



ADSK-1991-01

Rev.: 01

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AUTODESK Analysis

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Revision	Description of Change	Revision By	Position	Date
01	Initial release	Mechanical R&D Engineer	Rotem Sokolovsky	April 2024

Revision History


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1 Definitions & Abbreviations

Term	Description
NOPAT	Net operating profit after taxes
DCR	Discounted Cash Flow
Terminal multiple	How the market values the company's cash flow beyond the forecast period
AEC	Architecture, Engineering & Construction
CAD	computer-aided design

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2 Valuation and recommendation

Autodesk, a leader in **building and architecture software**, expands into manufacturing, mechanical engineering, and media & entertainment. However, breaking into these markets presents challenges against established players. I separated the company's analysis into 2 parts, revenues as described in the report and revenues according to the company's area of business and I saw that according to the 2 options **the company's growth** possibilities are **relatively low**. As a result, the price as of April 30, 2024 is \$229 and after a reduction of 30 % margin of safety The purchase price is **\$160.18** (currently the share price is \$216).


3 History

Year	Event	Elaboration
1982	Autodesk founded	In Marin County, California, on January 30, 1982, a small group of individuals formed Autodesk, originally known as Marin Software Partners. John Walker, one of the founders, emphasized that "the game has changed," marking the birth of Autodesk.
1984	AutoCAD 1.4 release	AutoCAD 1.4 was released around 1984-85, featuring significant advancements in computer-aided design (CAD) software. Founder John Walker also introduced a notable Space Shuttle drawing, showcasing the capabilities of AutoCAD.
1985	Introduction of Solar.DWG	AutoCAD version 2.18, circa 1985, featured the Solar.DWG sample drawing, highlighting the precision and capabilities of AutoCAD in representing the solar system in 1:1 scale using kilometer units.
1986	John Walker steps down	After gaining a reputation as an iconoclastic and brilliant computer designer over 12 years, John Walker withdrew as chairman and president of Autodesk in 1986, transitioning to work as a programmer.
1987	Second stock offering	Autodesk initiated a second stock offering, issuing 2.5 million shares at \$24.00 per share in the summer of 1987. This capital infusion helped the company reduce debts and strengthen its financial position.
1989	Sales surpass \$100 million	Despite being operational for only four years, Autodesk's sales exceeded \$100 million in 1989, reflecting its rapid growth and success in the market for personal computer-aided design software.
1990	Publication of "Autodesk: A Success Story"	Information Week published an article titled "Autodesk: A Success Story" on July 23, 1990, highlighting the company's achievements and impact on the technology industry. John Walker's analysis in 1990 criticized the company's management for jeopardizing its core business by allowing its technology to lag.

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199 2	Legal settlement	In December 1992, Autodesk agreed to pay \$5 million to shareholders to settle a legal dispute, demonstrating its commitment to resolving legal issues and maintaining shareholder trust.
199 3	Introduction of Autodesk University	The first Autodesk user conference, which later became Autodesk University (AU), was hosted near the company's headquarters in San Francisco. It provided a platform for designers, architects, and engineers to learn, share knowledge, and network with industry peers.
199 4	John Walker's departure	John Walker officially severed ties with Autodesk in 1994 to pursue engineering projects in Switzerland. By this time, Autodesk had achieved significant milestones, including shipping one million software packages worldwide and generating substantial revenue from AutoCAD sales.
199 7	Challenges with AutoCAD 13.0	Autodesk faced challenges with the release of AutoCAD 13.0 in 1994, which was plagued with software flaws ("bugs"). This led to declining sales and a drop in stock value, prompting the company to discontinue support for certain platforms and focus exclusively on Microsoft Windows.
200 1	Bartz's leadership and internet initiatives	Under the leadership of Carol Bartz, Autodesk faced criticism for not embracing internet-based marketing earlier. However, Bartz's initiatives in 2001, including launching a web portal and introducing internet-enabled products, proved successful in addressing customer needs and expanding Autodesk's market reach.
200 2	Acquisition of architectural software company	Autodesk expanded its portfolio through the acquisition of a Waltham-based architectural software company, demonstrating its strategic growth and commitment to diversification.
200 3	Start of Autodesk's blog	Autodesk launched its blog in August 2003, providing a platform for sharing solutions, answering questions, and engaging with customers and stakeholders. This initiative enhanced Autodesk's communication and support channels.
200 5	Revenue milestone and leadership transition	Autodesk surpassed the \$1 billion sales mark in 2005, marking a significant milestone in its financial performance. Carol Bartz stepped down as CEO, passing leadership to Carl Bass, who aimed to continue the company's growth trajectory and innovation.
200 7	Legal dispute over resale rights	A legal dispute arose when Timothy Vernor sued Autodesk over resale rights of AutoCAD software. The case, Vernor v. Autodesk, Inc., addressed complex issues related to software licensing and the first-sale doctrine, ultimately impacting the software resale market.
200 9	Court ruling on software resale rights	The Vernor v. Autodesk, Inc. case culminated in a court ruling that clarified the applicability of the first-sale doctrine to previously licensed software. The ruling had implications for software vendors and consumers regarding resale rights and licensing agreements.
201 3	Introduction of new logo	Autodesk unveiled a new logo at the TED conference in February 2013, reflecting its evolution and modernization as a technology company. The new logo symbolized Autodesk's commitment to innovation and creative excellence.
201 7	Workforce reduction	Autodesk announced its largest layoff in history in November 2017, reducing its workforce by 1,150 jobs. This restructuring aimed to streamline operations and align resources with strategic priorities amidst changing market dynamics.
202 1	Logo update	In September 2021, Autodesk updated its logo, signaling a fresh identity and brand image for the company. The logo redesign reflected Autodesk's ongoing evolution and adaptation to new market trends and customer expectations.

4 Business

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4.1 General

Autodesk provides cutting-edge 3D design and engineering solutions globally, empowering users to innovate, optimize, and collaborate efficiently.

4.2 Performance

4.2.1 Operating margin:

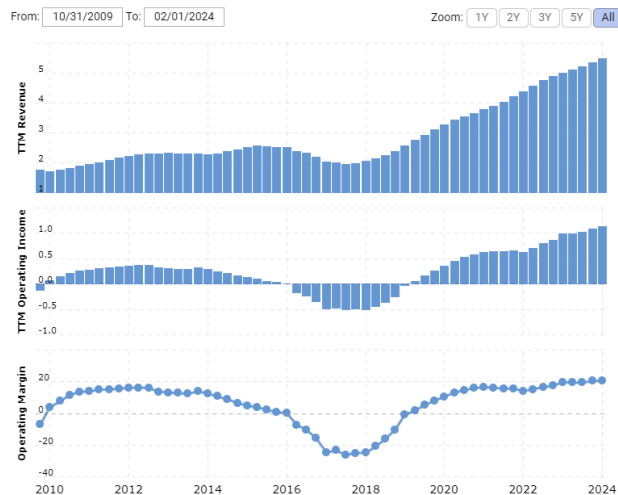


Figure 1: Operating Margin | macrotrends

4.2.2 Share Outstanding

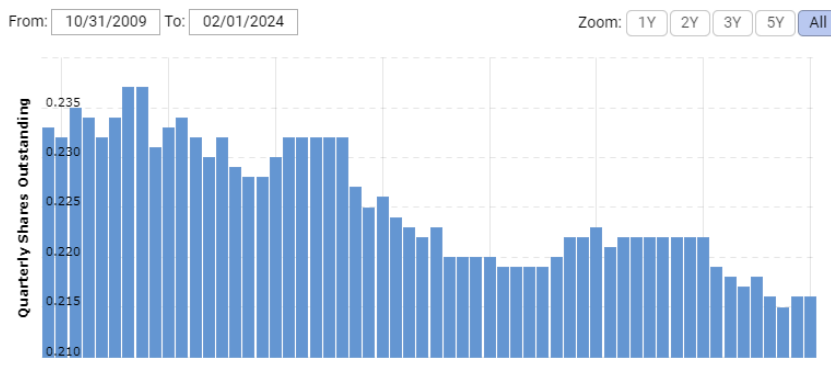



Figure 2: Share outstanding | macrotrends

4.2.3 Autodesk's Fiscal Year 2023 Strategic Priorities and Performance Highlights

- Achieved record revenue, cash flow from operating activities, and free cash flow in fiscal year 2023 despite facing macroeconomic, policy, geopolitical, and pandemic-related challenges.

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TOTAL REVENUE ▲ 14% from fiscal year 2022 \$5.01B	INCOME FROM OPERATIONS ▲ 60% from fiscal year 2022 \$989M	NON-GAAP INCOME FROM OPERATIONS (1) ▲ 28% from fiscal year 2022 \$1.79B
CASH FLOW FROM OPERATING ACTIVITIES ▲ 35% from fiscal year 2022 \$2.07B	FREE CASH FLOW (1) ▲ 37% from fiscal year 2022 \$2.03B	5-Y TOTAL SHAREHOLDER RETURN ▲ 86% from fiscal year 2018 86%

Figure 3: 2023 summary (Autodesk 2023 annual report).

- Strong financial and competitive performance driven by robust renewal rates, significant **growth in subscriptions, expanding digital sales, and a large renewal cohort**.
- Resilience derived from the subscription business model and diversification across geographies, products, and customer base.
- **Cloud-based platforms and services** represent an expanding market opportunity as customers adopt next-generation technology and services for industry transformation.
- Disciplined capital deployment enables realization of significant benefits from the strategy while mitigating future risks.
- Macroeconomic, policy, and geopolitical uncertainties have accelerated the pace of change and increased confidence in the strategy to **transform industries with end-to-end, cloud-based solutions**.
- Structural growth drivers such as workflow convergence, platform standardization, distributed working in the cloud, automation, workforce productivity, and sustainability have been reinforced by the pandemic and macroeconomic uncertainty.
- Signed largest-ever Enterprise Business Agreement (EBA) in the fourth quarter of fiscal 2023, connecting more workflows in the cloud to drive efficiency and sustainability.
- Commitment to empowering innovators with design-and-make technology to achieve efficiency and sustainability remains strong.
- **Despite challenges**, the company continues to execute well and looks forward to the future with excitement and optimism.

4.3 Management

4.3.1 Director Nominees

- **A highly qualified and independent Board is deemed crucial for providing effective oversight of Autodesk's rapidly evolving business and ensuring long-term success.**
- Diversity within the Board, including complementary qualifications, expertise, and attributes, is considered essential for meeting oversight responsibilities.

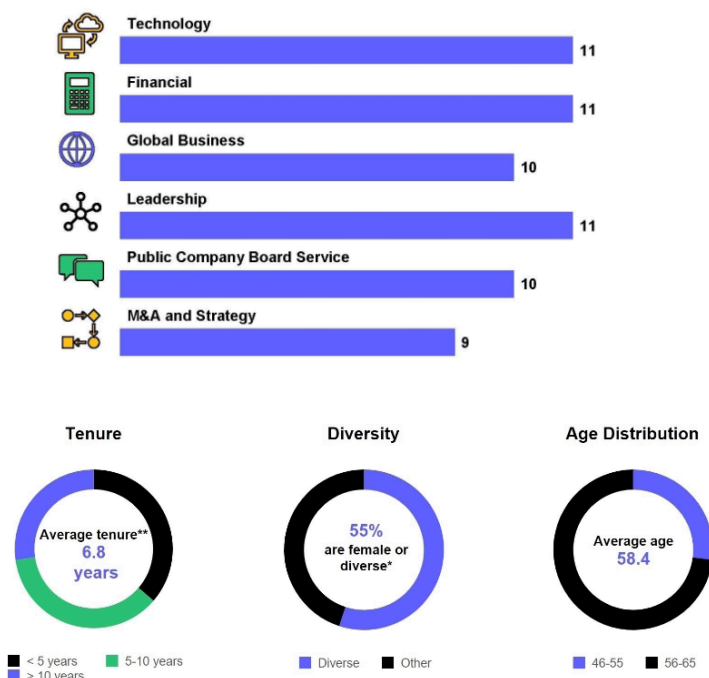



Figure 4: Autodesk director nominees' diversity and skills metrics (Autodesk 2023 annual report).

- Of the 11 Board nominees, 10 are independent, highlighting the significance of independence within Autodesk's governance strategy.
- **The Board is committed to incorporating stockholder feedback** into its governance practices to ensure they remain strong and effective.
- Throughout fiscal year 2023, both management and independent Board members engaged with stockholders representing approximately 51% of outstanding shares to gather feedback and enhance governance practices.

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4.3.2 Biographies

Andrew Anagnost, age 58, has been with Autodesk since 1997 and has served as President and CEO since 2017. He holds a bachelor's degree in mechanical engineering, a master's degree in engineering science, and a Ph.D. in Aeronautical Engineering and Computer Science.

Stacy J. Smith, aged 60, brings over two decades of technology industry experience to his role as Non-executive Chair of the Board of Directors at Autodesk, having held executive positions at Intel Corporation and Kioxia Corporation.

Karen Blasing, aged 66, boasts over 25 years of executive operational and financial leadership, currently serving as a Director at Autodesk after previously being the Chief Financial Officer at Guidewire Software, Inc.

Reid French, aged 51, holds a Bachelor's degree in Economics from Davidson College and an MBA from Harvard Business School, contributing over 20 years of executive leadership experience in the software industry to his role as a Director at Autodesk, having previously served as CEO of Applied Systems, Inc.

Dr. Ayanna Howard, aged 51, is an entrepreneur and expert in robotics, human-computer interaction, and artificial intelligence, currently serving as a Director at Autodesk with degrees from Brown University, the University of Southern California, and an MBA from the Drucker Graduate School of Management, having previously been the Dean of the College of Engineering at The Ohio State University.

Blake Irving, aged 63, with over 25 years in executive leadership roles in the technology industry, serves as a Director at Autodesk, previously holding the position of CEO at GoDaddy Inc.


Mary T. McDowell, aged 58, brings over two and a half decades of management experience in the technology industry to her role as a Director at Autodesk, having previously been the CEO of Mitel Networks Corporation.

Stephen Milligan, aged 59, holds a Bachelor of Science degree in Accounting from The Ohio State University, contributing over 30 years of executive operational and financial leadership in the technology industry to his role as a Director at Autodesk, having previously served as CEO of Western Digital Corporation.

Lorrie M. Norrington, aged 63, with over 40 years of operating experience in technology, software, and internet businesses, serves as a Director at Autodesk, having previously held roles such as President of eBay Marketplaces.

Betsy Rafael, aged 61, brings over 30 years of executive financial experience in the technology industry to her role as a Director at Autodesk, having previously been the Chief Transformation Officer at GoDaddy Inc.

Rami Rahim, aged 52, holds a Bachelor of Science degree in Electrical Engineering from the University of Toronto and a Master of Science degree in Electrical Engineering from Stanford University, currently serving as CEO of Juniper Networks, bringing over 25 years of technology industry experience to his role as a Director at Autodesk. Experience in cybersecurity and a deep understanding of technology industry challenges.

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4.3.3 Executive Compensation

Autodesk's Compensation Committee aims to design an executive compensation program that attracts, motivates, and retains top talent, closely linked to stockholder returns, company performance, and individual achievements. The program seeks to:

- Recruit and retain high-caliber executives with competitive rewards.
- Motivate executives to meet business and financial goals.
- Balance short- and long-term performance incentives.
- Align rewards with shareholder value creation.

Factors determining executive compensation include:

- Achievement of financial and non-financial objectives.
- Autodesk's Total Shareholder Return relative to industry benchmarks.
- Role and responsibilities of the executive.
- Individual skills, contributions, and performance.
- Internal pay alignment and retention considerations.

4.3.4 Autodesk's Compensation and Human Resources Committee

Autodesk's Compensation and Human Resources Committee manages executive compensation based on performance. They use various metrics like total revenue and relative total stockholder return (TSR) to determine pay outcomes for executives. In fiscal year 2023, all Named Executive Officers (NEOs) opted for Performance Share Units (PSUs) over cash-based incentives, with the majority of compensation being variable and linked to financial and stock performance.

Moreover, the executive compensation program emphasizes Environmental, Social, and Governance (ESG) priorities, allowing adjustments to awards based on ESG performance. The committee values stockholder feedback, which has led to no requested changes in executive compensation programs, indicating strong alignment with company performance.

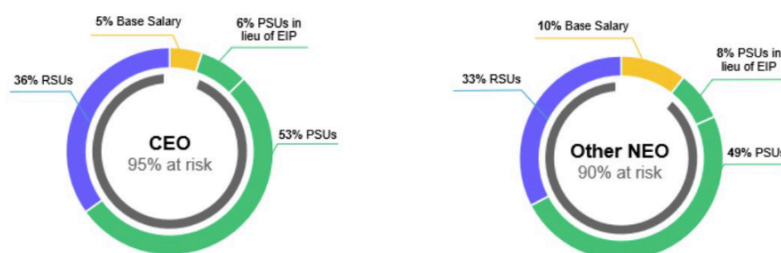


Figure 5: "At risk" performance based executive compensation (Autodesk 2023 annual report)

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Named Executive Officer and Principal Position	Fiscal Year	Salary (\$)	Bonus (\$ (1))	Stock Awards (\$ (2))	Non-Equity Incentive Plan Compensation (\$ (3))	All Other Compensation (\$ (4))	Total (\$)
Andrew Anagnost	2023	1,040,416	—	16,494,632	—	65,704	17,600,752
Chief Executive Officer and President (5)	2022	1,000,452	—	21,095,069	—	—	22,095,521
	2021	975,559	—	13,559,493	1,221,311	—	15,756,363
Deborah L. Clifford	2023	626,318	91,233	3,781,422	—	69,449	4,568,422
Executive Vice President and Chief Financial Officer (6)	2022	540,247	—	9,943,056	420,300	—	10,903,603
Steven M. Blum,	2023	704,586	—	7,363,064	—	92,992	8,160,642
Executive Vice President and Chief Operating Officer (7)	2022	610,909	—	6,140,367	—	—	6,751,276
	2021	591,187	—	6,306,531	444,000	—	7,341,718
Ruth Ann Keene	2023	536,982	—	2,324,237	—	59,977	2,921,196
Executive Vice President Corporate Affairs, Chief Legal Officer and Corporate Secretary (8)							
Rebecca Pearce	2023	371,859	—	2,040,421	—	151,614	2,563,894
Executive Vice President and Chief People Officer (9)							
Former Executive Officer							
Pascal W. Di Fronzo,	2023	144,965	—	1,023,354	—	2,235,995	3,404,314
Executive Vice President	2022	514,500	—	3,660,539	—	—	4,175,039
Corporate Affairs, Chief Legal Officer and Secretary (10)	2021	513,793	—	2,805,623	385,875	—	3,705,291

4.3.5 Autodesk buy/sell stocks

Since 2023- August until 2024-April the CEO, CAO, CFO, CPO and non executive director sold many of them share, befor that the sales were many planned sales. At the 2024-03-27 the CEO, CAO, CFO sold 28,093 shares which represent 0.013% from the total shares at the **24-04-01 EDGAR realised a note that Autodesk the annual report for the year ended 2024-01-31 could not be filed within the prescribed time period.**



Figure 6: Autodesk sell/buy stock by the management | Insiderscreener

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4.4 Autodesk's Commitment and Impact

Autodesk is dedicated to advancing sustainability and inclusion through proactive engagement and impactful programs, **focusing on areas such as energy, materials, and workforce diversity**. The company prioritizes talent management strategies that foster diversity, inclusion, and professional development, while also ensuring transparency and progress tracking in its environmental, social, and governance initiatives.

4.4.1 Comprehensive total rewards packages

Comprehensive total rewards packages, including competitive compensation, benefits, and development opportunities, aim to attract, retain, and support a diverse global workforce.

4.4.2 Education

Autodesk provides students and educators with access to its professional software through free educational licenses, aiming to equip them with the skills needed for current and emerging roles in various industries. They also offer self-paced learning modules and curriculum for K-12, post-secondary students, and educators, with the goal of making **Autodesk software the preferred choice for the next generation of design, engineering, and construction professionals**.

4.4.3 Climate change response

Autodesk is actively addressing climate change by enabling customers to innovate and adapt to regulatory and environmental shifts, aligning with their commitment to climate action. Internally, they invest in mitigation strategies such as renewable energy and emissions reduction targets, while externally expanding support for clean technology entrepreneurs and organizations addressing climate challenges.

5 Products

Table 1: AutoCAD and AutoCAD LT

Product Name	Description	Price per year (2024)
AutoCAD Civil 3D (PLM)	Streamlines civil engineering projects by automating documentation updates and ensuring team coordination throughout all project phases.	1820
Building Connected (Saas)	Simplifies subcontractor qualification, bid, and risk management processes through a real-time construction network and user-friendly tools.	
AEC Collection	Combines AutoCAD, AutoCAD Civil 3D, and Revit to facilitate the design, engineering, and construction of high-quality building and infrastructure projects.	3115
Autodesk Build	Provides connected project management and collaboration tools for the construction industry, allowing seamless information flow and decision-making across all project stages.	1550
Revit	Enables Building Information Modeling (BIM) for efficient design, construction, and maintenance of energy-efficient buildings, fostering collaboration among architects, engineers, and contractors.	2545


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Table 2: Manufacturing (“MFG”)


Product Name	Description	Price per year (2024)
CAM Solutions	Industry-leading CAM software for CNC machining, inspection, and modeling , including PowerMill, FeatureCAM, PowerInspect, and PowerShare, ensuring quality and production efficiency.	
Fusion 360	Cloud-based tool connecting the entire product development process, offering 3D CAD, CAM, and CAE capabilities.	680
Product Design & Manufacturing Collection	Professional-grade collection providing tools for current product creation and future manufacturing challenges, including AutoCAD, Fusion 360, Vault, and Inventor.	2500
Inventor	Enables digital prototyping with comprehensive tools for 3D mechanical design, simulation, analysis, and documentation, facilitating product validation before physical production.	2440
Vault	Data management software for centralizing data, accelerating design processes, and enhancing collaboration across Autodesk design applications.	840

Table 3: Media and Entertainment (“M&E”)

Product Name	Description	Price per year (2024)
Maya	Offers 3D modeling, animation, effects, rendering, and compositing solutions for creating engaging images, animations, and visual effects.	1700
ShotGrid	Cloud-based software for review and production tracking in the M&E industry, facilitating collaboration among distributed teams.	330
3ds Max	Provides 3D modeling, animation, and rendering solutions for creating realistic images, animations, and scenes, aiding in digital communication.	1700
Media & Entertainment Collection	Provides end-to-end creative tools for entertainment creation, enabling animators, modelers, and visual effects artists to access necessary tools.	2365

5.1 Product development

Autodesk consistently develops new products to meet evolving market demands, focusing on flexibility and sustainability. Originally focusing on personal computer software, Autodesk has adapted to industry shifts towards subscription-based and cloud-enabled technologies. Subscription plans offer flexibility and attract diverse customer segments. Significant resources are dedicated to research and development, incorporating artificial intelligence, machine learning, and generative design to enhance efficiency and sustainability. Development primarily occurs internally but also involves third-party firms and acquisitions. **Research and development are global, with major operations in the US, China, Canada, India, Singapore, and the UK.** Localization efforts target key markets, including translation into multiple languages (**German, French, Italian, Spanish, Japanese, Korean, and simplified and traditional Chinese**). International development allows access to diverse talent pools and market insights, balanced with cost considerations and intellectual property protection.

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5.2 Marketing and sales

Products are sold globally through both direct and indirect channels, including an online store and resellers, with around 65% of revenue from indirect sales. As the online store expands and large accounts shift to direct sales, the channel mix may change. Incentive programs align resellers with business strategies, but reliance on major distributors poses risks.

5.2.1 Key Distributor Relationships:

Tech Data Corporation (37%) and Ingram Micro Inc. (9%) are the largest distributors, accounting for a significant portion of revenue in recent fiscal years. Transition agreements with these distributors involve increasing efforts with value-added resellers and agents. While important, the business is not substantially dependent on any single distributor, reseller, or direct customer.

5.2.2 Geographic Sales Operations:

Customer operations are organized into three regions: the Americas; Europe, Middle East, and Africa (EMEA); and Asia Pacific (APAC). Each region is supported by global marketing and sales teams. Expectations are for international sales to remain a major part of revenue, with potential risks from adverse economic conditions and currency exchange rates.

5.2.3 Marketing and Revenue Generation:

Collaboration occurs with various sales organizations, manufacturers, and software developers in advertising, promotions, and trade-show presentations. Mass-marketing techniques, including webcasts, seminars, and social media, are employed to reach customers globally. Revenue is primarily generated through subscription plans, cloud services, and enterprise agreements, with seasonal variations impacting sales activity and revenue recognition.

5.3 Customer and Reseller support


Autodesk offers technical support and training to customers through a multi-tiered model. Most customers receive support from resellers and distributors, with Autodesk providing second-tier support to them. Direct support options include self-service through the Autodesk Knowledge Network and various contact methods like social media, phone, email, and webchat. Additionally, Autodesk supports resellers and distributors through technical and sales training programs.

6 Competition

The markets for Autodesk's products are highly competitive, subject to rapid change, and characterized by complex interdependencies among major businesses. To enhance competitive separation, Autodesk invests significantly in research and development to introduce new products and innovative versions of existing ones. They also focus on marketing and sales investments to reach and serve customers effectively.

Table 4: Competitors and them products

Competitor	Notable Products/Services
Adobe Systems Incorporated	Creative Cloud, Adobe Acrobat
Bentley Systems, Inc.	MicroStation, ProjectWise
Dassault Systèmes S.A.	CATIA, SOLIDWORKS
Intergraph Corporation	SmartPlant, Intergraph Smart
MSC Software Corporation	MSC Nastran, Adams
Nemetschek AG	Allplan, Vectorworks

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Oracle Corporation	Oracle Database, Oracle ERP
Procore Technologies, Inc.	Procore
PTC Inc.	Creo, Windchill
3D Systems Corporation	3D Printers, Software Solutions
Siemens PLM	NX, Teamcenter

7 Analysis

7.1 Playing with the numbers

After inserting all the financial information since 2012 (due to 2 major events: CEO change in 2017 and Sachem Head's Activism at Autodesk¹ at 2015) until 2024: Q4. Then I tried to predict the NOPAT for 2025 until 2029 without any other information.

At the current moment, as of April 18, 2024, the share price stands at approximately \$215. In order for the DCF result per share, **without any margin of safety**, to align with the current stock price, a **Terminal Multiple of 17** is required.

7.2 Calculated analysis

I want to preface by stating that I don't have experience working with Autodesk software. As a mechanical engineer, my primary tools are SolidWorks for design and Ansys for analysis. While I haven't personally used Autodesk tools, I'm familiar with them through friends and occasional building design projects where software like AutoCAD and Revit were necessary.

Most analyses I've come across seem to compare Autodesk with mechanical design and analysis companies (Also Autodesk make that comparison), which strikes me as odd. From what I understand, Autodesk primarily specializes in building design, so it should be evaluated in comparison to BIM (Building Information Modeling) and Architectural Design companies.

7.2.1 Availability of information

I found it really tough to gather information. There's not much available from the company or online about CAD companies, especially Autodesk. This lack of info makes it hard to dive deep into the analysis. I was particularly looking for stuff like how many people use each Autodesk product and how the prices have changed over time. Without these details, it's tricky to figure out how Autodesk has grown and if there are any products that aren't doing so well.

7.2.2 Competitors affect


At the following section I will present my thought about each product of Autodesk and will present its competitors, with a combination of both the Revenue from each category and the competitors I will be able to know who the real companies that compete against Autodesk.

As Autodesk mentions in their report the company has 3 categories of software

Table 5: AutoCAD and AutoCAD LT

Product Name	Description (rate/ Reviews/ Price)
--------------	------------------------------------


¹ [Sachem Head's Activism at Autodesk - Case - Faculty & Research - Harvard Business School \(hbs.edu\)](https://hbs.edu/case-study/sachem-heads-activism-at-autodesk)

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(rate/ Reviews/ Price)	
Civil 3D- Civil Engineering (4.3/294/ \$2205)	MicroStation- Civil Engineering Design and General-Purpose CAD (/299 /\$2135) SketchUp- Urban Planning and Design, Sketching, General-Purpose CAD, 3D Modeling, and Architectural Rendering (/1187/\$119) Archicad- Architectural Rendering, Architecture, and Urban Planning and Design (/245/\$2810) OpenRoads Designer- Civil Engineering (/ 136/\$119) AutoTURN- Civil Engineering (/ 48/\$119) Carlson Civil- Civil Engineering (/ 21/\$119) Civil Designer- Civil Engineering (/ 13/\$119) OpenFlows WaterCAD- Civil Engineering (/ /\$119)
Building Connected	Procore Simpro SmartBid iSqFt Buildertrend HCSS Methvin Contractor+
AEC Collection (//\$2825)	
Autodesk Build	
Revit- Architectural Rendering (4.5 /853/\$2310)	SketchUp- Urban Planning and Design, Sketching, General-Purpose CAD, 3D Modeling, and Architectural Rendering (/1187/\$119) Archicad- Architecture and Urban Planning and Design (4.6/245) Vectorworks Architect- Architectural Rendering (/110/\$2100) MicroStation- Civil Engineering Design and General-Purpose CAD (/299 /\$2135) Blender- 3D Printing, Animation, Video Effects, 3D Modeling, Video Editing, 3D Rendering, Game Engine, and Architectural Rendering (/294/) Lumion- Urban Planning and Design, 3D Rendering, and Architectural Rendering (/84/) DataCAD- Building Design and Building Information Modeling (BIM) (/64/\$1295) Tekla Structures- Building Design and Building Information Modeling (BIM) (/63/)

Table 6: Manufacturing (“MFG”)

Product Name (rate/ Reviews/ Price)	Description (rate/ Reviews/ Price)
CAM Solutions	
Fusion 360	SOLIDWORKS- (/454/) Onshape- (/639/) Solid Edge- (/373/) Altium Designer- (/558/) Creo Parametric- SketchUp- CATIA-
Product Design & Manufacturing Collection	SOLIDWORKS Simcenter Solid Edge Dassault Design & Engineering Simulation CATIA Creo Parametric Ansys Fluids Simcenter STAR-CCM+
Inventor	SOLIDWORKS Onshape Solid Edge IronCAD Creo Parametric FreeCAD SolidWorks Simulation

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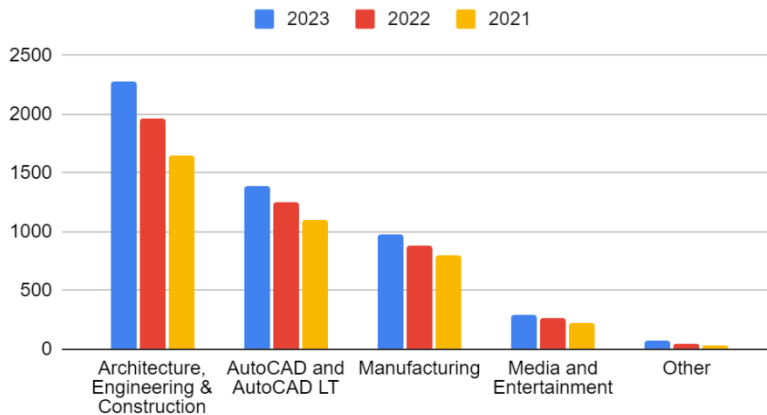
	CATIA
Vault	Teamcenter Synergis Adept PTC Windchill SolidWorks PDM GrabCAD Workbench Aras Innovator OpenBOM Onshape

Table 7: Media and Entertainment ("M&E")

Product Name (rate/ Reviews/ Price)	Description (rate/ Reviews/ Price)
Maya	Unity- Blender- Cinema 4D- Modo LightWave 3D- KeyShot- ZBrush- Adobe Dimension-
ShotGrid	
3ds Max	Unity- Blender- Cinema 4D- Modo- LightWave 3D- KeyShot- SketchUp- ZBrush-
Media & Entertainment Collection- (4.3/763/)	Adobe Creative Cloud- (4.6/36,384/) Webex- (4.3/23,012/) Zoho One- (4.4/19,878/) Communications & Collaboration- (4.3/15,434/) Adobe Document Cloud- (4.5/6,593/) Microsoft Azure Developer Tools- (4.6/5,892/) Clari Revenue Platform- (4.6/5,256/) Adobe Experience Cloud- (4.1/5181/)

Autodesk's 2023 Annual Report (page 81) details their income by category, categorized into three main areas. Since we're comparing Autodesk's products with their main competitors, we can combine the Architecture, Engineering & Construction (AEC) and AutoCAD revenue Figure 7 for a more accurate comparison. Based on this combined Figure 7, it's evident that AEC and AutoCAD products are the primary source of revenue for Autodesk.

Net revenue by product family:



Net Revenue by Operating Segment

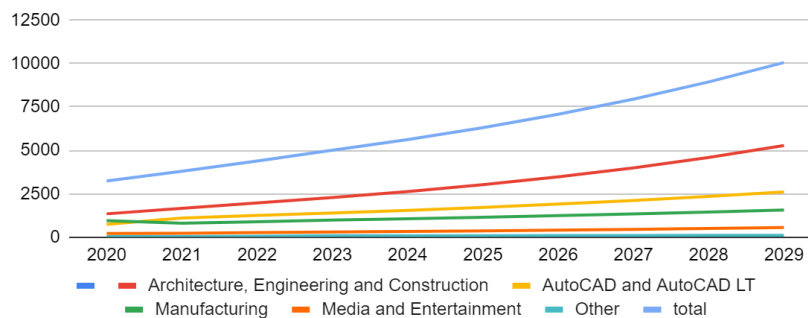



Figure 7 : Net Revenue by product family

The Manufacturing and Media categoris there are stronger competetors and well establissh companys then Autodesk. So I will mainly analyze table 5

AutoCAD, Revit, and SketchUp are all powerful tools used in the field of design and architecture, but they have different functionalities and uses:

Table 8: Civil 3D Comp


Software	Focus Area	Strengths	Use Cases	Company
Civil 3D	Civil engineering design and documentation	Efficient site design, road & drainage modeling, quantity calculations, AutoCAD integration	Creating detailed site plans, profiles, and cross-sections	Autodesk
SketchUp	3D modeling and design	Ease of use, large extension library	Conceptual design for civil projects (e.g., initial site layouts)	Trimble

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MicroStation	General-purpose CAD for infrastructure design	DGN file format compatibility, customization options	Civil engineering drafting and plan creation, 3D modeling of infrastructure projects (roads, bridges)	Bentley Systems
Archicad	Architectural BIM software	BIM workflows, architectural detailing	Not ideal for civil engineering; focus on buildings	Graphisoft
OpenRoads Designer	Civil design software	Parametric modeling, integration with other Bentley software	Road network design and analysis, Site design and grading	Bentley Systems
AutoTURN	Transportation engineering software	Vehicle turning analysis and swept path simulation	Analyzing vehicle turning clearances on roads and intersections	Trimble
Carlson Civil	Civil engineering design and analysis tools	Survey data integration, point cloud manipulation	Site design, grading, and earthwork calculations, Utility design and analysis	Carlson Software
Civil Designer (Civil DS)	Civil engineering design software	Road design, drainage analysis, site planning	Similar functionalities to Civil 3D; may have regional variations	Autodesk
OpenFlows (WaterCAD/ SewerCAD)	Water & wastewater network modeling	Hydraulic modeling, pipe network analysis	Design, analysis, and simulation of water distribution or wastewater collection systems	Bentley Systems

Table 9: BuildingConnected Comp


Software	Focus Area	Strengths	Use Cases	Company
BuildingConnected	Construction project networking	Cloud-based platform for connecting construction professionals	Finding and collaborating with subcontractors, suppliers, and other project stakeholders	BuildingConnected
Procore	Construction management	Comprehensive platform for project management, financials, communication, and collaboration	Project planning, scheduling, budgeting, document management, field communication, quality control	Procore Technologies
Simpro	Service-based construction business management	Streamlines workflows for service-oriented contractors	Scheduling, dispatching, job costing, CRM, customer communication	Simpro Software
SmartBid	Construction bidding software	Simplifies the bidding process for contractors	Creating and submitting bids, managing subcontractors, bid analysis	SmartBid Software

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iSqFt	Construction takeoff and estimating software	Cloud-based platform for takeoff and estimating construction projects	Creating accurate material lists, estimating project costs	iSqFt Software
Buildertrend	All-in-one construction management software	User-friendly platform for managing various aspects of construction projects	Project management, communication, financials, leads and proposals, customer portal	Buildertrend
HCSS	Construction software for heavy civil contractors	Solutions for specific needs of heavy civil construction (earthwork, paving, utilities)	Site management, materials management, machine control, business intelligence	HCSS
Methvin	Construction project management software	Integrates with accounting software for streamlined financials	Project management, document management, budgeting, cost control, reporting	Methvin
Contractor+	Construction management software for small businesses	Affordable and easy-to-use solution for managing smaller construction projects	Project scheduling, budgeting, communication, lead management, customer portal	Contractor+ Software

Table 10: Revit Comp

Software	Focus Area	Strengths	Use Cases	Company
Revit	Building Information Modeling (BIM) for AEC	Collaboration, data-rich models, industry standard for BIM	Architectural design and documentation, structural engineering, MEP engineering	Autodesk
SketchUp	3D modeling and design	Ease of use, large extension library	Conceptual design, architectural presentations, basic 3D models	Trimble
Archicad	Architectural BIM software	BIM workflows, architectural detailing	Architectural design and documentation, building information modeling	Graphisoft
Vectorworks Architect	Architectural design software	2D drafting, 3D modeling, BIM capabilities	Architectural design and documentation, landscape architecture, entertainment design	Vectorworks
MicroStation	General-purpose CAD for AEC	DGN file format compatibility, customization options	Architectural drafting and plan creation, 3D modeling of buildings, infrastructure projects	Bentley Systems

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Blender	3D modeling, animation, rendering	Open-source, powerful feature set for 3D creation	3D modeling for animation, games, film, product design	Blender Foundation
Lumion	Architectural visualization software	Real-time rendering, easy to use for creating visuals	Architectural presentations, client walkthroughs, marketing materials	Act-3D
DataCAD	Architectural CAD software	2D drafting, 3D modeling	Architectural design and documentation (primarily used in specific regions)	DataCAD Software
Tekla Structures	BIM software for structural engineering	Structural modeling and detailing	Structural steel and concrete detailing, fabrication drawings, collaboration with BIM workflows	Trimble (Tekla)

7.3 Engineering Degrees

The following information should be taken with a limited guarantee. Due to the different sources: DATA USA and IES NCES, also in all places the information was limited until the year 2021, which means that it takes into account the corona disease but does not take into account the recovery of the economy after it. Also, all the pythons are before the start of the AI phenomenon.

As I mentioned, in my opinion, Autodesk should be analyzed according to its BIM systems mainly. In order to examine the possibility of growth, I would like to see the increase in the number of potential users, that is, how many civil engineers there are and their growth rate in the economy.

From graph 8 you can see that the number of potential users of Autodesk software is increasing (Total CAD) and in addition you can see that the number of BIM users is also increasing (Total BIM)

According to graphs 8 and 10, it can be seen that there is a growing market for the use of manufacturing and mechanical engineering software, but the entry barriers to this market are very high (in which software such as NX and Solidworks dominate)

People in workforce at USA | DATAUS



Figure 8: work force in USA | By Joseph Roy

PEOPLE IN WORKFORCE in USA | DATA USA

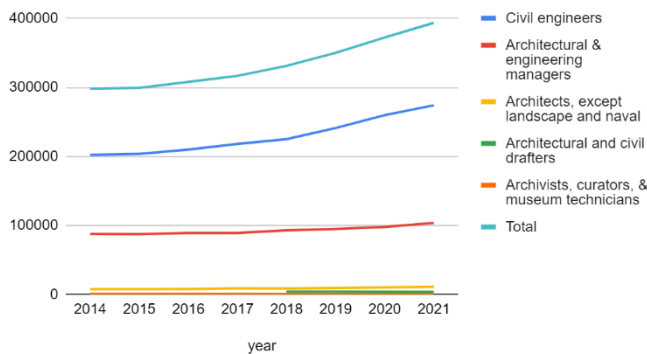



Figure 9: works force in USA | By Joseph Roy

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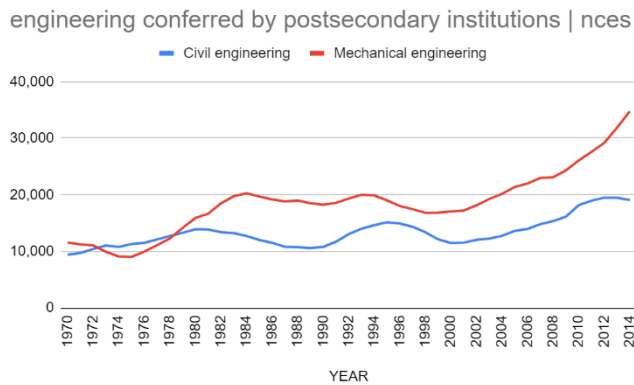


Figure 10: civil eng vs mechanical eng graduate | By Joseph Roy

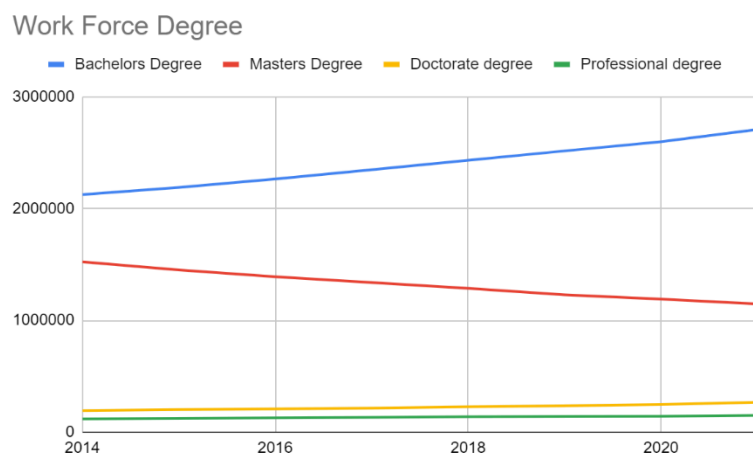


Figure 11: work force who hold a degree | By Joseph Roy

In addition, it can be seen from graphs 13, 12 that there is a relatively slow growth in the number of engineers graduating with a degree in engineering



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Degrees Awarded

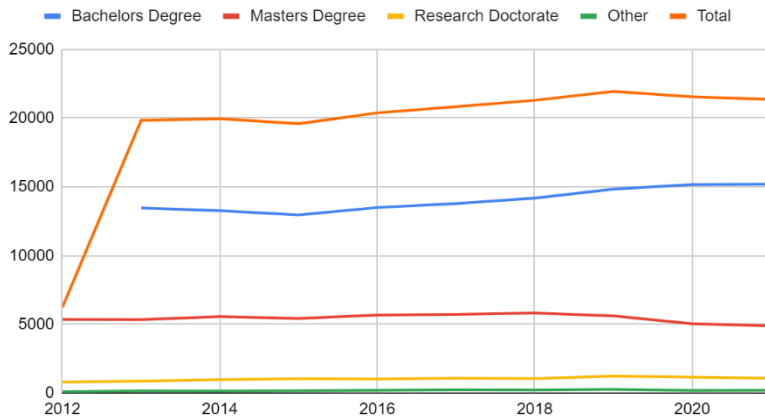


Figure 12: civil eng Degrees Awarded

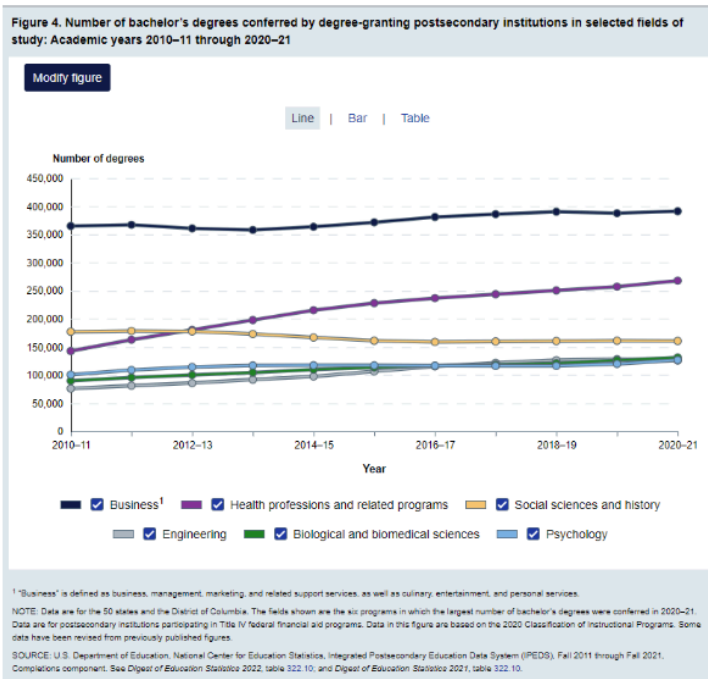



Figure 13: Engineering By the Numbers | By Joseph Roy

8 Moat

Autodesk's success in the construction and design software market can be attributed to several key moats that create a significant barrier to entry for competitors. Here's a breakdown of these moats:

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8.1 High Switching Costs:

File Compatibility: Autodesk software uses proprietary file formats that aren't universally compatible with other programs. This makes it difficult or impossible to open and edit projects created in Autodesk software with other tools without conversion or data loss. This poses a significant challenge for firms considering switching to a different software suite, as they would need to invest heavily in converting existing project data and potentially retraining staff on new software.

Workflow Integration: The integration between different Autodesk products creates a smooth workflow within the Autodesk ecosystem. Switching to another software suite might disrupt established workflows and require significant adjustments to how projects are managed and data is exchanged. This can be a major deterrent for firms already comfortable with their existing Autodesk-based workflows.

8.2 Large Student User Base:

Future Professionals: A vast number of students in architecture, engineering, design, and construction fields are exposed to and trained on Autodesk software throughout their education. This creates a pipeline of future professionals who are already comfortable using Autodesk products and are likely to continue using them in their careers. This familiarity and established comfort level with Autodesk software further strengthens their market dominance.

Reduced Training Costs: Since many new professionals are already familiar with Autodesk software, firms that hire them require less investment in training compared to if they were using a different software suite. This reduces onboarding costs and allows for faster project integration for new hires.

8.3 Broad Product Portfolio:

One-Stop Shop: Autodesk offers a comprehensive suite of software solutions covering various disciplines within the design and construction industry. This allows firms to leverage a single vendor for their diverse design and engineering needs, simplifying procurement and potentially reducing overall software costs.

Integration: Many Autodesk products integrate seamlessly with each other, allowing users to share data and collaborate more efficiently throughout the design and construction process. This integrated workflow creates a strong value proposition for firms seeking a holistic design and engineering solution.


8.4 Network Effects:

The integration between various Autodesk software programs creates a network effect. As more users adopt Autodesk products, the value of each individual product increases due to improved collaboration and data exchange within a project ecosystem. This further strengthens their hold on the market.

8.5 Brand Recognition and Reputation:

Market Leader: Autodesk is a well-established industry leader with a strong brand recognition in the design and construction software market. This reputation attracts new users who trust their software's capabilities and reliability.

Innovation: Autodesk invests heavily in research and development, consistently pushing the boundaries of design technology. This commitment to innovation helps them stay ahead of the curve and maintain a competitive edge.

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8.6 Additional Moats:

Partnerships: Autodesk fosters strategic partnerships with industry leaders, educational institutions, and technology companies. This collaboration can lead to new product development, integration with complementary tools, and a wider talent pool.

These moats work together to create a powerful advantage for Autodesk. However, it's crucial for them to continuously innovate, adapt to changing user needs, and address potential disruptors in the market to maintain their leadership position.

9 Disruption

Disrupting Autodesk's moats will require a multi-pronged approach. Here are some strategies companies can adopt, along with potential disruptors that might leverage these strategies:

9.1 Attracting New Users:

- Focus on User Experience: Crafting software that prioritizes user-friendliness and integrates robust cloud-based functionalities can be a magnet for users who may not have encountered Autodesk products during their education. Trimble's SketchUp serves as a prime example, renowned for its ease of use, particularly in the early stages of design.
- Free or Freemium Models: **Offering free or limited-feature versions of software can serve as an enticing entry point for users**, allowing them to explore the platform's capabilities with minimal commitment. This approach has the potential to convert users into paid subscribers over time as they become more familiar with the software's capabilities.

9.2 The Power of AI and Immersive Technologies:

9.2.1 AI's Transformative Potential:

AI can analyze vast datasets, including intricate designs and terrain data, to glean insights similar to those of experienced engineers. Through machine learning, AI can augment design and simulation processes, pushing the boundaries of what's possible.

9.2.2 VR & AR: A Paradigm Shift:


Virtual and Augmented Reality offer a new way to interact with digital models. Devices like Apple's Vision Pro and Meta's Quest Pro allow hands-free visualization and interaction with 3D models, streamlining design tasks and fostering a more immersive experience. Collaborations between tech giants and CAD software providers highlight a growing trend towards integrating design software into AR environments, initiatives like PTC² Jigspace³ and Onshape⁴ collaboration with Apple demonstrate the feasibility and potential of immersive design.

It's important to consider the existing landscape in AR/VR. Established players like Siemens (NX) and Dassault Systèmes (Solidworks) have already secured contracts with AR/VR device makers like Apple and Meta. These contracts could potentially lead to a situation where these companies' design software becomes the exclusive choice for specific AR/VR environments.

² [Developer tools to create spatial experiences for Apple Vision Pro now available - Apple](#)

³ [JigSpace: The world's highest-rated AR demonstration app](#)

⁴ [Onshape on the Apple Vision Pro \(First Look\) - YouTube](#)

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9.2.3 Disrupting Autodesk's Workflow:

The convergence of AI and AR can disrupt Autodesk's traditional desktop-based workflow. Imagine designers and engineers seamlessly transitioning to an immersive, AI-powered design environment facilitated by AR glasses. This shift promises enhanced efficiency, deeper insights, and more collaboration throughout the design process. Companies that effectively integrate AI can gain a significant edge over Autodesk by offering:

- AI-driven automation for design optimization and improved decision-making.
- Collaborative, data-driven design processes that enable real-time iteration and innovation.

9.2.4 Companies with Disruptive Potential:

- Bentley Systems, with its suite of infrastructure design software, poses a direct challenge to Autodesk's offerings in the civil engineering realm.
- Trimble's SketchUp, renowned for its user-friendliness, has the potential to capture market share from AutoCAD, particularly in the early stages of design.
- Blender, as an open-source 3D modeling software, could disrupt the market by democratizing access to advanced design tools, thereby lowering entry barriers for aspiring designers and engineers.

9.2.5 Additional Considerations:

- Embracing cloud-based solutions can offer advantages in terms of accessibility, data security, and real-time collaboration, providing a competitive edge over traditional desktop-based workflows.
- Integration of AI features such as automation, design optimization, and data-driven insights can significantly enhance efficiency and decision-making for users.
- Developing open APIs and fostering interoperability between software platforms can create a more open ecosystem, appealing to users dissatisfied with the limitations of closed environments like Autodesk's.

10 Thesis


10.1 Seeking alpha

10.1.1 Autodesk: Great Economics For A Long-Term Investment

[Mountainside Research](#)

Summary

- Autodesk has sustained high and expanding margins, indicating its strong pricing power and competitive advantage.
- Free cash flow is set to rebound after declining due to a business model transition.
- Autodesk is trading at a discount to its historical averages, presenting an opportunity for long-term investors.

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JHVEPhoto/iStock Editorial via Getty Images


Thesis

If you asked me to name some fundamentals of a great company, I'd highlight a few key factors. First, a product that can be sold for many times what it costs to produce. Second, a product so good that customers not only remain loyal, but actually increase their spending each year. Third, a product that makes it expensive or difficult for customers to switch to an alternative. And finally, a company that doesn't cost a lot of money to run or maintain.

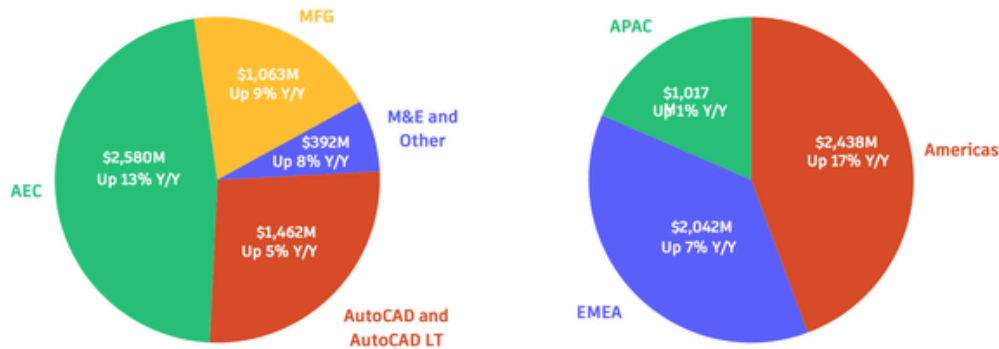
These key factors are fundamental reasons why I give Autodesk (NASDAQ:[ADSK](#)) a 'Buy' rating. Namely, they sell a product for 10 times what it costs them to produce it, evident by gross margins of greater than 90%. Their product is so good that they could likely completely cut all new sales efforts and still grow up to 10% each year—made possible by [net revenue retention](#) between 100%-110%. Their customers have spent years and years learning their product, making it expensive and difficult to switch to an alternative. And finally, Autodesk only spends 2% of their free cash flow to keep their business running. That, to me, is a wonderful company.

Company Overview

Autodesk is a software company that provides solutions for the architecture, engineering, construction, manufacturing, and media industries. Almost 75% of their revenue comes from their various softwares for the architecture, engineering, and construction industries, while manufacturing and media make up the rest. Much of their software, such as AutoCAD, is industry-standard and has been so for years and years.

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FY24 revenue mix by product family & geography



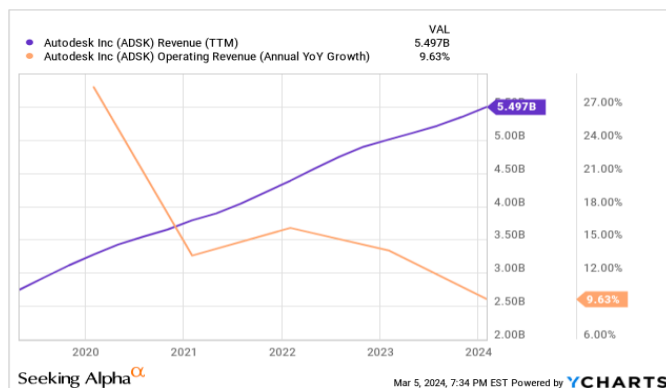
Totals may not sum due to rounding.

Autodesk Q4 2024 Earnings Presentation


The company was founded in 1982 and is headquartered in San Francisco, California. Until recently, Autodesk sold their software through a licensing model. However, they are in the middle of shifting to a subscription-based model where customers pay on a monthly or annual basis, as opposed to a hefty upfront fee for a multi-year licensing contract. While I believe this business model transition will be beneficial for Autodesk over the long term, it has put a crunch on free cash flow numbers, which is discussed in more detail below.

Financials

Autodesk finished this last fiscal year (ending January 31, 2024) with \$5.497 billion of total revenue, up 9.8% from the year prior. Year-over-year revenue growth rates for the three preceding years were 15.8%, 15.7%, and 14.1%. Although growth rates have declined, absolute growth has remained relatively linear, as Autodesk has added approximately \$500-\$600 million of revenue each year over the last half decade.

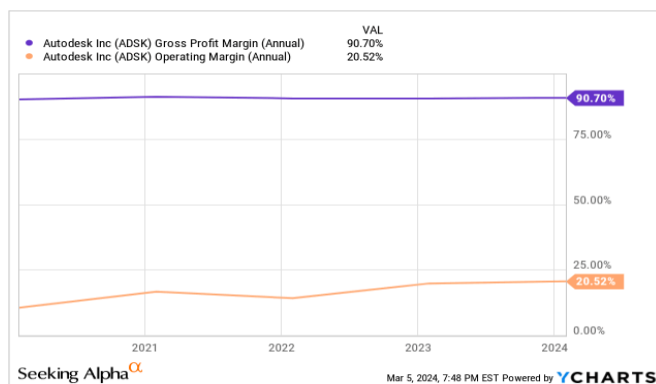


Data by [YCharts](https://ycharts.com)

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Moving down the income statement, Autodesk generated \$5.034 billion of gross profit in fiscal year 2024. This represents an uber-healthy gross margin of 91.6%. These margins aren't an anomaly either. Autodesk has had gross margins of 91%+ dating back to fiscal year 2020. These high, sustained margins prove Autodesk's strong pricing power and the low incremental costs associated with their software model.

The high-margin trend continues through operating income as well. Autodesk posted \$1.128 billion of operating income in fiscal year 2024—a 20.5% margin. The graph below illustrates the company's gross and operating margins over the last five years.



Data by [YCharts](#)

As you can see, gross margins have remained steady over the last five years, while operating margins have expanded a few percentage points. Margins at these levels are what many companies dream of. Perhaps even more impressive is that Autodesk has sustained them for several years.

Autodesk produced just shy of \$1.3 billion of free cash flow in fiscal year 2024 (calculated as cash from operations less capital expenditures). This is down from their 2023 total of \$2 billion, and 2022's total of approximately \$1.5 billion. This decrease is due to the shift in Autodesk's business model from licenses to subscriptions. Under the licensing model, Autodesk would collect all the cash upfront—boosting their free cash flow numbers. Under the subscription model, Autodesk now collects cash on a monthly or annual basis. However, [management noted](#) that this is the trough of the free cash flow totals, and they expect it to rebound over the next 2-3 years.


Autodesk currently carries \$2.25 billion of cash and short-term investments, which is a sizable amount compared to the \$2.63 billion of debt on its balance sheet. The company's current and quick ratios are less than ideal at 0.75 and 0.65, respectively. Yet, the recurring revenue nature of their business provides ample stability. Furthermore, with over \$1 billion of free cash flow coming in, they have plenty of capacity to service debt.

Autodesk's financial profile is very healthy. They sell a high-margin product with recurring revenue, generating large amounts of cash, and require few assets to do so.

Valuation

Thus far, I've talked about everything that is great about Autodesk. Now, you may ask, what's the price? It's steep, but fair.

Autodesk is currently trading at 9.6x EV/Revenue and 40x Price/Cash Flow. But, these high multiples should come at no surprise. After all, Autodesk has built a resilient and healthy cash-producing business.

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The Seeking Alpha Quant rates Autodesk's valuation a 'D-.' However, this is comparing Autodesk's valuation to that of the broad IT sector—the vast majority of which would dream of Autodesk's economics. For example, the Seeking Alpha quant rates Autodesk's profitability an 'A+,' outshining the rest of the sector in almost every metric. For example, Autodesk's gross margins are over 91%, compared to the sector average of about 49%. The trend continues with levered FCF margin, where the sector average is just shy of 9%, while Autodesk's is over 32%. Finally, Autodesk's return on total assets of 9% is far above the sector average of about 1%.

For these reasons, comparing Autodesk's valuation to that of the rest of the IT sector is more of an apples-to-oranges comparison. This lack of alignment makes it difficult to draw conclusions of whether or not they are priced appropriately. What's more important is to compare Autodesk to its own historical valuation averages. In fact, Seeking Alpha's valuation ratings show that Autodesk's multiples are far less than their five-year averages.

ADSK Valuation Grade D-						
	Sector Relative Grade	ADSK	Sector Median	% Diff. to Sector	ADSK 5Y Avg.	% Diff. to 5Y Avg.
P/E Non-GAAP (TTM)	C-	32.45	22.68	43.11%	61.70	-47.40%
P/E Non-GAAP (FWD)	C	30.56	24.89	22.80%	46.66	-34.50%
P/E GAAP (TTM)	D+	59.02	29.42	100.64%	-	NM
P/E GAAP (FWD)	D+	52.17	28.40	83.69%	99.77	-47.71%
PEG GAAP (TTM)	D-	5.44	1.11	389.97%	-	NM
PEG Non-GAAP (FWD)	C+	2.03	2.01	1.12%	-	NM
EV / Sales (TTM)	D	9.65	3.05	216.07%	12.51	-22.84%
EV / Sales (FWD)	D-	8.79	2.91	201.64%	11.45	-23.24%
EV / EBITDA (TTM)	D	43.52	17.48	149.01%	84.82	-48.70%
EV / EBITDA (FWD)	C-	23.77	15.18	56.62%	35.02	-32.13%
EV / EBIT (TTM)	D+	47.03	22.86	105.73%	128.69	-63.46%
EV / EBIT (FWD)	C	24.82	20.03	23.89%	37.67	-34.11%
Price / Sales (TTM)	D	9.63	2.95	226.85%	12.29	-21.67%
Price / Sales (FWD)	D	8.77	2.91	201.19%	11.24	-22.02%
Price / Book (TTM)	F	28.53	3.06	831.77%	175.85	-83.78%
Price / Book (FWD)	D-	18.27	4.29	325.95%	-	NM
Price / Cash Flow (TTM)	D+	40.29	20.01	101.33%	35.67	12.96%
Price / Cash Flow (FWD)	D+	36.00	22.58	59.43%	31.62	13.84%
Dividend Yield (TTM)	-	-	1.46%	-	-	-

Seeking Alpha

Of course, these five-year averages encompass the ZIRP timeframe, when tech valuations were astronomically high. But, the majority of those poor valuations were for young or unprofitable companies. On the other hand, Autodesk is a mature cash cow.

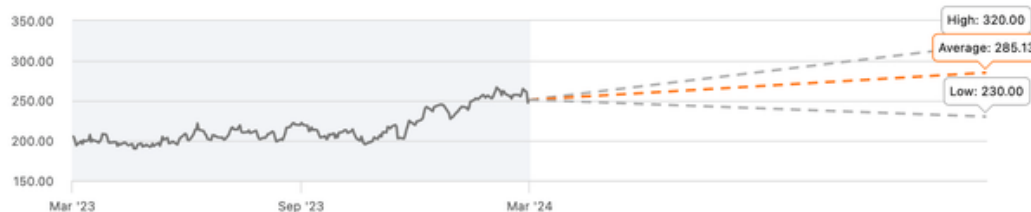
One might argue that Autodesk is cheaper now than its five-year averages because its top-line growth has slowed. This is correct, but the company's profitability has also improved in tandem over the same time period. For this reason, these averages still carry relevancy, suggesting that Autodesk is undervalued compared to its historical valuations.

Of the 27 Wall Street analysts that cover Autodesk, 13 rate Autodesk a 'Strong Buy,' followed by 3 that rate it a 'Buy.' 10 recommend a 'Hold' for the stock, and only 1 recommends a 'Sell.' The average price target of these analysts is \$285, implying a 13% upside.

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Price Target

Average Price Target **285.13** **+13.08% Upside**



Seeking Alpha

I have to agree with the Wall Street analysts. I believe that Autodesk is currently trading at a fair price and has modest upside over the short term. Maybe 10-15%. I don't see them trading for anything much above the 10x EV/Revenue mark. But, I believe the best play with Autodesk is to buy and hold for the long-term. As Warren Buffett has [said](#):

It's far better to buy a wonderful company at a fair price than a fair company at a wonderful price.

Buying Autodesk is buying a wonderful business model and economics. They have pricing power, repeat customers, high efficiency, a sustainable moat, among others.

Is now the right time to get in if you're just looking to make a quick buck? I wish I knew. But if you're looking to hold a wonderful business for the long-term, now could be a great time to buy at a fair price.

Risks


One potential risk that investors should be weary of is Autodesk's stock-based compensation practices. In fiscal year 2024, Autodesk awarded \$703 million of stock-based compensation. This is a sizable number when considering that they had \$1.1 billion of operating income and \$1.3 billion of free cash flow.

Hypothetically, if stock-based compensation was cut in half to \$350 million, Autodesk would have had approximately \$1.45 billion of operating income. This would provide a healthy 500-600 basis point boost to operating margins. Although these numbers represent just a hypothetical scenario, they help quantify the sheer size of management's current stock-based compensation practices.

Now, I don't foresee this being a problem as long as management is able to execute on their guidance and projections. However, stock-based compensation would be one of the first line items to come under heavy scrutiny if the company encounters a rough patch. Thus, it's something that's worth watching for investors.

Conclusion

In all, I believe that Autodesk is a wonderful business trading at a fair price. They have shown robust financial performance and are highly profitable. Their business model transition provides investors with an inflection point, with free cash flow expected to rise in the future. Furthermore, they are trading at a steep discount to their historical averages. Upside in the short-term may be a modest 10-15%, but Autodesk is a solid long-term play in my view.


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10.1.2 Autodesk: Strong Fundamentals But Fully Valued

[Richard Durant](#)

Summary

- Autodesk's business is performing relatively well, in large part due to its AEC business, which is benefitting from fiscal stimulus.
- Cloud-based data, AI and end-to-end solutions which span industries are strengthening Autodesk's competitive position.
- Despite these positives, ADSK stock is expensive and vulnerable to a large pullback in the event of macro weakness.

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adventtr

Autodesk's (NASDAQ:[ADSK](#)) business continues to perform relatively well against a varied demand backdrop. It should be noted that the company is benefitting from enormous fiscal stimulus and automotive strength, both of which are unlikely to persist longer term. The last time [I wrote about Autodesk](#), I suggested that 2024 could be difficult. The stock has performed in line with the market since then but my views on the risks facing the company remain unchanged.

Autodesk's strategy is strengthening its competitive position though, and AI should provide the company with a genuine tailwind. While Autodesk's fundamentals are strong, the stock is expensive, and as a result, it is difficult to see Autodesk outperforming the broader market by a wide margin longer term. In addition, Autodesk's valuation makes it vulnerable to a large pullback in the event of more serious macro weakness.

Market

Autodesk's business gives it exposure to a range of end markets and the strength of those markets varies significantly at the moment. [Infrastructure and construction](#) have unsurprisingly been an important part of Autodesk's recent growth. Outside of fiscal stimulus, AEC strength is questionable though, with data pointing towards an ongoing slowdown.

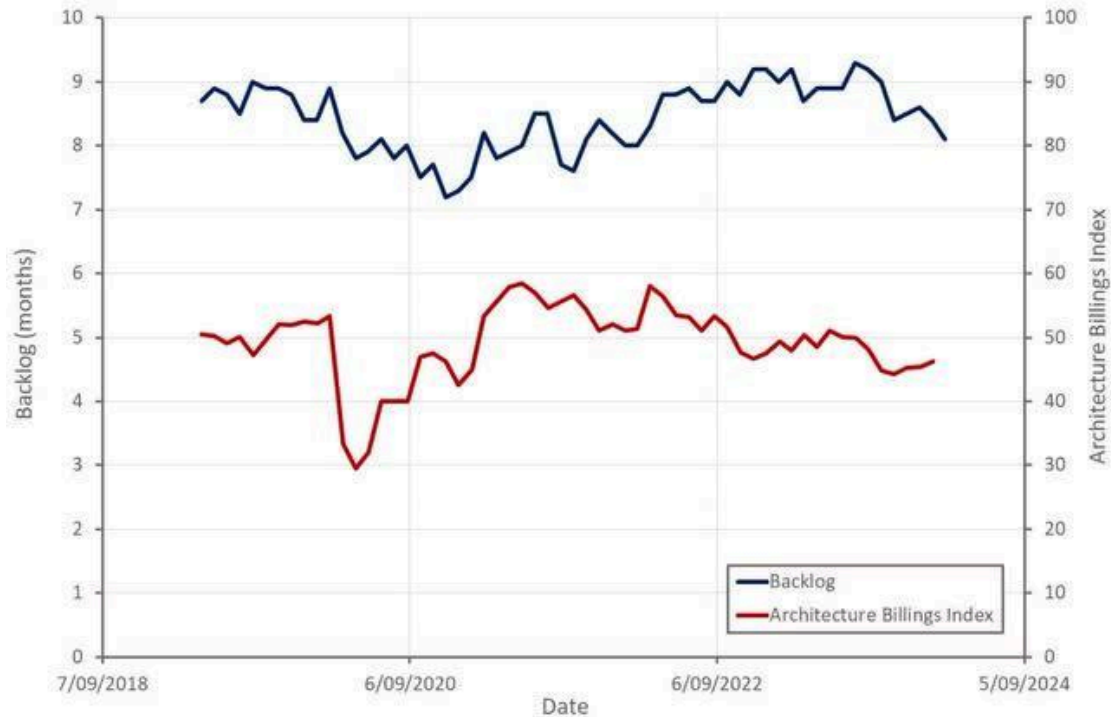



Figure 1: Construction Demand Indicators (source: Created by author using data from AIA and ABC)

Manufacturing has been an area of weakness, although data suggests that the demand environment is beginning to stabilize. While conditions have been soft, Autodesk hasn't seen an [impact on its close rates](#). Autodesk's renewal rates also remain strong, although new business growth continues to be relatively soft.

Future technology spending plans continue to soften based on survey data. This has historically been closely related to Autodesk's revenue growth, with the current divergence likely driven by government supported infrastructure spending.

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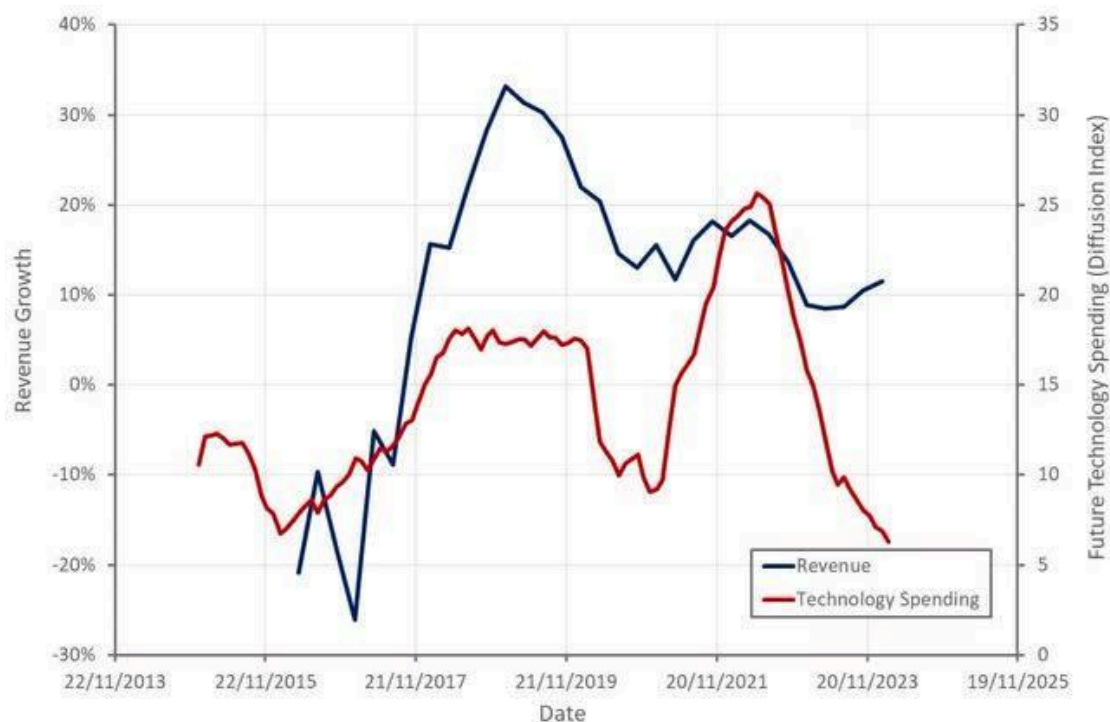


Figure 2: Planned Technology Spending (source: Created by author using data from Autodesk and The Federal Reserve)


Autodesk

Outside of the macro environment, there are a lot of reasons to be optimistic about Autodesk's prospects. AI is a genuine tailwind, with Autodesk developing viable solutions for high value use cases. Autodesk is developing multimodal foundation models to help Design and Make customers automate repetitive tasks and improve designs. For example, converting a 3D model to 2D and generating 3D models from images.

This is not just Autodesk trying to ride the AI hype train either. The company has been working on AI for design and manufacturing for more than 10 years. This includes introducing a consumption model so that AI does not hurt margins. Over the past 4 years, Autodesk has also been taking data out of files and shifting it into a cloud database, which lowers data extraction costs and helps the company realize the value of this data.

AI not only has the potential to expand Autodesk's addressable market, but it could also improve the company's competitive position. Data exhibits economies of scale in machine learning applications, potentially providing Autodesk with a scale-based advantage. Autodesk is also developing lifecycle solutions within and between its industry clouds, which are powered by shared platform services and data. Moving data to the cloud where it can be utilized in more applications and by more users helps to create data gravity.

Make is also becoming an increasingly important part of Autodesk's strategy. The company believes it now has best-in-class CAM capabilities and plans on expanding its capabilities in areas like factory planning, factory simulation and manufacturing execution systems. This effort is gaining traction in automotive, where Autodesk's footprint is expanding into manufacturing. Fusion is one of the fastest-growing products in the manufacturing

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industry and ended the quarter with 255,000 subscribers. In support of driving adoption in manufacturing, Autodesk recently acquired FlexSim, a provider of discrete event simulation technology for factories which helps with things like layout and workflow optimization.

Autodesk also recently acquired Payapps, which will enable the company to embed payment and compliance management into the project lifecycle.

Financial Analysis

Autodesk's revenue growth was 11% YoY in the fourth quarter, with upfront revenue responsible for 2% of that growth. The Americas was an area of strength, increasing 17% YoY in FY24, while APAC was relatively soft, only increasing 1% YoY.

AEC and manufacturing were areas of strength, while AutoCAD and M&E were relatively soft. AEC and manufacturing both benefited from EBA true-up and upfront revenue though. Water is reportedly an important part of this EBA success.

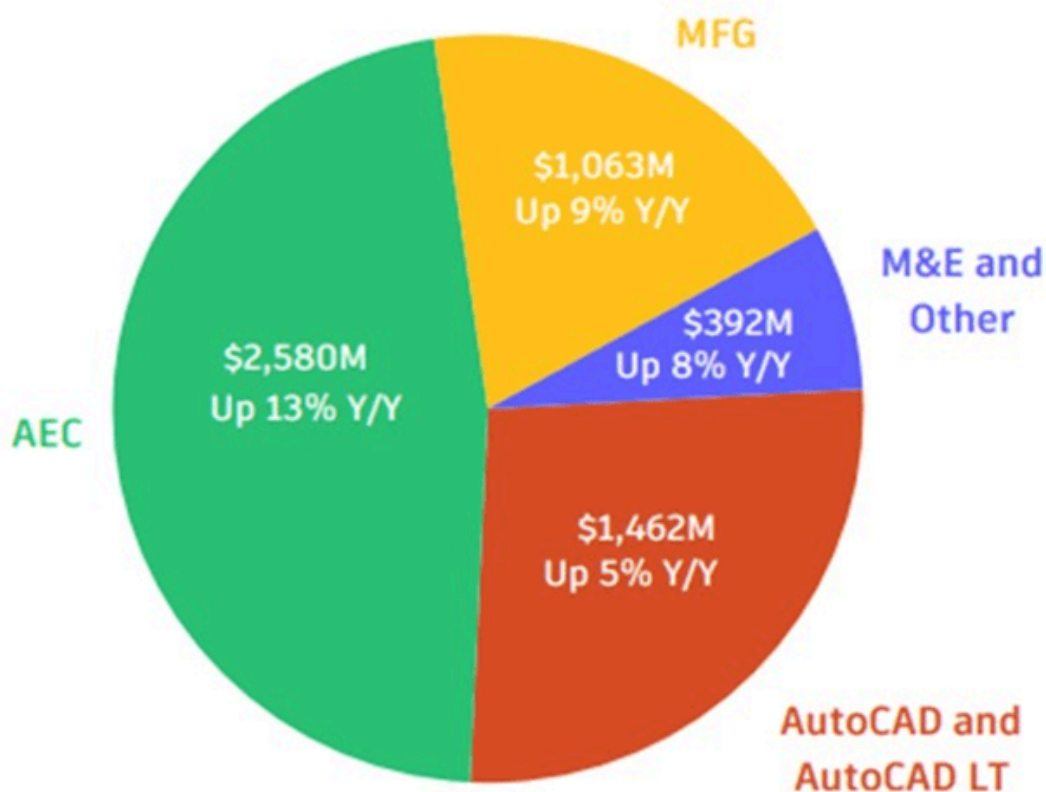


Figure 3: Autodesk FY24 Revenue Mix (source: Autodesk)

Autodesk is currently guiding to 1,385-1400 million USD in Q1 FY25, representing approximately a 10% increase YoY at the midpoint. For the full financial year, Autodesk is expecting 5,990-6,090 million USD revenue, up 10% YoY. The acquisition of Payapps is expected to provide roughly a 0.5% growth tailwind.

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Autodesk is targeting 10-15% revenue growth annually, but this is contingent on the macro environment. Autodesk is also targeting a 50/50 split between growth from volume and pricing. Pricing is an important driver of growth at the moment, with Fusion's price up significantly over the last 18 months. Fusion is priced low and offers customers significant value though. Pricing is likely to continue increasing as Autodesk adds capabilities to its products.

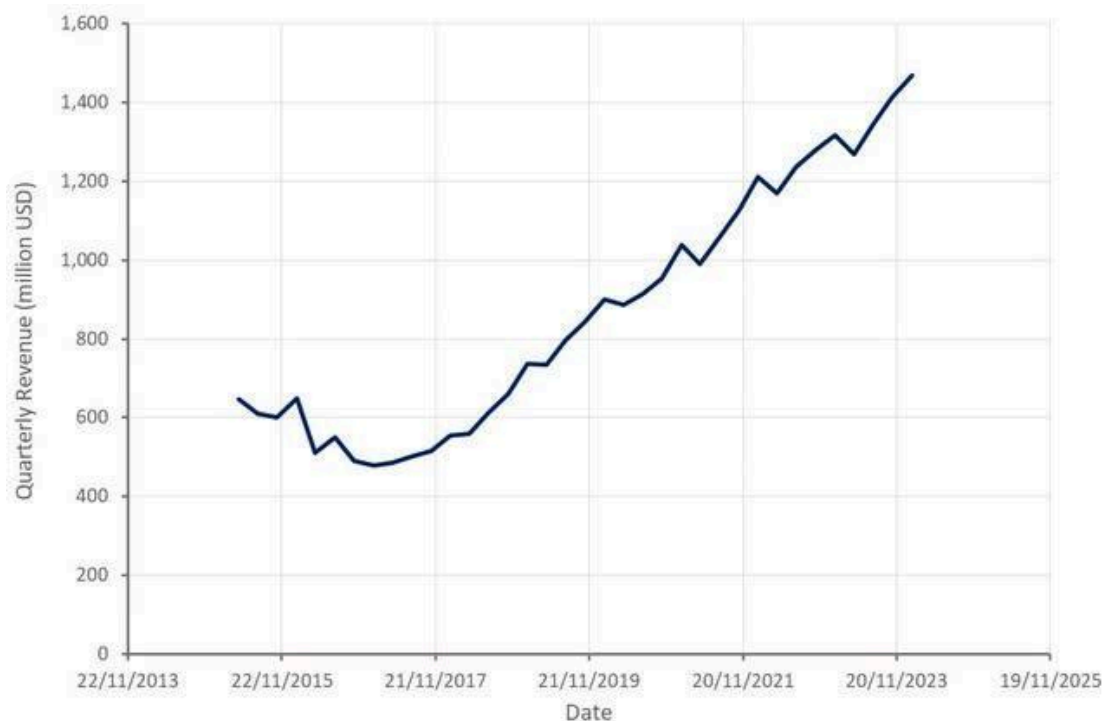


Figure 4: Autodesk Revenue (source: Created by author using data from Autodesk)

Autodesk's revenue will also be boosted by a shift in its transaction model and the associated accounting treatment. The new transaction model shifts reseller compensation from contra revenue to a sales and marketing expense. This will boost revenue and lower operating margins, while leaving the bottom line unimpacted.

In FY2024, Autodesk recognized around 600 million USD of developed market reseller compensation in contra revenue. As a result, Autodesk probably benefits from something like a 1-2% annual revenue growth tailwind in coming years.


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Figure 5: Autodesk's New Transaction Model (source: Autodesk)

Autodesk's margins are still generally improving, despite the fact that difficulty attracting new customers is likely a modest headwind at the moment. I would expect fairly modest improvements in margins going forward though, which means future earnings growth will increasingly need to be driven by revenue growth.

The majority of the cash flow headwinds associated with a transition to multi-year contracts are now behind Autodesk, which is supportive of cash flows. Autodesk expects stock-based compensation to fall below 10% of revenue over time.

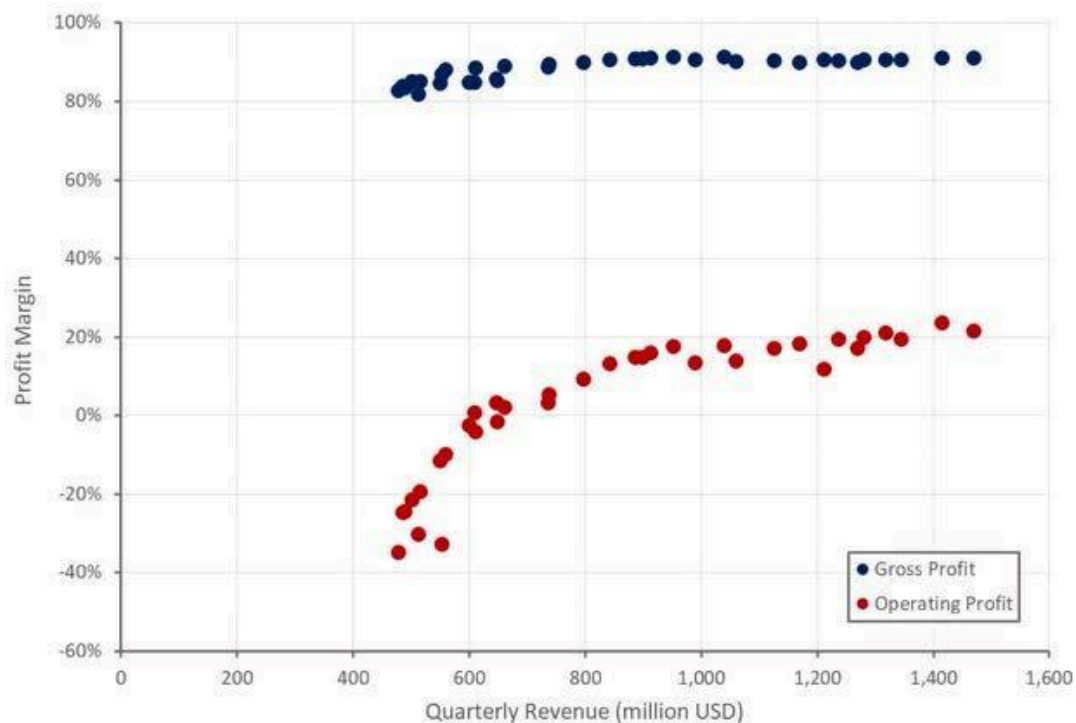



Figure 6: Autodesk Profit Margins (source: Created by author using data from Autodesk)

Conclusion

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Outside of fluctuations in the macro environment, Autodesk's prospects continue to look strong. It is questionable whether this is enough to justify the company's valuation though. Autodesk trades on a forward PE multiple of over 50 and yet will likely only generate high single digit / low double digit revenue growth going forward.

Organic growth excluding accounting changes will probably be in the high single digits in 2024, with pricing providing much of this growth. While demand in some end markets should pick up, there is also the prospect of the current infrastructure spending boom eventually winding down. Autodesk's margins should continue to expand, but this will be much more modest than in the past.



Figure 7: Autodesk EV/S Multiple (source: Seeking Alpha)