Motivation of High-Risk Industry Employees Aiming for a Circular Economy: A Case of Chinese Chemical Manufacturers

2410055 HUANG Zheng

1. Introduction and Research Background Under the global "Dual Carbon" strategy, the Circular Economy (CE) transition has become mandatory for the chemical sector. However, this triggers a profound paradox for High Reliability Organizations (HROs). CE requires continuous technical innovation and resource reorganization, while traditional HRO management relies on the "Safety-I" paradigm, prioritizing absolute stability and zero deviation. This macro-level conflict creates severe structural tension. At the micro-operational level, frontline employees face immense institutional constraints and compliance pressures, exacerbating job burnout and suppressing adaptive capacity ("Safety-II"). This study addresses a critical gap: how micro-individuals resolve this paradox through agentic behaviors under the dual constraints of strict safety regulations and resource scarcity.

2. Theoretical Framework To deconstruct this micro-mechanism, this research integrates Resource Bricolage Theory, Safety-II, and Self-Determination Theory (SDT). Bricolage represents proactive agency ("making do with resources at hand") in constrained environments. Safety-II focuses on enhancing human adaptive capacity. Bridged with SDT, this study investigates how bricolage behaviors in rigid contexts fulfill employees' psychological needs (autonomy, competence) and sustain their motivation for CE tasks.

3. Research Methodology This study adopts an inductive Comparative Multiple Case Study design. Using theoretical sampling, three distinct business units in an Eastern China chemical base were selected: (1) A private enterprise (Survival-oriented); (2) A large State-Owned Enterprise (SOE) core unit (Orchestration-oriented); (3) An SOE peripheral unit (heating supply, Bricolage-oriented). Data were collected via semi-structured interviews, on-site observations, and archive analysis, and then systematically analyzed using the Gioia methodology to derive theoretical dimensions from first-order codes.

4. Empirical Findings and Cross-Case Analysis The findings reveal three distinct motivational pathways determined by resource endowments and institutional constraints:

The Survival Anxiety Pathway (Case A - Private Enterprise): Operating under extreme compliance liability and tight budgets, the organization adopts a defensive stance. Employee motivation is dominated by external regulation and risk avoidance, entirely entrenched in Safety-I without generating internal self-efficacy.

The Institutionalized Execution Pathway (Case B - SOE Core Unit): In a resource-abundant but heavily monitored environment, CE is executed via top-down "Resource Orchestration." While national macro-narratives grant employees Public Service Motivation, rigid digital monitoring deprives them of process autonomy. This creates a dilemma of "cognitive agreement but emotional detachment," lacking creative engagement.

The Efficacy-Oriented Pathway (Case C - SOE Peripheral Unit): Facing policy-induced budget cuts, employees engaged in intensive "Resource Bricolage." They creatively repurposed refinery waste heat into civil heating, achieving a "Symbolic Value Reversal" from waste to resource. This grassroots bricolage bypassed bureaucratic silos, reframing a welfare burden into a compliance shield. It provided employees with "Visible Efficacy," restoring autonomy and competence, while activating profound prosocial motivation by supporting vulnerable retired workers.

5. Theoretical Contributions This research constructs the "Bricolage-Empowerment Model", making two key contributions. First, it enriches the psychological dimension of Resource Bricolage, revealing it as a critical psychological restoration mechanism that revives employee agency in highly rigid organizations. Second, it provides a micro-motivational foundation for Safety-II, showing that grassroots creative practices generate the "creator confidence" needed for continuous organizational resilience.

6. Practical Implications and Conclusion For chemical manufacturers navigating safety and sustainability, absolute zero-deviation control suppresses adaptability. Managers should intentionally establish "Controlled Exploration Spaces" in low-risk peripheral areas, authorizing bounded resource bricolage. Introducing "Value-reversal Tasks" with visible efficacy can effectively mitigate safety fatigue. Ultimately, empowering micro-individuals' creative agency is the most sustainable foundation for organizational resilience in the CE transition.