

A Systems Lens on AI-Driven Job Redesign and Early-Career Adaptation

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Artificial intelligence (AI) is transforming early-career work in an uneven and potentially self-reinforcing way. Algorithmic workflows and assessment systems can increase the workload of early-career ICT practitioners, while also creating opportunities for autonomy, learning, and productivity. As a result, small early differences in employees' access to resources and skills development opportunities can accumulate over time, leading to divergent trajectories of adaptation to AI adoption in work practices. However, existing research rarely explores how AI adoption and organizational governance dynamically interact to affect workload, trust, and autonomy. This gap highlights the need for system dynamics research on the evolution of mechanisms underlying adaptation to AI-driven work at early career stages.

This study focuses on early-career practitioners in the ICT industry in China. Semi-structured interviews were conducted with 16 practitioners aged 24 to 30 years with three to eight years of work experience. Respondents came from a variety of occupational roles, including software development, data analysis, product management, operations, video editing, finance, and project management, in industries such as Internet platforms, telecommunications, software services, e-commerce, and industrial automation. Thematic analysis of interview data was conducted to identify mechanisms related to AI adoption, workload, trust, autonomy, skill development, and organizational governance.

The analysis identifies reinforcing and balancing feedback mechanisms. Strengthening processes related to productivity, skill empowerment, and trust building may support trajectories characterized by enhanced capabilities, effective AI use, autonomy, and positive experiences with AI. For example, AI-related learning can enhance employees' ability to integrate AI into their work, which may further

promote learning and effective use. Similarly, positive experiences with AI may help build trust and facilitate continued engagement with AI-driven work practices. These reinforcing processes coexist with balancing mechanisms. The work intensity balancing loop illustrates how increasing task demands and work intensity may lead to a state of overload and trigger negative attitudes toward AI among employees, thereby weakening the conditions that support sustained adaptation. Employees' concerns regarding algorithmic monitoring, transparency, and their ability to exercise autonomous judgment may further affect trust and perceived autonomy. Feedback delays may help explain why early experiences of empowerment do not necessarily translate into stable long-term adaptation. As workloads continue to increase, they may also exacerbate employees' overload or job burnout at later stages.

In conclusion, this study adopts a systems perspective to extend research on AI-driven job redesign, highlighting the interacting feedback structures through which empowerment and control may co-evolve. The feedback structure suggests that early-career information and communication technology practitioners may follow different adaptation pathways as they adopt AI. Differences in skill development opportunities, workload conditions, trust, perceived autonomy, and organizational governance may interact and accumulate over time. Some pathways may involve adaptive learning, effective AI use, and greater autonomy, whereas others may be characterized by increasing workload, declining trust, and heightened perceptions of algorithmic control. Based on interview narratives and the conceptual feedback structure, these pathways should be interpreted as dynamic hypotheses rather than observed longitudinal outcomes or results from formal simulation. The analysis identifies three potential organizational leverage points. First, enhancing algorithmic transparency may strengthen employee trust and reduce resistance to AI-driven work systems. Second, supporting continuous skill development may enable employees to integrate AI more effectively into their work and sustain potential productivity gains. Third, managing workload dynamically may help prevent excessive task demands from generating overload and negative reactions to AI, while maintaining work demands at levels that support adaptation over time.

Keywords: AI-driven job redesign; early-career adaptation; system dynamics; feedback loops; algorithmic management; AI adoption