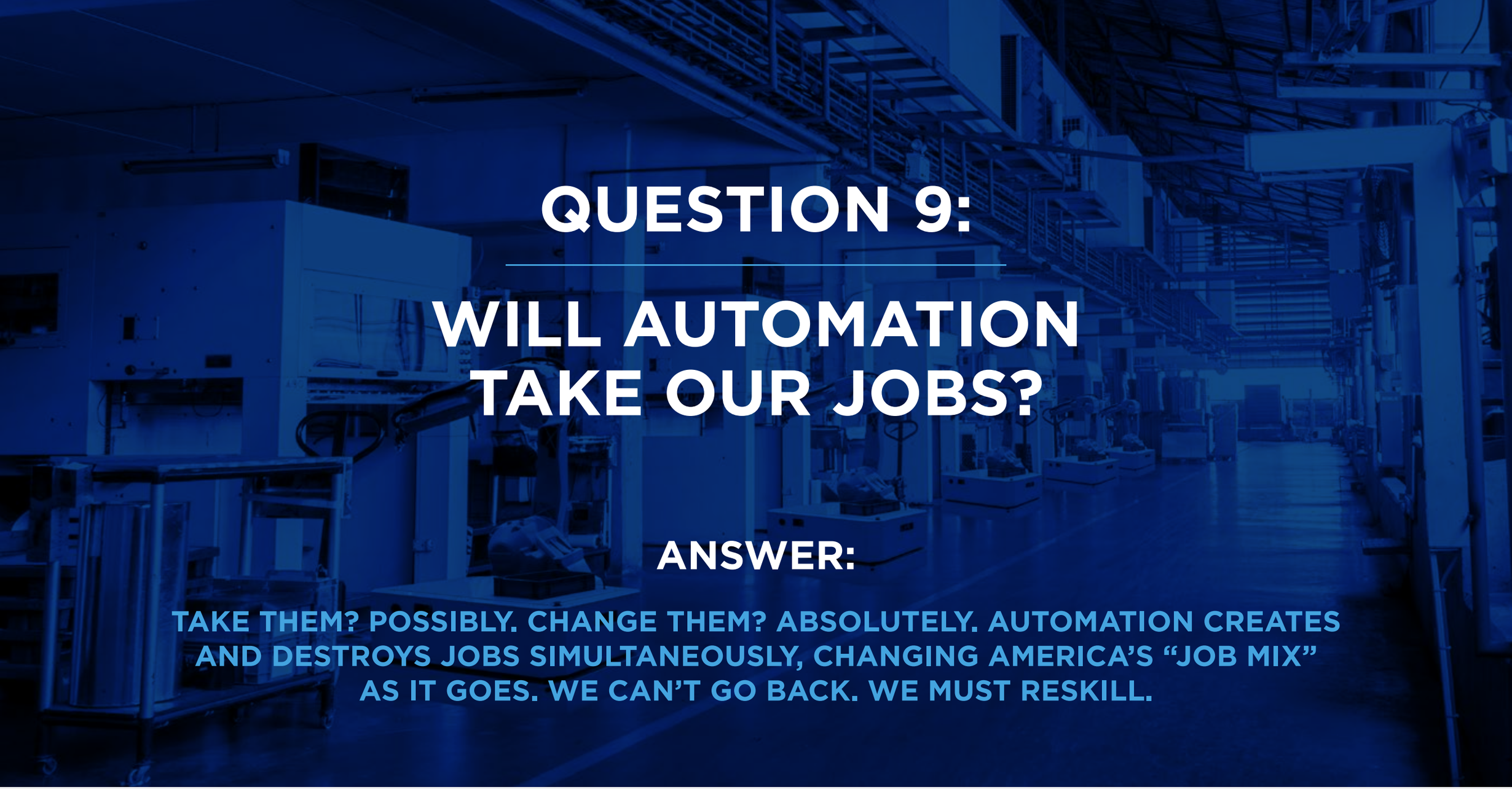
OCTOBER 2019

ANSWERING AMERICA

QUESTION 9: WILL AUTOMATION TAKE OUR JOBS?

THE BUSINESS CASE AGAINST TRUMP'S AGENDA

BUSINESSFORWARD FOUNDATION



QUESTION 9:

WILL AUTOMATION TAKE OUR JOBS?

ANSWER:

TAKE THEM? POSSIBLY. CHANGE THEM? ABSOLUTELY. AUTOMATION CREATES AND DESTROYS JOBS SIMULTANEOUSLY, CHANGING AMERICA'S "JOB MIX" AS IT GOES. WE CAN'T GO BACK. WE MUST RESKILL.

THE ARGUMENT

1 Trump promised to bring millions of manufacturing jobs “back” to the U.S. The problem? Many of them didn’t move overseas; they were automated. Focusing on manufacturing jobs that no longer exist distracts us from the millions of new, skilled manufacturing jobs we’re creating.

2 Automation creates and destroys jobs simultaneously, changing a market’s “job mix” as it goes. Workers who add skills become more productive and move up to higher paying jobs. Workers who fail to add skills fall into the lower paying service jobs robots and A.I. cannot perform.

3 There will be 4.6 million skilled manufacturing jobs to fill by 2028. The problem? 2.4 million could go unfilled because American workers don’t have the skills they need.

4 Automation is good for cities, bad for rural areas. Some regions, like the Midwest, are particularly vulnerable. If the U.S. cannot fill today’s high-skilled job openings, companies will move those jobs somewhere else.

> “My plan includes a pledge to restore manufacturing in the United States.[1]”
>
> **- PRESIDENT DONALD TRUMP**

MANY OF THE MANUFACTURING JOBS TRUMP WANTS TO "BRING BACK" DIDN'T MOVE OVERSEAS; THEY WERE AUTOMATED

TRUMP LAUNCHED A TRADE WAR TO BRING STEEL JOBS BACK

THE PROBLEM?

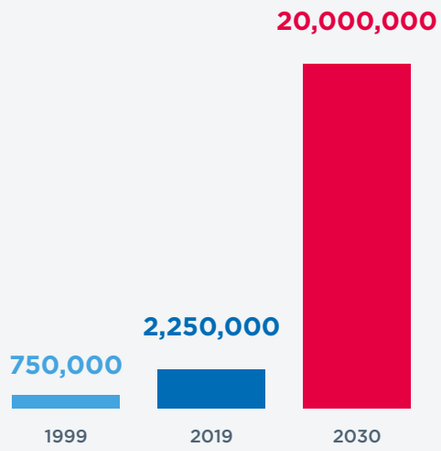
50%

OF THE WORLD'S STEEL JOBS HAVE BEEN ELIMINATED SINCE 1972.[2]

Consolidation and improved manufacturing processes have increased productivity by more than 6X since 1980.[3]

THERE ARE 3X MORE ROBOTS NOW THAN THERE WERE 20 YEARS AGO

There will be 9X more in 2030 than today.[4]



And MIT Economist Daron Acemolu estimates that every new robot reduces employment by 5.6 workers[5]

THE STEEL JOBS THAT REMAIN REQUIRE NEW SKILLS

> "As the [steel] industry continues to introduce technological innovations, the profile of the workforce will evolve and require higher levels of education and training than ever before... the demand for engineers, computer scientists, business major, and skilled production workers is expected to remain strong.[6]"
>
> - WORLD STEEL ASSOCIATION

AUTOMATION'S IMPACT ON STEEL IS THE RULE, NOT AN EXCEPTION

2000 TO 2017:

5.5M

U.S. MANUFACTURING JOBS LOST

WHILE

U.S. MANUFACTURING OUTPUT INCREASED[7]

7%

AUTOMATION CREATES AND DESTROYS JOBS SIMULTANEOUSLY, CHANGING A MARKET'S "JOB MIX" AS IT GOES

THREE OUT OF FOUR CEOS SAY THAT SKILLS GAPS IN CREATIVITY AND PROBLEM SOLVING MAKE HIRING DIFFICULT[8]

What sells:

1. Strong foundation of academic knowledge
2. Skills necessary to apply that knowledge to non-routine problems as they arise
3. A set of competencies that allow them to work well and ethically with others
4. A great deal of flexibility and adaptability

99%

OF JOBS CREATED DURING THE ECONOMIC RECOVERY WENT TO WORKERS WITH POSTSECONDARY EDUCATION OR TRAINING[9]

JOB POSTINGS FOR A.I. POSITIONS IN THE U.S. INCREASED 159% OVER THE PAST YEAR[10]

TURNOVER IN DETROIT REFLECTS CHANGING MANUFACTURING MIX

NOVEMBER 6, 2018
JAMIE LAREAU

GM'S JOB CUTS MEAN NEW KIND OF WORKER NEEDED

"General Motors is a technology company that makes cars, and the skills its employees had yesterday are continuously becoming outdated...

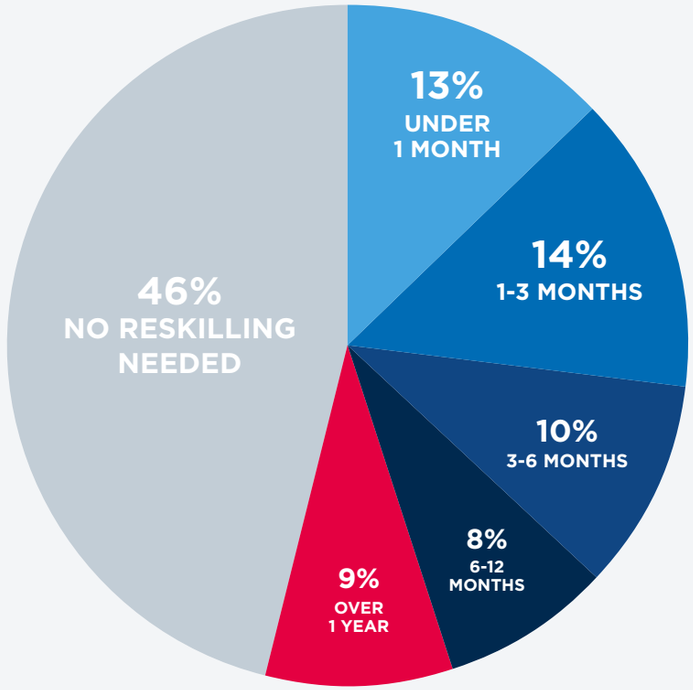
...GM has been adding a younger workforce with technology-heavy skills in recent years. In fact, only about 17,700 of GM's 50,000 salaried workers in North America have... 12-plus years seniority."[11]

Detroit Free Press

AS JOBS IN AMERICA CHANGE, WORKERS MUST ADAPT

54% OF U.S. WORKERS NEED RESKILLING[12]

AVERAGE LENGTH OF TRAINING REQUIRED TO RESKILL
(SHARE OF WORKFORCE)



CHALLENGES FACING CAREER PREPAREDNESS FOR THE FUTURE OF MANUFACTURING:

1. Attracting high-skilled workers to the industry pipeline
2. Repositioning existing workers to handle the industry's emerging technical and skill challenges.[13]

(MOLLY KINDER, NEW AMERICA)

CHANGE WILL BE CONSTANT

THE AVERAGE AMERICAN WILL HAVE AT LEAST

12

DIFFERENT JOBS BETWEEN THE AGES OF 18-50[14]

JOBS WILL DEMAND MORE COMPLEX SKILLS

BY 2030, WORKPLACE DEMAND WILL INCREASE BY

60%
FOR TECHNOLOGICAL SKILLS

40%
FOR CREATIVITY

33%
FOR ENTREPRENEURSHIP[15]

IF WE FAIL TO RESKILL, WE COULD MISS OUT ON 2.4 MILLION MANUFACTURING JOBS AND $2.5 TRILLION IN MANUFACTURING OUTPUT (2018-2028)

UNFORTUNATELY, A DELOITTE STUDY PROJECTS OUR WORK-FORCE WILL LACK THE SKILLS NEEDED TO FILL THEM[16]

2.7M
JOB OPENINGS CREATED BY RETIREMENT

+

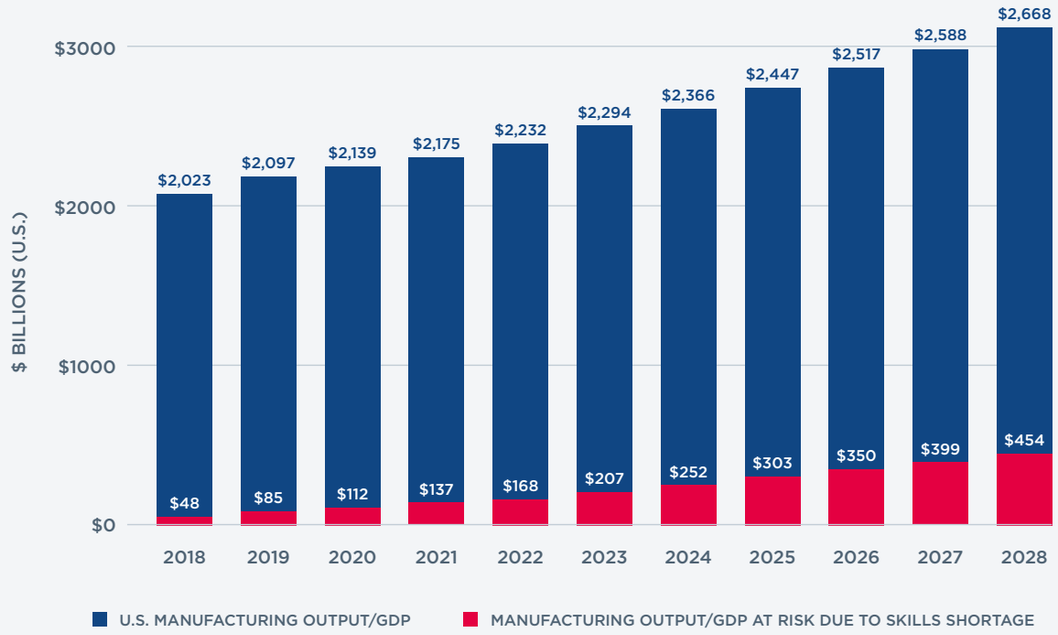
1.9M
JOB OPENINGS CREATED BY NATURAL GROWTH

=**4.6M**
MANUFACTURING JOBS TO FILL BETWEEN 2018-2028

ONLY 2.2 MILLION WORKERS CAPABLE OF FILLING THESE JOBS.

=**2.4M**
JOB GAP

IF WE CAN'T FILL THESE JOBS, OUR ECONOMY COULD LOSE $2.5 TRILLION IN OUTPUT BY 2028[17]



PERSISTENT SKILLS SHORTAGES COULD COST THE U.S. $85 BILLION THIS YEAR, AND COULD RISK $2.5 TRILLION IN ECONOMIC OUTPUT OVER THE NEXT DECADE

SOURCE: Deloitte

AUTOMATION INCREASES INEQUALITY, AND MIDWEST IS GROUND ZERO

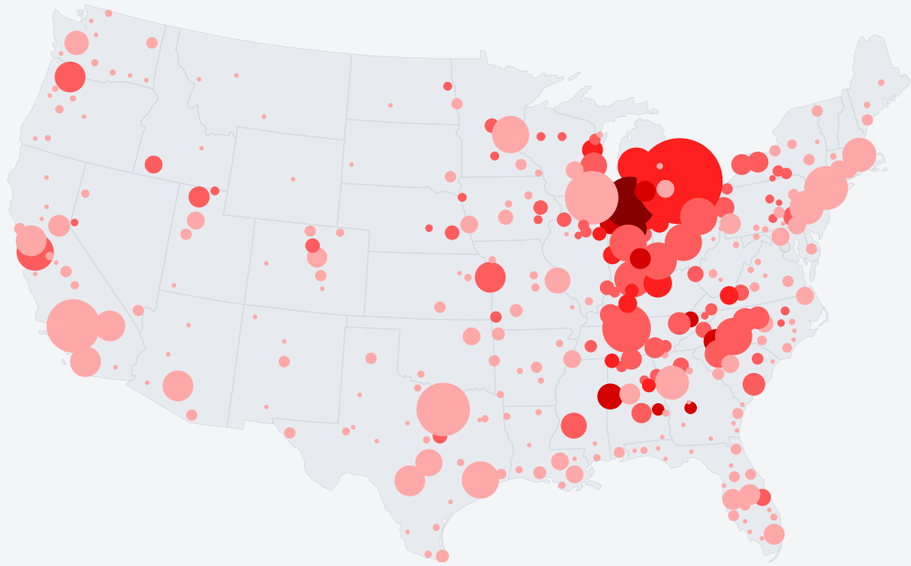
83% OF U.S. JOBS THAT PAY UNDER $20/HOUR WILL SOON BE SUBJECT TO AUTOMATION[18]

> "Our research shows that the negative effects of robotization are disproportionately felt in the lower-income regions compared with higher-income regions in the same country."[19]
>
> - OXFORD ECONOMICS

21% OF ROBOTS IN U.S. ARE BASED IN MICHIGAN OR OHIO

The automotive industry operates over 40% of the robots in the world, so prominence in the Midwest makes sense.

NUMBER & INCIDENCE OF INDUSTRIAL ROBOTS[20]
(PER THOUSAND WORKERS) BY METROPOLITAN STATISTICAL AREA, 2015

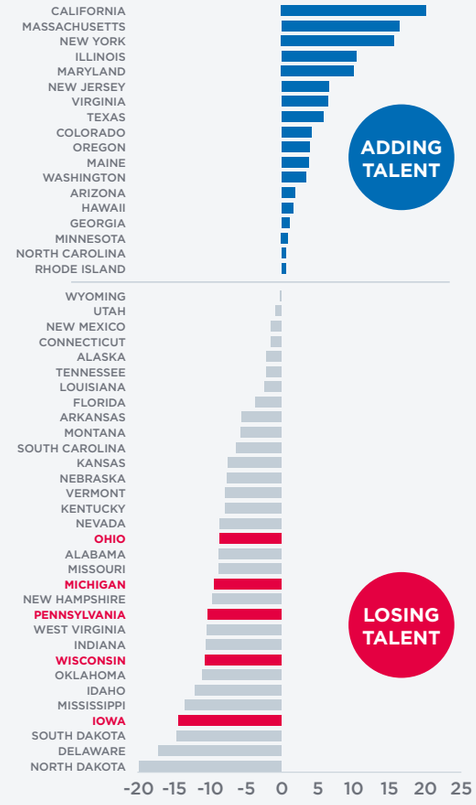


- .09-2 ROBOTS/THOUSAND WORKERS
- 2-6 ROBOTS/THOUSAND WORKERS
- 6-10 ROBOTS/THOUSAND WORKERS
- 10-20 ROBOTS/THOUSAND WORKERS
- 20+ ROBOTS/THOUSAND WORKERS

SOURCE: Brookings Institution

MIDWEST "BRAIN DRAIN" AGGRAVATES SKILLS DISPARITY

PERCENTAGE OF NET HIGHLY EDUCATED ENTRANTS[21]



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