Google Cloud Industries:
The impact of COVID-19 on manufacturers
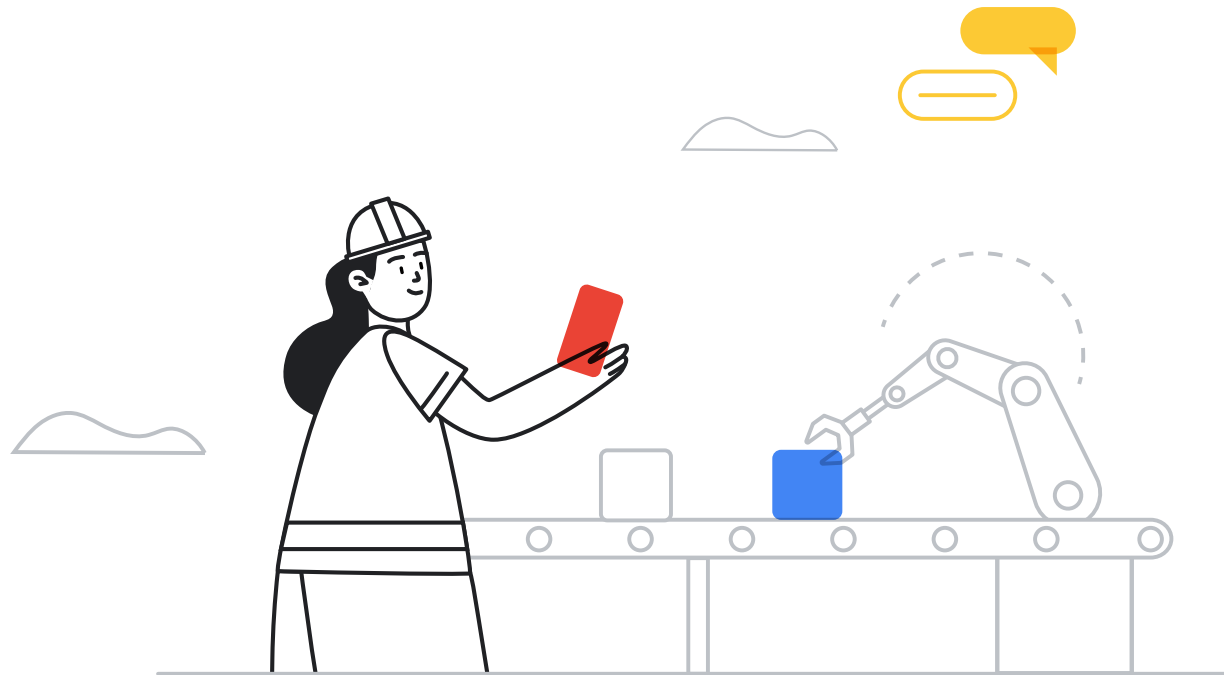
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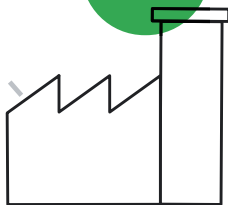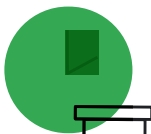## contents

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Introduction

After facing severe headwinds from COVID-19, ranging from decreased orders to negative impacts on operations, manufacturers around the world have started to revamp their operating models and supply chain strategies—and now feel more prepared in their ability to successfully navigate future pandemics, according to new research released from Google Cloud.

The key for manufacturers' ability to transform—despite the ongoing pandemic—is their embrace of digital enablers and disruptive technologies. In fact, nearly more than two in five manufacturers have actually increased their use of data and analytics, digital productivity tools, and public cloud platforms, irrespective of their location in the world.

The following pages include a snapshot of our key findings on how manufacturing operations continue to evolve in COVID-19 and beyond.
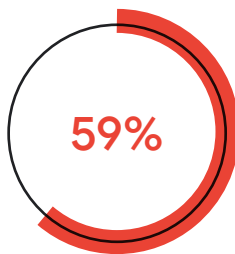
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Key findings

COVID-19's impact on operations

As with other industries, the pandemic has had a devastating effect on manufacturers overall.

95%

of surveyed manufacturers believe their manufacturing or supply chain operations have been negatively impacted by the pandemic.
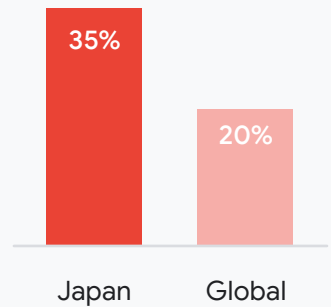
59%

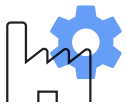of surveyed manufacturers classify that impact as major or moderate.

Japanese manufacturers appear to be hit particularly hard by the pandemic:

Reports of major negative impact

35%
20%

Japan   Global

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COVID-19's impact on operations

Top three most adverse impacts from manufacturers who said that the pandemic has negatively impacted operations:

46%

lost productivity for reasons such as employees needing to work from home, fewer employees simultaneously working at a time, and/or employees unable to work at all due to contracting the virus.

44%

lower sales.

39%

increased lead times due to supply chain disruptions.

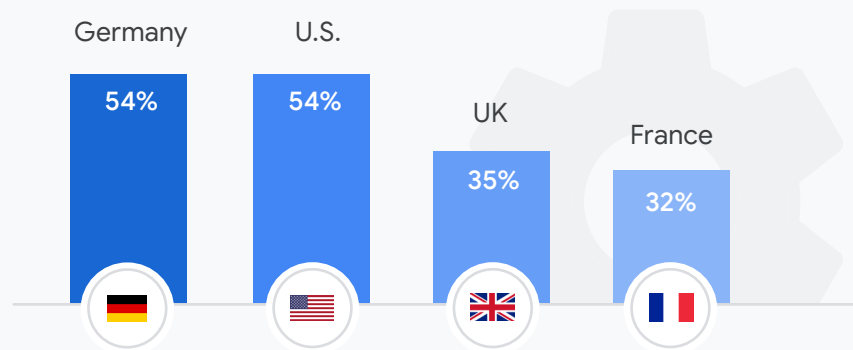⊕ **Additional adverse impacts:**

35% have faced downward pressure on overall customer demand.

34% said the pandemic has led to labor shortages.

33% have been hindered in their ability to maintain a safe working environment.

Manufacturers' lost productivity due to the pandemic:

Germany	U.S.	UK	France
54%	54%	35%	32%

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Pre-COVID-19 readiness

Nearly half of surveyed manufacturers worldwide **(47%) weren't prepared for the pandemic.**

Respondents in Japan were least likely to report feeling prepared, compared to Germany and the U.S.:

29% Japan

62% Germany

62% U.S.
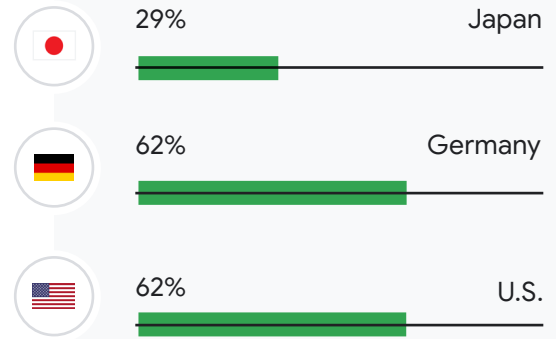
Post-COVID-19 readiness

However, about four in five **surveyed manufacturers (82%) now feel prepared to deal with another COVID-19-like event.**

Some of this could be related to how manufacturers have successfully ventured into new verticals, such as providing ventilators and PPE during shortages, or how some even resumed investing in new digital factory plans.

Countries who feel the most prepared to deal with another COVID-19-like event:

94% U.S.

90% Germany

83% Italy

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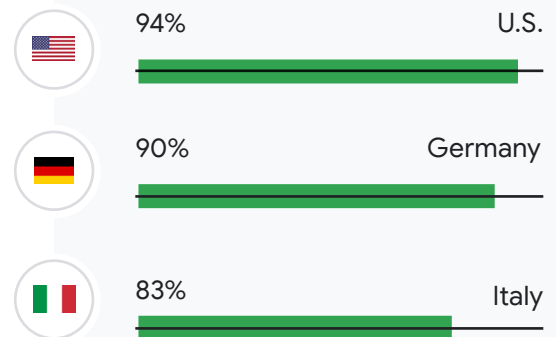
COVID-19's impact on operating model strategies
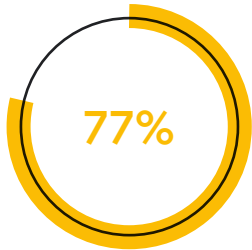
77% **of surveyed manufacturers felt that COVID-19 has caused their companies to re-evaluate their operating model strategies.**

There's been a growing interest in technology prior to the start of the pandemic—two-thirds of industrial companies worldwide felt that digitizing the production value chain was a top priority back in January 2020—that seems to only grow, as a result of dealing with COVID-19.

As for why the majority of respondents who said that the COVID-19 pandemic has caused their companies to re-evaluate their operating model strategies, the top two reasons are related to communication:

41%

said they weren't able to collaborate effectively with value chain partners.

40%

said they weren't able to collaborate effectively with employees.

More than half of manufacturers in Japan aren't ready to bring back workers safely in a pandemic compared to less than a third of manufacturers in Germany:

53%   Japan

30%   Germany

⊕ **Additonal reasons include:**

39% said their technology didn't allow them to operate without a large number of on-site workers.

38% said they weren't ready to bring back workers safely in a pandemic environment.

35% said their technology didn't give them real-time data/insights to help them shift strategies.

34% said they needed to be better prepared for consumer demand spikes.

25% weren't able to keep websites and other key properties online due to demand.

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Use of digital enablers and disruptive technologies during COVID-19

76%
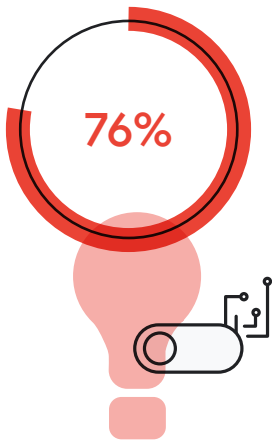
said the COVID-19 pandemic caused their companies to **increase the use of digital enablers and disruptive technologies** such the cloud, artificial intelligence, data analytics, robotics, 3D printing/additive manufacturing, Internet of Things, and augmented or virtual reality.

These findings fall in line with larger trends, such as estimating AI use within manufacturing to grow at a CAGR of 57.2% between 2020 and 2026, reaching USD 16.7 billion by 2026.

"

Manufacturers have always prepared for unpredictable events that could adversely impact operations. But what makes COVID-19 so unique is its sustained nature that touches the supply chain, irrespective of geographical location, in a way we haven't seen in our lifetime. As a result, we're seeing an urgency from manufacturers to quickly put the right technological levers in place, sooner rather than later. While there may have only been initial conversations about digital transformation in the past, we're now seeing a rapid acceleration of critical tools and technologies being adopted within the industry."

Bob Parker, Senior Vice President, Enterprise Applications, Data Intelligence, Services, and Industry Research for IDC

Top five countries increasing use of digital enablers and disruptive technologies:

86%		Germany
81%		Italy
76%		UK
76%		France
73%		U.S.

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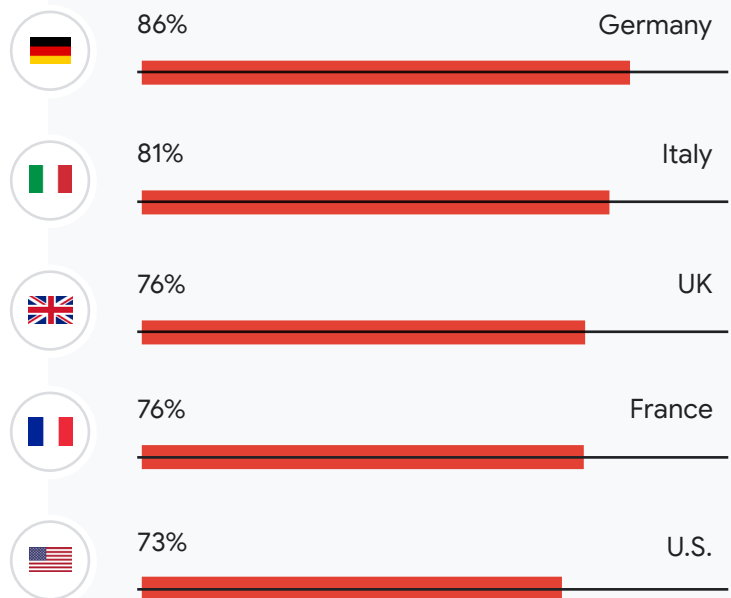
Use of digital enablers and disruptive technologies during COVID-19

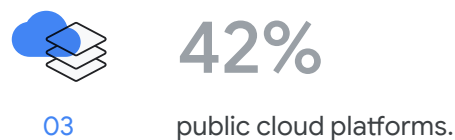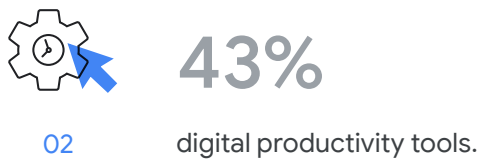**More specifically, for manufacturers who said the pandemic has caused an increased use of digital enablers, the top three reported were:**

01

46%

data and analytics.

- - - - - - -

02

43%

digital productivity tools.

- - - - - - -

03

42%

public cloud platforms.

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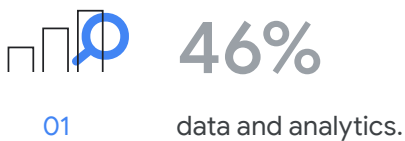
⊕ **Additional digital enablers and disruptive technologies being leveraged:**

41% Internet of Things (IoT) and sensors.

37% artificial intelligence (AI) and machine learning (ML).

36% robotics and automation to increase productivity.

34% collaboration and mobility tools.

Manufacturers in the U.S. lead the way across all increased usage of the top three digital enablers and disruptive technologies.

As the data shows, manufacturers are turning to the cloud to help optimize IT resources and reduce costs, while using productivity tools to collaborate along their supply chains. Additionally, ABB President of Industrial Automation Business Peter Terwiesch recently noted that integrating data and analytics into business strategies may have a significant positive impact; productivity gains up to 40% may be hidden in unused data.

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Technology plays a key role in how manufacturers address the pandemic impact
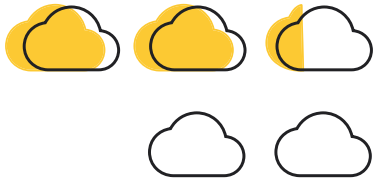
More than two in five surveyed manufacturers (43%) said their companies are now accelerating cloud adoption to ensure business continuity in response to the global COVID-19 pandemic.

⊕ **Additional statistics:**

37% said their companies were equipped with the right technological tools to maintain business continuity in the **first 1-3 months** of the pandemic.

45% believe their companies are currently equipped with the right technological tools to maintain business continuity as the pandemic continues over the next **6-12 months**.

30% said dependency on legacy technology has created more risk for their business operations over the **next year**.

23% said dependency on legacy technology has created more risk for their business operations over the next **5+ years**.

23% felt their IT systems lacked necessary redundancies, which undermined their overall operational resiliency.

❝

Digital technology has played a huge role in enabling the continuity of substantial parts of our business and as we pursue our ambitions of pioneering sustainable power, we need people in factories making products, alongside technologies that improve efficiency, accuracy and productivity."

Caroline Gorski, Group Director, R² Data Labs, Rolls-Royce/ Co-Founder and Former Chair, Emergent Alliance

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In closing

As the manufacturing industry continues to navigate through the pandemic and beyond, focusing on digital transformation initiatives at scale will help companies adapt in a way that both strengthens operations and builds business resilience.

Manufacturers are making short-term adjustments that will have a long-term impact, from increasing cloud adoption, to ensuring business continuity, to expediting the use of innovative technologies that will drive Industry 4.0.

How Google Cloud can help

Manufacturing is one of our priority verticals at Google Cloud. Our ecosystem of connected devices, products, and solutions can help manufacturers drive revenue growth, operational excellence, and innovation across the manufacturing value chain.

Many manufacturing companies already use Google Cloud to measurably improve the quality of their decisions, crunch vast quantities of data to drive business insights, lower infrastructure costs, and reduce time-to-market for their products. We're highly focused on demonstrating the value of cloud to even more manufacturers as they embrace new digital technologies.

This publication is part of a series of research findings to be released by Google Cloud in Fall 2020 and Winter 2021.

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Research methodology

The survey was conducted online by The Harris Poll on behalf of Google Cloud, from October 15 – November 4, 2020, among 1,154 senior manufacturing executives in France (n=150), Germany (n=200), Italy (n=154), Japan (n=150), South Korea (n=150), the UK (n=150), and the U.S. (n=200) who are employed full-time at a company with more than 500 employees, and who work in the manufacturing industry with a title of director level or higher. The data in each country were weighted by number of employees to bring them into line with actual company size proportions in the population. A global post-weight was applied to ensure equal weight of each country in the global total.

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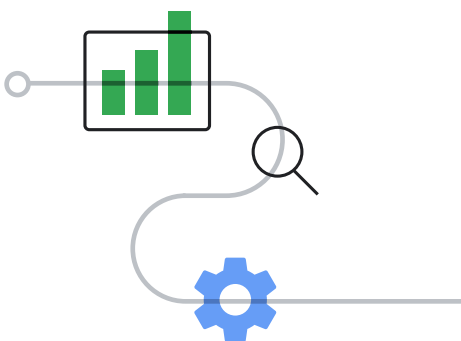
Appendix

To what extent has your manufacturing or supply chain
operations been negatively impacted by the COVID-19 pandemic?

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
TOTAL negative impact	95%	95%	98%	92%	95%	97%	93%	92%
Slight negative impact	36%	46%	36%	42%	17%	34%	38%	36%
Moderate negative impact	39%	37%	43%	36%	43%	39%	36%	41%
Major negative impact	20%	12%	19%	14%	35%	23%	19%	15%

In which of the following ways has the COVID-19 pandemic negatively
impacted your company's manufacturing or supply chain operations?

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
It has led to lost productivity for reasons such as employees needing to work from home, fewer employees simultaneously working at a time, and/or employees unable to work at all due to contracting the virus	46%	32%	54%	52%	46%	51%	35%	54%
It has led to lower sales (e.g., due to travel restrictions)	44%	39%	43%	39%	51%	50%	40%	44%
We have faced increased lead times due to supply chain disruptions	39%	28%	36%	51%	44%	28%	36%	54%
We have faced downward pressure on overall customer demand	35%	30%	31%	43%	46%	32%	28%	36%
It has led to labor shortages	34%	37%	41%	36%	24%	25%	41%	35%
It has hindered my company's ability to maintain safe working conditions	33%	27%	34%	24%	35%	43%	35%	31%

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How prepared was your company to deal with the COVID-19 pandemic?

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
Not very or not at all prepared	47%	44%	37%	45%	71%	39%	52%	38%

And, now looking ahead, how prepared is your company to deal with another COVID-19-like event?

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
Very or somewhat prepared	82%	78%	90%	83%	80%	77%	74%	94%

Has the COVID-19 pandemic caused your company to re-evaluate your operating model strategies?

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
Yes	77%	73%	86%	82%	76%	66%	75%	83%

For which of the following reasons has the COVID-19 pandemic caused your company to re-evaluate your operating model strategies? Select all that apply.

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
We weren't able to collaborate effectively with value chain partners	41%	33%	53%	43%	37%	42%	33%	48%
We weren't able to collaborate effectively with employees	40%	31%	50%	43%	29%	45%	41%	37%
Our technology didn't allow us to operate without a large number of on-site workers	39%	39%	52%	33%	33%	36%	37%	37%
We weren't ready to bring back workers safely in a pandemic environment	38%	36%	30%	37%	53%	38%	32%	39%
Our technology didn't give real-time data/insights to help shift strategies	35%	31%	35%	45%	33%	29%	32%	37%
We needed to be better prepared for consumer demand spikes	34%	33%	23%	36%	30%	31%	42%	41%
We weren't able to keep websites and other key online properties online due to demand	77%	36%	23%	25%	31%	30%	20%	15%

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Has the COVID-19 pandemic caused your company to increase the use of digital enablers and disruptive technologies (e.g., the cloud, artificial intelligence, data analytics, robotics, 3D printing/additive manufacturing, Internet of Things, augmented or virtual reality)?

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
Yes	76%	76%	86%	81%	67%	69%	76%	73%

For which of the following reasons has the COVID-19 pandemic caused your company to re-evaluate your operating model strategies? Select all that apply.

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
Data and analytics	46%	33%	53%	46%	53%	31%	43%	64%
Digital productivity tools	43%	37%	43%	42%	51%	40%	34%	58%
Public cloud platforms	42%	45%	46%	34%	36%	44%	36%	51%
Internet of Things (IoT) and sensors	41%	25%	51%	40%	41%	37%	33%	57%
Artificial intelligence (AI) and machine learning (ML)	37%	31%	42%	43%	36%	30%	31%	48%
Robotics and automation to increase productivity	36%	26%	33%	31%	43%	46%	27%	48%
Collaboration and mobility applications	34%	22%	32%	31%	29%	42%	32%	48%
Augmented and/or virtual reality	26%	25%	24%	31%	24%	32%	20%	26%
3D and additive manufacturing	24%	24%	20%	28%	21%	21%	27%	29%
5G (e.g., in factory floor scenarios)	23%	27%	24%	16%	17%	25%	21%	35%
RPA bots to perform repetitive back office tasks	23%	21%	19%	28%	25%	29%	23%	15%

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💬 **Q: Which of the following statements, if any, are true regarding your company's response to the global COVID-19 pandemic? Select all that apply.**

	Global Total	France	Germany	Italy	Japan	Korea	United Kingdom	United States
My company is currently equipped with the right technological tools to maintain business continuity as the pandemic continues (i.e., over the next 6-12 months)	45%	37%	50%	46%	40%	45%	40%	57%
My company is now accelerating cloud adoption to ensure business continuity	43%	39%	49%	50%	34%	39%	38%	51%
My company was equipped with the right technological tools to maintain business continuity in the early stages of the pandemic (i.e., the first 1-3 months)	37%	48%	46%	36%	32%	22%	37%	40%
Dependency on legacy technology has created more risk for my business operations in the short-term (over the next year)	30%	33%	30%	34%	24%	22%	43%	27%
Our IT systems lacked necessary redundancies, which undermined our overall operational resiliency	23%	15%	27%	35%	15%	26%	23%	23%
Dependency on legacy technology has created more risk for my business operations in the long-term (over the next 5+ years)	23%	26%	26%	33%	19%	12%	28%	18%
None of these	2%	-	-	-	7%	1%	1%	2%

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