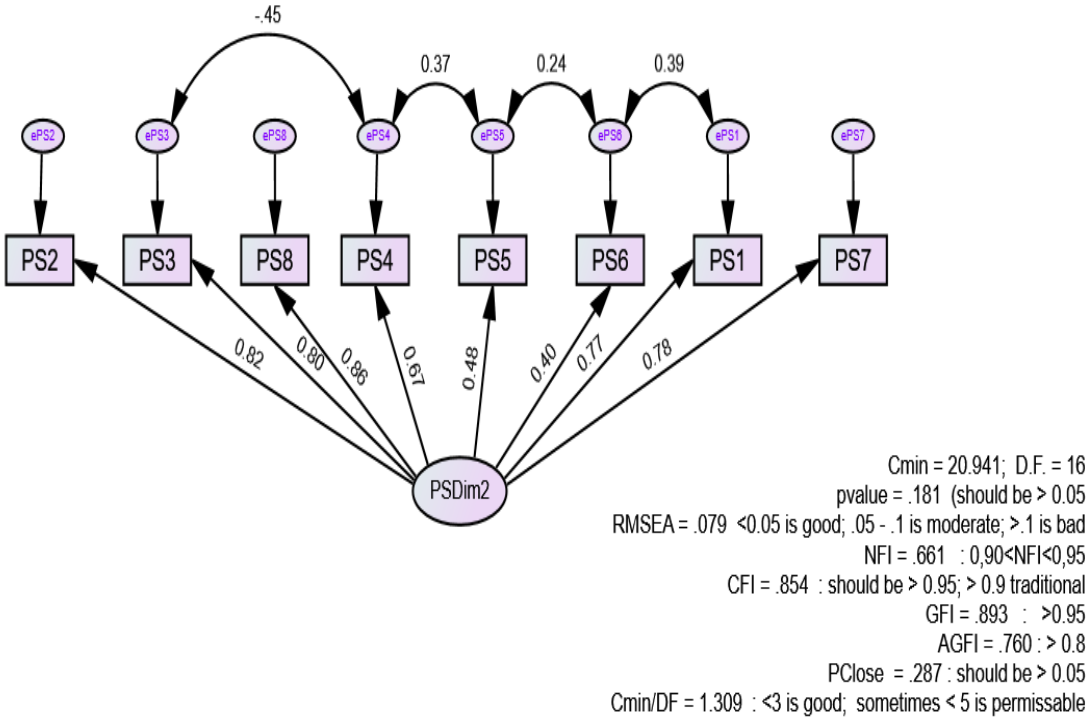

Figure 2: PSDim2

ITEM	STATEMENT
PS1	The project is completed according to the budget allocated.
PS2	The outcomes of the project being used by its intended end users
PS3	The project makes a visible positive impact on the target beneficiaries.
PS4	Project specifications being met by the time of handover to the target beneficiaries
PS5	Project team members are satisfied with the project's implementation process.
PS6	The project has minimal start-up problems.
PS7	The principal donors/sponsors are satisfied with the project implementation outcomes.
PS8	The project leads to improved performance for the end users/target beneficiaries.

Table 11: PSDim2

The image depicts a structural equation model (SEM) with various paths and relationships between variables. It includes circles representing latent variables, squares for observed variables, and arrows indicating the direction of influence or correlation. Each path has an associated decimal value, presumably representing path coefficients or correlations.

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Path Coefficients

The model shows a moderate fit to the data. The CFI and GFI values are above the traditional cutoffs, indicating a good fit. However, the RMSEA value suggests a moderate fit, and the NFI is slightly below the recommend-ed threshold. Relationships: The path coefficients indicate varying strengths of relationships between the variables, as shown in Table 12. Overall, this SEM provides a moderate fit to the data, with some areas potentially need-ing improvement.

Regression Weights

			Estimate	S.E.	C.R.	P
PS2	<---	PSDim2	1.000			
PS3	<---	PSDim2	.818	.136	6.009	***
PS8	<---	PSDim2	1.029	.164	6.293	***
PS4	<---	PSDim2	.642	.166	3.858	***
PS5	<---	PSDim2	.511	.187	2.734	.006
PS6	<---	PSDim2	.712	.288	2.470	.013
PS1	<---	PSDim2	1.132	.210	5.381	***
PS7	<---	PSDim2	.895	.215	4.154	***

Table 12: Regression

All the path coefficients shown in Table 12 are statistically significant, indi-cating that PSDim2 has meaningful positive relationships with PS2, PS3, PS8, PS4, PS5, PS6, PS1, and PS7. The relationships indicated by the path coefficients range from moderate to vigorous.

Open-Ended Responses Analysis

Fear and Resistance to Technology

Some respondents expressed concerns about technology replacing hu-man roles and duties in the future. There were also elements of stakehold-ers' reluctance to adapt to new technologies and processes that may be interpreted as resistance to change. The following statements reflect these sentiments:

Response 1: "Fear of technology taking over processes or duties per-formed by stakeholders."

Response 2: "The level of digital literacy is often a problem. The lower the level of digital literacy is, the higher the expectation for the project."

Response 3: "People's resistance to change."

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Communication and Collaboration

Clear and effective communication was emphasised as critical for stake-holder management. Thus, an inclusive collaboration that involved key stakeholders and end-users in the project to ensure their needs and per-spectives were considered was encouraged. The following responses re-flected these.

Response 4: “Clear and effective communication plays a critical role in managing stakeholders in IT projects.”

Response 5: “Inclusive collaboration with key stakeholders ensures valu-able insights and perspectives are considered, while active involvement and training of end-users enhance satisfaction and success.”

Response 6: “Regular engagement sessions, governance and risk logs adherence.”

Joshi (2024), in their research on the use of chatbots for communication in projects, said that most participants acknowledged the positive impact of AI-powered chatbots on communication efficiency, emphasising their effec-tiveness in providing timely and relevant information.

Training and Education

The importance of providing adequate training to stakeholders to ensure they understand and can use new technologies was one of the emerging themes from the respondents. Educating stakeholders about new technolo-gies' practical implications and costs is very important.

Response 7: “Training is the most important one. It will be a disaster if you don’t want to implement something that no one knows how to utilise.”

Response 8: “Stakeholder education - some stakeholders have heard about a product but do not completely understand the practical implications and associated costs.”

Response 8: “Lack of proper education in projects and management of resources.”

Project Management and Governance

The respondents highlighted the need to institute adaptive strategies like Agile Project methods in the fast-evolving technology landscape. Additional-ly, the necessity of ensuring that all stakeholders have a shared understand-ing of the project’s goals and limitations as well as demonstrating value through measurable outcomes were also sentiments that were reflected in some responses:

Response 9: “Setting realistic expectations about the capabilities, limita-tions, and timeline of the project is constructive.”

Response 10: “Agile project management and adaptive strategies are necessary for effective project execution in the ever-changing technology landscape”.

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Response 11: “Good contract management, project governance, and pro-ject management.”

Cultural and Social Considerations

Acknowledging and respecting cultural differences to enhance teamwork and reduce misunderstandings was also highlighted as a CSF by respond-ents. Another aspect was that of political and cultural awareness. The un-derstanding of the broader social and political context in which the project operates, as reflected in the following sentiments:

Response 12: “It’s vital to acknowledge and respect cultural variances and ensure practices are inclusive, catering to various groups.”

Response 13: “Political and cultural awareness is crucial for stakeholder management.

Response 14: “Cultural Sensitivity and Inclusion: It is vital to acknowledge and respect cultural variances and ensure practices are inclusive, catering to various groups.”

Technical Challenges

Integration with legacy systems: Managing the transition between old and new technologies is essential for project success. Also, ensuring the quality, integrity, and security of data used in AI-driven projects, i.e., Data govern-ance, is crucial, as reflected in the following responses:

Response 15: “Managing the transition and compatibility between old and new systems can pose significant technical and organisational challenges.”

Response 16: “In AI-driven IT projects, success is bolstered by robust da-ta governance practices that secure the quality, integrity, and security of data used for training and decision-making.”

Response 17: “Integration with legacy systems”.

Stakeholder Engagement and Satisfaction

Another common theme from the open-ended question was keeping stakeholders informed about project progress and challenges through regu-lar updates and transparency. This aligns quite well with the need to adopt strategies that help ensure stakeholders are satisfied with the project out-comes, such as involving them in decision-making and setting realistic ex-pectations.

Response 18: “Providing regular updates on progress and being trans-parent about any challenges or setbacks encountered.”

Response 19: “Projects are more successful when the objectives are clear and documented explicitly from the start of the project to avoid scope creep.”

Response 20: “Encouraging stakeholders’ participation and feedback.

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Change Management

Strategies to help stakeholders adapt to new technologies and processes must be implemented to enhance stakeholder management. Continuous learning and improvement by building mechanisms for feedback and itera-tion to improve the AI solution over time is also essential, as evidenced in the following statements:

Response 21: “Change management is crucial for overseeing projects, particularly in dynamic and technologically advancing settings such as IT and AI initiatives.”

Response 22: “Continuous Learning and Improvement is important. Build-ing mechanisms for feedback, iteration, and improvement of the AI solution over time.”

Response 23: “Alignment of all project stakeholders with technology and being digitally matured.”

Conclusions

Project Success Factors (PSFact): The factors that define project success (the dependent variable) in this study are discussed below. The successful completion of a project entails addressing various, often conflicting factors. Several critical factors were identified in this study.

- Firstly, the need to complete the project within the allotted budget was highlighted. This ensures effective project financial manage-ment. The practical relevance and utility are shown by how far the intended end-users utilise the final project deliverables. Ideally, the final project must lead to an improved performance on the part of the end-users or target beneficiaries and, as such, high-light its value.
- Additionally, the project should show a positive impact on intend-ed beneficiaries and, as such, demonstrate success in achieving the project objectives. It is of paramount importance that by the time the project is handed over, standard specifications will have been met. A smooth transition with minimal start-up issues further highlights the effectiveness of the planning and execution phases.
- Another factor was the satisfaction of project team members with project execution processes. It is also essential to create an ena-bling environment whereby team members feel involved and acknowledged for their role in the project. This is because the team’s participation and satisfaction also define the success of a project. Key performance indicators (KPIs) such as stakeholder satisfaction and impact on beneficiaries should be clearly defined at the project's onset to ensure these goals are met. Post-implementation reviews are essential in assessing whether the project has met its objectives.

- Lastly, the focus should remain on delivering outcomes that re-flect value for stakeholders and align with established success metrics.

Large datasets, unforeseen challenges, and repetitive tasks can over-whelm project managers, leading to delays, budget overruns, and project failures (Soushtari et al., 2024). However, any generic success model should be adapted to the project's specificity and the project setting's idio-syncrasy (OECD, 2019). Organisations can use the above insights to opti-mise their processes and allocate resources.

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