# Malaysia's Cultural Value Preferences and Industry 4.0 Readiness: A Conceptual Review

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## ABSTRACT

Industry 4.0 represents a transformative stage in global industrial development characterized by digitalization, automation, cyber-physical systems, and data-driven production. While Malaysia continues to implement Industry 4.0 strategies through initiatives such as the Industry4WRD policy, the nation's readiness is influenced not only by technological and infrastructural factors but also by deeply rooted cultural values. This paper presents a conceptual review exploring how Malaysia's cultural value preferences influence its readiness for Industry 4.0 transformation, particularly within the manufacturing sector. Drawing from Hofstede's and Schwartz's cultural frameworks, the paper discusses how collectivism, high power distance, harmony, and long-term orientation shape managerial practices, innovation adoption, communication, and leadership in Malaysian industrial contexts. The study highlights the dual nature of cultural traits acting both as enablers and inhibitors of technological transformation. By integrating cultural considerations into the assessment of Industry 4.0 readiness, this paper proposes a culturally contextualized understanding of industrial transformation in Malaysia. It concludes by suggesting future directions for research and policy to align digitalization efforts with Malaysia's socio-cultural realities.

**Keywords:** Malaysia, cultural values, Industry 4.0 readiness, manufacturing sector, collectivism, organizational behavior, technological transformation

## INTRODUCTION

### Background and Context

The advent of Industry 4.0 (INDUSTRY 4.0) represents a pivotal phase in the evolution of global manufacturing, marked by the seamless convergence of advanced digital technologies such as the Internet of Things (IoT), cyber-physical systems, artificial intelligence (AI), robotics, and data analytics. This wave of technological transformation has not only redefined the notions of industrial efficiency and innovation but has also reshaped global competitiveness, influencing both developed and developing economies alike.

In the Malaysian context, the manufacturing sector remains a cornerstone of economic growth, contributing approximately 22–25% to the nation's Gross Domestic Product (GDP) and serving as a major source of employment (Department of Statistics Malaysia, 2022). Recognizing its strategic importance, Malaysia has prioritized the adoption and integration of Industry 4.0 principles as a key driver of national development. This commitment is exemplified in the *Industry4WRD: National Policy on Industry 4.0*, introduced by the Ministry of International Trade and Industry (MITI) in 2018, which aims to strengthen the nation's industrial capabilities and ensure sustainable growth in an increasingly digitalized global economy.

The adoption of Industry 4.0 technologies is not confined to the realm of infrastructure development or financial investment alone. Rather, it represents a comprehensive transformation that requires organizations to adapt structurally, enhance human capital competencies, and cultivate forward-thinking leadership. Equally important is the alignment of these efforts with the underlying cultural values that shape organizational behavior. Culture fundamentally influences how individuals and institutions interpret, respond to, and participate in technological advancements (Taras et al., 2010). In Malaysia's multicultural and collectivist environment, cultural values

significantly shape workplace interactions, managerial decisions, innovation practices, and employee motivation factors that collectively determine the effectiveness and sustainability of Industry 4.0 implementation.

While many scholars have explored Malaysia's technological and economic preparedness for Industry 4.0 (Sony & Naik, 2020; Ismail et al., 2021), considerably less attention has been given to the *cultural dimension* of this readiness. This oversight is significant, as cultural value preferences play a pivotal role in shaping how societies engage with technological change. For example, Malaysia's cultural tendencies such as a strong respect for hierarchical structures (power distance) and a collective emphasis on social harmony (collectivism) can profoundly influence how new technologies are introduced, accepted, and applied within industrial environments. Therefore, incorporating cultural values into the Industry 4.0 readiness framework is essential to ensure that digital transformation efforts are not only technologically sound but also socially sustainable and contextually relevant to the Malaysian setting.

**Problem Statement**

Although Malaysia has made considerable progress in advancing the digital transformation of its manufacturing sector, the outcomes of these initiatives remain inconsistent across different organizational scales. According to the Ministry of Investment, Trade and Industry (MITI, 2021), large manufacturing firms generally exhibit a high degree of automation and digital technology adoption. In contrast, small and medium-sized enterprises (SMEs) which constitute more than 90% of Malaysia's manufacturing landscape-tend to experience slower rates of digital integration. This disparity is often attributed to a combination of human resource limitations, financial constraints, and cultural factors that hinder the effective implementation of digital technologies within smaller enterprises.

Contemporary assessments of Industry 4.0 readiness predominantly emphasize technological capacities, infrastructural development, and supportive policy frameworks. Nevertheless, the dimension of cultural readiness which encompasses societal values, organizational norms, and behavioral patterns that influence technological acceptance, and adaptation remains relatively underexplored (Sony, 2020). In contexts characterized by strong hierarchical structures, for instance, decision making processes often remain centralized, thereby constraining opportunities for innovation and collaborative problem-solving. Conversely, collectivist cultural orientations may promote cohesion and teamwork but can also discourage open dissent or individual experimentation, both of which are critical drivers of creativity and technological advancement. Therefore, incorporating cultural perspectives into Industry 4.0 readiness assessments is crucial for developing a more comprehensive and context-sensitive understanding of Malaysia's capacity for industrial transformation.

**Research Ojectives**

This paper aims to:

1. Examine Malaysia's dominant cultural value preferences using established cultural models.

2. Explore the relationship between these cultural values and organizational behaviors relevant to Industry 4.0 readiness.

3. Develop a conceptual framework linking cultural value dimensions with Industry 4.0 readiness factors.

4. Offer recommendations for culturally aligned industrial policies and managerial strategies.

**Significance of the study**

This study contributes meaningfully to both academic inquiry and practical application by underscoring the importance of cultural contextualization in assessing Industry 4.0 readiness. From an academic perspective, it bridges the domains of cross-cultural management and industrial transformation, presenting a sociotechnical framework through which industrial modernization can be more holistically understood. On a practical level, the study offers valuable guidance for policymakers, industry practitioners, and educators in formulating strategies that harmonize digital transformation initiatives with the unique characteristics of Malaysian work culture. Such

alignment is essential to foster sustainable growth, enhance workforce adaptability, and cultivate effective leadership within the evolving landscape of Industry 4.0.

# LITERATURE REVIEW

## Literature Search and Review Strategy

To ensure academic rigor and transparency, this study adopted a systematic literature review approach to identify, evaluate, and synthesize existing research related to cultural values, Industry 4.0 readiness, and sustainability within the Malaysian context. The review followed structured procedures consistent with academic guidelines for systematic reviews. Relevant literature was retrieved from reputable databases, including Scopus, Web of Science, and ScienceDirect, covering the publication period from 2014 to 2025. A combination of targeted keywords—such as "Industry 4.0 readiness," "cultural values," "organizational behaviour," "Malaysia," and "sustainability"—was used to ensure comprehensive coverage of the topic. The selection process involved screening abstracts and full texts based on relevance, recency, and methodological quality. The final pool of studies was subjected to thematic analysis to identify key patterns, conceptual relationships, and research gaps. Insights derived from this process guided the construction of the conceptual framework and ensured that the review was both comprehensive and aligned with the study's objectives**.**

## Sub-Cultural Variations in the Malaysian Workforce

Previous studies have often characterized Malaysia's cultural profile using Hofstede's national dimensions, portraying it as a society with high power distance, collectivism, and moderate long-term orientation. While such generalizations help establish a national cultural baseline, they may overlook the multicultural nature of Malaysia's workforce**.** The country's organizational settings are composed of multiple ethnic groups—primarily Malay, Chinese, and Indian—each embodying distinct cultural orientations that can shape attitudes toward technology and innovation.

Recognizing this, it is important to note that Malaysian culture is not monolithic. Malay employees typically emphasize *collectivism, harmony,* and *mutual respect,* which foster teamwork and social cohesion but may also encourage cautious decision-making. Chinese employees, on the other hand, often exhibit *pragmatism, competitiveness,* and *achievement orientation,* aligning with goal-driven and efficiency-based work values. Indian employees tend to value *hierarchical stability* and *interpersonal respect,* which support structured organizational communication and authority recognition.

These sub-cultural variations suggest that Industry 4.0 readiness within Malaysian organizations cannot be fully understood through a single national cultural lens. Instead, responses to digital transformation initiatives may differ across subgroups, influenced by underlying cultural beliefs and work ethics. Understanding these internal cultural dynamics provides a more nuanced perspective on how organizations interpret and implement Industry 4.0 practices.

By acknowledging the diverse cultural fabric of Malaysia's workforce, this study strengthens the contextual validity of its conceptual framework and aligns with the broader understanding that cultural diversity can both facilitate and challenge organizational transformation in the era of digital industrialization.

## The Role of Culture in Industrial and Organizational Contexts

Culture can be understood as the collective pattern of thinking, feeling, and behaving that differentiates one group or society from another (Hofstede, 1980). It represents the shared system of values, beliefs, norms, and expectations that shape how individuals interact and make sense of their social and organizational environments. Within industrial organizations, culture plays a pivotal role in shaping decision-making practices, communication dynamics, leadership styles, approaches to innovation, and the overall level of employee motivation and engagement (House et al., 2004; Schein, 2010).

National culture plays a crucial role in shaping how organizations respond to change and technological advancement. Cultural characteristics influence collective attitudes toward risk, authority, and innovation. For instance, societies with low uncertainty avoidance tend to exhibit greater openness to experimentation and creativity, fostering an environment where innovation can thrive. Conversely, cultures with high uncertainty avoidance often prioritize stability, predictability, and gradual improvement over radical transformation (Hofstede, 2011). Likewise, in cultures characterized by high power distance, decision-making authority is typically concentrated among senior leaders, which can slow the pace of technological adoption and organizational change. Recognizing and understanding these cultural dynamics enables organizations to develop transformation strategies that not only align with societal norms and expectations but also create pathways for sustainable and culturally sensitive innovation.

## Cultural Frameworks: Hofstede and Schwartz

### Hofstede's Cultural Dimensions

Geert Hofstede's (1980, 2001) model remains one of the most influential frameworks for understanding national culture. His six dimensions—power distance, individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance, long-term orientation, and indulgence vs. restraint—offer insights into how societies differ in workplace behavior and management preferences.

Malaysia's cultural profile, according to Hofstede Insights (2023), is characterized by high power distance, low individualism (collectivist orientation), moderate masculinity, moderate-to-high uncertainty avoidance, and high long-term orientation. Table I summarizes these orientations.

Table I Malaysia's Cultural Profile Based on Hofstede's Dimensions

| Dimension | Malaysian Orientation | Implications for Industry 4.0 Readiness |
|---|---|---|
| **Power Distance (High)** | Acceptance of hierarchical structures; subordinates defer to authority | Centralized decision-making; potential bottlenecks in innovation and feedback loops |
| **Individualism (Low)** | Collective responsibility and loyalty | Strong teamwork but limited individual initiative |
| **Masculinity (Moderate)** | Preference for cooperation over competition | Stable work relations; slower innovation dynamics |
| **Uncertainty Avoidance (Moderate–High)** | Preference for structure and rules | Limited risk-taking; resistance to rapid technological change |
| **Long-Term Orientation (High)** | Focus on perseverance and strategic patience | Support for gradual, sustainable transformation |
| **Indulgence (Low)** | Emphasis on self-control and conformity | Compliance with organizational policies; less flexibility |

### Schwartz's Value Framework

Schwartz (1999) expanded on Hofstede by identifying universal value dimensions grouped into three cultural orientations: Embeddedness vs. Autonomy, Hierarchy vs. Egalitarianism, and Mastery vs. Harmony. Within the Malaysian context, Schwartz's framework provides deeper insights into the motivational structures underlying work behavior.

Embeddedness: Individuals view themselves as part of a collective; social order and tradition are valued.

Hierarchy: Unequal power relations are accepted as legitimate, reinforcing authority structures.

Harmony: Emphasis is placed on maintaining balance with others and the environment.

In Malaysian manufacturing culture, harmony and hierarchy are particularly salient, fostering workplace cohesion but sometimes limiting assertive innovation or constructive dissent. These cultural orientations strongly shape how employees interact with digital technologies and respond to organizational change.

**Malaysia's Cultural Values in the Manufacturing Sector**

The manufacturing industry in Malaysia embodies one of the nation's most culturally diverse professional landscapes, comprising a workforce of Malays, Chinese, Indians, and foreign employees. This multicultural composition has given rise to a hybrid organizational culture that harmonizes traditional Asian values of collectivism, respect for hierarchy, and community-oriented cooperation with contemporary managerial practices emphasizing efficiency, innovation, and performance.

Scholarly investigations have highlighted several defining cultural attributes within Malaysia's manufacturing workforce, reflecting how deeply rooted social values interact with industrial and technological demands. These characteristics shape communication patterns, leadership styles, decision-making processes, and readiness to adapt to emerging industrial transformations such as Industry 4.0.

1. Respect for authority and seniority: Managers are viewed as decision-makers, and subordinates rarely challenge directives (Ahmad & Schroeder, 2003).

2. Preference for teamwork and consensus: Decisions often require group agreement, even if this slows processes (Lim, 2012).

3. Avoidance of open conflict: Communication tends to be indirect to preserve harmony (Abdullah, 1996).

4. Commitment to stability and loyalty: Long-term employment and gradual career progression are preferred over frequent job changes (Mahidin et al., 2020).

These values contribute to workplace harmony and consistent productivity but can create resistance to disruptive technologies and rapid innovation cycles associated with Industry 4.0.

**Linking Cultural Values and Industry 4.0 Readiness**

The relationship between cultural values and technological readiness can be understood through the lens of socio-technical theory, which suggests that organizational effectiveness arises from the harmonious alignment between social and technical subsystems (Trist & Bamforth, 1951). Within the Malaysian context, cultural characteristics play a pivotal role in shaping the social subsystem that interacts with emerging technological innovations.

For example, a high power distance orientation often results in top-down implementation of technology, where decision-making authority is centralized and employee feedback is limited. Collectivist values, while fostering teamwork and a strong sense of group cohesion, may inadvertently discourage individual initiative and autonomous problem-solving. Similarly, the cultural emphasis on harmony and social balance supports stable collaboration but can constrain open dialogue about technological shortcomings or failures. Meanwhile, a long-term orientation encourages steady and sustainable digital transformation, favoring gradual progress over disruptive change.

Collectively, these cultural attributes form a distinct readiness profile for Malaysia—one characterized by strong organizational loyalty, cooperation, and stability, yet tempered by limited agility and slower innovation cycles. Recognizing and understanding these dynamics allows policymakers, educators, and industry leaders to design culturally responsive strategies that honor Malaysia's social values while enhancing adaptability and technological advancement.

# CONCEPTUAL DISCUSSION

## Cultural Dimensions Shaping Industry 4.0 Readiness

Culture operates as an invisible but powerful system of meaning that defines how individuals interact with technology, authority, and innovation (Schein, 2010). In the context of Industry 4.0, cultural dimensions influence the human, organizational, and strategic aspects of readiness. Malaysia's dominant cultural values—high power distance, collectivism, harmony, and long-term orientation—play significant roles in shaping these dynamics.

## Power Distance and Leadership Structure

High power distance in Malaysia indicates an acceptance of hierarchical order and centralized authority (Hofstede, 2011). Within manufacturing organizations, this manifests in clearly defined reporting structures and top-down decision-making. Leaders are expected to provide direction, make key decisions, and maintain control. While this structure ensures stability and clarity, it also reduces flexibility and innovation speed, particularly in digital transformation efforts that require decentralized, cross-functional collaboration (Sony, 2020).

Industry 4.0 emphasizes autonomy, data transparency, and agile decision-making. When employees are reluctant to challenge authority or propose alternative ideas, innovation may stagnate. However, hierarchical respect can be leveraged positively if leaders adopt transformational leadership styles—using authority to empower subordinates rather than control them. This approach maintains cultural harmony while promoting engagement in technological innovation.

## Collectivism and Team Cohesian

Collectivism, another defining trait of Malaysian culture, fosters strong group cohesion, cooperation, and loyalty (Abdullah, 1996). In the manufacturing sector, these traits enhance teamwork and reduce interpersonal conflict—essential for production stability. However, collectivism may also inhibit individual initiative, especially in innovation-driven contexts where experimentation and independent thinking are vital.

Industry 4.0 thrives on cross-disciplinary collaboration, continuous learning, and creative problem-solving. Therefore, balancing collectivist harmony with a culture of constructive dialogue is essential. Leaders must cultivate psychological safety—allowing employees to share new ideas without fear of disrupting social harmony (Edmondson, 1999). This balance can help organizations harness collective strength while nurturing innovative behavior.

## Harmony and Communication Patterns

In Malaysia's culturally diverse manufacturing environment, maintaining harmony is a social expectation. Employees tend to avoid open disagreement or criticism, preferring indirect communication to preserve relationships (Abdullah, 2001). While this promotes a peaceful work atmosphere, it can create communication gaps, especially during Industry 4.0 transitions that demand open feedback, rapid problem-solving, and transparent reporting.

To address this, organizations can implement structured communication channels—such as anonymous feedback systems or cross-functional meetings moderated by neutral facilitators. These mechanisms preserve harmony while enabling honest discussion about technological challenges and innovation bottlenecks.

## Long-Term Orientation and Incremental Change

Malaysia's high long-term orientation supports perseverance, adaptability, and continuous improvement (Hofstede Insights, 2023). This orientation aligns with sustainable transformation rather than abrupt change. Industry 4.0 implementation often requires gradual skill development and infrastructure adaptation—an approach consistent with Malaysia's cultural tendency toward steady progress.

This value can thus be a cultural enabler for Industry 4.0 readiness, provided organizations maintain consistent strategic vision. However, long-term orientation may also lead to risk aversion, as organizations favor proven methods over disruptive innovations. Balancing stability with calculated risk-taking becomes essential for achieving meaningful digital transformation.

**Cultural Influence on Organizational Behaviour**

Organizational behavior (OB) reflects how individuals and groups act within an organization, influenced by internal structures, leadership styles, and external environments (Robbins & Judge, 2021). In Malaysia, OB is strongly influenced by cultural values that shape attitudes toward authority, teamwork, conflict, and innovation.

**Leadership and Decision Making**

Malaysian leadership tends to follow a paternalistic model—leaders are expected to guide, protect, and mentor employees, who reciprocate with loyalty and respect (Abdullah, 1996). This fosters trust and organizational stability but can discourage open debate or bottom-up innovation.

In an Industry 4.0 environment, leaders must evolve into transformational or participative leaders—encouraging creativity while maintaining cultural respect. Managers who integrate cultural empathy with digital awareness can mobilize teams more effectively during technological transitions.

**Communication and Knowledge Sharing**

Collectivist and harmony-oriented cultures rely heavily on indirect communication. Employees may hesitate to share mistakes or propose unconventional ideas for fear of disrupting social balance. This tendency can slow organizational learning—an essential component of Industry 4.0 readiness (Sony, 2020).

To counter this, managers should establish safe learning environments, where sharing failures is viewed as a learning opportunity. Knowledge management systems that reward collaboration and innovation can help embed a more open communication culture while retaining collective harmony.

**Innovation Culture and Risk Attitudes**

Innovation in Industry 4.0 depends on experimentation and tolerance for failure. Malaysia's moderate-to-high uncertainty avoidance means that employees prefer structured environments and predictable outcomes (Hofstede, 2011). Consequently, organizations may resist adopting untested technologies or disruptive ideas.

Encouraging small-scale pilot projects, supported by leadership endorsement, can help mitigate perceived risks while demonstrating tangible benefits. Gradual success builds confidence in innovation and aligns with Malaysia's long-term orientation.

**Conceptual Framework**

Based on the preceding discussion, a conceptual framework is proposed (Figure I) to illustrate how Malaysian cultural dimensions interact with key Industry 4.0 readiness factors.

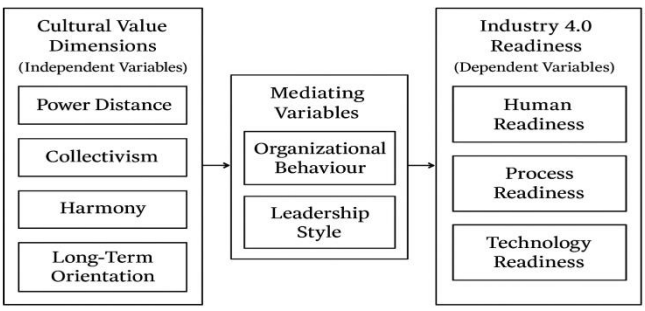


Figure I. Conceptual Framework Linking Cultural Values to Industry 4.0 Readiness

Figure 1 illustrates the proposed conceptual framework that links Malaysian cultural values with Industry 4.0 readiness through the mediating effects of organizational behaviour and leadership style. The framework positions cultural value dimensions Power Distance, Collectivism, Harmony, and Long-Term Orientation as the independent variables that shape how organizations respond to digital transformation initiatives within the Malaysian context.

Power Distance reflects the acceptance of hierarchical authority, influencing communication flow and decision-making processes. Collectivism emphasizes teamwork and group loyalty, encouraging collaboration in technological adoption. Harmony promotes social stability and conflict avoidance, fostering a balanced environment for gradual change. Long-Term Orientation represents strategic foresight and perseverance, supporting sustained investment and innovation in Industry 4.0 initiatives.

The mediating variables, namely Organizational Behaviour and Leadership Style, explain how cultural values are translated into internal practices that influence readiness. Organizational behaviour reflects collective attitudes and adaptability toward technological change, while leadership style shapes motivation, direction, and cultural alignment within the organization. Together, they serve as conduits through which culture impacts readiness outcomes.

The dependent variable, Industry 4.0 Readiness, is categorized into three dimensions: Human Readiness (digital competence and adaptability), Process Readiness (digital integration and workflow optimization), and Technology Readiness (infrastructure and innovation capacity).

Overall, the framework suggests that cultural values influence Industry 4.0 readiness both directly and indirectly through organizational and leadership factors. This integrated model underscores that technological progress in Malaysia is deeply intertwined with cultural context, emphasizing the need for culturally aligned strategies to enhance Industry 4.0 adoption and sustainability.

This conceptual model suggests that cultural dimensions indirectly influence Industry 4.0 readiness through organizational behavior and leadership. For example, collectivism affects teamwork and communication, which in turn determine how effectively digital initiatives are implemented. Similarly, power distance affects decision making speed and the degree of innovation autonomy.

The framework implies that effective readiness requires cultural alignment not cultural replacement. Industry 4.0 initiatives must adapt to Malaysia's cultural realities, integrating digital transformation within accepted social norms.

## Opportunities and Challenges

### Cultural Strengths Supporting Industry 4.0 Readiness

Malaysia's collectivist orientation and long-term focus create a strong foundation for cohesive, sustainable transformation. Team-oriented work culture ensures stable collaboration, while loyalty promotes workforce retention a vital factor in sustaining digital skill development (Mahidin et al., 2020).

Moreover, Malaysia's emphasis on harmony supports social sustainability in industrial environments, aligning with Industry 5.0's emerging focus on human-centered innovation. These cultural traits can be leveraged to ensure that technological advancement coexists with social cohesion.

### Cultural Barriers to Technological Transformation

However, high power distance and uncertainty avoidance can impede innovation speed and agility. Overly centralized structures slow decision-making, while fear of mistakes discourages experimentation. Additionally, harmony-oriented communication can obscure problems that require immediate attention.

Addressing these barriers requires leadership and policy interventions that encourage trust, inclusivity, and participatory management while respecting traditional authority structures. Leadership development programs emphasizing digital literacy and cultural intelligence can bridge this gap.

## Implication

### A. Theoretical Implication

This conceptual review contributes to industrial and cultural management theory in several ways:

1. Integrating Cultural and Technological Readiness Frameworks

The study bridges the gap between cross-cultural management and Industry 4.0 readiness models by positioning culture as an integral dimension of technological preparedness. This expands Schumacher et al.'s (2016) readiness framework to include cultural readiness as a key determinant.

2. Socio-Technical Systems Perspective

By applying socio-technical theory (Trist & Bamforth, 1951), this paper emphasizes that successful digital transformation requires alignment between technological systems and cultural norms. Ignoring cultural context may result in technological underutilization or employee disengagement.

3. Human-Centric Industrial Transformation

The discussion anticipates Industry 5.0 principles, which advocate human-centric and value-driven technological progress. Incorporating cultural values aligns with sustainability-oriented industrial theories that balance economic and social goals.

### Managerial Impliations

From a practical standpoint, understanding cultural influences on Industry 4.0 readiness provides several actionable insights:

1. Leadership Development

Leaders must evolve from directive supervisors to facilitative mentors. Training programs should focus on developing transformational and participative leadership styles that respect hierarchy but encourage employee input. Managers should communicate the long-term benefits of digital adoption to align with Malaysia's future-oriented mindset.

2. Human Capital and Training

Cultural sensitivity should be embedded in workforce development. For example, training sessions that use group-based learning rather than individual competition align with collectivist preferences. Mentorship programs led by respected senior staff can enhance acceptance of new technologies among junior workers.

3. Organizational Communication

Organizations should implement formalized, multi-level feedback systems to overcome indirect communication barriers. Encouraging "respectful disagreement" can help identify operational challenges early, improving agility in technological implementation.

4. Policy and Governance

National industrial policies should integrate cultural diagnostics into readiness assessments. Policymakers can design incentive schemes that promote inclusive decision-making and reward innovation at all organizational levels, bridging cultural and technical divides.

### Policy Implications for Malaysia's Industrial Strategy

Malaysia's Industry4WRD policy emphasizes technology, infrastructure, and skills but underplays socio-cultural readiness. Incorporating cultural considerations into policy design would improve implementation effectiveness. For instance:

- Cultural readiness indicators can be added to national readiness audits.
- Cross-cultural management modules can be introduced in industrial training centres.
- Collaborative innovation networks can be structured to reflect Malaysia's collectivist values while promoting inter-firm learning.

Such measures will align national industrial strategies with the country's socio-cultural realities, ensuring that technological progress remains inclusive and sustainable.

**Future Research Directions**

Given that this paper is conceptual, empirical validation is essential to strengthen its propositions. Future research could:

1. Conduct quantitative studies assessing correlations between cultural dimensions and Industry 4.0 readiness indicators (e.g., innovation capability, adoption rate).

2. Perform qualitative case studies in Malaysian manufacturing firms to explore how cultural values manifest in digital transformation projects.

3. Compare cultural readiness across ASEAN nations to identify regional patterns and potential collaboration opportunities.

4. Investigate generational differences, as younger employees may exhibit evolving cultural orientations that affect Industry 4.0 adoption behaviours.

By extending research in these areas, scholars can contribute to a more nuanced, culturally grounded understanding of technological readiness in emerging economies.

## CONCLUSION

This conceptual review highlights that Malaysia's readiness for Industry 4.0 is not solely determined by technological capacity but also by its cultural value system. Cultural traits such as high power distance, collectivism, harmony, and long-term orientation shape organizational behavior, leadership, and innovation practices in the manufacturing sector.

While these traits foster social stability, cooperation, and loyalty valuable for long-term transformation they may simultaneously constrain agility and innovation if not managed appropriately. Therefore, achieving Industry 4.0 readiness in Malaysia requires cultural alignment strategies that integrate traditional values with modern technological imperatives.

Leaders and policymakers must view cultural readiness as a strategic asset rather than a constraint. By harnessing Malaysia's cultural strengths teamwork, patience, and social cohesion while addressing hierarchical and communication barriers, the nation can cultivate a uniquely Malaysian model of Industry 4.0 transformation that is technologically advanced, culturally grounded, and socially sustainable.

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