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Abstract

Organizational culture has long been recognized as a critical determinant of employee performance and productivity. Drawing on a strategic human resource management (HRM) perspective, this study examines the Denison Culture Model as a second-order cultural construct and an HR-managed system influencing employee productivity in Indian municipal corporations. Using survey data collected from employees across multiple municipal corporations, structural equation modeling (SEM) with a second-order construct approach was employed to analyze the combined effects of the four cultural dimensions Involvement, Consistency, Adaptability, and Mission on employee productivity. The findings indicate that HR-enabled cultural systems characterized by high involvement, internal alignment, adaptability, and a clear mission significantly enhance employee productivity. The results further demonstrate that the Denison Culture Model effectively operates as a second-order construct, capturing the integrated influence of culture on performance outcomes in the public sector context. The study contributes to human resource management and sustainability literature by demonstrating how culture-driven HR practices can strengthen institutional capacity, workforce effectiveness, and the sustainable delivery of municipal services. These findings are relevant to Sustainable Development Goal 8 on decent work and economic growth, particularly productivity; SDG 11 on sustainable cities and communities; and SDG 16 on effective and accountable institutions. From a practical standpoint, the findings offer actionable insights for HR managers and public administrators seeking to improve employee productivity and sustainable municipal service delivery through coordinated culture-driven HR interventions.

Keywords – Denison Culture model; Municipality; Employees, Productivity; Structural Equation Modeling

Introduction

Most developing countries such as India rely primarily on social services in urban areas (Gerard et al., 2020). These organizations, whose primary role is the provision of essential infrastructure and public services, must be efficient if urban development is sustainable. However, municipal bodies have recently become the focus of public attention due to their low employee productivity, which has consequently been regarded as a challenge to society as a whole. (Manansala & Vargas, 2025). To a large extent, the literature agrees that organizational culture influences employee attitudes and behaviors, and consequently, their effectiveness (Iskamto, 2023). The Denison Culture Model is one of the few that allows us to understand both the cultural processes inside an organization and the study of organizational culture (Croker, 2023). Conceptually, the four elements of organizational culture according to Daniel Denison's framework are mission, consistency, involvement, and adaptability (Bijalwan et al., 2024). The operating environment of organizations is constantly undergoing change, and as such, organizations are confronted with significant challenges in their efforts to achieve good productivity and performance (Ahmed et al., 2020). Therefore, many local governments in Asia are struggling with the problem of employee productivity. In the past two years, the COVID-19 pandemic has negatively affected employee productivity (Hanaysha J, 2016). Employee satisfaction and motivation are significantly influenced by factors such as good relationships with colleagues, being fairly rewarded, receiving constructive performance feedback, working in a team-oriented environment, and being happy with the style of leadership. These factors lead to an improved performance. In contrast, employees become unhappy and demotivated if they are excluded from the decision-making process. Hence, the cultural dimension is something that organizations should seriously consider to improve employee productivity (Rahman, 2024). Facing these challenges simultaneously has become important, especially for municipal corporations in India, because good

urban governance in India is largely dependent on the merger of infrastructure and public service delivery (Kulshrestha et al., 2012). Some deficiencies in governance and policy intervention measures for upgrading the municipal system have been pointed out in previous studies (Dixit et al., 2022). However, creating a strong organizational culture that would lead to higher productivity and eventually facilitate governance reforms in the long run remains a major concern. This research intends to fill this gap by investigating the relevance of Denison's cultural model in Indian municipal corporations.

Municipal corporations play a central role in sustainable urban development through the provision of essential public services, infrastructure management, environmental administration, and community welfare. Their ability to perform these responsibilities depends substantially on the productivity, adaptability, and institutional commitment of their employees. Organizational culture can therefore function not only as an internal management mechanism but also as an institutional foundation for sustainable and responsive urban governance. By strengthening employee involvement, organizational consistency, adaptability, and mission alignment, municipal organizations can contribute to SDG 8 on decent work and economic growth, SDG 11 on sustainable cities and communities, and SDG 16 on effective and accountable institutions.

The study is set to accomplish the following research questions:

RO1: To analyze the influence of the Denison Culture Model on employee productivity in Indian municipal corporations.

RO2: To examine whether variables within the Denison Culture Model act as mediating constructs between specific cultural dimensions and employee productivity.

RO3: Identify and recommend strategies for improving organizational culture to enhance employee productivity in Indian municipalities.

To study the above-mentioned questions, this study applies Structural Equation Modeling (SEM) with a second-order construct approach to assess the relationship between Denison's four cultural dimensions and employee productivity. The second section provides an extensive literature review on the organizational culture dimensions of denison and employee productivity. Third section describes the study's conceptual model. Fourth, the methodology section thoroughly defines the data, and the SEM approach is applied to test the relationship between the four dimensions of the Denison model and employee productivity. Fifth section describes, the findings and discussion of the study, which states that a positive organizational culture fosters employee engagement, decision-making participation, and adaptability, leading to increased productivity and sustainable growth. Each dimension represents a first-order factor, while the overall organizational culture (Denison model) is a higher-level second-order construct that integrates these factors. This structure helps to explain how the combined effects of these cultural attributes shape employee attitudes, behaviors, and performance. Finally, in the conclusion section, the paper encapsulates the principal discoveries and suggests recommendations for future implications.

Literature review

Denison's cultural model

Denison is a model of organizational culture created by Daniel R. Denison employs a bottom-up strategy to establish the organization's cultural profile, which is defined by each employee's unique set of values and behaviors (Hudrea & Andrianu, 2024). This model has sub-constructs that combine to form the Denison model: The four dimensions are as follows:

Consistency-This dimension emphasizes the importance of shared values and norms that guide employee behavior, fostering a unified approach to decision-making and operations (Kirin et al., 2019)

(Hosseini, 2014). Consistency leads to organizational effectiveness, as it leads all members to be on the same path of the mission and vision of the organization, thereby increasing performance and adaptability to change (Hudrea & Andrianu, 2024) (Wahyuningsih et al., 2019). For example, when an international business is at stake, the internal consistency of employee empowerment and team orientation is the most effective in improving competitiveness (Wahyuningsih et al., 2019). Consistency, in general, is a fundamental element that supports both stability and flexibility, which are two necessities for effectively dealing with the complexities of contemporary organizational environments (Kirin et al., 2019) (Hosseini, 2014).

Involvement- It is one of the dimensions usually characterized by employee empowerment, team orientation, and capacity building, all of which lead to organizational effectiveness and flexibility under different scenarios, such as in public organizations and multinational companies (Hudrea & Andrianu, 2024) (Wahyuningsih et al., 2019). Empowerment, team orientation, and capacity-building are also covered (Sadry et al.,2022). The core elements of the involvement dimension are empowerment, where employees possess both the authority and resources to make decisions; team orientation, where a firm values teams and collective problem solving; and capability building, centered around continuous learning and professional development (Denison & Mishra, 1995). Involvement-based organizations cultivate ownership and responsibility among workers, and are thus more adaptable and creative (Yilmaz & Ergun, 2008). Moreover, research has determined that high-involvement culture is associated with improved performance indicators, for instance, in Isfahan's educational organizations, where participation was rated highest among the components of the model (Mozaffari et al., 2012).

Adaptability- The adaptability dimension of the Denison Model consists of several factors through which organizations can react appropriately to dynamic environments. According to this model, adaptability culture is the main driver behind a company's capacity to perform in accordance with or better than analyst projections, especially by means of strategic earnings management amidst a crisis, such as the COVID-19 pandemic (Zebian et al., n.d.). In addition, organizational agility is broken down further into the three fundamental dimensions of structural, operational, and governance flexibility, which are central to responding to digital transitions in manufacturing environments (Sun et al., 2023). Additionally, adaptability has been explored in collaborative governance structures, acknowledging factors such as principled participation and collective motivation, which are critical to confronting complex social-ecological problems (Beeton et al., 2024).

Mission - The "mission" factor is primarily about figuring out the organization's purpose, path, and main targets, which eventually results in shared understanding among the team members and alignment of their efforts toward a unified goal. Research has found that an organization's mission strength is positively related to the level of its organizational excellence, with the greatest impact of purpose clarity observed in industries such as hospitality and petroleum, where the clarity of purpose can secure both competitiveness and innovativeness (Wahyuningsih et al., 2019) (El-Makarem, 2023). Additionally, it has been discovered through research that a clearly stated mission is capable of affecting employee behavior and work ethics. Therefore, this study emphasizes the importance of aligning culture with the achievement of an organization (Hosseini, 2014) (Ashlaghi & Golafshani, 2015). Overall, the mission dimension is a central element influencing strategic initiatives and general organizational performance.

Employee productivity

Productivity, as per (Bijalwan et al., 2024), is the extent to which goods and services are produced. Extremely productive organizations have a culture that fosters the involvement of employees in every decision-making process, from goal setting to conflict resolution (Dartey-Baah et al., 2025). Active

participation of employees results in improved performance within the workforce. The measurement of employee productivity in public organizations is difficult at both the organizational and individual levels, despite being the most popular performance metric (Hashi & Stojčić, 2013). This is because the public sector differs significantly from the private sector in terms of organizational structure, accountability, transparency mechanisms, and the external environment. In addition, a great deal of research depends on subjective self-reports (Wang et al., 2021) or notions comparable to them to measure worker productivity (Jin & McDonald, 2017). It is worth noting that in public organizations, the absence of financial metrics, especially those that do not have enough profit, poses challenges in objectively measuring performance. As a result, ratings from clients, users, and employees have become standard measurements (Wright et al., 2012). (Ha et al., 2022) found a positive correlation between team adaption, team effort, and organizational adaptation and employee productivity, but a negative association between managerial support and proactiveness and employee productivity. Collaborative effort boosts perceived productivity, but the organization's proactive stance on innovative work approaches reduces productivity (Farinha & Pina, 2025).

Employee productivity in municipal organizations also has a wider sustainability significance because the quality and continuity of urban public services depend on the effectiveness of the municipal workforce. Productive, engaged, and adaptable employees can strengthen institutional responsiveness and support the efficient use of public resources. From an SDG perspective, improving municipal workforce productivity contributes to SDG 8, while strengthening the organizational capacity to deliver reliable urban services supports SDG 11. Cultures characterized by participation, accountability, shared purpose, and institutional consistency are also relevant to SDG 16, particularly the development of effective, accountable, and inclusive public institutions.

Denison Organizational Culture and Employee Productivity

A large body of literature focuses on how a strong organizational culture can significantly improve the level of employee satisfaction and productivity. To achieve high standards of care and results, every tier of management must prioritize these issues. Moreover, even if there are no outcome data, care organizations should nevertheless make efforts to collect data on quality of service, productivity standards, and indicators derived from their current activities. This will provide managers and government officials with the necessary tools to make good use of productivity data (Meher et al., 2025; Uddin et al., 2013). Mahdiyeh et al. (2016) explored the link between organizational culture and productivity in public organizations in Iran; thus, they re-examined the role of organizational culture in productivity, which had been previously emphasized in other studies. The results of an earlier study are further supported by (Das and Mohapatra, 2018), who discovered a substantial correlation between organizational culture and worker productivity in Indian public and private sector enterprises. The University of Warwick study found that cheerful employees work 12% more efficiently than unhappy employees (Oswald et al., 2015). In a Harvard Business Review study, there was a need for a healthy organizational culture to propel employee motivation, productivity, and profitability (Dyer, 2023). These influences involve leadership, culture, and technology, and the biggest influence is technology. Understanding these influences is vital for formulating successful strategies to enhance employee productivity of employees (Igudia, 2021).

Development of the hypothesis and the conceptual model

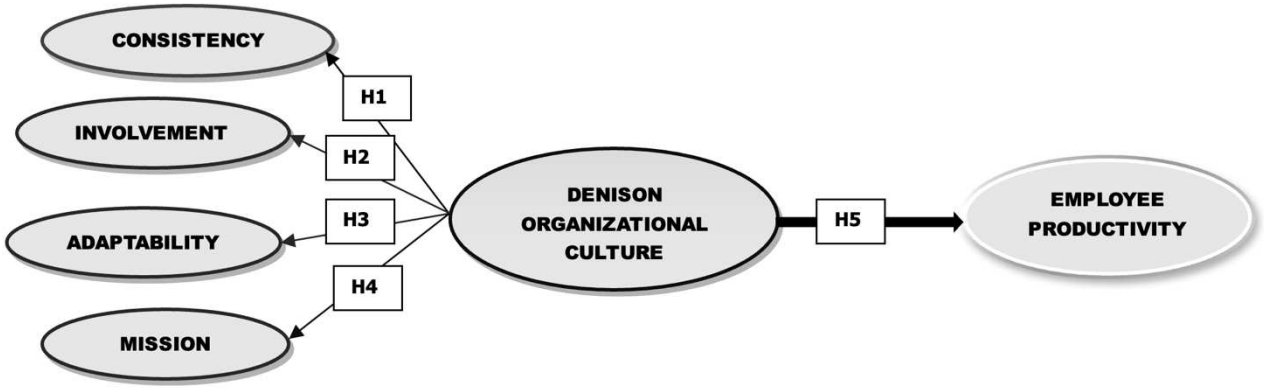
The construction of a framework linking the denison culture model with employee productivity reveals the significance of organizational culture in enhancing productivity. As per the most up-to-date empirical evidence, the organizational cultural dimensions pioneered by Dennison (1984) also play a role in defining the productivity of employees. This finding was supported by the studies of (Alassaf et al.,2020; Abane et al.,2022). Denison model underscores four main cultural traits - "involvement," "consistency," "adaptability," and "mission," which are the fundamental elements that can be used to describe the cultural forces of an organization. Considering the lessons from various organizational

behavior schools and management research, the theory heavily negates the use of Denison's cultural model in creating a conceptual framework that links employee productivity. Based on this theory, employee productivity can be positively related to these cultural aspects through employee participation programs, good leadership, and good communication (Yilmaz and Ergun, 2008). The organizational behavior framework suggests that shared purpose gives individuals a sense of purpose, congruence provides a harmonious work environment, flexibility for innovation, and an involvement culture invokes worker commitment and collaboration (Akpa et al., 2021). It is expected that through the combination of such aspects of culture, an organization will have a good environment for employee advancement. Positive and friendly working conditions can assist in producing more job satisfaction, motivation, and commitment, leading to increased productivity (Raziq & Maulabakhsh, 2015).

However, a negative or pessimistic organizational culture might produce different results, such as a decline in employee productivity, satisfaction, and motivation (Kotter, 2007). One way companies embrace new technologies is to improve work efficiency and employee welfare. Studies have revealed that the level of employee engagement in an organization has an impact on the relationship between organizational culture and employee effectiveness (Wambugu, 2014). It is vital to upgrade those aspects within the company to increase the level of productivity and create a solid competitive advantage. Without a thorough identification of these obstructing factors, employees' productivity might be lowered because a full understanding of the organizational setting is lacking (Del Castillo-Oyarse, 2024). This article offers guidance to companies aiming to enhance their culture in such a way that it will have a positive impact on their employees' productivity, which is essential for organizational success at large (Oladimeji et al., 2023).

The empirical data collection was guided by the research framework and hypothesis formed in the current study, as depicted in Figure 1, as observed from the review of the variables.

Figure 1: The proposed conceptual model



H1. The consistency dimension significantly contributes to the measurement of Denison's organizational culture.

H2. The involvement dimension significantly contributes to the measurement of Denison's organizational culture.

H3. The adaptability dimension significantly contributes to the measurement of Denison's organizational culture.

H4. The mission dimension significantly contributes to the measurement of Denison's organizational culture.

H5. Denison's organizational culture has a significant positive impact on employee productivity.

Research Methodology

This study utilizes a Structural Equation Modelling (SEM) approach with a second-order construct framework to examine the relationship between Denison's four organizational culture dimensions (Consistency, Involvement, Adaptability, and Mission) and employee productivity in Indian municipal

corporations. Researchers have understood how employee and worker productivity is affected by Denison's organizational culture in various industries (Mohammadi,2020 ;Abane et al., 2022). Indian municipalities are not covered in terms of validating employee productivity.

Therefore, a survey was conducted with lower-level employees of the five major municipalities of Uttarakhand. The data collection for the present study was carried out from February 2025 to April 2025. One major perspective for studying the culture of the Indian municipality is to diagnose the current strengths and weaknesses, align the culture with organizational goals, and implement strategies for improvement (Harrison & Shirom, 1998). This framework guides the systematic exploration of the ways in which cultural factors influence employee performance and output. To this end, the investigators of the study paid a certain number of visits to five different municipalities, wherein they collected the required data from employees of different departments. The research survey tool in this study was divided into two major parts, known as sections A, B, and C. Section B comprised 12 items of organizational culture, whereas section A was entirely devoted to the collection of demographic data of the respondents, such as gender, age, department, and credentials.

Finally, section C included three out of the seven items, as the remaining four were excluded due to multicollinearity issues among the items concerning employee productivity. Multicollinearity was evaluated using inter-item correlations and an exploratory factor analysis (EFA) pilot test (Uribe-Zarain et al., 2025). There were four items on the Employee Productivity scale that were highly inter-correlated (above 0.85) and had poor factor separation, suggesting redundancy. To maintain construct clarity and discriminant validity, they were deleted based on the best practices in scale development and SEM (Hair et al., 2016). Fifteen valid items were thoroughly examined and chosen to create a reliable research tool for this study (see Table 1). Adjustments were made to the wording and format of the items to ensure their relevance within the municipal context.

Ethical Consideration

Ethical principles were strictly adhered to throughout the research process. Before completing the questionnaire, the participants were clearly informed about the purpose of the study and the voluntary nature of their involvement. They were assured that all responses would be treated with strict confidentiality and anonymity, and that the information collected would be used exclusively for academic purposes. Participation was entirely voluntary, and the respondents were free to withdraw from the survey at any point without any consequences.

Informed Consent

Before administering the questionnaire, written informed consent was obtained from all respondents. Participants were informed about the objectives of the study, the voluntary nature of their participation, their right to decline or withdraw at any point, and the assurance that their responses would remain anonymous and confidential. Only respondents who provided written consent were included in the final survey. No personally identifiable information was collected, and all data were used exclusively for research purposes in accordance with accepted ethical standards for social science research.

Table 1. Items under five constructs

Variable	Sub-indicator	Item	Measure	Source
Organizational Culture (OC)	**Consistency**	(C1)	I possess attributes that establish an identity with the corporation.	Denison, D.R. (2000; 2006)
		(C2)	Assignments/work given to me are consistent with my strengths and interests.	Abane, J. A., Adamtey, R., & Ayim, V. O. (2022)
		(C3)	The values in the municipal corporation are consistent with the organizational goals.	

Variable	Sub-indicator	Item	Measure	Source
	Involvement	(IN1)	The management empowers and engages me in the work of the municipal.	
		(IN2)	The department ensures I make input into the decision-making process of various tasks.	
		(IN3)	In completing the work of the department, we usually work as a team in this corporation.	
	Adaptability	(AD1)	I can work in this municipal corporation for a longer period.	
		(AD2)	I can learn from my past mistakes in my present work role.	
		(AD3)	I can make changes in my roles and working pattern to achieve the task allocated by the supervisor.	
	Mission	(MI1)	I possess knowledge regarding the vision and mission of the corporation.	
		(MI2)	I am aware of our municipal corporation's strategic policy direction.	
		(MI3)	I am aware of the departmental as well as oranizational goals.	
Employee Productivity (EP)	—	(EP1)	I am capable of accomplishing tasks beyond the available resources within my reach.	Lee and Brand (2010)
		(EP2)	The organization provides me with the financial resources needed.	
		(EP3)	The institution provides me with the material resources needed.	

The survey instrument was used to assess expert opinions and gain insights into organizational culture and employee productivity. For the first 12 questions in Section B, participants had to rate the culture in their department as a factor that motivated them to work more productively on a five-point Likert scale, where 1 meant "strongly agree" and 5 meant "strongly disagree." The next three questions (Section C) concentrated on how employees evaluated their productivity and performance. We selected a structured questionnaire for measuring organizational culture because it has a number of advantages over an unstructured one, such as being very user-friendly and accommodating straightforward answers (Denison, D.R. (2000, 2006). To assess employee productivity, we used the structured scale developed by Lee and Brand (2010).

The structured question format, as opposed to unstructured questions, which involve responses to structured queries, has been shown to yield more reliable results. Prior to the main survey, a pilot test with 50 participants was conducted to polish the questionnaire and to check its internal consistency. Exploratory Factor Analysis (EFA) of the pilot data was used to identify multicollinearity and item redundancy, which resulted in the removal of four problematic items. The data were gathered in two

installments, with a break of 30 days between them, to reduce the chance of common variance. To ensure complete anonymity, respondents were assured that their sincerity and lack of bias would be met with honesty and unprejudiced responses. This statistical test showed that no single factor was responsible for most of the variance; thus, the CMB was minimal.

Research and Analysis

Table 2. Demographic information

Respondents	Frequency	Percentage (%)
Gender		
Male	217	73%
Female	154	27%
Total	**371**	**100%**
Age		
20–29 years	75	20%
30–39 years	91	25%
40–49 years	78	21%
50–59 years	69	18%
60 years & above	58	16%
Total	**371**	**100%**
Qualifications		
Graduate	212	57%
Postgraduate	113	30%
Others	46	13%
Total	**371**	**100%**
Work Duration		
0–2 years	48	13%
3–5 years	62	17%
6–9 years	78	21%
10–14 years	89	23%
More than 14 years	94	25%
Total	**371**	**100%**

Through a stratified selection procedure, 90 lower-level employees were randomly selected from each of the five biggest municipal corporations in Uttarakhand, India, which guaranteed that employees from different operational departments were represented. A total of 450 employees were initially targeted, 400 of whom responded to the survey, making the response rate quite high at 92.75%. After the distribution of questionnaires, participant interviews were held to test the functionality of the questionnaire and to eliminate duplicate or unclear items. The final sample of 371 respondents was divided into different groups based on department, age, educational background, and tenure to reflect a varied and representative cross-section of the municipal workforce. Although the study was geographically limited to the Uttarakhand region, the demographic diversity of the sample strengthens the study's focus and provides substantive insights into the municipal work culture of public Indian organizations. Moreover, the 371-sample size is very compatible for Structural Equation Modeling

(SEM), especially with a model complexity involving second-order constructs and multiple latent variables. According to (Hair et al., 2016), there should be a minimum of 10 respondents per observed variable; thus, at least 15 variables, 150 participants at least would be sufficient. The sample size here was more than twice the limit, thus ensuring excellent statistical power and parameter stability. Additionally, the high Kaiser–Meyer–Olkin (KMO) value of 0.936 confirms the adequacy of the sample for factor analysis. The demographic information of the respondents is presented in Table 2. The sample consisted of 73% males and 27% females. The most common age group was 30–39 years (25%), followed by 20–29 years (20%), 40–49 years (21%), 50–59 years (18%), and ≥ 60 years (16%). In terms of education, 57% were graduates, 30% were postgraduates, and 13% held other qualifications. In terms of tenure, 25% had been employed for over 14 years, 23% for 10–14 years, 21% for 6–9 years, 17% for 3–5 years, and 13% for 0–2 years.

Reliability Analysis

The items were analyzed using Cronbach's alpha. Reliability, also known as internal consistency, shows the strength of the statement elements in measuring that construct (Sürücü & Maslakçi, 2020). A reliability of ≥ 0.7, is often used to analyze the reliability of the research instrument and to indicate the elements that achieve internal reliability. (Sekaran & Bougie, 2010). Table 3 indicates the five components with Cronbach's alpha for measuring the Denison and Employee productivity constructs.

Table 3: Reliability for Constructs

Construct	Component	Name	No. of Items	Cronbach's Alpha
Organizational culture	1	Consistency	3	0.823
	2	Involvement	3	0.853
	3	Adaptability	3	0.808
	4	Mission	3	0.884
Employee Productivity	5	Employee Productivity	3	0.864
Total			**15**	**0.918**

Each of the following components had a Cronbach's alpha value: 1 (0.823), 2 (0.853), 3 (0.808), 4 (0.884), and 5 (0.864). An overall score of 0.918 is achieved by all 15 items, all of which have Cronbach's alpha values greater than 0.7. Accordingly, the study discovered that the items measuring how Denison's organizational culture affects worker productivity had sufficient internal reliability, making them appropriate and reliable data-collection tools (Bahkia et al., 2019). The results show that EFA's parts, when combined with the relevant measures of employee productivity and organizational culture, are trustworthy.

The Exploratory Factor Analysis

The data from the pilot research were analyzed using IBM-SPSS 26.0's EFA technique, which displays descriptive statistical analysis for items. Table 4 shows the minimum, maximum, mean, and standard deviation of the measurement variables. Based on all inference statistics, it is assumed that the items adhere to a normal distribution.

Table 4. The Descriptive statistics of measurement variables

	N	Minimum	Maximum	Mean	Std. Deviation
C1	371	1	7	6.31	1.152
C2	371	1	7	6.13	1.151
C3	371	1	7	5.98	1.154
IN1	371	1	7	5.38	1.292
IN2	371	2	7	5.37	1.204
IN3	371	1	7	5.37	1.304
AD1	371	1	7	6.00	1.247
AD2	371	1	7	5.64	1.325
AD3	371	1	7	5.35	1.327
MI1	371	1	7	5.23	1.381

MI2	371	1	7	5.07	1.364
MI3	371	1	7	5.43	1.320
EP1	371	1	7	5.37	1.439
EP2	371	1	7	5.29	1.383
EP3	371	1	7	5.12	1.399
Valid N (listwise)	371				

The Bartlett's Test and KMO Result

The extraction technique was used for Principal Component Analysis, whereas the rotation technique was varimax. The sample adequacy KMO measure in Table 5 produces a value of 0.936, showing adequacy over the 0.6 criterion. Furthermore, according to (Dani et al., 2022), Bartlett's Test of Sphericity yielded a significant result (p=0.000). Kaiser-Meyer-Olkin and Bartlett's test of sphericity were used to evaluate the validity of the instrument, and both showed significant results ($p < 0.000$; p should be less than 0.001) within an acceptable range.

Table 5: The KMO and Bartlett's Test Score

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		
Bartlett's Test of Sphericity	Approx. Chi-Square	185.700
	Df	80
	Sig.	.000

Factor loadings greater than 0.60 are displayed in Table 6, are a rotated component matrix created from the data gathered from 15 questionnaire questions. There are no instances of lower loading or cross-loading across any construction according to the rotated component matrix. The discriminant condition was met by the tool's successful grouping of items into their corresponding constructs based on greater loadings. According to Cavana et al. (2001), factors with eigenvalues larger than one are regarded as favorable results of Principal Component Analysis (PCA) (Kaiser, 1974; Hair et al., 2016), according to (Cavana et al., 2001). For the questionnaire's construct validity, at least 60% of the total variance is explained by the generated component (Cavana et al., 2001).

Table 6: Results of the Rotated-component matrix

	Component

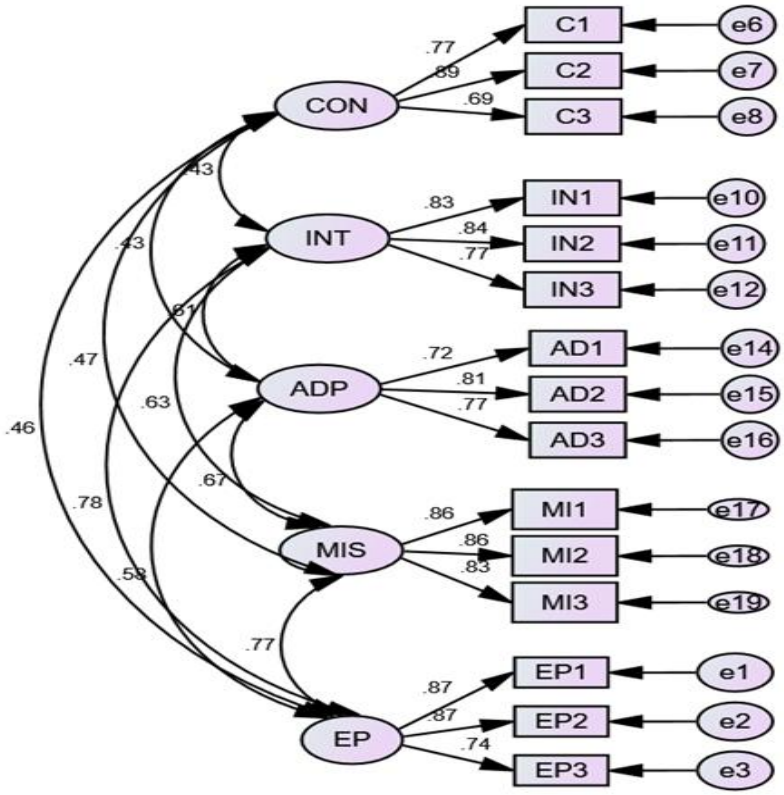
	1	2	3	4	5
C1	0.789				
C2	0.805				
C3	0.698				
IN1		0.749			
IN2		0.721			
IN3		0.702			
AD1			0.750		
AD2			0.746		
AD3			0.715		
MI1				0.777	
MI2				0.807	
MI3				0.746	
EP1					0.724
EP2					0.715
EP3					0.615

Extraction Method: PCA
Rotation Method: Varimax with Kaiser Normalization

Confirmatory-factor-analysis (CFA) for Denison's culture and employee productivity adoption scale

The verification process assessed the fitness and one-dimensionality of items within the measurement scale (Jian et al., 2020). Within the present research, the measurement framework comprises five distinct components, reflecting Denison's cultural model (Consistency, Involvement, Adaptability, Mission), each evaluated through 15 measurement indicators. It is worth mentioning that using one method continuously to measure both predictor and outcome variables could result in a common method bias. To eliminate this type of distortion, separate data collection phases were scheduled, with a time lag (Baumgartner et al., 2021) of 15 days between sessions. The data were collected using a dual-mode online platform. Figure 2 shows the CFA model analysis.

Figure 2: The Confirmatory factor analysis (CFA) model



According to Hu and Bentler (1999), a model cannot be considered good unless its Root Mean Square Error of Approximation is 0.08. Table 4 presents the results of the Confirmatory Factor Analysis (CFA), showing that every model fit index is within allowable bounds. Using carefully chosen parameter estimates, RMSEA assesses how well the model fits the population covariance matrix (Byrne, 1999). A high match is indicated by a value of 0.07 or below, or a stringent criterion of 0.060 (Hu and Bentler, 1999) (Steiger, 2007). In Table 7, an RMSEA score of 0.060 suggests that the measurement model fit the sample data well. The congruence of the sample and fitted covariance matrices resulted in a chi-square/df value of 2.321 (Hu and Bentler, 1999). The Comparative Fit Index (CFI), with a value of 0.968, surpassed the acceptable threshold of 0.95. The goodness of fit index (GFI) of 0.935 was close to the appropriate cutoff of 0.95 (Hu and Bentler, 1999; Hair et al., 2016) is observed in, Goodness of Fit Index (GFI). The Normed Fit Index (NFI) has a value of 0.945, falling within the acceptable range, as defined by (Hu and Bentler,1999). Both the RMSE and the Adjusted Goodness of Fit Index (AGFI) also fulfilled the necessary criteria. The AGFI value of 0.902 falls within the excellent range (>0.80) established by Hu and Bentler (1999); however, the RMSE indicates a value of 0.060, which also falls within the acceptable range.

Table 7: A Goodness of fit indices for the measurement mode

Model-ft-indices	Threshold	Measurement -model	Observation from the result
Chi-Square/ df	<3 Good;<5 acceptable	2.321	Good
CFI	>0.95 great;>0.090 traditional;>0.80 sometimes permissible	0.961	Great
GFI	>0.95	0.929	Good
NFI	>0.95 great;>0.090 acceptable	0.937	Good
AGFI	>0.80	0.899	Good
RMSE	<0.05 Good; 0.05–0.10 moderate;>0.10 bad	0.064	Good

Convergent validity was assessed by examining the agreement between variables intended to measure the same construct. Average variance explained (AVE) and composite reliability were used for this assessment. For every build, it is advised to have an AVE over 0.5 and composite reliability (CR) above 0.6, as stated by (Tyagi et al., 2023; Sharma et al., 2024). Table 8 shows that the AVE values ranged from 0.587 to 0.686, while the CR values fluctuated between 0.810 and 0.867. These findings indicate that the model satisfies the requirements for the further evaluation of convergent validity.

Table 8. The Convergent validity

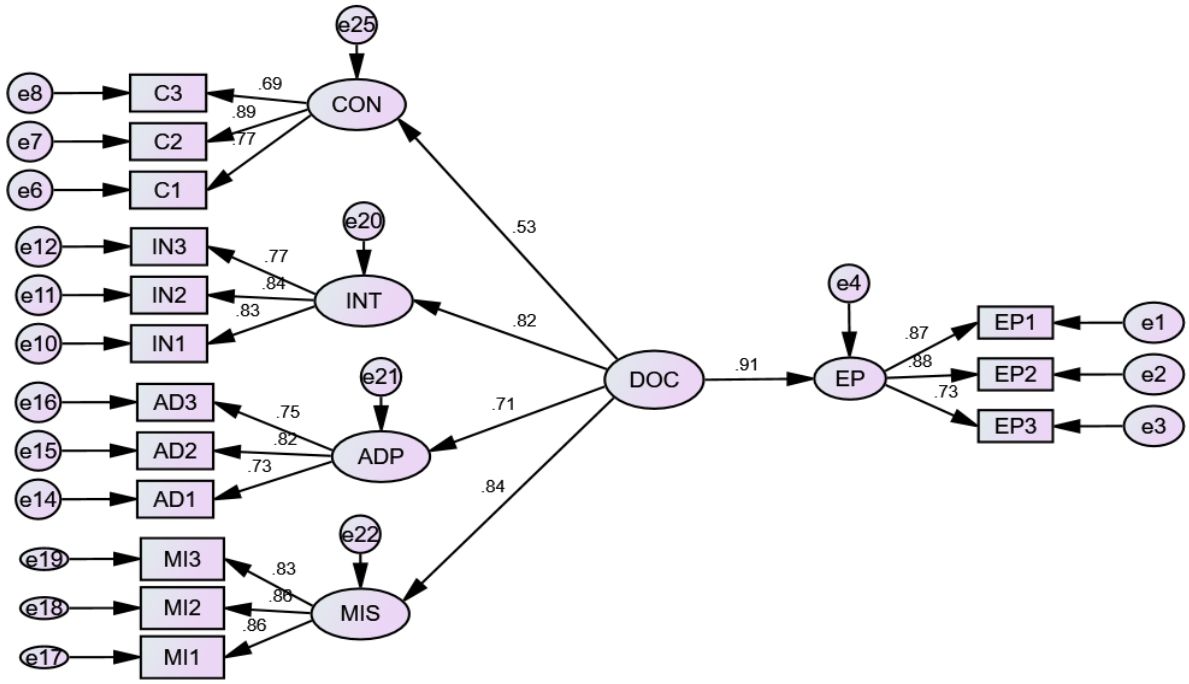
	CR	AVE	MSV	MaxR(H)	EP	CON	INT	ADP	MIS
EP	0.867	0.686	0.610	0.882	**0.829**				
CON	0.828	0.619	0.220	0.858	0.459	**0.787**			
INT	0.855	0.663	0.610	0.859	0.781	0.428	**0.814**		
ADP	0.810	0.587	0.448	0.814	0.584	0.425	0.605	**0.766**	
MIS	0.885	0.720	0.596	0.886	0.772	0.469	0.629	0.669	**0.848**

Discriminant and convergent validity were calculated. Factor loading and Average Variance Extracted were employed to evaluate convergent validity. Acceptable convergent validity was shown by factor loadings greater than 0.6 for each latent variable (Chin et al., 1977). The AVE ranged from 0.5, which served as a baseline for assessing discriminant and convergent validity (Cheung et al. in 2023). Furthermore, the squared multiple correlation was greater than the minimum cutoff of 0.3, which was required to be less than the AVE, as stated by (Bagozzi and Yee, 1988). A lack of discriminant validity is indicated if the heterotrait-monotrait (t) value is close to 1 and 0.85 is the threshold value recommended by some researchers recommend (Kline, 2011). However, all HTMT values in this investigation were below the cut-off, suggesting adequate discriminant validity (Eby et al. 2017). Thus, the analysis showed that the construct exhibits the required degree of validity and reliability.

Hypothesis Testing of the Study

The Structural Equation Modeling approach helps analyze the data, as displayed in Figure 3. This statistical testing combines qualitative assumptions with statistical data to assess and quantify the relationships between variables. When developing or forecasting a hypothesis is the goal of an inquiry, the CB-SEM technique is helpful. Denison culture was considered a second-order construct in this paradigm, consisting of four dimensions: CON, INT, ADP, and MIS. Together, these dimensions constituted the first-order construct, which functioned as the independent variable. However, the investigation discovered that municipality culture did not see enough distinctions among the four aspects to classify them as separate constructions. Item factor loadings above 0.60, as suggested by Chin (1998), indicate good convergent validity of the constructs. However, the model that included every element as a single component (DOC) did not fit the data, as did the second-order construct DOC model. Figure 3 shows the link between the independent variable DOC and the dependent variable EP/employee productivity. The findings show that the model, with an accuracy of 0.91%, appropriately identifies the impact of the Denison culture on production.

Figure 3: Structural path analysis



The Average Variance provides suitable discriminant validity; the number pulled out of the square root should have larger correlations between all pairs of constructs (Chin 1998). The subsequent theoretical model was used to assess its anticipated causal relationship or path coefficient, coefficient of drive R2, significance level, and effect size (f2) by utilizing the respective t-values and Stone-Q2 Geisers (Hair et al. 2016). It was moderate to have an R2 coefficient of determination. SEM is a second-generation multivariate statistical analysis method that simultaneously estimates and performs several interdependent, dependent, and independent relationships. Multiple regression analysis is a method of testing only one relationship between an independent variable and dependent variable, as outlined by (Hair et al., 2016). SEM analysis was employed to test the hypotheses of the study. Structural model fit was tested by SEM analysis using a combination of fit indices. $\chi 2$ /df0.95, (NFI)>0.95, (AGFI)>0.80, (CFI)>0.95, and root mean square error of approximation (RMSEA) < 0.05, are some of the indicators that (Hu and Bentler,1999; Kohli et al., 2025) suggest as optimal values for a model. Table 9 clearly indicates that employee productivity and consistency have no statistical association (P=0.305;>0.05). This implies that the output of municipal workers is unaffected by consistency, a denison culture model dimension, which leads to the rejection of H1. The lack of a significant correlation between employee productivity and adaptability (P=0.410;>0.05) also leads to the rejection of H3. The hypothesis testing findings show that since the p-value is accurately significant (P=0.00;>0.05), all the hypotheses are accepted. Thus, as Table 9 illustrates, it follows that Denison's organizational culture's four dimensions–Involvement, Consistency, Adaptability, and Mission–have a significant impact on workers' productivity.

Table 9: Results of the Structural model evaluation Regression Weights

Hypothesized-relationship			Estimate	S.E.	C.R.	P
CON	<---	DOC	.619	.073	8.488	***
INT	<---	DOC	1.000			
ADP	<---	DOC	.883	.085	10.428	***
MIS	<---	DOC	1.121	.090	12.485	***
EP	<---	DOC	1.256	.095	13.225	***
EP1	<---	EP	1.030	.049	21.155	***
EP2	<---	EP	1.000			
EP3	<---	EP	.843	.052	16.364	***
C2	<---	CON	1.000			

C3	<--- CON	.782	.059	13.356	***
IN1	<--- INT	1.000			
IN2	<--- INT	.951	.054	17.766	***
IN3	<--- INT	.934	.059	15.920	***
AD1	<--- ADP	.834	.062	13.542	***
AD2	<--- ADP	1.000			
AD3	<--- ADP	.911	.066	13.860	***
MI1	<--- MIS	1.013	.050	20.117	***
MI2	<--- MIS	1.000			
MI3	<--- MIS	.935	.049	19.165	***
C1	<--- CON	.874	.059	14.767	***

Table 10 illustrates an additional outcome of regression coefficients, as shown by the structural equation model, notable as well as favorable association, allying Denison's organizational culture and employee productivity. Consequently, all standardized coefficients presented in the Standardized Regression Weights contained in the AMOS output (Table 10) should ideally surpass the threshold of 0.5, with a preference for values of 0.7 or higher (Garson, 2011; Sharma et al.; 2025). Upon careful examination of Table 7, focusing on the coefficient values, it is evident that all the p-values exceed the critical value of 0.05 in the Regression Weights section.

Table 10: The Standardized. Regression Weights of the Items

Hypotheses and Path Coefficient		Estimate	Direction
CON	<--- DOC	.533	Positive
INT	<--- DOC	.819	Positive
ADP	<--- DOC	.710	Positive
MIS	<--- DOC	.840	Positive
EP	<--- DOC	.907	Positive
EP1	<--- EP	.868	Positive
EP2	<--- EP	.878	Positive
EP3	<--- EP	.731	Positive
C2	<--- CON	.885	Positive
C3	<--- CON	.690	Positive
IN1	<--- INT	.828	Positive
IN2	<--- INT	.845	Positive
IN3	<--- INT	.767	Positive
AD1	<--- ADP	.728	Positive
AD2	<--- ADP	.822	Positive
AD3	<--- ADP	.748	Positive
MI1	<--- MIS	.858	Positive
MI2	<--- MIS	.858	Positive
MI3	<--- MIS	.829	Positive
C1	<--- CON	.773	Positive

The results of the structural equation modeling (SEM) analysis, presented in table 11, provide strong empirical support for all hypothesized relationships. The first four hypotheses (H1–H4) validate the second-order reflective nature of Denison's Organizational Culture (DOC), and consistency ($\beta = 0.837$, $p < 0.001$), involvement ($\beta = 0.869$, $p < 0.001$), adaptability ($\beta = 0.876$, $p < 0.001$), and mission ($\beta = 0.883$, $p < 0.001$) represent DOC significantly and positively, consistent with earlier research, in

which organizational culture has been conceptualized as a higher-order factor constructed by a set of first-order attributes (Caraballo, 2016). The structural path (H5) reveals that DOC has a strong effect on workers' productivity ($\beta = 0.910$, $p < 0.001$), with an effect size of $f^2 = 4.81$, also confirming the theoretical linkage between organizational culture and performance outcomes (Yilmaz & Ergun, 2008). Hypotheses H1–H4 are used to confirm the measurement model; effect sizes are computed only for structural paths (e.g., H5), since reflective loadings are not predictive paths.

Table 11. Summary of Hypothesis Testing Results

Hypothesis	Relationship	Path Coefficient (β)	p-value	Significance	Effect Size
H1	DOC → Consistency	0.837	0.000	Supported	-
H2	DOC → Involvement	0.869	0.000	Supported	-
H3	DOC → Adaptability	0.876	0.000	Supported	-
H4	DOC → Mission	0.883	0.000	Supported	-
H5	DOC → Employee Productivity	0.910	0.000	Supported	4.81

Discussion and Implications

Discussion

The current investigation explored five theoretical connections between the two constructs derived from the Denison culture model that impacts employee productivity within Indian municipal corporations. The municipality's organizational culture and worker productivity were strongly correlated. It is important to inspire and motivate municipal workers to succeed in difficult and demanding jobs (Paulsson et al., 2023). Furthermore, the results show that municipalities actively involve staff members in decision-making processes to meet organizational objectives (Tamaneh et al., 2024). This strategy increases the commitment of employees, making them willing to work diligently in towns in the long run. In addition to increasing productivity levels, an engaged culture improves employee alignment with the company's vision and goals (Biswakarma and Subedi, 2025).

Staff awareness of the department's mission and objectives, as well as the organization, is an important first step in aligning their efforts with broader goals. This awareness is typically created through employee engagement initiatives integrated throughout the performance management cycle (Abane et al., 2022). The alignment of the culture of Indian municipalities with organizational goals is evident as employees participate in the characteristics of the establishment and act within their capabilities and expertise (Mahmoudi et al., 2022). The existence of a consistent culture is expected to foster a stable work environment conducive to better performance and efficiency (Jo et al., 2012). According to the findings of the study on the relationship between employee productivity and organizational culture (Rahman, 2024), all features of the Denison model and employee productivity are well connected, and no negative relationship has been found. The results show that when employees demonstrate continuity and active participation in organizational decision-making, productivity levels increase, and the ability of employees to adapt enables them to adjust promptly to new regulations, technologies, or community demands, thereby boosting productivity through efficient and effective task completion (Zhou & Zheng, 2022). Furthermore, adaptable employees are more willing to embrace change, thereby fostering a culture of innovation within the organization. Feeling a strong connection with the organization's mission motivates employees to take ownership of their actions, foster innovation, and engage in effective collaboration (Malecka, 2023).

Although the overall effect of Denison's culture model on employee productivity was significant, it is worth noting that not all individual dimensions showed similar levels of importance. Surprisingly, the consistency and adaptability dimensions have only a very small direct impact on employee

productivity. This is because of the contextual realities of Indian municipal corporations, where bureaucracy, strict hierarchy, and limited freedom of function can restrict internal coherence or the effects of adaptive actions (Dunlevy, 2017; Mahmoodi et al., 2022). In such organizations, sustainability may be thought of as a standard procedure rather than a cultural trait that can be changed, and flexibility may be limited by old systems and bureaucratic slowness (Hashi and Stojic, 2013). These results underscore the necessity to interpret cultural models in relation to the local setting, particularly when they are applied to public administration in developing countries, where structural and policy factors shape culture (Ndevu, 2019; Abane et al., 2022).

The hypothesis revealed that elements of organizational culture such as sustainability (H1), involvement (H2), and adaptability (H3) have a statistically significant impact on mission (H4) and employee productivity, thereby increasing the level of employee productivity. Therefore, one can argue that the Denison organizational culture model (H5) has a significant and positive impact on enhancing employee productivity in Indian municipalities. Nevertheless, these results should be considered with caution because the geographic area covered by the study was limited. The findings should also be interpreted in light of the data collection period, as the data were gathered between February 2025 and April 2025, reflecting the organizational and administrative conditions prevailing in the selected municipal corporations during that period. Therefore, the generalizability of the findings may be limited to similar public sector contexts. The Denison culture model acts as a second-order construct, creating a relationship between its various dimensions and employee productivity (the dependent variable). Muhammadi (2020) believes that the components of the Denison model are responsible for the attitudes, behavior, and interaction of employees in the workplace, thereby influencing organizational culture. Denison's culture model, as a second-order concept, helps understand and improve organizational culture, leading to higher productivity and sustainable growth. Developing Indian municipality culture can be achieved through a multidimensional strategy that encourages open communication, feedback mechanisms, and accountability (Shahzad et al., 2025). Offering training and development increases the feeling of appreciation for the workers. Flexible work-life-based policies increase engagement (Solihu et al., 2023). Promoting innovation, acknowledgement of contributions, and diversity and inclusion increases collaboration and creativity (Aghileh, 2022). Each of these measures generates a culture of enablers in alignment with organizational objectives, stimulating employee effectiveness and enhancing public service.

Viewed through a sustainability perspective, the findings suggest that organizational culture can strengthen the institutional capabilities required for sustainable municipal governance. Employee involvement encourages participation and ownership, while consistency supports coordinated and accountable administrative processes. Adaptability enables municipal employees to respond to changing technologies, regulations, environmental pressures, and community needs, whereas mission clarity aligns employee activities with long-term public value. By improving workforce productivity and institutional responsiveness, these cultural dimensions can contribute to SDG 8, SDG 11, and SDG 16. The results therefore extend beyond internal employee performance and demonstrate the potential contribution of strategic HR practices to sustainable public-service delivery.

Implications

The findings of this study offer important implications for human resource management (HRM) in public sector organizations, particularly Indian municipal corporations. By isolating areas of cultural strength and improvement across the four dimensions of the Denison Culture Model, HR managers and city administrators can design targeted HR interventions to enhance employee productivity. From an HRM perspective, the Denison Culture Model functions as a diagnostic tool that enables HR professionals to align people management practices with organizational values and performance objectives.

The results suggest that HR-led initiatives aimed at strengthening employee involvement, internal consistency, adaptability, and mission clarity can significantly improve workforce effectiveness in municipal organizations. Human resource practices such as participative decision-making, performance management systems aligned with organizational goals, and competency-based training programs can reinforce these cultural dimensions. Developing a culture that emphasizes flexibility, participation, and consistency through HR policies may also reduce bureaucratic inefficiencies and rigid hierarchical structures that traditionally constrain employee performance in public institutions. Furthermore, HR departments play a critical role in fostering transparent communication channels, job enrichment, delegation of responsibilities, and cross-departmental collaboration, all of which contribute to higher employee productivity and service quality. Continuous learning, leadership development, and career progression systems managed by HR can further strengthen employee commitment and motivation. Overall, the study highlights organizational culture as a strategic HR mechanism, demonstrating that Indian municipal corporations can leverage the Denison Culture Model to build innovative, productive, and sustainable public-sector work environments.

More specifically, the results demonstrate how culture-driven HR interventions can support the Sustainable Development Goals. Improving employee participation, capability development, and workforce productivity contributes to SDG 8. Strengthening the capacity of municipal organizations to provide responsive and efficient public services supports SDG 11. Transparent communication, employee accountability, participative decision-making, consistent administrative processes, and mission alignment contribute to SDG 16. Municipal HR managers should therefore integrate sustainability objectives into employee training, performance management, leadership development, participation mechanisms, and organizational-change initiatives.

Conclusion

This study examined how Denison's organizational culture affected the productivity of workers in a municipality in India. The results demonstrate the importance of a good organizational culture in education. Employee Productivity The primary goal of this research is to determine the correlation between employee productivity in Indian municipalities and the four elements of the Denison culture model. The framed hypothesis was examined using structural equation modelling. The SEM results indicate that all characteristics of the Denison model have a significant impact on production. The findings of this study show that Denison's organizational culture can act as a second-order construct between mission, adaptability, involvement, consistency, and productivity. There is also a clear necessity for the strategic alignment of their mission with organizational culture to facilitate employee adaptation to task execution. If effectively implemented, the capacity for organizational adaptation can significantly bolster employee efficiency. In addition, policy implementers and senior management must promote an organizational culture that involves both horizontal and vertical employee engagement in decision-making processes because employee productivity is significantly impacted by this culture. As a result, public organizations should seek input from employees regarding decision making to promote a sense of accountability and ultimately boost employee retention. The promotion of heightened employee ownership of a mission can be achieved through active employee involvement in establishing key performance objectives during the performance evaluation period, thereby fostering a robust organizational culture. However, it is important to note that these findings were based on data from five municipal corporations in Uttarakhand, India. Given the diversity across Indian municipalities, the results should not be generalized without caution.

Overall, the findings position organizational culture as an important strategic HR mechanism for improving employee productivity and strengthening sustainable municipal administration. By fostering involvement, consistency, adaptability, and mission alignment, municipal corporations can develop the workforce and institutional capabilities required to advance productive employment under

SDG 8, sustainable urban service delivery under SDG 11, and effective and accountable institutions under SDG 16.

Limitations and Future Scope

Although this research provides significant findings on the effect of organizational culture on employee productivity in Indian municipal corporations, some limitations must be noted. To begin with, observations were made in only five municipalities in Uttarakhand, which prevents generalization of results across India's heterogeneous administrative, cultural, and socioeconomic settings. Future research should consider a larger and more representative sample across different states, covering urban and rural municipalities of different sizes and administrative setups, to enhance external validity. Second, the cross-sectional approach measures at one point and cannot determine causality or trace the dynamic characteristics of culture and productivity. Organizational culture is changing and will change depending on leadership, policy, or reforms. Longitudinal studies are preferable to see how changes in culture occur over time and impact productivity outcomes. Third, reliance on self-reported data may introduce social desirability and subjective interpretation bias, especially in the measurement of sensitive variables, such as productivity. Even when anonymity and staggered data collection were used to minimize bias, subsequent research would benefit from including objective measures (i.e., supervisor ratings and performance records) and mixed-method designs to yield more valid measurements. Finally, this research focused only on Denison's four dimensions of culture. Perhaps this excludes other key variables, such as style of leadership, technological context, or policy settings. Future research needs to devise more holistic models covering these variables to account for the full range of factors that influence productivity in public-sector organizations.

Declaration Section

Ethics Approval

The study was deemed exempt from formal ethical approval by the Kasturba Medical College and Kasturba Hospital Institutional Ethics Committee of Manipal Academy of Higher Education, Manipal, India, in accordance with its *Projects Exempt from Submission to the Institutional Ethics Committee Guidelines*, dated 14 May 2024. The committee is registered under IEC Registration No. ECR/146/Inst/KA/2013/RR-19 and Department of Health Research Registration No. EC/NEW/INST/2022/KA/0042. The exemption applied because the study constituted non-interventional social, organizational, and behavioural research involving only non-sensitive, self-reported perceptions and attitudes, with no clinical intervention or more than minimal risk to participants. The research protocol was also reviewed and approved at the institutional level by the Institutional Research Committee of Manipal Academy of Higher Education following departmental peer review.

Ethical Guidelines

The study was conducted in accordance with the applicable ethical standards and institutional guidelines of Manipal Academy of Higher Education and the ethical principles governing research involving human participants. Participation was voluntary, and informed consent was obtained from all participants before data collection. Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw. Anonymity and confidentiality were maintained throughout the study, and no personally identifiable information was collected.

Consent to participate
Informed consent was obtained from all participants included in the study prior to data collection. Participation was voluntary, and respondents were informed about the purpose of the study, the nature of the data collected, and their right to withdraw at any time without penalty.

Consent to publish
All participants provided informed consent for their anonymized data to be used for research and publication purposes. No personally identifiable information was collected, and individual participants cannot be identified from the published results.

Declaration of interest statement
The authors declare no potential conflicts of interest regarding the research, authorship, or publication of this study.

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Data availability statement
Data will be provided by the corresponding author upon request.

Authors Contribution
Priya Bijalwan contributed to the conceptualization of the study, development of the research framework, questionnaire design, data collection, and the preliminary literature review.
Ashulekha Gupta assisted in the literature review, instrument refinement, and data coding, and supported the interpretation of descriptive and preliminary statistical results.
Soniya Gambhir contributed to data validation and measurement model assessment and supported the preparation of tables and figures related to reliability and validity analysis.
Shikha Mittal Shrivastav provided critical input to the theoretical grounding of the Denison Culture Model, contributed to hypothesis development, and reviewed the manuscript for intellectual coherence and academic rigor.
Mathew Thomas Gil led the overall study design, supervised the research process, conducted the structural equation modeling (SEM) analysis, interpreted the structural model results, and finalized the manuscript. He also served as the corresponding author and has coordinated the revisions.

All the authors reviewed and approved the final version of the manuscript and agreed to be accountable.

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