This dissertation investigates the labor market consequences of technological change. The first chapter builds an occupational network based on the flows of workers between occupations and shows that the network has a core/periphery structure. Core occupations employ most of the workforce, they require fewer skills, and they pay less. At the same time, they act as bridges between other occupations and provide insurance value to the workers in other occupations in case they lose their jobs. A key result in this chapter is to show that the core occupations are more likely to be automated. As a result, automation is expected to have far more significant consequences than what would be implied by its direct impact. In the scenario that the occupations with the highest probability of being automated disappear, 7% of the workforce would be displaced from their jobs. Moreover, almost 10% of the links would dissolve, further aggravating the impact of automation.

The second chapter develops a structural model of occupational choice that endogenizes workers' flow between occupations. The model extends the dynamic discrete choice model of occupational choice to include search frictions and transition costs and embeds it into a general equilibrium search environment. Using the Survey of Income and Program Participation and O*NET datasets, search frictions and transition costs are structurally estimated. Results show that transitions costs faced by workers in automatable jobs are particularly high, and search frictions significantly curtail their ability to transition away from jobs vulnerable to labor substituting technology. Furthermore, low-cost transitions for these workers are towards other highly automatable occupations. Consequently, if such occupations would undergo automation in a similar timeline, the impact of new technologies would be significantly amplified. Finally, a counter-factual is performed where increased automation decreases revenues of manual firms in Transportation and material moving occupations by twenty-five percent. New steady-state features 150,000 more unemployed workers. Analyzing transition dynamics reveals unemployment is considerably higher during the transition, and it takes around seven years for unemployment rates to reach their steady-state values—a significant portion of a worker's career.