The Future of Work:
Navigating Workforce Dynamics in the Age of GenAI

Company Advisors: Vincenzo Palermo, Ignacio Mamone Faculty Advisor: Swati Gupta


Seth Chatterton


Pranav Girish

Problem Statement and Objective

Generative AI (GenAI) is seen as one of the main levers for enterprise reinvention, yet most leaders do not believe they have the right capabilities to successfully reinvent their organizations.

A People-centric approach to GenAI adoption in the workforce with deliberate effort to help people transition to new jobs has been shown to unlock maximum economic value

Given the technological change posed by the incorporation of GenAI systems in the workforce, how can companies redesign their workforce and adopt effective GenAI strategies to be robust to this shift?

Our aim is to develop a system which enables companies to better navigate the impact of Generative AI on the composition of their workforce, utilizing an elaborate simulation framework to maximize productivity through effective company technology strategies and optimized reskilling initiatives.

Data Description

Task and Skills Data
Tasks involved in each job
Skills required in each job

Job Transition Data
Probability of specific job transitions
Wages, Education, Experience, etc.

Financial Data
Employment statistics across industries

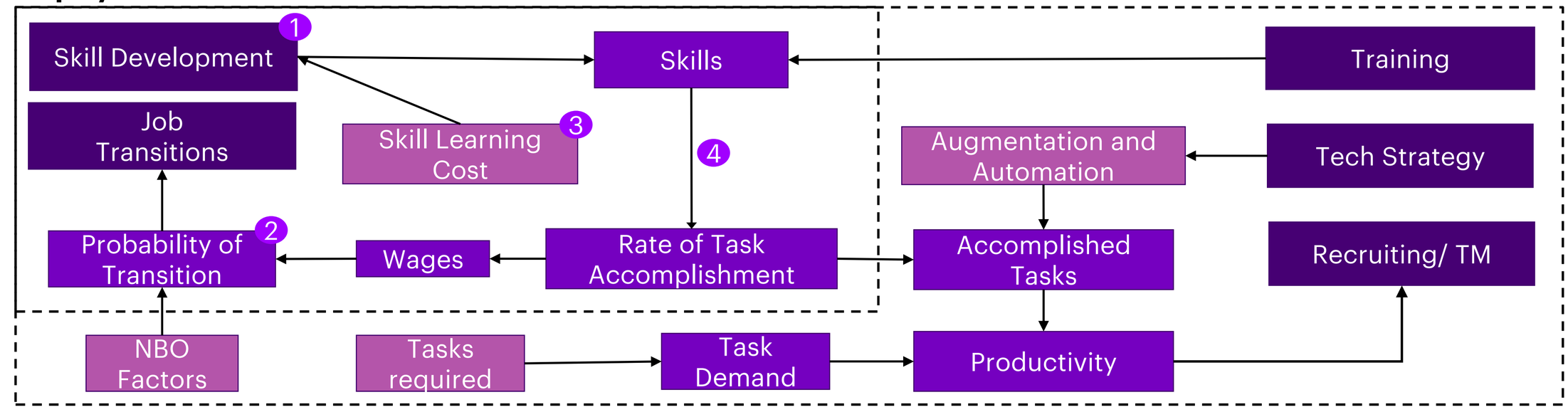
851 Jobs

332 Tasks

7748 Skills

Simulation Overview

Employee Level View



Company Level View

Key Decision Point Algorithms

1. Skill Initialization
- Simulate a career backward in time to choose the skills a person starts with

2. Transition Value Model
- Random Forest Regressor to predict transition probability with wages and NBO metrics

3. Skill Learning Cost
- Estimated with education and experience features of jobs that require the skill

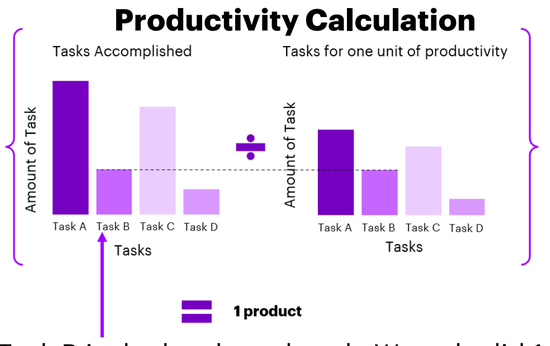
4. Skill-Task Matching
- Cosine Similarity approach using co-occurrence in jobs

Simulation Mechanics

Skill Development

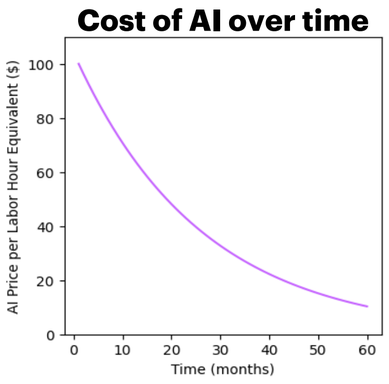
People acquire skills over time, depending on both their job and how quickly they learn new skills.

Productivity Calculation



Task B is the bottleneck task. We only did 1 unit of Task B, and we need 1 unit to make 1 product, so we don't get any more productivity even though we did more task than necessary for Tasks A, C, and D

Cost of AI over time

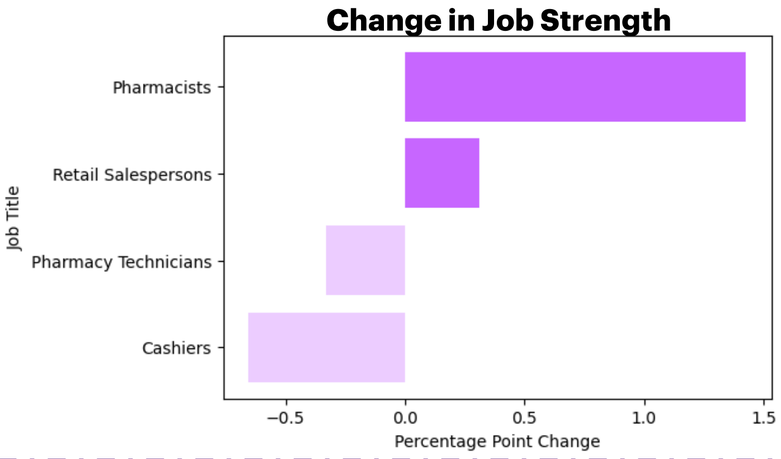


We assume the cost of AI labor starts very high and decay exponentially.

Simulation Outcomes (Application to the Biopharmaceutical Industry)

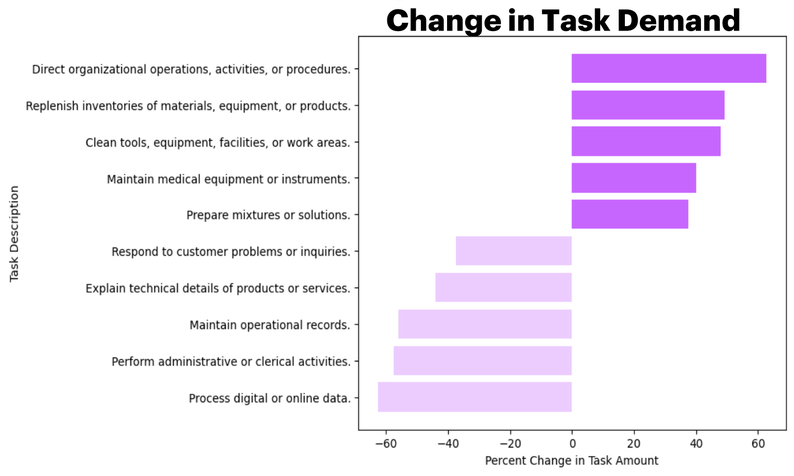
Our asset provides detailed insights into potential **workforce restructuring** as demand for specific task and skills change over time

Change in Job Strength



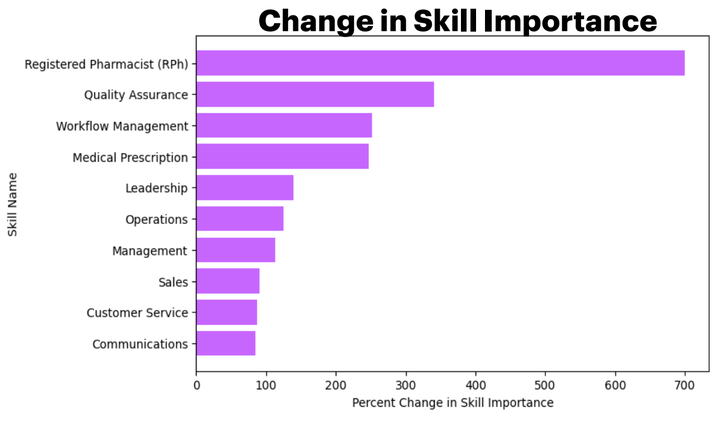
Changes in jobs lead to **changes in task distributions** of the workforce. Automation also causes task changes in the workforce

Change in Task Demand



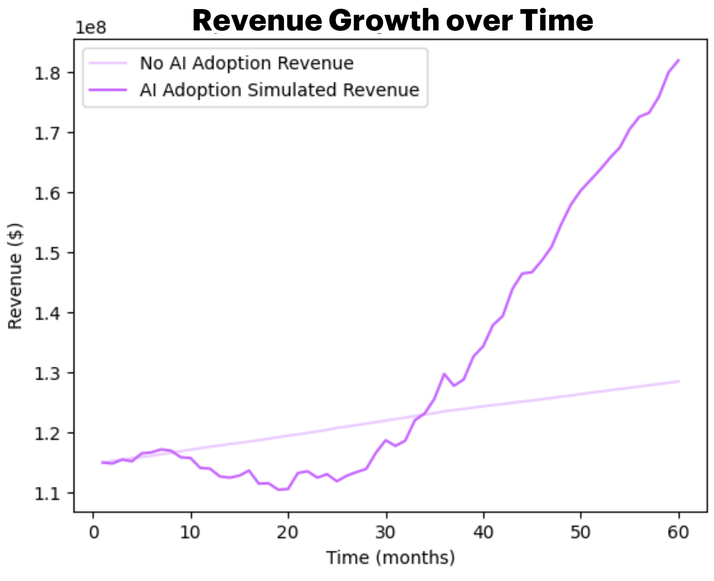
The change in task distributions means that there are in turn **changes in skill importances**, underlining the need for proactive reskilling efforts to address this gap

Change in Skill Importance

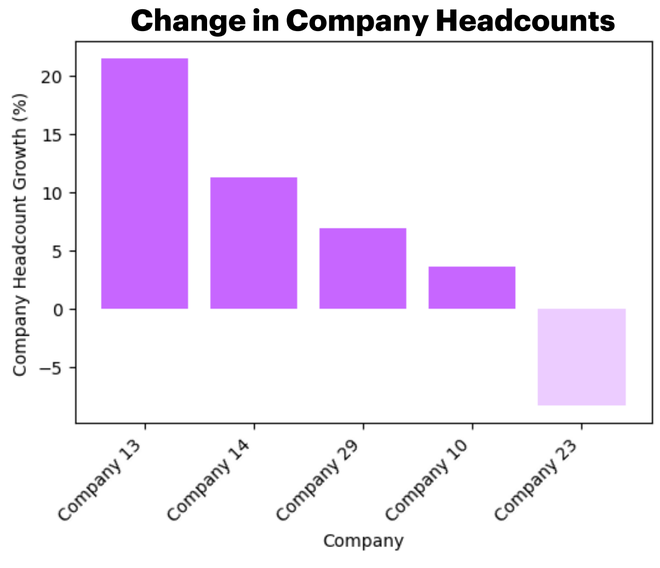


Our asset also relates the adoption of GenAI systems with **expected revenue increase** over time. As seen on the right, the simulation describes how **effective technology strategies** surrounding the integration of GenAI systems are vital for accelerated growth in revenue.

Revenue Growth over Time



Change in Company Headcounts



Industry leaders see **growth in headcount** and in turn their productivity. The simulation includes a set of companies of different characteristics, enabling a **company-level analysis** against overall industry standards as well as specific competitors

Business Impact and Value Proposition

- Simulation framework with a high degree of personalization, enabling experimentation of various scenarios to determine the optimal strategy for specific clients and across industries
- Our solution provides insight into key company strategies and a focus on reskilling of the workforce in conjunction with GenAI adoption with the goal of maximizing economic value
- The decision-point algorithms such as the skill-task matching framework serve as valuable capability enablers in various economic modeling efforts at Accenture Research
- The multi-faceted tool encapsulates our project contributions by enabling higher level analyses at client-level

Product Demo