

Human-Centered Workplace Design for Intergenerational Employees: A Data-Driven Approach

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ABSTRACT

Differences in employee characteristics across generations often pose a challenge for organizations in designing work systems capable of effectively accommodating employee needs. However, approaches that focus on generational categories frequently fall short in explaining the true complexity of individual needs. This study aims to identify need patterns among multigenerational employees, to formulate a Human-Centered Design model that can serve as a foundation for designing more employee-centered work systems. The study employs a quantitative approach, with data collected through a questionnaire measuring aspects of communication, leadership, work flexibility, learning and development, collaboration, employee work experience. The data were then analyzed using the K-Means Clustering method to identify need-based groups formed within the organization. The results indicate that employees can be grouped into three main clusters: Stability-Oriented Employees, Flexibility-Oriented Employees, Growth-Feedback Oriented Employees. The Stability-Oriented cluster is the largest group, accounting for 40.7% of the sample, indicating that the need for role clarity, procedural certainty, transparent communication, organizational stability remains the dominant preference among employees. Meanwhile, the Flexibility-Oriented group demonstrates a need for autonomy, adaptability, flexibility in work systems, while the Growth-Feedback Oriented group reflects a need for self-development, recognition, continuous feedback. The findings suggest that employee work preferences are more accurately understood as patterns of human needs rather than as characteristics solely determined by generational categories. Based on these findings, this study proposes the Stable-First, Adaptive-Second Human-Centered Workplace model an approach that places organizational stability as the primary foundation through clarity of work structure, consistent leadership, transparent communication, predictable work processes, complemented by adaptive elements including operational flexibility, competency development, continuous feedback, employee participation. The contribution of this study lies in the development of the concept of Human Needs-Based Workplace Design as an alternative approach to multigenerational employee management, one that focuses on human needs rather than solely on generational differences.

Keywords: *Human-Centered Design, multigenerational workforce, K-Means Clustering, human needs-based workplace design.*

1. INTRODUCTION

Generation Y, or Millennials, and Generation Z (Gen Z) now share the same workplace, carrying out tasks within systems that were designed without adequately accounting for the depth of differences between generations. The distinct workplace cultures and systems across generations are influenced by several factors, one of which is differences in upbringing and the evolving nature of the times.

This is evidenced by a study conducted by Mulyanti (2021), which found that there are differing work patterns among Generation X, Generation Y, and Baby Boomers. Generation X prioritizes work-life balance to a greater extent than Generation Y, while Generation Y and Baby Boomers place greater emphasis on obedience to superiors over personal life. These differences manifest in how each generation assigns meaning to work, builds professional relationships, recognizes authority, and expresses itself in a professional environment.

In many organizations, the response to this reality remains reactive and piecemeal. Existing work policies are generally built on the assumption of employee uniformity: one communication system for all, one training format for

all, one reward model for all. This assumption, as demonstrated by various empirical studies (Lyons & Kuron, 2014; Twenge et al., 2010), is neither accurate nor neutral. The result is the emergence of hidden conflicts, unexpressed dissatisfaction, and ultimately the loss of human potential that should constitute the organization's greatest asset.

This study is motivated by the inability of work systems to respond adaptively to human diversity. When work systems fail to keep pace with the evolving culture of employees, an inevitable friction between the organization and its workforce ensues. In light of this problem, the present study examines Human-Centered Design (HCD) as a framework for redesigning workplace policies beginning from the genuine needs of employees rather than from the administrative needs of the organization.

The research subject is PT RF, a company operating in the health food and beverage sector (health F&B), with a primary focus on products derived from bird's nest (sarang burung walet) in East Java, employing approximately 300 workers. Data were collected from 214 valid respondents representing four generations: Baby Boomers (5.1%), Generation X (17.8%), Millennials (52.3%), and Generation Z (24.8%). Eight dimensions of work experience were measured through a structured questionnaire covering communication, leadership, flexibility, learning, technology, collaboration, human-centered organizational experience, and employee well-being. From this data, the study constructs its argument regarding where the system falls short and how it can be improved.

2. LITERATURE REVIEW

2.1. Multigenerational Employees: Between Real Differences and Overstated Stereotypes

To this day, scholars continue to debate whether generational differences in the workplace are genuinely real. On one hand, a growing body of research suggests that the evidence for attitudinal differences across generations is not as strong as commonly assumed. Quite often, variation in work styles within a single generation proves to be greater than the variation between generations. This view is further supported by Cucina et al. (2018), who found that all generations actually share a great deal of similarity in terms of job satisfaction and work engagement.

Nevertheless, dismissing the generational dimension entirely is also not an empirically sound position. Garg and Mahipalan (2023) identified statistically significant intergenerational differences across dimensions of appreciation, including "have focus," awe, present moment, and loss adversity, with older generations consistently scoring higher on measures of appreciation than their younger counterparts.

A more productive stance is to treat generation as a useful variable for drawing meaningful distinctions between groups of people, provided it is employed as an analytical lens rather than as a label that reduces individuals to the stereotypes of their cohort. In the context of organizational policy design, this means using an understanding of generational tendencies as a starting point for empathy but not stopping there. Sound policy must be grounded in the actual needs of individuals, which may differ significantly from generational assumptions.

This study adopts that position. Generational analysis is used to identify initial patterns and tendencies; however, the K-Means Clustering algorithm is subsequently applied to uncover more nuanced need patterns that can cut across generational boundaries and yield clusters based on actual needs rather than demographic labels. In doing so, this study avoids two pitfalls simultaneously: disregarding the relevance of generation altogether, or reducing it to unfair stereotypes.

2.2. Friction Points: Where Work Systems Fail to Respond to Diversity

When work systems fail to accommodate the diversity of employee needs, friction in the workplace becomes an inevitable consequence. This phenomenon is often undetected in formal performance reports or annual satisfaction surveys, yet it manifests implicitly in everyday informal interactions. Though not always visible on the surface, its impact is highly significant. Data from SHRM (2022) indicate that 38% of multigenerational teams experience conflict due to differences in communication styles. Furthermore, Deloitte (2021) estimates that policies that are non-adaptive to generational differences contribute to an increase in employee attrition rates of up to 26%. In the context of PT RF, four primary friction point domains were identified:

2.2.1. Communication Domain

A stark contrast exists in communication preferences across generations. The dynamic Generation Z tends to favor fast, direct feedback delivered through digital platforms. Conversely, Generation X and Baby Boomers are more comfortable with formal, scheduled, and hierarchy-based communication patterns. When a company's system favors only one of these preferences, the other groups experience systemic frustration. This dimension is measured through

parameter P1, which focuses on cross-generational communication comfort, clarity of information, and feedback responsiveness.

2.2.2. Leadership and Recognition

Each generation holds distinct expectations of leadership figures. Millennials tend to expect a collaborative leadership style and recognition based on individual contributions (Roumpi et al., 2019). Generation Z, meanwhile, places strong emphasis on psychological safety as a prerequisite for voicing ideas without fear. Generation X, on the other hand, tends to respect authority grounded in experience and clearly defined hierarchical structures. A misalignment between leadership style and these expectations frequently triggers a gradual decline in employee engagement that goes largely undetected by management.

2.2.3. Flexibility and Work Systems

This domain represents the most critical challenge in the retail industry, which is characterized by long operational hours and demanding targets. According to Lyons and Kuron (2014), Generation X regards work-life balance as an absolute priority, whereas Millennials and Generation Z place greater value on autonomy in how they work. Rigid policies imposed in the name of operational uniformity frequently generate resistance. The descriptive statistics of this study show that parameter P3 (Flexibility & Work System) has a mean score of 3.75. While this falls within the high category, the figure nonetheless indicates considerable room for improvement, particularly when analyzed from a generational perspective

2.2.4 Learning and Development

Gaps are equally evident in the methods used for competency development. Lazar et al. (2023) note that Generation Z prefers microlearning formats that are brief, visual, and mobile application-based. This contrasts with Generation X and Baby Boomers, who are more comfortable with structured, conventional face-to-face training. Their study further notes that 78% of Generation Z employees can rapidly adopt AI-based tools, while 62% of Generation X employees require additional mentoring and support during training. The inability of organizational systems to accommodate both sets of needs leaves one group feeling marginalized. This is reflected in parameter P4 (Learning & Development), which recorded the lowest mean score of 3.57, signaling that this domain represents the highest point of dissatisfaction at PT RF.

2.3. Policy Mismatch: The Failure of System Design to Respond to Employee Reality

The various friction points identified within the organization do not arise in a vacuum. These phenomena are symptoms of a more fundamental problem: a mismatch between organizational policy design and the diverse human needs that exist within it. Toleti and Murti (2026) use the term *inclusivity barriers* to describe the systemic obstacles that are unintentionally built into the architecture of policy when policymakers assume employee homogeneity. These barriers are often invisible in formal policy documents, yet their impact is felt acutely in the day-to-day experience of work.

The first and most fundamental form of policy mismatch is found in the communication domain. When a company's communication policy remains anchored in multi-tiered formal meeting mechanisms and a slow, vertical (top-down) information flow, a clash of expectations emerges. A large proportion of younger employees expect real-time feedback and a more horizontal flow of information. This misalignment does not merely create operational discomfort; it triggers an erosion of trust in the organizational system. Employees who feel that their aspirations are not being heard develop a strong tendency to withdraw from active participation a condition that, in turn, reinforces the perception that their voices no longer hold meaning within the organization. Benítez-Márquez et al. (2022) categorize this phenomenon as *communication dissonance*: a condition that, if left unaddressed, will escalate into *organizational silence*.

The second misalignment lies in the implementation of organizational learning systems. When a company continues to allocate resources toward rigid training formats that are only effective for a subset of its employees, the efficiency of that investment becomes structurally limited. Moreover, employees who find that the available learning methods are incompatible with their learning styles tend to experience competency stagnation not due to a lack of intellectual capacity or learning motivation, but as a result of instructional format incompatibility. In the context of a retail company such as PT RF, where the ability to adapt to products and services constitutes a primary competitive advantage, this competency stagnation has the potential to directly and negatively impact overall business performance.

The third misalignment touches on the dimension of reward and recognition. Reward systems conventionally designed around seniority and quantitative productivity alone frequently fail to accommodate qualitative contributions such as creativity and independent initiative dimensions that are highly valued by Millennials and Generation Z. Roumpi et al. (2019) found that perceived inequity in reward systems is one of the strongest predictors of turnover intention among younger employees. Based on the empirical data in this study, parameter P2 (Leadership & Recognition) recorded a mean score of $M = 3.69$. While this figure is cumulatively high, the score variation within it is indicated to conceal a pattern of dissatisfaction polarized along generational lines.

The fourth misalignment is found in the minimal involvement of employees in the policy formulation process. When decisions regarding work systems are made unilaterally by management without meaningful engagement mechanisms, the resulting policies tend to be administratively logical yet feel foreign to those who must implement them on the ground. Active employee involvement has been shown to mitigate this risk.

It must be emphasized that these four forms of policy mismatch do not exist in isolation. All of these elements reinforce one another within a negative feedback loop. Employees who do not receive adaptive feedback tend to become disengaged. This low level of engagement impedes their active participation in development programs, and ultimately, employees experiencing competency stagnation will choose to leave the organization, taking with them the knowledge and experience they have accumulated. This empirical reality is confirmed at PT RF through parameter P7 (Human-Centered Organizational Experience), which measures the extent to which the organization identifies the genuine needs of employees prior to formulating policy. Parameter P7 recorded the second-lowest mean score of $M = 3.53$ a strong indication that employees at PT RF perceive this policy gap acutely at the grassroots level.

2.4. Human-Centered Design: Transforming Policy Through Empathy and Responsiveness

Human-Centered Design (HCD) is a problem-solving approach that places human beings with the full complexity of their needs, contexts, and experiences at the center of every stage of the design process. Unlike conventional policy design frameworks that depart from the needs of bureaucratic systems or organizational quantitative targets, HCD initiates its analysis by repositioning the fundamental question: who will be using this policy, and what does the reality of their experience actually look like at the operational level?

Toleti and Murti (2026) identify three structural advantages of the HCD approach over both stakeholder theory and institutional theory in the context of organizational policy articulation. First, HCD emphasizes empathic engagement as the primary foundation of the process. This approach does not merely rely on the collection of surface-level demographic data, but instead conducts in-depth investigation into how employees across various generational clusters experience their working environment, identifies the factors that trigger work-related frustration, and maps the elements that support employee expectations in order to enable optimal contribution. Second, HCD is explicitly oriented toward identifying practical barriers in the field and subsequently formulating actionable solutions rather than producing designs that are merely ideal in theory. Third, HCD integrates behavioral interventions in the form of subtle behavioral nudges to mitigate psychological barriers that are often concealed behind phenomena of employee resistance or dissatisfaction.

Wadhwa et al. (2024) reinforce this argument within a broader analytical scope concerning the relevance of HCD to the employee experience dimension. Their findings indicate that the application of design thinking pillars within human resource management governance is capable of producing a significant escalation in the quality of employee work experience. Based on empirical testing using multiple regression analysis, they obtained a very strong correlation coefficient between human-AI interaction components within the HCD framework and the totality of employee work experience, reflected in a value of $R = 0.986$ and a coefficient of determination of $R^2 = 0.972$. These figures indicate that 97.2% of the variation in the employee work experience variable can be comprehensively explained by the interaction dimensions integrated within the HCD framework.

In the context of this study, the HCD approach is systematically operationalized through an iterative five-phase cycle, as follows:

1. **Discover Phase:** This initial stage is focused on empathically understanding the reality of employees' work experience. It is implemented through the collection of primary data using a questionnaire instrument administered to 214 employee respondents at PT RF, encompassing a measured evaluation of eight dimensions of work experience.
2. **Define Phase:** This phase aims to identify and map the core problem patterns within the collected dataset. Its primary focus is to localize where operational friction points occur, determine which needs remain unmet, and analyze the forms of policy misalignment that carry the most destructive impact on the organization.
3. **Develop Phase:** This is the ideation phase, in which tactical solutions are formulated on the basis of the

empirical understanding that has been constructed. At this stage, clustering analysis plays an instrumental role in transforming raw data into specific need-segmentation profiles that serve as the foundation for designing the policy architecture.

4. **Prototype Phase:** This stage involves the design of simulations and the testing of draft policy recommendations on a limited scale (pilot project) in order to evaluate feasibility and gather feedback before the policy is implemented across the organization as a whole.
5. **Iterate Phase:** This phase reflects a commitment to continuous policy refinement. Policy documents are not regarded as static instruments, but rather as living artifacts that must be periodically updated in alignment with the evolving dynamics of employee needs.

The pragmatic relevance of implementing HCD within a retail company ecosystem such as PT RF becomes increasingly critical when viewed through the lens of the unique characteristics that dominate this industry. The retail sector is structurally marked by constant operational pressure, a high intensity of direct consumer interaction that demands sustained motivational restoration and a high level of employee engagement, and a degree of employee demographic heterogeneity far greater than that found in most other industries. Within this dynamic environment, policy formulations that are rigid and unresponsive to human diversity do not merely trigger issues of distributive inequity they position the organization within a state of structural inefficiency. In a direct and linear relationship, every decline in the employee engagement index translates immediately into a deterioration in customer service quality and an overall weakening of aggregate business performance.

2.5. Beyond Generational Stereotypes: A Clustering-Based Identification of Employee Need Patterns

One of the most significant methodological contributions of this study is the application of K-Means Clustering as an analytical instrument for organically identifying employee need patterns. These patterns are extracted directly from the empirical data structure, rather than being based on pre-assumed generational grouping boundaries. This approach departs from the theoretical awareness that, while generational categorization provides a useful macro-level context, it is no longer sufficient as a sole basis for designing organizational policy architecture. The work preference characteristics of an employee categorized as Generation X may bear far greater similarity to those of a Millennial colleague than to peers within the same biological age group, and vice versa (Widjaja, 2020).

Technically, K-Means Clustering is an unsupervised machine learning algorithm that functions to group datasets into a specified number of clusters based on the calculation of internal characteristic similarity, without relying on pre-designed classification labels. When applied to the processing of questionnaire response data from 214 employee respondents at PT RF, the algorithm works by exploring the latent structure embedded within the data distribution a structure that represents genuine need patterns which often go undetected when analysis relies solely on conventional demographic category-based cross-tabulation methods. Xu et al. (2023) affirm that AI-supported approaches of this kind possess a regulatory capacity to bridge intergenerational expectation gaps more fairly and accurately, as they are grounded entirely in empirical evidence rather than in demographic generalizations.

The analytical projection of this modeling yields three cluster typologies, each reflecting a distinct form of operational need preference within the organization:

1. **Stability-Oriented Cluster:** Reflects a group of employees who place role clarity, consistency in standard operating procedures, and a recognition and reward system based on accumulated experience and seniority as their primary priorities.
2. **Flexibility-Oriented Cluster:** Represents a group of employees who prioritize autonomy in task execution, flexibility in work scheduling, and performance evaluation parameters oriented toward outcomes rather than procedural formality.
3. **Growth & Feedback-Oriented Cluster:** Describes a group of employees with a high dependency on receiving regular and constructive feedback, transparency in career development pathways, and accessibility to relevant and adaptive learning materials.

What makes this approach transformative lies not only in its level of statistical accuracy, but in its strategic implications for the reconstruction of policy design. When management detects that a significant proportion of the total workforce for instance, 40% falls within the Growth & Feedback-Oriented cluster regardless of age boundaries, the organization can promptly formulate policy variants that specifically serve that orientation. This step marks an important transition from the conventional one-size-fits-all policy model toward a modular policy model. The modular model

applies the foundational principle of organizational equity while providing variations in implementation form in order to respond to the actual differences in employee needs on the ground. Corroborating empirical evidence from a longitudinal study by Battilana and Kimsey (2023) confirms that managing employee needs through participatory, real-data-based mechanisms is capable of securing employee retention rates up to 30% higher than those achieved by maintaining rigid traditional managerial approaches.

Equally critical is the fact that this cluster-based approach inherently eliminates the risk of generational bias. When policy formulations are grounded in actual need profiles that cut across biological age boundaries, those policies are freed from subjective tendencies that privilege or prioritize one generational segment over another. This characteristic confers both an ethical and a strategic advantage upon the organization: policies perceived as distributively fair will attain a far wider level of acceptability at the grassroots level, which ultimately optimizes the efficiency and effectiveness of regulatory implementation across all operational lines of PT RF.

2.6. Participatory Policy Design: Involving Employees in Policy-Making

Among the various intervention options available within an employee-centered organizational framework such as flexible work arrangements, output-based performance systems, and adaptive communication channels participatory policy design is identified as the most feasible strategy for implementation in a mid-scale retail company such as PT RF. The selection of this strategy is grounded in its fundamental significance: its capacity to directly address the root cause of organizational policy mismatch.

Participatory policy design is defined as a governance approach in which employees from various generational clusters are actively and meaningfully engaged (*meaningful engagement*) throughout the cycle of policy formulation, testing, and refinement. The concept of engagement here is not merely an administrative formality such as completing an annual satisfaction survey or participating in ceremonial forums but rather an institutionalization of verified mechanisms that ensure employee aspirations genuinely shape the framework of organizational policy outcomes. Broadley and Dixon (2022) provide theoretical affirmation that participatory design functions as an instrument of internal democratization that simultaneously strengthens employee empowerment and builds regulatory legitimacy from within. Through this approach, employee commitment and compliance with rules are no longer driven by fear of punishment, but instead emerge organically from a sense of ownership.

Empirically, the effectiveness of this participatory governance model yields a dual benefit for both employees and corporate stability alike. Cornforth and Spear (2022) found that organizations implementing inclusive cross-generational participatory governance are capable of generating innovation outcomes 25% higher, as well as significantly stronger ethical compliance, compared to conventional models. Consistent with these findings, a longitudinal study by Battilana and Kimsey (2023) demonstrates that the active involvement of younger generations in policy co-design not only significantly increases employee retention, but also reduces the risk of organizational mission drift by as much as 22%.

For a retail company such as PT RF, operating within a high-pressure industry environment, the implementation of this strategy is highly realistic and does not require a massive organizational restructuring. Tactical steps can be initiated through the establishment of regular multigenerational discussion forums, the formation of cross-generational policy advisory teams with a formal mandate, the provision of transparent feedback channels, and the involvement of employees as active assessors in policy impact evaluations. The success of this implementation ultimately rests on a paradigm shift in management one that repositions the act of listening to employee aspirations as a form of long-term strategic investment, rather than an operational inefficiency.

2.7. Toward an Employee-Centered Organization: What Is to Be Achieved

The ultimate goal of the entire sequence of structural approaches presented in this study from the identification of friction points, analysis of policy misalignment, implementation of Human-Centered Design (HCD), need-based cluster modeling, to participatory policy design is institutional transformation toward an employee-centered organization. This paradigm shift is not merely normative rhetoric, but rather a fundamental reconstruction of the design logic underlying corporate work system architecture.

In the conventional organizational-centered model, policy formulation is guided by the premise: "what does the organization need from its employees?" The employee-centered model, by contrast, inverts the basis of that question to: "what do employees need in order to make their best possible contribution to the organization?" This paradigmatic difference carries substantive implications for work behavioral outcomes. The first approach tends to produce policies that maximize formal compliance, whereas the second has been shown to maximize discretionary effort. In the

knowledge economy landscape and modern service industry environment that PT RF operates within, contributions driven by intrinsic motivation hold far greater strategic value than compliance imposed by rigid regulation.

This institutional transformation is targeted to produce four critical outcomes that interact with one another in a linear fashion:

1. **Substantive Inclusion:** This condition transcends the formality of demographic diversity as it appears on paper in annual reports. Its primary target is to realize a genuine work experience in which every employee across all generational clusters feels that their specific aspirations and needs are recognized and responded to by the company's operational system. In this study, the degree to which this condition is achieved is empirically measured through parameter P6 (Collaboration & Inclusion) and parameter P7 (Human-Centered Organizational Experience).
2. **Psychological Safety:** Ruat et al. (2024) confirm that psychological safety functions as an absolute prerequisite for the creation of an innovation culture, a learning climate, and effective team collaboration. When employees feel safe to acknowledge operational errors, raise critical questions, or express perspectives that diverge from the mainstream without the shadow of sanctions, the organization succeeds in exploring the full cognitive and creative capacity of its workforce. The existence of psychological safety is heavily influenced by the quality of leadership and the objectivity of the recognition system two institutional dimensions evaluated under parameter P2 of this study.
3. **Healthy Cross-Generational Communication:** When communication infrastructure is designed adaptively to facilitate diversity of preference rather than imposing a single rigid format the quality of the organization's internal information flow will experience a significant improvement. The direct impact is a reduction in work-related miscommunication and a strengthening of team cohesion, both of which operationally contribute to cost efficiency in the retail sector.
4. **Productive Multigenerational Collaboration:** Findings from a recent quantitative study by Sprinkle and Urick (2023) demonstrate that teams with multigenerational composition are capable of generating innovative solutions to organizational challenges at a rate 45% higher than that of homogeneous work teams.

However, this potential advantage can only be realized when the work system architecture is deliberately designed to facilitate knowledge sharing and the integration of cross-generational perspectives. This reaffirms the central premise of this study: intergenerational demographic differences are not operational obstacles to be eliminated, but rather strategic assets to be managed adaptively.

2.8. Literature Gap and Research Positioning

Although the literature on multigenerational employees and HCD within the context of human resource management has grown substantially over the past decade, several significant gaps remain. The first gap is contextual: the majority of existing research has been conducted within Western or East Asian organizational settings, while mid-scale retail companies in Indonesia with their specific cultural characteristics, operational pressures, and employee dynamics are almost entirely absent from international literature. Research that claims global generalizability without representation of such contexts carries limitations that warrant acknowledgment.

The second gap is methodological. The majority of studies examining the needs of multigenerational employees continue to rely on analyses based on pre-established generational categories whether through intergenerational ANOVA or means comparisons without attempting to identify need patterns that transcend those generational boundaries. The use of machine learning clustering to organically identify need profiles from work experience data represents a relatively novel approach that has yet to be widely explored in the human resource management literature, despite the fact that its potential to yield more accurate and less biased insights has already been conceptually acknowledged by Xu et al. (2023).

The third gap concerns the distance between concept and implementation. Toleti and Murti (2026), in their conceptual paper that serves as one of the theoretical foundations of this study, themselves acknowledge the limitation that their research does not include primary empirical validation. Much of the HCD literature in the context of organizational policy stops at the level of frameworks without providing sufficiently specific guidance on how they can be implemented under real operational conditions particularly for companies with limited resources and high performance targets, such as retail firms.

This study positions itself at the intersection of these three gaps. By utilizing primary data from 214 employees of PT RF representing four generations, applying clustering analysis to identify need patterns that transcend generational

categories, and focusing on realistic and contextually grounded policy recommendations for the retail sector in East Java, this study seeks to provide an empirical and practical contribution that complements rather than merely confirms the existing body of literature.

2.9. Synthesis: The Research Argument Framework

This literature review has traced a series of interconnected arguments. It begins with the empirical reality that intergenerational differences in values, preferences, and work experiences are real and measurable, even though they must not be reduced to stereotypes. From this reality emerge concrete friction points in communication, leadership, flexibility, and learning which are symptoms of a deeper problem: a mismatch between the uniform design of organizational policy and the diversity of human needs it is meant to serve.

The response proposed to this problem is Human-Centered Design as a framework that ensures policy design begins from the right place: an empathic understanding of employees' genuine work experiences. In this study, HCD is operationalized through systematic data collection, clustering-based pattern analysis that transcends generational categories, and the formulation of policy recommendations rooted in actual need profiles. Participatory policy design is selected as the most feasible and most fundamental implementation strategy because it does not merely improve the content of policy, but the very process by which it is made.

The expected output is not a demographically perfect company, nor policies that satisfy every party at all times. The expected output is an organization that learns to listen more effectively one that possesses systems to detect dissatisfaction before it becomes turnover, to identify unmet needs before they become conflict, and to adjust policies before they become barriers to productivity. In other words, an employee-centered organization that is not only more equitable for its employees, but also more resilient and more adaptive as a business entity.

It is within this argument framework that the empirical research following this literature review will move from the data collected, through rigorous analysis, toward implementable recommendations. Not as the end of a conversation, but as a contribution intended to open a broader dialogue about how Indonesian organizations, particularly in the retail sector, can redesign the way they manage and honor the human diversity that works within them.

3. RESULT AND DISCUSSION

3.1. Identification of Employee Preference Clusters

This study aims to identify work system preference patterns among multigenerational employees as a foundation for implementing Human-Centered Design (HCD) within organizations. Data were collected through the distribution of a questionnaire to employees across various generational groups and subsequently analyzed using the K-Means Clustering algorithm.

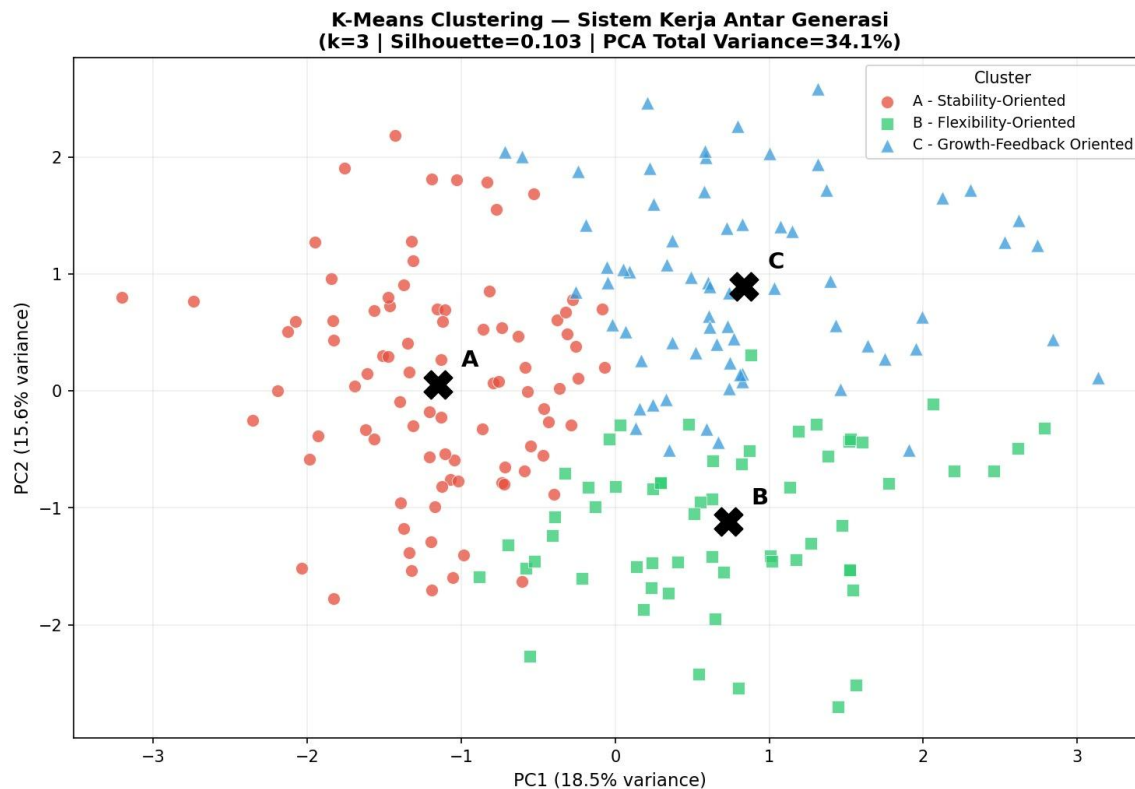


Figure 1. K-Means Clustering.

The analysis results indicate that respondents can be grouped into three main clusters, namely:

1. Cluster A – Stability-Oriented
2. Cluster B – Flexibility-Oriented
3. Cluster C – Growth-Feedback Oriented

Cluster visualization using Principal Component Analysis (PCA) reveals three distinct tendencies in work preference patterns. A silhouette coefficient value of 0.103 indicates that the boundaries between clusters are not entirely distinct. This finding suggests that employee work preferences exist along a spectrum of overlapping needs that cannot be rigidly categorized.

These results reinforce the argument that the needs of modern employees are not fully determined by generational category, but are more strongly influenced by work experience, individual expectations, and psychological needs that develop within the organizational environment.

3.1.1. Cluster A – Stability-Oriented Employees

Cluster A is the largest group, comprising approximately 40.7% of the total respondents. This group exhibits a high tendency toward: 1) consistent leadership, 2) clear organizational structure, 3) harmonious interpersonal relationships, 4) clarity in work procedures, and 5) a stable work environment. Respondents in this group regard role and responsibility clarity as an important factor influencing their comfort at work. These employees also demonstrate a high need for psychological safety a condition in which individuals feel psychologically secure in carrying out their work without excessive uncertainty.

3.1.2. Cluster B – Flexibility-Oriented Employees

Cluster B demonstrates a preference for: 1) work autonomy, 2) system flexibility, 3) rapid communication, 4) adaptability, and 5) more independent decision-making. This group does not reject organizational rules, but shows a preference for work systems that allow room for adaptation in accordance with situational work demands.

3.1.3 Cluster C – Growth-Feedback Oriented Employees

Cluster C exhibits characteristics oriented toward: 1) self-development, 2) continuous learning, 3) meaningful feedback, 4) recognition of contributions, and 5) participation within the organization. This group demonstrates a high need to understand how their work contributes to organizational goals.

3.2. Discussion: Beyond Generational Stereotypes

One of the key findings of this study is that work preferences do not fully conform to rigid generational boundaries. Although prior literature has frequently categorized work needs according to Baby Boomers, Generation X, Generation Y, and Generation Z, the clustering results demonstrate that needs for stability, flexibility, and self-development can be found across various age groups. This finding indicates that managing employees on the basis of generational stereotypes has significant limitations in explaining the complexity of human needs in the workplace. The Human-Centered Design approach, by contrast, enables organizations to understand employees based on their actual needs. Accordingly, this study proposes a paradigm shift from Generation-Based Management to Human Needs-Based Workplace Design.

3.3. Human-Centered Design (HCD) Recommendation: The Stable-First, Adaptive-Second Model

Based on the results of the K-Means Clustering analysis, it was found that the largest group of employees falls within the Stability-Oriented Cluster, comprising 40.7% of the total sample. This finding indicates that the majority of employees have a strong need for stability, clarity, and certainty in their work environment. From a Human-Centered Design (HCD) perspective, this constitutes a critical finding, as it reveals that the primary need of the system's users in this case, the employees is not flexibility or rapid change, but rather a work experience capable of providing psychological security through clear work structures, consistent leadership, and transparent communication. Therefore, the implementation of HCD within an organization must begin by understanding the dominant needs of the employee majority before designing various innovations or more adaptive policies.

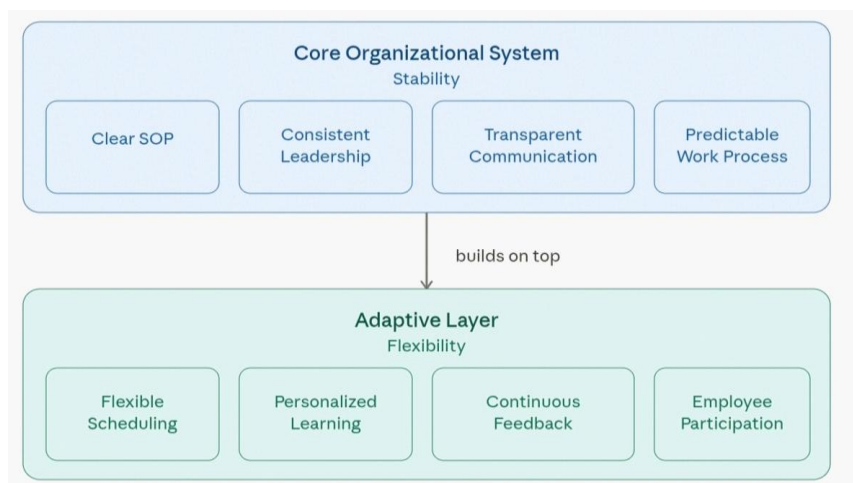


Figure 2. Implementasi HCD dalam organisasi.

Through the HCD approach, the clustering results are used not only to group employees, but also to identify the underlying human needs that drive employee work behavior. The Stability-Oriented group reveals that aspects such as role clarity, procedural certainty, and consistency in decision-making are factors that significantly influence the work experience.

This finding indicates that organizations need to establish a stable work system foundation as a means of fulfilling employees' basic needs. In the context of HCD, this foundation is realized through the development of clear Standard Operating Procedures (SOPs), consistent leadership, open communication, and predictable work processes. The presence of these elements serves not only as an organizational control mechanism, but also as a means of creating psychological safety that enables employees to work with greater comfort and confidence.

Although stability emerges as the dominant need, the research findings also reveal the presence of Flexibility-Oriented and Growth-Feedback Oriented groups with distinct needs. Consequently, it is insufficient for organizations to rely solely on a stable work system; they must also provide an adaptive layer capable of accommodating the needs of other groups. Within the HCD framework, this condition gives rise to the concept of Stable-First, Adaptive-Second an approach that positions stability as the primary organizational foundation and flexibility as a complementary layer. This approach differs from many modern organizational practices that move directly toward work flexibility without first

ensuring that the basic needs of the employee majority have been met. The research findings indicate that flexibility is most effective when implemented upon a system that already possesses a strong and clear structure.

Within the Flexibility-Oriented group, the primary needs identified are autonomy, trust, efficiency, and adaptability. Therefore, once the stability foundation has been established, organizations can develop more flexible work systems such as shift-swapping mechanisms, digital scheduling, bureaucratic simplification, and outcomes-based performance evaluation. From an HCD perspective, these solutions are designed not merely to enhance organizational efficiency, but to provide a work experience more closely aligned with the needs of individuals who value autonomy in managing their own work.

The Growth-Feedback Oriented group, meanwhile, demonstrates a strong need for self-development, recognition of contributions, and involvement in organizational processes. This finding suggests that a portion of employees regard work not solely as a means of earning income, but also as a space for growth and meaningful contribution. Organizations must therefore provide mechanisms for continuous feedback, clear career development pathways, personalized learning programs, and employee participation forums. From an HCD perspective, these solutions represent a response to the human need for growth, self-actualization, and social recognition.

Taken as a whole, the research findings indicate that implementing Human-Centered Design within an organization does not mean dismantling organizational structure in favor of greater flexibility. On the contrary, HCD directs organizations to develop a deeper understanding of human needs and to design work systems capable of fulfilling those needs in a balanced manner. Based on these findings, this study proposes the Stable-First, Adaptive-Second Human-Centered Workplace model an organizational model that builds stability as its primary foundation through structural clarity, consistent leadership, transparent communication, and predictable work processes, then complements it with adaptive elements comprising operational flexibility, individual development, continuous feedback, and employee participation. This model demonstrates that a human-centered organization is not necessarily synonymous with the most flexible organization, but rather one that is capable of understanding and balancing the diverse needs of the individuals within it.

The primary contribution of this study lies in the paradigm shift from a generation-based management approach toward human needs-based workplace design. The findings indicate that differences in employee needs are more accurately understood as variations in human needs rather than merely as differences in age or generational group. This suggests that organizations can design policies that are more inclusive, adaptive, and data-driven thereby enhancing employee engagement, psychological safety, employee retention, and the long-term sustainability of organizational performance.

4. CONCLUSION

This study aims to identify the need patterns of multigenerational employees and to formulate a Human-Centered Design (HCD) approach that can be applied in the design of organizational work systems. Through K-Means Clustering analysis of employee data, the study successfully identified three primary need groups: Stability-Oriented Employees, Flexibility-Oriented Employees, and Growth-Feedback Oriented Employees. The findings indicate that the Stability-Oriented group constitutes the largest cluster, comprising 40.7% of the total sample, suggesting that the need for clarity, certainty, transparent communication, and organizational stability remains the dominant preference in the workplace.

These findings demonstrate that employee work preferences cannot be fully explained through generational categorization such as Baby Boomers, Generation X, Generation Y, or Generation Z. Rather, employee needs are more accurately understood through a dynamic, human needs-based approach that can be found across various age groups. The findings provide evidence that human resource management approaches focused exclusively on generational stereotypes have significant limitations in explaining the complexity of employee needs within modern organizations.

From a Human-Centered Design perspective, the findings indicate that organizations need to build work systems that depart from the dominant needs of the employee majority namely, the need for stability and psychological security. At the same time, organizations must also accommodate the needs of other groups who seek flexibility, autonomy, self-development, and continuous feedback. Based on these findings, this study proposes the Stable-First, Adaptive-Second Human-Centered Workplace model an approach that positions organizational stability as the primary foundation through clarity of work structure, consistent leadership, transparent communication, and predictable work processes, then complements it with adaptive elements such as operational flexibility, personalized learning, continuous feedback mechanisms, and employee participation in organizational processes.

In practical terms, this study implies that organizations need not choose between stability and flexibility, but rather must integrate both in a balanced manner according to employee needs. This approach enables organizations to create a

more inclusive work experience, enhance psychological safety, employee engagement, and employee retention, while simultaneously maintaining the capacity to adapt to changes in the business environment.

From a theoretical standpoint, this study contributes to the development of Human-Centered Design literature by extending its application from the context of product design to the design of organizational work systems. Furthermore, this study offers the conceptual framework of Human Needs-Based Workplace Design as an alternative approach to multigenerational employee management a framework that emphasizes that organizational effectiveness is determined not only by the ability to understand generational differences, but also by the ability to understand and fulfill diverse human needs through a more employee-centered organizational design.

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