Abstract

Automation, enabled by technological advancements, is transforming the nature of work in organizations. Although extant literature explores the implications of automation on work, this literature has, for the most part, dealt with rank and file work, considered work as static, and technology that is not developed by the organization. The literature has not fully examined the impact of internally-driven automation on the emergent social and contextual dimensions of work especially at positions other than the users of technology. The present study draws upon the socio-psychological system literature and role theory to advance understanding of implications of automation on work in organizations.

To study the above-mentioned phenomenon, I conducted a qualitative study of Bosch, a multinational manufacturing organization, across four major plant locations in India. These sites were engaged in substantial automation of their existing processes by developing solutions internally. As a part of data collection, I interviewed 42 organizational members across various hierarchical positions; attended 3 internal meetings in which multiple stakeholders conceptualized automation solutions; and attended 3 smart automation and Industry 4.0 training sessions that specific plants had organized for operators, engineers and external visitors. I also drew upon informal discussions, direct observations, and technology-specific artifacts to triangulate the findings.

As I analyzed the data, I identified three different forms of automation solutions that were deployed at the plant sites— elimination of an operation, reduction of idle machine time through continuous operating, and integration of multiple operations carried out a single person. The form of automation had implications for the work design characteristics at the technological and social

dimensions not only at the operator level where automation was introduced but also across other levels in the organization— those of supervisor, engineer and manager. The process of automating began with recognizing the needs like efficiency, accuracy or ergonomics that could be realized through automation. Financial viability and human indispensability were important tradeoffs that were considered for making automation related choices. The path between determining organization specific priorities and final automation form was mediated by sociopsychological mechanisms of synthesizing, appraising, leveraging and legitimizing. The findings highlighted changes in interpersonal interactions and interdependencies among various levels arising out of automating.

Overall, this study responds to calls for more field research regarding the changing nature of work in the wake of increased automation arising out of technological advancement. Present findings further prior research on work design by elaborating characteristics that underwent change due to automation across multiple levels in the organization. By describing the process of automating and highlighting the mediating sociopsychological mechanisms, the study contributes to understanding how automation choices are made and which relational aspects of work undergo change when automation is implemented. Based on the findings, I outline changes that can be initiated in human resource management practices.