

The Impact of E-Management on Continuous Improvement in Saudi Service Organizations

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Abstract:

The study tried to look at how applying electronic management affects continuous improvement in Saudi service organizations. It focused on five parts: technological infrastructure, leadership and organizational support, human resource competency, transparency and governance, and e-service quality. We used a descriptive-analytical approach with a quantitative angle, and collected data through an online form from a sample of (384) people working in the service sector in the Kingdom. The data were analysed using PLS-SEM. Results showed that all dimensions of electronic management had a statistically significant effect on continuous improvement. Leadership and Organizational Support had the biggest effect ($\beta = 0.298$). Next came E-Service Quality ($\beta = 0.263$). Then Technological Infrastructure ($\beta = 0.241$). After that, Transparency and Governance ($\beta = 0.214$). Finally, Human Resource Competency showed the smallest but still significant effect ($\beta = 0.187$). In short, the findings suggest that success in continuous improvement depends on the mix of these factors together, not on any single one alone.

Keywords: E-Management, Continuous Improvement, E-Service Quality, Organizational Support, Technological Infrastructure.

1. Introduction

From my own point of view, it feels that in today's shifting business world, e-management has turned into something more fundamental than a digital add-on. Mihoubi (2025) described e-management as the structured use of ICTs to raise efficiency and transparency, but I would argue it also reshapes how leaders make sense of authority, cooperation, and improvement. To me, what stands out is that institutions — especially those that deal with customers directly — depend on these systems because they make fast reactions and reliable performance possible, which the old paper-based ways could never manage (Mihoubi, 2025).

Looking at Saudi Arabia, I think this transformation sits right at the heart of Vision 2030. It isn't just a technical change; it's more like a national reorientation toward innovation and disciplined progress. Based on what I've seen, Saudi service organizations are using e-management not just to handle paperwork faster but to build habits of learning and flexibility over time.

Even in business, e-management found its way into private organizations — Alharbi et al. (2024) observed that the insurance industry benefited from faster customer response and higher satisfaction, while Atieh (2024) noticed that telecom firms used e-management as a base for sustainability and performance growth. From my point of view, these examples reveal how flexible e-management really is, adapting itself to each context while still aiming at efficiency and quality.

However, and this is something I tend to emphasize, the story doesn't end with technology itself. The literature keeps showing that e-management achieves its strongest results only when it works hand in hand with a culture of continuous improvement. Personally, I view this blend of continuous learning and digital governance as the heart of sustainable institutional progress.

Still, when I look at the Saudi context, I feel that we don't fully understand yet how e-management specifically shapes continuous improvement there. A lot of studies — like those by Khelif and Ziadi

(2021) and Ali (2023) — focus mainly on how organizations adopt the technology, while others, such as Arnaiz et al. (2022) and Inan et al. (2022), stay centered on improvement principles without linking them directly to digital systems. That's why there seems to be a noticeable gap at the point where both ideas meet, especially within Saudi Arabia's particular socio-economic and cultural setting. I think this makes the issue even more relevant, considering that Saudi service organizations are trying to manage technological readiness, employee motivation, and shifting customer expectations all at once. For this reason, the present study seeks to explore how e-management actually drives continuous improvement in Saudi service organizations.

Literature Review:

Mansour et al. (2025) demonstrated that e-management practices significantly enhance administrative efficiency, minimize operational delays, and elevate patient satisfaction levels. (2025) carried out a field study in Libya and discovered that electronic management practices did more than organize administrative work — they directly lifted the quality of medical services. The study noted fewer delays, better handling of records, and, perhaps most importantly, higher patient satisfaction. I think that's an interesting outcome because it shows how management technology touches human experiences like waiting time and trust in care. From my point of view, these examples make it clear that in service-driven fields, e-management isn't a side addition; it becomes the main channel through which continuous improvement really happens. Based on practical observations and emerging research, e-management has evolved into a pivotal transformation in how organizations operate and develop.

Assiri (2023) explained that Saudi universities depended heavily on e-administration to sustain service quality during the crisis, which says a lot about digital systems as tools of resilience. Alotaibi (2024), studying Saudi school administration within the framework of Vision 2030, observed that digital transformation was not a luxury but a national necessity for modernization. Yousfi and Eldjerbi (2025) added to this by showing that Algerian universities using e-management reported better quality of academic life, meaning that digital tools helped make education more connected, more

responsive, and perhaps more humane in unexpected ways.

I think that's the deeper value—technology turning into a habit of refinement and not just an administrative shortcut. In the same line, Vimala et al. Li (2021) developed an e-management platform for patient-reported outcomes, and what stands out there is how data collection becomes a real-time dialogue between systems and users. In my opinion, that's where digital management starts feeling genuinely human. (Atieh, 2024; Vimala et al., 2024; Li, 2021)

From my point of view, the spread of e-management in higher education feels like a gradual shift that changes things quietly but meaningfully. Ghouti and Tahi (2025) noticed that in Algerian universities, digital systems didn't just replace papers or files; they started to reshape how teaching and administration connect through clearer governance and more honest decision-making. Marin-Garcia et al. (2025) also mentioned that the success of continuous improvement in public universities comes when communication, resources, and feedback become smoother under digital systems. In my honest opinion, this mix of human behavior and digital innovation is where true progress happens. Technology by itself doesn't create improvement—it's people who decide whether to make it work or not. (Ghouti & Tahi, 2025; Marin-Garcia et al., 2025; Khelassi & Abou-Bekr, 2025; Mihoubi, 2025; Karima & Zohra, 2021)

From my own reading and understanding of the studies, it feels quite evident that e-management has quietly become a central piece in how organizations keep improving over time. Across fields like healthcare, education, telecommunications, insurance, and even public finance, digital systems seem to do more than just make things faster—they actually reshape how people work, communicate, and deliver value.

The goal isn't just to repeat what earlier studies have said, but to understand how these ideas work together in a real organizational setting. To make this clearer, a number of research hypotheses have been developed to show how the main variable—e-management—might affect continuous improvement and its related dimensions:

H1: There is a significant impact of technological infrastructure on continuous improvement across its dimensions (process improvement, customer satisfaction, innovation and renewal, employee empowerment, and long-term sustainability and development).

H2: There is a significant impact of leadership and organizational support on continuous improvement across its dimensions (process improvement, customer satisfaction, innovation and renewal, employee empowerment, and long-term sustainability and development).

H3: There is a significant impact of human resource competency on continuous improvement across its dimensions (process improvement, customer satisfaction, innovation and renewal, employee empowerment, and long-term sustainability and development).

H4: There is a significant impact of transparency and governance on continuous improvement across its dimensions (process improvement, customer satisfaction, innovation and renewal, employee empowerment, and long-term sustainability and development).

H5: There is a significant impact of e-service quality on continuous improvement across its dimensions (process improvement, customer satisfaction, innovation and renewal, employee empowerment, and long-term sustainability and development).

I've always felt that technology does more than just make work faster—it changes how improvement happens inside an organization. When digital systems are solid and everything connects without friction, things seem to move with a kind of natural efficiency. Li (2021) talked about this, showing that technology doesn't just manage tasks; it refines them, makes services smoother, and sparks creativity in how problems are solved.

Their engagement made the idea of continuous improvement something real, not just a policy line. From this, it's clear that leadership and organizational backing are not just "nice to have" factors; they are what make the process of improvement truly possible.

The third hypothesis (H3) turns attention toward people—the human side of the system. Mihoubi (2025) talked about how shifting from old paper-based systems to digital management in Algeria

wasn't easy and needed clear governance structures to build trust and reliability. Without that, even the best systems can fall apart. Elhissi, Melliani, and Hachimi (2022) also noted in their study of Moroccan universities that e-management helped institutions manage their affairs more transparently and perform better overall. It's interesting how these two elements—governance and transparency—quietly strengthen everything else.

The fifth hypothesis (H5) highlights e-service quality, which, in many cases, is what users feel first. Good digital services leave a lasting impression and push organizations to keep refining what they do.

Methods:

This study uses a descriptive and analytical method that leans mainly on a quantitative approach. The idea behind it is quite straightforward: to measure how e-management, in its different dimensions, affects continuous improvement inside Saudi service institutions. This method seemed to fit best since it allows for describing relationships between several connected variables and gives a fair chance to analyze them clearly. It also helps reach findings that can be applied more generally, not just within one organization or case.

The study focuses on service institutions across Saudi Arabia because this sector has become one of the country's main economic drivers and a key player in its digital transformation plans. Given how large and spread out this population is, a sample of 384 participants was selected.

Once the questionnaires were gathered, the responses were coded and analyzed using structural equation modeling (SEM). This analytical technique was chosen because it can reveal both direct and indirect effects among variables, giving a deeper understanding of how the dimensions interact. Through this method, the study was able to test its five main hypotheses and to see how each part of e-management influences the ongoing processes of continuous improvement in Saudi service organizations. While the results will be presented later, this methodological path helped provide a clear and structured way to examine a rather complex issue in a real-world context.

Data analysis and results

In this study, the Partial Least Squares–Structural Equation Modeling (PLS-SEM) method was used to

test the proposed relationships. This approach was chosen mainly because it allows the researcher to explore several connections at once and identify which ones are more significant (Barclay et al., 1995). Over time, it has also become a preferred tool in management studies, as it works well with complex data and models that involve many variables (Hair et al., 2012). To carry out the analysis, SmartPLS 3.0 software (Ringle et al., 2015) was applied. The program helped in organizing the data and running the calculations in a way that supports more accurate and consistent results, even though the process sometimes required multiple checks to make sure everything aligned with the model's structure.

Construct / Indicators	Outer loadings (t-values)		
	Mean Cronbach's α	Standard CR	deviation AVE
Technological Infrastructure (TI)			
		0.848	0.892 0.670
TI1	0.743 (10.985)	3.65	1.13
TI2	0.835 (26.742)	3.88	1.09
TI3	0.873 (41.218)	4.12	1.14
TI4	0.865 (39.355)	3.97	1.10
TI5	0.854 (37.812)	4.05	1.12
Leadership & Organizational Support (LOS)			
		0.915	0.934 0.720
LOS1	0.821 (28.944)	3.90	1.15
LOS2	0.872 (41.107)	4.15	1.11
LOS3	0.894 (45.322)	4.32	1.09
LOS4	0.911 (49.832)	4.28	1.13
LOS5	0.878 (42.681)	4.10	1.10

Human Resource Competency (HRC)			
		0.856	0.885 0.676
HRC1	0.801 (24.547)	3.45	1.18
HRC2	0.845 (32.761)	3.72	1.12
HRC3	0.871 (40.523)	4.05	1.09
HRC4	0.856 (37.892)	3.95	1.10
HRC5	0.832 (31.564)	3.88	1.14
Transparency & Governance (TG)			
		0.935	0.947 0.755
TG1	0.842 (35.102)	3.96	1.11
TG2	0.879 (42.781)	4.18	1.09
TG3	0.894 (48.951)	4.40	1.07
TG4	0.911 (52.634)	4.33	1.10
TG5	0.881 (44.926)	4.22	1.12
E-Service Quality (ESQ)			
		0.899	0.918 0.702
ESQ1	0.823 (29.182)	3.80	1.13
ESQ2	0.854 (37.198)	4.05	1.10
ESQ3	0.876 (43.532)	4.28	1.08
ESQ4	0.891 (46.804)	4.35	1.09
ESQ5	0.863 (40.451)	4.12	1.12
Process Improvement (PI)			
		0.881	0.912 0.685
PI1	0.824 (31.412)	3.90	1.15

PI2	0.851 (38.227)	4.08	1.12	EE4	0.887 (45.128)	4.18	1.11
PI3	0.872 (42.381)	4.25	1.09	EE5	0.878 (42.676)	4.10	1.10
PI4	0.883 (45.192)	4.31	1.13	Long-term Sustainability & Development (SD)			
PI5	0.866 (40.725)	4.18	1.11		0.954	0.770	0.938
Customer Satisfaction (CS)				SD1	0.884 (45.236)	4.00	1.07
	0.907	0.931	0.720	SD2	0.897 (48.724)	4.15	1.06
CS1	0.843 (35.785)	3.88	1.12	SD3	0.913 (52.681)	4.32	1.08
CS2.	0.879 (43.201)	4.10	1.10	SD4	0.895 (47.255)	4.25	1.09
CS3	0.892 (46.024)	4.27	1.09	SD5	0.908 (49.876)	4.18	1.07
CS4	0.864 (39.526)	4.15	1.11				
CS5	0.871 (41.311)	4.20	1.13				
Innovation & Renewal (IR)				Test of hypotheses			
	0.893	0.918	0.690	The results from the structural equation modeling (SEM) analysis using SmartPLS showed that the model performed quite well in explaining the relationships among the studied variables. The R ² values for the dimensions of continuous improvement ranged from 0.55 to 0.64, which means the model could explain a meaningful part of the variation in the dependent factors. The strongest result appeared in the dimension of Long-term Sustainability and Development (R ² = 0.64), suggesting that factors such as technological infrastructure, leadership and organizational support, human resource competency, transparency and governance, and e-service quality together account for 64% of its change. Meanwhile, the Innovation and Renewal dimension had the lowest R ² (0.55), yet this still shows a fair level of explanatory strength.			
IR1	0.837 (32.416)	3.74	1.13				
IR2	0.872 (41.795)	4.05	1.10				
IR3	0.885 (44.208)	4.22	1.08				
IR4	0.863 (38.527)	4.10	1.12				
IR5	0.854 (36.198)	3.98	1.11	The model fit results provided additional evidence that the proposed framework aligns well with the actual data. The SRMR value came out at 0.054, which is comfortably below the accepted limit of 0.08—showing that the model fits the data quite well			
Employee Empowerment (EE)							
	0.926	0.945	0.743				
EE1	0.873 (41.312)	3.92	1.10				
EE2	0.894 (46.507)	4.08	1.08				
EE3	0.911 (50.183)	4.25	1.09				

overall. Similarly, the NFI value reached 0.91, exceeding the usual benchmark of 0.90, which indicates a good comparative fit. The Q^2 value of 0.42 also points to strong predictive relevance for the endogenous variables, meaning the model can reasonably forecast outcomes. In addition, the Goodness of Fit (GoF) index was 0.62, notably higher than the minimum acceptable value of 0.36. This suggests that the model performs effectively and captures both internal consistency and external validity.

Table1. Hypotheses testing Result of the direct effect

Path analysis results (PLS-SEM)

Hypothesis	Path	β	(Path Coefficient)	t-value	p-value	Result
H1 Continuous Improvement	Technological Infrastructure	0.241	3.982	0.000		→ Supported
H2 Continuous Improvement	Leadership & Organizational Support	0.298	5.321	0.000		→ Supported
H3 Continuous Improvement	Human Resource Competency	0.187	2.874	0.004		→ Supported
H4 Continuous Improvement	Transparency & Governance	0.214	3.426	0.001		→ Supported
H5 Improvement	E-Service Quality	0.263	4.975	0.000		→ Supported

Table 1 shows the outcomes of the structural model analysis conducted through Partial Least Squares Structural Equation Modeling (PLS-SEM). The results reveal that all proposed relationships are statistically significant, demonstrating a clear direct effect of the independent variables on Continuous Improvement.

The results show that Leadership and Organizational Support ($\beta = 0.298$, $t = 5.321$, $p < 0.001$) had the strongest and most noticeable impact on continuous improvement.

In simple terms, when leaders really care and show support, people inside the organization seem more willing to improve and keep things moving forward. It also shows that a good leader, who listens and

motivates others, can make a big difference in how the organization develops over time.

After that, E-Service Quality ($\beta = 0.263$, $t = 4.975$, $p < 0.001$) also had a strong impact. Having digital services that actually work well and don't waste time helps the organization improve faster. When the online systems are smooth and easy to use, work becomes easier, and employees and users both feel more satisfied. This good digital setup helps the institution stay organized and continue improving step by step.

The analysis showed that Technological Infrastructure ($\beta = 0.241$, $t = 3.982$, $p < 0.001$) had a clear effect on continuous improvement. When the organization has good and steady technology, things just work smoother. It becomes easier to try new ideas and apply improvement plans without many problems. Having proper systems and tools really helps the employees do their jobs better and makes everything more organized, even if not perfect all the time.

Transparency and Governance ($\beta = 0.214$, $t = 3.426$, $p = 0.001$) also had a good and positive impact. When there are clear rules and fair management, people seem to trust the system more. Everyone knows what they should do, and this helps keep the improvement process going. It might not solve every issue, but it gives a strong base for progress and keeps work on the right track.

Finally, Human Resource Competency ($\beta = 0.187$, $t = 2.874$, $p = 0.004$) had the smallest number among the factors, but it still mattered. The skills and knowledge of employees really make a difference. Overall, these results show that all the factors—leadership, technology, employee skills, governance, and e-service quality—work together to help the organization get better step by step.

Discussion

The study's goal was simple: to check how things like the organization itself, technology, and people affect continuous improvement — especially now with everything going digital. We ran SEM and, well, the links mostly made sense. Not perfect, not neat, but they hang together in reality, more or less.

Leadership and Organizational Support showed up as the strongest factor. That one surprised no one. When leaders actually care, give real direction, and back their teams, people tend to do better. They feel

safer to try stuff. If leadership talks a lot but doesn't act, nothing much changes. When leaders are present and push for action, things move.

E-Service Quality came after that. If the digital services work and don't slow you down, life gets easier. Staff finish tasks faster, users don't get annoyed, so work runs smoother. It's not about shiny tech — it's about practical things that make daily work less painful.

Technological Infrastructure mattered too. Stable, flexible systems stop processes from getting stuck. You can plan, check data, and avoid guessing.

Human Resource Competency had the smallest effect, but it still matters. Numbers don't tell everything. Skilled people who keep learning are the ones who actually do the work on the ground.

So, improvement isn't one thing only. It's a mix — leadership, tech, governance, and people — all together, step by step, not always tidy, but moving forward.

Conclusion

The study basically shows solid proof that technology, organizational setup, and people together push continuous improvement forward. They don't do the same job, but each one adds something useful. We checked five hypotheses — and yes, all of them held up.

From a theory point of view, this adds a bit more to what we already know about improving things in a digital world. It ties leadership, tech, and governance into the picture — not new by itself, but it supports the idea that these perspectives should be mixed when we think about organizational change.

On the practical side, if an organization wants to keep getting better, it's not enough to focus on only one thing. Invest in leaders who actually act, fix and update the digital infrastructure, make e-services work without fuss, keep governance clear, and help employees learn on the job. Do these together — not one after the other.

In short: improvement is a package deal. Human effort, tech, and management all matter. Future work could dig into what sits between these factors (mediators), or what changes their strength (moderators), or just try the model in different

sectors or countries to see if it behaves the same. That would be useful, I think.

Author contributions:

The author's contribution is practical and direct. He offers an integrated model that links e-management elements — like technological infrastructure, leadership and support — to continuous improvement in service organizations. It helps theory, sure, but it's also meant for managers: the findings point to where to put effort (leadership and organizational support first, then e-service quality). The work fills a real gap in the Saudi setting, timely with Vision 2030 and fast digital change. And it pushes a simple message: improvement needs people, tech and governance together, not separate fixes. Not perfect or revolutionary, but useful — both for researchers and for practitioners who want concrete, local guidance.

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