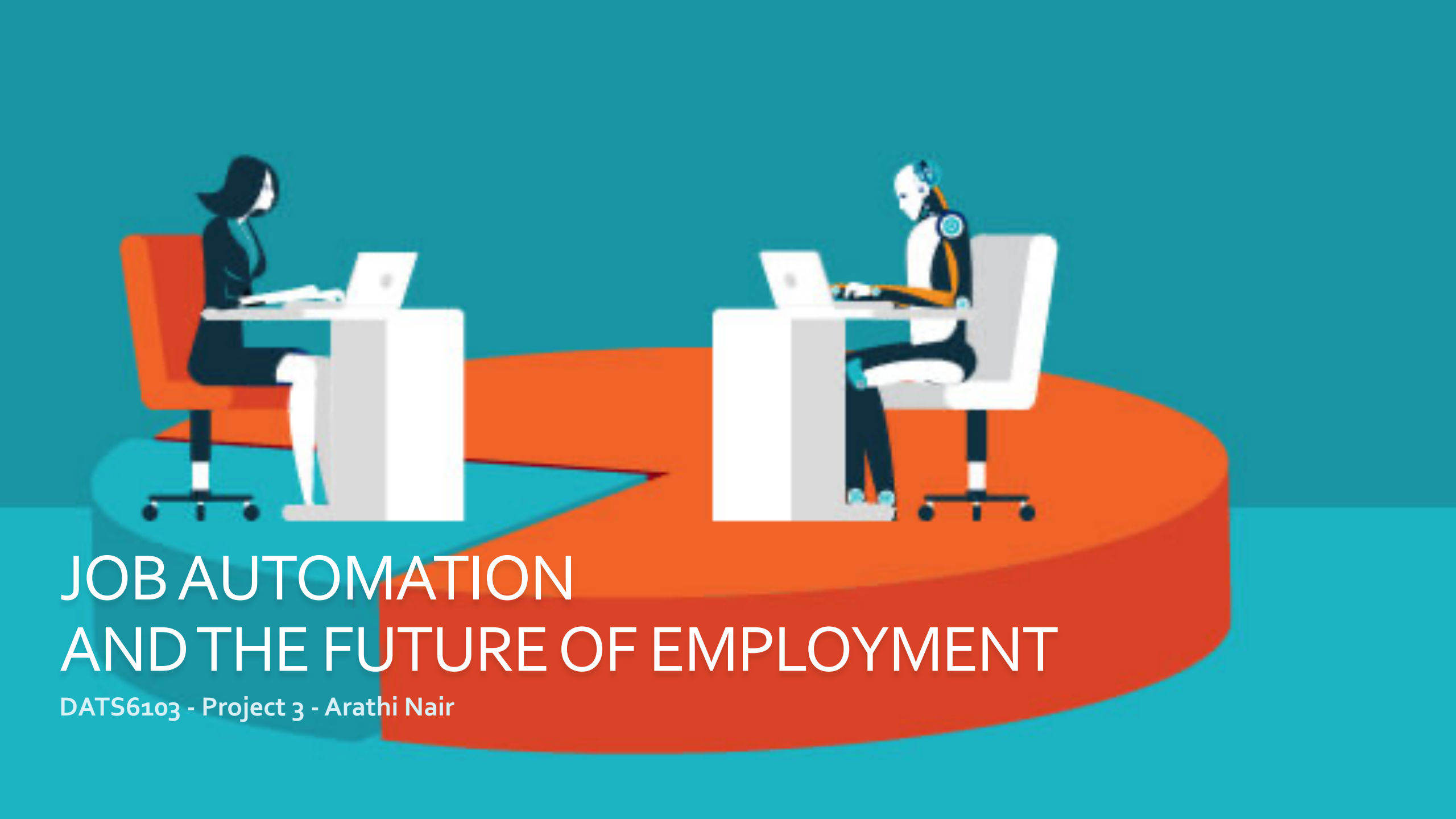


# JOB AUTOMATION AND THE FUTURE OF EMPLOYMENT

DATS6103 - Project 3 - Arathi Nair

# Introduction

Numerous studies have emerged claiming that AI, robotics and other forms of smart automation will displace US jobs in the coming 15 to 20 years.

This digital revolution has unleashed a new wave of advanced machines, further automating complex tasks and jeopardizing skilled workers in positions once considered difficult to automate.

Research increasingly shows that these disruptive technologies – predictive analytics, artificial intelligence, the Internet of Things, automation and robotics – are not only becoming better, but are also being combined to increase productivity and growth.

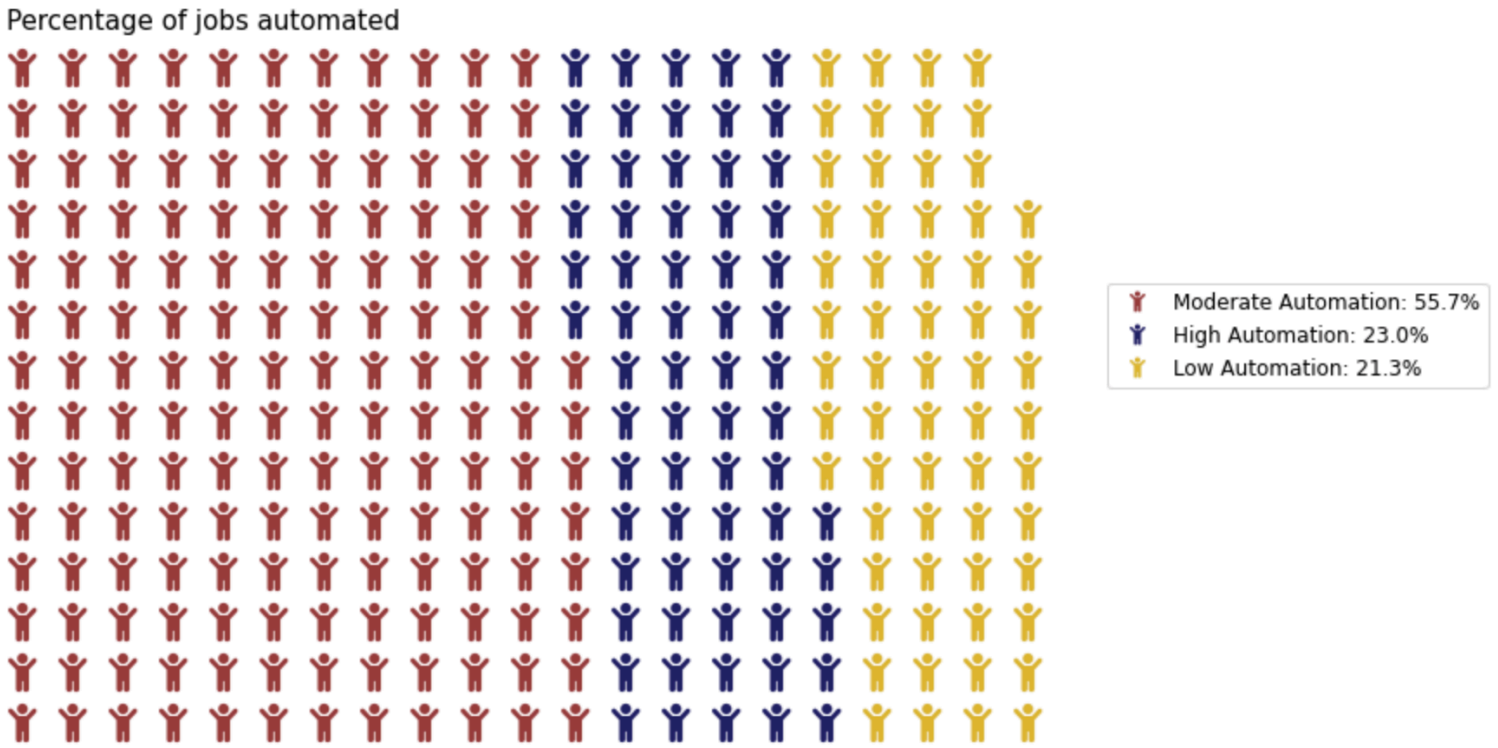
This report highlights significant differences in the degree of automatability of jobs by industry sector.

Data Source: U.S. Bureau of Labor Statistics, Mendeley Data, O*NET Data

# How susceptible are jobs to automation and what these shifts might mean for future employment?

# Automation in current workforce

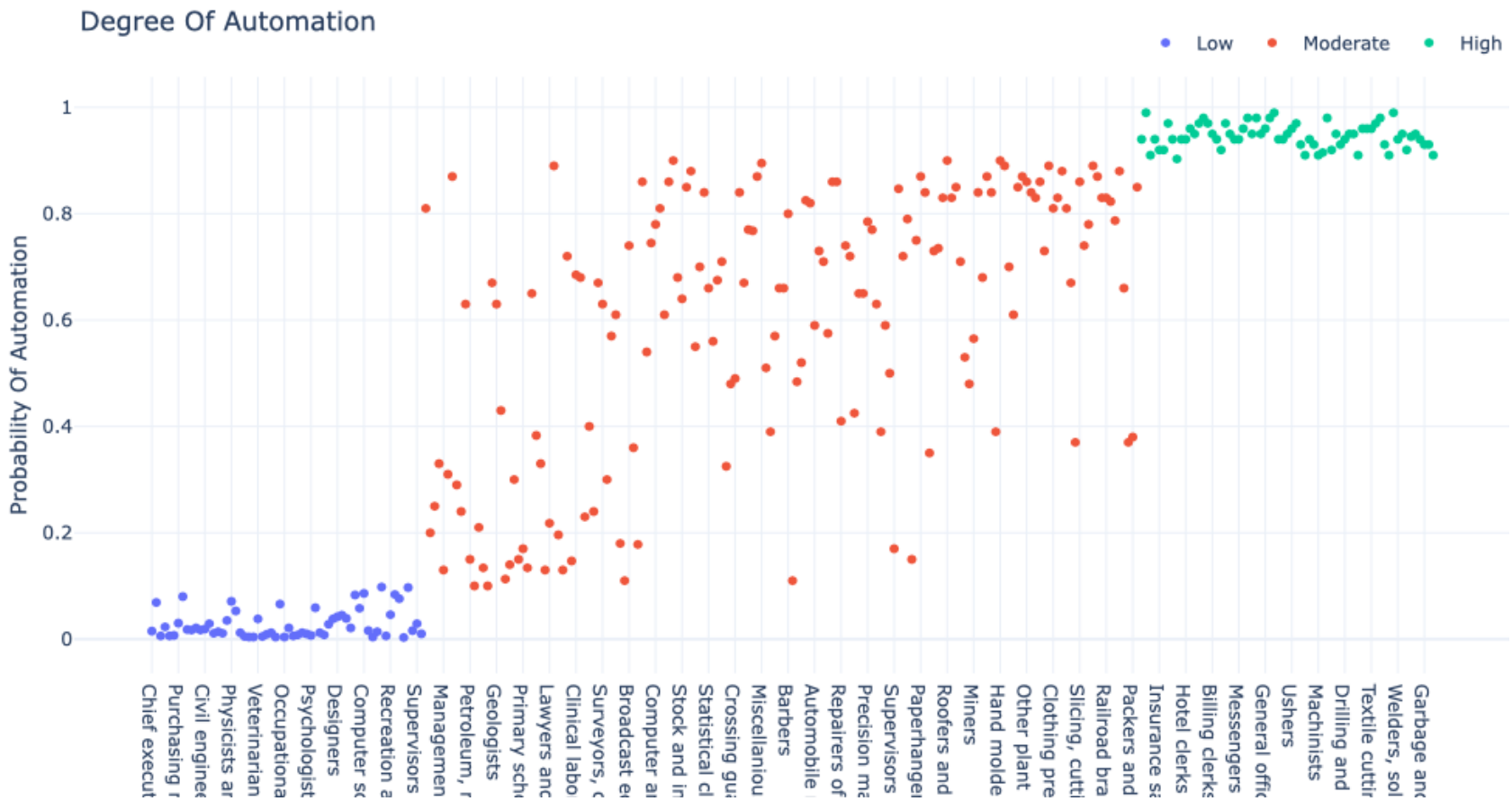
Most of the US workforce is increasingly adopting automation and newer technologies across all sectors. 23% of current jobs in the US are highly automated, 55.7% of the jobs fall into the moderate automation range, and only 23% of the jobs are least affected by automation.



# Job Roles & Probability Of Automation

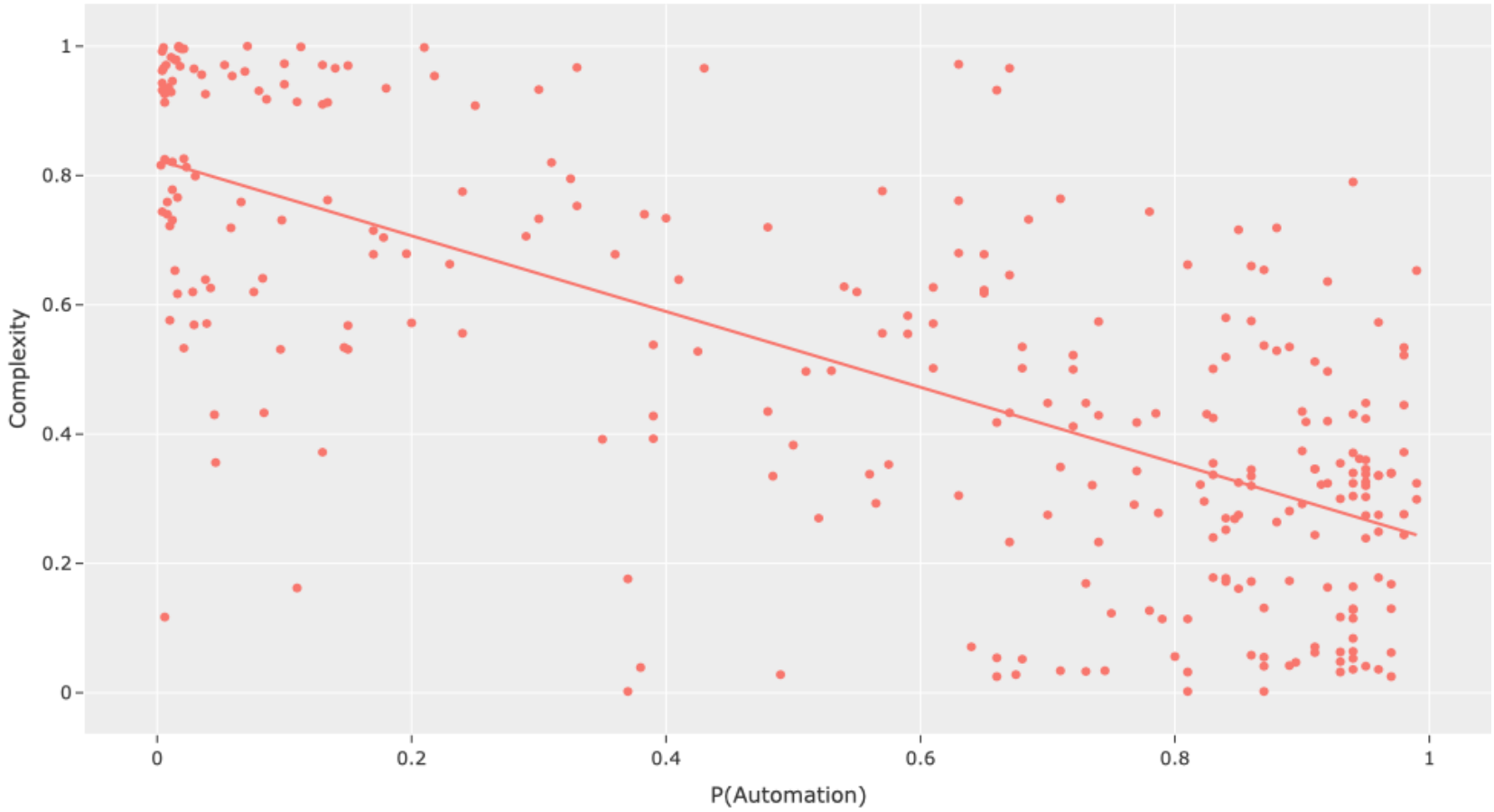
Top Executives, Scientists, Civil Engineers, Physicians, Therapists, Artists, Social Workers, Astronomists & Physicists jobs are largely confined to the low-risk category.

Whereas the probability of job automation is seen to increase as jobs shift towards manual labor centric roles.



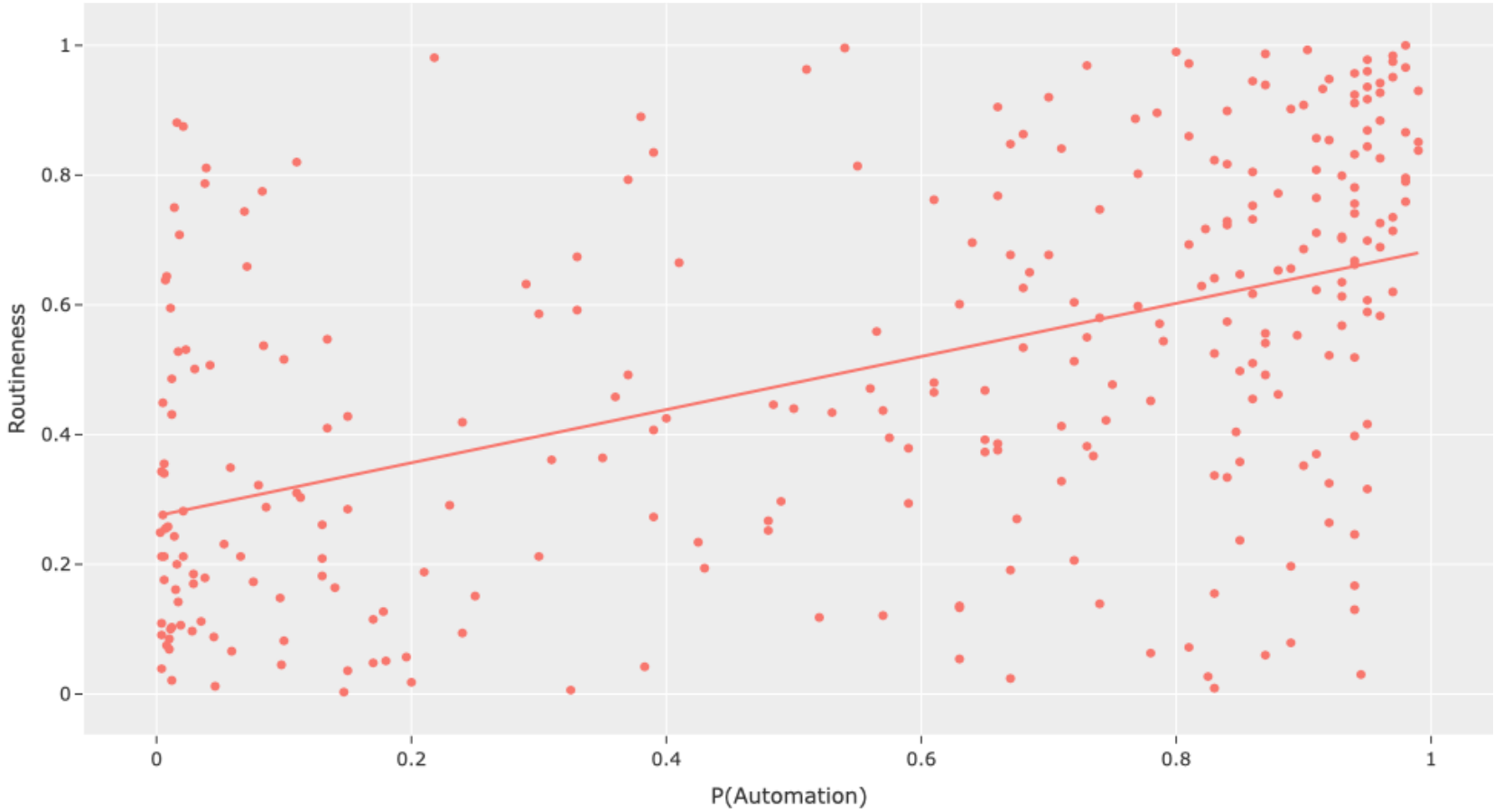
# Job Complexity & Job Automation Risk

We see a clear inverse correlation between the complexity of job roles and the probability of job automation, indicating that less complex jobs are at higher risk of automation.



# Job Routiness & Job Automation Risk

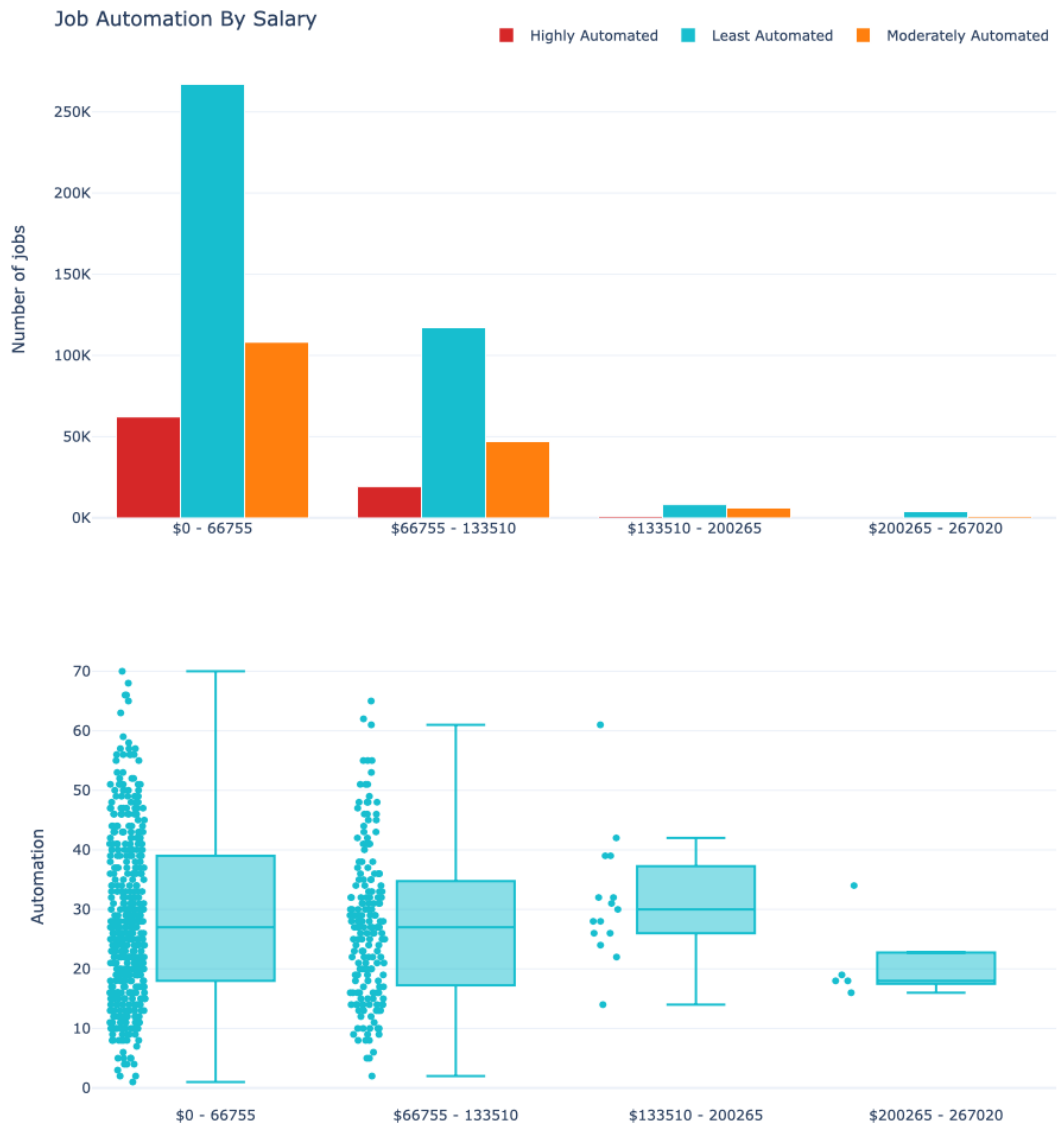
Routine intensive jobs which are governed by a clear set of steps or a process will make it easier for computers and machines to replicate, putting these jobs at a higher risk of displacement compared to non-routine jobs.



# Job Automation Risk By Income

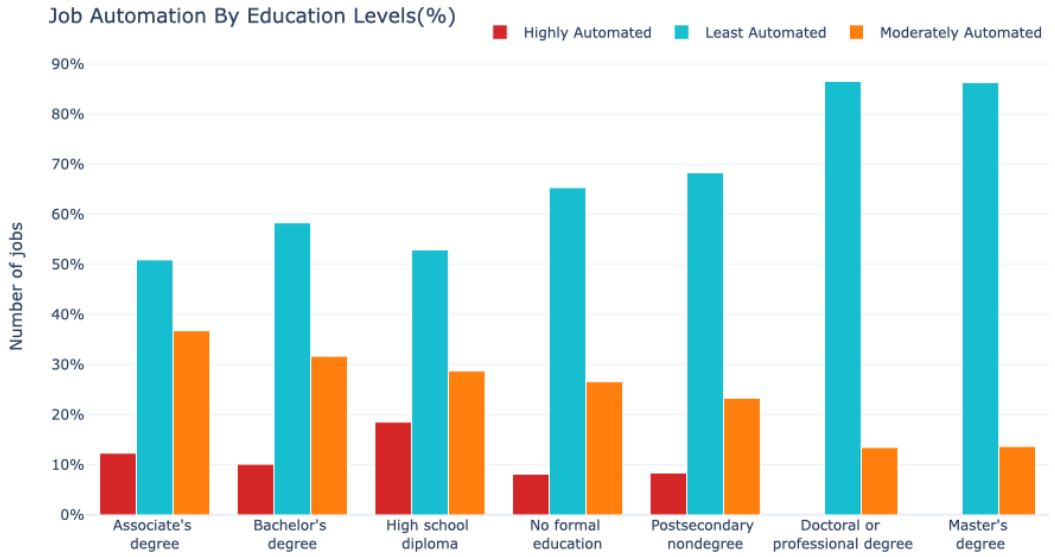
There is a clear distinction between job wages and likelihood of job automation; low-wage jobs face higher probability of automation while higher-wage jobs are less prone to automation.

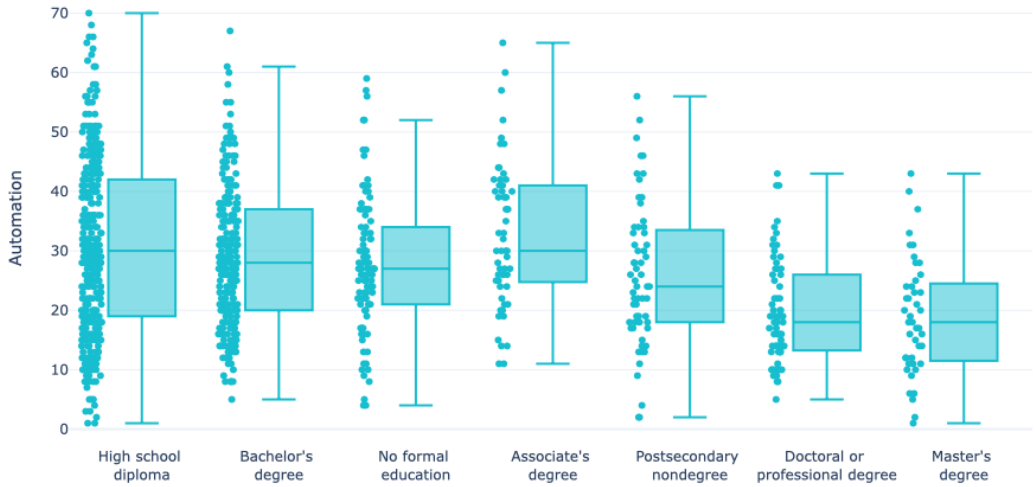
The absolute numbers of job automations in lower salary groups are higher, which may suggest greater job losses to automation.



# Job Automation Risk By Education

Although percentage of job automation risk for all education levels is moderate to low. Jobs requiring less educational attainment have higher percentage of automated jobs, indicating workers with higher educational attainment would be less vulnerable in the long run.

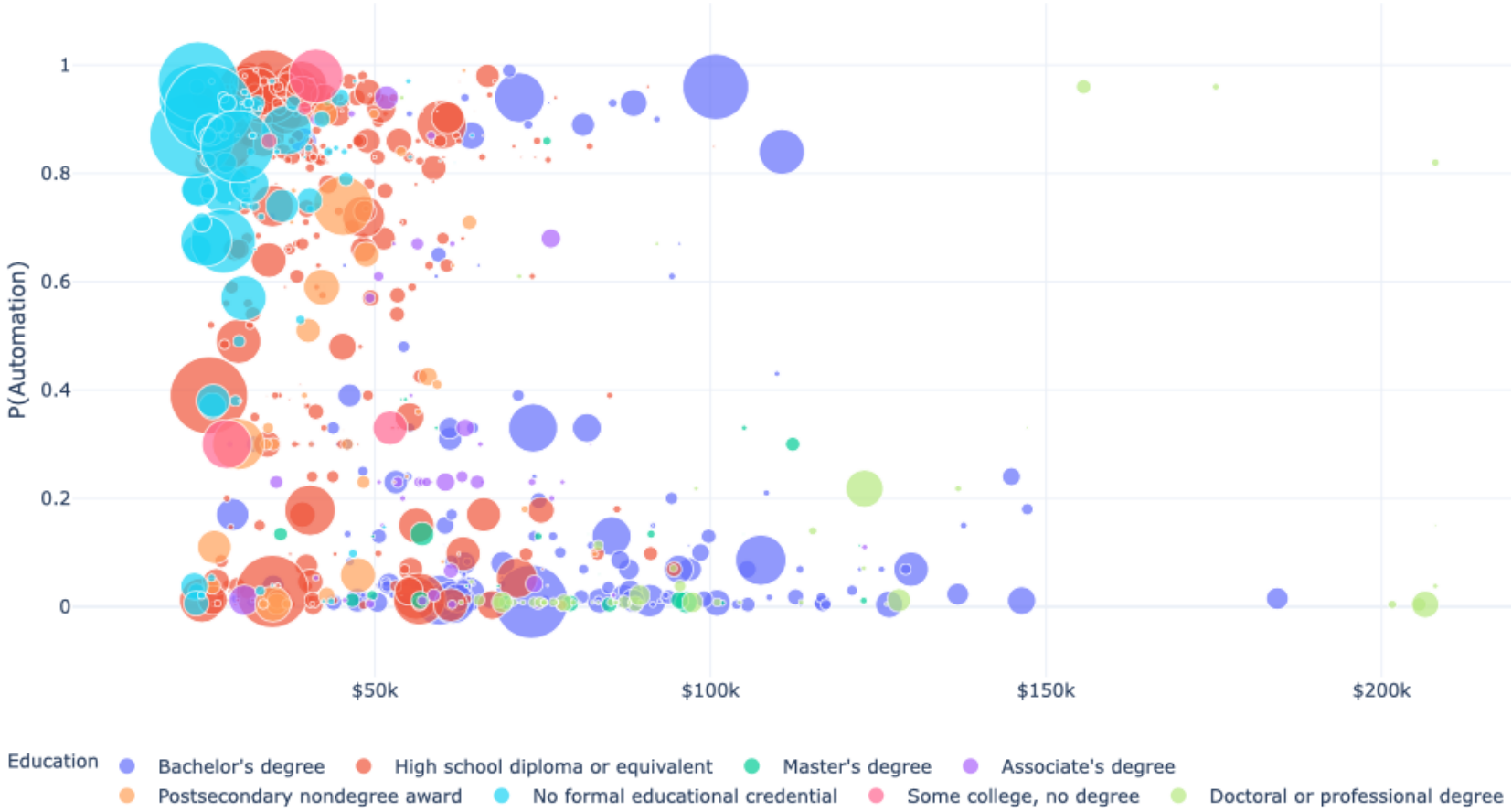


# Job Segments At Risk

A large population of employees in the lower wage group with low education level are highly vulnerable to job displacement in the future.

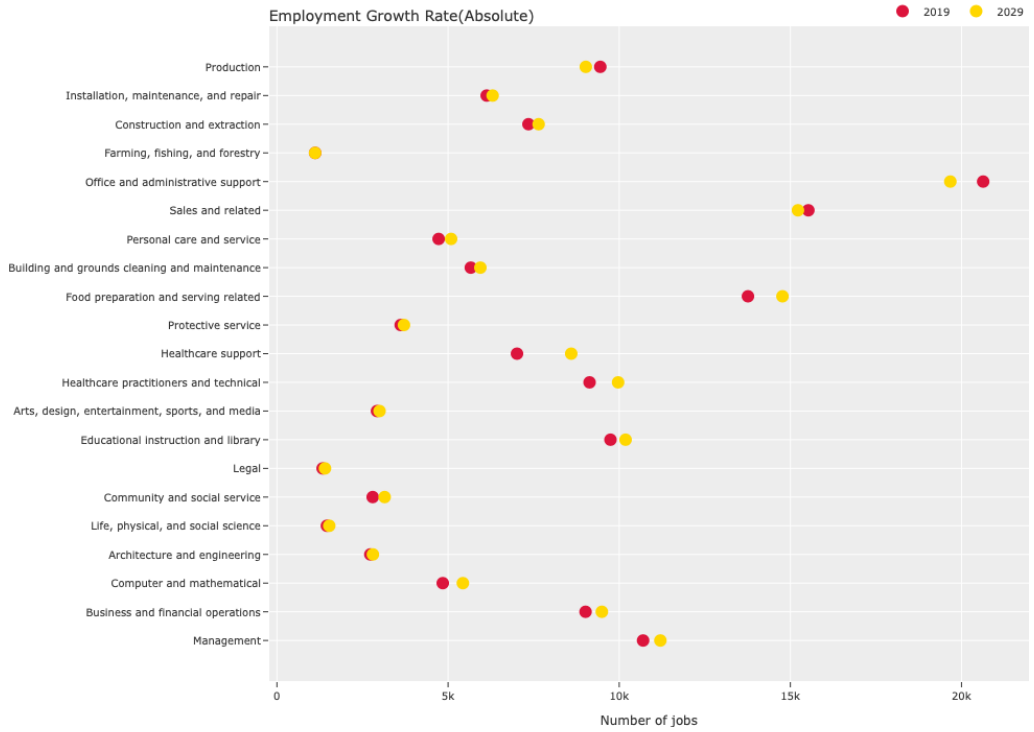
We also notice a few high paying jobs such as accountants, sales representatives and managers (general/service/operational) could also face job losses due to increased automation of repetitive tasks.

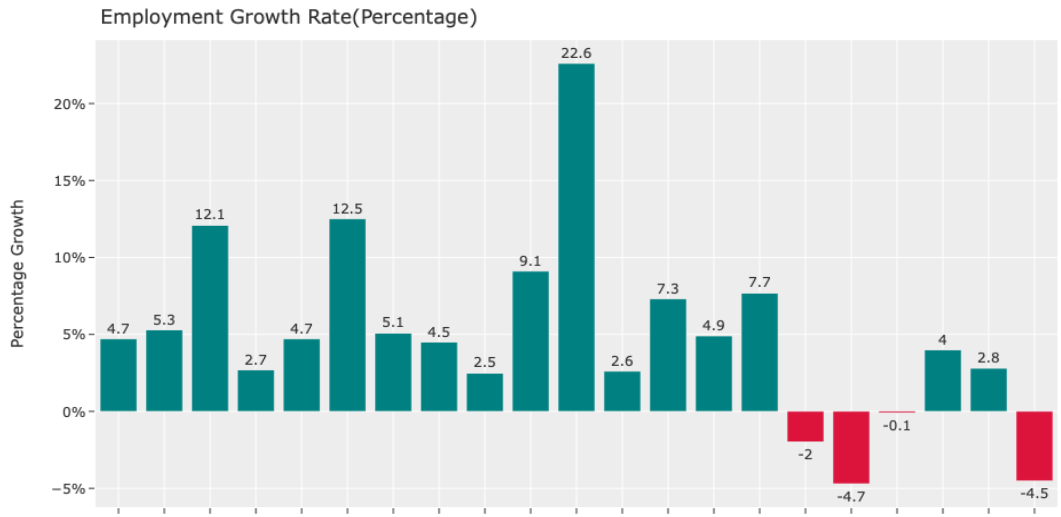


# Future Employment Growth

The future employment growth is likely to shift towards occupations like Healthcare, Social Service, Computer & Mathematical sectors which deal with non-routine tasks and require high cognitive skills and interpersonal skills.

Whereas occupations like Production, Sales support, Farming & Agricultural sectors which are based on extensive routine task and follow explicit, systematic procedures will see a declined growth rate in the coming years.



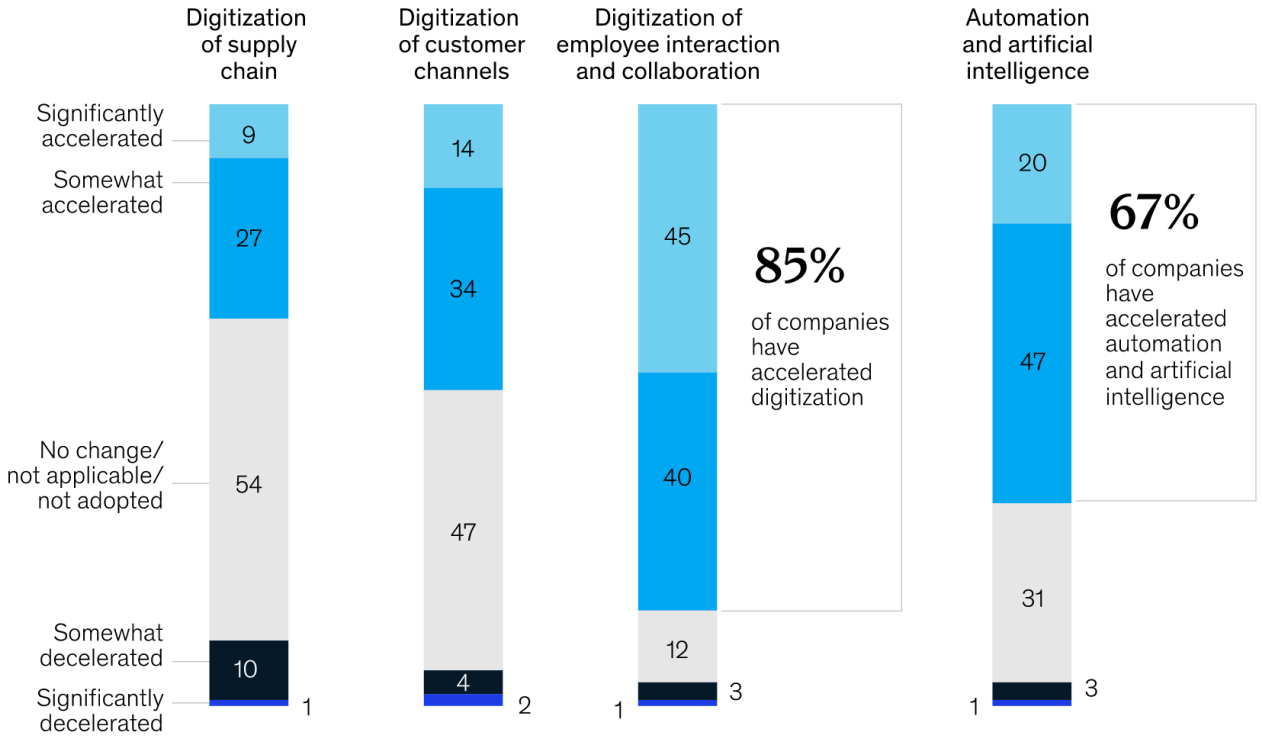



# Conclusion

- As companies embrace and implement automation, the workforce will be elevated to more complex and creative job functions.
- More businesses will focus on integration of human centric and AI centric processes.
- Highly creative or technical positions are most likely to prevail which require cognitive skills, interpersonal skills and emotional intelligence.
- Low-wage earners will be among the first to see their jobs disappear, since many of their tasks are routine based.
- Future workforce may need to switch occupations, acquire new skills and may also require to obtain higher educational qualifications.
- Moreover, the ongoing pandemic would force more businesses to speed up the job automation process. The labor-saving technologies could become permanent, displacing millions of jobs in the future.

## Executives say they have accelerated the deployment of digitization and automation during the COVID-19 pandemic.

**Since the start of the COVID-19 outbreak, how has your company's or business area's adoption of the following technology trends changed?** % of respondents (n = 800)

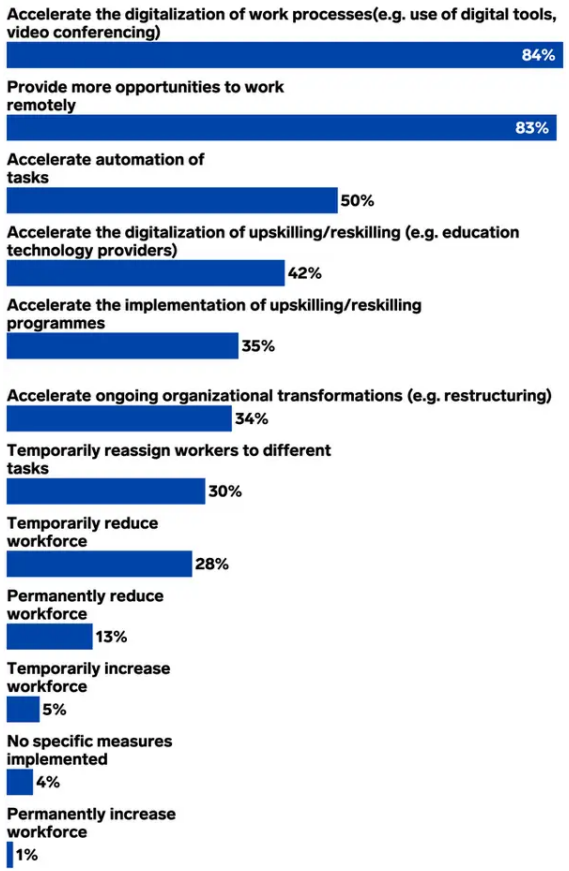



Note: Figures may not sum to 100%, because of rounding.
Source: McKinsey Global Business Executives Survey, July 2020

McKinsey & Company

## Most Frequently Cited Business Adaptations In Response To The Pandemic

*% of employers surveyed*




*Source: World Economic Forum, Future of Jobs Survey, 2020*
*Methodology: The World Economic Forum fielded 291 unique responses between February and September 2020 from business executives at global companies with 100+ employees, collectively representing more than 7.7 million employees worldwide.*

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# Thank You