

# Computational Jobs Marketplace

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AI Summit



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YAHOO!  
RESEARCH

Etsy

Linked 



# Agenda

- 1 Online Jobs Marketplace
- 2 Existing Technology in Online Jobs Marketplace
- 3 Computational Jobs Marketplace



# Agenda

- 1 Online Jobs Marketplace**
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# Online Jobs Marketplace



# Online Jobs Marketplace



*“The global online recruitment market size was \$28.68 billion in 2019 & is projected to reach **\$43.39** billion by 2027.”*



# Online Jobs Marketplace

PERSONAL FINANCE

## Pandemic pushes search for remote jobs up 460%

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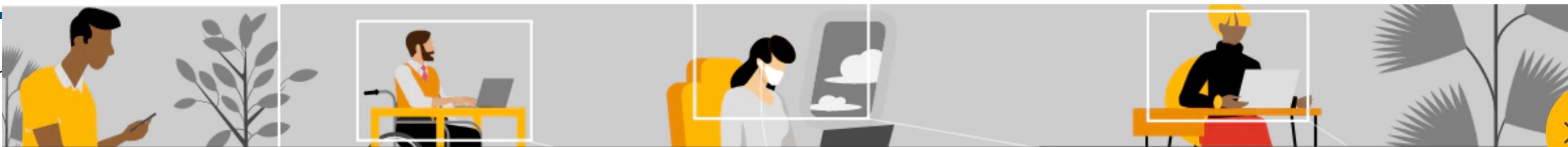


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Home > Research and insights > COVID-19 > Business needs a tighter strategy for remote work

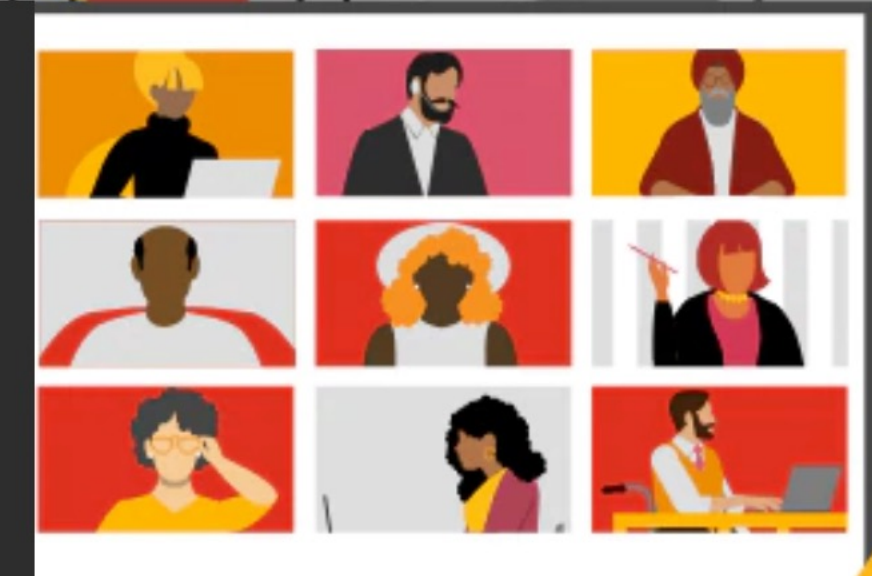
### KEY POINTS

- Job searches for remote work are up 460% according to Glassdoor data.
- Interest has tapered but remained high, suggesting the trend has staying power.
- It's unclear whether employers will leverage in the current labor market.



## It's time to reimagine where and how work will get done

PwC's US Remote Work Survey - January 12, 2021



Nine months into a monumental shift to work-from-home, business leaders are more convinced about the productivity gains achieved, but some are no closer to giving up the office.

# Online Jobs Marketplace

LinkedIn® careerbuilder®  
glassdoor

 ZipRecruiter

indeed®

coursera

LinkedIn Learning

# Online Jobs Marketplace





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# Existing Technology in Online Jobs Marketplace

*Borrow and Adopt Their More Generic Counterparts*



# Existing Technology in Online Jobs Marketplace

The screenshot displays a job search interface for 'software engineer' in the 'United States'. The top navigation bar includes the LinkedIn logo, search input, location, and various utility icons. Below this is a filter bar with options like 'Jobs', 'Date Posted', 'Experience Level', 'Company', 'Job Type', 'Remote', 'Easy Apply', and 'All filters'. The main content area shows search results for 'Software engineer in United States' with 93,829 results. A sidebar on the left lists job recommendations from Uber, JPMorgan Chase & Co., LinkedIn, and Microsoft. The central panel features search filters for 'What' (software engineer) and 'Where' (Santa Clara, CA), along with additional filters like 'Date Posted', 'Remote', 'within 25 miles', 'Salary Estimate', 'Job Type', 'Developer Skills', 'Education Level', 'Clearance Type', 'Location', and 'Company'. A 'Find jobs' button is present. Below the filters, there's a section for 'Upload your resume - Let employers find you' and a list of job results. The first result is 'Software Engineer (Entry level, NCG)' by Yield Engineering Systems, with details like location (Fremont, CA), full-time status, and an 'Apply now' button. A detailed view of this job is shown on the right, including job details (Full-time), number of hires (1), qualifications (Bachelor's, REST, Java), and benefits.

**Software engineer in United States**  
93,829 results

**Jobs** | Date Posted | Experience Level | Company | Job Type | Remote | Easy Apply | All filters

**Software engineer in United States**  
93,829 results

**Uber** Invitation Only-Sr Software Engineer  
Uber  
San Francisco, CA  
31 connections work here  
Promoted · 5 applicants

**JPMorgan Chase & Co.** Senior Software Engineer  
JPMorgan Chase & Co.  
Houston, TX  
16 company alumni work here  
Promoted · 1 applicant

**LinkedIn** Software Engineer <Test Job Visible to L Employees Only>  
LinkedIn  
San Francisco Bay Area  
183 connections work here  
Promoted · 0 applicants · Apply easily

**Microsoft** Software Engineer  
Microsoft  
Sunnyvale, CA  
\$119K – \$165K  
172 connections work here  
4 days ago

**What** software engineer **Where** Santa Clara, CA **Find jobs** Advanced Job Search

Date Posted | Remote | within 25 miles | Salary Estimate | Job Type | Developer Skills | Education Level | Clearance Type | Location | Company | Experience Level

**Upload your resume - Let employers find you**

software engineer jobs in Santa Clara, CA  
Sort by: **relevance** - date Page 1 of 12,516 jobs

**new** Software Engineer (Entry level, NCG)  
Yield Engineering Systems 3.0 ★  
Fremont, CA 94538 (Baylands area)  
Easily apply  
Design classes in a complex **software** system for semiconductor equipment control.  
0 - 2 years' experience in **software** development.  
Coding skill with C# or C++.  
Active 5 days ago

**new** Software Test Engineer  
Allied Telesis 3.2 ★  
San Jose, CA 95134 (North San Jose area)  
Easily apply  
Document **software** defects, using a bug tracking system, and report defects to **software** developers.

**Software Engineer (Entry level, NCG)**  
Yield Engineering Systems ★★★★★ 3 reviews  
Fremont, CA 94538  
Full-time  
Employer actively reviewed job 5 days ago  
Apply now

**Job details**  
**Job Type**  
Full-time  
**Number of hires for this role**  
1

**Qualifications**  
• Bachelor's (Preferred)  
• REST: 1 year (Preferred)  
• Java: 1 year (Preferred)

**Benefits**  
Pulled from the full job description



# Existing Technology in Online Jobs Marketplace

- My Jobs
- Job Alerts
- Salary
- Skill Assessments
- Interview Prep
- Resume Builder
- Job Seeker Guidance
- Application Settings

Post a free job

### Recommended for you

Based on your profile and search history.

- Director, Engineering - Search**  
Twitter  
San Jose, CA  
29 connections work here  
4 days ago • 6 applicants
- Board Member**  
boardsi  
Los Angeles Metropolitan Area (Remote)  
Actively recruiting  
Promoted • 19 applicants
- Principal Applied Scientist, Amazon F**  
Amazon  
Sunnyvale, CA  
Top applicant  
Promoted • 3 applicants

indeed Find jobs Company reviews Find salaries Upload your resume Sign in

What Recommended Where City, state, zip code, or "remote" Find jobs Advanced Job Search

Tip: Enter your city or zip code in the "where" box to show results in your area.

Date Posted Remote Salary Estimate Job Type Benefits Location Company Experience Level

Upload your resume - Let employers find you

Recommended jobs Sort by: relevance - date Page 1 of 132,631 jobs

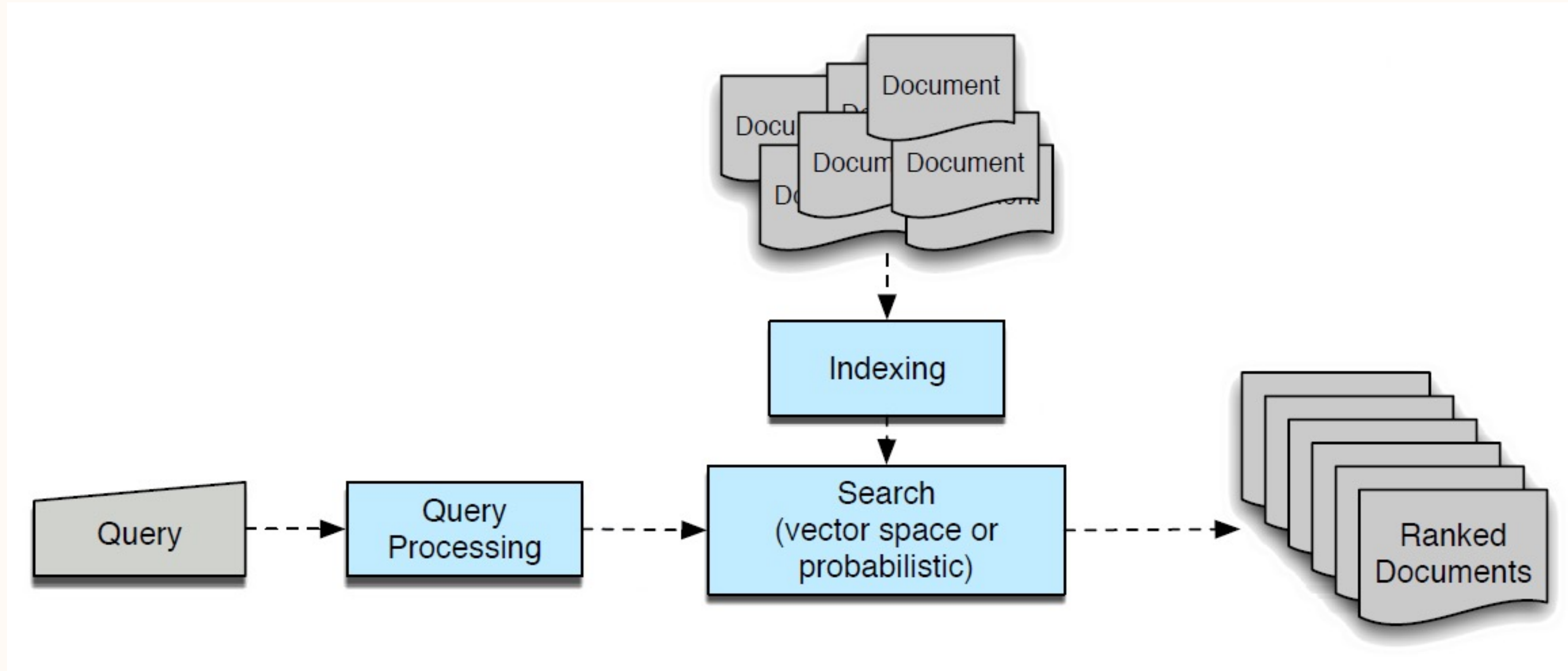
**indeed** Chief of Staff to the GM of SMB  
Indeed 4.3 ★ Remote  
\$188,000 - \$272,000 a year  
Easily apply  
My Chief of Staff will start by spending a lot of time with me, joining me in meetings spanning every area of Indeed, in Austin, and around the world.  
19 days ago

**Software Engineer**  
Indeed 4.3 ★ +15 locations Remote  
\$86,000 - \$124,000 a year  
Easily apply  
Every week sees the new release of multiple products that meet the needs of jobseekers worldwide.

**Chief of Staff to the GM of SMB**  
Indeed ★★★★★ 869 reviews  
Remote • Remote  
\$188,000 - \$272,000 a year - Full-time  
Apply now

**Job details**  
Salary \$188,000 - \$272,000 a year  
Job Type Full-time  
Benefits

# Classic Search & Recommendation Systems



## Existing Technology in Online Jobs Marketplace

- Text understanding: from bag-of-words, to entities, to embeddings
- Search-based architecture
- Sophisticated text matching
- Heavy feature engineering from user activity signals
- Learning to rank



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# Computational Jobs Marketplace

- How to avoid “VP-Intern” problem?
- How to inspire career move?
- How to inspire location move or remote work?
- How to help companies find best talents faster?
- Can we forecast and predict the marketplace and therefore create recommendations beforehand?

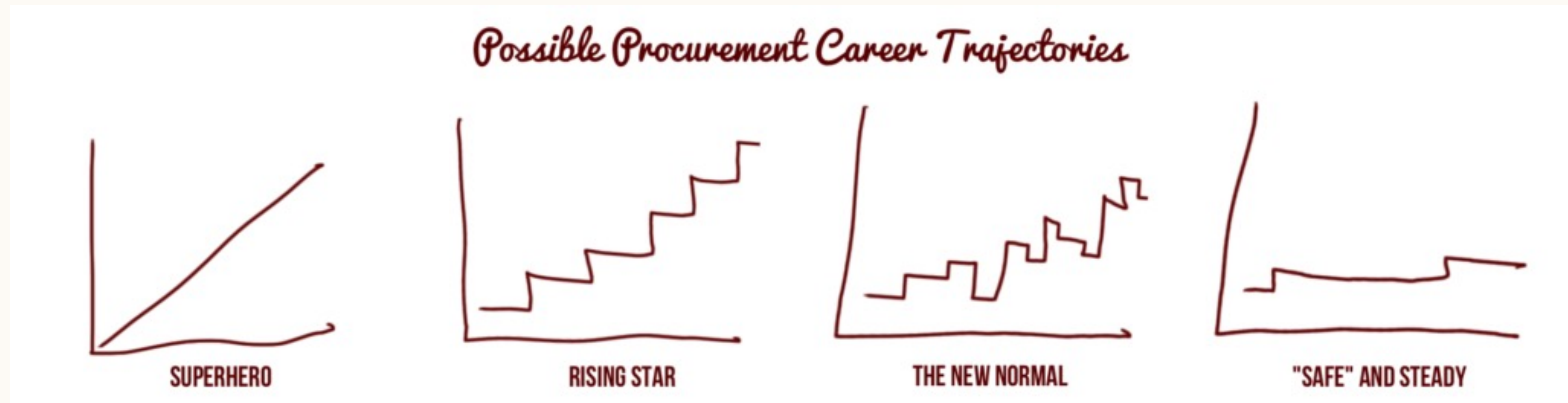
# Computational Jobs Marketplace

- Consider native properties of jobs marketplace
- Model marketplace dynamics from first principle



# Computational Jobs Marketplace: Opportunity I

## Understanding Career Trajectories



# Computational Jobs Marketplace: Opportunity II

## Understanding Mobility and Remote Work





# Computational Jobs Marketplace: Opportunity III

Modeling Demand & Supply  
Optimizing Marketplace Utilities





# Computational Jobs Marketplace



# Recap

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Thank you