



Honeywell

THE POWER OF **CONNECTED**

CONNECTED AIRCRAFT REPORT | JUNE 2018

AIRLINES PUSH CONNECTIVITY BEYOND THE CABIN



CONNECTED AIRCRAFT

NEXT BIG SPENDING WAVE FOR AIRLINES IS ON THE HORIZON

Connectivity and data analytics are the future of the aviation industry. For years, passengers drove the adoption of new technology in the cabin, but now connectivity has reached a maturation point where its value is being seen across the entire aircraft.

According to data from the Honeywell Connected Aircraft Report, staying better connected not only benefits passengers it helps airlines, aircraft manufacturers and MROs stay competitive, stay ahead of the technological curve, and solve some of the industry's biggest problems.

The Honeywell Connected Aircraft Report surveyed more than 100 technology decision-makers across the commercial aviation sector to understand their investment and purchase plans for connectivity-related technologies over the next one to five years.

Overall, the data showed the growing importance of connectivity as an operational tool to help increase efficiency, safety and technological advancement on an aircraft. Cabin connectivity for passenger entertainment, while still

important to commercial airlines, isn't the only benefit – or even primary benefit – of connected technologies. Data shows that the next wave of spending will take place largely outside the cabin, specifically on predictive maintenance.

Honeywell Connected Aircraft Report Key Findings

- Connectivity is a must-have investment for commercial airlines, OEMs and maintainers.
- Predictive maintenance is the next frontier of connected technologies.
- The connectivity investment per aircraft is expected to rise significantly in the next five years.

Connectivity is driving changes across the aircraft. The potential for data aggregation is immense, and those in commercial aviation are looking at how best to unlock that power. With connected technologies, things like the elimination of the mechanical delay, crowd-sourced weather information and predictive analytics to help make maintenance smoother are all possibilities.

These things will redefine the passenger experience, helping create safer flights and more on-time arrivals. The technologies will also change the pilot, maintenance and airline operational experience by taking the guesswork out of things. This will help to reduce costs, increase revenue, and make for quicker turnaround times. Most of all, it creates happy and connected passengers.

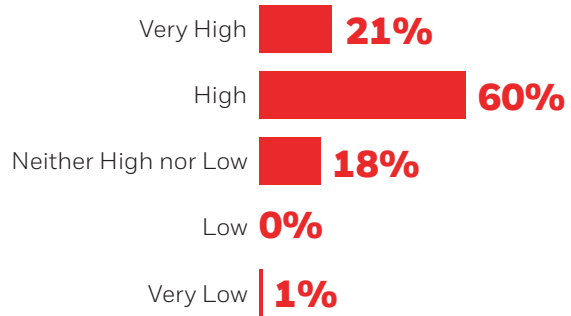


SECTION 1

CONNECTIVITY IS A
MUST-HAVE INVESTMENT
FOR COMMERCIAL
AIRLINES, OEMS
AND MAINTAINERS.

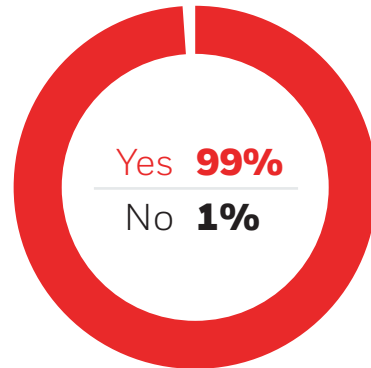
More robust connectivity offerings give airlines a competitive edge that resonates with travelers. Connectivity can reduce costs, limit aircraft downtime and produce a smoother flight experience.

HOW MUCH OF A PRIORITY ARE CONNECTIVITY-RELATED PRODUCT PURCHASES FOR YOUR BUSINESS?



N=106

IF YOU COULD USE CONNECTIVITY TO SOLVE YOUR AIRLINE'S BIGGEST ISSUES, WOULD YOU?



N=106

“

Our customers' expectations are increasing daily. We have to keep up with those and stay ahead of our competition.

– **Ground operations executive at a Passenger Airline**

“

Having our aircraft connected to the internet reaps benefits in reduced costs for the airline and increases passenger expectations on our services. It's a win-win situation for the airline.

– **Passenger experience executive at a Passenger Airline**

“

The customer experience is hugely important in such a competitive market. Being able to meet changing demand and react quickly enables airlines to provide a bespoke and unique service to its customers. Protective maintenance is also important as reduced ground time or AOG [aircraft on ground] status means work could be scheduled in prior to a fault occurring and thus saving time/money and disrupted customers.

– **Ground operations at a Passenger Airline**

HOW WOULD YOU LIKE TO USE
CONNECTIVITY, WI-FI, AND/OR DATA
ANALYTICS TO MAKE YOUR JOB EASIER?

“ Better predictive maintenance and
fuel consumption monitoring.

– Maintenance personnel at a Passenger Airline



“

Real-time weather for crew, connectivity between employee groups for passenger handling, better in-flight bandwidth and coverage for passengers. Preventive maintenance for tech ops.

– Flight operations at a
Passenger Airlines

“

I would like to have an online tool to ascertain which components will fail in due time so that maintenance of aircraft and components can be plannable and predictable. This saves time and money for every passenger at the end.

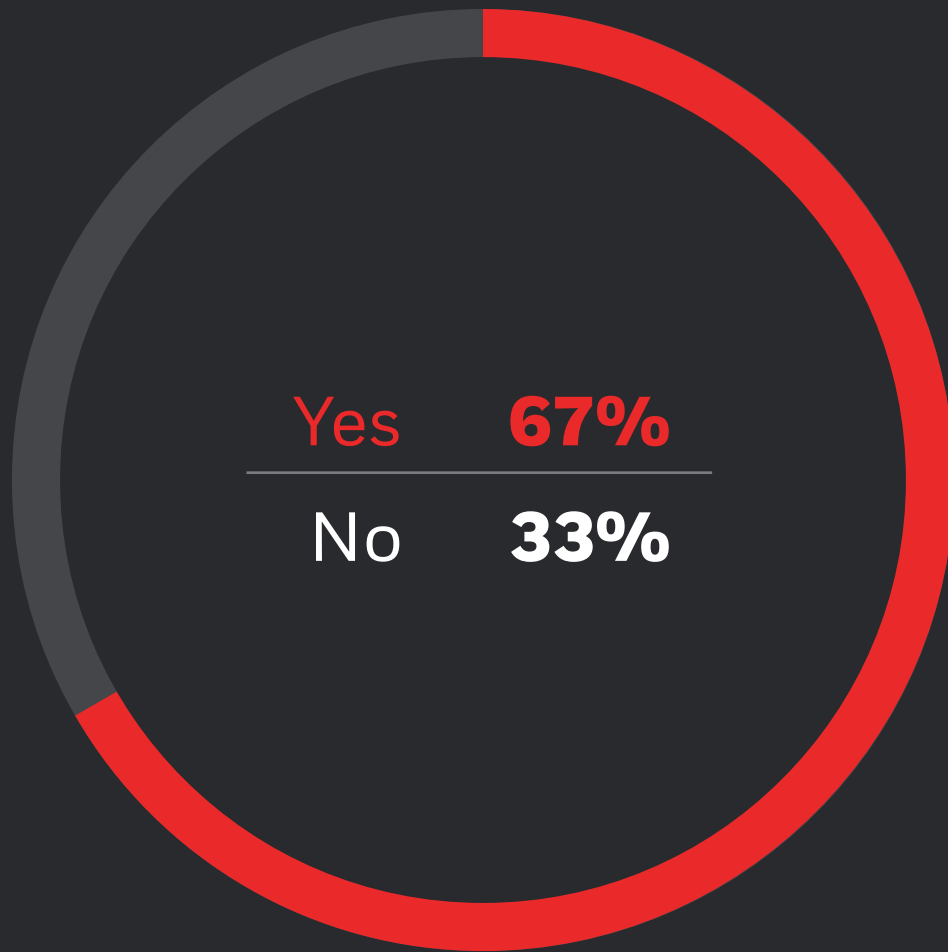
– Sales at an Aircraft
Manufacturing Partner

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Simplify customer experience, improve crew experience and optimize margin opportunity.

– Sales at an Aircraft
Manufacturing Partner

DO YOU EXPECT CONNECTIVITY-RELATED PRODUCTS AND TECHNOLOGIES TO SAVE YOUR OPERATIONAL BUDGET OVER THE NEXT YEAR?



“

Real-time onboard product inventory that notifies caterers of stocking requirements before arrival. Avoidance of catering charges or excess product/missing product can drive huge cost and revenue variances.

– Passenger experience at a Passenger Airline



SECTION 2

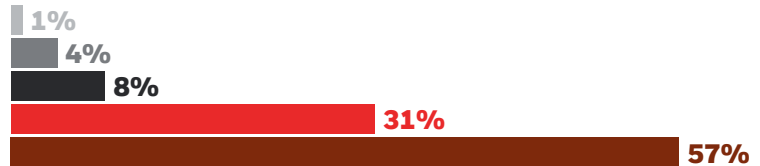
PREDICTIVE MAINTENANCE IS THE NEXT FRONTIER OF CONNECTED TECHNOLOGIES.

Maintenance was the chief concern across the board from respondents. From a business perspective, it was the primary challenge that they faced on a day-to-day basis. Which is why it makes sense that predictive maintenance technologies came in above even cabin and cockpit connectivity as the most important technology purchase businesses hope to make in the next year.

PLEASE RATE THE IMPORTANCE OF THE FOLLOWING CONNECTIVITY PRODUCT AREAS ON A SCALE OF 1 TO 5

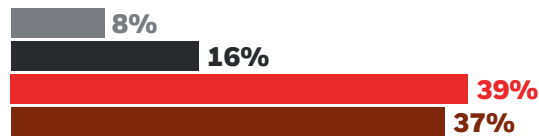
Maintenance

e.g., connected APU services, predictive maintenance, etc.



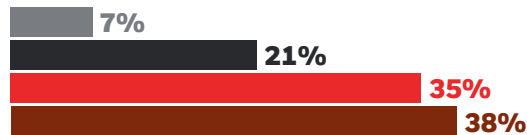
Passenger Experience

e.g., in-flight entertainment



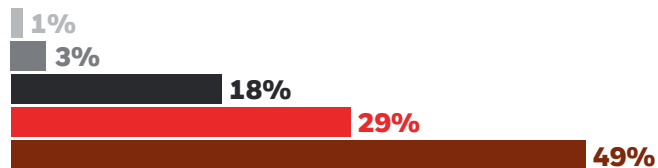
Fuel Tracking Technologies

e.g., fuel monitoring software



Pilot Flight Technologies

e.g., flightpath awareness aids, electronic flight bag applications and services, improved weather technology, etc.



■ 1 (Not Important at All) ■ 2 ■ 3 ■ 4 ■ 5 (Extremely Important)

“

We're a passenger-first airline, and my role is in customer experience. Utilizing connectivity for passenger benefit is paramount. Being able to stream individual sources of content as a passenger on the ground is very appealing.

– Passenger experience at a Passenger Airline

“

On-time performance is highly important. We can use connectivity to send predictive maintenance data to engineering before components fail, then this will protect the on-time performance of the operation.

– Fleet management at a Passenger Airline

“

More and more operators and customers are looking to be connected. From a customer's point of view they want to be able to be connected the same way that they are on the ground. From an operator point of view, they want to know in advance the problem on the A/C to anticipate maintenance action.

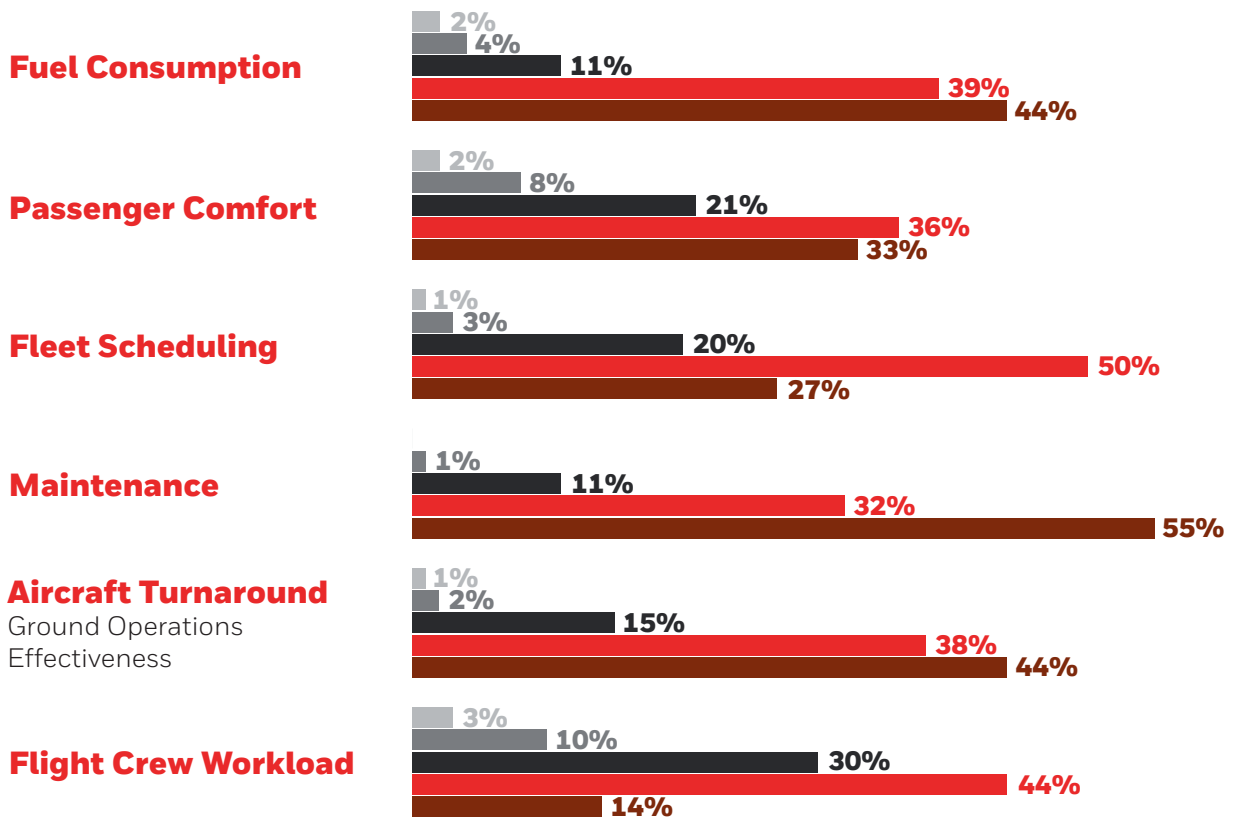
– Aircraft R&D at an Aircraft OEM

“

For maintenance, they [connected technologies] create a competitive advantage from a fleet uptime perspective along with greater aircraft utilization. From a fuel burn perspective, they [connected technologies] allow for continuous route optimization / optimum engine thrust setting perspective; cockpit management reduces workload and increases turnaround time at gate.

– Maintenance personnel at a Passenger Airline

PLEASE RATE THE FOLLOWING BUSINESS CHALLENGES ON A SCALE FROM 1 TO 5



■ 1 (Not At All Concerning) ■ 2 ■ 3 ■ 4 ■ 5 (Significant Concern)

WHAT PROBLEMS ARE YOU HOPING TO SOLVE WITH CONNECTIVITY-RELATED PRODUCTS?

“ To know how long (an estimation) until a technical issue can be resolved so that the information can be relayed to passengers and for us to better manage disruptions.

– Ground operations personnel at a Passenger Airline

“ The potential is there to solve nearly all problems using connectivity.

– Maintenance personnel at a Passenger Airline

“

We are one of the biggest domestic operators with comparatively lower turnaround time. Fuel usage is a big concern for us. We are operating in a very busy environment; if a single flight is disrupted, it becomes a great concern to manage the schedule.

– Fleet management at a Passenger Airline

“

Getting real-time aircraft data off the aircraft in flight to operations.

– Fleet management personnel at an Aircraft Manufacturing Partner

“

Flight operations can be made safer and more efficient by real-time data provided to flight crews. For example, information on weather, both at destinations and en-route, or information on tactical air traffic flows in congested airports.

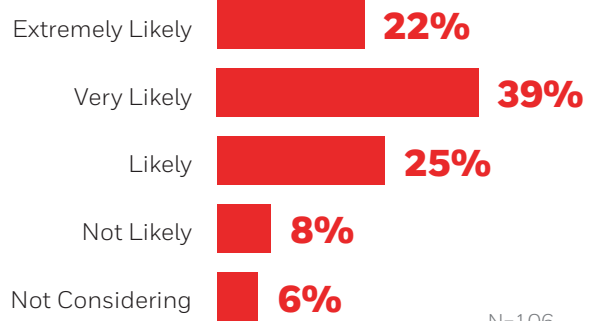
– Flight operations personnel at a Passenger Airline

SECTION 3

**WE ARE ON THE
PRECIPICE OF A
CONNECTIVITY SPENDING
WAVE THAT LOOKS GOOD
OVER THE NEXT YEAR
AND EVEN BETTER
OVER THE NEXT FIVE.**

The commercial aviation industry is planning to increase connectivity investment incrementally over the next five years. At its peak, roughly a third of respondents plan to spend \$5 million USD and above over the next five years. By and large, connectivity is also seen as a longer-term investment.

HOW LIKELY ARE YOU TO PURCHASE NEW CONNECTIVITY-RELATED TECHNOLOGIES OVER THE NEXT YEAR?



“

It is the reality of today's environment. Airlines have continued to evolve, and connectivity provides some of that opportunity.

– Maintenance at a Passenger Airline

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There is significant pressure to reduce costs. With the access to big data and the ability to transfer that data on a real-time basis, decisions can be made at lightning speed.

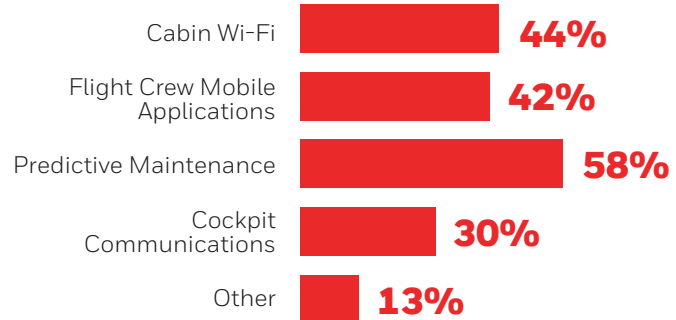
– Sales at an Aircraft Manufacturing Partner

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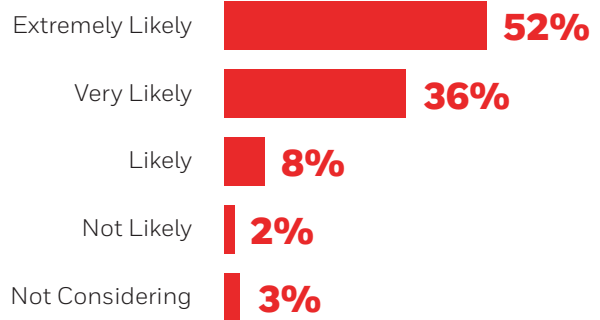
The airlines lives and dies by connectivity.

– Maintenance at a Passenger Airline

WHICH NEW CONNECTIVITY-RELATED TECHNOLOGIES ARE YOU LIKELY TO PURCHASE OVER THE NEXT YEAR?

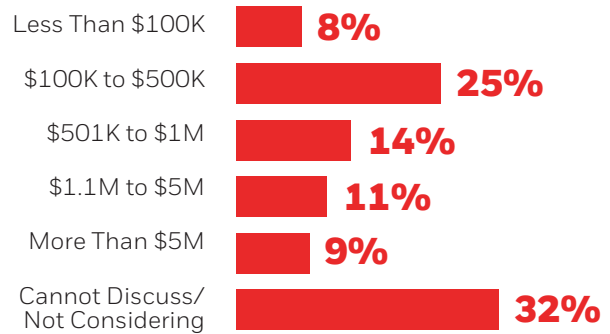


HOW LIKELY ARE YOU TO PURCHASE NEW CONNECTIVITY-RELATED TECHNOLOGIES OVER THE NEXT FIVE YEARS?



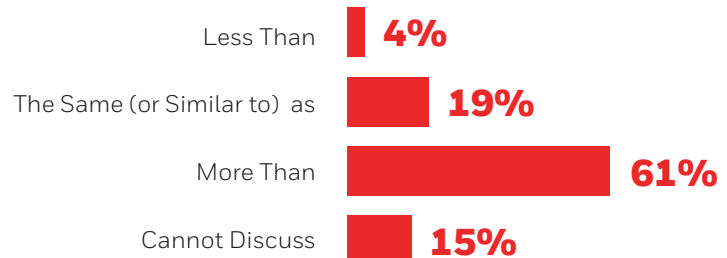
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HOW MUCH DO YOU EXPECT TO SPEND ON CONNECTIVITY-RELATED PRODUCTS AND TECHNOLOGIES OVER THE NEXT YEAR, PER AIRCRAFT?



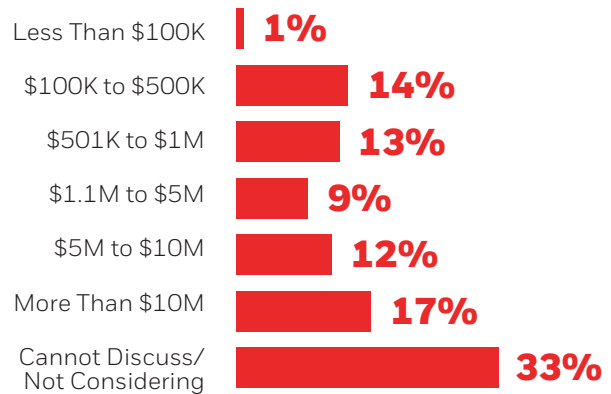
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IS THIS AMOUNT MORE, LESS OR THE SAME AS YOUR CURRENT INVESTMENT?



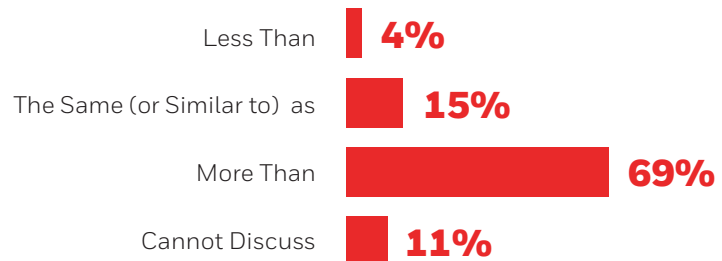
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HOW MUCH DO YOU EXPECT TO SPEND PER AIRCRAFT ON CONNECTIVITY-RELATED PRODUCTS AND TECHNOLOGIES OVER THE NEXT FIVE YEARS?



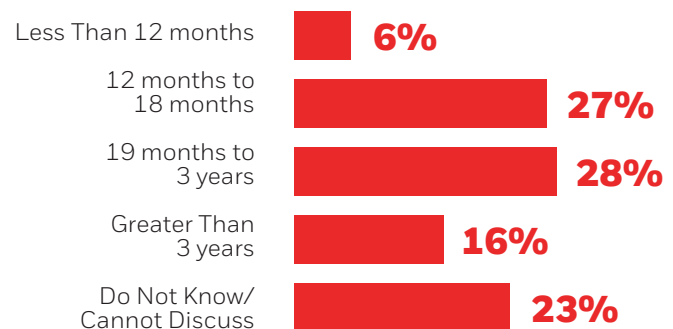
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IS THIS AMOUNT MORE, LESS OR THE SAME AS YOUR CURRENT INVESTMENT?



N=71

TO APPROVE THE PURCHASE OF CONNECTIVITY-RELATED PRODUCTS, WHAT IS YOUR EXPECTED RETURN ON INVESTMENT TIME PERIOD?



N=106

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We give you the power to protect and the technology to perform – even in the most challenging environments – while optimizing energy efficiency and product lifespan and increasing the productivity of critical assets in order to minimize maintenance costs.

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Information Disclaimer:

This report is for informational purposes only and does not constitute investment advice or a recommendation. The survey was conducted by Gerson Lehrman Group in May 2018 with 106 adults in the United States, Canada, Africa and Middle East, Asia, Europe, and Latin America.





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