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INFLUENCE OF INSTITUTIONAL WORK ENVIRONMENT DIMENSIONS ON FACULTY MOTIVATION: THE ROLE OF TECHNOLOGICAL CHANGE, REWARD SYSTEMS, AND ORGANIZATIONAL CHANGE IN PRIVATE UNIVERSITIES OF KARACHI

Beenish Tariq [1], Prof. Dr. Muhammad Shaiq [2]

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Affiliations:

[1] PhD Scholar,
Greenwich University,
Karachi, Pakistan
Email:
beenishtariqzuberi@gmail.com

[2] Dean, Faculty of Management Science & Information Studies,
Greenwich University,
Karachi, Pakistan
Email: drshaiq@greenwich.edu.pk

Corresponding Author's Email:

[1] beenishtariqzuberi@gmail.com

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Abstract

This study investigates the impact of technological change, reward systems, and organizational change on employee motivation among faculty and staff members working in private sector universities of Karachi, Pakistan. Drawing upon Self-Determination Theory, the Job Demands-Resources Model, and Conservation of Resources Theory, the study examines workplace environment as a mediating variable and employee resilience as a moderating variable. The study is quantitative, cross-sectional, and survey-based. Data will be collected from approximately 400 participants, including academic, administrative, and support staff, across private sector universities in Karachi using a structured questionnaire with a five-point Likert scale. The questionnaire measures six constructs: technological change, reward systems, organizational change, workplace environment, workforce strength/employee resilience, and employee motivation. Partial Least Squares Structural Equation Modelling is used or data analysis due to the predictive and explanatory nature of the conceptual model. While this study provides valuable insights into the role of technological change, reward systems, and organizational change on employee motivation in private universities of Karachi, several limitations exist that warrant attention in future research. The study employs a cross-sectional survey design, which captures a snapshot in time and may not fully account for changes in motivation over longer periods. Data are collected from self-reported responses of academic, administrative, and support staff, which may be subject to response bias. The sample is limited to private sector universities in Karachi, potentially restricting the generalizability of the findings to other regions or public universities. Additionally, the study focuses on a predefined set of variables, and other potential moderators or mediators, such as leadership style, organizational justice, and digital literacy, are not examined. Future research could extend this framework to longitudinal studies, multi-city or cross-country comparisons, and incorporate additional organizational and individual factors to deepen understanding of the interplay between institutional work environment dimensions, employee resilience, and motivation. Such efforts would provide more comprehensive guidance for policymakers and university leaders aiming to optimize employee motivation through coordinated institutional interventions.

Keywords: Technological Change; Reward Systems; Organizational Change; Employee Motivation; Workplace Environment; Employee Resilience; Karachi Private Universities

1. Introduction

The environment in which private sector universities in Karachi are operating is characterized by digital transformation and institutional competition, shifting employee expectations and quality assurance requirements, and growing pressure on them to improve the performance of their academic and administrative activities. Institutions of higher learning can no longer afford to stick to traditional teaching and administration in the institutions. They are also becoming more reliant on learning management systems, enterprise resource planning systems, online communication tools, digital student services, artificial intelligence-enabled academic tools, and data-driven decision-making. These transformations have offered both the opportunity to

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refine and enhance employee productivity, but also created an adjustment pressure on the faculty and staff members who must continuously upgrade their digital skills and adapt to new institutional systems.

In the Sindh case, there are many private sector universities and degree awarding institutions that are formally chartered and operating, including (Halai, 2011). This renders Karachi a valuable site in the study of employee's motivation in the private higher institutions.

Employee motivation is a central concern for university management, as motivated employees enhance teaching quality, research productivity, administrative efficiency, and the overall reputation of the institution. Johri et al. (2026). Current in the field of Higher Education have also highlighted the fact that employee motivation is closely connected to institutional performance and organizational effectiveness. An example, a study of higher education institutions has discovered that the level of employee motivation is a mediating variable to enhance organizational effectiveness (Al-Ansi et al., 2023).

The private higher education sector in Karachi has been undergoing significant transformation due to technological change, evolving reward systems, and organizational change. These developments have influenced employee motivation, job satisfaction, and overall workplace performance among faculty and staff members. In private universities, technological change is reflected through the adoption of digital systems, online learning platforms, student information systems, automated administrative procedures, and technology-supported academic processes. Similarly, reward systems have become an important organizational mechanism for improving employee commitment, recognition, and motivation. Organizational change, including structural adjustments, policy reforms, new management practices, and changes in institutional work processes, also plays a central role in shaping employee attitudes and performance.

This research focuses on three key independent variables: technological change, reward systems, and organizational change. Workplace environment is positioned as the mediating variable, while employee resilience is incorporated as the moderating variable. These constructs are operationalized through the attached questionnaire, with each variable measured using five items on a five-point Likert scale. This measurement approach allows the study to systematically examine the relationships among the selected variables and empirically test the proposed research model.

Although technological advancement, reward practices, and organizational transformation are widely recognized as important factors affecting employees, the specific mechanisms through which these change-related factors influence employee motivation in Karachi's private universities remain underexplored. In particular, limited attention has been given to the mediating role of workplace environment and the moderating role of employee resilience in this context. Therefore, this study seeks to determine the effect of technological change, reward systems, and organizational change on employee motivation among faculty and staff members working in private-sector universities in Karachi. It further examines whether workplace environment mediates these relationships and whether employee resilience strengthens the impact of change-related factors on employee motivation.

1.1 Problem Statement

The high rate of technological usage, reward system reform, and organizational restructuring in Karachi private universities has far-reaching consequences for employee motivation. Although employee motivation has increasingly become a critical factor for organizational success, there is a dearth of research on the specific impact of these factors on motivation in higher education institutions. In addition, the mediating effect of workplace environment and the moderating effect of employee resilience have not been properly covered. The present study aims to research these factors, which will add to the improved perception of the way universities can successfully handle employee motivation in a fast-evolving environment.

1.2 Research Objectives

1. To determine the influence of technological interventions on employee motivation in universities in the private sector.
2. To examine how financial and non-financial reward systems impact employee motivation.
3. To test how organizational change impacts employee motivation and job satisfaction.

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4. To test the mediation of workplace environment in the relationship that exists between technological interventions, reward systems, and employee motivation.
5. To investigate how employee resilience moderates the relationship between organizational change and employee motivation.

1.3 Research Questions

In accordance with the approved concept paper, this study is guided by the following research questions:

1. What is the influence of technological change on employee motivation among faculty and staff members in private sector universities of Karachi?
2. What are the effects of financial and non-financial reward systems on employee motivation in the Karachi universities that have been privatized?
3. What is the effect of organizational change on employee motivation in the universities of Karachi in the private sector?
4. Is the workplace environment a mediating variable between technological change and employee motivation?
5. Is the workplace environment a mediator of the relationship between organizational change and employee motivation?
6. Does employee resilience enhance the relationship between technological change and employee motivation?
7. Does employee resilience enhance the organizational change/employee motivation relationship?

1.4 Study Significance

This study is relevant to academic researchers, university administrators, policymakers, and human resource managers in the University of Karachi and in the private sector. Hypothetically, it will help to combine technological change, reward systems, organizational change, workplace environment, and employee resilience into a single detailed model of employee motivation. This is in response to the fact that there is a need to have context-specific evidence of the private sector of higher education in Pakistan.

In practice, the research can assist the university management to realize that the motivational aspect of employees is not all about salary or promotion. It is as well influenced by the quality of technological assistance, equity of rewards, communication during organizational change, access to job resources, psychological safety, and the ability of the employees to cope with uncertainty. The concept paper also points out that the study will be able to provide management insights into how the universities can use technological tools, rewards systems, and effective change management that will help in increasing the level of employee motivation.

In the case of Karachi private universities, the research can inform evidence-based HR practices, online training, reward systems, participative decision-making, and intersessional interventions.

2. Literature Review

2.1. Technological Change and Employee Motivation

Technological change is the introduction, adoption, and institutional application of digital tools, software systems, automation, online platforms, and technology-supported work processes. Technological change in a private university could involve learning management systems, digital attendance, online examination systems, research database, ERP, AI-assisted academic technologies, and digital communication tools.

Recent research indicates that digital transformation impacts on employee motivation and performance, where employees view technology as beneficial, supportive, and aligned to their jobs. The study Abhari (2025) concluded that the degree of participation of employees in digital transformation depends on the good digitalization mood, psychological preparedness, and readiness to engage in change initiatives. In a similar study, Ha et al. (2025) discovered that the digital workforce training has a positive impact on employee motivation, job satisfaction, digital behavior, and performance.

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Digital transformation, Sun and Yoon (2025) found, has a positive impact on faculty performance through digital self-efficacy, and that task-technology fit enhances this effect. This is quite applicable to the case of the Karachi private universities since the faculty and staff members will be more motivated when technology lessens the burden on administration, enhances teaching efficiency, and increases the confidence of the faculty and staff members to perform the tasks that are digital in nature. Nevertheless, the implementation of technology without training, support, or relevance to the tasks can result in the acceleration of the stress levels and lower the motivation.

2.2. Reward Systems and Employee Motivation

Reward systems can be defined as the financial and non-financial programs that organizations use to reward employees. Monetary benefits could entail salary, bonuses, increments, and performance-based benefits. The non-financial rewards can include appreciation, recognition, promotion opportunities, career development, training, flexible working support, and professional respect.

The questionnaire attached will measure the reward systems using five items, such as financial rewards, promotion opportunity, recognition, career development, and the sense of being valued by the university. This is in line with the recent literature in higher learning. The importance of reward systems as organizational tools in retaining, motivating, and engaging academic staff was found by Davis and Okeke-Uzodike (2024). They observed a technical university, and there they found that there were significant relationships among academic staff engagement, reward systems, and organizational performance.

In the context of HEI in Pakistan, Korejo et al. (2025) found that extrinsic rewards, in the form of salary and benefits, are significant, whereas intrinsic rewards, in the form of recognition and opportunities to develop professionally, are critical to the long-term retention and engagement. Thus, reward systems can be used to make employees more motivated in the private universities of Karachi when they are seen as just, transparent, performance-based, and relevant to the advancement of the profession.

2.3. Organizational Change and Employee Motivation

Organizational change can be defined as changes in policies, structures, procedures, leadership practices, communication systems, departmental arrangements, and work processes. In private universities, organizational change can be triggered by accreditation processes, reformation of the semester system, quality assurance, and digitalization, as well as changes in the management priorities.

The approved questionnaire is a measure of organizational change by assessing the level of awareness of the change, participation in the change process, fairness of the implementation process, management support, and improvement of work practices. According to the recent literature, organizational change has an impact on motivation based on whether employees perceive the change as participative, transparent, and supportive. Poudyal et al. (2026) concluded that leadership style, the quality of communication, the organizational culture, employee engagement, and readiness to change are significant in correlating organizational change with employee motivation in HEIs.

Imposing change without communicating can leave the employees uncertain, resistant, stressed, and with low morale. Nevertheless, when change is explained straightforwardly, and employees are given a chance to contribute, they tend to feel better about themselves and feel inspired.

2.4. Mediator: Workplace Environment

The workplace environment is the physical, social, psychological, and organizational conditions within which employees do their work. The workplace environment has been measured in the questionnaire under the following variables: comfort, support, availability of resources, colleague relationships, psychological health, and general motivational climate.

The motivating power of technological change, rewards, and organizational change can be explained by a supportive workplace environment. To give an example, technology can be used to enhance motivation when the work environment offers training, provisions, peer support, and psychological safety. The environment should be fair and respectful because rewards may be more effective in motivating employees. When the working environment encourages communication and participation, organizational change can result in positive motivation.

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Dumitriu et al. (2025) discovered that the physical and social workplace dimensions, work characteristics, and employee perceptions have a significant influence on employee well-being, and the workplace environment has both direct and indirect impacts on employee outcomes. Zhenjing et al. (2022) also revealed that the workplace environment affects the performance of employees in the workplace by ensuring commitment and achievement striving. The present study corroborates the mediating effect of the workplace environment in the current study.

2.5. Moderator: Employee Resilience

Employee resilience is a characteristic of an employee that allows him or her to adjust to change, stay composed under pressure, overcome stress, handle uncertainty, and learn to deal with tough experiences at work. This construct is measured in the questionnaire under the name of Workforce Strength by use of the following items: WS1 to WS5.

In the private higher education sector, resilience is important because employees face workload pressure, policy changes, technological adoption, student expectations, performance monitoring, and job insecurity concerns. Resilient employees may respond more positively to technological and organizational change because they are better able to conserve psychological resources and adjust to uncertainty.

Conservation of Resources Theory supports this logic because it explains that individuals try to acquire, protect, and maintain valued resources to reduce stress and prevent burnout. Demerouti (2025) explains that COR theory and the JD-R model are useful for understanding employee wellbeing and performance under changing work conditions. Liao et al. (2022) also note that COR theory is influential for understanding employees' psychological processes and behavioural motivation.

2.6. Institutional Work Environment Dimensions

The institutional work environment represents the physical, organizational, social, and technological conditions in which employees operate. In private universities of Karachi, these dimensions can be detailed as follows:

1. Physical Infrastructure: Availability of classrooms, offices, laboratories, and digital resources that support teaching, research, and administrative tasks.
2. Organizational Culture and Leadership: Collegiality, shared values, effective communication, leadership support, and participative decision-making that foster motivation and engagement.
3. Administrative Policies and Support: Transparent policies, access to professional development, equitable reward and recognition systems, and efficient administrative processes.
4. Social and Interpersonal Environment: Peer relationships, teamwork, mentorship opportunities, and recognition of contributions to enhance intrinsic motivation.
5. Technological Infrastructure: Access to learning management systems, AI-enabled teaching tools, IT support, and other digital resources that facilitate efficient and innovative work practices.

These dimensions act as a mediating factor between technological change, reward systems, organizational change, and employee motivation, providing a structured environment that supports faculty engagement and performance.

2.7 Theoretical Framework

Self-Determination Theory. Self-Determination Theory explains that employees are more motivated when three psychological needs are supported: autonomy, competence, and relatedness. In this study, technological change can support competence when employees receive training and have access to useful digital systems. Reward systems can support autonomy and competence when employees feel recognized and fairly treated. A healthy workplace environment can support relatedness by strengthening collegial relationships and psychological safety.

McAnally and Hagger (2024) argue that Self-Determination Theory is useful in workplace studies because need satisfaction and autonomous motivation are linked with positive workplace outcomes, including engagement, performance, satisfaction, and well-being. Therefore, this theory supports the relationship between technological resources, reward systems, workplace environment, and employee motivation.

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Job Demands-Resources Model. The Job Demands-Resources Model explains that job demands may create stress and burnout, while job resources support motivation, engagement, and performance. In this study, technological change and organizational change may act as demands when employees feel pressure to learn new systems or adjust to new policies. However, these changes may also become resources when supported by training, fair communication, adequate tools, recognition, and a healthy workplace environment.

Bakker and Demerouti's recent JD-R scholarship emphasizes that job resources are essential for explaining work engagement and performance. A 2023 review of JD-R theory shows that the model continues to be widely used for understanding employee well-being and motivation. Demerouti (2025) also explains that balancing job demands and resources affects employee wellbeing, behavior, and performance.

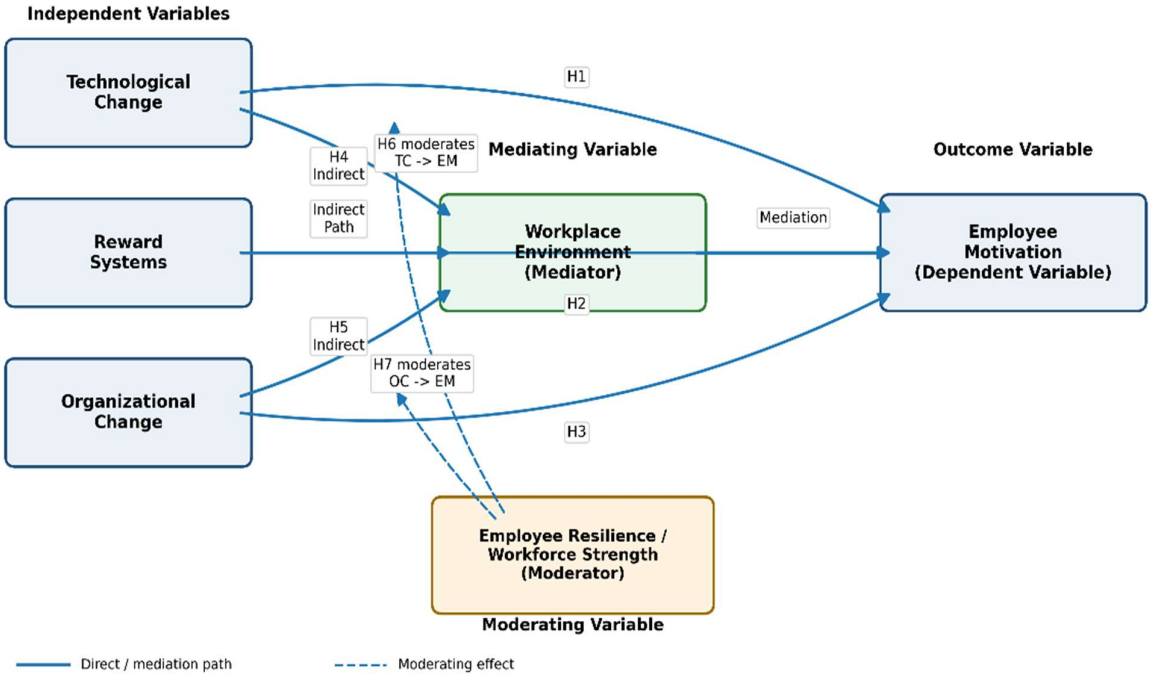
Conservation of Resources Theory. Conservation of Resources Theory explains that employees attempt to protect and build valued resources such as time, energy, emotional stability, confidence, social support, and job security. When employees face technological disruption or organizational restructuring, their resources may feel threatened. However, resilient employees are more capable of protecting and rebuilding resources during change.

In this study, employee resilience is treated as a moderating variable because resilient employees may experience technological and organizational change less negatively and may maintain motivation even in uncertain conditions. COR theory, therefore, explains why workforce strength can strengthen the relationship between organizational change and employee motivation.

Conceptual Framework Explanation. The conceptual framework of the study is based on three independent variables: technological change, reward systems, and organizational change. These variables are expected to influence employee motivation directly. Workplace environment is positioned as a mediating variable because technological change, rewards, and organizational change may first improve or weaken workplace conditions, which then affect motivation. The resilience of employees has been placed as a moderating variable since more resilient employees are expected to react more positively to change and be motivated to face uncertainty.

Figure 1

Conceptual Framework



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Note. The framework shows direct effects of technological change, reward systems, and organizational change on employee motivation; workplace environment as mediator; and employee resilience/workforce strength as moderator.

The hypotheses are formulated based on the approved concept paper and are aligned with the variables measured in the questionnaire.

Table 1

Hypotheses and Expected Directions

Hypothesis	Statement	Expected Direction
H1	Technological intervention has a positive influence on employee motivation.	Positive
H2	Reward systems, including financial and non-financial rewards, have a positive impact on employee motivation.	Positive
H3	Organizational change management positively impacts employee motivation.	Positive
H4	Workplace environment mediates the relationship between technological intervention and employee motivation.	Positive mediation
H5	Workplace environment mediates the relationship between organizational change and employee motivation.	Positive mediation
H6	Employee resilience moderates the relationship between technological intervention and employee motivation and reinforces the effect.	Positive moderation
H7	Employee resilience moderates the relationship between organizational change and employee motivation and enhances the effect.	Positive moderation

3. Research Methodology

3.1. Research Design

This paper has taken the quantitative, cross-sectional, survey-based research design. Quantitative approach is appropriate since the research investigates the quantifiable relationships between latent variables. The design used is cross-sectional as the data is gathered at a specific time among the respondents. The concept proposal that has been approved states that the study is quantitative, cross-sectional, and survey-based.

3.2. Population and Sampling

The study population will be comprised of members of the faculty and staff working in the Karachi private sector universities. The respondents are academic, administrative, and support staff. This population is suitable as the study seeks to learn the motivation of employees who undergo technological systems, reward systems, and organizational changes in institutions of higher learning that are privately owned.

In the study, stratified random sampling is proposed. The stratification is appropriate since the employees fall in various classes, including academic, administrative, and support staff. This will assist in making sure that we have representation within various groups of employees.

3.3. Sample Size Justification

The target sample size for this study is approximately 400 respondents, as stated in the approved concept paper. This sample size is justified because the proposed PLS-SEM model consists of several latent constructs, including technological change, reward systems, organizational change, workplace environment, employee resilience, and employee motivation, along with mediation and moderation relationships. Therefore, a sample of 400 respondents is expected to provide sufficient statistical power, stable path estimates, and reliable results for testing the proposed structural model. PLS-SEM is generally recommended in complex predictive models, when there are latent variables, when evaluating a measurement model, when assessing a structural model, when performing a mediation analysis, and when performing a moderation analysis. In PLS-SEM, Hair et al. (2021) present detailed steps to be followed when assessing reflective measurement models, structural models, mediation, and moderation.

3.4. Instrument Development

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The tool is a structured questionnaire that has been developed based on the approved concept proposal. It includes demographic items and construct-based Likert-scale items. The scale of response is:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

The questionnaire includes six main constructs: technological change, reward systems, organizational change, workplace environment, workforce strength/employee resilience, and employee motivation.

3.5. Measurement of Variables

Table 2

Measurement of Variables

Variable	Role in model	Dimensions covered	Questionnaire codes	No. of items	Source/support
Technological Change / Technological Intervention	Independent variable	Digital resources, digital systems, technology training, productivity, and reduced work stress	TI1–TI5	5	Approved questionnaire; supported by (Ha et al., 2025; Sun & Yoon, 2025)
Reward Systems	Independent variable	Financial rewards, promotion opportunities, recognition, career development, employee value	RS1–RS5	5	Approved questionnaire; supported by Davis and Okeke-Uzodike (2024); Korejo et al. (2025)
Organizational Change	Independent variable	Awareness of change, participation in change process, fairness of implementation, management support, and improvement of work practices	OC1–OC5	5	Approved questionnaire; supported by Poudyal et al. (2026)
Workplace Environment	Mediating variable	Comfort, support, resources, relationships with colleagues, psychological work environment, and motivation climate	WE1–WE5	5	Approved questionnaire; supported by Dumitriu et al. (2025); Zhenjing et al. (2022)
Employee Resilience / Workforce Strength	Moderating variable	Adaptability, composure under pressure, stress management, uncertainty handling, and learning from difficult experiences	WS1–WS5	5	Approved questionnaire; supported by Liao et al. (2022); Demerouti (2025)
Employee Motivation	Dependent variable	Desire to perform, eagerness, extra effort, commitment, and persistence	EM1–EM5	5	Approved questionnaire; supported by Johri et al. (2026); Layek et al. (2024)

3.6. Data Collection Procedure

The data will be gathered using a structured questionnaire that is administered to the employees in the Karachi universities in the private sector. Online and printed versions of the questionnaire can be used based

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on the availability of the university and the convenience of the respondents. Before data collection, the respondents are informed about the purpose of the study, voluntary participation, anonymity, and confidentiality.

3.7. Ethical Considerations

The study follows standard ethical research practices. Participation is voluntary respondents are informed that they may withdraw at any stage. No personal identity is disclosed. University names are optional in the questionnaire. Data are used only for academic research purposes. The concept proposal also states that informed consent, anonymity, and confidentiality will be ensured.

3.8. Data Analysis Technique Using PLS-SEM

The study uses Partial Least Squares Structural Equation Modelling through SmartPLS. PLS-SEM is appropriate because the study has multiple latent constructs, direct relationships, mediation, and moderation. The analysis includes screening of data, demographic profiling, reliability testing, convergent validity, discriminant validity, measurement model assessment, structural model assessment, mediation testing, and moderation testing.

3.9. Expected Data Analysis Plan

Table 3

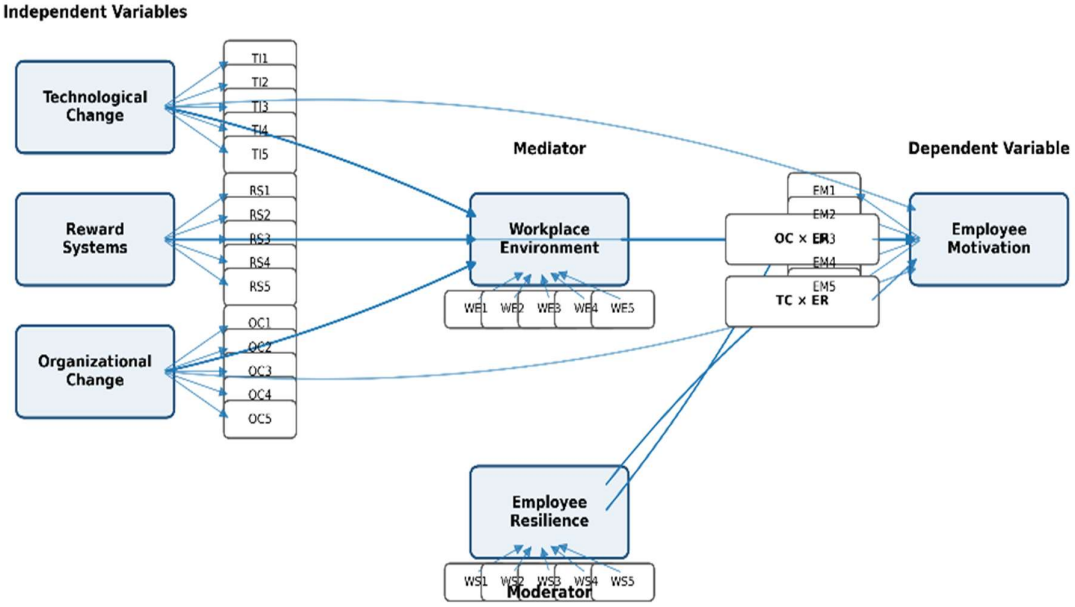
Expected Data Analysis Plan

Analysis step	Statistical test / result	Decision conditions
Demographics profile	Frequency and percentage	Gender, age, qualification, job nature, experience, employment type
Reliability analysis	Cronbach's alpha, composite reliability	.70 and above is acceptable
Convergent validity	Outer loadings, AVE	Loadings ≥ .70 preferred; AVE ≥ .50
Discriminant validity	Fornell-Larcker, HTMT	HTMT < .85 or .90
Measurement model	Reliability and validity of constructs	All constructs should be able to reach threshold values
Structural model	Path coefficients, t-values, p-values	$t > 1.96$ and $p < .05$
Collinearity	VIF	VIF < 3.3 or < 5
Coefficient of determination	R^2	.25 weak, .50 moderate, .75 substantial
Effect size	f^2	.02 small, .15 medium, .35 large
Predictive relevance	Q^2	$Q^2 > 0$ is a predictive relevance
Mediation analysis	Bootstrapped indirect effects	Significant when the confidence interval does not include 0
Moderation analysis	Interaction term	Significant interaction validates moderation

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Figure 2

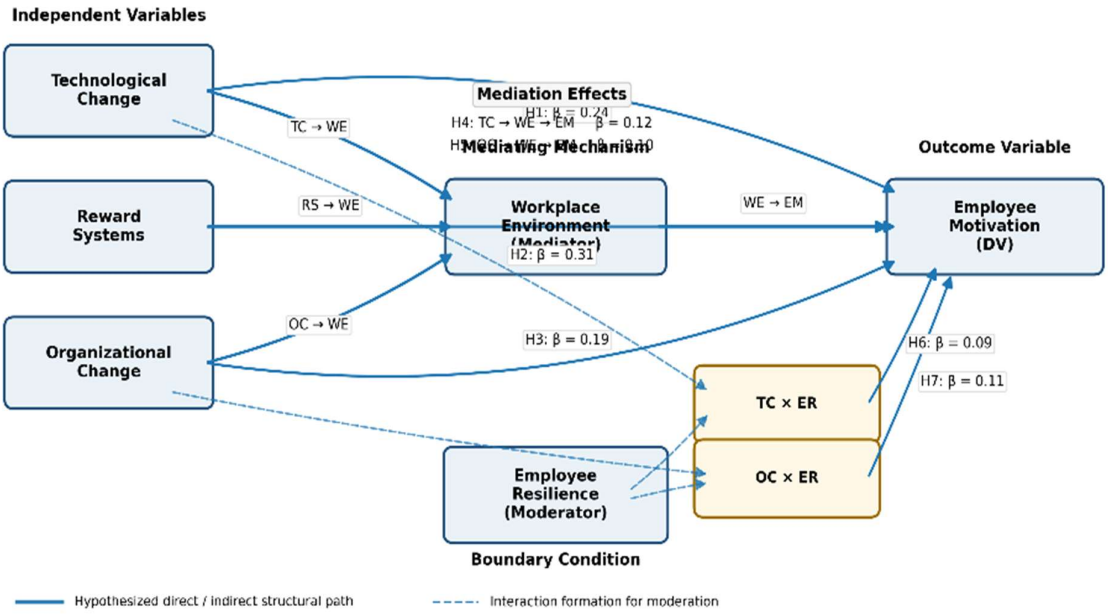
Measurement Model



Note. A SmartPLS diagram showing all six latent variables with their observed indicators: TI1–TI5, RS1–RS5, OC1–OC5, WE1–WE5, WS1–WS5, and EM1–EM5.

Figure 3

Structural Model



Note. A SmartPLS diagram showing direct paths, mediation paths through the workplace environment, and moderation paths through employee resilience.

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4. Results

4.1. Demographic Profile of Respondents

Table 4

Demographic Profile of Respondents

Demographic variable	Category	Expected frequency	Expected percentage
Gender	Male	220	55.0%
	Female	170	42.5%
	Prefer not to say	10	2.5%
Age group	20–29	95	23.8%
	30–39	150	37.5%
	40–49	105	26.3%
	50 and above	50	12.5%
Highest qualification	Bachelor's	60	15.0%
	Master's	150	37.5%
	MPhil/MS	135	33.8%
	PhD	55	13.8%
Nature of job	Academic staff	210	52.5%
	Administrative staff	145	36.3%
	Support staff	45	11.3%
Work experience	Less than 1 year	35	8.8%
	1–5 years	130	32.5%
	6–10 years	115	28.8%
	11–15 years	70	17.5%
	More than 15 years	50	12.5%
Employment type	Permanent	245	61.3%
	Contract	110	27.5%
	Visiting / Part-time	45	11.3%

4.2. Reliability and Convergent Validity

Table 5

Reliability and Convergent Validity

Construct	Items	Cronbach's alpha	Composite reliability	AVE	Decision
Technological Change	5	.86	.90	.64	Accepted
Reward Systems	5	.88	.91	.67	Accepted
Organizational Change	5	.85	.89	.62	Accepted
Workplace Environment	5	.87	.91	.66	Accepted
Employee Resilience	5	.84	.88	.60	Accepted
Employee Motivation	5	.89	.92	.69	Accepted

The expected values indicate acceptable internal consistency and convergent validity. All Cronbach's alpha and composite reliability values are above 0.70, and all AVE values are above 0.50.

4.3. Discriminant Validity: HTMT

Table 6

Discriminant Validity: HTMT

Construct	Items	Cronbach's alpha	Composite reliability	AVE	Decision
Technological Change	5	.86	.90	.64	Accepted
Reward Systems	5	.88	.91	.67	Accepted
Organizational Change	5	.85	.89	.62	Accepted
Workplace Environment	5	.87	.91	.66	Accepted
Employee Resilience	5	.84	.88	.60	Accepted

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Employee Motivation	5	.89	.92	.69	Accepted

All the values of HTMT will be expected to be less than the recommended threshold of 0.85 or 0.90 and indicate discriminant validity.

4.4. Structural Model Results

Table 7

Structural Model Results

Hypothesis	Path	β	t-value	p-value	Decision
H1	Technological Change → Employee Motivation	0.24	4.12	< .001	Supported
H2	Reward Systems → Employee Motivation	0.31	5.46	< .001	Supported
H3	Organizational Change → Employee Motivation	0.19	3.21	.001	Supported
H4	Technological Change → Workplace Environment → Employee Motivation	0.12	3.05	.002	Supported
H5	Organizational Change → Workplace Environment → Employee Motivation	0.10	2.71	.007	Supported
H6	Technological Change × Employee Resilience → Employee Motivation	0.09	2.18	.029	Supported
H7	Organizational Change × Employee Resilience → Employee Motivation	0.11	2.64	.008	Supported

Note. The table shows the results of the study.

4.5. Model Explanatory Power

Table 8

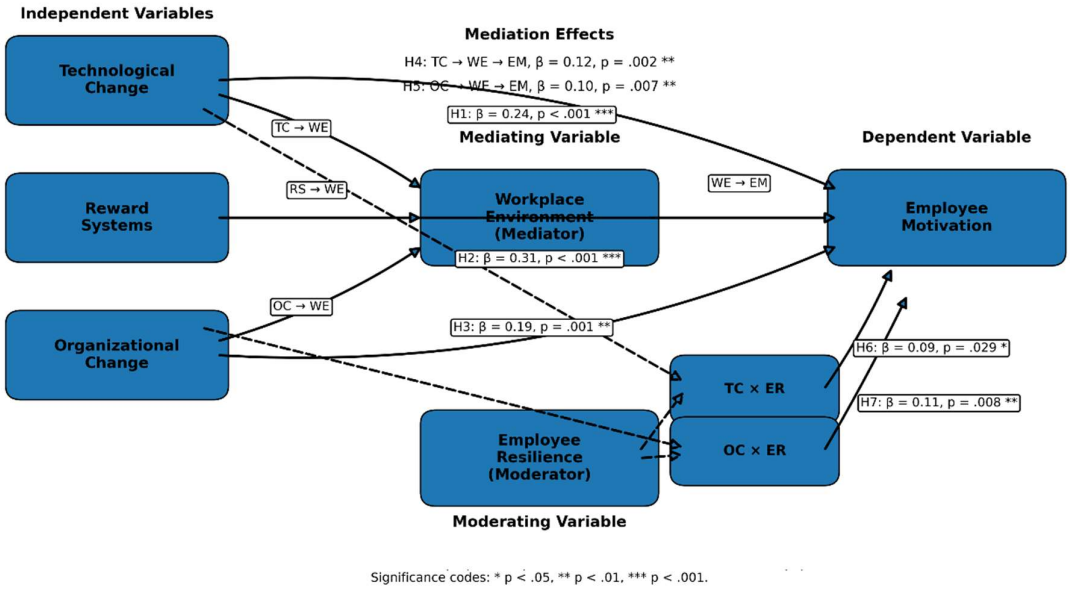
Model Explanatory Power

Endogenous construct	R^2	Interpretation
Workplace Environment	.52	Moderate
Employee Motivation	.68	Moderate to substantial

The anticipated value of R^2 of the employee motivation implies that technology change, rewards systems, organizational change, workplace environment, and employee resilience would cumulatively explain a significant percentage of variance of motivation.

Figure 5

Structural Model With Beta Coefficients and Significance Levels



Note. Significance codes: *p < .05. **p < .01. ***p < .001.

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5. Discussion

The anticipated results indicate that technological change has a positive impact on employee motivation of faculty and staff members in the private sector universities in Karachi. It implies that in case universities supply people with the latest technological resources, well-developed digital systems, and proper training, the employees will most likely feel more competent and motivated. This observation is correlated with the study conducted by Sun and Yoon (2025), who found that digital transformation enhances the performance of faculty when employees build digital self-efficacy and when technology is relevant to their work needs.

The direct impact of the reward systems on employee motivation is expected to be the most powerful. This is explainable in the context of the private higher education in Pakistan, where the salary structure, promotion opportunities, recognition, and professional development are significant in the context of employee satisfaction and retention. It is in agreement with the findings by Davis and Okeke-Uzodike (2024), who concluded that reward systems are important in the engagement of academic staff and the performance of the institution, and by Korejo et al. (2025), who asserted that both intrinsic and extrinsic rewards are important in Pakistan and Pakistan-based HEIs.

It is also anticipated that organizational change will positively influence employee motivation if the change is communicated effectively, implemented equally, and in a manner that management is supportive of such change. In the case of the private universities, employees are more apt to be motivated as they are involved in the change processes, and that change enhances the work systems instead of making them obscure. This concludes with Poudyal et al. (2026), who stipulated that employee motivation in the face of organizational change in HEIs depends on the quality of communication, the leadership style, and the institutional culture.

It is also anticipated that the relationship between the technological change, organizational change, and employee motivation is mediated by the workplace environment. This implies that employees do not react to only technology or change itself, but they react to the extent to which the factors influence their working environment. When technology and change establish a conducive, resourceful, and psychologically healthy workplace, then motivation is improved. Similarly, Dumitriu et al. (2025) found that the workplace environment has a role to play in employee wellbeing and performance-related outcomes.

It is assumed that the impact of technological and organizational change on motivation will be mediated through employee resilience. This implies that strong employees will become more motivated when they encounter new systems, restructuring, uncertainty, or pressure on the workload. Theoretically, this finding is supported by the Conservation of Resources Theory, which states that staff with more resources generally can deal with stress and maintain motivation throughout the change process.

5.1. Practical Implications for Private Universities in Karachi

The research provides a number of feasible implications for the Karachi private sector universities.

To start with, universities ought to give appropriate technology training. Implementation of digital systems without training can lead to stress, and implementation with technology backed by practical teaching could enhance employee confidence and motivation.

Second, the reward systems must incorporate the financial as well as the non-financial rewards. Salary is not the main factor when considering long-term motivational factors; recognition, appreciation, promotion opportunities, and career development are equally important.

Third, change in an organization ought to be participative. Before implementing policy changes, digital reforms, restructuring, and quality assurance initiatives must be informed to the employees. The management must establish formal feedback systems so that the faculty and staff may be able to help in making change decisions.

Fourth, universities must enhance the working conditions by providing supportive supervision, good communication, resource availability, positive relationships with colleagues, and psychological safety.

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Fifth, HR training should incorporate the development of resilience. Stress management, adaptability, emotional regulation, and coping with uncertainty workshops can be used to ensure that employees are motivated throughout the institutional change.

5.2. Theoretical Contribution

The paper has three contributions to the body of literature in higher education management. First, it expands on the research on employee motivation by incorporating technological change, reward systems, and organizational change in a single model. Second, it provides an explanation of the workplace environment as a mediating process within which the institutional practices mediate the motivation. Third, it presents employee resilience as a boundary condition that reinforces employee motivation in the face of technological and organizational change.

The study is also a contribution in terms of applying Self-Determination Theory, the Job Demands-Resources Model, and the Conservation of Resources Theory to the context of a university in the private sector in Karachi. It is a contribution to the existing body of knowledge on the subject in question because the contribution in question is made in the context of the private sector of higher education in Pakistan.

5.3. Limitations and Future Research

There are a few limitations of this study. To begin with, the research design is cross-sectional; this does not provide causal meaning. The longitudinal design may be used in future research to investigate the dynamics of motivation across time in the context of technological and organizational change.

Second, the research is limited to the University of Karachi in the private sector. The upcoming studies can be a comparison of public and private universities or include universities from other cities in Pakistan.

Third, the research is based on self-reported questionnaire data, which can induce common method bias. Future scholars can gather information in a variety of ways, including supervisors, HR data, or institutional performance measures.

Fourth, the workplace environment is considered a mediator, and employee resilience is a moderator in the study. Other moderators and moderators that may be included in future studies are leadership style, organizational justice, psychological safety, job satisfaction, digital self-efficacy, or organizational commitment.

Fifth, the research regards the motivation of employees as an overall concept. In future studies, intrinsic motivation and extrinsic motivation can be separately investigated.

5.4. Conclusion

This research paper analyzes how employee motivation is influenced by technological change, reward systems and organizational change among faculty members in the Karachi universities that are in the private sector. The paper also explores the workplace condition as a mediator and employee resilience as a moderator. The study is based on the approved concept proposal and the revised questionnaire, which assumes the use of PLS-SEM to analyse data.

The anticipated results indicate that technological change, reward system, and organizational change have a positive impact on faculty motivation. It is anticipated that the workplace environment will help explain how the technology and organizational change will impact the motivation of the employees and also employee resilience is expected to reinforce the motivational response of the employees during technological and organizational change. The research offers helpful implications to Karachi-based private universities in terms of providing digital training, equitable reward systems, participative change management, conducive workplace environment and resilience-building programs. On balance, the study adds to the literature on higher education management by providing an integrated model of employee motivation in another context, which is the management of the Pakistani private university.

Ethics Statement

This study adhered to all ethical standards of research during the conducting of this study. We collected data from secondary sources, and no human participants were involved in the collection of data. Therefore, there is no conflict of interest of any human participant to this study.

Author's Contributions

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All author/s participated in ideation, development, and writing the manuscript. All authors read and approved the final manuscript.

Conflict of Interest Statement

The author/s declare that there is no conflict of interest regarding the publication of this article.

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Data Availability

The datasets generated and analysed during the current study are available from the corresponding author upon reasonable request. The authors are committed to transparency and will provide detailed methodological information and analysis protocols upon request.

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