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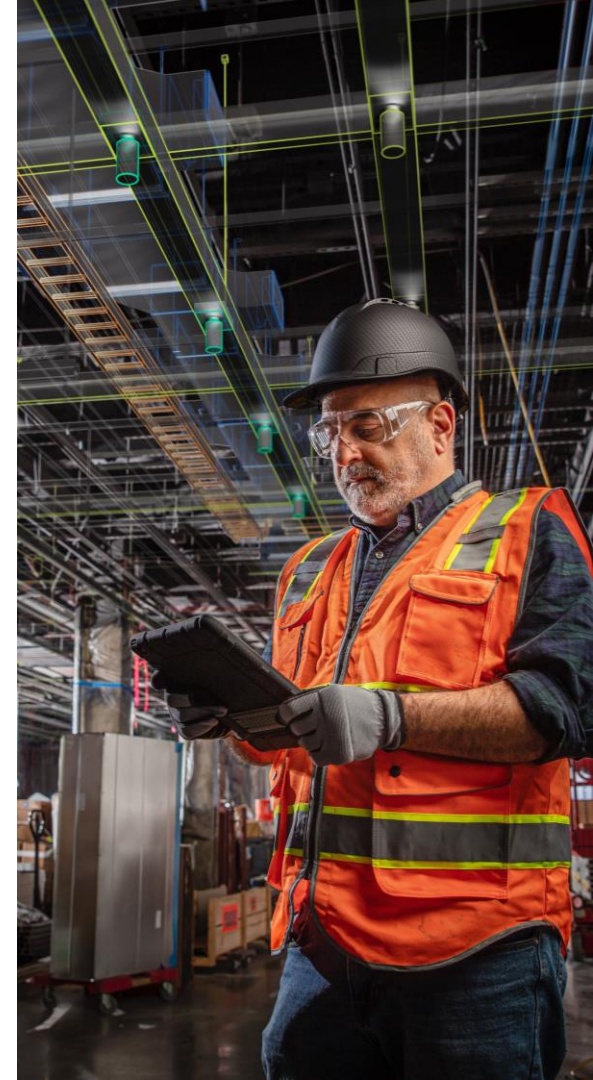
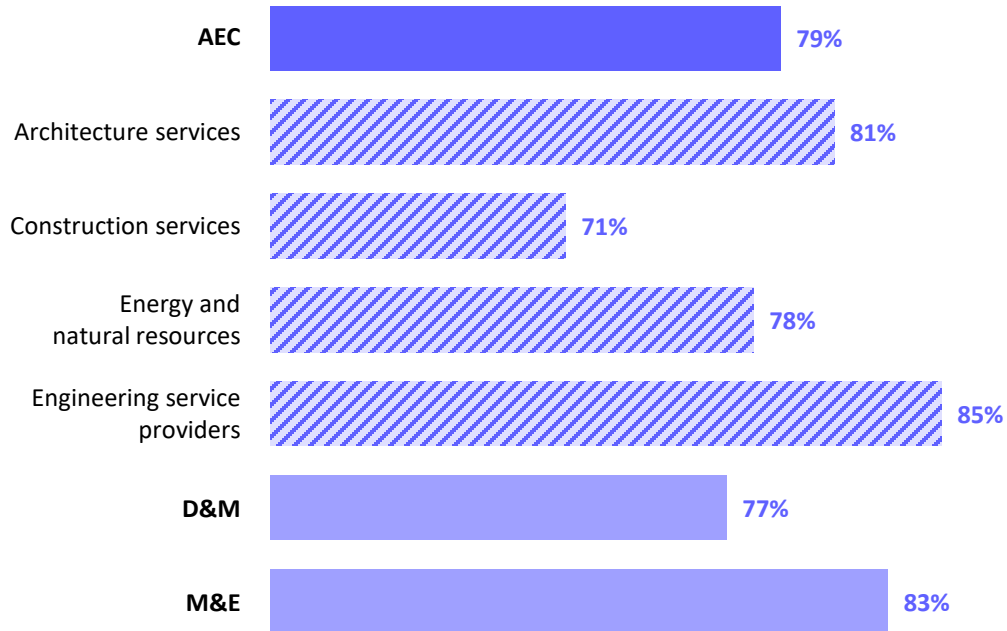


AEC



Digital Tools

Respondents who said that **the future growth of their company will depend on digital tools:**



Performance

Percentage of AEC respondents who identified their company as **top performers**, rating their company's performance in 2021 as "exceptional" or "above average":

52% in AEC

48% in D&M

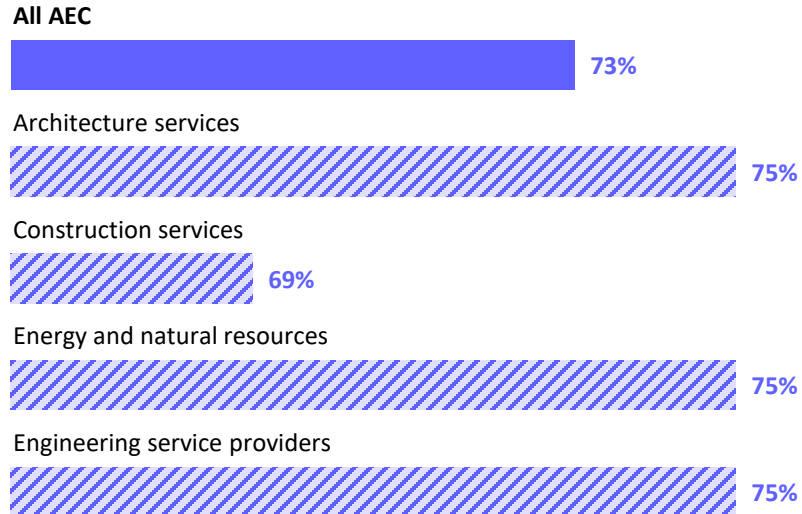
53% in M&E



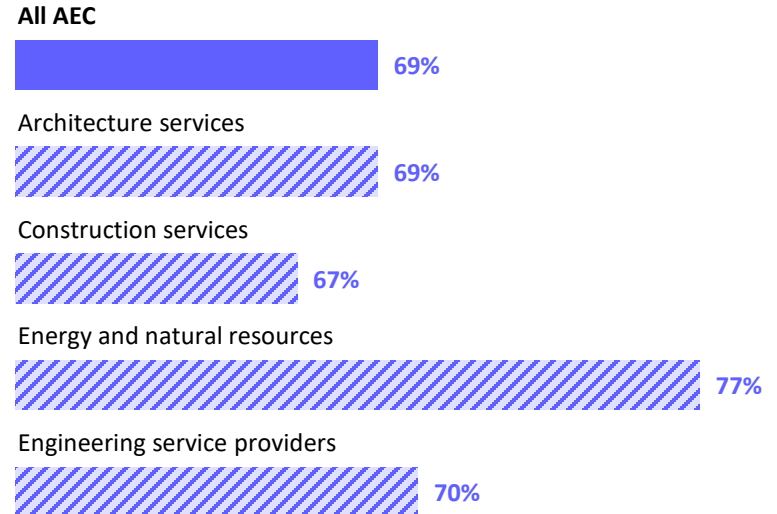
Investments

Respondents in **AEC industries** plan to make the following investments over the next three years:

Technology to deliver improved project outcomes:



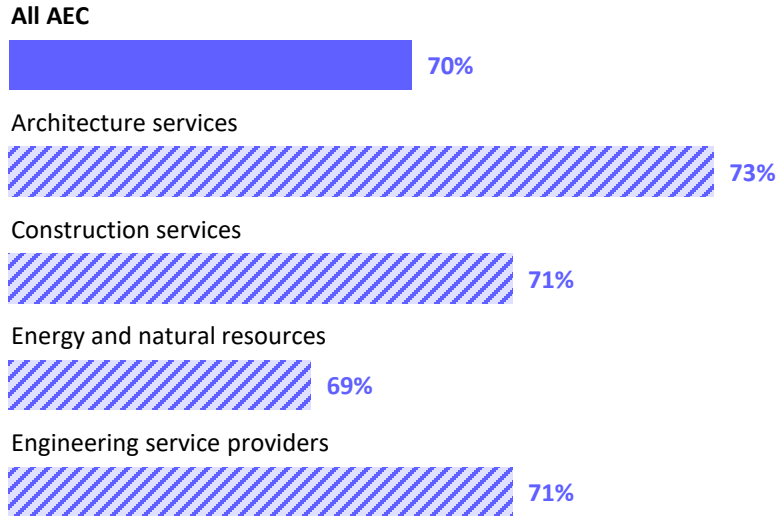
Data management and analytics:



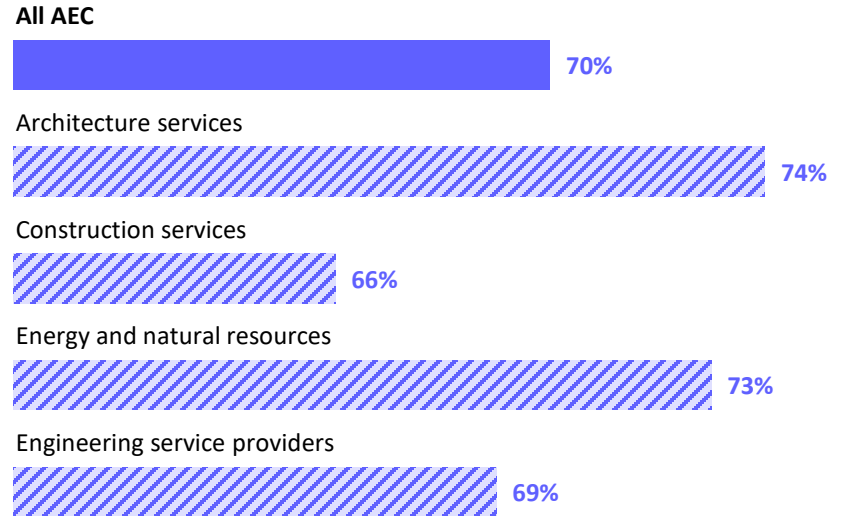
Investments

Respondents in **AEC industries** plan to make the following investments over the next three years:

Improved processes and operations:



Product and/or service innovation:



Digital maturity

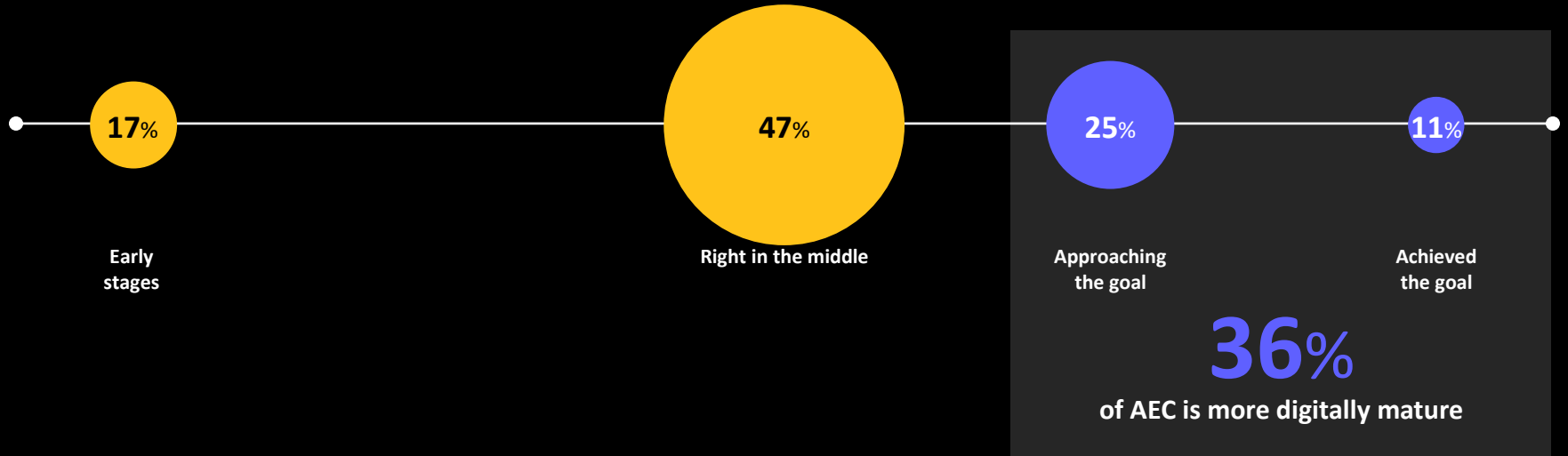
Where AEC respondents report their company is in its digital transformation journey:

Less digitally mature

Companies in the early or middle stages of the journey are defined as “less digitally mature”

More digitally mature

Companies approaching or that have already achieved their transformation are defined as “more digitally mature”*



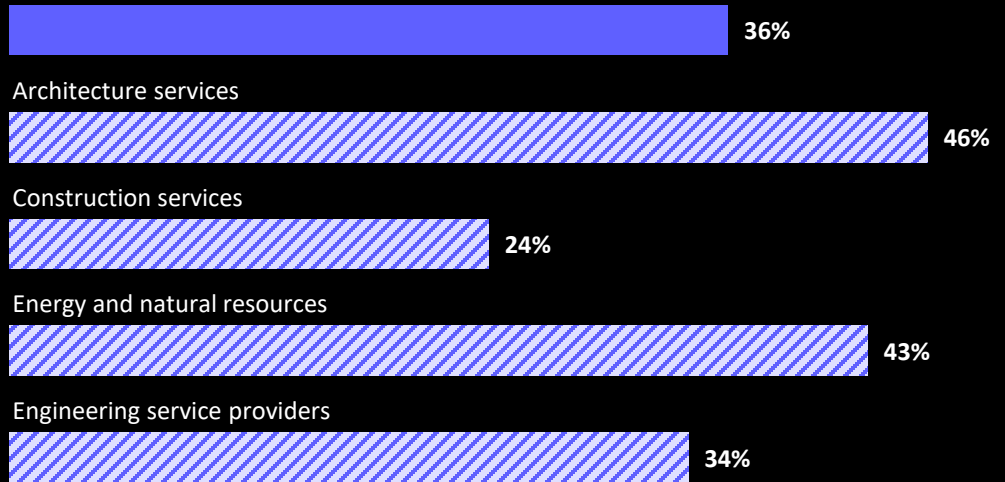
Digital maturity

36%

of respondents from companies in AEC reported that their company is “more digitally mature,” compared to 38% across all respondents.

This trailed M&E but was on par with D&M.

All AEC



Benefits of digital transformation

Respondents from AEC said the top benefits of digital transformation are:



Increased innovation



Reduced costs



More satisfied customers

Among all industries, the top benefits cited were:

- 1 Reduced costs
- 2 Increased innovation
- 3 Ability to launch products more quickly

Reaction to the Pandemic

AEC respondents were less likely to say the COVID-19 pandemic

Caused changes in product or service demand

25% in AEC

30% in D&M

36% in M&E

Forced their company to rethink priorities

29% in AEC

36% in D&M

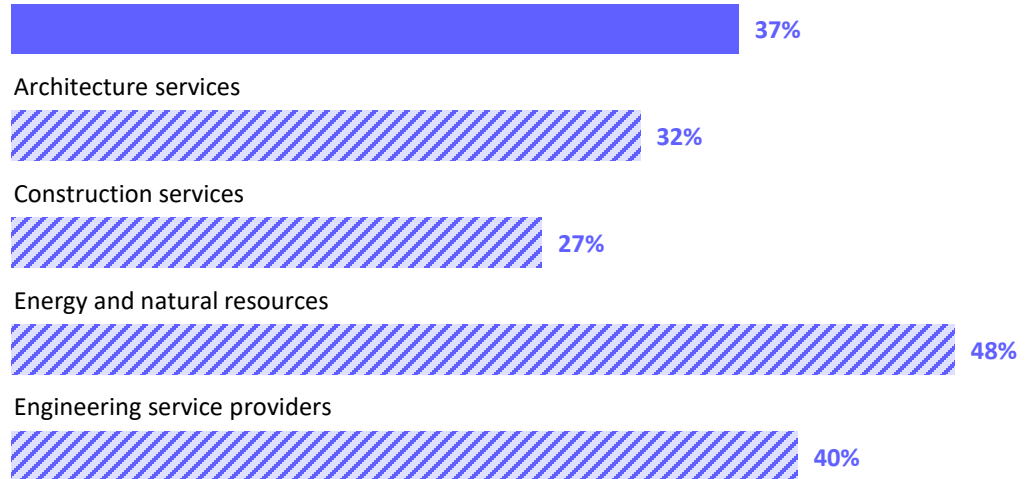
35% in M&E



Leveraging data

There are some differences in how companies are leveraging internal data for collaboration with AI. Respondents in **AEC** were more likely than those in **M&E** to say they leverage data for internal collaboration among teams

All AEC



Skills of the future

More than the average across industries, **AEC respondents say the most important technical skills for their company's workforce over the next three years are:**

Technology use, monitoring, and control



3D Modeling



Automation



Cloud computing



Data science, including the ability to present, understand, and leverage insights from data



Cybersecurity and privacy

Technology design and programming



Artificial intelligence and machine learning



Analytics programming and data management



Software engineering



Ability to design and program technology to meet business needs

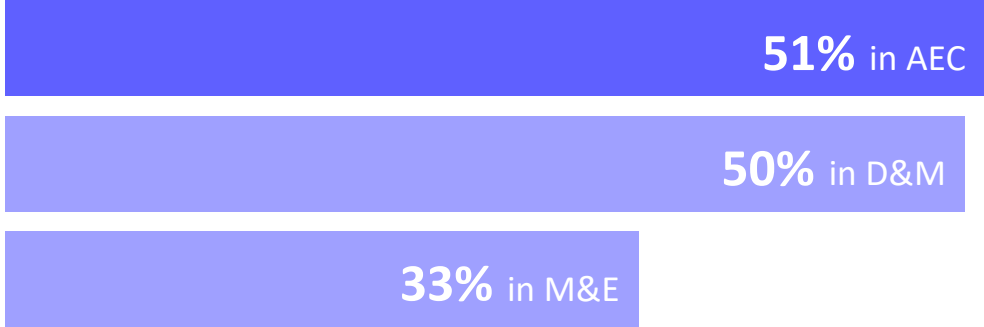


Ability to develop sustainability tracking tools

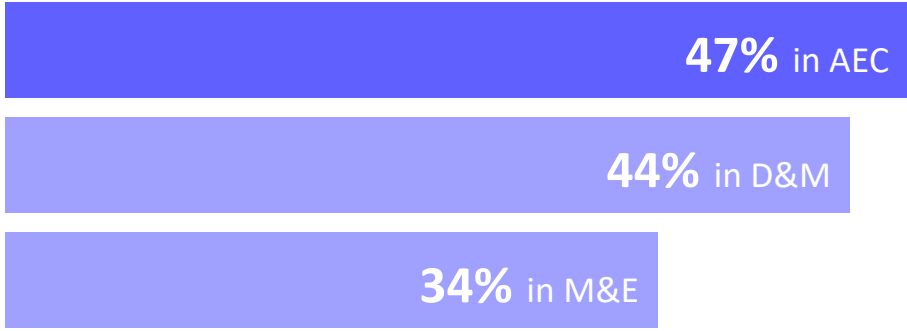
Talent challenges

AEC respondents were more likely to say:

The workforce is rapidly aging:

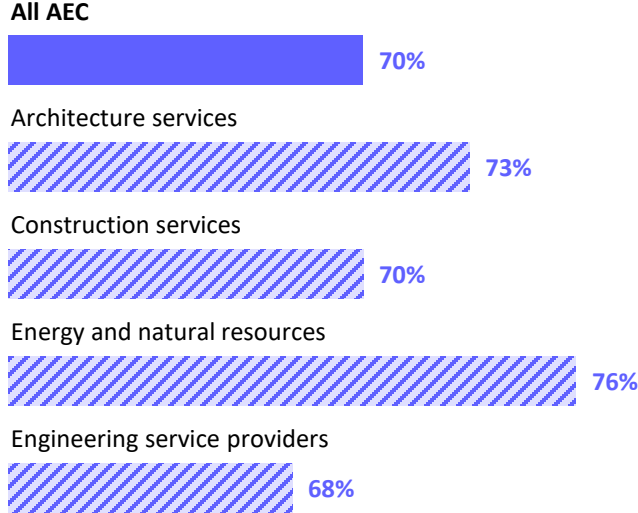


Company culture is too slow to adapt to the younger generation's needs:

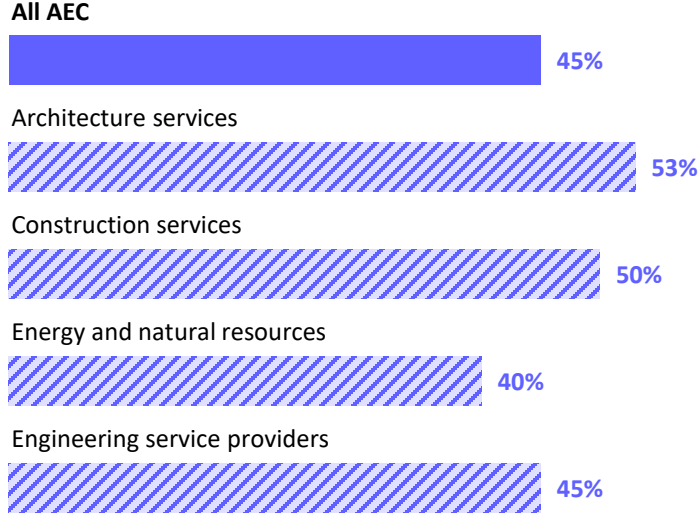


Talent solutions

Respondents who agree that in the next three years, their company is **planning to invest more in technology focused training:**



Respondents who agree their company **doesn't have the skills nor the resources to design internal training programs:**



Sustainability in action

AEC led the way in specific sustainability actions:

Increasing the share of renewable energy sources used:

33% in AEC

31% in D&M

22% in M&E

Helping customers decrease their carbon emissions:

29% in AEC

25% in D&M

18% in M&E

Participating in carbon project financing:

19% in AEC

12% in D&M

13% in M&E

Sustainability pressure

When asking how influential different groups are in pressuring their organization to create and meet sustainability goals, respondents said these groups were “very” or “moderately” influential:



	CUSTOMERS	EMPLOYEES	INVESTORS	GOVERNMENT
All AEC	82%	73%	76%	78%
Architecture services	89%	77%	78%	80%
Construction services	82%	73%	70%	69%
Energy and natural resources	82%	78%	86%	89%
Engineering service providers	80%	70%	73%	71%



Hiroshi Kono

Senior Executive Officer,
Daiwa House Industry Co.,
Ltd.



We hold various events, such as digital transformation contests and meetups, to motivate people to work on digital technology—and to spur the company as a whole to increase digital motivation. We received about 1,000 applications for the contests, and the board of directors and others served as judges. We encourage the younger generation to think about more efficient collaboration among teams by trying out new technologies into their workflow. It harnesses their creativity and **becomes a power to transform the construction industry itself.**





Megan Stanley

Manager – Technical
Applications, GHD



We realized the potential value of data some time ago, but today our sources of data are nearly endless. This has created, for many of us, a data explosion. With the volume of information we generate through sources like project information, communications, sensors, and technology, **we have access to a lot of potentially high-value data**. The challenge for organizations and the industry will be how we collectively create standards and a consistent approach to realizing that value.





Fiona Short

Principal | Architect,
Warren and Mahoney



Sustainability attracts talent. You want the right people to come and want to work for you, and you want to be a company that people are proud to work for. A focus on sustainability helps you to get the best out of people because they're passionate and their work aligns with their values. It attracts those like-minded people, and it is just the right thing to do.





MingLei Ma

Chief of Engineering
Research Institute,
China Construction Eighth
Engineering Division
Corporation



Sometimes, new graduates' knowledge appears to be outdated in comparison to our industrial practices. In some cases, our internal R&D is more advanced than the R&D at universities. We've developed tutorials based on our own patent pool to **help new employees acquire knowledge about our internal development and patents.**





MingLei Ma

Chief of Engineering
Research Institute,
China Construction Eighth
Engineering Division
Corporation



Customized, company-specific training [is important]. At the organization, employees participate in a points-based lifelong learning system and receive tailored training about the company's patents and research findings.





GuoJin Zhu

Chief Engineer,
Kunming Engineering
Corporation Limited, Power
China Group



We're trying to develop a new platform to digitalize our archive so that every step of the engineers' thoughts can be documented. With these efforts, we can set up our library of knowledge, and the resources in this library can be used to inspire similar projects in the future. **This end-to-end documentation of the whole process of idea, development, inspiration, and iteration will be very valuable for our future development.**





GuoJin Zhu

Chief Engineer,
Kunming Engineering
Corporation Limited, Power
China Group

“

In the long run, the share of renewable energy will exceed that of fossil fuels, but I'm concerned about the acceleration of the transition to new energy. It's easier to use energy from fossil fuels, and the cost of green energy is still high. We need more technical advances to make green energy more affordable.

”



Andreas Rau

Head of Product
Management, Transport
System Bögl, Max Bögl



Digital transformation **hasn't**
reached the **broad industry yet.**





Coral Butler

Group Head of Digitally
Enabled Lean Project
Delivery (DeLPD),
PM Group



A number of senior-level employees decided to retire a year or two early during the COVID-19 pandemic, leading to a **loss of institutional knowledge and depriving junior employees of mentorship.**





Catherine Topley

Former CEO,
Scottish Canals



That was a turning point, **being able to show employees the value of the technology**, as opposed to the threat.





Frédéric Gal

Head of Business
Modernisation Project,
Bouygues Construction



Digital is going to help us really bring continuity between the studio and site parts of our company. **Digital is going to break the silos that are ingrained in company culture.**





Frédéric Gal

Head of Business
Modernisation Project,
Bouygues Construction



The pressure to change and grow sustainably is coming from everywhere—shareholders, employees, clients, governments. When you have more constraints, you are more inventive. It's a good thing for us, but **we have to implement sustainability practices without excluding ourselves from society's building and infrastructure needs.**





Frédéric Gal

Head of Business
Modernisation Project,
Bouygues Construction

“

The thing that keeps me up at night is the idea of not changing. We have stressed the model to its maximum point. We are going to break the model, and someone is going to disrupt the construction industry.

”



Stacy Smedley

Executive Director, Building
Transparency



Employees coming out of college, up to those in their mid-thirties and often beyond, really care about [sustainability]. **If you can't walk the walk at your company, you may lose top talent in your space.**





Dalton Ho

Regional Sustainable Design
Leader, Associate,
Perkins&Will



When you're talking about making progress on decarbonization, a major component comes down to cost. We have clients that are very interested in carbon reductions and are accurately valuing the cost of emissions, but we also have clients who are not at that stage yet. **At the end of the day, important carbon reductions may not get implemented if they're not also cost-effective.**





Paul Makovsky

Editor in Chief, ARCHITECT
Magazine



The skills employees need will continue to change. While executives may have wanted their employees to learn a second language decades ago, those leaders might now prefer that their workers learn a second programming language. **Upskilling is a forever journey.**





Paul Makovsky

Editor in Chief, ARCHITECT
Magazine



We're starting to measure sustainability in terms of equity. **Whatever you're going to build, you need to be thinking about how it impacts your community.** Are the things that you are doing good for your company, good for your community, and ultimately good for the world?





Steve Plumb

Senior Editor, SME Media,
Manufacturing Engineering



The industry needs a comprehensive approach to making sense of data. We need to start by outlining what data needs to be collected and then consider how data collection will work, how analysis will be conducted, and finally how we will use the data to create and implement new strategies.





Steve Plumb

Senior Editor, SME Media,
Manufacturing Engineering



Software skills are increasingly important. Problem-solving and other so-called ‘soft skills’ are becoming more important as well—being able to communicate well, being able to work with other people, being able to work autonomously.





Steve Plumb

Senior Editor, SME Media,
Manufacturing Engineering



Managing data is **easier said than done.**

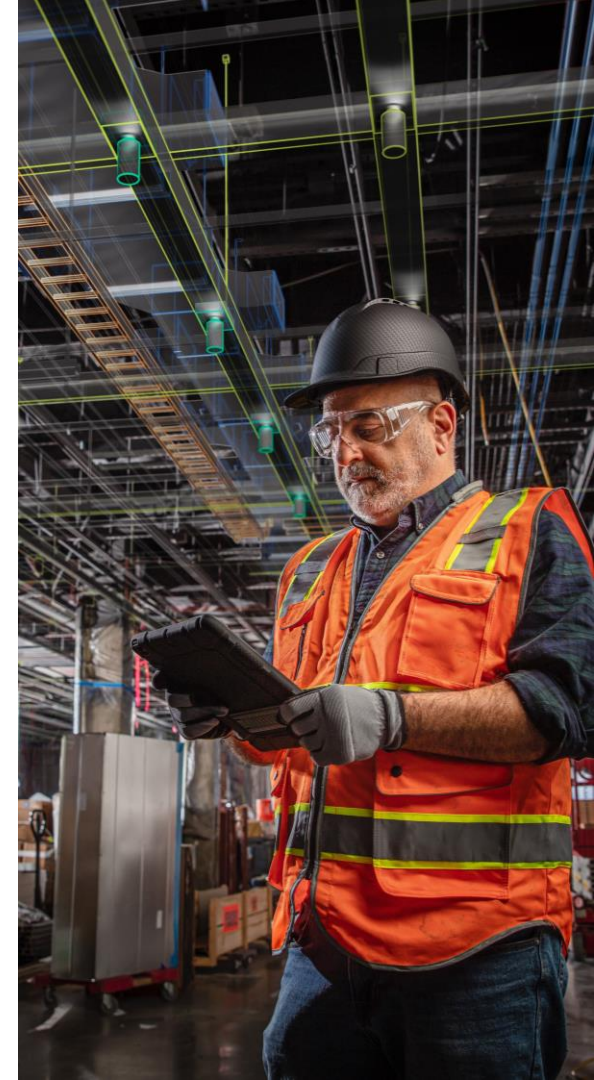
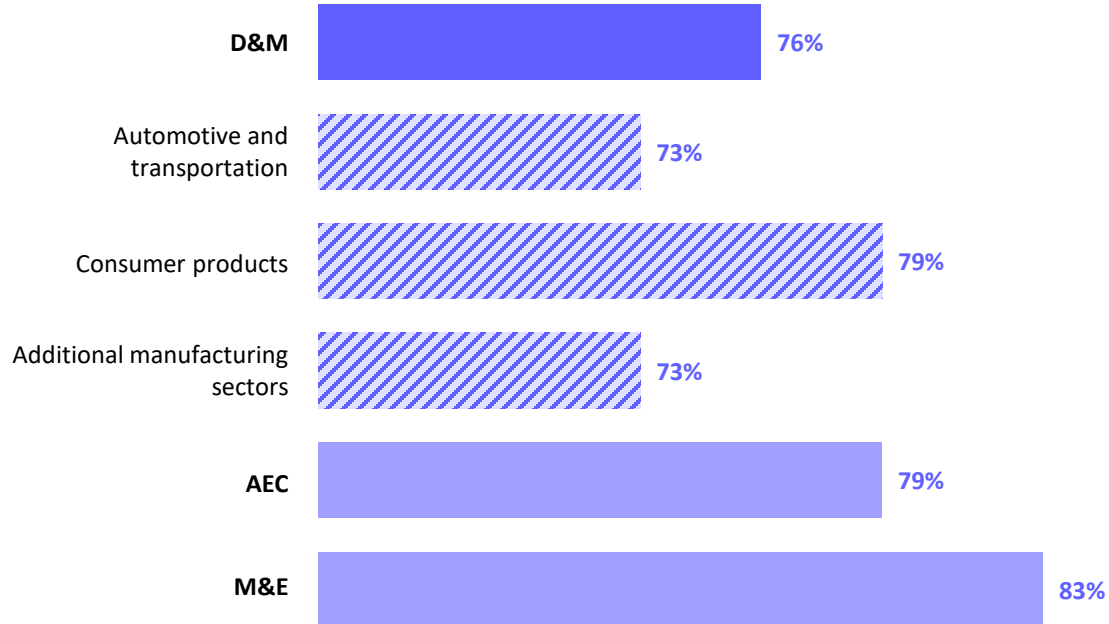


D&M



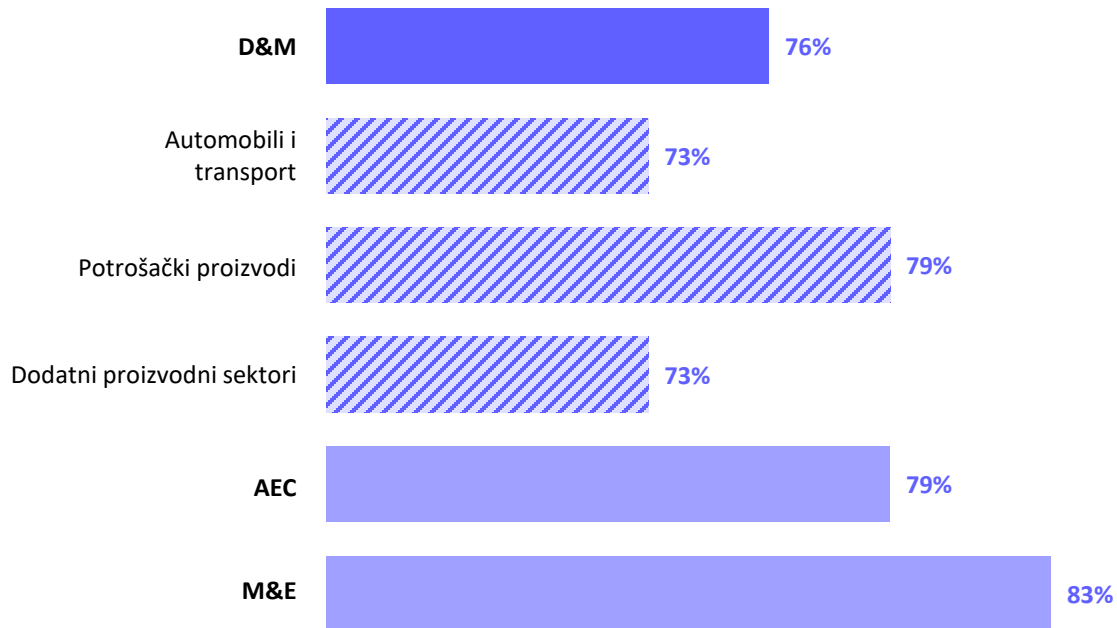
Digital Tools

Respondents who said that **the future growth of their company will depend on digital tools:**



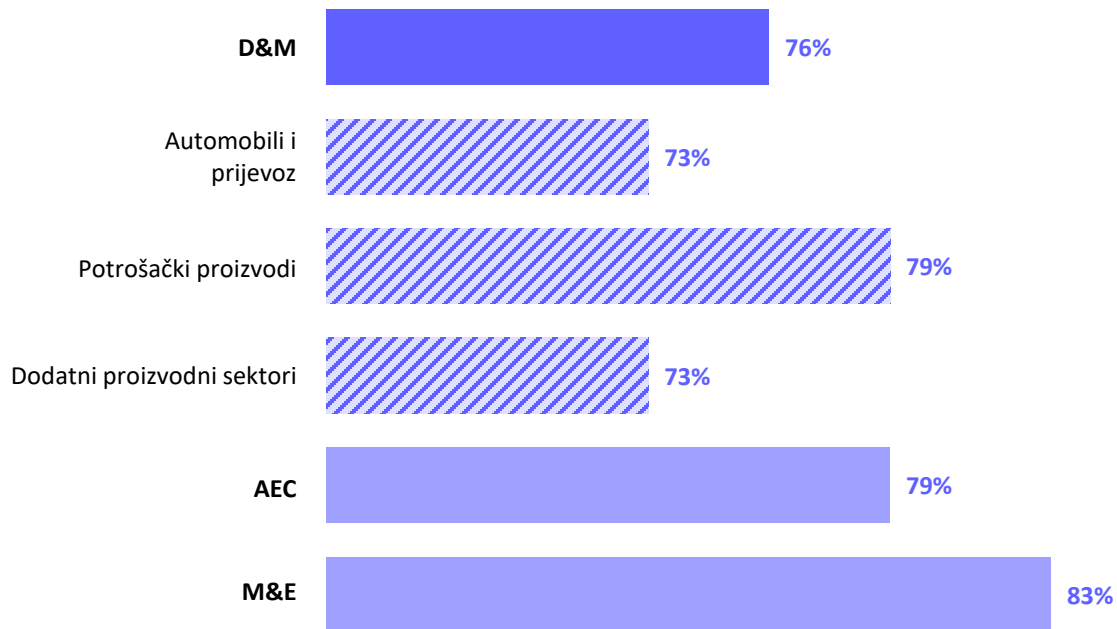
Digitalni alati

Ispitanici koji su rekli da će **budući rast njihove kompanije zavisiti od digitalnih alata:**



Digitalni alati

Većina ispitanika **D&M** industrije složila se da će **budući rast njihove tvrtke ovisiti o digitalnim alatima.**:



Performance

Percentage of D&M respondents who identified their company as **top performers**, rating their company's performance in 2021 as "exceptional" or "above average":

48% in D&M

52% in AEC

53% in M&E



Investments

Respondents in **D&M industries** plan to make the following investments over the next three years:

Technology to deliver improved project outcomes:

All D&M



Automotive and transportation



Consumer products



Additional manufacturing sectors



Data management and analytics:

All D&M



Automotive and transportation



Consumer products



Additional manufacturing sectors



Investments

Respondents in **D&M industries** plan to make the following investments over the next three years:

Developing new products and/or services:

All D&M



Automotive and transportation



Consumer products



Additional manufacturing sectors



Product and/or service innovation:

All D&M



Automotive and transportation



Consumer products



Additional manufacturing sectors



Digital maturity*

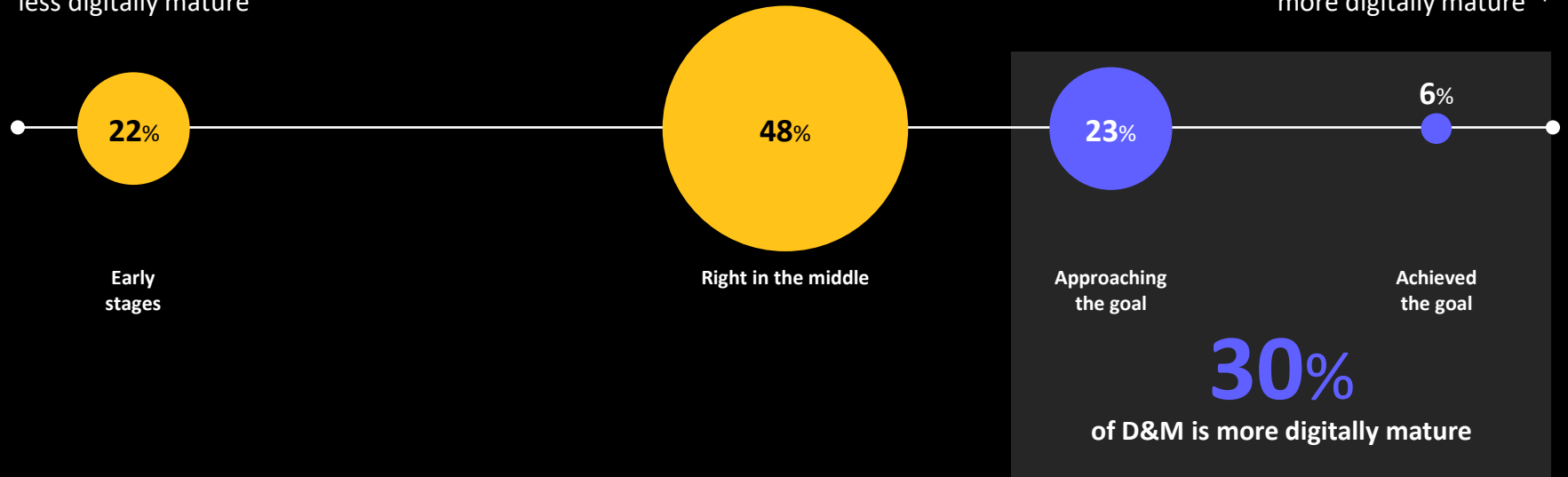
Where **D&M** respondents report their company is in its digital transformation journey:

Less digitally mature

Companies in the early or middle stages of the journey are defined as “less digitally mature”

More digitally mature

Companies approaching or that have already achieved their transformation are defined as “more digitally mature”*



*Values do not add up to 100% due to rounding.

Digitalna zrelost

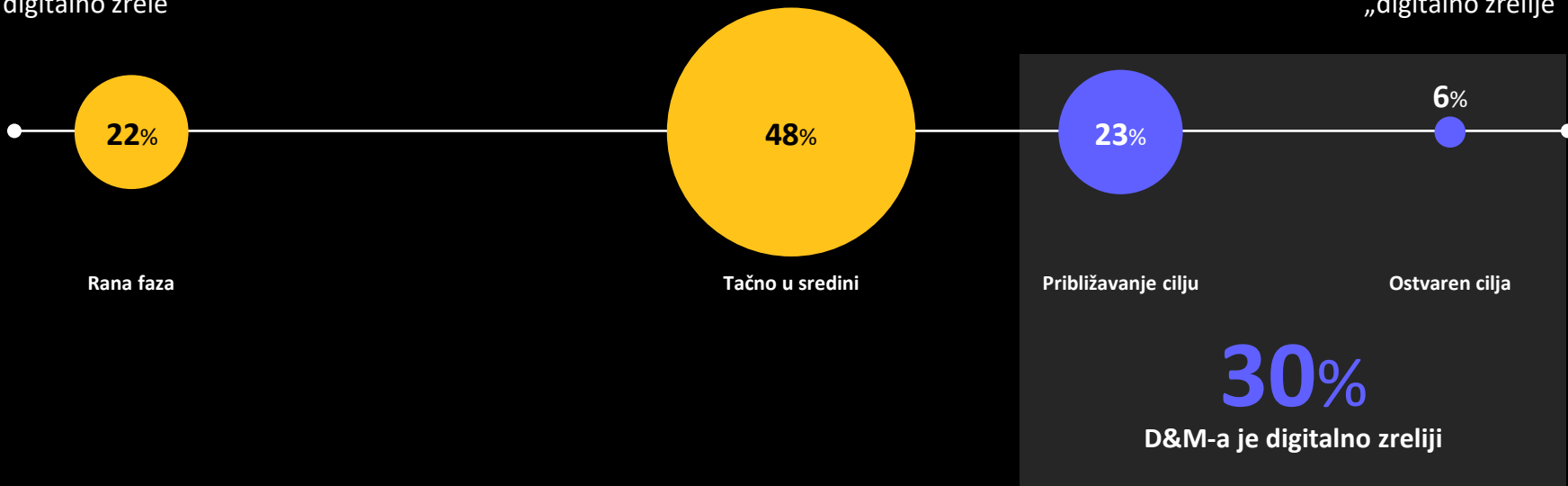
Gde ispitanici D&M-a navode da je njihova kompanija na putu digitalne transformacije:

Manje digitalno zreli

Kompanije u ranoj ili srednjoj fazi putovanja su definisane kao „manje digitalno zrele“

Digitalno zreliji

Kompanije koje se približavaju ili koje su već postigle svoju transformaciju definišu se kao „digitalno zrelije“



Digitalna zrelost

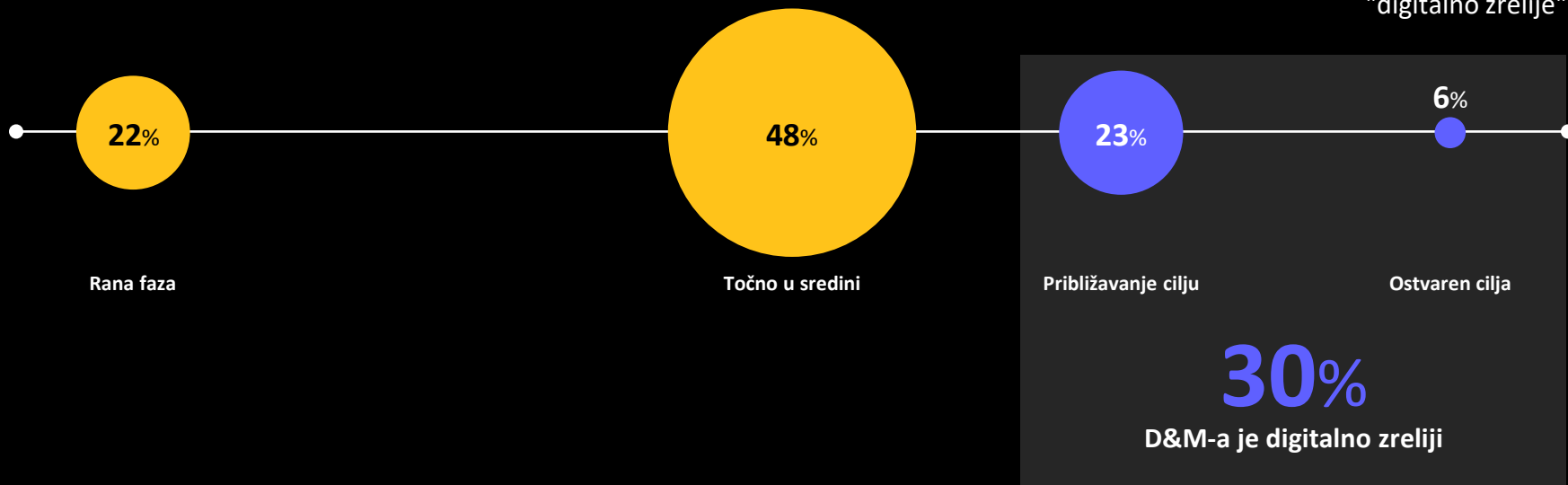
Gdje ispitanici D&M-a ispitanici kažu da je njihova tvrtka na putu digitalne transformacije::

Manje digitalno zreli

Tvrtke u ranoj ili srednjoj fazi putovanja definirane su kao "manje digitalno zrele"

Digitalno zreliji

Tvrtke koje se približavaju ili su već postigle transformaciju definiraju se kao "digitalno zrelije"



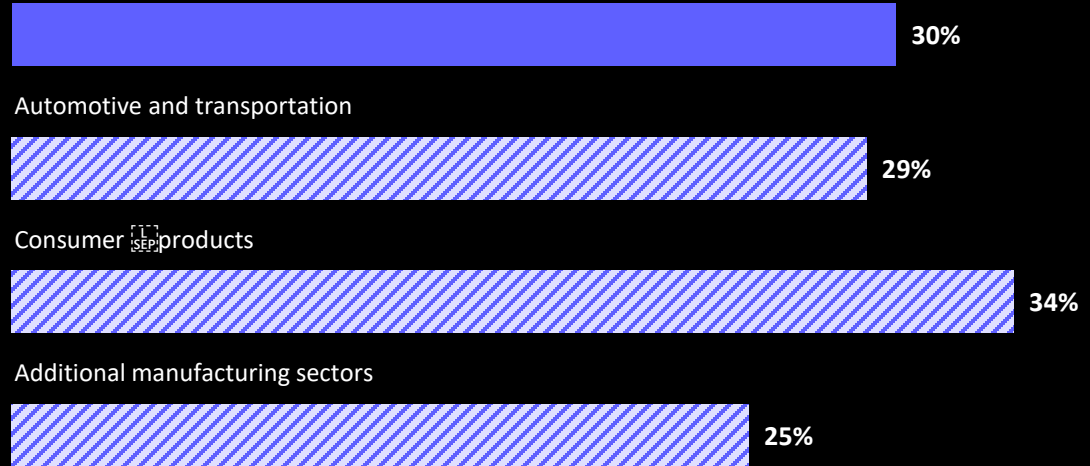
Digital maturity

30%

of respondents from companies in **D&M** reported that their company is “**more digitally mature**,” compared to 38% across all respondents.

This trailed M&E, but was on par with the AEC industries.

All D&M



Benefits of digital transformation

Respondents from D&M said the top benefits of digital transformation are:



Reduced costs



Launch products and services more quickly



Simplify planning and make better business decisions

Among all industries, the top benefits cited were:

- 1 Reduced costs
- 2 Increased innovation
- 3 Ability to launch products more quickly

Prednosti digitalne transformacije

Ispitanici iz D&M-a su rekli da su najveće prednosti digitalne transformacije:



Smanjenje troškova



Brže lansiranje proizvoda i usluge



Pojednostavljeno planiranje i donošenje bolje poslovne odluke

Među svim industrijama, glavne prednosti koje su navedene bile su:

- 1 Smanjeni troškovi
- 2 Povećana inovativnost
- 3 Mogućnost bržeg plasiranja proizvoda

Prednosti digitalne transformacije

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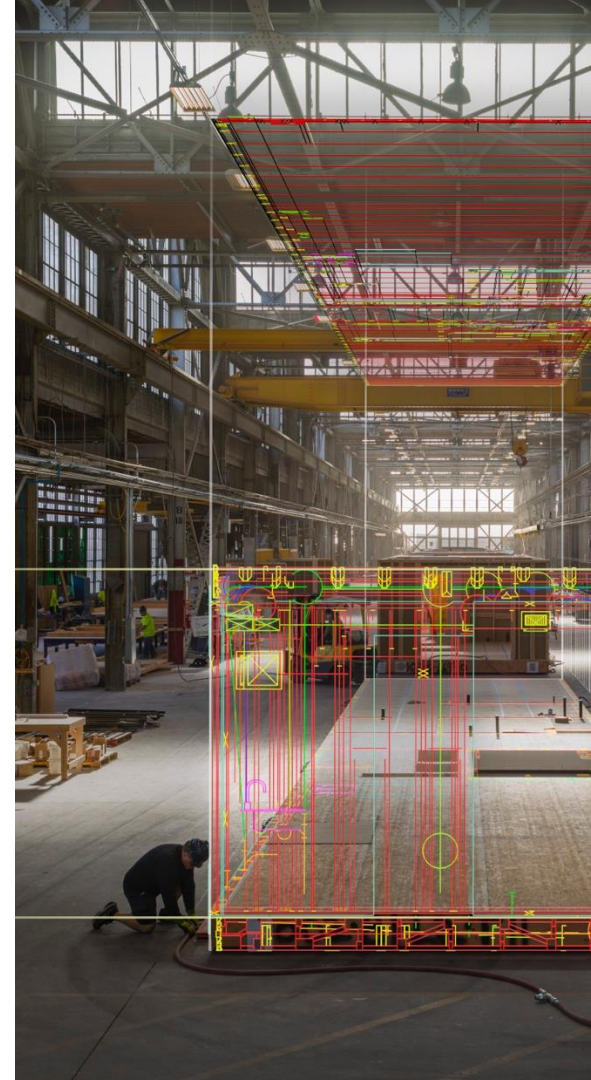
Uncertainty

Percent of respondents who agreed their company is prepared to handle geopolitical changes:

56% in D&M

62% in AEC

60% in M&E



Skills of the future

More than the average across industries, **D&M respondents say the most important technical skills for their company's workforce over the next three years are:**

Innovation and business development



Ability to manage remote teams



Knowledge of—and ability to uncover—new industry trends



Ability to work within a business model that leverages digital transformation



Product formulation



Customer engagement and experience skills

Veštine budućnosti

Više od proseka u svim industrijama, **ispitanici D&M-a kažu da su najvažnije tehničke veštine za radnu snagu njihove kompanije u naredne tri godine:**

Inovacije i razvoj poslovanja



Sposobnost
upravljanja timova na
daljinu



Poznavanje – i sposobnost
otkrivanja – novih
trendova u industriji



Sposobnost rada u
okviru poslovnog
modela koji koristi
digitalnu transformaciju



Formulacija
proizvoda



Angažovanje kupaca
i veštine iskustva

Vještine budućnosti

Više od prosjeka industrije, **D&M ispitanici kažu da su najvažnije tehničke vještine za radnu snagu njihove tvrtke u sljedeće tri godine:**

Inovacije i razvoj poslovanja



Sposobnost
upravljanja timovima
na daljinu



Poznavanje – i sposobnost
otkrivanja – novih
trendova u industriji



Sposobnost rada unutar
poslovnog modela koji
koristi digitalnu
transformaciju



Formulacija
proizvoda



Angažman kupaca i
vještine iskustva

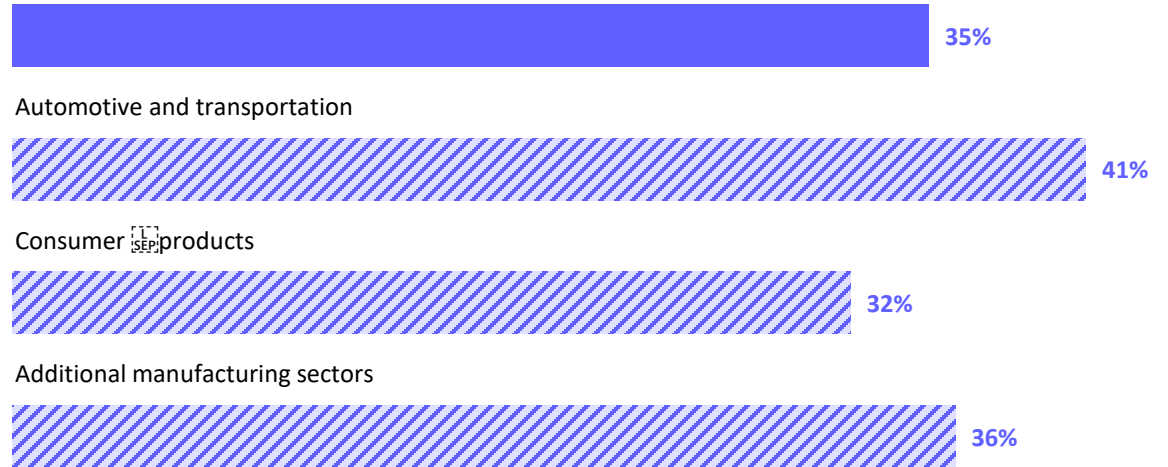


Korišćenje podataka

There are some differences in how much companies are leveraging internal data for collaboration with AI.

Respondents in **D&M** were least likely to say they leverage data for internal collaboration among teams:

All D&M





Korišćenje podataka

Postoje neke razlike u tome koliko kompanije koriste interne podatke za saradnju sa veštačkom inteligencijom.

Ispitanici u **D&M** industriji su rekli da da najmanje koriste podatke za internu saradnju među timovima:

All D&M



Automotive and transportation



Consumer products



Additional manufacturing sectors





Korišćenje podataka

Postoje neke razlike u tome koliko tvrtke koriste interne podatke za suradnju s umjetnom inteligencijom.

Ispitanici u D&M industriji rekli su da najmanje koriste podatke za internu suradnju između timova:

All D&M



Automotive and transportation



Consumer products



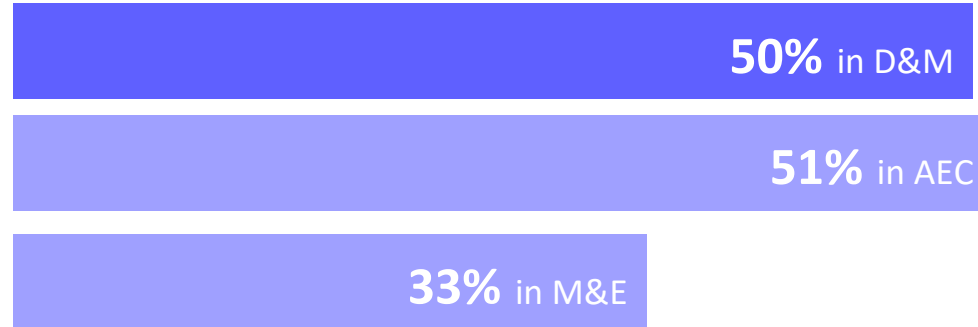
Additional manufacturing sectors



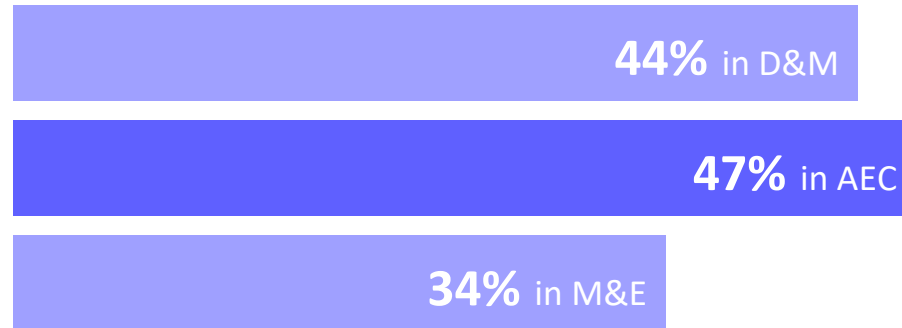
Talent challenges

D&M respondents along with those from AEC were **more likely to say:**

The workforce is rapidly aging:



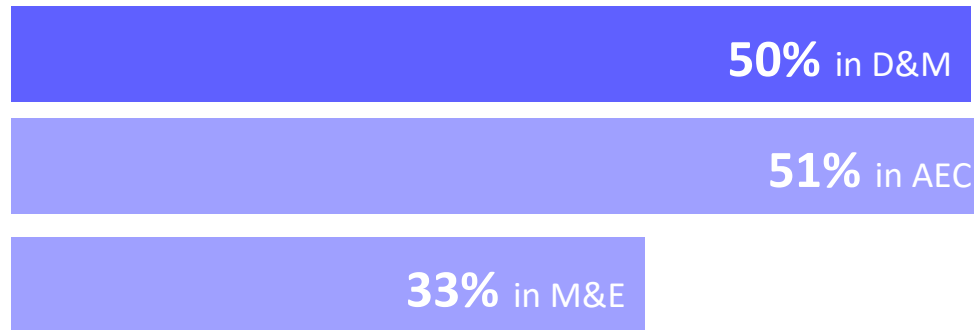
Company culture is too slow to adapt to the younger generation's needs:



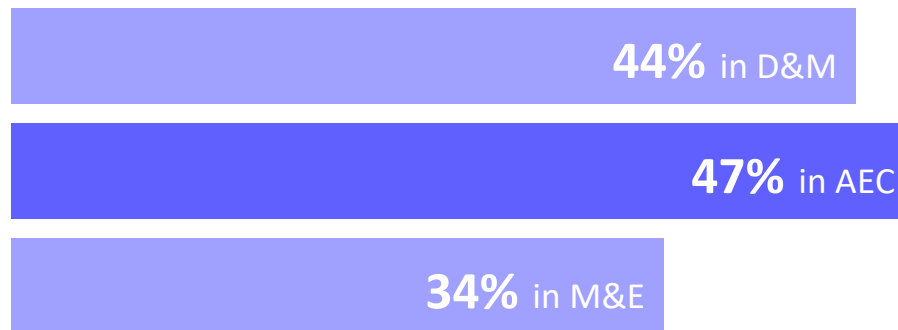
Izazovi za kvalifikovanu radnu snagu

D&M ispitanici zajedno sa
onima iz AEC **su rekla:**

The workforce is rapidly aging:



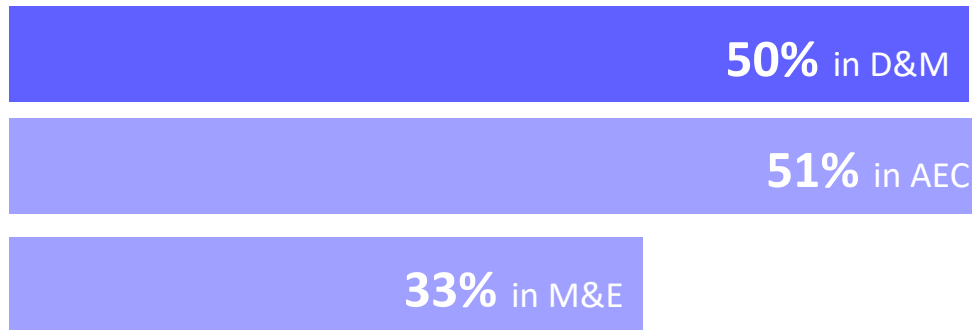
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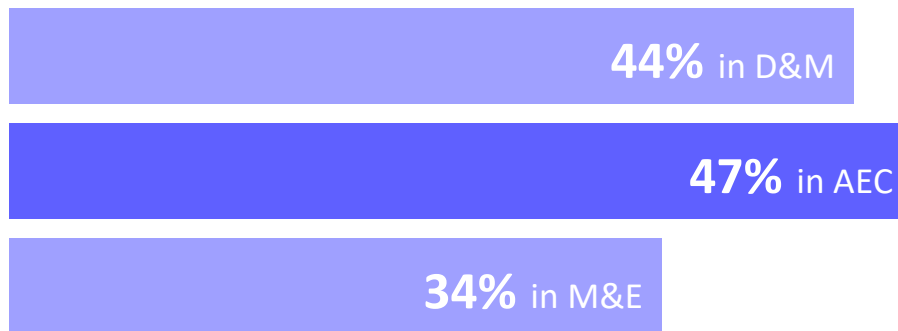
Izazovi za kvalificiranu radnu snagu

D&M ispitanici zajedno sa
onima iz AEC **su rekla:**

Radna snaga **ubrzano stari:**



Kultura poduzeća **presporo se prilagođava potrebama mlađe generacije:**



Talent solutions

Respondents who agree in the next three years, their company is **planning to invest more in technology focused training:**

All D&M



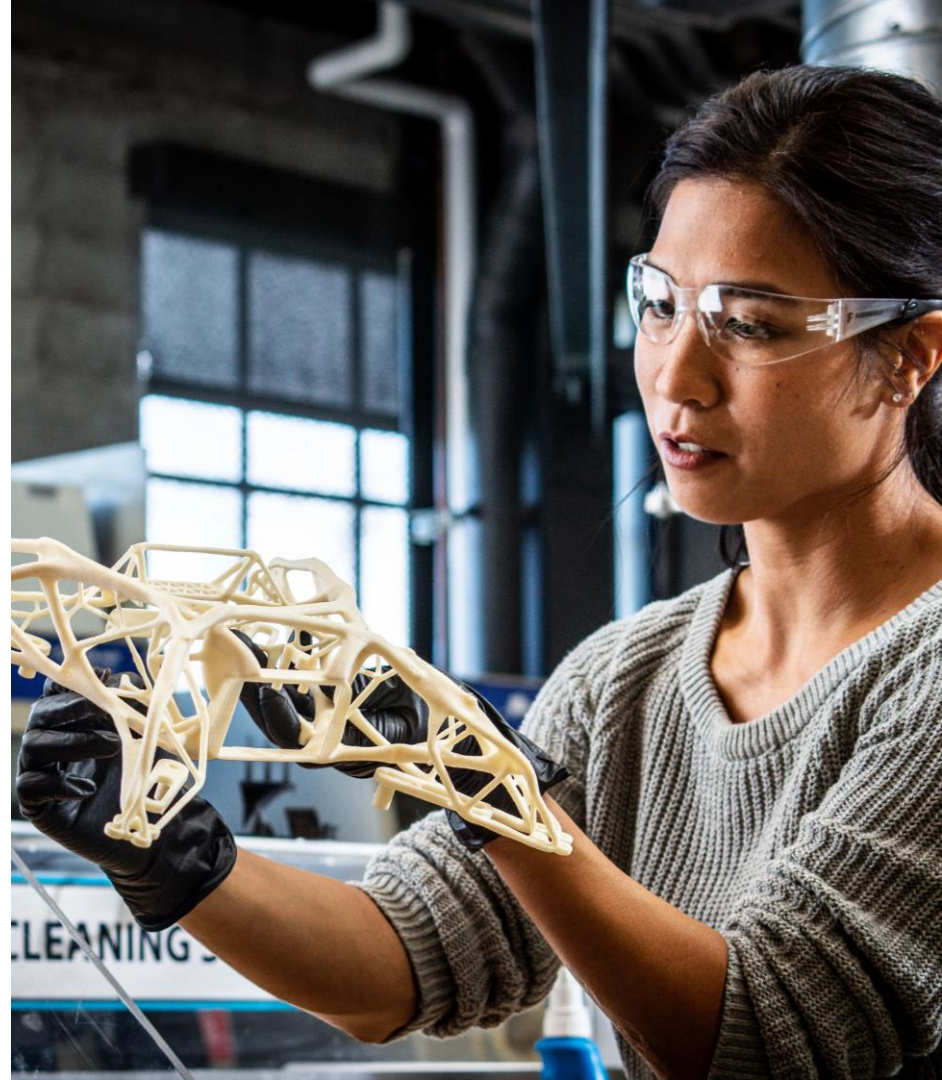
Automotive and transportation



Consumer products



Additional manufacturing sectors



Sustainability in action

According to leaders and experts, **D&M led the way** in some sustainability actions. **These included the portion of respondents whose industry/organization have:**

Decreased waste from production and/or used more recycled materials

41% in D&M

34% in AEC

28% in M&E

Designed **products considering environmental impact**

35% in D&M

32% in AEC

22% in M&E

Developed or invested in **more energy-efficient processes or machines**

33% in D&M

29% in AEC

19% in M&E

Sustainability pressure

When asking how influential different groups are in pressuring their organization to create and meet sustainability goals, respondents said these groups were “very” or “moderately” influential:



	CUSTOMERS	EMPLOYEES	INVESTORS	GOVERNMENT
All D&M	86%	66%	75%	75%
Automotive and transportation	87%	55%	75%	85%
Consumer products	85%	70%	77%	71%
Additional manufacturing sectors	87%	65%	73%	75%



Matteo Barale

Co-chief Executive Officer,
PIX Moving



Technology and customization go hand-in-hand. To do this mass customization and modularity, you need to have a fast way of giving a quote to customers, and you need to do this faster than your competitors. No two products will be the same. **The digital processes are the driving force, allowing us to be personalized and agile.**





Carlos Caminos

Manager, Data Asset
Management, Bridgestone
Americas, Inc.

“

We need to educate upper-level executives and help them define what's realistic. They need to understand: What is a digital twin? What is digital transformation? And we need to be able to speak in business terms about what digitization will help us achieve.

”



Tomoaki Furukawa

Vice President, Chief Digital
Executive, Toshiba Elevator
and Building Systems
Corporation



A focus on digital transformation can help companies lure recent college graduates. **It appeals to them because they're doing new, creative work.**





Charles Cambianica

Design Director, Decathlon
International



It's very important that we look at designers as **people that understand and anticipate users' needs in connection with society's numerous problems, in order to solve them** by design. And realize that we are not simply driven by pure aesthetics and market trends.





JJ Johnson

Chief Operating Officer,
Viewrail

“

[Our organization has] moved to a four-day work week, implemented unlimited paid time off, and taken steps to ensure that people are able to take maternity and paternity leave—**actions all aimed at improving the employee experience.**

”



JJ Johnson

Chief Operating Officer,
Viewrail



We believe in the employee, and we believe in creating a space that allows employees to thrive. **We're not bringing in automation to replace the person. We're bringing in automation to replace the position.** That way, we can take the person and find a higher-level opportunity for them. Employees love it because they're not just coming in and mind-numbingly doing the same thing over and over again.





Samantha Snabes

Co-founder & Catalyst,
Re:3D Inc.



Over the next three years, the manufacturing industry needs to **prioritize trade skill development and supply chain diversification**. Widening the supply chain by supporting more raw materials suppliers and regional hubs that fabricate critical components will create more competition in the market, business opportunities, and jobs. It will also ensure that the industry will still be functional if there are supply chain disruptions.





Samantha Snabes

Co-founder & Catalyst,
Re:3D Inc.

“

You need to have that use case that is scalable, where people can leverage resources and data around repeatable opportunities. Encouraging our partners in academia and small business to share data allows us to learn from and explore the possibility of printing with more sustainable and recycled materials. Seeing waste not as garbage, but instead as a resource, is going to continue to be a focus for many groups. And I think we'll see some real upsides in the next year to 10 years that will help recruit others into the conversation.

”



Sean O'Reilly

Global VP HP Sales
& Innovation,
AAF Flanders Inc.



You can never go wrong when you're doing the right thing. For AAF, **the right thing is to offer a product that lasts longer, that uses less energy**, and delivers the performance that improves air quality and ultimately has a positive impact on human health. We must also focus on delivering true value for money in terms of total cost of ownership. Educating the customer is our daily work – there is an old expression, "you buy cheap, you buy twice," which is as true for the air filter industry as it is in many others.





Kunyueh Lin

General Manager, Building
Automation Solution
Business Unit, Delta
Electronics



If we can improve energy efficiency, we can see returns immediately. Our data center consumes a lot of energy, and if we can improve our energy efficiency by even 1%, we'll save a lot of electricity. This is good both for our customers and our planet.





Kunyueh Lin

General Manager, Building
Automation Solution
Business Unit, Delta
Electronics



The organization has changed its planning and management strategies to be as nimble as possible in the face of geopolitical uncertainty. The company now drafts a new 10-year plan each year. Also, Delta Electronics is moving away from centralized management and providing more resources to the regional offices that will lead business growth for the company in the future. Although it is impossible to be ready for everything, Lin noted, companies can position themselves to respond quickly to changing conditions.





Kunyueh Lin

General Manager, Building
Automation Solution
Business Unit, Delta
Electronics



The declining birth rate and a new emphasis on **work-life balance** in mainland China and Taiwan **[are] factors leading to talent shortages.**





Stefan List

Head of Cabin Market
Insights, Airbus



To get the best talent, you need to have an appealing work culture. **Employees want to know that they won't just be completing tasks given to them.** They want to bring their own viewpoints and creativity to their jobs. That's key.





Stefan List

Head of Cabin Market
Insights, Airbus



One of the biggest challenges for sustainable materials is making them work commercially. There are examples in aviation where sustainable products were released too early, and they couldn't stay in the marketplace or keep their competitive advantage. The aircraft cabin is currently responsible for approximately 5 to 10% of an aircraft's CO2 emissions. However, the latest research and technology developments and cabin innovations we are currently working on will contribute to reducing these figures, e.g. by weight reduction or circular materials.





JJ Johnson

Chief Operating Officer,
Viewrail

“

[Our organization has] moved to a four-day work week, implemented unlimited paid time off, and taken steps to ensure that people are able to take maternity and paternity leave—**actions all aimed at improving the employee experience.**

”

M&E



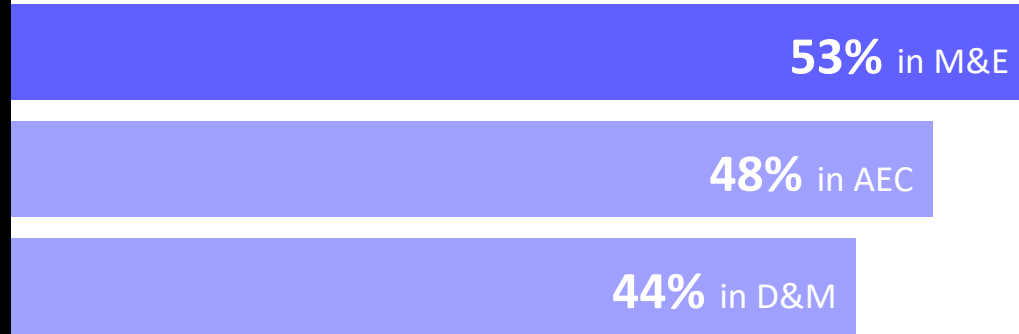
Top challenges

M&E respondents were more likely to cite talent as a top challenge for their business compared to respondents in AEC.

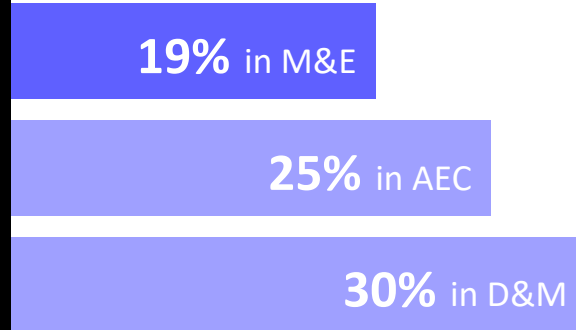
Respondents from M&E were also less likely to cite business resilience as a challenge compared to respondents from other industries.



Talent



Business resilience



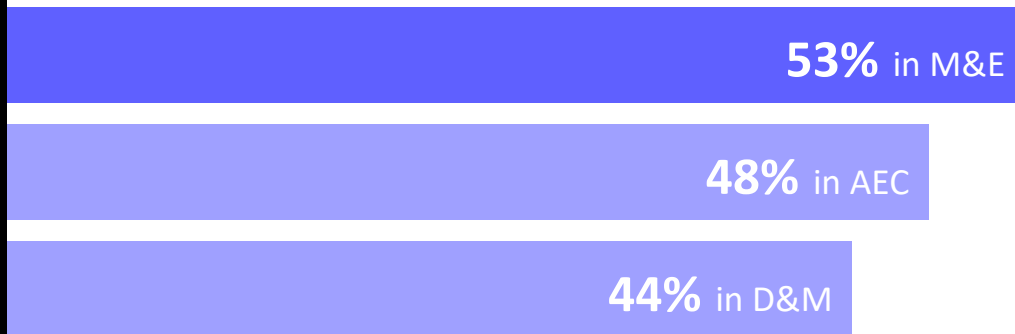
Najveći izazovi

Ispitanici M&E su naveli da im je pronalazak talenata glavni izazov u njihovom poslovanju, u poređenju sa ispitanicima u AEC-u.

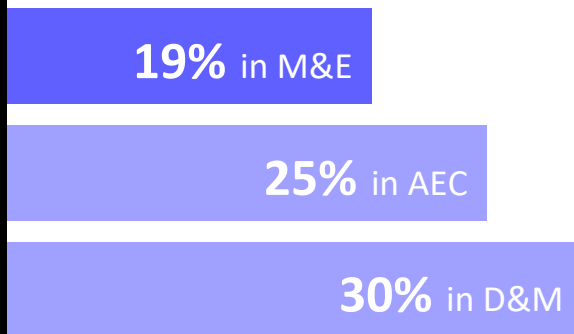
Takođe, M&E ispitanici su naveli da ima je poslovna prilagodljivosti manji izazov u poređenju sa ispitanicima iz drugih industrija.



Talenat

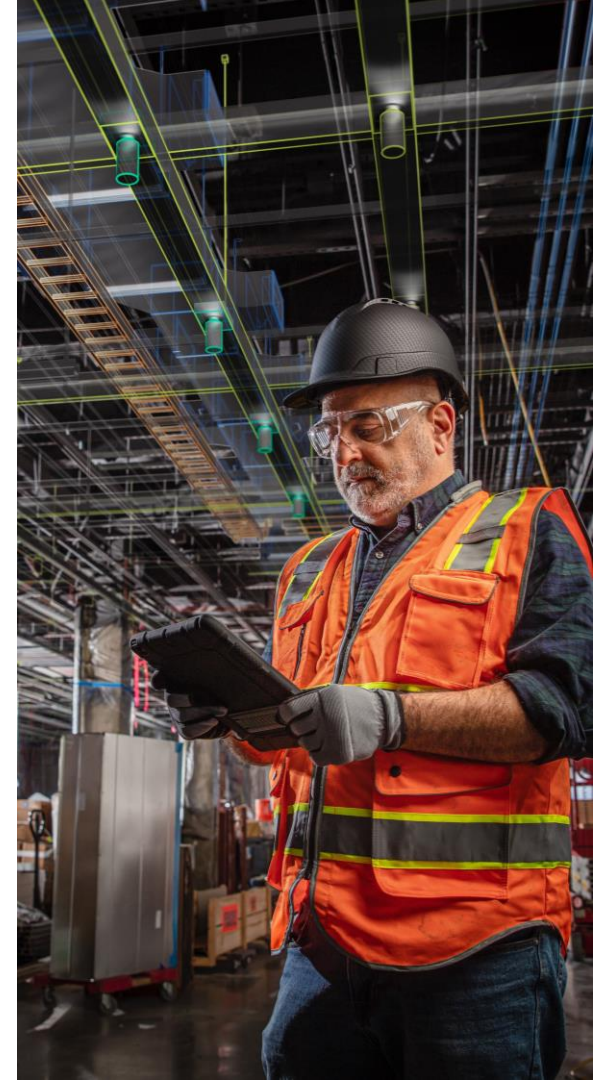
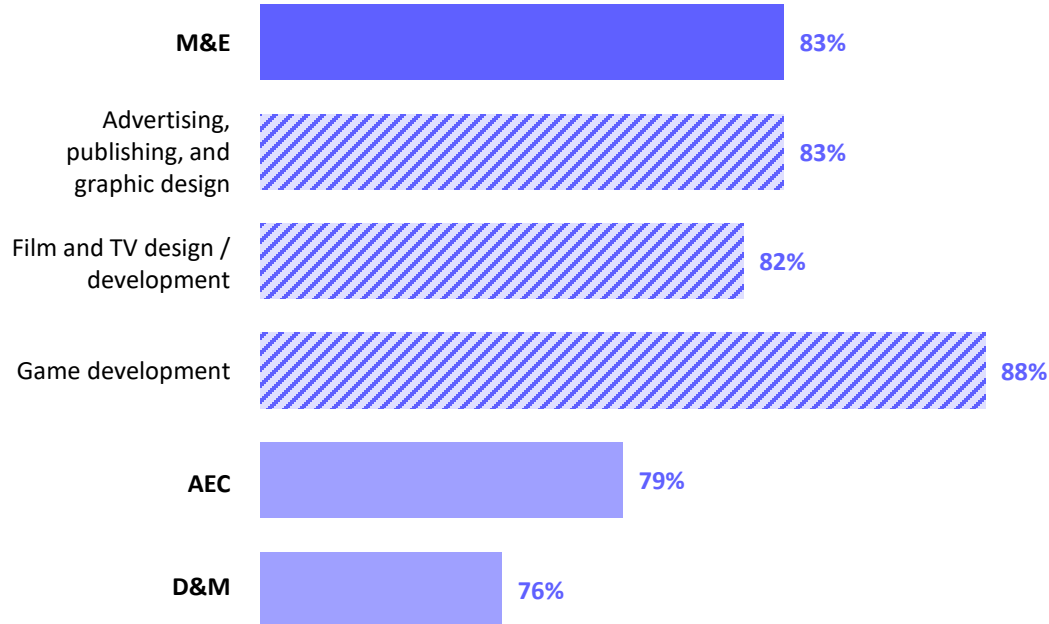


Poslovna prilagodljivost



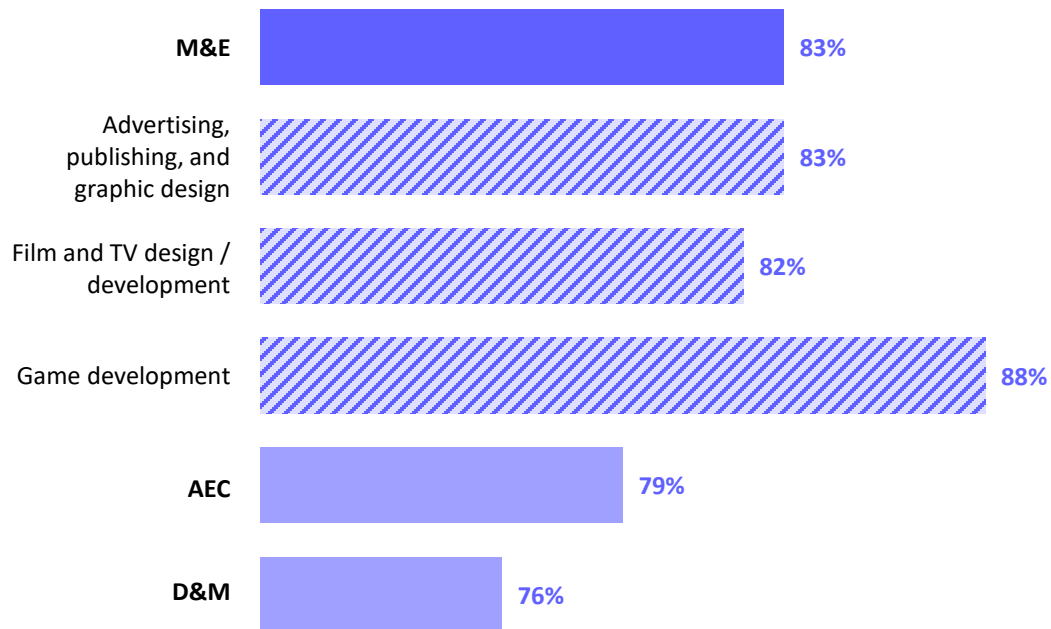
Digital Tools

Respondents who said that **the future growth of their company will depend on digital tools:**



Digitalni alati

Ispitanici koji su rekli da će **budući rast njihove kompanije zavisiti od digitalnih alata:**



Performance

Percentage of M&E respondents who identified their company as **top performers**, rating their company's performance in 2021 as "exceptional" or "above average:"

53% in M&E

52% in AEC

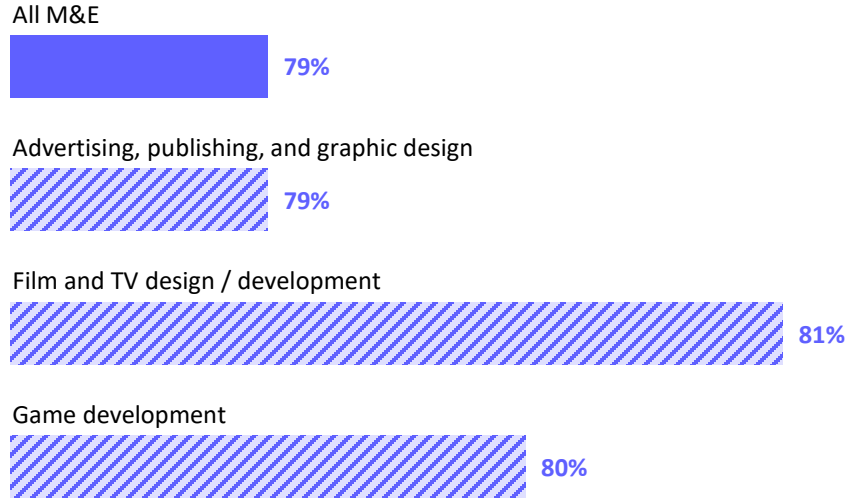
48% in D&M



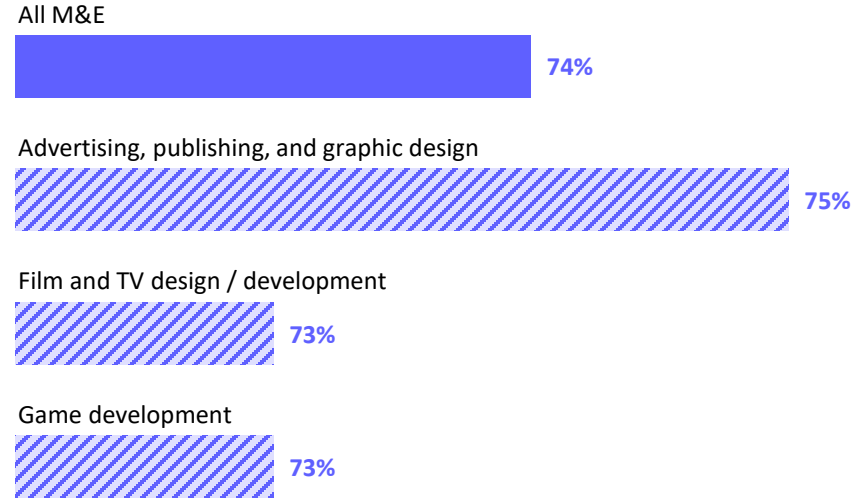
Investments

Respondents in **M&E industries** plan to make the following investments over the next three years at rates similar to other industries:

Technology to deliver improved project outcomes:



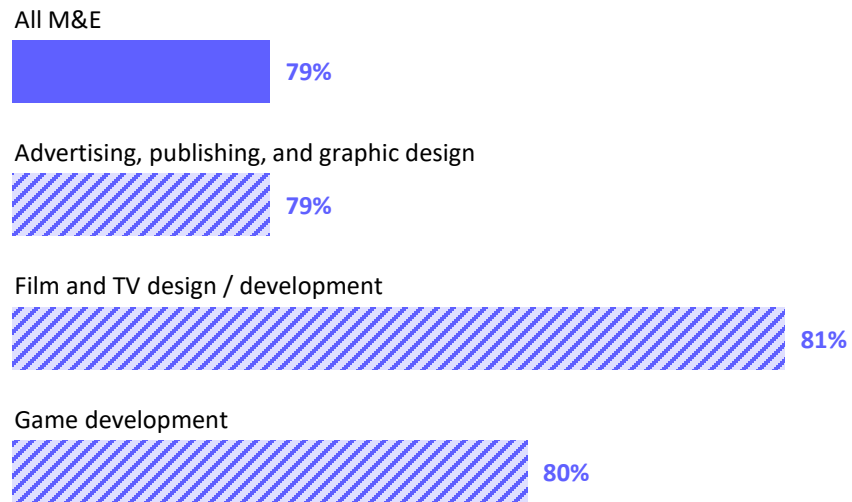
Improved processes and operations:



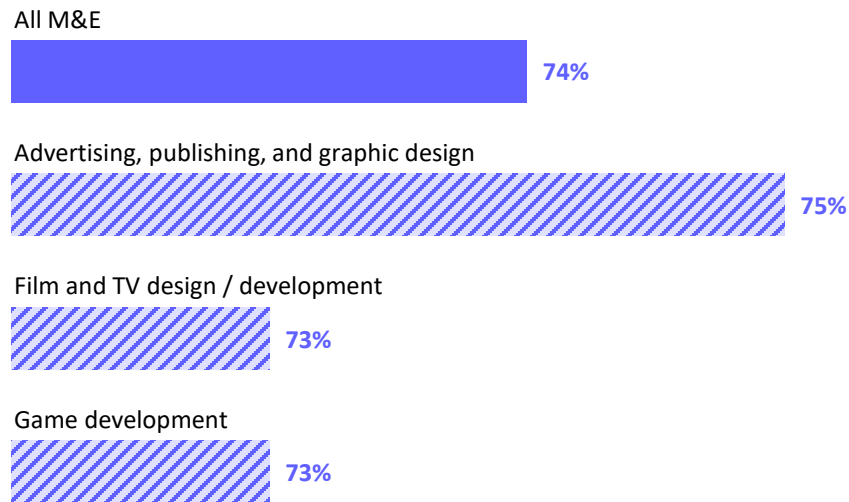
Investicije

Ispitanici u **M&E industriji** planiraju da u naredne tri godine investiraju slično kao u drugim industrijama:

Tehnologija koja će poboljšati postizanje rezultata projekata:



Unapređeni procesi i operacije:



Investments

Respondents in **M&E industries** plan to make the following investments over the next three years at rates similar to other industries:

Product and/or service innovation

All M&E



Advertising, publishing, and graphic design



Film and TV design / development



Game development



Developing new products and/or services

All M&E



Advertising, publishing, and graphic design



Film and TV design / development



Game development



Digital maturity*

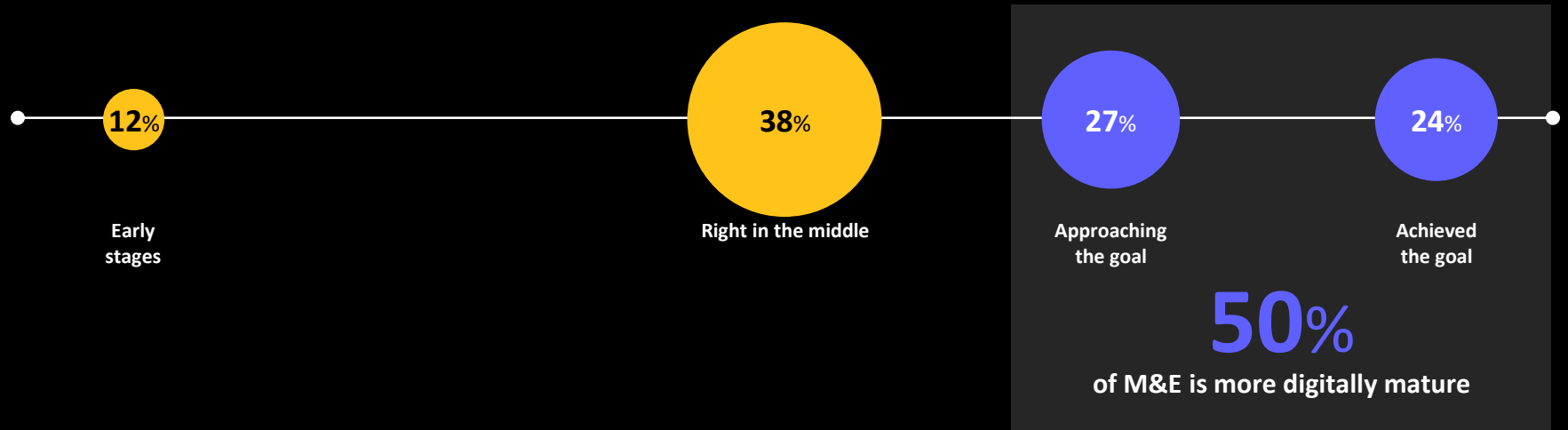
Where M&E respondents report their company is in its digital transformation journey:

Less digitally mature

Companies in the early or middle stages of the journey are defined as “less digitally mature”

More digitally mature

Companies approaching or that have already achieved their transformation are defined as “more digitally mature”*



*Values do not add up to 100% due to rounding.

Digitalna zrelost

Ispitanici **M&E** navode gde je njihova kompanija na putu digitalne transformacije:

Manje digitalno zreli

Kompanije u ranoj ili srednjoj fazi putovanja su definisane kao „manje digitalno zrele”

Digitalno zreliji

Kompanije koje se približavaju ili koje su već postigle svoju transformaciju definišu se kao „digitalno zrelije”



Digital maturity

50%

of respondents from companies in **M&E** reported that their company is “**more digitally mature**,” compared to 38% across all respondents.

M&E companies lead in digital maturity.

All M&E



Advertising, publishing, and graphic design



Film and TV design / development



Game development



Benefits of digital transformation

Respondents from M&E said the top benefits of digital transformation are:



Increased innovation



Ability to scale the business more easily



Reduced costs

Among all industries, the top benefits cited were:

- 1 Reduced costs
- 2 Increased innovation
- 3 Ability to launch products more quickly

Reaction to the Pandemic

M&E respondents were **more like** to say the COVID-19 pandemic caused changes in product or service demand

36% in M&E

30% in D&M

25% in AEC





Leveraging data

There are some differences in how much companies are leveraging internal data to collaborate using technologies like AI.

All M&E



Advertising, publishing, and graphic design



Film and TV design / development



Game development



Skills of the future

More than the average across industries, **M&E respondents say the most important technical skills for their company's workforce over the next three years** are:

Technology use, monitoring, and control



3D Modeling



Automation



Cloud computing



Data science, including the ability to present, understand, and leverage insights from data



Cybersecurity and privacy

Technology design and programming



Artificial intelligence and machine learning



Analytics programming and data management



Software engineering



Ability to design and program technology to meet business needs



Ability to develop sustainability tracking tools

Veštine budućnosti

Više od proseka u svim industrijama, **ispitanici M&E kažu, da su za njihovu radnu snagu, u naredne tri godine, najvažnije tehničke veštine:**

Technology use, monitoring, and control



3D Modeling



Automation



Cloud computing



Data science, including the ability to present, understand, and leverage insights from data



Cybersecurity and privacy

Technology design and programming



Artificial intelligence and machine learning



Analytics programming and data management



Software engineering



Ability to design and program technology to meet business needs

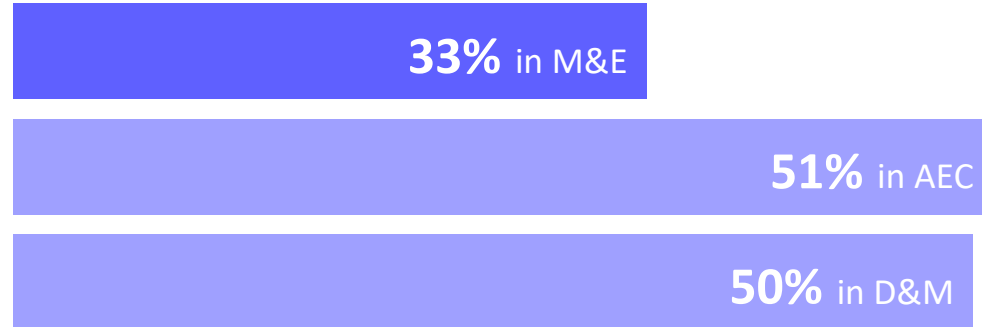


Ability to develop sustainability tracking tools

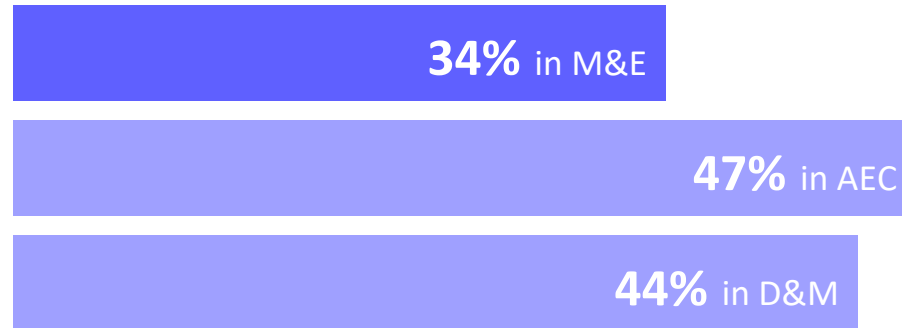
Talent challenges

M&E respondents were less likely to say:

The workforce is rapidly aging:

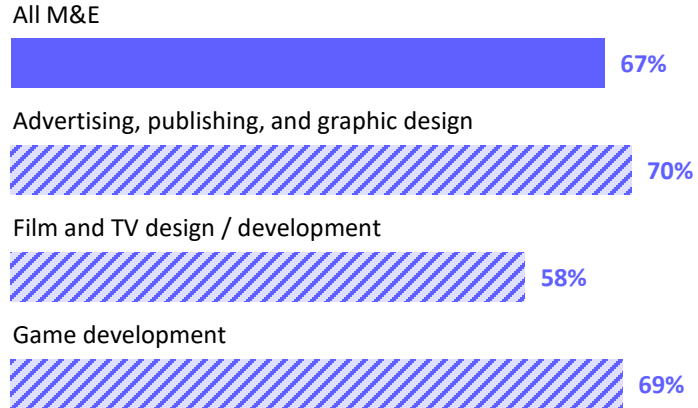


Company culture is too slow to adapt to the younger generation's needs:

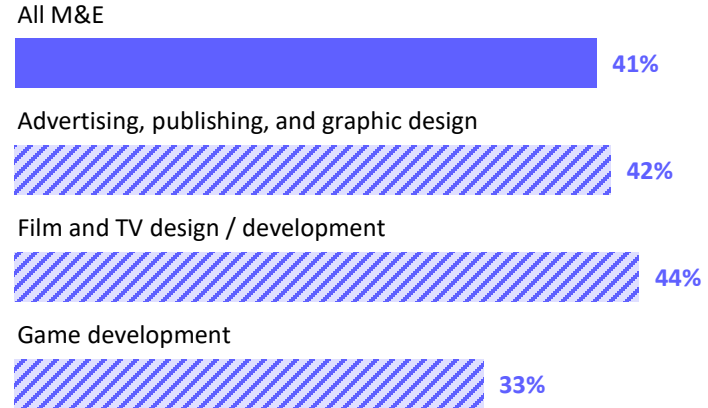


Talent solutions

Respondents who agree in the next three years, their company is **planning to invest more in technology focused training:**



Respondents who agree that their company **doesn't have the skills nor the resources to design internal training programs:**



Sustainability in action

Respondents identified what their companies are doing to be more sustainable.

M&E is making strides in the following actions:

Decreasing waste from production and/or using more recycled materials

28% in M&E

34% in AEC

41% in D&M

Applying sustainable design principles

26% in M&E

33% in AEC

30% in D&M

Using AI tools to be more sustainable

25% in M&E

28% in AEC

24% in D&M

Sustainability pressure

When asking how influential different groups are in pressuring their organization to create and meet sustainability goals, respondents said these groups were “very” or “moderately” influential:



	CUSTOMERS	EMPLOYEES	INVESTORS	GOVERNMENT
All M&E	75%	79%	70%	67%
Advertising, publishing, and graphic design	78%	81%	72%	70%
Film and TV design / development	74%	76%	63%	69%
Game development	68%	74%	72%	57%



Jeremy Smith

Chief Technology Officer,
Jellyfish Pictures

“

You have to offer a flexible working environment. If people need to pick up their kids, or whatever else, it's important to give them that flexibility. It helps build loyalty when you're able to meet your employees in the middle. **In hiring, we've been able to attract a lot of people because of our technology infrastructure, which allows us to hire people around the globe.** It's also important to keep projects interesting. People really want to be stimulated.

”



Jeremy Smith

Chief Technology Officer,
Jellyfish Pictures



We're making sure that our workflows are as optimized as they can be so that we're not wasting computing cycles. That is one of the easiest things you can do to be greener and more sustainable in our area.





Ronald Ames

Producer/Founder,
The Modern Film
Consortium

“

Anything we can imagine, we can create. That's extremely exciting. The tools are being democratized, and the barriers to entry aren't as steep as when I was a young filmmaker. Now, anyone can tell a meaningful story using their phone, and I think that's beautiful.

”