



## 2024 State of Design & Make: Quantitative Questionnaire

The *2024 State of Design & Make* report is a global, annual study for leaders who design and make places, objects, and experiences. It identifies the most pressing issues shaping today's businesses and helps leaders make informed, strategic decisions about how to prioritize and invest in the future.

Autodesk surveyed and interviewed 5,399 industry leaders, futurists, and experts from the following industries: architecture, engineering, construction, and operations (AECO); design and manufacturing (D&M); and media and entertainment (M&E). Autodesk partnered with Qualtrics for the quantitative data (n= 5,368) collected between July and September 2023, through a 20-minute online survey.

Below are the questions from the online survey. Click [here](#) to access the full *2024 State of Design & Make* report-including all glossary terms and research insights.

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## Quantitative Survey

### I. Section 1: Introduction/Macro view

1. What are the top three challenges your company or organization faces today? Please select up to three.
  1. Data automation / technological advancement / digitization
  2. Environmental sustainability
  3. Business resilience
  4. Unreliable supply chains
  5. Attracting, training, and retaining talent
  6. Cost control and cost management
  7. Product or service innovation
  8. Product or service diversification including adding new business lines
  9. Government regulations and regulatory bodies
  10. Global economy and events (e.g., wars, pandemics, inflation, strikes)
  11. Procuring and managing digital solutions
  12. Other (please specify)
  
2. How has your company or organization performed compared to corporate expectations in each of the last three years?
  1. **In 2020**
  2. **In 2021**
  3. **In 2022**
    1. Poor performance
    2. Below-average performance
    3. Met expectations
    4. Above-average performance
    5. Exceptional performance
  
3. How has your company or organization's level of investment **changed over the past three years?**
  1. Strongly decreased
  2. Decreased
  3. Stayed roughly the same
  4. Increased
  5. Strongly increased

4. How do you think your company or organization's level of investment **will shift over the next three years?**
  1. It will strongly decrease
  2. It will decrease
  3. It will stay roughly the same
  4. It will increase
  5. It will strongly increase
  
5. How has your company or organization's investment in the following **changed over the past three years?**
  1. Talent acquisition, training, and retention
  2. Technology to deliver improved project outcomes
  3. Data management and analytics
  4. Improved processes and operations
  5. Developing new products and/or services
  6. Environmental sustainability
  7. Improved collaboration
  8. Remote work
  9. Artificial intelligence and emerging technologies
  10. Acquisitions
    1. Strongly decreased
    2. Decreased
    3. Stayed roughly the same
    4. Increased
    5. Strongly increased
  
6. How do you think your company or organization's investment in the following **will shift in the next three years?**
  1. Talent acquisition, training, and retention
  2. Technology to deliver improved project outcomes
  3. Data management and analytics
  4. Improved processes and operations
  5. Developing new products and/or services
  6. Environmental sustainability
  7. Improved collaboration
  8. Remote work
  9. Artificial intelligence and emerging technologies
  10. Acquisitions
    1. It will strongly decrease
    2. It will decrease



3. It will stay roughly the same
  4. It will increase
  5. It will strongly increase
7. Many companies in your industry are in the process of digital transformation, which is the digital conversion of data and processes. Broadly speaking, where is your company or organization in the digital transformation journey?
1. Early stage
  2. Right in the middle of the effort
  3. Approaching the goal
  4. Achieved the goal
8. In your company or organization, how mature are the following?
- D&M
1. Use of cloud services and platforms
  2. Use of real-time workflows
  3. Digitalization of asset tracking and management
  4. Digitalization of the content review process
  5. Use of technology for design concurrency
  6. Use of technology for seamless pipeline integration
  7. Use of technology for platform compatibility (Games)
- M&E
1. Use of cloud services and platforms
  2. Mass customization
  3. Smart services
  4. Data integration
  5. Accurate data sharing with all stakeholders
- AECO
1. Use of cloud services and platforms
  2. BIM (Building Information Modeling) adoption
  3. Use of visualization tools
  4. Digitalization of project delivery
  5. Use of performance simulation/energy modeling tools
  6. Design or operations automation, including use of artificial intelligence
  7. Design for manufacturing and assembly / prefabrication

1. We do not do this yet
2. Minimally mature
3. Average maturity
4. Very mature
5. Not applicable

## II. Section 2: Business Resilience

9. How well is your company or organization keeping up with the rate of change in your industry?
  1. Not at all
  2. Not very well
  3. Moderately well
  4. Very well
  
10. To what extent do you agree or disagree with the following statements?
  1. My **industry** is well prepared to handle unforeseen future macroeconomic and geopolitical changes.
  2. My **company** is well prepared to handle unforeseen future macroeconomic and geopolitical changes.
  3. The future global landscape feels more uncertain now than three years ago.
    1. Strongly disagree
    2. Somewhat disagree
    3. Neither agree nor disagree
    4. Somewhat agree
    5. Strongly agree
  
11. Has your company or organization experienced any of the following benefits of digital transformation? Select all that apply
  1. Expanded and diversified products and/or services
  2. Improved productivity
  3. Easier to plan and make better business decisions
  4. Better reputation
  5. Improved customer satisfaction
  6. Improved talent acquisition and retention
  7. Increased innovation / better ideas / better designs
  8. Increased sustainability (e.g., improved energy efficiency or less leakage/waste)
  9. Better risk management

10. Improved profitability
11. Reduced costs
12. Improved collaboration
13. Improved data exchange
14. Reduced project design time
15. Another benefit, please specify

**12.** You selected the following as benefits of digital transformation. Please choose the top benefit.

**[Q11 selections]**

**13.** You selected **[Q12 single top choice]** as your top benefit of digital transformation.

1. On a scale of 0% to 100%, how much has digital transformation expanded your company's products or services?
2. On a scale of 0% to 100%, how much has digital transformation improved productivity?
3. On a scale of 0% to 100%, how much has digital transformation made it easier to plan and make better business decisions?
4. On a scale of 0% to 100%, how much has digital transformation bettered your company's reputation?
5. On a scale of 0% to 100%, how much has digital transformation improved customer satisfaction?
6. On a scale of 0% to 100%, how much has digital transformation improved talent acquisition and retention?
7. On a scale of 0% to 100%, how much has digital transformation increased innovation to lead to better ideas?
8. On a scale of 0% to 100%, how much has digital transformation increased sustainability (e.g., improved energy efficiency)?
9. On a scale of 0% to 100%, how much has digital transformation improved your risk management?
10. on a scale of 0% to 100%, how much has digital transformation improved your company's profitability?
11. On a scale of 0% to 100%, how much has digital

transformation reduced costs?

12. On a scale of 0% to 100%, how much has digital transformation improved collaboration?
13. On a scale of 0% to 100%, how much has digital transformation improved data exchange?
14. On a scale of 0% to 100%, how much did digital transformation reduce design time on projects?

**14.** What are the barriers to digital transformation in your company or organization? Select all that apply.

1. Limited capabilities in the tools currently available
2. Lack of trust in the tools available (i.e., data security)
3. Lack of knowledge or technical skills to implement digital solutions
4. Resistance to changing established workflows
5. Cost
6. Time needed to invest in new tools and ways of working
7. Lack of coordination across my organization
8. Lack of clarity on the goals
9. Falls short of other priorities
10. Other, please specify
11. None of the above

**15.** Does your company leverage internal data for any of the following? Please select all that apply.

1. Collaboration among internal teams
2. Collaboration with partners
3. Drive collaboration with AI and automation
4. Gaining an edge on the competition
5. Making faster internal decisions
6. Developing products/services, or completing projects faster
7. Reducing errors and quality issues
8. None of these

**16.** How effective would you say your company or organization is at leveraging data?

1. Not at all effective
2. Not so effective
3. Effective

4. Very effective

**17.** How much do you agree or disagree with the following statements about your company or organization?

1. My company's supply chain is fragile due to geopolitical tensions.
2. My company collects the most useful data for business decisions.
3. The future growth of my company will depend on using digital tools.

1. Strongly disagree
2. Somewhat disagree
3. Neither agree nor disagree
4. Somewhat agree
5. Strongly agree

**18.** To what extent do you agree or disagree that your company or organization is doing the following to be more resilient?

1. My company prioritizes digital products and/or services over non-digital versions.
2. My company works hard at ensuring internal data is accurate.
3. My company is planning to offer new services.
4. My company is considering entering new markets.
5. My company is focused on increasing agility.
6. My company is diversifying its supply chain.

1. Strongly disagree
2. Somewhat disagree
3. Neither agree nor disagree
4. Somewhat agree
5. Strongly agree

**19.** How important are the following people/partners when it comes to data management and digital transformation?

1. A dedicated person/people in my company responsible for managing or centralizing internal data.
2. Technology suppliers/vendors acting as partners in data management and digital transformation.
  1. Not at all important
  2. Not so important



3. Moderately important
4. Very important

**20.** When you think about artificial intelligence (AI) in your industry and company, to what extent do you agree or disagree with the following:

1. AI will enhance my industry.
2. AI will make my industry more creative.
3. AI will destabilize my industry.
4. I trust AI technologies for my industry.
5. I am confident my company will make the right decisions regarding AI.
  1. Strongly disagree
  2. Somewhat disagree
  3. Neither agree nor disagree
  4. Somewhat agree
  5. Strongly agree

**21.** Where is your company or organization in incorporating artificial intelligence (AI) technology?

1. Not started
2. Early stage
3. Right in the middle of the effort
4. Approaching the goal
5. Achieved the goal

**22.** In 2-3 years, how essential do you believe artificial intelligence (AI) will be to your business?

1. Not terribly useful
2. Useful in some cases
3. Essential across the board
4. I don't know

**23.** What are the use cases for artificial intelligence (AI) in your company or organization? (select all that apply)

1. Supplementing a skills gap
2. Identifying product/asset performance gaps
3. Increasing productivity
4. Producing informed design options
5. Billing analysis
6. Workplace safety and risk analysis
7. Automating mundane, repeatable tasks

8. AI is ubiquitous and will be adopted in all areas
9. Other, please specify
10. None of the above

### III. Section 3: Talent

- 24.** To what extent do you agree or disagree with the following statements?
1. Lack of access to skilled talent is a barrier to my company's growth.
  2. The workforce is rapidly aging.
  3. My company's culture is too slow to adapt to the younger generation's needs and desires.
  4. My industry has had to evolve more rapidly in the past 3 years than it had in the past 25 years.
  5. New employees with the right technical skills are difficult to find.
  6. My company has had to let employees go because they lack technical skills.
  7. My company has faced higher rates of attrition in the past 3 years than it had before.
    1. Strongly disagree
    2. Somewhat disagree
    3. Neither agree nor disagree
    4. Somewhat agree
    5. Strongly agree
- 25.** In the previous question you identified [**randomly assign statement strongly/somewhat agree with from Q23**] as a key challenge, what is your organization doing to meet this challenge?
1. lack of access to skilled talent
  2. the workforce rapidly aging
  3. company's culture being too slow to adapt to the younger generation's needs and desires
  4. [Do not include]
  5. new employees with the right technical skills are difficult to find
  6. that your company has had to let employees go because they lack technical skills
  7. that your company has faced higher rates of attrition in the past three year

**[OPEN-ENDED RESPONSE; INSERT TEXT BOX]**

26. To what extent do you agree or disagree with the following statements?
1. My company is looking to hire more remote workers in low-cost-of-living areas.
  2. My company is mandating that employees return to the workplace.
  3. My company is implementing a continuous learning program to mitigate the shortage of skilled workers.
  4. My company doesn't have the skills or the resources to design internal training programs.
  5. In the next 3 years, my company is planning to invest more in digital skills training.
  6. Upskilling employees is important to my company.
  7. My company has had to hire new employees who do not have the skills needed for the job and plans to train them on the job.
  8. My company's level of digital transformation (technological advancement) helps to attract and retain talent.
  9. My company's sustainability efforts help to attract and retain talent.
  10. My company's level of commitment to sustainability impacts my job satisfaction and the likelihood of my staying with the company.
    1. Strongly disagree
    2. Somewhat disagree
    3. Neither agree nor disagree
    4. Somewhat agree
    5. Strongly agree

27. In the next three years, what will be the **TWO most important technical or digital skills** for your company's workforce? Please be specific.

**[OPEN-ENDED RESPONSE; INSERT TEXT BOX]**

28. What technical or digital skills do you believe your company or organization will be prioritizing **when hiring over the next three years?** (Select all that apply)
1. Knowledge of data safety and security

2. Data analytics / data mining / data insights
3. Ability to collaborate with internal and external partners remotely and effectively
4. Software development / programming
5. Digital design skills
6. Data science and data management skills
7. Ability to implement / work with AI
8. Advanced skills working with BIM, modeling, or 3D design
9. Digital project management
10. Other
11. We are not prioritizing technical and digital skills

#### IV. Section 4: Sustainability

**29.** What changes has your company or organization already made to be **more sustainable**? (Select all that apply)

1. Created clear goals for carbon neutrality
2. Invested in more energy-efficient processes or machinery
3. Decreased waste from production and construction
4. Used more recycled materials
5. Increased share of renewable energy sources used
6. Helped or required decreased carbon emissions from suppliers
7. Optimized water systems (e.g., distribution network, wastewater treatment plant)
8. Participated in carbon project financing (e.g., decarbonization projects, carbon offset projects)
9. Used AI to be more sustainable
10. Applied sustainable design principles
11. Other (please specify)
12. None

**30.** How much do you agree or disagree with the following statements about your company or organization?

1. I wish my company prioritized sustainability as much as profits.
2. I am proud of my company's sustainability initiatives.
3. My company is leading the way in this industry when it comes to sustainability initiatives.
4. My company's sustainability initiatives are a key

part of its business growth strategy for the next three years.

5. My company is on track to reach its sustainability goals.
6. Sustainability goals are no longer a nice to have. They are a requirement of modern business.
  1. Strongly disagree
  2. Somewhat disagree
  3. Neither agree nor disagree
  4. Somewhat agree
  5. Strongly agree

**31.** How influential are the following groups in pressuring your company or organization to create and meet sustainability goals?

1. Customers
2. Investors
3. The government
4. Employees
5. The next generation
  1. Not at all influential
  2. Not very influential
  3. Neutral
  4. Moderately influential
  5. Very influential

**32.** To what extent do you agree or disagree with the following statements?

1. Improving sustainability practices is a good long-term business decision.
2. Improving sustainability practices is a good short-term business decision.
  1. Strongly disagree
  2. Somewhat disagree
  3. Neither agree nor disagree
  4. Somewhat agree
  5. Strongly agree

**33.** To the best of your knowledge, how much business value (as a % of annual revenue) can sustainability measures generate in the long term for your company?

1. <1%

2. 1-5%
3. 5-10%
4. >10%
5. I don't know

### **Outcome Framework**

**34.** Below are statements describing business results that other companies have told us they are focusing on. What are the **top five areas** that your company has been focusing on in the past year or is currently focusing on? Please select up to five options from the list below, you can select several statements from the same group if needed. If there is an important area your company focused on and it is not included in the list please select 'Other' at the end of the list and specify what it is.

**[Outcomes, internal use]**

## **V. Demographic questions**

**S1.** What country do you live in or is the primary base for your work?

1. Australia
2. Brazil
3. Canada
4. China
5. Denmark
6. Finland
7. France
8. Germany
9. India
10. Italy
11. Japan
12. Mexico
13. Netherlands
14. Norway
15. Saudi Arabia
16. South Korea
17. Spain
18. Sweden
19. Turkey
20. UAE
21. United Kingdom
22. United States

23. Other

**S2.** What is your current job level?

1. Non-managerial level
2. Manager
3. Business Owner/Entrepreneur
4. Director
5. VP-Level
6. C-Level
7. Other (please specify)

**S3.** On what area does your company primarily focus?

1. Advertising, Publishing, and Graphic Design
2. Aerospace and Defense Equipment
3. Architecture Services
4. Automotive and Other Transportation (incl. Supply Chain)
5. Building Owners (e.g., developers, real estate companies, governments)
6. Building Products and Fabrication
7. Civil Infrastructure Owners (e.g., transportation infrastructure, water Infrastructure)
8. Construction Services
9. Consumer Products
10. Engineering Service Providers
11. Film and TV
12. Games
13. Industrial Machinery
14. Life Sciences Manufacturing
15. Mining
16. Oil and Gas
17. Process manufacturing
18. Utilities and Telecom
19. None of the above

**S4.** Does your role within your organization involve any of the following?

1. **Architecture Services**
2. **Construction Services**
3. **Engineering Services**
4. **Media and Entertainment**—Movies/cinema releases, Television, Music, Publishing, Radio,

Internet, Advertising and Gaming

5. **Product Design and Manufacturing** – Dealing with the production of goods in large quantities with the help of machines that convert raw materials into valuable products.
6. Other (please specify)

**S5.** What kind of work are you focused on?

**IF Construction services or Engineering services**

1. **Building Engineering** – responsible for the design of structural, mechanical, electrical, and plumbing systems that allow building interiors to be structurally sound and suitable for human use and occupancy (e.g., Mechanical Engineer, Electrical Engineer, Plumbing Engineer)
2. **Civil Engineering** – responsible for the planning and design of infrastructure assets such as roads, railways, bridges, canals, dams, water, and waste-water systems (e.g., Civil Engineer/Designer, Land Designer, GIS/Geotechnical Engineer)
3. **Construction Management** – managing the day-to-day delivery of a construction project (e.g., Project Manager, Project Engineer, Safety Manager)
4. **Facilities Management** – responsible for ensuring that the services of a building or facility fulfill their intended purposes and meet their occupants' needs. This includes inspection, maintenance, and repair of electrical and plumbing amenities; workspace planning and management; cleaning and other janitorial services; and occupant health and safety.
5. **Infrastructure Owners**- responsible for monitoring existing infrastructure asset portfolios to ensure they are meeting the capacity and safety needs of users as well as being resilient to natural events and aging. Planning for future capacity needs and overseeing the strategy for planning, designing, constructing, and operating new or updated assets (e.g., Civil Infrastructure Owners and



Operators or Civil Infrastructure Program Managers)

6. **MEP Fabrication** – designing, fabricating, and packaging components at a designated facility to meet project requirements. Installing fabricated pieces on the project (e.g., Mechanical Detailer, Electrical Detailer)
7. **Pre-Construction** – planning for the project before moving forward with the actual construction phase. Some of the responsibilities involve scheduling, cost estimation, scope, analysis of the job’s needs, and collaborating with other contractors on model coordination, pre-fabrication, etc. (e.g., Estimator, Quantity Surveyor or Business Development Representative)
8. Other (please specify)

#### **IF Product Design and Manufacturing**

1. **Automotive Design** – create concepts & designs that define the style, appearance, and ergonomics of vehicles and mobility products (e.g., Automotive Designer, Class A Modeler, Studio Engineer)
2. **Custom Project Management & Engineering** – design, engineering, and fabrication of highly custom projects either as a bespoke engineering exercise or deep customization of a platform product (e.g., Project Manager or Project Engineer)
3. **Electronics Engineering** – design and engineer printed circuit boards, including schematic design, layout of components and circuits, and testing & analysis
4. **Product Design and Engineering** – Design and engineer products, machinery, and equipment used directly by consumers or in industrial and commercial applications (e.g., Product Engineer, CAD Manager, Mechanical Engineer, Electrical Engineer)
5. **Manufacturing Engineering** – develop individual manufacturing, fabrication, and

assembly processes and is responsible for ongoing production planning and management. More concerned with the initial research design, layout, and build of the manufacturing process or system (e.g., Manufacturing Engineer, Machinist, Production and Operations Manager)

6. **Multidisciplinary role**, design, engineer, and prototype/manufacture one-off or small batches of products. May be micro-businesses or R&D departments within larger businesses.
7. **Production Engineering** – develop, operate, and continuously improve the discrete production systems that sequence manufacturing and assembly steps together to create a finished product. More focused on running the system (e.g., Production Engineer or Industrial Engineer)
8. Other (please specify)

#### **IF Media and Entertainment**

1. **3D Animation for Film/TV** (e.g., CG Supervisor, 3D Animator, 3D Modeler, Rigger)
2. **Game Development** (e.g., Art Director, 3D Modeler, 3D Animator, Rigger, Environment Artist, Level Designer, Programmer)
3. **Film/TV On-Set Production** (e.g., Producer, Post Supervisor, Cinematographer, Director, Editor, Digital Imaging Technician)
4. **Visual Effects for Film/TV** (e.g., VFX Supervisor, Technical Director, VFX Artist, 3D Animator, 3D Lighting Artist)
5. Other (please specify)

**S6.** How many full-time and part-time employees across all locations does your company have?

1. 1 – 19
2. 20 – 49
3. 50 – 149
4. 150 – 499
5. 500 – 999
6. 1,000 – 4,999
7. 5,000 – 9,999

8. 10,000 or more

**S7.** What is your current employment status?

1. Employed full-time
2. Employed part-time
3. Self employed
4. Other, please specify

**D4.** Do you work for a corporation that has multinational business? If so, what are some of the top **countries or regions** you do business in?

1. We do not work internationally.
2. Yes, my company does business internationally, mainly in **[OPEN-ENDED BOX]**

**D1.** What was your company's revenue last year? [in local currency]

1. Less than \$5 million
2. \$5 million to 24.9 million
3. \$25 million to \$49.9 million
4. \$50 million to \$99 million
5. \$100 million to \$499 million
6. \$500 million to less than \$1 billion
7. \$1 billion to \$4.9 billion
8. \$5 billion to \$19.9 billion
9. \$20 billion and above
10. I don't know

**D2.** What percentage of your revenue are you currently investing in technology?

1. 0%
2. 1% to 15%
3. 16% to 30%
4. 31% to 45%
5. 46% to 60%
6. 61% to 75%
7. 76% to 90%
8. 91% to 100%
9. I don't know

**D5.** How many years of experience do you have in your



industry? Please enter whole numbers only.

**[NUMERIC OPEN END]**

**D6.** Do you have influence or responsibility on deciding what design software products and services your company uses?

1. Yes
2. No

**D7.** How familiar are you with the technology/tools your company is using to address digital transformation?

1. Not at all familiar
2. Not very familiar
3. Moderately familiar
4. Very familiar

**D8.** What gender do you identify as?

1. Male
2. Female
3. Other
4. Prefer not to say

**D9.** Do you or your company currently use any Autodesk products (i.e., AutoCAD, Revit, Maya, 3ds Max, Inventor, Fusion, etc.)?

1. Yes
2. No
3. I don't know