20240709137S7

ÅRSREDOVISNING

för

Ansys Sweden AB

Org.nr. 556560-5325

Styrelsen får härmed avlämna årsredovisning för räkenskapsåret 2023-01-01 - 2023-12-31

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Ansys Sweden AB
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FÖRVALTNINGSBERÄTTELSE

Årsredovisningen är upprättad i EUR.

Verksamheten
Företaget är en av Nordens ledande leverantörer av mjukvara för simulering samt tillhörande systemlösningar och tjänster. Bolaget säljer direkt till kunder och genom ett nätverk av partners. Kunder finns inom ett brett spektrum av industrier inkluderande såväl traditionell verkstadsindustri som elektronik, medicin, energi och marin industri. Den breda kundbasen bidrar till ökad ekonomisk trygghet vid kraftiga konjunktursvängningar. ANSYS Sweden AB följer moderbolagets visioner och strategier avseende affärs- och teknikutveckling.
ANSYS Sweden AB's säte är i Göteborg.

Flerårsjämförelse*

Beloppen i Flerårsjämförelse visas i KEUR

	2023	**2022**	**2021**	**2020**	**2019**
Nettoomsättning	59 564	45 523	43 421	36 990	38 536
Resultat efter finansiella poster	1 676	1 044	1 063	1 451	2 071
Balansomslutning	74 115	80 774	54 629	40 676	35 567
Soliditet (%)	9.48	7.12	9.03	10,10	8,39
Avkastning på eget kapital (%)	26.22	19.52	23.48	40,89	95,30
Avkastning på totalt kapital (%)	3.03	1.57	2.34	3,95	6,58

*Definitioner av nyckeltal, se noter

Ägarförhållanden
Bolaget är ett helägt dotterföretag till Ansys Inc., med säte i Canonsburg, Pennsylvania, USA.
ANSYS Inc. är noterat på NASDAQ-börsen (Ticker symbol: ANSS) och är en del av NASDAQ-100 index och S&P 500 index.

Med hänvisning till Årsredovisningslagen 7 kap. 2§ upprättar Ansys Sweden AB med dotterbolag ingen koncernredovisning för ingivande till Bolagsverket räkenskapsåret 2023. Moderbolagets, Ansys Inc, årsredovisning kommer istället att skickas in till Bolagsverket.

Väsentliga händelser under räkenskapsåret
Under 2023 har ANSYS-koncern genomfört ytterligare förvärv genom köp av DYNAmore och Diakopto vilket utökar utbudet av simuleringslösningar för våra kunder. ANSYS Sweden AB är från januari 2023 ägare av DYNAmore Nordic AB.

År 2023 såg företaget en ökning av den rapporterade omsättningen med 30% (se flerårsjämförelse). Ökningen var dels på grund av synergi effekter genom förvärvet av DYNAmore, och dels på grund av att ett flertal större leasingavtal stängdes under året. Försäljningsresultatet, mätt på årsbasis var därför i linje med förväntningarna.

Framtida utveckling
För 2024 förväntar sig ANSYS Sweden AB en fortsatt omsättningsutveckling. I förväntningarna på 2024 tas hänsyn till ANSYS nuvarande position inom CAE-marknaden samt konjunkturutvecklingen i Skandinavien och i ökningen av antalet produkter.

ANSYS vision och strategi förblir fokuserad på att tillhandahålla mjukvara och tjänster för simuleringsdriven produktutveckling i alla faser av en produkts design, produktion och livscykel. ANSYS kallar detta för Pervasive Engineering Simulation.

På lång och medellång sikt är ANSYS, som marknads- och teknologiledare för simuleringar inom teknik, väl positionerade att dra full nytta av den snabba moderniseringen av produkter som pågår. Den allmänna uppfattningen på marknaden är att simuleringar kommer att bli en allt viktigare del av produktutvecklingsprocessen.

Hållbarhetsupplysningar
ANSYS-koncernen publicerar en hållbarhetsrapport,där Ansys Sweden AB är en del. Rapporten återfinns på;
www.ansys.com/company-information/corporate-responsibility

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Ansys Sweden AB

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Förändringar i eget kapital

	Aktiekapital	Reservfond	Fritt eget kapital
Belopp vid årets ingång	11 095	2 219	5 738 969
Årets vinst			1 276 663
Belopp vid årets utgång	11 095	2 219	7 015 632

Resultatdisposition

Förslag till disposition av bolagets vinst

Till årsstämmans förfogande står	
balanserad vinst	5 738 969
årets vinst	1 276 663
	7 015 632
Styrelsen föreslår att	
i ny räkning överföres	7 015 632
	7 015 632

Beträffande bolagets resultat och ställning i övrigt hänvisas till efterföljande resultat- och balansräkningar med tillhörande noter.

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Ansys Sweden AB
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RESULTATRÄKNING

	Not	2023-01-01 2023-12-31	2022-01-01 2022-12-31
Rörelsens intäkter m.m.			
Nettoomsättning		59 564 380	45 523 461
		59 564 380	45 523 461
Rörelsens kostnader			
Handelsvaror		-41 333 198	-32 352 556
Övriga externa kostnader	5, 4	-4 978 150	-3 681 048
Personalkostnader	6	-10 780 252	-8 330 616
Av- och nedskrivningar av materiella och immateriella anläggningstillgångar		-130 943	-93 602
		-57 222 543	-44 457 822
Rörelseresultat		2 341 837	1 065 639
Resultat från finansiella poster			
Ränteintäkter		6 291	0
Räntekostnader och liknande resultatposter	7	-672 329	-22 032
		-666 038	-22 032
Resultat efter finansiella poster		1 675 799	1 043 607
Resultat före skatt		1 675 799	1 043 607
Skatt på årets resultat	8	-399 136	-228 453
Årets resultat		**1 276 663**	**815 154**

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BALANSRÄKNING

	Not	2023-12-31	2022-12-31
TILLGÅNGAR			
Anläggningstillgångar			
Materiella anläggningstillgångar			
Förbättringsutgifter på annans byggnad	10	259 047	251 266
Inventarier, verktyg och installationer	9	281 927	330 152
Summa materiella anläggningstillgångar		540 974	581 418
Finansiella anläggningstillgångar			
Andelar i koncernföretag		22 706 544	0
Andra långfristiga fordringar	12	6 998 036	0
Summa finansiella anläggningstillgångar		29 704 580	0
Summa anläggningstillgångar		30 245 554	581 418
Omsättningstillgångar			
Kortfristiga fordringar			
Kundfordringar		29 553 760	34 660 544
Fordringar hos koncernföretag		122 322	27 360
Aktuell skattefordran		0	40 105
Förutbetalda kostnader och upplupna intäkter	11	205 685	14 527 936
Summa kortfristiga fordringar		29 881 767	49 255 945
Kassa och bank			
Kassa och bank		13 987 500	30 936 801
Summa kassa och bank		13 987 500	30 936 801
Summa omsättningstillgångar		43 869 267	80 192 746
SUMMA TILLGÅNGAR		**74 114 821**	**80 774 164**

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BALANSRÄKNING

	Not	2023-12-31	2022-12-31
EGET KAPITAL OCH SKULDER			
Eget kapital			
Bundet eget kapital			
Aktiekapital	13	11 095	11 095
Reservfond		2 219	2 219
Summa bundet eget kapital		13 314	13 314
Fritt eget kapital			
Balanserat resultat	17	5 738 969	4 923 816
Årets resultat		1 276 663	815 153
Summa fritt eget kapital		7 015 632	5 738 969
Summa eget kapital		7 028 946	5 752 283
Avsättningar	14		
Övriga avsättningar		109 948	0
Summa avsättningar		109 948	0
Långfristiga skulder			
Skulder till koncernföretag		22 707 000	25 500 000
Summa långfristiga skulder		22 707 000	25 500 000
Kortfristiga skulder			
Förskott från kunder		0	120 000
Leverantörsskulder		168 367	302 707
Skulder till koncernföretag		23 185 855	16 527 733
Aktuell skatteskuld		154 867	0
Övriga skulder		2 607 427	1 524 269
Upplupna kostnader och förutbetalda intäkter	15	18 152 411	31 047 173
Summa kortfristiga skulder		44 268 927	49 521 882
SUMMA EGET KAPITAL OCH SKULDER		**74 114 821**	**80 774 165**

KASSAFLÖDESANALYS

	Not	2023-01-01 2023-12-31	2022-01-01 2022-12-31
Den löpande verksamheten			
Rörelseresultat		2 341 837	1 065 639
Justeringar för poster som inte ingår i kassaflödet	16	242 187	-190 304
Erhållen ränta m.m.		6 291	0
Erlagd ränta		-672 319	-22 032
Skatt		-399 136	-228 453
Kassaflöde från den löpande verksamheten före förändringar av rörelsekapital		1 518 860	624 850
Kassaflöde från förändringar av rörelsekapital			
Minskning(+)/ökning(-) av kundfordringar/fordringar koncernföretag		5 011 822	10 815 100
Minskning(+)/ökning(-) av fordringar		14 362 356	-13 712 395
Minskning(-)/ökning(+) av leverantörsskulder/skulder koncernföretag		6 523 782	198 474
Minskning(-)/ökning(+) av kortfristiga skulder		-11 776 737	-80 628
Kassaflöde från den löpande verksamheten		15 640 083	-2 154 599
Investeringsverksamheten			
Förvärv av förbättringsutgifter på annans byggnad	10	-22 078	-146 391
Förvärv av inventarier, verktyg och installationer	9	-69 727	-233 365
Förvärv av koncernföretag		-22 706 544	0
Ökning långfristig fordran	12	-6 998 036	0
Kassaflöde från investeringsverksamheten		-29 796 385	-379 756
Finansieringsverksamheten			
Förändring långfristiga lån, koncernföretag		-2 793 000	25 500 000
Kassaflöde från finansieringsverksamheten		-2 793 000	25 500 000
Förändring av likvida medel		-16 949 302	22 965 645
Likvida medel vid årets början		30 936 802	7 971 156
Likvida medel vid årets slut		**13 987 500**	**30 936 801**

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NOTER

Not 1 Redovisnings- och värderingsprinciper

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Årsredovisningen är upprättad i enlighet med årsredovisningslagen och BFNAR 2012:1 Årsredovisning och koncernredovisning (K3).

Principerna är oförändrade jämfört med föregående år.

Tillgångar, avsättningar och skulder har värderats till anskaffningsvärden om inget annat anges nedan.

Fordringar
Fordringar har upptagits till de belopp varmed de beräknas inflyta.

Övriga tillgångar, avsättningar och skulder
Övriga tillgångar, avsättningar och skulder har värderats till anskaffningsvärden om inget annat anges nedan.

Intäktsredovisning
Inkomsten redovisas till det verkliga värdet av vad som erhållits eller kommer att erhållas. Företaget redovisar därför inkomsten till nominellt värde (fakturabelopp) om ersättningen erhålls i likvida medel direkt vid leverans. Avdrag görs för lämnade rabatter.

Materiella anläggningstillgångar
Materiella anläggningstillgångar redovisas till anskaffningsvärde minskat med ackumulerade avskrivningar och nedskrivningar. I anskaffningsvärdet ingår förutom inköpspriset även utgifter som är direkt hänförliga till förvärvet.

Följande avskrivningstider tillämpas:

	Antal år
Förbättringsutgifter på annans byggnad	20
Inventarier, verktyg och installationer	3 - 7

Finansiella instrument
Finansiella instrument värderas utifrån anskaffningsvärde.

Kundfordringar värderas till anskaffningsvärde med avdrag för befarade förluster. Leverantörsskulder och andra icke-räntebärande skulder värderas till nominella belopp.

Finansiella anläggningstillgångar och finansiella långfristiga skulder samt räntebärande kortfristiga finansiella fordringar och skulder värderas såväl vid första redovisningstillfället som i efterföljande värdering till upplupet anskaffningsvärde, vilket normalt är detsamma som verkligt värde (transaktionsvärdet) vid anskaffningstidpunkten med tillägg av direkt hänförliga transaktionsutgifter såsom courtage.

Leasing (leasetagare)
Alla leasingavtal har klassificerats som operationella leasingavtal.
Leasingavtal som är finansiella behandlas som operationella.

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NOTER

Inkomstskatt
Aktuell skatt är inkomstskatt för innevarande räkenskapsår som avser årets skattepliktiga resultat och den del av tidigare räkenskapsårs inkomstskatt som ännu inte har redovisats.
Aktuell skatt värderas till det sannolika beloppet enligt de skattesatser och skatteregler som gäller på balansdagen.

Uppskjuten skatt är inkomstskatt för skattepliktigt resultat avseende framtida räkenskapsår till följd av tidigare transaktioner eller händelser.

Uppskjuten skatt beräknas på temporära skillnader. En temporär skillnad finns när det redovisade värdet på en tillgång eller skuld skiljer sig från det skattemässiga värdet. Temporära skillnader beaktas ej i skillnader hänförliga till investeringar i dotterföretag, filialer, intresseföretag eller joint venture om företaget kan styra tidpunkten för återföring av de temporära skillnaderna och det inte är uppenbart att den temporära skillnaden kommer att återföras inom en överskådlig framtid. Skillnader som härrör från den första redovisningen av goodwill eller vid den första redovisningen av en tillgång eller skuld såvida inte den hänförliga transaktionen är ett rörelseförvärv eller påverkar skatt eller redovisat resultat utgör inte heller temporära skillnader.

Uppskjuten skattefordran avseende underskottsavdrag eller andra framtida skattemässiga avdrag redovisas i den omfattning det är sannolikt att avdragen kan avräknas mot framtida skattemässiga överskott.

Avsättningar
Avsättningar redovisas när det finns en legal eller informell förpliktelse till följd av en tidigare händelse, det är sannolikt att ett utflöde av resurser kommer att krävas för att reglera förpliktelsen och beloppen kan uppskattas på ett tillförlitligt sätt. Tidpunkten eller beloppet för utflödet kan fortfarande vara osäker.

Avsättningar för omstruktureringar redovisas bara om en fastställd och utförlig omstruktureringsplan har utarbetats och införts, eller om företaget minst har offentliggjort planens huvuddrag till dem som berörs av den. Avsättningar redovisas inte för utgifter som hör samman med den framtida verksamheten.

En avsättning redovisas till den bästa uppskattningen av det belopp som krävs för att reglera förpliktelsen på balansdagen. Avsättningar tas endast i anspråk för de utgifter som avsättningen ursprungligen var avsedd för. Avsättningar diskonteras till sina nuvärden där pengars tidsvärde är väsentligt.

Ersättningar till anställda
Pensioner
Avgiftsbestämda pensionsplaner
Avgifter för avgiftsbestämda pensionsplaner kostnadsförs löpande. Obetalda avgifter redovisas som skuld.

Fordringar och skulder i utländsk valuta
Monetära fordringar och skulder i utländsk valuta har räknats om till balansdagens kurs. Icke-monetära poster räknas inte om utan redovisas till kursen vid anskaffningstillfället.

Valutakursdifferenser som uppkommer vid reglering eller omräkning av monetära poster redovisas i resultaträkningen det räkenskapsår de uppkommer, antingen som en rörelsepost eller som en finansiell post utifrån den underliggande affärshändelsen.

Not 2 Uppskattningar och bedömningar

Intäkter
Företagets redovisning av intäkter inträffar normalt i samband med leverans och licensernas startdatum. Företaget redovisar fakturerade licensavgifter som förutbetalda intäkter. Hälften av licensinkomsterna redovisas direkt efter påbörjad licensperiod, resterande del periodiseras successivt över licensavtalets livslängd.

UPPLYSNINGAR TILL ENSKILDA POSTER

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NOTER

Not 3 Koncernuppgifter

	2023	2022
Total försäljning inom koncernen	1 173 082	250 581
Totala inköp inom koncernen	41 333 198	32 352 556

Företaget är helägt dotterföretag till Ansys Inc., med säte Canonsburg, Pennsylvania, USA.
Ansys Inc. är noterat på NASDAQ-börsen, och är en del av NASDAQ-100 index och S&P 500 index.

Not 4 Ersättning till revisorer

	2023	2022
Revisionsorganet		
Revisionsuppdrag	9 964	10 413
Skatterådgivning och övrig konsultation	5 716	3 376
	15 680	13 789

Med revisionsuppdrag avses revisors arbete för den lagstadgade revisionen och med revisionsverksamhet olika typer av kvalitetssäkringstjänster. Övriga tjänster är sådant som inte ingår i revisionsuppdrag eller revisionsverksamhet.

Not 5 Leasingavtal - Operationell leasing leasetagare

	2023	2022
Under året har företagets leasingavgifter inkl. hyror har uppgått till	318 229	320 033
Framtida minimileasingavgifter för icke uppsägningsbara leasingavtal, förfaller till betalning enligt följande:		
Inom 1 år	325 661	302 418
Mellan 2 till 5 år	904 877	1 065 075
Senare än 5 år	0	98 424
	1 230 538	1 465 917

Not 6 Personal

	2023	2022
Medelantal anställda		
Medelantalet anställda bygger på av bolaget betalda närvarotimmar relaterade till en normal arbetstid.		
Medelantal anställda har varit	47.00	43.00
varav kvinnor	16.00	16.00
varav män	31.00	27.00
Löner, ersättningar m.m.		
Löner, ersättningar, sociala kostnader och pensionskostnader har utgått med följande belopp:		
Övriga anställda:		
Löner och ersättningar	7 328 545	5 612 849
Pensionskostnader	1 156 926	936 786
	8 485 471	6 549 635
Sociala kostnader	2 268 289	1 715 461
Summa anställda:	10 753 760	8 265 096

NOTER

Könsfördelning i styrelse och företagsledning

Antal styrelseledamöter	1	1
varav män	1	1

Inga ersättningar eller pensioner utgår till styrelseledamöter.

Not 7 Räntekostnader och liknande resultatposter

	2023	2022
Räntekostnader	186	19 971
Räntekostnader till koncernföretag	672 143	2 061
	672 329	22 032

Not 8 Skatt på årets resultat

	2023	2022
Aktuell skatt	-399 136	-228 453
	-399 136	-228 453

Avstämning av effektiv skatt

	Procent	Belopp	Procent	Belopp
Resultat före skatt		1 675 799		1 043 607
Skatt enligt gällande skattesats	20.60%	-345 215	20.60%	-214 983
Ej avdragsgilla kostnader	3.27%	-54 799	1.29%	-13 470
Ej skattepliktiga intäkter	-0.05%	879	0.00%	0
Redovisad effektiv skatt	23.82%	-399 136	21.89%	-228 453

Not 9 Inventarier, verktyg och installationer

	2023-12-31	2022-12-31
Ingående anskaffningsvärde	660 888	483 552
Inköp	69 727	233 365
Försäljningar/utrangeringar	-1 337	-56 029
Utgående ackumulerade anskaffningsvärden	729 278	660 888
Ingående avskrivningar	-330 737	-296 568
Försäljningar/utrangeringar	31	51 973
Årets avskrivningar	-116 646	-86 141
Utgående ackumulerade avskrivningar	-447 351	-330 737
Utgående redovisat värde	281 927	330 151

Not 10 Förbättringsutgifter på annans byggnad

	2023-12-31	2022-12-31
Ingående anskaffningsvärde	271 209	124 818
Inköp	22 078	146 391
Utgående ackumulerade anskaffningsvärden	293 287	271 209
Ingående avskrivningar	-19 943	-12 482
Årets avskrivningar	-14 297	-7 461
Utgående ackumulerade avskrivningar	-34 240	-19 943
Utgående redovisat värde	259 047	251 266

Not 11 Förutbetalda kostnader och upplupna intäkter

	2023-12-31	2022-12-31
Förutbetalda hyror	64 945	66 950
Förutbetald kommission till tredje part	88 140	334 703
Övriga poster	52 600	10 583
Upplupna intäkter	0	14 115 700
	205 685	14 527 936

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NOTER

Not 12	**Andra långfristiga fordringar**	**2023-12-31**	**2022-12-31**
	Ingående anskaffningsvärde	0	0
	Ökning av långfristig fordran	6 998 036	0
	Utgående redovisat värde	6 998 036	0

Not 13	**Upplysningar om aktiekapital**		
	Antal/värde vid årets ingång	1 000	11.09
	Antal/värde vid årets utgång	1 000	11.09

Not 14	**Avsättningar**	**2023-12-31**	**2022-12-31**
	Övriga avsättningar		
	Redovisat värde vid årets början	0	287 962
	Årets avsättningar	109 948	0
	Belopp som tagits i anspråk under året	0	-287 962
	Redovisat värde vid årets slut	109 948	0

Not 15	**Upplupna kostnader och förutbetalda intäkter**	**2023-12-31**	**2022-12-31**
	Löner och semesterlöner	2 801 351	1 302 544
	Upplupna sociala avgifter	1 491 981	699 763
	Förutbetalda och upplupna intäkter	12 636 093	27 811 970
	Övriga poster	1 222 986	1 232 896
		18 152 411	31 047 173

Not 16	**Justering för poster som inte ingår i kassaflödet**	**2023-12-31**	**2022-12-31**
	Avskrivningar	130 943	93 602
	Reaförlust vid utrangering av inventarier	1 296	4 056
	Förändring avsättningar	109 948	-287 962
		242 187	-190 304

Not 17	**Ställda säkerheter och eventualförpliktelser**	**2023-12-31**	**2022-12-31**
	Spärrade bankmedel	710 500	710 500

Ansys Sweden AB har inga ställda säkerheter eller eventualförpliktelser.

Not 18 Disposition av vinst eller förlust

Förslag till disposition av bolagets vinst

Till årsstämmans förfogande står	
balanserad vinst	5 738 969
årets vinst	1 276 663
	7 015 632
Styrelsen föreslår att	
i ny räkning överföres	7 015 632
	7 015 632

NOTER

Not 19 Definition av nyckeltal

Soliditet
Justerat eget kapital i procent av balansomslutning

Avkastning på eget kapital
Resultat efter finansiella poster i procent av genomsnittligt justerat eget kapital

Avkastning på totalt kapital
Rörelseresultat med tillägg för finansiella intäkter, i procent av genomsnittlig balansomslutning

Ansys Sweden AB
Org.nr. 556560-5325

NOTER

Göteborg 25.6.2024

Florian Vogel

Vår revisionsberättelse har lämnats den 27/6-2024

Frejs Revisorer AB

Hans Jonasson
Auktoriserad revisor

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Fastställelseintyg / *Adoption certificate*

Undertecknad styrelseledamot för ANSYS Sweden AB intygar, dels att denna kopia av årsredovisningen stämmer överens med originalet, dels att resultaträkningen och balansräkningen i årsredovisningen har fastställts på årsstämma den 28 juni 2024. Årsstämman beslutade att godkänna styrelsens förslag till resultatdisposition.

The undersigned director of ANSYS Sweden AB certifies that this is a true copy of the original annual accounts and that the income statement and the balance sheet in the annual accounts were adopted at the annual general meeting on 28 of June 2024. The annual general meeting resolved to approve the boards' proposal for allocation of the result.

I/*in* Göteborg, den/*on* 28/6 2024

F. Vogel

Florian Vogel

20240709135772

FREJS

Revisionsberättelse

Till bolagsstämman i Ansys Sweden AB
Org.nr 556560-5325

Rapport om årsredovisningen

Uttalanden
Vi har utfört en revision av årsredovisningen för Ansys Sweden AB för räkenskapsåret 2023.

Enligt vår uppfattning har årsredovisningen upprättats i enlighet med årsredovisningslagen och ger en i alla väsentliga avseenden rättvisande bild av Ansys Sweden ABs finansiella ställning per 2023-12-31 och av dess finansiella resultat och kassaflöde för året enligt årsredovisningslagen. Förvaltningsberättelsen är förenlig med årsredovisningens övriga delar.

Vi tillstyrker därför att bolagsstämman fastställer resultaträkningen och balansräkningen.

Grund för uttalanden
Vi har utfört revisionen enligt International Standards on Auditing (ISA) och god revisionssed i Sverige. Vårt ansvar enligt dessa standarder beskrivs närmare i avsnittet *Revisorns ansvar*. Vi är oberoende i förhållande till Ansys Sweden AB enligt god revisorssed i Sverige och har i övrigt fullgjort vårt yrkesetiska ansvar enligt dessa krav.

Vi anser att de revisionsbevis vi har inhämtat är tillräckliga och ändamålsenliga som grund för våra uttalanden.

Styrelsens ansvar
Det är styrelsen som har ansvaret för att årsredovisningen upprättas och att den ger en rättvisande bild enligt årsredovisningslagen. Styrelsen ansvarar även för den interna kontroll som den bedömer är nödvändig för att upprätta en årsredovisning som inte innehåller några väsentliga felaktigheter, vare sig dessa beror på oegentligheter eller misstag.

Vid upprättandet av årsredovisningen ansvarar styrelsen för bedömningen av bolagets förmåga att fortsätta verksamheten. Den upplyser, när så är tillämpligt, om förhållanden som kan påverka förmågan att fortsätta verksamheten och att använda antagandet om fortsatt drift. Antagandet om fortsatt drift tillämpas dock inte om styrelsen avser att likvidera bolaget, upphöra med verksamheten eller inte har något realistiskt alternativ till att göra något av detta.

Revisorns ansvar
Våra mål är att uppnå en rimlig grad av säkerhet om huruvida årsredovisningen som helhet inte innehåller några väsentliga felaktigheter, vare sig dessa beror på oegentligheter eller misstag, och att lämna en revisionsberättelse som innehåller våra uttalanden. Rimlig säkerhet är en hög grad av säkerhet, men är ingen garanti för att en revision som utförs enligt ISA och god revisionssed i Sverige alltid kommer att upptäcka en väsentlig felaktighet om en sådan finns. Felaktigheter kan uppstå på grund av oegentligheter eller misstag och anses vara väsentliga om de enskilt eller tillsammans rimligen kan förväntas påverka de ekonomiska beslut som användare fattar med grund i årsredovisningen.

Som del av en revision enligt ISA använder vi professionellt omdöme och har en professionellt skeptisk inställning under hela revisionen. Dessutom: ⊥

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- identifierar och bedömer vi riskerna för väsentliga felaktigheter i årsredovisningen, vare sig dessa beror på oegentligheter eller misstag, utformar och utför granskningsåtgärder bland annat utifrån dessa risker och inhämtar revisionsbevis som är tillräckliga och ändamålsenliga för att utgöra en grund för våra uttalanden. Risken för att inte upptäcka en väsentlig felaktighet till följd av oegentligheter är högre än för en väsentlig felaktighet som beror på misstag, eftersom oegentligheter kan innefatta agerande i maskopi, förfalskning, avsiktliga utelämnanden, felaktig information eller åsidosättande av intern kontroll.

- skaffar vi oss en förståelse av den del av bolagets interna kontroll som har betydelse för vår revision för att utforma granskningsåtgärder som är lämpliga med hänsyn till omständigheterna, men inte för att uttala oss om effektiviteten i den interna kontrollen.

- utvärderar vi lämpligheten i de redovisningsprinciper som används och rimligheten i styrelsens uppskattningar i redovisningen och tillhörande upplysningar.

- drar vi en slutsats om lämpligheten i att styrelsen använder antagandet om fortsatt drift vid upprättandet av årsredovisningen. Vi drar också en slutsats, med grund i de inhämtade revisionsbevisen, om huruvida det finns någon väsentlig osäkerhetsfaktor som avser sådana händelser eller förhållanden som kan leda till betydande tvivel om bolagets förmåga att fortsätta verksamheten. Om vi drar slutsatsen att det finns en väsentlig osäkerhetsfaktor, måste vi i revisionsberättelsen fästa uppmärksamheten på upplysningarna i årsredovisningen om den väsentliga osäkerhetsfaktorn eller, om sådana upplysningar är otillräckliga, modifiera uttalandet om årsredovisningen. Våra slutsatser baseras på de revisionsbevis som inhämtas fram till datumet för revisionsberättelsen. Dock kan framtida händelser eller förhållanden göra att ett bolag inte längre kan fortsätta verksamheten.

- utvärderar vi den övergripande presentationen, strukturen och innehållet i årsredovisningen, däribland upplysningarna, och om årsredovisningen återger de underliggande transaktionerna och händelserna på ett sätt som ger en rättvisande bild.

Vi måste informera styrelsen om bland annat revisionens planerade omfattning och inriktning samt tidpunkten för den. Vi måste också informera om betydelsefulla iakttagelser under revisionen, däribland de eventuella betydande brister i den interna kontrollen som vi identifierat.

Rapport om andra krav enligt lagar och andra författningar

Uttalanden
Utöver vår revision av årsredovisningen har vi även utfört en revision av styrelsens förvaltning för Ansys Sweden AB för räkenskapsåret 2023 samt av förslaget till dispositioner beträffande bolagets vinst eller förlust.

Vi tillstyrker att bolagsstämman disponerar vinsten enligt förslaget i förvaltningsberättelsen och beviljar styrelsens ledamot ansvarsfrihet för räkenskapsåret.

Grund för uttalanden
Vi har utfört revisionen enligt god revisionssed i Sverige. Vårt ansvar enligt denna beskrivs närmare i avsnittet Revisorns ansvar. Vi är oberoende i förhållande till Ansys Sweden AB enligt god revisorssed i Sverige och har i övrigt fullgjort vårt yrkesetiska ansvar enligt dessa krav.

Vi anser att de revisionsbevis vi har inhämtat är tillräckliga och ändamålsenliga som grund för våra uttalanden.

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FREJS

Styrelsens ansvar
Det är styrelsen som har ansvaret för förslaget till dispositioner beträffande bolagets vinst eller förlust. Vid förslag till utdelning innefattar detta bland annat en bedömning av om utdelningen är försvarlig med hänsyn till de krav som bolagets verksamhetsart, omfattning och risker ställer på storleken av bolagets egna kapital, konsolideringsbehov, likviditet och ställning i övrigt.

Styrelsen ansvarar för bolagets organisation och förvaltningen av bolagets angelägenheter. Detta innefattar bland annat att fortlöpande bedöma bolagets ekonomiska situation och att tillse att bolagets organisation är utformad så att bokföringen, medelsförvaltningen och bolagets ekonomiska angelägenheter i övrigt kontrolleras på ett betryggande sätt.

Revisorns ansvar
Vårt mål beträffande revisionen av förvaltningen, och därmed vårt uttalande om ansvarsfrihet, är att inhämta revisionsbevis för att med en rimlig grad av säkerhet kunna bedöma om någon styrelseledamot i något väsentligt avseende:

- företagit någon åtgärd eller gjort sig skyldig till någon försummelse som kan föranleda ersättningsskyldighet mot bolaget, eller

- på något annat sätt handlat i strid med aktiebolagslagen, årsredovisningslagen eller bolagsordningen.

Vårt mål beträffande revisionen av förslaget till dispositioner av bolagets vinst eller förlust, och därmed vårt uttalande om detta, är att med rimlig grad av säkerhet bedöma om förslaget är förenligt med aktiebolagslagen.

Rimlig säkerhet är en hög grad av säkerhet, men ingen garanti för att en revision som utförs enligt god revisionssed i Sverige alltid kommer att upptäcka åtgärder eller försummelser som kan föranleda ersättningsskyldighet mot bolaget, eller att ett förslag till dispositioner av bolagets vinst eller förlust inte är förenligt med aktiebolagslagen.

Som en del av en revision enligt god revisionssed i Sverige använder vi professionellt omdöme och har en professionellt skeptisk inställning under hela revisionen. Granskningen av förvaltningen och förslaget till dispositioner av bolagets vinst eller förlust grundar sig främst på revisionen av räkenskaperna. Vilka tillkommande granskningsåtgärder som utförs baseras på vår professionella bedömning med utgångspunkt i risk och väsentlighet. Det innebär att vi fokuserar granskningen på sådana åtgärder, områden och förhållanden som är väsentliga för verksamheten och där avsteg och överträdelser skulle ha särskild betydelse för bolagets situation. Vi går igenom och prövar fattade beslut, beslutsunderlag, vidtagna åtgärder och andra förhållanden som är relevanta för vårt uttalande om ansvarsfrihet. Som underlag för vårt uttalande om styrelsens förslag till dispositioner beträffande bolagets vinst eller förlust har vi granskat om förslaget är förenligt med aktiebolagslagen.

Göteborg den 27/6-2024

Frejs Revisorer AB

Hans Jonasson
Auktoriserad revisor

Fotokopians överensstämmelse med originalet intygas:

Frejs Revisorer AB

2023

POWERING INNOVATION THAT DRIVES HUMAN ADVANCEMENT

Ansys

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April 10, 2024

Ansys' mission is to power innovation that drives human advancement. For more than 50 years, Ansys solutions have enabled innovators across industries to push boundaries with the predictive power of simulation. Every day, our solutions are used to create new sustainable transportation options, the most advanced semiconductors that power our lives, satellite systems that unify our world, as well as life-saving medical devices.

With that charter, it is no surprise that 2023 was another excellent year for Ansys. In 2023, Ansys reported record revenue of $2,269.9 million, a 10% increase in reported and constant currency when compared to the year ending December 31, 2022. Annual contract value (ACV)* was a record $2,300.5 million, an increase of 13% in reported and constant currency, when compared to fiscal 2022.

We achieved these great results despite a number of economic headwinds – including global trade sanctions and geopolitical unrest. Our outstanding performance over the course of the year reflects the strength of our customer relationships and our industry-leading simulation portfolio.

We are continually advancing that portfolio through a series of dedicated initiatives or technology pillars that help to guide our investments while enabling our customers to innovate faster. With our first pillar, numerics, we help customers gain a deeper understanding of the physical world with the latest advances in science, mathematics, and analytics. Advances in high-performance computing enable customers to solve problems they couldn't otherwise solve thanks to advanced compute power. Artificial intelligence and machine learning is architected across our portfolio to improve ease of use, to accelerate time to solve, and to further democratize simulation. Our fourth pillar is cloud and experience, in which we invest in cloud-native capabilities as well as user experience. And we empower customers to optimize product designs to meet physical and behavioral requirements throughout the engineering design lifecycle, thanks to digital engineering.

As we look to 2024, I am confident in our ability to continue our momentum and drive even further innovation. The recent announcement of our business combination with Synopsys adds another layer of excitement, providing us with much to anticipate in the coming year and beyond for our customers, shareholders, and employees.

Simulation has the power to change our world. For more than 50 years companies large and small – from the best-known brands on the planet to the most innovative startups looking to disrupt entire industries – have relied on Ansys to make their products come to life. And yet, we have only touched upon the potential of what Ansys solutions can do to improve the lives of our users, their customers, and all of humanity. I am looking forward to helping our customers create that amazing future.

Thank you for your continued support.

Sincerely,

Ajei S. Gopal – President and CEO

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2023

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from ____ to ____

Commission File Number: 0-20853

ANSYS, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**04-3219960**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
2600 ANSYS Drive, Canonsburg, PA	**15317**
(Address of principal executive offices)	(Zip Code)

844-462-6797

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value per share	**ANSS**	**Nasdaq Stock Market LLC (Nasdaq Global Select Market)**

Securities registered pursuant to section 12(g) of the Act:

None

(Title of class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting stock held by non-affiliates of the registrant, based upon the closing sale price per share of the registrant's common stock on June 30, 2023, as reported on the Nasdaq Global Select Market, was $23,626,000,000.

The number of shares of the registrant's common stock, par value $0.01 per share, outstanding as of February 14, 2024 was 87,017,807 shares.

Documents Incorporated By Reference:

Portions of the Proxy Statement for the registrant's 2024 Annual Meeting of Stockholders are incorporated by reference into Part III.

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ANSYS, Inc.
ANNUAL REPORT ON FORM 10-K FOR FISCAL YEAR 2023
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Important Factors Regarding Future Results

Information provided by us in this Annual Report on Form 10-K may contain forward-looking statements concerning, among other things, such matters as projected financial performance, market and industry segment growth, product development and commercialization, the proposed transaction with Synopsys, Inc., including the expected date of closing and the potential benefits thereof, or other aspects of future operations. Such statements, made pursuant to the safe harbor established by the securities laws, are based on the assumptions and expectations of management at the time such statements are made. We caution investors that our performance (and, therefore, any forward-looking statement) is subject to risks and uncertainties. Various important factors including, but not limited to, those discussed in Item 1A. Risk Factors, may cause our future results to differ materially from those projected in any forward-looking statement. All information presented is as of December 31, 2023, unless otherwise indicated.

Note About Forward-Looking Statements

The following discussion should be read in conjunction with the audited consolidated financial statements and notes thereto included elsewhere in this Annual Report on Form 10-K. Our discussion and analysis of our financial condition and results of operations in Part II, Item 7 of this Annual Report on Form 10-K are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to contract revenue, standalone selling prices of our products and services, allowance for doubtful accounts receivable, valuation of goodwill and other intangible assets, useful lives for depreciation and amortization, acquired deferred revenue, operating lease assets and liabilities, fair value of stock awards, deferred compensation, income taxes, uncertain tax positions, tax valuation reserves, and contingencies and litigation. We base our estimates on historical experience, market experience, estimated future cash flows and various other assumptions that management believes are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 (the Exchange Act). Forward-looking statements are statements that provide current expectations or forecasts of future events based on certain assumptions. Forward-looking statements are subject to risks, uncertainties, and factors relating to our business which could cause our actual results to differ materially from the expectations expressed in or implied by such forward-looking statements.

Forward-looking statements use words such as "anticipate," "believe," "could," "estimate," "expect," "forecast," "intend," "likely," "may," "outlook," "plan," "predict," "project," "should," "target," or other words of similar meaning. Forward-looking statements include those about market opportunity, including our total addressable market, the proposed transaction with Synopsys, Inc., including the expected date of closing and the potential benefits thereof, or other aspects of future operation. We caution readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date they are made. We undertake no obligation to update forward-looking statements, whether as a result of new information, future events or otherwise.

The risks associated with the following, among others, could cause actual results to differ materially from those described in any forward-looking statements:

- our ability to complete the proposed transaction with Synopsys on anticipated terms and timing, including obtaining stockholder and regulatory approvals, and other conditions related to the completion of the transaction;

- the realization of the anticipated benefits of the proposed transaction with Synopsys, including potential disruptions to our and Synopsys' businesses and commercial relationships with others resulting from the announcement or completion of the proposed transaction and uncertainty as to the long-term value of Synopsys' common stock;

- restrictions during the pendency of the proposed transaction with Synopsys that could impact our ability to pursue certain business opportunities or strategic transactions, including tuck-in M&A;

- adverse conditions in the macroeconomic environment, including inflation, recessionary conditions and volatility in equity and foreign exchange markets; political, economic and regulatory uncertainties in the countries and regions in which we operate;

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- impacts from tariffs, trade sanctions, export controls or other trade barriers, including export control restrictions and licensing requirements for exports to China;

- impacts resulting from the conflict between Israel and Hamas, including impacts from changes to diplomatic relations and trade policy between the United States and other countries resulting from the conflict; impacts from changes to diplomatic relations and trade policy between the United States and Russia or the United States and other countries that may support Russia or take similar actions due to the conflict between Russia and Ukraine;

- constrained credit and liquidity due to disruptions in the global economy and financial markets, which may limit or delay availability of credit under our existing or new credit facilities, or which may limit our ability to obtain credit or financing on acceptable terms or at all;

- our ability to timely recruit and retain key personnel in a highly competitive labor market, including potential financial impacts of wage inflation and potential impacts due to the proposed transaction with Synopsys;

- our ability to protect our proprietary technology; cybersecurity threats or other security breaches, including in relation to breaches occurring through our products and an increased level of our activity that is occurring from remote global off-site locations; and disclosure and misuse of employee or customer data whether as a result of a cybersecurity incident or otherwise;

- increased volatility in our revenue due to the timing, duration and value of multi-year subscription lease contracts; and our reliance on high renewal rates for annual subscription lease and maintenance contracts;

- declines in our customers' businesses resulting in adverse changes in procurement patterns; disruptions in accounts receivable and cash flow due to customers' liquidity challenges and commercial deterioration; uncertainties regarding demand for our products and services in the future and our customers' acceptance of new products; delays or declines in anticipated sales due to reduced or altered sales and marketing interactions with customers; and potential variations in our sales forecast compared to actual sales;

- our ability and our channel partners' ability to comply with laws and regulations in relevant jurisdictions; and the outcome of contingencies, including legal proceedings, government or regulatory investigations and tax audit cases;

- uncertainty regarding income tax estimates in the jurisdictions in which we operate; and the effect of changes in tax laws and regulations in the jurisdictions in which we operate;

- the quality of our products, including the strength of features, functionality and integrated multiphysics capabilities; our ability to develop and market new products to address the industry's rapidly changing technology; failures or errors in our products and services; and increased pricing pressure as a result of the competitive environment in which we operate;

- investments in complementary companies, products, services and technologies; our ability to complete and successfully integrate our acquisitions and realize the financial and business benefits of the transactions; and the impact indebtedness incurred in connection with any acquisition could have on our operations;

- investments in global sales and marketing organizations and global business infrastructure; and dependence on our channel partners for the distribution of our products;

- current and potential future impacts of a global health crisis, natural disaster or catastrophe, and the actions taken to address these events by our customers, suppliers, regulatory authorities and our business, on the global economy and consolidated financial statements, and other public health and safety risks; and government actions or mandates;

- operational disruptions generally or specifically in connection with transitions to and from remote work environments; and the failure of our technological infrastructure or those of the service providers upon whom we rely including for infrastructure and cloud services;

- our intention to repatriate previously taxed earnings and to reinvest all other earnings of our non-U.S. subsidiaries;

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- plans for future capital spending; the extent of corporate benefits from such spending including with respect to customer relationship management; and higher than anticipated costs for research and development or a slowdown in our research and development activities;

- our ability to execute on our strategies related to environmental, social, and governance matters, and meet evolving and varied expectations, including as a result of evolving regulatory and other standards, processes, and assumptions, the pace of scientific and technological developments, increased costs and the availability of requisite financing, and changes in carbon markets; and

- other risks and uncertainties described in our reports filed from time to time with the Securities and Exchange Commission (SEC).

Important Information and Where to Find It

This document relates to a proposed transaction between Synopsys and Ansys. Synopsys will file a registration statement on Form S-4 with the SEC, which will include a document that serves as a prospectus of Synopsys and a proxy statement of Ansys referred to as a proxy statement/prospectus. This proxy statement/prospectus will be sent to all Ansys shareholders. Synopsys and Ansys also will file other documents regarding the proposed transaction with the SEC. INVESTORS AND SECURITY HOLDERS ARE URGED TO READ THE REGISTRATION STATEMENT, PROXY STATEMENT/PROSPECTUS AND ALL OTHER RELEVANT DOCUMENTS FILED OR THAT WILL BE FILED WITH THE SEC IN CONNECTION WITH THE PROPOSED TRANSACTION, AS WELL AS ANY AMENDMENTS OR SUPPLEMENTS TO THESE DOCUMENTS, CAREFULLY AND IN THEIR ENTIRETY IF AND WHEN THEY BECOME AVAILABLE BECAUSE THEY CONTAIN OR WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION.

Investors and security holders will be able to obtain free copies of the registration statement, proxy statement/prospectus and all other relevant documents filed or that will be filed with the SEC by Synopsys or Ansys through the website maintained by the SEC at www.sec.gov.

The documents filed by Synopsys with the SEC also may be obtained free of charge at Synopsys' website at https://investor.synopsys.com/overview/default.aspx or upon written request to Synopsys at Synopsys, Inc., 675 Almanor Avenue, Sunnyvale, California 94085, Attention: Investor Relations Department. The documents filed by Ansys with the SEC also may be obtained free of charge at Ansys' website at https://investors.ansys.com/ or upon written request to kelsey.debriyn@ansys.com.

Participants in Solicitation

Synopsys, Ansys and their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from Ansys' shareholders in connection with the proposed transaction.

Information about Ansys' directors and executive officers and their ownership of Ansys' common stock is set forth in Ansys' proxy statement for its 2023 Annual Meeting of Shareholders on Schedule 14A filed with the SEC on March 28, 2023. To the extent that holdings of Ansys' securities have changed since the amounts printed in Ansys' proxy statement, such changes have been or will be reflected on Statements of Change in Ownership on Form 4 filed with the SEC. Information about Synopsys' directors and executive officers is set forth in Synopsys' proxy statement for its 2023 Annual Meeting of Shareholders on Schedule 14A filed with the SEC on February 17, 2023 and Synopsys' subsequent filings with the SEC. Additional information regarding the direct and indirect interests of those persons and other persons who may be deemed participants in the proposed transaction may be obtained by reading the proxy statement/prospectus regarding the proposed transaction when it becomes available. You may obtain free copies of these documents as described in the preceding paragraph.

No Offer or Solicitation

This document is for informational purposes only and is not intended to and shall not constitute an offer to buy or sell or the solicitation of an offer to buy or sell any securities, or a solicitation of any vote or approval, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. No offering of securities shall be made, except by means of a prospectus meeting the requirements of Section 10 of the U.S. Securities Act of 1933, as amended.

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PART I

ITEM 1. BUSINESS

ANSYS, Inc. (Ansys, we, us, our), a corporation formed in 1994, develops and globally markets engineering simulation software and services widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia, including high-tech, aerospace and defense, automotive, energy, industrial equipment, materials and chemicals, consumer products, healthcare and construction. Headquartered south of Pittsburgh, Pennsylvania, we employed 6,200 and 5,600 people as of December 31, 2023 and 2022, respectively. We focus on the development of open and flexible solutions that enable users to analyze designs on-premises and/or via the cloud, providing a common platform for fast, efficient and cost-conscious product development, from design concept to final-stage testing, validation and deployment. We distribute our suite of simulation technologies through direct sales offices in strategic, global locations and a global network of independent resellers and distributors (collectively, channel partners). It is our intention to continue to maintain this hybrid sales and distribution model. We operate and report as one segment.

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality using Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push the boundaries of product design by using the predictive power of simulation. From sustainable transportation and advanced satellite systems to life-saving medical devices, Ansys powers innovation that drives human advancement.

Our strategy of Pervasive Insights seeks to deepen the use of simulation in our core market, to inject simulation throughout the product lifecycle and extend the accessibility to a broader set of users and use cases. Our business has three vectors of growth:

- More products. Our broad and deep multiphysics portfolio enables us to grow with customers as they use simulation to solve more complex problems across a broad set of industries.
- More users. Investments in simulation education and user experience simplification has made simulation more accessible to a broader user base.
- More computations. Larger and more complex simulations drive more computation, requiring customers to use more Ansys licenses to complete their simulations.

Through decades of investments in the academic community and enhanced user experiences, our solutions have become accessible and relevant beyond our core "engineering" end user, to reach more users upstream and downstream from our core, which is the product validation process. Our multiphysics solutions enable our customers to address increasingly complex research and development (R&D) challenges from the component through the system and mission level of analysis. Our products seamlessly enable access to high performance compute capacity to run simulations, on-premises or in the cloud, which means our customers' R&D teams are unencumbered by compute capacity limitations that can hinder R&D cycle times. Our investments in artificial intelligence capabilities across our simulation portfolio and technical support services enhance the customer experience, democratize simulation and further next-generation innovation.

The engineering software simulation market is strong and growing. The market growth is driven by customers' need for rapid, quality innovation in a cost-efficient manner, enabling faster time to market for new products and lower warranty costs. Increasing product complexity is driving sustained demand for simulations. Key industry trends fueling customers' increasing needs for simulation include:

- Electrification;
- Autonomy;
- Connectivity;
- The industrial internet of things (IIoT); and
- Sustainability, including minimizing waste and physical prototyping, and improving circularity and development time.

We have been investing and intend to continue to invest in our portfolio to broaden the range of physics and enable customers to analyze the interactions among physics at the component, system and mission level. Our strategy of Pervasive Insights is aligned with the near-term market growth opportunities and is laying the foundation for a future where simulation can be further democratized to broader classes of end-users and end-use cases. In addition, we have and will continue to partner with industry leaders to extend simulation into other ecosystems and customer R&D workflows.

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Synopsys Merger Agreement

On January 15, 2024, we entered into an Agreement and Plan of Merger (the "Merger Agreement") with Synopsys, Inc., a Delaware corporation ("Synopsys"), and ALTA Acquisition Corp., a Delaware corporation and wholly owned subsidiary of Synopsys ("Merger Sub"). The Merger Agreement provides for the merger of Merger Sub with and into Ansys, with Ansys surviving the merger as a wholly owned subsidiary of Synopsys (the "Merger"). Our Board of Directors has unanimously approved the Merger Agreement and, subject to certain exceptions set forth in the Merger Agreement, resolved to recommend that our stockholders adopt the Merger Agreement. If the Merger is consummated, our common stock will be delisted from the Nasdaq Global Select Market and deregistered under the Exchange Act.

Under the Merger Agreement, at the effective time of the Merger, each issued and outstanding share of our common stock (subject to certain exceptions set forth in the Merger Agreement) will be cancelled and converted into the right to receive (i) 0.3450 (the "Exchange Ratio") of a share of common stock, par value $0.01 per share, of Synopsys (the "Stock Consideration") and (ii) $197.00 in cash, without interest (the "Per Share Cash Amount"), subject to applicable withholding taxes. With regard to the Stock Consideration, if the aggregate number of shares of Synopsys common stock to be issued in connection with the Merger would exceed 19.9999% of the shares of Synopsys common stock issued and outstanding immediately prior to the effective time of the Merger (the "Maximum Share Number"), (a) the Exchange Ratio will be reduced to the minimum extent necessary such that the aggregate number of shares of Synopsys common stock to be issued in connection with the Merger does not exceed the Maximum Share Number and (b) the Per Share Cash Amount will be correspondingly increased to offset such adjustment.

- The Merger Agreement contains customary representations, warranties and covenants made by each of Ansys, Synopsys, and Merger Sub, including, among others, covenants regarding the conduct of our and Synopsys' businesses during the pendency of the transactions contemplated by the Merger Agreement, the making of certain public disclosures and other matters as described in the Merger Agreement. We and Synopsys have agreed to use reasonable best efforts to take all actions necessary to consummate the Merger, including cooperating to obtain the regulatory approvals necessary to complete the Merger. We have agreed not to, among other things, (a) solicit proposals relating to alternative transactions or (b) enter into discussions or negotiations or provide non-public information in connection with any proposal for an alternative transaction from a third party, subject to certain exceptions to permit our Board of Directors to comply with its fiduciary obligations. We have further agreed to cease and cause to be terminated any existing discussions or negotiations, if any, with regard to alternative transactions.

- The Merger Agreement may be terminated under certain circumstances, including that either party may have the right to terminate if the Merger is not completed by January 15, 2025, which may be extended to January 15, 2026 as provided in the Merger Agreement. If the Merger Agreement is terminated, (A) Synopsys, under specified circumstances, including termination following an injunction arising in connection with certain antitrust or foreign investment laws, will be required to pay us a termination fee of $1,500.0 million; and (B) we, under specified circumstances, including our termination of the Merger Agreement to accept and enter into a definitive agreement with respect to a Superior Proposal (as defined in the Merger Agreement) or Synopsys' termination upon the change by our Board of Directors of its recommendation in favor of the Merger, will be required to pay Synopsys a termination fee of $950.0 million.

- The completion of the Merger is subject to customary closing conditions, including, among others, approval of the Merger under certain applicable antitrust and foreign investment regimes and the adoption of the Merger Agreement by our stockholders. We anticipate the transaction to close in the first half of 2025.

- The foregoing summary of the Merger Agreement and the transactions contemplated thereby does not purport to be complete and is subject to, and qualified in its entirety by, the Merger Agreement, which was filed as Exhibit 2.1 to our Current Report on Form 8-K filed on January 16, 2024, and is incorporated herein by reference.

Ansys and any and all ANSYS, Inc. brand, product, service and feature names, logos and slogans are registered trademarks or trademarks of ANSYS, Inc. or its subsidiaries in the United States or other countries. All other brand, product, service and feature names or trademarks are the property of their respective owners.

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PORTFOLIO

Our portfolio consists of the following capabilities:

Structures

Our structural analysis product suite offers simulation tools for product design and optimization designed to increase productivity, reduce physical prototyping and help deliver better and more innovative products in less time. These tools tackle real-world analysis problems by making product development less costly and more reliable.

Our flagship product is the Ansys Mechanical™ product, a finite element analysis software used for simulating and analyzing the behavior of mechanical and structural systems. It is commonly used for structural analysis, allowing engineers to simulate and study the response of materials and structures to various mechanical loads, including static, dynamic, vibrational and thermal loads. A key attribute is the ability to perform multiphysics simulations, where multiple physical phenomena, such as structural mechanics, heat transfer, fluid dynamics and electromagnetics, interact with each other. The software can handle nonlinear problems, including large deformations, material nonlinearity and contact interactions.

- Ansys has a long history of technological innovations, including pioneering innovations such as nonlinear adaptivity and separating morphing and adaptive remeshing technology to solve the toughest structural simulation challenges. We also provide comprehensive topology optimization tools that engineers use to design structural components to meet loading requirements with reduced material and component weight. Additionally, our comprehensive and scalable additive manufacturing solutions allow customers to reduce risk and provide high quality, certifiable parts.

- Our LS-DYNA® solver is a leader in explicit dynamics multiphysics simulation and is used worldwide by leaders in automotive crash, drop tests, airbag deployment and impact analysis. Innovations like multi-scale co-simulation capability for meso-scale effects allow electronics reliability simulations to predict component failure at a tiny scale when a macro scale printed circuit board drop test is analyzed.

Electronics

Our electronics product suite provides electromagnetic field simulation software for designing high-performance electronic and electromechanical products. The software streamlines the design process and predicts performance of mobile communication and internet-access devices, broadband networking components and systems, integrated circuits (ICs) and printed circuit boards (PCBs). It is also used in low-frequency applications such as electromechanical systems, automotive components, industrial electric motors and power electronics equipment.

- The flagship Ansys High Frequency Structure Simulator™ (HFSS) product is used in all aspects of radio frequency and microwave design for 5G/6G communications, avionics, aerospace and defense (A&D) and biomedical applications. It is used for advanced antenna design and integration, radar systems and electromagnetic interference analysis. Innovations have enabled the electronics industry to solve some of the most challenging design problems. Advanced automatic adaptive meshing, tangential vector finite elements and commercial implementation of domain decomposition are a few of the Ansys inventions that power finite element analysis for electromagnetics. Technologies such as Mesh Fusion allow virtually unlimited size and scope of system-level electromagnetic simulation by leveraging high-performance computing (HPC) and the cloud.

Fluids

- Our fluids product suite enables modeling of fluid flow and other related physical phenomena. The flagship Ansys Fluent® computational fluid dynamics (CFD) software package is used for simulating and analyzing the behavior of fluids (liquids and gases) and their interactions with solid structures. It is commonly employed in various industries to perform simulations that help engineers and researchers gain insights into fluid flow, heat transfer and chemical reactions and related phenomena. Innovations include its mixed-element unstructured solver and interactive architecture with pervasive HPC scaling. Recent additions to our fluids product suite substantially reduce simulation solve time and total power consumption using the native multi-graphics processing unit (GPU) solver available in Fluent, with results showing that four typical GPUs have greater performance than 1,000 central processing unit (CPU) cores. In Ansys 2023 R2, we extended multi-GPU support to sliding mesh, compressible flows and eddy dissipation model combustion simulations for applications such as internal combustion engines, centrifugal pumps and fans, turbochargers and compressors. Also, Ansys 2023 R2 expands to clusters that use ARM-based servers, which have the potential to reduce hardware cost and overall energy consumption.

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Semiconductors

Advancements in semiconductor design and manufacturing enable smaller electronic architectures. Shrinking geometries, especially in the emerging 3D-IC, finFET and stacked-die architectures, reveal design challenges related to power and reliability. Our power analysis and optimization software suite manages the power budget, power delivery integrity and power-induced noise in an electronic design, from initial prototyping to system sign-off. These solutions deliver accuracy with correlation to silicon measurement and the capacity to handle an entire electronic system, including IC, package and PCB.

Ansys RedHawk-SC™ is the flagship electronic design automation (EDA) software tool, used for the analysis and sign-off of ICs, focusing on power integrity and reliability issues. It is used by semiconductor designers and engineers to simulate and optimize power delivery networks in ICs and heterogeneous 3D-ICs ensuring that they operate reliably and efficiently. The Ansys RedHawk-SC product is an industry trusted gold standard voltage drop and electromigration multiphysics sign-off solution for digital designs. Its powerful analytics quickly identify any weaknesses and allow what-if explorations to optimize power and performance. Redhawk-SC's cloud-based architecture gives it the speed and capacity to handle full-chip analysis. Sign-off accuracy is certified by all major foundries for all finFET nodes, down to 3 nanometer (nm).

- Innovations include 'dynamic' power noise simulation technology, behavior simulation of power distribution networks under realistic, time-varying activity loading, and with the distributed, big-data data management capacity to handle full-chip analysis with many billions of electrical nodes. The Redhawk-SC product and other Ansys tools provide the industry's first foundry-validated hierarchical thermal analysis flow for multi-die 3D-IC designs and 5nm/3nm chips.

Optics, Virtual Reality (VR) and Photonics

- Modeling light propagation and its impact is crucial for measuring product performance and human comfort, perception and safety. Ansys Optics™ software uniquely simulates a system's optical performance, evaluates the final illumination effect, and predicts and validates the impact of lighting and material variations on appearance and perceived quality all in real conditions. Using optical sensor and closed-loop, real-time simulation, our optics simulation capabilities now span the simulation of a wide range of sensors, including lidar, cameras and radar; the multiphysics simulation of physical and electronic components; the analysis of systems functional safety; as well as the automated development of safety-certified embedded software. This functionality can be integrated into a closed-loop simulation environment that interacts with weather and traffic simulators for automotive applications, enabling thousands of driving scenarios to be executed virtually.

- Our photonic design and simulation tools enable customers to predict light's behavior within complex photonic structures and systems. Silicon photonics is an expanding market and our solutions provide a comprehensive set of tools for the design and analysis of integrated photonic components and systems, similar to the traditional EDA environment. The Ansys Lumerical™ product is a complete photonics simulation software solution that enables the design of photonics components, circuits, and systems. Device and system level tools work together to allow designers to model interacting optical, electrical and thermal effects. Flexible interoperability between products enables a variety of workflows that combine device multiphysics and photonic circuit simulation with third-party design automation and productivity tools. Python-based automation and flows for building and using compact models support the industry's leading foundries.

Digital Mission Engineering

- Our mission-simulation, modeling, testing and analysis software for aerospace, defense and intelligence applications empowers our users to solve challenges by simulating from the chip level all the way to a customer's entire mission. Digital mission engineering products enable engineers, operators and analysts to connect modeling and simulation efforts across all phases of the engineering product life cycle. Users can model operational environments and the interrelationships of assets with accurate, dynamic, physics-based simulations to validate system designs with respect to the mission's outcome. Modeling of assets may be performed across multiple domains, including land, sea, air and space.

Our technology enables our customers to consider the entire mission engineering of a product or system. Engineered products and systems can involve thousands of components, subsystems, systems and systems of systems that must work together intricately. Our software simulates these puzzle pieces and their functional relationships to each other and, increasingly, to their environments.

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3D Design

Our Discovery™ product family allows engineers to benefit from the insight of simulation in their product design. The Discovery products range from early design exploration tools powered by interactive real-time simulation and intuitive geometry editing, to detailed product validation solutions utilizing proven flagship solver technology with easy-to-use guided workflows. These tools allow for design engineers to utilize simulation across the entire product design process and to work seamlessly with simulation experts using our flagship products for even more advanced analysis.

Our Discovery product's ease of use and speed enable more engineers to benefit from simulation. Increasingly, "shifting-left" or moving simulation up front in the design process has become a critical business initiative for our customers, enabling more engineers, more analysts and more designers to get early insights into their product design. The Discovery application has become more integrated with the broader Ansys portfolio. This has manifested itself into many analysts starting in the Discovery product and then moving to more detailed analyses in our other applications.

We continue to invest in and advance the Discovery product and Discover Live™ physics technology, improving accuracy, expanding capabilities and accelerating productivity. Recent advances include the addition of electromagnetics simulation for upfront antenna design for IIoT and 5G, breakthroughs in solver numerics to support unstructured meshes that deliver both speed and accuracy across all CFD applications, and a Microsoft 365 integration for enabling data management and collaboration among designers, analysts and stakeholders using a connected digital thread. Additionally, the Discovery application has become more tightly integrated with the broader Ansys portfolio through new Ansys optiSLang™ and ModelCenter® integrations.

- **Platform**

Our platform is the framework upon which our suite of advanced multiphysics engineering simulation technologies is built. It allows engineers and designers to incorporate the compounding effects of multiple physics into a virtual prototype of their design and simulate its operation under real-world conditions. As product architectures become smaller, lighter and more complex, companies must be able to accurately predict how products will behave in real-world environments where multiple types of physics and various domain disciplines interact in a coupled way. Our software enables engineers to simulate the interactions between structures, heat transfer, fluids, electronics, optical elements and embedded software all within a single, unified engineering simulation environment.

Today's engineered products are increasingly complex, demanding new solutions for optimal design. Products have integrated electronics and semiconductors, embedded software, wired and wireless connectivity and advanced sensors and displays. Product success requires our customers to consider the full system operation in a broad context. We have extended our platform to support scalable solutions that leverage new algorithms, additional physics, system solutions, embedded intelligence, HPC and integrated cloud. Our HPC product suite and cloud solutions enable enhanced insight into product performance and improve the productivity of the design process.

The following tools are part of our platform and add capability to the core of our offered products:

- The Ansys HPC™ software suite leverages multicore computers to perform more simulations in less time. These simulations can be bigger, more complex and more accurate using HPC. Various Ansys HPC licensing options allow organizations to scale to whatever computational level of simulation is preferred, from single-user or small user group options for entry-level parallel processing up to virtually unlimited parallel capacity. Apart from parallel computing, Ansys also offers solutions for parametric computing, which enables users to explore the design parameters more fully (size, weight, shape, materials, mechanical properties, etc.) for products early in the development process.

Our cloud portfolio comprises of two marketplace offerings (Ansys Gateway powered by AWS and Ansys Access on Microsoft Azure) and a managed cloud offering (Ansys Cloud Direct™), providing customers scalable location-independent access to simulation. We continue to enhance our solvers and collaborate with HPC leaders such as NVIDIA and Advanced Micro Devices (AMD) to maximize scalability and speed. Ansys 2023 R2 included tuning of our Fluent and Mechanical GPU solvers for NVIDIA's latest architecture and for AMD's GPUs. Refinements include an electromagnetically coupled solution that provides a 7.5X speedup for IC applications in HFSS. We also added new features in Ansys HFSS that take advantage of high-performance computing to simulate complex antennas that advance 5G and 6G radio systems. Ansys Maxwell® has a new capability that leverages HPC to enable users to determine the cause of undesired noise and vibrations in PCBs.

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Our Ansys Minerva™ platform is a knowledge management application that secures critical simulation data, and provides simulation process and decision support to simulation teams across geographies and functional silos. Available for both on-premises and cloud deployment, the Minerva platform delivers benefits by connecting simulation and optimization to customers' existing ecosystem of tools and processes. The Minerva platform provides integration and automation of chained data flows and design space exploration for optimal performance parameters. With the Ansys Minerva platform, customers can connect simulation for life cycle traceability and to enable collaboration and decision support.

PyAnsys™ is a collection of Python-based, open-source projects tailored specifically for engineers seeking to extend the capabilities of Ansys products. Developed as a collection of Python client libraries, PyAnsys offers engineers a comprehensive set of tools and utilities that seamlessly integrate with Ansys software, empowering them to enhance their simulations and analyses. PyAnsys provides an extensible platform-centric approach to the development and deployment of new verticalized, or use-case-specific, applications and workflows that leverage simulation.

The Ansys optiSLang product is a leading-edge answer to the challenges posed by computer-aided engineering (CAD)-based robust design optimization (RDO). Its state-of-the-art algorithms efficiently and automatically search for the most robust design configuration, eliminating the slow, manual process that used to define RDO.

- The Ansys ModelCenter platform is a Model Based Systems Engineering (MBSE) software platform for managing and automating simulation processes in engineering. It enables the automation of any simulation tool and enables the creation and automation of simulation workflows. A unique capability of the ModelCenter platform is rigorous MBSE enablement by connecting with system architecture modeling tools to verify system performance throughout the product design lifecycle. The software provides a centralized environment for managing simulation inputs, outputs and results, as well as for running trade studies and optimizing system designs in the conceptual design stage. It supports integration with various Ansys simulation tools, as well as with third-party software tools.

Embedded Software

Our SCADE® product suite is a comprehensive solution for embedded software simulation, code production and automated certification. It has been developed specifically for use in critical systems with high dependability requirements, including aerospace, rail transportation, nuclear, industrial and automotive applications. SCADE software supports the entire development workflow, from requirements analysis and design, through verification, implementation and deployment. SCADE solutions easily integrate with each other and the rest of our product suite, allowing for development optimization and increased communication among team members.

Materials

With our materials technology, our customers benefit from access to the world's premier system for managing corporate material intelligence and the market-leading solution for materials sources, selection and management. The Ansys Granta MI™ system is a leading system for materials information management in engineering enterprises. Ansys Granta Selector™ technology is the standard tool for materials selection and graphical analysis of materials properties. A comprehensive materials data library plus unique software tools enable engineers to use materials to innovate and evolve products, quickly identify solutions to material issues, confirm and validate choice of materials and reduce material and development costs. The CES EduPack™ product is a unique set of teaching resources that supports materials education across engineering, design, science and sustainable development. Granta Materials Data for Simulation provides easy access to materials property data from within Ansys Mechanical and the Ansys Electronics Desktop™ environment.

- **Safety Analysis**

Our safety and cybersecurity threat analysis software facilitates model-based safety analysis, safety concept creation, safety management and cybersecurity assessment for safety-critical electrical, electronic and software-controlled systems. Using this software, engineers can deliver safer and more secure products, reduce time to market, increase profit margins and comply with industry standards. The Ansys Medini Analyze™ desktop product supports efficient application of quality, safety, reliability and cybersecurity analysis engineering methods at system, item, software, hardware and printed circuit board levels. It allows engineers to deliver safe and secure products. The Cloud-based product, Ansys Digital Safety Manager™, provides safety analysis accessible through the web so that teams may collaborate on the management of safety in product development, deployment and operation.

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Autonomous Vehicle Simulation

Our autonomous vehicle simulation solutions are designed specifically to support development, testing and validation of safe automated driving and advanced driver-assistance systems (ADAS) technologies. This autonomous vehicle simulation solution saves time and costs versus traditional development and testing methods by allowing testing of drive designs on a virtual vehicle in a real-world environment. Ansys autonomous vehicle simulation solutions offer a set of dedicated features for sensors and headlamps for developing ADAS and autonomous systems. Designers can utilize component-level model-in-the-loop testing and can dynamically test physics-based sensor and lighting systems. Our autonomous solutions connect to popular driving simulators to recreate real-world driving conditions to test systems under variable traffic, terrain, weather and lighting conditions. The Ansys AVxcelerate™ product can generate reliable, synthetic training data enriched with ground truth information for all sensor types; this data is essential for artificial intelligence/machine learning (AI/ML)-based perception algorithm training and validation.

Digital Twin

Our Twin Builder™ product allows customers to implement complete virtual prototypes of real-world systems. These can be deployed to manage the entire lifecycle of products and assets. Our digital twin simulation paradigm allows customers to increase efficiencies over time, scheduling maintenance around predictive methodologies that become more accurate with real-world testing and response. Access to this information allows engineers to unlock additional value out of existing assets, preventing unscheduled downtime and lowering operating costs, while working at optimal efficiency.

Academic

We bundle our commercial software by physics area and work with universities to utilize our software in teaching and research. Currently, there are more than 2,900 university customers across 86 countries using Ansys. Additionally, our digital engagement strategy has evolved to include an "Access, Learn, Engage" model that is supported by our free student downloads, free Ansys Innovation Courses and Learning Forum available through Ansys Innovation Space that makes it easy for learners to access our product, learn how to use it and ask questions to their peers and our experts. We also work to develop partnerships in areas such as student team sponsorship, strategic curriculum and research opportunities and STEM.

PRODUCT DEVELOPMENT

We make significant investments in research and development and emphasize frequent, integrated product releases. These investments are made across five technology pillars: numerics, HPC, AI/ML, Cloud and experience and digital engineering. Our investments in these pillars are applicable across our portfolio and demonstrate how we are building upon our product and technology leadership to further differentiate our solutions. Even more exciting is the interplay amongst those pillars, which is benefiting customers by helping them to solve more complex challenges – while driving our growth through more users, more products and more computations. Our products also run on the most widely-used engineering computing platforms and operating systems, including Windows, Linux and most UNIX workstations. Our customers increasingly leverage GPU computing hardware and Cloud computing to solve large and complex problems. Our machine learning applications enable customers to discover details within their designs and to unlock potential new designs.

Our total research and development expenses were $494.9 million, $433.7 million and $404.9 million in 2023, 2022 and 2021, respectively, or 21.8%, 21.0% and 21.2% of total revenue, respectively. As of December 31, 2023 and 2022, our product development staff consisted of 2,400 and 2,100 employees, respectively, many of whom hold advanced degrees and have industry experience in engineering, mathematics, computer science or related disciplines. We have traditionally invested significant resources in research and development activities and intend to continue to make investments in expanding the ease of use and capabilities of our broad portfolio of simulation software products.

We recently completed the following major product development activities and releases:

- In early February 2024, we released Ansys R1 2024, which introduces an elevated user interface that facilitates collaboration, amplifies digital engineering productivity and removes barriers caused by engineering complexity. We also recently launched Ansys SimAI™ and Ansys AI+™ technologies. Ansys SimAI is a cloud-enabled, physics-neutral platform that empowers users across industries to accelerate innovation and reduce time to market. With Ansys SimAI, users are able to reliably predict performance of complex simulation scenarios rapidly. The tool allows users to first train an AI model using simulation results and then make predictively accurate analogous designs. With Ansys AI+, Ansys incorporates and extends AI features within its industry-leading desktop products to enhance core functionalities. The new AI+ offerings empower customers with more choice for how they access Ansys AI capabilities across our desktop products.

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- In July 2023 we released Ansys 2023 R2, which brings enhanced computing power to optimize complex products, assemblies and systems across industries. It enables customers to get better products to market faster with systems engineering workflows to help stakeholders understand subsystem interactions. Ansys 2023 R2 enables distributed engineering teams with new technologies and improved performance to drive forward industry innovation. It combines an exceptional range of enhanced numerics capabilities, performance improvements and cross-disciplinary engineering solutions to equip organizations with advanced physics solvers, scalable GPU-based computing and seamless workflows. Ansys 2023 R2 enables users to run large jobs and help overcome hardware capacity limitations with HPC, both on-premises and in the cloud. Enhanced solver algorithms capitalized on GPUs to speed simulation. In Ansys 2023 R2, the Fluids product line enables additional industrial simulations to run natively on GPUs, substantially reducing solve time and total power consumption. For example, Ansys 2023 R2 extends multi-GPU support to sliding mesh, compressible flows and eddy dissipation model combustion simulations. That means analysis of internal combustion engines, centrifugal pumps and fans, turbochargers and compressors, stirred tanks and reactors and hydraulic machinery can now be supercharged with the Ansys Fluent multi-GPU solver.

Acquired Technologies

- During the year ended December 31, 2023, we completed several strategic acquisitions to expand our solution offerings and enhance our customers' experience. The effects of the acquisitions were not material to our consolidated results of operations individually or in the aggregate. For further information on our business combinations, see Note 4 to the consolidated financial statements included in Part IV, Item 15 of this Annual Report on Form 10-K.

PRODUCT QUALITY

- Our employees generally perform product development tasks according to predefined quality plans, procedures and work instructions. Certain technical support tasks are also subject to a quality process. These plans define, for each project, the methods to be used, the responsibilities of project participants and the quality objectives to be met. The majority of our software products are developed under a quality system that is certified to the ISO 9001:2015 standard. We establish quality plans for our products and services, and subject product designs to multiple levels of testing and verification in accordance with processes established under our quality system.

SALES AND MARKETING

We distribute and support our products through our own direct sales offices, as well as a global network of independent channel partners. Our products are utilized by organizations ranging in size from small consulting firms to the world's largest high-tech and industrial companies.

Our direct sales organization develops an enterprise-wide, focused sales approach and implements a worldwide go-to-market account strategy. The sales management organization also functions as a focal point for requests from the channel partners and provides additional support in strategic locations through the presence of direct sales offices.

- During 2023, we continued to invest in our existing domestic and international strategic sales offices. In total, our direct sales and marketing organization comprised 3,000 and 2,700 employees as of December 31, 2023 and 2022, respectively, who were responsible for the sales, technical support, consulting services, marketing initiatives and administrative activities designed to support our overall revenue growth and expansion strategies.

- Our channel partner network provides us with a cost-effective, highly-specialized channel of distribution and technical support. It also enables us to draw on business and technical expertise from a global network, provides relative stability to our operations to help mitigate geography-specific economic trends and provides us with an opportunity to take advantage of new geographic markets or enhance our sales coverage in existing markets.

The channel partners, under the direction of our sales management team, market and sell our products to new customers, expand installations within the existing customer base, offer training and consulting services and often provide the first line of our technical support. Our channel partner certification process helps to confirm that each channel partner has the ongoing capability to adequately represent our expanding product lines and to provide an appropriate level of training, consultation and customer support. We derived 26.1%, 23.9% and 23.7% of our total revenue through the indirect sales channel for the years ended December 31, 2023, 2022 and 2021, respectively.

No single customer accounted for more than 5% of our revenue in 2023, 2022 or 2021. Information with respect to foreign and domestic revenue may be found in Note 17 to the consolidated financial statements in Part IV, Item 15 of this Annual Report on Form 10-K and in the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of this Annual Report on Form 10-K.

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STRATEGIC ALLIANCES AND MARKETING RELATIONSHIPS

Ansys has and continues to be committed to operating as an open platform, enabling our customers to easily integrate simulation into their R&D workflows. To further that vision, we have established and continue to pursue strategic alliances with advanced technology suppliers, cloud computing providers, hardware vendors, software vendors, specialized application developers and CAD, EDA and PLM providers. We believe that these relationships facilitate accelerated incorporation of advanced technology into our products, provide access to new customers, expand our sales channels, develop specialized product applications and provide direct integration with leading CAD, EDA, product data management and PLM systems.

We have technical relationships with leading CAD vendors, such as Autodesk, PTC and Siemens Digital Industries, to provide direct links between products. These links facilitate the transfer of electronic data models between the CAD systems and our products.

We work with leading EDA software companies, including Altium, Cadence Design Systems, Synopsys, Siemens EDA and Zuken, to support the transfer of data between electronics design and layout software and our electronics simulation portfolio.

We have strategic relationships with public cloud providers to enable customers to seamlessly access HPC in the cloud. We have a partnership with Microsoft to develop Ansys Access powered by Azure, which will enable customers to launch Ansys products using their Azure enrollment and connect third-party tools. In addition to our joint initiatives in the cloud, we have a broader relationship with Microsoft focused on more market-specific endeavors in the area of Digital Twins, autonomy and use of AI in simulation.

We also have a strategic relationship with Amazon Web Services (AWS) to transform cloud-based engineering simulations. Ansys Gateway powered by AWS facilitates seamless access and deployment of Ansys products on AWS, making simulation workloads more user-friendly, while offering scalability and flexibility with easy access to software and storage solutions from anywhere with a web browser.

In addition to marketing relationships to promote the adoption of HPC, we maintain technical relationships with Intel, NVIDIA and AMD to optimize the solver performance and scalability of our portfolio, enabling faster simulations, better graphics and a shorter time to market for our customers. In the area of GPU computing, we have tuned and optimized the Fluent GPU and Mechanical solvers for "Hopper" GPUs from NVIDIA. With AMD, we have expanded support in the Ansys Mechanical product for the latest AMD Instinct MI200 Series accelerators, AMD's data-center-class GPU family. Support for these new GPUs gives customers more flexibility when choosing HPC hardware, both on-premises and in the cloud. As an inaugural member, we have joined both Intel Foundry Services' (IFS) Design Ecosystem Alliance and Intel Foundry Services Cloud Alliance. We expect that our EDA tools and multiphysics solutions will help IFS to deliver industry-leading bespoke silicon to their customers, both on-premises and in the cloud.

Our Partner Program actively encourages developers of specialized software solutions to use our technology as a development platform for their applications and provides customers with enhanced functionality related to their use of our software. With over 350 technology partnerships, spanning a wide range of solution areas, including materials, optimization, electronics, optical, mechanical, fluid and systems simulation, our partner ecosystem extends the depth and breadth of our technology offerings.

COMPETITION

We believe that there are many factors affecting sales of our software, including ease of use, breadth and depth of functionality, flexibility, quality, ease of integration with other software systems, file compatibility across computer platforms, range of supported computer platforms, performance, price and total cost of ownership, customer service and support, company reputation and financial viability and effectiveness of sales and marketing efforts.

Our competitors include large, global, publicly traded companies; small, geographically-focused firms; startup firms; and solutions produced in-house by the end users. Some of our current and possible future competitors have greater financial, technical, marketing and other resources than us, and some have well-established relationships with current and potential customers of ours. Our current and possible future competitors also include firms that have elected, or may in the future elect, to compete by means of open source licensing. These competitive pressures may result in decreased sales volumes, price reductions and/or increased operating costs, and could result in lower revenues, margins and net income.

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PROPRIETARY RIGHTS AND LICENSES

We regard our software as proprietary and rely on a combination of trade secret, copyright, patent and trademark laws, license agreements, nondisclosure and other contractual provisions and technical measures to protect our proprietary rights in our products. We distribute our software products under software license agreements that predominantly grant customers nonexclusive licenses, which are typically nontransferable, for the use of our products. License agreements for our products are generally directly between us and end users. Use of the licensed software product is restricted to designated sites (LAN License) unless the customer obtains a global license (WAN License) for its use of the software product or the software product is by its nature a global-use product. Customers may also license our software products on a named-user basis, which is deemed to be a global WAN license. Software security measures are also employed to prevent unauthorized use of our software products and the licensed software is subject to terms and conditions prohibiting unauthorized use, distribution or reproduction. For most products, customers may lease the product on a fixed-term basis for a fee that includes the license, maintenance, technical support and upgrades or may purchase a perpetual license of the technology with the right to annually purchase ongoing maintenance, technical support and upgrades. For some products, customers purchase an annual subscription for a certain number of named users that includes the license, maintenance, technical support and upgrades or purchase elastic units, which enable the use of any supported product at any time until their licensed volume is met.

- We license our software products utilizing a combination of web-based and hard-copy license terms and forms. For certain software products, we primarily rely on "click-wrapped" licenses (i.e., online agreements where the website provider posts terms and conditions, and the user clicks on the "accept" button). The enforceability of these types of agreements under the laws of some jurisdictions is uncertain.

- We also seek to protect the source code of our software as a trade secret and as registered unpublished copyrighted work. We have obtained federal trademark registration protection for Ansys and other marks in the United States and foreign countries. Additionally, we were awarded numerous patents by the U.S. Patent and Trademark Office or equivalent offices in other jurisdictions and have a number of patent applications pending. To the extent we do not choose to seek patent protection for our intellectual property, we primarily rely on the protection of our source code and underlying functionality as a trade secret.

Our employees have signed agreements under which they have agreed not to disclose trade secrets or confidential information. These agreements, where legally permitted, restrict engagement in or connection with any business that is competitive with us anywhere in the world while employed by us (and, in some cases, for specified periods thereafter in relevant geographic areas) and state that any products or technology created by employees during their term of employment are our property. In addition, we require all channel partners to enter into agreements not to disclose our trade secrets and other proprietary information.

Despite these precautions, there can be no assurance that misappropriation of our technology and proprietary information (including source code) will be prevented. Further, there can be no assurance that copyright, trademark, patent and trade secret protection will be available for our products in certain jurisdictions, or that restrictions on the ability of employees and channel partners to engage in activities competitive with us will be enforceable. Costly and time-consuming litigation could be necessary in the future to enforce our rights to our trade secrets and proprietary information or to enforce our patent rights and copyrights, and it is possible that, in the future, our competitors may be able to obtain our trade secrets or to independently

- develop similar technology.

The software development industry is characterized by rapid technological change. Therefore, we believe that factors such as the technological and creative skills of our personnel, new product developments, frequent product enhancements, name recognition and reliable product maintenance are also important to establishing and maintaining technology leadership in

- addition to the various available legal protections of our technology.

We do not believe that any of our products infringe upon the proprietary rights of third parties. There can be no assurance, however, that third parties will not claim such infringement by us or our licensors or licensees with respect to current or future products. In addition, there are non-practicing entities and patent assertion entities whose business models are built on not producing any products, but rather extracting payments from revenue-generating companies through patent infringement assertions and/or litigation. We expect that software suppliers will increasingly be subject to the risk of such claims as the number of products and suppliers continues to expand and the functionality of products continues to increase. Any such claims, with or without merit, could be time consuming, result in costly litigation, cause product release delays or require us to enter into royalty or licensing agreements. Such royalty or licensing agreements, if required, may not be available on terms acceptable to us.

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SEASONAL VARIATIONS

Our business has experienced seasonality, including quarterly volatility in software sales driven primarily by the timing of customer renewal cycles. It is typical to see slowdowns of customer activities during the summer months, particularly in Europe, as well as from the seasonal purchasing and budgeting patterns of our global customers. Subscription lease and maintenance contract renewals, as well as our revenue, are typically highest in the fourth quarter.

DEFERRED REVENUE AND BACKLOG

Deferred revenue consists of billings made or payments received in advance of revenue recognition from customer agreements. The deferred revenue on our consolidated balance sheets does not represent the total value of annual or multi-year, noncancellable agreements. Our backlog represents deferred revenue associated with installment billings for periods beyond the current quarterly billing cycle and committed contracts with start dates beyond the end of the current period. Our deferred revenue and backlog as of December 31, 2023 and 2022 consisted of the following:

	Balance at December 31, 2023		
(in thousands)	**Total**	**Current**	**Long-Term**
Deferred revenue	**$ 479,754**	**$ 457,514**	**$ 22,240**
Backlog	**992,830**	**439,879**	**552,951**
Total	**$ 1,472,584**	**$ 897,393**	**$ 575,191**

	Balance at December 31, 2022		
(in thousands)	**Total**	**Current**	**Long-Term**
Deferred revenue	$ 435,758	$ 413,989	$ 21,769
Backlog	981,088	432,323	548,765
Total	$ 1,416,846	$ 846,312	$ 570,534

Revenue associated with deferred revenue and backlog that will be recognized in the subsequent twelve months is classified as current in the tables above.

HUMAN CAPITAL RESOURCES

At the heart of our culture is a commitment to our people who collectively are powering innovations that drive human advancement. People are our most important investment and our greatest asset. We have a diverse population of talented, qualified and highly-skilled employees at all levels of our organization, including our executive officers, and across our global workforce. The success and the growth of our business depend on our ability to attract, develop, incentivize (and engage/ motivate) and retain these employees. We have developed key recruitment and retention strategies, objectives and measures that serve as the framework for our human capital management approach. These strategies, objectives and measures are advanced through several programs, policies and initiatives, including: promoting diversity, equity, inclusion and belonging; employer branding and talent acquisition; and employee training and development. We strive to provide competitive compensation, including incentives linked to Ansys' and employees' performance and competitive benefits programs providing choice and value to our employees. We also seek to enhance the safety and wellness of all employees. We survey employees annually to measure satisfaction and engagement and manage progress.

As of December 31, 2023, we employed 6,200 people, including: 2,400 in product development, 3,000 in sales, support and marketing, and 800 in general and administrative functions. Of these employees, 44% were located in the Americas, 29% were located in Europe, Middle East and Africa (EMEA) and 27% were located in Asia-Pacific (APAC). Certain international employees are subject to collective bargaining agreements or have local work councils.

Culture of Inclusion and Belonging

Diverse thinking leads to better outcomes. We are committed to creating and nurturing a workplace that fuels this by welcoming people of all backgrounds and identities to bring their talents and experience to a workplace where they are valued and where diversity, inclusion, equity and belonging thrive. This culture fosters higher team intelligence and greater innovation for our customers.

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As of December 31, 2023, our global self-identified gender diversity was:

	Male	Female	Other/Not Indicated
Global employees	74 %	23 %	3 %
Senior leadership[1]	73 %	25 %	2 %
Board of Directors	70 %	30 %	— %

[1]Senior leadership consists of leaders in our executive career track that report directly to the chief executive officer or within one additional reporting level of the chief executive officer and those at the highest tier of our management career track who report directly to a leader on our executive track. The senior leaders, who represent 1% of global employees, are responsible for directing strategic plans aligned with our corporate strategy through multiple levels of management.

As of December 31, 2023, our self-identified racial/ethnic diversity was:

	White	Asian	Hispanic or Latino	Black or African American	Other*	Not Indicated
United States-based employees	52 %	24 %	2 %	2 %	2 %	18 %
United States-based senior leadership	68 %	18 %	— %	2 %	— %	12 %
Board of Directors	60 %	30 %	— %	10 %	— %	— %

*Other includes Native Hawaiian, American Indian, Alaskan Native, Pacific Islander, two or more races or not applicable.

We continue to support employee resource groups to create a culture of inclusion and belonging that increases retention of valuable employees and creates an open culture that fuels innovation. Our employee resource groups include Women in Tech at Ansys, Ansys Pride Alliance, Black Employee Network at Ansys, Veterans at Ansys, Ansys (dis)ability Network and Ansys Latino Connection. Our inclusive culture is further reinforced through education on understanding and mitigating bias in management processes and business decisions.

Employee Recruitment, Development and Retention

Our talent strategy is focused on (i) attracting diverse high-quality talent, (ii) continually developing and engaging our employee base and (iii) retaining our people by recognizing and rewarding performance. Our commitment to recruiting diverse talent is evidenced in the United States through our recruiting efforts at historically black colleges and universities and Hispanic serving institutions, as well as our involvement with minority engineering societies, women in technology groups, veterans' organizations and LGBTQ+A organizations. In addition to targeted outreach, we recruit talent through (i) attending career and networking events aimed towards recruiting diverse audiences, (ii) hiring internally through our Ansys internship/co-op programs for current students and (iii) value partnerships including professional societies that promote our programs to diverse audiences. We continue to evolve our talent acquisition efforts, as evidenced by our expanded events strategy, as well as our priority focus on external partnerships and recruitment tools that expand our reach to diverse audiences. Additionally, we drive a global focus on hiring emerging talent, placing an emphasis on offering full-time positions through our global internship, co-op and new college graduate programs. Our academic product suite is also widely used in research and teaching settings, which allows students to become familiar with our simulation software and creates opportunities to strengthen our university ties and recruit top talent.

The development of our employees is paramount to our success and provided through internal professional development programs and tuition assistance for external programs. We conduct annual individual assessments, encourage development planning and build a culture of feedback that drives performance. We drive a variety of focused initiatives specifically designed to support employee development. These include annual talent reviews and succession planning, leadership and executive development and company-sponsored education programs, such as management essentials to develop front-line leaders in foundational people management skills. New programs in 2023 included developing a global mindset, improved new employee orientation and custom learning paths for emerging leaders. We also expanded our Ansys digital academy to be the one-stop-shop for all Ansys developers to build the technical skills needed to support our Pervasive Insights strategy. Additional ongoing programs include mentoring and sponsorship programs and skills development for technical staff in support of the digital transformation of our internal processes.

Developing our employees helps create an engaged workforce that is ready to embrace future business challenges. It also helps mitigate risks associated with employee loss and keeping up with rapid technological and social change. For the year ended December 31, 2023, our annual turnover rate was 5%, or 4% on a voluntary basis.

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Compensation and Benefits Program

Our compensation programs provide an opportunity for employees to earn higher compensation by aligning their performance, which may include contributions to our environmental, social and governance objectives, with our overall financial and operational success. The program includes three key elements: (i) competitive annual salaries, (ii) annual cash incentives and sales commission programs, with a majority of our employees eligible to earn more or less than the target opportunities based on both our and the employee's performance and (iii) long-term equity incentives with over half of employees receiving equity grants each year in the form of time-based restricted stock units. These grants align the long-term financial interests of our employees with those of our stockholders.

Health and welfare benefit programs include market-competitive benefits comprised of a mix of company-provided and other benefits, including those for medical, dental and vision insurance; life and disability insurance; defined contribution retirement plans; and global employee wellness programs. In addition, we offer many different employee assistance programs, such as financial, legal, emotional and social well-being employee assistance programs. Our investments in health and welfare benefits and other employee programs focus on providing choice and value to our employees so they can select market-competitive benefits that support their personal needs.

- Local regulations are considered when developing our compensation and benefits packages for employees across the globe.

Flexible Work Environment

Hybrid ways of working continue to enable us to remain productive while meeting customer needs and staying engaged. Our employees continue to respond favorably to the statement: "I am able to manage my work responsibilities in a way that allows me flexibility."

Employee Satisfaction and Engagement

Employee feedback and engagement are critical to our success. We conduct global employee engagement surveys with the goal of using the feedback to improve the work environment and employee satisfaction. This feedback continues to be a critical component of our listening strategy. The survey itself has become an even more important tool to stay connected with employee sentiment in our hybrid work environments.

Our 2023 engagement score remained steady compared to 2022, confirming that our employees continue to be highly engaged. Our scores exceeded the external norm across all dimensions of engagement that were measured with themes this year, including: employees feeling valued and part of a team; employees empowered to excel; trust in the future vision that leaders are creating; and employees feeling they have opportunities for learning and development.

Employee feedback is also strong in other important areas including communication and overall leadership. These findings continue to help us improve performance, manager effectiveness, culture and engagement.

AVAILABLE INFORMATION

- Information about our products and services is available on the internet at www.ansys.com. We provide information for investors on our corporate website under "Why Ansys – Investor Relations".

We make available, free of charge, the following under "Why Ansys – Investor Relations" shortly before or promptly following its first use or release, or as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC, as applicable: financially-related press releases, including earnings releases, various SEC filings, including annual, quarterly and current reports and proxy statements and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act and access to live and recorded audio from investor conference calls or events. We generally include in our posted materials a cautionary statement regarding forward-looking and non-GAAP financial information, and we provide GAAP reconciliations when we include non-GAAP financial information. Such GAAP reconciliations may be in materials for the applicable presentation, in materials for prior presentations or in our annual, quarterly or current reports. Other information posted on our corporate website that may not be available in our filings with the SEC includes information relating to our corporate governance. SEC filings may also be obtained on the SEC's website at www.sec.gov.

Where we have included internet addresses in this Annual Report on Form 10-K, such as our internet address and the internet address of the SEC, we have included those internet addresses as inactive textual references only. Except as specifically incorporated by reference into this Annual Report on Form 10-K, information on those websites is not part hereof.

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ITEM 1A. RISK FACTORS

The following are important factors we have identified that could affect our future results and an investment in our securities. Although the risks are organized by headings and each risk is described separately, many of the risks are interrelated. You should not interpret the disclosure of any risk factor to imply that the risk has not already materialized. While we believe we have identified and discussed below the key risk factors affecting our business, there may be additional risks and uncertainties that are not presently known or that are not currently believed to be significant that may adversely affect our business, prospects, financial condition, results of operations or cash flows in the future. In addition, from time to time we provide information, including information contained in this Annual Report on Form 10-K, that contains forward-looking statements concerning, among other things, projected financial performance, total addressable market, market and industry sector growth, product development and commercialization or other aspects of future operations. Such statements are based on the assumptions and expectations of our management at the time such statements are made. We caution investors that our performance and any forward-looking statements are subject to risks and uncertainties, including but not limited to, the following:

Risks Associated with the Proposed Transaction with Synopsys

- **The proposed transaction with Synopsys may be delayed or not occur at all for a variety of reasons, including that the Merger Agreement is terminated, and the failure to complete the Merger could adversely affect our business, results of operations, financial condition, and the market price of our common stock.**

On January 15, 2024, we entered into the Merger Agreement with Synopsys and Merger Sub, pursuant to which Merger Sub will merge with and into Ansys with Ansys surviving the Merger as a wholly owned subsidiary of Synopsys. Completion of the Merger is subject to customary closing conditions, including (1) the adoption of the Merger Agreement by a majority of the holders of the outstanding shares of our common stock, (2) the expiration or early termination of the applicable waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the approval of the Merger under certain other antitrust and foreign investment regimes, (3) the absence of any order, injunction or law prohibiting the Merger, (4) the effectiveness of the registration statement of Synopsys pursuant to which shares of Synopsys common stock to be issued in connection with the Merger will be registered with the SEC, (5) the shares of Synopsys common stock to be issued in connection with the Merger being approved for listing on Nasdaq, (6) the accuracy of the other party's representations and warranties, subject to certain standards set forth in the Merger Agreement, (7) compliance in all material respects by the other party with its obligations under the Merger Agreement, and (8) the absence of a continuing material adverse effect with respect to each of Ansys and Synopsys. Therefore, there can be no assurance that the Merger will be completed in the expected timeframe (first half of 2025), or at all.

The Merger Agreement may be terminated under certain circumstances, including that either party may have the right to terminate if the Merger is not completed by January 15, 2025, which may be extended to January 15, 2026 as provided in the Merger Agreement. Upon termination of the Merger Agreement, (A) Synopsys, under specified circumstances, including termination following a permanent injunction arising under certain antitrust or foreign investment laws, will be required to pay us a termination fee of $1,500.0 million; and (B) we, under specified circumstances, including our termination of the Merger Agreement to accept and enter into a definitive agreement with respect to a Superior Proposal (as defined in the Merger Agreement) or Synopsys' termination upon the change by our Board of Directors of its recommendation in favor of the Merger, will be required to pay Synopsys a termination fee of $950.0 million.

Failure to complete the Merger within the expected timeframe or at all could adversely affect our business and the market price of our common stock in a number of ways, including:

- the market price of our common stock may decline to the extent that the current market price reflects an assumption that the Merger will be consummated;
- if the Merger Agreement is terminated under certain circumstances specified in the Merger Agreement, we would be required to pay a termination fee of $950.0 million;
- we have incurred, and will continue to incur, significant expenses for professional services in connection with the Merger for which we will have received little or no benefit if the Merger is not consummated; and
- we may experience negative publicity and/or reactions from our investors, employees, customers, channel partners, and other business partners.

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Additionally, as Synopsys common stock will be a component of the merger consideration our stockholders will receive in the Merger, our stock price may be adversely impacted by a decline in Synopsys' stock price and any adverse developments in Synopsys' business outlook. Synopsys' stock price changes may result from a variety of factors, such as changes in its business operations and outlook, changes in general market and economic conditions, and regulatory considerations. These factors are beyond our control. Also, because the number of shares of Synopsys common stock issuable in connection with the Merger Agreement in respect to one share of Ansys common stock is based on a fixed exchange ratio and the market price of Synopsys common stock may fluctuate, our stockholders cannot be sure of the market value of the stock consideration they will receive in exchange for their shares of our common stock in connection with the Merger.

Completion of the proposed Merger is subject to the satisfaction or waiver of closing conditions contained in the Merger Agreement, including certain regulatory approvals which may not be received, may take longer than expected or the receipt of which may impose conditions that are not presently anticipated or that cannot be met, and if these closing conditions are not satisfied or waived, the proposed Merger will not be completed.

- Various consents, clearances, approvals, authorizations and declarations of non-objection, or expiration of waiting periods (or extensions thereof), from certain regulatory and governmental authorities in the United States, the European Union and certain other jurisdictions are included in the Merger Agreement as conditions to completing the proposed Merger. Regulatory and governmental entities may impose conditions on their respective approvals, in which case lengthy negotiations may ensue among such regulatory or governmental entities, Synopsys and Ansys. Such conditions, any such negotiations and the process of obtaining such regulatory approvals, consents or clearances could have the effect of delaying or preventing consummation of the proposed Merger.

- Subject to the terms of the Merger Agreement, we have agreed to use our reasonable best efforts to take all actions necessary to consummate the Merger, including cooperating to obtain the regulatory approvals necessary to complete the Merger. Nonetheless, certain conditions to the completion of the pending Merger are not within our or Synopsys' control, and we cannot predict when or if these conditions will be satisfied (or waived, as applicable). There can be no assurance that all required approvals will be obtained or that all closing conditions will otherwise be satisfied (or waived, if applicable), and, if all required approvals are obtained and all closing conditions are satisfied (or waived, if applicable), we can provide no assurance as to the terms, conditions and timing of such approvals or that the pending Merger will be completed in a timely manner or at all. Even if regulatory approvals are obtained, it is possible conditions will be imposed that could result in a material delay in, or the abandonment of, the pending Merger or otherwise have an adverse effect on Ansys.

Efforts to complete the Merger could disrupt our relationships with third parties and employees, divert management's attention, or result in negative publicity or legal proceedings, any of which could negatively impact our operating results and ongoing business.

We have expended, and continue to expend, significant management time and resources in an effort to complete the Merger, which may have a negative impact on our ongoing business and operations. Uncertainty regarding the outcome of the Merger and our future could disrupt our business relationships with our existing and potential customers, channel partners, service providers and other business partners, who may attempt to negotiate changes in existing business relationships or consider

- entering into business relationships with parties other than Ansys. Uncertainty regarding the outcome of the Merger could also adversely affect our ability to recruit and retain key personnel and other employees. The pendency of the Merger may also result in negative publicity and a negative impression of us in the financial markets, and may lead to litigation against us and our directors and officers. Such litigation would be distracting to management and, may, in the future, require us to incur significant costs. Such litigation could result in the Merger being delayed and/or enjoined by a court of competent jurisdiction,

- which could prevent the Merger from being completed. The occurrence of any of these events individually or in combination could have a material and adverse effect on our business, financial condition and results of operations.

The Merger Agreement contains provisions that limit our ability to pursue alternative transactions to the Merger which could discourage a potential competing acquirer from making an alternative transaction proposal.

The Merger Agreement contains provisions that preclude us from soliciting proposals relating to alternative transactions or entering into discussions or negotiations or providing non-public information in connection with any proposal for an alternative transaction from a third party, subject to certain exceptions to permit our Board of Directors to comply with its fiduciary obligations. We have further agreed to cease and cause to be terminated any existing discussions or negotiations, if any, with regard to alternative transactions. These prohibitions could discourage a potential third-party acquirer or merger partner from making an alternative transaction proposal. Additionally, if the Merger Agreement is terminated and we determine to seek another business combination, we may not be able to negotiate a transaction with another party on terms comparable to, or better than, the terms of the Merger Agreement.

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While the Merger Agreement is in effect, we are subject to restrictions on our business activities.

The Merger Agreement contains customary representations, warranties and covenants, including, among others, covenants regarding the conduct of our business during the pendency of the transactions contemplated by the Merger Agreement. These restrictions could prevent us from pursuing attractive business opportunities that may arise prior to the consummation of the Merger. Although we may be able to pursue such activities with Synopsys' consent, there is no guarantee that Synopsys will provide us with the necessary consent.

Global Operational Risks

Adverse economic and geopolitical conditions have impacted, and may continue to impact, our operations and financial performance.

Our operations and performance depend significantly on global macroeconomic, specific foreign country and U.S. domestic economic conditions. Global inflation and interest rates continued to be elevated throughout 2023. A deterioration in the macroeconomic environment, including the impact of high inflation, may result in decreased demand for our products and services, constrained credit and liquidity, reduced government spending and volatility in equity and foreign exchange markets. In addition, significant downturns and volatility in the global economy expose us to impairments of certain assets if their values deteriorate. Tighter credit due to economic conditions may diminish our future borrowing ability and increase borrowing costs under our existing credit facilities. Customers' ability to pay for our products and services may also be impaired, which could lead to an increase in our allowance for doubtful accounts and write-offs of accounts receivable.

Furthermore, escalating global tensions, including due to the deterioration of the diplomatic and political relationships between the United States and other countries where we conduct business, such as China, and the ongoing global volatility due to wars and conflicts (such as those between Russia and Ukraine and/or Israel and Hamas), could adversely affect our future operations and lead to a decline in financial performance.

A significant portion of our business comes from outside the United States and our customers supply a wide array of goods and services to most of the world's major economic regions. International revenue represented 53.4%, 54.9% and 54.5% of our total revenue for the years ended December 31, 2023, 2022 and 2021, respectively. In fiscal year 2023, our largest geographic revenue bases were the United States, Japan and Germany.

When the significant economies in which we do business deteriorate or suffer a period of uncertainty, our business and financial performance may be impacted through reduced customer and government spending, changes in purchasing cycles or timing and reduced access to credit for our customers, among other factors. Furthermore, customer spending levels in any foreign jurisdiction may be adversely impacted by changes in domestic policies, including tax and trade policies. A substantial portion of our license and maintenance revenue is derived from annual subscription lease and maintenance contracts, which typically have a high rate of customer renewal. When the rate of renewal for these contracts is adversely affected by economic or other factors, our subscription lease license and maintenance growth is adversely affected.

We are subject to trade restrictions that could impact our ability to sell to customers and result in liabilities for violations.

Due to the global nature of our business, we are subject to domestic and international trade protection laws, policies, sanctions and other regulatory requirements affecting trade and investment. For example, we are subject to import and export restrictions and regulations that prohibit the shipment or provision of certain products and services to certain countries, regions and persons targeted by the United States and certain end uses identified by the United States, including the Export Administration Regulations administered by the U.S. Department of Commerce's Bureau of Industry and Security (BIS), economic and trade sanctions administered by the U.S. Department of Treasury's Office of Foreign Assets Control (OFAC) and International Traffic in Arms Regulations (ITAR) administered by the Department of State's Directorate of Defense Trade Controls (DDTC).

BIS continues to expand its export control restrictions, including with respect to the export to China of certain technologies, impose new export licensing requirements, and require enhanced denied party screening processes. These additional restrictions have limited and could continue to limit our ability to sell and deliver products and services to certain customers, including to entities performing research and development and certain controlled activities in China. Export control restrictions and enhanced screening processes have led to, and, in the future may continue to lead to, elongated transaction cycles with certain customers. In addition, export control restrictions have resulted, and may continue to result, in reduced sales and/or delays in our ability to deliver products and services to certain prospects, adversely affecting our business and consolidated financial statements. In certain cases, when an export license may be required to deliver products and services to certain customers, the receipt of licenses to export to certain countries, including China, is not guaranteed and, in the absence of a license or applicable license exception, our ability to sell and deliver products and services to certain customers may be negatively impacted.

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Additionally, BIS continues to add more companies, including existing customers, to its Entity List, and OFAC continues to increase the number of companies subject to its sanctions, which continues to limit the companies with which we can do business.

Adding companies as restricted parties and subjecting companies to heightened export control restrictions may additionally encourage those companies to seek substitute products from competitors whose products are not subject to these restrictions or to develop their own products.

Existing and prospective customers have been and may continue to be added as restricted parties and/or be subjected to trade restrictions and additional end uses, products or services have been and may continue to be identified for further restrictions. Such actions have resulted in, and may continue to result in, increases to our operating costs and time to market. Additional trade restrictions on our business by the United States, China or other countries may also result in other indirect impacts that cannot be quantified. Restrictions on our ability to sell and ship to customers could have a significant adverse effect on our business and consolidated financial statements.

Our products could also be delivered to restricted parties by third parties, including our channel partners. We take measures to confirm that our channel partners comply with all applicable trade restrictions, but any failure by channel partners to comply with such restrictions could have negative consequences for us.

Violators of trade restrictions or restricted end uses may be subject to significant penalties, which may include considerable monetary fines, criminal proceedings against them and their officers and employees, a denial of export privileges and suspension or debarment from selling products or services to the federal government. Any such penalties could have a significant adverse effect on our business and consolidated financial statements. In addition, the political and media scrutiny surrounding any governmental investigation could cause significant expense and reputational harm and distract senior executives from managing normal day-to-day operations.

If we are unable to attract and retain key talent, our business could be adversely affected.

Due to the highly technical nature of our products and services, our continued success depends on our ability to attract and retain particular employees with specialized skill sets. These skilled roles have been and are expected to continue to be challenging to fill given the recent job market dynamics, including wage inflation and the general labor market shortage, which has caused an increase in competition for talent within the technology industry. Additionally, our talent has been, and continues to be, the subject of recruitment by our competitors and we may incur significant cost to attract and retain our skilled employees. Remote and hybrid options remain the primary means of work. Our working environment options may adversely affect our ability to recruit and retain employees who prefer a different working environment. While we have non-competition and non-solicitation agreements with many of our current employees, the enforceability of these agreements may be limited by legislation and by the courts.

In addition, our success depends upon the continued service of our senior executives and our key technical and sales employees. Most of these individuals could terminate their relationship with us at any time. The loss of any of them for which there has not been adequate knowledge-sharing and transfer might significantly delay or prevent the achievement of our business objectives and could materially harm our business and customer relationships.

While we have historically recruited globally for positions in the United States, in recent years our ability to do so has been curbed by more restrictive domestic immigration laws. If the immigration laws become even stricter or the processing of immigration requests becomes even more cumbersome or less efficient, or if we have less success in recruiting and retaining key personnel, our business, reputation and operating results could be materially and adversely affected.

Failure to comply with global data privacy laws could give rise to regulatory enforcement action, monetary penalties, loss of the ability to do business in certain jurisdictions or reputational harm.

We are subject to global data privacy laws and regulations addressing the processing of personal data. As the global focus on data privacy regulation continues to increase, standards governing the processing of personal data continue to become more strict, conflicting and numerous. As a result, potential risks may intensify as our global business pursues data privacy compliance.

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The General Data Protection Regulation (European Union), the Data Protection Act (United Kingdom), the Personal Information Protection and Electronic Documents Act (Canada), the Personal Information Protection Law (China), the Law Concerning the Protection of Personal Information (Japan), the Personal Information Protection Act (South Korea), many state and federal privacy laws within the United States and other similar global laws in locations in which we do business (collectively, "Privacy Laws") govern our global data privacy practices. Additionally, Privacy Laws impose abundant compliance obligations related to our processing of personal data arising from: (i) the delivery of our products and services to our customers; and (ii) our business operations involving employee data.

Compliance with Privacy Laws has and will continue to require the deployment of substantial resources and increased costs. As the global data privacy landscape continues to change, including: (i) new and varying restrictions on the transfer of personal data across borders; (ii) the growing list of privacy rights afforded to individuals of certain jurisdictions; (iii) data minimization requirements; and (iv) the growing number of governmental agencies dedicated to the preservation of data privacy rights, we may be required to make significant changes to our software applications or business operations. Such changes may increase the cost and complexity of delivering our products and services in some markets, require an investment in additional resources or tools to manage our data privacy compliance, give rise to operational interruption in the performance of services for customers or adversely affect the internal processing of employee information.

- Failure to comply with Privacy Laws may lead to regulatory enforcement actions, loss of the ability to do business in certain jurisdictions or inquiries and investigations into our activities; all of which could result in monetary penalties, reputational damage, lawsuits, extensive and prescriptive consent decrees or judgments. Additional software resources, increased workforce or added expenses may be required to return us to a compliant data privacy status.

- **Failure to comply with laws and regulations could harm our business.**

We develop and sell software and consulting services and maintain support operations in various countries whose laws and practices differ from one another and are subject to unexpected changes. Furthermore, our business is subject to regulation by various global governmental agencies, including agencies responsible for monitoring and enforcing employment and labor laws, workplace safety, environmental laws, consumer protection laws, anti-bribery laws, import/export controls, securities laws, laws related to compliance with U.S. government contracts and tax laws and regulations. In certain jurisdictions, these regulatory requirements may be more stringent than those in the United States. Managing these geographically diverse operations requires significant attention and resources to promote compliance.

Our global reach includes countries considered high-risk environments for public corruption. This exposes us to risks associated with violations of anti-corruption laws and regulations such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act. To promote compliance, we forbid our agents, channel partners and employees from engaging in corrupt behavior and we have a compliance program to prevent and detect violations of anti-corruption laws. There remains, however, a risk that illegal conduct could occur thereby exposing us to the financial and reputational risks associated with a violation of anti-corruption laws.

- Non-compliance with applicable regulations or requirements could subject us to investigations, sanctions, enforcement actions, disgorgement of profits, fines, damages, civil and criminal penalties or injunctions and may result in our inability to provide certain products and services to existing or prospective customers. If any governmental sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation or if customers make claims against us for compensation, our business and consolidated financial statements could be harmed. In addition, responding to any action will likely result in a significant diversion of management's attention and resources and an increase in professional fees and costs. Enforcement actions and sanctions could have a significant adverse effect on our business and consolidated financial statements.

A catastrophic event or infrastructure failure could result in the loss of business and adverse financial consequences.

Our personnel, source code and computer equipment is located in various regions throughout the United States and the world. A natural disaster (including significant disruptions in weather as a result of global climate change), cyberattack, terrorist act, pandemic or other unforeseen catastrophe in any of these areas or a breakdown in our business infrastructure, such as an interruption in power supply, telephone system or information technology systems, could cause disruptions to our sales, operations, services and product development activities. As our sales are generally greater at the end of a quarter, the potential adverse effects resulting from any of these events would be accentuated if they occurred at quarter end.

Effective business continuity, disaster recovery and crisis management plans are critical to minimizing the impact of such unplanned or unexpected events. We also face increasing customer certification requirements with respect to such systems. Failure to establish plans that effectively mitigate the impacts of these disruptions or meet customer certification requirements could have a significant adverse effect on our business and consolidated financial statements.

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Industry Operational Risks

Our industry is highly competitive, which could result in downward pressure on our prices.

We continue to experience competition across all markets for our products and services. Some of our current and potential competitors have greater financial, technical, marketing and other resources than we do, some could establish strategic alliances with one another, and some have well-established relationships with our current and potential customers. Our current and potential competitors also include firms that have competed, or may in the future compete, by means of open source licensing. Companies we have, or could have, strategic alliances with could reduce or discontinue technical, software development and marketing relationships with us for competitive purposes.

Our competitors may offer deep discounts on certain products or services, or develop products that the marketplace considers more valuable. If we are unable to provide products or services that address our customers' needs or preferences, or we are unable to match favorable pricing offered by our competitors, we could lose customers or fail to attract new customers. Further, we may be required to lower prices or offer discounts or other favorable terms to compete successfully. Our maintenance products, which include software license updates and product support fees, are generally priced as a percentage of new software license fees. Our competitors may offer lower percentage pricing on product updates and support. Some competitors may bundle software products for promotional purposes or as a long-term pricing strategy or provide guarantees of prices, product implementations or wider geographical license usage provisions. Any of these practices could, over time, significantly constrain the prices that we can charge for certain products.

Furthermore, if we do not adapt pricing models to reflect changes in customer usage of our products or changes in customer demand, our software license revenues could decrease. Additionally, increased distribution of applications through application service providers, including software-as-a-service providers, may reduce the average price or margin of our products or adversely affect other sales of our products, reducing new software license revenues or profitability.

These competitive pressures may result in decreased sales volumes, price reductions and/or increased operating costs, and could result in lower revenues, margins and net income.

We may not be successful in integrating emerging technologies or developing and marketing new products to adequately address the rapidly changing technology industry.

We operate in an industry generally characterized by rapidly changing technology and frequent new product introductions. A major factor in our future success will be our ability to anticipate technological changes and to integrate emerging technologies (including AI) to develop and introduce, in a timely manner, new products and new ways to deliver them to meet those changes. Our ability to grow revenue will be dependent on our ability to respond to customer needs in the areas of, among others, AI/ ML, next generation connectivity, autonomous vehicles, IIoT, electrification and sustainability, and to leverage cloud computing and new computing platforms. In addition, our future success may depend on our ability to continue to develop a systems integrator ecosystem able to handle integrations and process and application development to address the challenge of the increasingly complex integration of our products' different functionalities to address customers' requirements. For those customers who authorize a third-party technology partner to access their data, we do not provide any warranty related to the functionality, security and integrity of the data transmission or processing. Despite contract provisions to protect us, customers may look to us to support and provide warranties for the third-party applications, integrations, data and content, even though not developed or sold by us, which may expose us to potential claims, liabilities and obligations, all of which could harm our business.

We devote substantial resources to research and development, which could cause our operating profits to decline.

We devote substantial resources to research and development. New competitors, technological advances in the software development industry by us or our competitors, acquisitions, entry into new markets or other competitive factors may require us to invest significantly greater resources than anticipated. If we are required to invest significantly greater resources than anticipated without a corresponding increase in revenue, operating profits could decline. In addition, our periodic research and development expenses may be independent of our level of revenue, which could negatively impact financial results.

There can be no assurance that we will be successful in developing and marketing, on a timely basis, new products or product enhancements or that the new products will adequately address the changing needs of the marketplace or that we will successfully manage the transition from existing products. Software products as complex as those we offer may contain undetected errors, defects or vulnerabilities when first introduced or as new versions are released, and the likelihood of errors, defects or vulnerabilities is increased as a result of our commitment to the frequency of product releases.

There can be no assurance that errors, defects or vulnerabilities will not be found in any new or enhanced products after the commencement of commercial shipments. The occurrence of any defects or errors in our products could result in lost or delayed market acceptance and sales of our products, delays in payment to us by customers, loss of customers or market share, product returns, damage to our reputation, diversion of our resources, increased service and warranty expenses or financial concessions, increased insurance costs and liability for damages.

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Company Operational Risks

We are dependent upon our channel partners for a significant percentage of our revenue and usage of channel partners presents certain heightened compliance risks.

We distribute our products through a global network of independent channel partners, which accounted for 26.1%, 23.9% and 23.7% of our revenue during the years ended December 31, 2023, 2022 and 2021, respectively. Channel partners sell our software products to new and existing customers, expand installations within the existing customer base, offer consulting services and provide the first line of technical support. A meaningful amount of our APAC and EMEA revenue is from channel partners. Difficulties in ongoing relationships with channel partners, such as failure to meet performance criteria and differences in handling customer relationships, could adversely affect our performance. Additionally, the loss of any major channel partner, including a channel partner's decision to sell competing products rather than ours, could result in reduced revenue. Moreover, our future success will depend substantially on the ability and willingness of our channel partners to dedicate the resources necessary to understand and promote our expanding portfolio of products and to support a larger installed base within each of our geographic regions. If the channel partners are unable or unwilling to do so, we may be unable to sustain revenue growth.

- Establishing relationships with new channel partners could result in additional compliance burdens for us. In addition, new channel partners may have a less-established payment history and revenue from these channel partners could come with a higher rate of bad debt expense. Where channel partners operate on our behalf to collect and process personal data of customer contacts, failure to comply with relevant data privacy laws in the handling of such personal data could result in liability to us for any fines, civil suits or non-financial performance obligations imposed by regulatory authorities on these partners with respect to our customer data.

Certain products require a higher level of sales and support expertise. Failure of our sales channel, particularly the independent channel partners, to obtain this expertise and to sell the new product offerings effectively could have an adverse impact on our sales in future periods. Any of these problems may result in the loss of or delay in customer acceptance, diversion of development resources, damage to our reputation or increased service and warranty costs, any of which could have a significant adverse effect on our business and consolidated financial statements.

We may not be able to realize the potential benefit of our acquisitions and such acquisitions could pose risks to our business.

We have a track record of acquiring businesses and technology to support our long-term strategic direction.

- Each acquisition that we complete may present risks, including: difficulty in integrating the management teams, strategies, cultures and operations of the companies or businesses; failing to achieve anticipated synergies, including product synergies, revenue increases or cost savings; difficulty incorporating and integrating the acquired technologies or products with our existing product lines; difficulty with coordinating and integrating sales, distribution and marketing functions; failure to develop new products and services that utilize the technologies and resources of the companies; disruption of our ongoing business and diversion of management's attention to transition or integration issues; liabilities that were not identified during the acquisition process; the loss of our key employees, customers, partners and channel partners or those of the acquired companies or businesses; and cybersecurity and data privacy risks.

Future acquisitions may involve the expenditure of significant cash resources; the incurrence of debt, which increases our interest expense and leverage; or the issuance of equity, which could be dilutive to stockholders and may decrease earnings per share. We allocate a portion of the purchase price to goodwill and intangible assets. If we do not realize all the economic benefits of an acquisition, there could be an impairment of goodwill or intangible assets. Furthermore, impairment charges are generally not tax-deductible and will result in an increased effective income tax rate in the period the impairment is recorded.

If we do not achieve the anticipated benefits of our acquisitions as rapidly or to the extent anticipated by our management or financial and industry analysts, there could be a significant adverse effect on our stock price, business and consolidated financial statements.

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The ongoing digital transformation of our operational processes may not achieve the benefits identified.

In the normal course of our business, we implement new processes, tools and technology to transform our business operations and to enable future scalability. While these transformations are intended to streamline, automate and deliver efficiencies across multiple commercial and operational processes within the business, there is a risk that the systems or processes could be more difficult to implement than anticipated, that the new processes will not be effectively or efficiently used, and that the benefits of such systems and processes could be substantially delayed. There is also a risk that we will have to write off previously capitalized expenditures if the projects are not successful or if implementation decisions regarding the project are modified. Factors that could further delay the timing or impact of benefits realization include (i) changes in leadership and project objectives; (ii) diversion of management's attention to different projects; (iii) additional needs for technical expertise and manpower; and (iv) longer than anticipated time horizon for employee adoption and mastery.

Any of the above could divert efforts of key operational management away from other aspects of the business, including the maintenance of current commercial and business platforms, and result in increased consulting and software costs. These factors could have a significant negative impact on our business and consolidated financial statements.

We may be subject to proceedings that could harm our business.

- We are subject to various investigations, claims and legal proceedings that arise in the ordinary course of business, including commercial disputes, labor and employment matters, tax audits and litigation, alleged infringement of intellectual property rights and other matters. Use or distribution of our products could generate product liability, particularly with respect to new ways of going to market, including offering our products in cloud environments, selling software as a service and licensing or otherwise providing our products as part of a third-party developer ecosystem, or regulatory infraction or similar claims by our
- customers, end users, channel partners, government entities or other third parties. Sales and marketing activities that impact processing of personal data, as well as measures taken to promote license compliance, may also result in claims by customers and individual employees of customers. Each of these matters is subject to various uncertainties, and it is possible that an unfavorable resolution of one or more of these matters could have a significant adverse effect on our consolidated financial statements as well as cause reputational damage.

We may suffer reputational or financial harm if we have product standard or quality issues.

We have separate quality systems and registrations under the ISO 9001:2015 standard in addition to other governmental and industrial regulations. Our continued compliance with quality standards and favorable outcomes in periodic examinations is important to retain current customers and vital to procure new sales. If it was determined that we were not in compliance with various regulatory or ISO 9001 standards, our certificates of registration could be suspended, requiring remedial action and a time-consuming re-registration process. Product quality issues or failures could result in our reputation becoming diminished, resulting in a material adverse impact on our business and consolidated financial statements.

Our short-term and long-term sales forecast may not be accurate, which could result in an adverse impact on our business and consolidated financial statements.

- The software business is generally characterized by long sales cycles. These long sales cycles increase the difficulty of predicting sales for any particular quarter. Many operational and strategic decisions are based upon short- and long-term sales forecasts. Our sales personnel monitor the status of proposals, including the estimated closing date and the value of the sale, in order to forecast quarterly sales. These forecasts are subject to significant estimation and are impacted by many external factors, including global economic conditions and the performance of our customers.
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A variation in actual sales activity from that forecasted could cause us to plan or budget incorrectly and, therefore, could have a significant adverse effect on our business and consolidated financial statements. Management also forecasts macroeconomic trends and developments and integrates them through long-range planning into budgets, research and development strategies and a wide variety of general management duties. Global economic conditions, and the effect those conditions and any disruptions in global markets have on our customers, may have a significant impact on the accuracy of our sales forecasts. These conditions may increase the likelihood or the magnitude of variations between actual sales activity and our sales forecasts and, as a result, our performance may be hindered because of a failure to properly match corporate strategy with economic conditions. This, in turn, could have a significant adverse effect on our business and consolidated financial statements. To the extent our forecasts are incorrect and, as a result, we fail to meet analyst expectations regarding financial performance or miss or reduce the outlook we give to investors, our share price may be adversely impacted.

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We may not meet our targets and strategies relating to environmental, social and governance considerations, which could expose us to potential liabilities, increased costs, reputational harm and other adverse effects on our business.

We have established targets and strategies related to our reduction of greenhouse gas emissions. Our ability to achieve any such targets or strategies is subject to numerous factors and conditions, many of which are outside of our control. Examples of such factors include, but are not limited to, evolving legal, regulatory and other standards, processes and assumptions, the pace of scientific and technological developments, increased costs, the availability of requisite financing and changes in carbon markets. Failures or delays (whether actual or perceived) in achieving our targets or strategies related to climate change and other environmental matters could adversely affect our business, operations and reputation, and increase risk of litigation.

Furthermore, many governments, regulators, investors, employees, customers and other stakeholders are increasingly focused on environmental, social and governance considerations relating to businesses, including climate change and greenhouse gas emissions, human capital and diversity, equity and inclusion. We make statements about our environmental, social and governance (ESG) targets and strategies through information provided on our website, press statements and other communications, including through our Corporate Responsibility Report. Responding to these environmental, social and governance considerations and implementation of these targets and strategies involves risks and uncertainties, including those described under "Note About Forward-Looking Statements". In addition, some stakeholders may disagree with our targets and strategies and the focus of stakeholders may change and evolve over time. Stakeholders also may have very different views on where environmental, social and governance focus should be placed, including differing views of regulators in various jurisdictions in which we operate. Any failure, or perceived failure, by us to achieve our targets, further our strategies, adhere to public statements, comply with federal, state or international environmental, social and governance laws and regulations or meet evolving and varied stakeholder expectations and standards could result in legal and regulatory proceedings against us and materially adversely affect our business, reputation, results of operations, financial condition and stock price.

Additionally, new laws, regulations, policies, and international accords relating to environmental, social and governance matters, including sustainability, climate change, human capital and diversity, are being developed and formalized in the United States, Europe and elsewhere, which may require specific, target-driven frameworks or disclosure requirements. For example, in the United States, the SEC has proposed rules requiring, among other things, disclosure of public companies' climate-related strategies, costs, impacts and targets. The California Legislature recently passed two bills that will impose climate-related reporting requirements for many companies doing business in the state, including Ansys. Standards for reporting ESG metrics, including ESG-related disclosures that may be required by the SEC or other regulators, are complex and evolving, and the implementation and oversight of controls to comply with applicable reporting and disclosure standards could impose significant compliance costs. In addition, such disclosure requirements could result in revisions to our previous ESG-related disclosures or challenges in meeting evolving and varied regulatory and other stakeholder expectations and standards, which could expose us to liability or harm our reputation and prospects.

Intellectual Property Risks

Our success is highly dependent upon the legal protection of our proprietary technology.

We primarily rely upon contracts, copyright, patent, trademark and trade secrets laws to protect our technology. We maintain intellectual property programs, including applying for patents, registering trademarks and copyrights, protecting trade secrets, entering into confidentiality agreements with our employees, customers and partners and limiting access to and distribution of our software, documentation and other proprietary information. However, software programs are particularly prone to piracy, which is a global phenomenon, and as a result we may lose revenue from piracy or usage and distribution of unlicensed software. Additionally, patent, copyright, trademark and trade secret protection do not provide the same coverage in every country in which we sell our products and services and some forms of contractual protections (including limited licenses, "click-wrapped" licenses and online agreement) may not be adequately enforced. Policing the unauthorized distribution and use of our products is difficult, and software piracy (including online piracy) is a persistent problem. While we continue to develop better mechanisms to detect and report or investigate unauthorized use of our software, we are also constrained by data privacy laws that restrict our ability to collect data about unlawful usage in some countries. We cannot assure that the steps we take to protect our proprietary technology are adequate to prevent misappropriation of our software by third parties, or that third parties will not copy our technology or develop similar technology independently to compete with our products. Despite our efforts to prevent such activities, we may nonetheless lose significant revenue due to illegal use of our software or technology.

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In the event of an infringement or misappropriation of our intellectual property, costly and time-consuming litigation may be necessary to enforce our rights. In addition, third parties may subject us to infringement claims with respect to their intellectual property rights. Any such litigation could be costly to defend, damage our reputation and distract our employees from their daily work. Any successful infringement claims asserted against us could require us to develop technology workarounds for the impacted technologies, products or solutions, which could be costly, disrupt product development and delay go-to-market activities. Such disruption and delay could negatively impact our financial results.

We may not be able to continue to obtain licenses to third-party software and intellectual property on reasonable terms or at all, which may disrupt our business and harm our financial results.

We license third-party software, including third-party open source software, and other intellectual property for use in product research and development and, in some instances, for inclusion in our products. We also license third-party software, including the software of our competitors, to test the interoperability of our products with other industry products and in connection with our solutions and professional services. These licenses may need to be renegotiated or renewed from time to time, or we may need to obtain new licenses in the future. Third parties may stop adequately supporting or maintaining their technology, or they or their technology may be acquired by our competitors who elect to terminate our contractual relationship. Furthermore, third parties may challenge our use of open source software and compliance with the open source software license terms, or we may inadvertently use third-party open source software in a manner that exposes us to non-compliance claims. We may, additionally, acquire companies that license third-party software from our competitors or others who may elect to terminate the contractual relationship once the acquisition is announced. If we are unable to obtain licenses to such third-party software and intellectual property on reasonable terms or at all, we may not be able to sell the affected products, our customers' usage of the products may be interrupted or our product development processes and professional services offerings may be disrupted, which could in turn harm our financial results, our customers' ability to utilize our software and our reputation.

Cybersecurity Risks

Cyberattacks and security vulnerabilities could lead to reduced revenue, increased costs, liability claims or harm to our reputation.

While we undertake commercially reasonable efforts to maintain and improve the security and integrity of our products, source code, computer systems and data with respect to the relative sensitivity of such software, systems and data, the number of computer "hackers" developing and deploying destructive software programs that attack our products and computer systems continues to increase. We have incurred and will continue to incur additional costs to enhance our cybersecurity efforts. Because the tactics and tools used to obtain unauthorized access to networks or to sabotage systems are constantly evolving, we may be unable to implement adequate preventive measures. Furthermore, employees working from remote work environments could expose us to increased security risks and attacks. Such attacks could disrupt the proper functioning of our products, cause errors in the output of our customers' work, or allow unauthorized access to and disclosure of our sensitive, proprietary or confidential information or that of our customers and employees. In the event of a serious breach of our products or systems, or where a breach occurs due to our failure to implement reasonable and appropriate safeguards, our reputation may suffer, customers may stop buying products or may terminate current services, we could face lawsuits and potential civil liability, as well as regulatory fines and non-financial penalties for any personal data breach and our financial performance could be negatively impacted.

There is also a danger of industrial espionage, cyberattacks (including state-sponsored attacks), misuse, theft of information or assets (including source code) or damage to assets by people who have gained unauthorized access to our facilities, systems or information. We have in the past, and may in the future, experience such attacks. This includes access to systems or information through email phishing attacks on our employees, which has become a very prevalent technique used against companies, often delaying detection through increasingly complex practices. The objective of these attacks is often to acquire user account credentials in order to access other computer systems through linked accounts or where users have recycled passwords across systems. There is also risk of infection of software while it is under assembly, known as a supply chain attack. As a software provider, there is the risk that we could become the subject of a significant network breach through our usage of compromised third-party software. Similarly, the subversion of popular open source modules presents a widespread and ongoing risk across the software development sector. Increasing use of artificial intelligence may increase these risks.

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Inadequate security practices or inadvertent acts or omissions by our employees and partners may also result in unauthorized access to our data. Employees or third parties may also intentionally compromise our or our customers' security or systems. Such cybersecurity breaches, misuse of data or other disruptions could lead to loss of or unauthorized disclosure of our source code or other confidential information, unlicensed use and distribution of our products without compensation, illegal use of our products that could jeopardize the security of customer information stored in and transmitted through our computer systems and theft, manipulation and destruction of proprietary data, resulting in defective products, performance downtimes and possible violation of export laws and other regulatory compliance requirements. Although we actively employ measures to combat such activities, preventing unauthorized access to our systems and data is inherently difficult. In addition, litigation to either pursue our legal rights or defend any claims against us could be costly and time-consuming and may divert management's attention and adversely affect the market's perception of us and our products.

We have experienced targeted and non-targeted cybersecurity attacks and incidents in the past that have resulted in unauthorized persons gaining access to our information and systems, and we could in the future experience similar attacks. To date, no cybersecurity incident or attack described herein has had a material impact on our business or consolidated financial statements.

- A number of our core processes, such as software development, sales and marketing, customer service and financial transactions, rely on IT infrastructure and applications. We also rely on third-party service providers and products, which are exposed to various security vulnerabilities outside of our control. Malicious software, sabotage and other cybersecurity breaches of the types discussed above could cause an outage of our infrastructure, which could cause short-term disruption in operations or, in the event of a longer disruption, lead to a substantial denial of service to our customers and ultimately to production downtime, recovery costs and customer claims for breach of contract, as well as reputational damage and impact to employee morale and productivity.

We rely on service providers for infrastructure and cloud-based products.

We use a number of third-party service providers, which we do not control, for key components of our infrastructure, particularly with respect to development and delivery of our cloud-based products. The utilization of these service providers gives us greater flexibility in efficiently delivering a more tailored, scalable customer experience, but also exposes us to additional risks and vulnerabilities. Third-party service providers operate their own platforms that we access, and we are, therefore, vulnerable to their service interruptions. We may experience interruptions, delays and outages in service and availability from time to time as a result of problems with our third-party service providers' infrastructure. Lack of availability of this infrastructure could be due to a number of potential causes including technical failures, natural disasters (including significant disruptions in weather as a result of global climate change), fraud or security attacks that we cannot predict or prevent. Such outages could lead to the triggering of our service level agreements and the issuance of credits to our cloud-based product customers, which may impact our business and consolidated financial statements. In addition, those of our products and services that depend upon hosted components are vulnerable to security risks inherent in web-based technologies, including greater risk of unauthorized access to or use of customers' protected data. Interception of data transmission, misappropriation or modification of data, corruption of data and attacks by bad actors against our service providers may also adversely affect our products or product and service delivery. Malicious code, viruses or vulnerabilities that are undetected by our service providers may disrupt our business operations generally and may have a disproportionate effect on those of our products that are developed and delivered in the cloud environment. If our security, or that of any of our third-party service providers, is compromised, our software is unavailable or our customers are unable to use our software within a reasonable amount of time or at all, then our business and financial statements could be adversely affected.

- These risks, though largely outside our control, may impact customer perception of our products, service and support, and may damage our brand. While we devote resources to maintaining the security and integrity of our products and systems, as well as ensuring adequate due diligence for our third-party service providers, cloud security and reliability is inherently challenging. In the event of a material breach of data hosted by our service providers or a serious security incident on behalf of, caused by or experienced by a service provider, we may experience significant operational and technical difficulties, loss of data including customer data, diminished competitive position or reputation and loss of customer engagement, which could result in civil liabilities and a negative impact to financial performance. It is also possible that our customers and potential customers would hold us accountable for any breach of security affecting a third-party service provider's infrastructure and we may incur significant liability from those customers and from third parties with respect to any breach affecting these systems. We may not be able to recover a material portion of our liabilities to our customers and third parties from a third-party cloud provider.

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Financial Risks

Foreign exchange rate fluctuations may adversely affect our consolidated financial statements.

As a result of our significant international presence, we have revenue, expenses, cash, accounts receivable and payment obligations denominated in foreign currencies, most notably the Euro and Japanese Yen. Our operating results are adversely affected when the U.S. Dollar strengthens relative to foreign currencies and are positively affected when the U.S. Dollar weakens relative to foreign currencies. Additionally, when the U.S. Dollar strengthens relative to other currencies, certain channel partners who pay us in U.S. Dollars may have trouble paying on time or may have trouble distributing our products due to the impact of the currency exchange fluctuation on their cash flows. This may impact our ability to distribute our products into certain regions and markets.

We seek to reduce our currency exchange transaction risks primarily through our normal operating and treasury activities, including derivative instruments, but there can be no assurance that these activities will be successful in reducing these risks. In addition, we incur transaction fees in the usage of such derivative instruments. Changes in currency exchange rates may adversely affect or create considerable volatility in our consolidated financial statements.

Changes to tax laws, variable tax estimates and tax authority audits could impact our financial results and operations.

- Our operations are subject to income and transaction taxes in the United States and in multiple foreign jurisdictions. A change in the tax law in the jurisdictions in which we do business, including an increase in tax rates, an adverse change in the treatment of an item of income or expense or a decrease in tax rates in a jurisdiction in which we have significant deferred tax assets, could result in a material increase in tax expense. Furthermore, we have recorded significant deferred tax liabilities related to acquired intangible assets that are generally not deductible for tax purposes. These deferred tax liabilities are based on future statutory tax rates in the locations in which the intangible assets are recorded. Any future changes in statutory tax rates would be recorded as an adjustment to the deferred tax liabilities in the period the change is announced and could have a material impact on our effective tax rate during that period. Additionally, changes in tax laws could impact operating cash flow due to changes in timing of payments required as well as the overall rate we are required to pay.

The Organization for Economic Co-operation and Development ("OECD"), in coordination with the G20, has suggested a number of fundamental changes as part of an effort to address the global tax issue of base erosion and profit shifting. In particular, and as a way to address the tax challenges arising from the digitalization of the economy, the OECD has introduced a two-pillar approach which provides for the allocation of profits among taxing jurisdictions in which companies do business, and the implementation of a 15 percent global minimum tax rate (namely the "Pillar One" and "Pillar Two" proposals). The agreement between OECD and G20 members calls for implementation of the various measures of the Pillar Two rules in 2024 and 2025. Many countries are in the process of implementing laws based on the Pillar Two proposal which may adversely affect our provision for income taxes, net income, and cash flows depending on the specifics of the laws passed in each jurisdiction. These proposals also entail significant compliance obligations and if we are unable to successfully transition our business systems, processes and internal controls, it could impact our ability to meet financial and tax reporting deadlines.

- We also make significant estimates in determining our worldwide income tax provision. These estimates involve complex tax regulations in many jurisdictions and are subject to many transactions and calculations in which the ultimate tax outcome is uncertain. The outcome of tax matters could be different than the estimates reflected in the historical income tax provision and related accruals. Such differences could have a material impact on income tax expense and net income in the periods in which such determinations are made.

- The amount of income tax we pay is subject to ongoing audits by federal, state and foreign tax authorities. These audits can result in additional assessments, including interest and penalties. Our estimates for liabilities associated with uncertain tax positions are highly judgmental and actual future outcomes may result in favorable or unfavorable adjustments to our estimated tax liabilities, including estimates for uncertain tax positions, in the period the assessments are made or resolved, audits are closed or when statutes of limitation on potential assessments expire. As a result, our effective tax rate may fluctuate significantly on a quarterly or annual basis.

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Our indebtedness could adversely affect our business, financial condition and results of operations.

We have outstanding borrowings of $755.0 million under a term loan facility, which matures on June 30, 2027. We also have access to a $500.0 million revolving loan facility, which includes a $50.0 million sublimit for the issuance of letters of credit. The credit agreement governing these loans contains customary representations and warranties, affirmative and negative covenants and events of default. The credit agreement also contains a financial covenant requiring us to maintain a consolidated net leverage ratio not in excess of 3.50 to 1.00 as of the end of any fiscal quarter (for the four-quarter period ending on such date) with an opportunity for a temporary increase in such consolidated net leverage ratio to 4.00 to 1.00 upon the consummation of certain qualified acquisitions for which the aggregate consideration is at least $250.0 million.

Notwithstanding the limits contained in the credit agreement governing our term loan facility and revolving loan facility, we may be able to incur substantial additional debt from time to time to finance working capital, capital expenditures, share repurchases, investments or acquisitions or for other purposes. If we do so, the risks related to our level of debt could intensify. Specifically, our level of debt could:

- make it more difficult for us to satisfy our debt obligations and other ongoing business obligations, which may result in defaults;
- result in an event of default if we fail to comply with the financial and other covenants contained in the agreement governing our debt, which could result in all of our debt becoming immediately due and payable or require us to negotiate an amendment to financial or other covenants that could cause us to incur additional fees and expenses;
- limit our ability to obtain additional financing to fund future working capital, capital expenditures, acquisitions or other general corporate requirements;
- reduce the availability of our cash flow to fund working capital, capital expenditures, acquisitions and other general corporate purposes;
- increase our vulnerability to the impact of adverse economic and industry conditions;
- expose us to the risk of increased interest rates as our borrowings are at variable rates of interest, which can adversely impact our operating cash flow;
- limit our flexibility in planning for, or reacting to, and increasing our vulnerability to, changes in our business, the industries in which we operate and the overall economy;
- place us at a competitive disadvantage compared to other, less leveraged competitors;
- increase our cost of borrowing; and
- increase our effective tax rate as interest expense could become non-deductible.

Any of the above-listed factors could have an adverse effect on our business, financial condition and results of operations and our ability to meet our payment obligations under our debt agreement.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

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ITEM 1C. CYBERSECURITY

Risk Management and Strategy

We are subject to various cybersecurity risks in connection with our business. See the section entitled "Cybersecurity Risks" in Part I, Item 1A. Risk Factors of this Annual Report on Form 10-K. Our cybersecurity program is led by an experienced team of cybersecurity professionals headed by our Vice President of Cybersecurity, reporting to our General Counsel.

Our Cybersecurity Management System (CSMS) is part of our cybersecurity program and operates under the Ansys CSMS Risk Management Methodology and Policy (Policy), which establishes a process to identify, assess and mitigate potential cybersecurity threats. The Policy provides for conducting risk assessments to identify Ansys information assets (such as software assets or data), identifying potential vulnerabilities related to those assets, assessing the potential impact should the vulnerability be exploited and working with our internal cybersecurity team to provide recommendations to eliminate or mitigate the potential risk. The risk assessments allow our management to validate threats and investigate potential vulnerabilities to more effectively make risk management decisions and assign resources to mitigate risk.

- Our CSMS uses third-party software to identify and prioritize cybersecurity threats and has dedicated personnel whose core responsibilities are to document and track cybersecurity threats. We use security technology tools and methodologies to protect our information systems. We also use tools for risk and vulnerability management and perform periodic penetration testing and vulnerability scanning. Further, we provide our employees information security awareness training upon hire and annually thereafter.

- We conduct an enterprise risk assessment that is updated on an annual basis and includes periodic monitoring of new and emerging risks and preparation for and progress on mitigation efforts. Cybersecurity is directly integrated into this process as an operational risk and has been classified within the enterprise risk management program based on the risk assessment. Any identified gaps are incorporated and monitored through a cybersecurity roadmap, with progress reported to management. Controls put in place to manage any identified risks are evaluated against an established risk-mitigation framework.

- We engage multiple third-party consultants to advise us on our cybersecurity processes. We conduct external, third-party assessments of our cybersecurity program against specified industry frameworks, as well as annual re-assessments designed to help us understand program changes and the impact that they have had on overall program maturity. Additionally, we engage an external third-party penetration testing entity to measure the effectiveness of our cybersecurity strategy against cybersecurity threats.

- Lastly, we use third-party intelligence resources to help identify cybersecurity threats via finished intelligence, alerts and consulting services that help answer requests for information. We have collaborative relationships with The Information Technology - Information Sharing and Analysis Center and several governmental agencies for identification of threats that target technology.

- Ansys also has an established Third-Party Risk Management Program and Policy that is designed to identify and manage cybersecurity risks associated with third-party service providers. The program includes processes designed to identify, assess and mitigate and/or manage third-party service provider risks. Under the Third-Party Risk Management Program and Policy, we evaluate third-party service providers through five stages: planning, due diligence, contracting/onboarding, ongoing monitoring and termination/off-boarding.

- We have in the past, and may in the future, experience cybersecurity incidents. Although prior incidents have not materially affected Ansys, future incidents from cybersecurity threats could have a materially adverse impact on us, including on our reputation, the results of our operations and our financial condition and could implicate lawsuits and potential civil liability, as well as regulatory fines and non-financial penalties.

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Governance

Our cybersecurity program is overseen by the Audit Committee of the Ansys Board of Directors. This oversight is anchored in the Audit Committee's charter, which specifically grants the Audit Committee oversight responsibility on our risks related to cybersecurity, including a review of the state of our cybersecurity program, emerging cybersecurity developments and threats and our strategy to mitigate cybersecurity risks. The Senior Director of Internal Audit and Risk Management, with input from the Vice President of Cybersecurity, reports on the status of the cybersecurity program to the Audit Committee and, periodically or where appropriate, to the Ansys Board of Directors. These reports generally include recent updates and improvements to the cybersecurity program, information on the cybersecurity program's status and intelligence on recent cybersecurity threats, actions we have taken to mitigate such threats and recent material incidents, or potentially material incidents, if any. In addition, the Senior Director of Internal Audit and Risk Management reports to the Audit Committee on the enterprise risk management program, which includes risks associated with cybersecurity.

- Our cybersecurity program, and its associated CSMS, is led by an experienced team of cybersecurity professionals headed by the Vice President of Cybersecurity. In the event of a cybersecurity incident, we have a dedicated Cybersecurity Incident Response Team that is responsible for identifying, escalating, responding to and managing cybersecurity incidents, including interdiction and remediation, as well as conducting the initial investigation, gathering and analyzing data, mitigating damage to the informational assets and infrastructure of Ansys, restoring normal services and system integrity and implementing actions designed to prevent future cybersecurity incidents. This team reports to the Vice President of Cybersecurity. In the event of a significant cybersecurity incident, a cross-functional team comprised of cyber, legal and finance personnel work together to determine the materiality of an incident.

- Our Cybersecurity Steering Committee, which includes the Vice President of Cybersecurity and several members of management, is responsible for the oversight of our cybersecurity program. The Vice President of Cybersecurity has over 20 years of experience in cybersecurity. Members of this committee include our General Counsel, Chief Financial Officer and the Senior Director of Internal Audit and Risk Management, all of whom have significant experience in managing enterprise risk, including risk from cybersecurity threats. The Cybersecurity Steering Committee meets routinely to discuss the status of the cybersecurity program, the status of responses to cybersecurity incidents or threats, any updates on certification programs and any emerging cybersecurity threats. Information received by management through the Cybersecurity Steering Committee is regularly included in the quarterly updates to the Audit Committee.

ITEM 2. PROPERTIES

Our executive offices and those related to certain domestic product development, marketing, production and administration are located in a LEED certified, 186,000 square foot office facility in Canonsburg, Pennsylvania. The lease for this facility began on October 1, 2014 and expires on December 31, 2029, excluding any renewal or termination options.

We also lease office space in various locations throughout the world. We own substantially all equipment used in our facilities. Management believes that our facilities generally allow for sufficient space to support present and future foreseeable needs, including such expansion and growth as the business may require.

Our properties and equipment are in good operating condition and are adequate for our current needs. We do not anticipate difficulty in renewing existing leases as they expire or in finding alternative facilities.

ITEM 3. LEGAL PROCEEDINGS

We are subject to various claims, investigations and legal and regulatory proceedings that arise in the ordinary course of business, including, but not limited to, commercial disputes, labor and employment matters, tax audits, alleged infringement of third parties' intellectual property rights and other matters. Use or distribution of our products could generate product liability, regulatory infraction or claims by our customers, end users, channel partners, government entities or third parties. Sales and marketing activities that impact processing of personal data, as well as measures taken to promote license compliance against pirated or unauthorized usage of our commercial products, may also result in claims by customers and individual employees of customers or by non-customers using pirated versions of our products. Each of these matters is subject to various uncertainties, and it is possible that an unfavorable resolution of one or more of these matters could have a significant adverse effect on our consolidated financial statements as well as cause reputational damage. In our opinion, the resolution of pending matters is not expected to have a material adverse effect on our financial position, results of operations or cash flows.

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ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock trades on the Nasdaq Global Select Market tier of the Nasdaq Stock Market under the symbol: "ANSS".

On February 7, 2024, there were 215 stockholders of record of our common stock.

We have not historically paid cash dividends on our common stock as we have retained earnings primarily for acquisitions, for future business opportunities, to make payments on outstanding debt balances and to repurchase stock when authorized by the Board of Directors and when such repurchase meets our objectives. We review our policy with respect to the payment of dividends from time to time; however, there can be no assurance that any dividends will be paid in the future. In addition, pursuant to the Merger Agreement, we may not declare, accrue, set aside, establish a record date for or pay any dividend or other distribution (whether in cash, stock or otherwise) in respect of any shares of capital stock or other securities, without obtaining Synopsys' approval (which may not be unreasonably withheld, conditioned or delayed).

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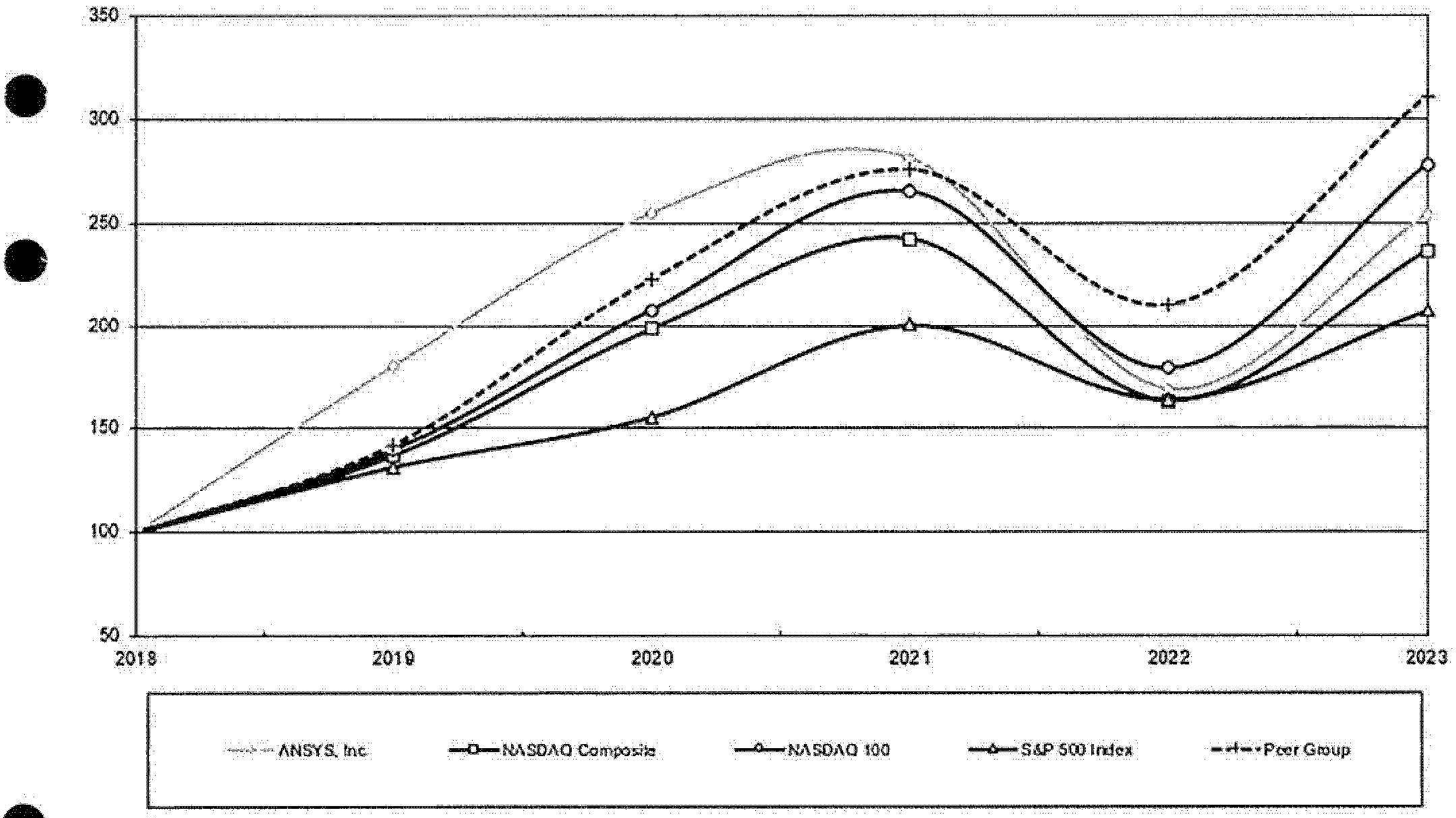
Performance Graph

Set forth below is a line graph comparing the yearly percentage change in the cumulative total stockholder return of our common stock, based on the market price per share of our common stock, with the total return of companies included within the NASDAQ Composite Stock Market Index, the NASDAQ 100 Stock Market Index, the S&P 500 Stock Index and an industry peer group of seven companies (Altair Engineering Inc., Aspen Technology, Inc., Autodesk, Inc., Cadence Design Systems, Inc., Dassault Systemes SE, PTC Inc., and Synopsys, Inc.) for the period commencing December 31, 2018 and ending December 31, 2023. The calculation of total cumulative returns assumes a $100 investment in our common stock, the NASDAQ Composite Stock Market Index, the NASDAQ 100 Stock Market Index, the S&P 500 Stock Index and the peer group on December 31, 2018, and the reinvestment of all dividends, and accounts for all stock splits. The historical information set forth below is not necessarily indicative of future performance.



ASSUMES $100 INVESTED ON DECEMBER 31, 2018

ASSUMES DIVIDENDS REINVESTED

FIVE FISCAL YEARS ENDED DECEMBER 31, 2023

	As of December 31,					
	2018	**2019**	**2020**	**2021**	**2022**	**2023**
ANSYS, Inc.	$100	$180	$255	$281	$169	$254
NASDAQ Composite	$100	$137	$198	$242	$163	$236
NASDAQ 100	$100	$139	$208	$265	$179	$278
S&P 500 Stock Index	$100	$131	$156	$200	$164	$207
Peer Group	$100	$142	$223	$275	$210	$311

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Unregistered Sale of Equity Securities and Use of Proceeds

None.

ITEM 6. [RESERVED]

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ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with our consolidated financial statements and notes thereto. This section generally discusses our results of operations for the year ended December 31, 2023 compared to the year ended December 31, 2022. For discussion and analysis of our results for the year ended December 31, 2022 compared to the year ended December 31, 2021, refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of our 2022 Form 10-K, filed with the SEC on February 22, 2023.

Business

Ansys, a corporation formed in 1994, develops and globally markets engineering simulation software and services widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia, including high-tech, aerospace and defense, automotive, energy, industrial equipment, materials and chemicals, consumer products, healthcare and construction. Headquartered south of Pittsburgh, Pennsylvania, we employed 6,200 and 5,600 people as of December 31, 2023 and 2022, respectively. We focus on the development of open and flexible solutions that enable users to analyze designs on-premises and/or via the cloud, providing a common platform for fast, efficient and cost-conscious product development, from design concept to final-stage testing, validation and deployment. We distribute our suite of simulation technologies through direct sales offices in strategic, global locations and a global network of independent resellers and distributors (collectively, channel partners). It is our intention to continue to maintain this hybrid sales and distribution model. We operate and report as one segment.

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality using Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push the boundaries of product design by using the predictive power of simulation. From sustainable transportation and advanced satellite systems to life-saving medical devices, Ansys powers innovation that drives human advancement.

Our strategy of Pervasive Insights seeks to deepen the use of simulation in our core market, to inject simulation throughout the product lifecycle and extend the accessibility to a broader set of users and use cases. Our business has three vectors of growth:

- More products. Our broad and deep multiphysics portfolio enables us to grow with customers as they use simulation to solve more complex problems across a broad set of industries.
- More users. Investments in simulation education and user experience simplification has made simulation more accessible to a broader user base.
- More computations. Larger and more complex simulations drive more computation, requiring customers to use more Ansys licenses to complete their simulations.

Through decades of investments in the academic community and enhanced user experiences, our solutions have become accessible and relevant beyond our core "engineering" end user, to reach more users upstream and downstream from our core, which is the product validation process. Our multiphysics solutions enable our customers to address increasingly complex R&D challenges from the component through the system and mission level of analysis. Our products seamlessly enable access to high performance compute capacity to run simulations, on-premises or in the cloud, which means our customers' R&D teams are unencumbered by compute capacity limitations that can hinder R&D cycle times. Our investments in artificial intelligence capabilities across our simulation portfolio and technical support services enhance the customer experience, democratize simulation and further next-generation innovation.

The engineering software simulation market is strong and growing. The market growth is driven by customers' need for rapid, quality innovation in a cost-efficient manner, enabling faster time to market for new products and lower warranty costs. Increasing product complexity is driving sustained demand for simulations. Key industry trends fueling customers' increasing needs for simulation include:

- Electrification;
- Autonomy;
- Connectivity;
- IIoT; and
- Sustainability, including minimizing waste and physical prototyping, and improving circularity and development time.

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We have been investing and intend to continue to invest in our portfolio to broaden the range of physics and enable customers to analyze the interactions among physics at the component, system and mission level. Our strategy of Pervasive Insights is aligned with the near-term market growth opportunities and is laying the foundation for a future where simulation can be further democratized to broader classes of end-users and end-use cases. In addition, we have and will continue to partner with industry leaders to extend simulation into other ecosystems and customer R&D workflows.

We license our technology to businesses in a diverse set of industries, educational institutions and governmental agencies. We believe that the features, functionality and integrated multiphysics capabilities of our software products are as strong as they have ever been. The software business is generally characterized by long sales cycles which increase the difficulty of predicting sales for any particular quarter. We make many operational and strategic decisions based upon short- and long-term sales forecasts that are impacted not only by these long sales cycles, but also by current global economic conditions. As a result, we believe that our overall performance is best measured by fiscal year results rather than by quarterly results. Please see the sub-section entitled "Company Operational Risks" under Part I, Item 1A. of this Annual Report on Form 10-K for additional discussion of the potential impact of our sales forecasts on our financial condition, cash flows and operating results.

We address the competition and price pressure that we face in the short- and long-term by focusing on expanding the breadth, depth, ease of use and quality of the technologies, features, functionality and integrated multiphysics capabilities of our software products as compared to our competitors; investing in research and development to develop new and innovative products and increasing the capabilities of our existing products; maintaining a diverse industry footprint and focusing on customer needs, training, consulting and support; and enhancing our distribution channels. We also evaluate and execute strategic acquisitions to supplement our global engineering talent, product offerings and distribution channels.

Synopsys Merger Agreement

On January 15, 2024, we entered into the Merger Agreement with Synopsys and Merger Sub, pursuant to which Merger Sub will merge with and into Ansys, with Ansys surviving the Merger as a wholly owned subsidiary of Synopsys. Our Board of Directors has unanimously approved the Merger Agreement and, subject to certain exceptions set forth in the Merger Agreement, resolved to recommend that our stockholders adopt the Merger Agreement. If the Merger is consummated, our common stock will be delisted from the Nasdaq Global Select Market and deregistered under the Exchange Act.

Under the Merger Agreement, at the effective time of the Merger, each issued and outstanding share of our common stock (subject to certain exceptions set forth in the Merger Agreement) will be cancelled and converted into the right to receive (i) 0.3450 of a share of common stock, par value $0.01 per share, of Synopsys and (ii) $197.00 in cash, without interest, subject to applicable withholding taxes. With regard to the Stock Consideration, if the aggregate number of shares of Synopsys common stock to be issued in connection with the Merger would exceed the Maximum Share Number, (a) the Exchange Ratio will be reduced to the minimum extent necessary such that the aggregate number of shares of Synopsys common stock to be issued in connection with the Merger does not exceed the Maximum Share Number and (b) the Per Share Cash Amount will be correspondingly increased to offset such adjustment.

The Merger Agreement contains customary representations, warranties and covenants made by each of Ansys, Synopsys, and Merger Sub, including, among others, covenants regarding the conduct of our and Synopsys' businesses during the pendency of the transactions contemplated by the Merger Agreement, the making of certain public disclosures and other matters as described in the Merger Agreement. We and Synopsys have agreed to use reasonable best efforts to take all actions necessary to consummate the Merger, including cooperating to obtain the regulatory approvals necessary to complete the Merger. We have agreed not to, among other things, (a) solicit proposals relating to alternative transactions or (b) enter into discussions or negotiations or provide non-public information in connection with any proposal for an alternative transaction from a third party, subject to certain exceptions to permit our Board of Directors to comply with its fiduciary obligations. We have further agreed to cease and cause to be terminated any existing discussions or negotiations, if any, with regard to alternative transactions.

The Merger Agreement may be terminated under certain circumstances, including that either party may have the right to terminate if the Merger is not completed by January 15, 2025, which may be extended to January 15, 2026 as provided in the Merger Agreement. If the Merger Agreement is terminated, (A) Synopsys, under specified circumstances, including termination following an injunction arising in connection with certain antitrust or foreign investment laws, will be required to pay us a termination fee of $1,500.0 million; and (B) we, under specified circumstances, including our termination of the Merger Agreement to accept and enter into a definitive agreement with respect to a Superior Proposal (as defined in the Merger Agreement) or Synopsys' termination upon the change by our Board of Directors of its recommendation in favor of the Merger, will be required to pay Synopsys a termination fee of $950.0 million.

The completion of the Merger is subject to customary closing conditions, including, among others, approval of the Merger under certain applicable antitrust and foreign investment regimes and the adoption of the Merger Agreement by our stockholders. We anticipate the transaction to close in the first half of 2025.

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Overview

Overall GAAP and Non-GAAP Results

This section includes a discussion of GAAP and Non-GAAP results. For reconciliations of Non-GAAP results to GAAP results, see the section titled "Non-GAAP Results" herein.

The 2023 period non-GAAP results exclude the income statement effects of stock-based compensation, excess payroll taxes related to stock-based compensation, amortization of acquired intangible assets, expenses related to business combinations and adjustments for the income tax effect of the excluded items. The 2022 period non-GAAP results also exclude the income statement effects of acquisition accounting adjustments to deferred revenue from business combinations closed prior to 2022. This adjustment is not material in 2023.

Our GAAP and non-GAAP results for the year ended December 31, 2023 as compared to the year ended December 31, 2022 reflected the following variances:

	Year Ended December 31, 2023	
	GAAP	Non-GAAP
Revenue	**9.9 %**	9.5 %
Operating income	**5.6 %**	11.1 %
Diluted earnings per share	**(4.3)%**	10.1 %

- Our results reflect an increase in revenue during the year ended December 31, 2023 due to growth in subscription lease license, maintenance and service revenue. We also experienced increased operating expenses during the year ended December 31, 2023, primarily due to increased personnel costs. The actual U.S. Dollar reported results were impacted by a stronger U.S. Dollar.

This section also includes a discussion of constant currency results, which we use for financial and operational decision-making and as a means to evaluate period-to-period comparisons by excluding the effects of foreign currency fluctuations on the reported results. Constant currency is a non-GAAP measure. All constant currency results presented in this Item 7 exclude the effects of foreign currency fluctuations on the reported results. To present this information, the 2023 results for entities whose functional currency is a currency other than the U.S. Dollar were converted to U.S. Dollars at rates that were in effect for the 2022 comparable period, rather than the actual exchange rates in effect for 2023. Constant currency growth rates are calculated by adjusting the 2023 reported amounts by the 2023 currency fluctuation impacts and comparing to the 2022 comparable period reported amounts.

Impact of Foreign Currency

Our comparative financial results were impacted by fluctuations in the U.S. Dollar during the year ended December 31, 2023 as compared to the year ended December 31, 2022. The impacts on our revenue and operating income as a result of the fluctuations of the U.S. Dollar when measured against our foreign currencies based on 2022 exchange rates are reflected in the table below. Amounts in brackets indicate an adverse impact from currency fluctuations.

	Year Ended December 31, 2023	
(in thousands)	GAAP	Non-GAAP
Revenue	**$ (5,753)**	$ (5,753)
Operating income	**$ (1,393)**	$ (958)

In constant currency, our variances were as follows:

	Year Ended December 31, 2023	
	GAAP	Non-GAAP
Revenue	**10.2 %**	9.8 %
Operating income	**5.9 %**	11.2 %

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Other Key Business Metric

Annual Contract Value (ACV) is a key performance metric and is useful to investors in assessing the strength and trajectory of our business. ACV is a supplemental metric to help evaluate the annual performance of the business. Over the life of the contract, ACV equals the total value realized from a customer. ACV is not impacted by the timing of license revenue recognition. ACV is used by management in financial and operational decision-making and in setting sales targets used for compensation. ACV is not a replacement for, and should be viewed independently of, GAAP revenue and deferred revenue as ACV is a performance metric and is not intended to be combined with any of these items. There is no GAAP measure comparable to ACV. ACV is composed of the following:

- the annualized value of maintenance and subscription lease contracts with start dates or anniversary dates during the period, plus
- the value of perpetual license contracts with start dates during the period, plus
- the annualized value of fixed-term services contracts with start dates or anniversary dates during the period, plus
- the value of work performed during the period on fixed-deliverable services contracts.

When we refer to the anniversary dates in the definition of ACV above, we are referencing the date of the beginning of the next twelve-month period in a contractually committed multi-year contract. If a contract is three years in duration, with a start date of July 1, 2023, the anniversary dates would be July 1, 2024 and July 1, 2025. We label these anniversary dates as they are contractually committed. While this contract would be up for renewal on July 1, 2026, our ACV performance metric does not assume any contract renewals.

Example 1: For purposes of calculating ACV, a $100,000 subscription lease contract or a $100,000 maintenance contract with a term of July 1, 2023 – June 30, 2024, would each contribute $100,000 to ACV for fiscal year 2023 with no contribution to ACV for fiscal year 2024.

Example 2: For purposes of calculating ACV, a $300,000 subscription lease contract or a $300,000 maintenance contract with a term of July 1, 2023 – June 30, 2026, would each contribute $100,000 to ACV in each of fiscal years 2023, 2024 and 2025. There would be no contribution to ACV for fiscal year 2026 as each period captures the full annual value upon the anniversary date.

Example 3: A perpetual license valued at $200,000 with a contract start date of March 1, 2023 would contribute $200,000 to ACV in fiscal year 2023.

During the year ended December 31, 2023 and 2022 our ACV was as follows:

(in thousands, except percentages)	Year Ended December 31,						
	2023		2022	Change			
	Actual	Constant Currency	Actual	Actual		Constant Currency	
	Amount			Amount	%	Amount	%
ACV	**$2,300,466**	$2,303,344	$2,031,744	$ 268,722	13.2	$ 271,600	13.4
Recurring ACV	**$1,919,467**	$1,921,686	$1,653,230	$ 266,237	16.1	$ 268,456	16.2

Recurring ACV includes both subscription lease license and maintenance ACV and excludes perpetual license and service ACV.

Industry Commentary

In 2023, ACV growth was broad based across industries. Our core industries of high-tech, aerospace and defense (A&D) and automotive experienced growth as we continue to see trends, such as generative AI, pervasive connectivity and electrification, transform industry landscapes. Our technology remains a vital component to our customers' success as the need for innovation and agility reaches new heights. In the high-tech industry, the proliferation of connected devices is driving more applications for analog chips across industries, including automotive and healthcare. In tandem, our customers continue to invest in our solutions to develop advanced packaging technologies, such as 3D-IC, to overcome integration density constraints and meet the needs of compute-intensive applications, such as AI/ML. Within the automotive industry, our simulation solutions remain vital components in the development and validation of safe, reliable ADAS features, electrified powertrains and software-defined vehicles. Additionally, in the A&D industry, our modeling and simulation capabilities remain central to the development and deployment of more efficient aircraft, the advanced air mobility segment and increasingly complex defense technology.

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Geographic Trends

The following table presents our geographic revenue variances using actual and constant currency rates during the year ended December 31, 2023 as compared to the year ended December 31, 2022:

	Year Ended December 31, 2023			
	GAAP		Non-GAAP	
	Actual	Constant Currency	Actual	Constant Currency
Americas	**14.1 %**	14.2 %	13.8 %	13.8 %
EMEA	**10.6 %**	8.3 %	10.2 %	7.9 %
Asia-Pacific	**1.7 %**	5.0 %	1.3 %	4.6 %
Total	**9.9 %**	10.2 %	9.5 %	9.8 %

Revenue results from region to region can fluctuate due to the timing, duration and size of multi-year lease subscription contracts in any particular period and are not necessarily indicative of the underlying operational performance. To drive growth, we continue to focus on a number of sales improvement activities across the geographic regions, including sales hiring, pipeline building, productivity initiatives and customer engagement activities.

During the year ended December 31, 2023, trade restrictions limited the sale of certain Ansys products and services to entities performing research & development and certain controlled activities in China. Additional restrictions or a further deterioration in the global trade environment could have a material adverse impact on our business, results of operations or financial condition. Refer to Part I, Item 1A herein for a discussion of additional business risks, including those associated with the export of certain technologies to China.

Acquisitions

We make targeted acquisitions in order to support our long-term strategic direction, accelerate innovation, provide increased capabilities to our existing products, supply new products and services, expand our customer base and enhance our distribution channels.

On January 3, 2023, we completed the acquisition of DYNAmore for a purchase price of $139.2 million, or $126.4 million net of cash acquired. The acquisition expands our position as a simulation solution provider within the automotive industry. The effects of the acquisition were not material to our consolidated results of operations.

Additionally, during the year ended December 31, 2023 and 2022, we completed other acquisitions to expand our solution offerings and enhance our customers' experience. The effects of the acquisitions were not material to our consolidated results of operations individually or in the aggregate. The combined purchase price of these acquisitions during the years ended December 31, 2023 and 2022 was $94.4 million, or $88.3 million net of cash acquired, and $401.7 million, or $390.8 million net of cash acquired, respectively.

For further information on our business combinations during the years ended December 31, 2023 and 2022, see Note 4 to the consolidated financial statements included in Part IV, Item 15 of this Annual Report on Form 10-K.

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Results of Operations

The results of operations discussed below are on a GAAP basis unless otherwise stated.

For purposes of the following discussion and analysis, the table below sets forth certain consolidated financial data for the years 2023 and 2022. The operating results of our acquisitions have been included in the results of operations since their respective acquisition dates.

(in thousands)	Year Ended December 31, 2023	2022
Revenue:		
Software licenses	**$ 1,088,748**	$ 988,978
Maintenance and service	**1,181,201**	1,076,575
Total revenue	**2,269,949**	2,065,553
Cost of sales:		
Software licenses	**40,004**	33,081
Amortization	**80,990**	69,372
Maintenance and service	**150,304**	148,188
Total cost of sales	**271,298**	250,641
Gross profit	**1,998,651**	1,814,912
Operating expenses:		
Selling, general and administrative	**855,135**	772,871
Research and development	**494,869**	433,661
Amortization	**22,512**	15,722
Total operating expenses	**1,372,516**	1,222,254
Operating income	**626,135**	592,658
Interest income	**19,588**	5,717
Interest expense	**(47,145)**	(22,726)
Other expense, net	**(6,440)**	(334)
Income before income tax provision	**592,138**	575,315
Income tax provision	**91,726**	51,605
Net income	**$ 500,412**	$ 523,710

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Year Ended December 31, 2023 Compared to Year Ended December 31, 2022

Revenue:

(in thousands, except percentages)	Year Ended December 31, 2023 GAAP	2023 Constant Currency	2022 GAAP	Change GAAP Amount	Change GAAP %	Change Constant Currency Amount	Change Constant Currency %
		Amount		Amount	%	Amount	%
Revenue:							
Subscription lease licenses	**$ 786,050**	$ 786,926	$ 687,665	$ 98,385	14.3	$ 99,261	14.4
Perpetual licenses	**302,698**	303,459	301,313	1,385	0.5	2,146	0.7
Software licenses	**1,088,748**	1,090,385	988,978	99,770	10.1	101,407	10.3
Maintenance	**1,103,523**	1,107,650	1,004,245	99,278	9.9	103,405	10.3
Service	**77,678**	77,667	72,330	5,348	7.4	5,337	7.4
Maintenance and service	**1,181,201**	1,185,317	1,076,575	104,626	9.7	108,742	10.1
Total revenue	**$2,269,949**	$2,275,702	$2,065,553	$ 204,396	9.9	$ 210,149	10.2

Revenue for the year ended December 31, 2023 increased 9.9% compared to the year ended December 31, 2022, or 10.2% in constant currency. Maintenance revenue growth of 9.9%, or 10.3% in constant currency, is correlated with the license sales discussed later in this paragraph and is driven substantially by our existing customer base. The reported $99.3 million growth in maintenance revenue was attributable to a $95.8 million increase in maintenance associated with lease licenses and a $3.5 million increase in maintenance associated with perpetual sales. Subscription lease license revenue increased 14.3%, or 14.4% in constant currency, as compared to the year ended December 31, 2022, with substantially all of the increase attributable to additional sales to our existing customers. The reported $98.4 million increase in lease license revenue was attributable to a $83.8 million increase in value from multi-year licenses and a $14.6 million increase in value from annual licenses.

We continue to experience increased demand from our customers for contracts that often include longer-term, subscription leases involving a larger number of our software products. These arrangements typically involve a higher overall transaction price. The upfront recognition of license revenue related to these larger transactions can result in significant subscription lease revenue volatility. Software products, across a large variety of applications and industries, are increasingly distributed in software-as-a-service, cloud and other subscription environments in which the licensing approach is time-based rather than perpetual. This preference could result in a shift from perpetual licenses to time-based licenses, such as subscription leases, over the long term.

With respect to revenue, on average for the year ended December 31, 2023, the U.S. Dollar was 0.6% stronger, when measured against our foreign currencies, than for the year ended December 31, 2022. The table below presents the net impacts of currency fluctuations on revenue for the year ended December 31, 2023. Amounts in brackets indicate a net adverse impact from currency fluctuations.

(in thousands)	Year Ended December 31, 2023
Japanese Yen	$ (13,457)
Indian Rupee	(1,988)
Taiwan Dollar	(1,666)
South Korean Won	(1,010)
Euro	13,179
Other	(811)
Total	**$ (5,753)**

As a percentage of revenue, our international and domestic revenues, and our direct and indirect revenues, were as follows:

	Year Ended December 31,	
	2023	2022
International	**53.4 %**	54.9 %
Domestic	**46.6 %**	45.1 %
Direct	**73.9 %**	76.1 %
Indirect	**26.1 %**	23.9 %

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Cost of Sales and Operating Expenses:

The tables below reflect our operating results on both a GAAP and constant currency basis. Amounts included in the discussions that follow each table are provided in constant currency and are inclusive of costs related to our acquisitions. The impact of foreign exchange translation is discussed separately, where material.

	Year Ended December 31,									
	2023				2022		Change			
	GAAP		Constant Currency		GAAP		GAAP		Constant Currency	
(in thousands, except percentages)	Amount	% of Revenue	Amount	% of Revenue	Amount	% of Revenue	Amount	%	Amount	%
Cost of sales:										
Software licenses	**$ 40,004**	**1.8**	$ 40,052	1.8	$ 33,081	1.6	$ 6,923	20.9	$ 6,971	21.1
Amortization	**80,990**	**3.6**	80,728	3.5	69,372	3.4	11,618	16.7	11,356	16.4
Maintenance and service	**150,304**	**6.6**	151,268	6.6	148,188	7.2	2,116	1.4	3,080	2.1
Total cost of sales	**271,298**	**12.0**	272,048	12.0	250,641	12.1	20,657	8.2	21,407	8.5
Gross profit	**$1,998,651**	**88.0**	$2,003,654	88.0	$1,814,912	87.9	$183,739	10.1	$188,742	10.4

Software Licenses: The increase in the cost of software licenses was primarily due to increased third-party royalties of $7.1 million.

Amortization: The increase in amortization expense was primarily due to the amortization of newly acquired intangible assets.

Maintenance and Service: The net increase in maintenance and service costs was primarily due to the following:

- Increased stock-based compensation of $3.3 million.
- Decreased salaries of $1.2 million.

The improvement in gross profit was a result of the increase in revenue.

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(in thousands, except percentages)	Year Ended December 31, 2023 GAAP Amount	2023 GAAP % of Revenue	2023 Constant Currency Amount	2023 Constant Currency % of Revenue	2022 GAAP Amount	2022 GAAP % of Revenue	Change GAAP Amount	Change GAAP %	Change Constant Currency Amount	Change Constant Currency %
Operating expenses:										
Selling, general and administrative	**$ 855,135**	**37.7**	858,667	37.7	$ 772,871	37.4	$ 82,264	10.6	$ 85,796	11.1
Research and development	**494,869**	**21.8**	495,219	21.8	433,661	21.0	61,208	14.1	61,558	14.2
Amortization	**22,512**	**1.0**	22,240	1.0	15,722	0.8	6,790	43.2	6,518	41.5
Total operating expenses	**1,372,516**	**60.5**	1,376,126	60.5	1,222,254	59.2	150,262	12.3	153,872	12.6
Operating income	**$ 626,135**	**27.6**	$ 627,528	27.6	$ 592,658	28.7	$ 33,477	5.6	$ 34,870	5.9

Selling, General and Administrative: The net increase in selling, general and administrative costs was primarily due to the following:

- Increased salaries, incentive compensation and other headcount-related costs of $50.2 million.
- Increased stock-based compensation of $33.1 million.
- Increased business travel of $8.1 million as in-person meetings and live attendance at trade events have continued to expand.
- Increased IT maintenance and software hosting costs of $3.0 million.
- Decreased third-party commissions of $6.3 million.
- Decreased costs related to foreign exchange translation of $3.5 million due to a stronger U.S. Dollar.
- Decreased bad debt expense of $3.5 million.

We anticipate that we will continue to make targeted investments in our global sales and marketing organizations and our global business infrastructure to enhance and support our revenue-generating activities.

Research and Development: The increase in research and development costs was primarily due to the following:

- Increased salaries, incentive compensation and other headcount-related expenses of $41.0 million.
- Increased stock-based compensation of $17.4 million.
- Increased IT maintenance and software hosting costs of $2.9 million.

Amortization: The increase in amortization expense was primarily due to the amortization of newly acquired intangible assets.

We have traditionally invested significant resources in research and development activities and intend to continue to make investments in expanding the ease of use and capabilities of our broad portfolio of simulation software products.

Overall, the impacts from currency fluctuations resulted in decreased operating income of $1.4 million for the year ended December 31, 2023 as compared to the year ended December 31, 2022.

Interest Income: Interest income for the year ended December 31, 2023 was $19.6 million as compared to $5.7 million for the year ended December 31, 2022. The higher interest rate environment and the related increase in the average rate of return on invested cash balances was partially offset by a lower invested cash balance as a result of investments in acquisitions and share repurchases.

Interest Expense: Interest expense for the year ended December 31, 2023 was $47.1 million as compared to $22.7 million for the year ended December 31, 2022 due to a higher interest rate environment.

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Other Expense, net: Our other expense consisted of the following:

(in thousands)	Year Ended December 31, 2023	2022
Investment loss, net	**$ (2,233)**	$ (1,628)
Foreign currency (loss) gain, net	**(3,981)**	1,568
Other	**(226)**	(274)
Total other expense, net	**$ (6,440)**	$ (334)

Income Tax Provision: Our income before income tax provision, income tax provision and effective tax rate were as follows:

(in thousands, except percentages)	Year Ended December 31, 2023	2022
Income before income tax provision	**$ 592,138**	$ 575,315
Income tax provision	**$ 91,726**	$ 51,605
Effective tax rate	**15.5 %**	9.0 %

The increase in the effective tax rate from the prior year was primarily due to a non-recurring benefit in 2022 of $22.8 million related to U.S. tax benefits on foreign earnings from entity structuring activities, a decrease in benefits related to stock-based compensation of $9.0 million, a non-recurring benefit in 2022 of $8.7 million related to Extraterritorial Income Exclusions from prior periods and an $8.3 million decrease in the benefit related to foreign-derived intangible income (FDII). These increases were offset by a $10.6 million decrease in tax related to global intangible low-taxed income as a result of a change in estimate from the prior year.

When compared to the federal and state combined statutory rate for each respective period, the effective tax rates for the years ended December 31, 2023 and 2022 were favorably impacted by tax benefits from the FDII deduction and research and development credits, partially offset by the impact of non-deductible compensation.

Net Income: Our net income, diluted earnings per share and weighted average shares used in computing diluted earnings per share were as follows:

(in thousands, except per share data)	Year Ended December 31, 2023	2022
Net income	**$ 500,412**	$ 523,710
Diluted earnings per share	**$ 5.73**	$ 5.99
Weighted average shares outstanding - diluted	**87,386**	87,490

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Non-GAAP Results

We provide non-GAAP revenue, non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share as supplemental measures to GAAP regarding our operational performance. These financial measures exclude the impact of certain items and, therefore, have not been calculated in accordance with GAAP. A detailed explanation and a reconciliation of each non-GAAP financial measure to its most comparable GAAP financial measure are included below, as applicable.

ANSYS, INC. AND SUBSIDIARIES

Reconciliations of GAAP to Non-GAAP Measures

(Unaudited)

	Year Ended December 31, 2023						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	**$ 2,269,949**	**$ 1,998,651**	**88.0 %**	**$ 626,135**	**27.6 %**	**$ 500,412**	**$ 5.73**
Stock-based compensation expense	**—**	**13,337**	**0.6 %**	**221,891**	**9.9 %**	**221,891**	**2.54**
Excess payroll taxes related to stock-based awards	**—**	**307**	**0.1 %**	**5,541**	**0.2 %**	**5,541**	**0.06**
Amortization of intangible assets from acquisitions	**—**	**80,990**	**3.5 %**	**103,502**	**4.5 %**	**103,502**	**1.18**
Expenses related to business combinations	**—**	**—**	**— %**	**9,422**	**0.4 %**	**9,422**	**0.11**
Adjustment for income tax effect	**—**	**—**	**— %**	**—**	**— %**	**(71,460)**	**(0.82)**
Total non-GAAP	**$ 2,269,949**	**$ 2,093,285**	**92.2 %**	**$ 966,491**	**42.6 %**	**$ 769,308**	**$ 8.80**

[1] Diluted weighted average shares were 87,386.

	Year Ended December 31, 2022						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	$ 2,065,553	$ 1,814,912	87.9 %	$ 592,658	28.7 %	$ 523,710	$ 5.99
Acquisition accounting for deferred revenue	7,333	7,333	— %	7,333	0.2 %	7,333	0.08
Stock-based compensation expense	—	10,073	0.5 %	168,128	8.2 %	168,128	1.92
Excess payroll taxes related to stock-based awards	—	510	— %	6,118	0.3 %	6,118	0.07
Amortization of intangible assets from acquisitions	—	69,372	3.4 %	85,094	4.1 %	85,094	0.97
Expenses related to business combinations	—	—	— %	10,335	0.5 %	10,335	0.12
Adjustment for income tax effect	—	—	— %	—	— %	(101,813)	(1.16)
Total non-GAAP	$ 2,072,886	$ 1,902,200	91.8 %	$ 869,666	42.0 %	$ 698,905	$ 7.99

[1] Diluted weighted average shares were 87,490.

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We use non-GAAP financial measures (a) to evaluate our historical and prospective financial performance as well as our performance relative to our competitors, (b) to set internal sales targets and spending budgets, (c) to allocate resources, (d) to measure operational profitability and the accuracy of forecasting, (e) to assess financial discipline over operational expenditures and (f) as an important factor in determining variable compensation for management and employees. In addition, many financial analysts that follow us focus on and publish both historical results and future projections based on non-GAAP financial measures. We believe that it is in the best interest of our investors to provide this information to analysts so that they accurately report the non-GAAP financial information. Moreover, investors have historically requested, and we have historically reported, these non-GAAP financial measures as a means of providing consistent and comparable information with past reports of financial results.

While we believe that these non-GAAP financial measures provide useful supplemental information to investors, there are limitations associated with the use of these non-GAAP financial measures. These non-GAAP financial measures are not prepared in accordance with GAAP, are not reported by all our competitors and may not be directly comparable to similarly titled measures of our competitors due to potential differences in the exact method of calculation. We compensate for these limitations by using these non-GAAP financial measures as supplements to GAAP financial measures and by reviewing the reconciliations of the non-GAAP financial measures to their most comparable GAAP financial measures.

- The adjustments to these non-GAAP financial measures, and the basis for such adjustments, are outlined below:

- **Acquisition accounting for deferred revenue.** Historically, we have consummated acquisitions in order to support our strategic and other business objectives. Under prior accounting guidance, a fair value provision resulted in acquired deferred revenue that was often recorded on the opening balance sheet at an amount that was lower than the historical carrying value. Although this fair value provision has no impact on our business or cash flow, it adversely impacts our reported GAAP revenue in the reporting periods following an acquisition. In 2022, we adopted accounting guidance which eliminates the fair value provision that resulted in the deferred revenue adjustment on a prospective basis. In order to provide investors with financial information that facilitates comparison of both historical and future results, we have historically provided non-GAAP financial measures which exclude the impact of the acquisition accounting adjustment for acquisitions prior to the adoption of the new guidance in 2022. The 2022 non-GAAP financial measures presented in this document include the adjustment to exclude the income statement effects of acquisition accounting adjustments to deferred revenue from business combinations closed prior to 2022. There is no adjustment included for 2023 as the impact is not material.

- **Amortization of intangible assets from acquisitions.** We incur amortization of intangible assets, included in our GAAP presentation of amortization expense, related to various acquisitions we have made. We exclude these expenses for the purpose of calculating non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance because these costs are fixed at the time of an acquisition, are then amortized over a period of several years after the acquisition and generally cannot be changed or influenced by us after the acquisition. Accordingly, we do not consider these expenses for purposes of evaluating our performance during the applicable time period after the acquisition, and we exclude such expenses when making decisions to allocate resources. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate the effectiveness of the methodology and information used by us in our financial and operational decision-making, and (b) compare our past reports of financial results as we have historically reported these non-GAAP financial measures.

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Stock-based compensation expense. We incur expense related to stock-based compensation included in our GAAP presentation of cost of maintenance and service; research and development expense; and selling, general and administrative expense. This non-GAAP adjustment also includes excess payroll tax expense related to stock-based compensation. Although stock-based compensation is an expense and viewed as a form of compensation, we exclude these expenses for the purpose of calculating non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance. Specifically, we exclude stock-based compensation during our annual budgeting process and our quarterly and annual assessments of our performance. The annual budgeting process is the primary mechanism whereby we allocate resources to various initiatives and operational requirements. Additionally, the annual review by our Board of Directors during which it compares our historical business model and profitability to the planned business model and profitability for the forthcoming year excludes the impact of stock-based compensation. In evaluating the performance of our senior management and department managers, charges related to stock-based compensation are excluded from expenditure and profitability results. In fact, we record stock-based compensation expense into a stand-alone cost center for which no single operational manager is responsible or accountable. In this way, we can review, on a period-to-period basis, each manager's performance and assess financial discipline over operational expenditures without the effect of stock-based compensation. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate our operating results and the effectiveness of the methodology used by us to review our operating results, and (b) review historical comparability in our financial reporting as well as comparability with competitors' operating results.

- **Expenses related to business combinations.** We incur expenses for professional services rendered in connection with business combinations, which are included in our GAAP presentation of selling, general and administrative expense. We also incur other expenses directly related to business combinations, including compensation expenses and concurrent restructuring activities, such as employee severances and other exit costs. These costs are included in our GAAP presentation of selling, general and administrative and research and development expenses. We exclude these acquisition-related expenses for the purpose of calculating non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance, as we generally would not have otherwise incurred these expenses in the periods presented as a part of our operations. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate our operating results and the effectiveness of the methodology used by us to review our operating results, and (b) review historical comparability in our financial reporting as well as comparability with competitors' operating results.

- **Non-GAAP tax provision.** We utilize a normalized non-GAAP annual effective tax rate (AETR) to calculate non-GAAP measures. This methodology provides better consistency across interim reporting periods by eliminating the effects of non-recurring items and aligning the non-GAAP tax rate with our expected geographic earnings mix. To project this rate, we analyzed our historic and projected non-GAAP earnings mix by geography along with other factors such as our current tax structure, recurring tax credits and incentives, and expected tax positions. On an annual basis we re-evaluate and update this rate for significant items that may materially affect our projections.

- Non-GAAP financial measures are not in accordance with, or an alternative for, GAAP. Our non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP financial measures and should be read only in conjunction with our consolidated financial statements prepared in accordance with GAAP.

- We have provided a reconciliation of the non-GAAP financial measures to the most directly comparable GAAP financial measures as listed below:

GAAP Reporting Measure	Non-GAAP Reporting Measure
Revenue	Non-GAAP Revenue
Gross Profit	Non-GAAP Gross Profit
Gross Profit Margin	Non-GAAP Gross Profit Margin
Operating Income	Non-GAAP Operating Income
Operating Profit Margin	Non-GAAP Operating Profit Margin
Net Income	Non-GAAP Net Income
Diluted Earnings Per Share	Non-GAAP Diluted Earnings Per Share

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Constant currency. In addition to the non-GAAP financial measures detailed above, we use constant currency results for financial and operational decision-making and as a means to evaluate period-to-period comparisons by excluding the effects of foreign currency fluctuations on the reported results. To present this information, the 2023 results for entities whose functional currency is a currency other than the U.S. Dollar were converted to U.S. Dollars at rates that were in effect for the 2022 comparable period, rather than the actual exchange rates in effect for 2023. Constant currency growth rates are calculated by adjusting the 2023 reported amounts by the 2023 currency fluctuation impacts and comparing the adjusted amounts to the 2022 comparable period reported amounts. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate the effectiveness of the methodology and information used by us in our financial and operational decision-making, and (b) compare our reported results to our past reports of financial results without the effects of foreign currency fluctuations.

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Liquidity and Capital Resources

(in thousands, except percentages)	As of December 31, 2023	As of December 31, 2022	Change Amount	Change %
Cash, cash equivalents and short-term investments	**$ 860,390**	$ 614,574	$ 245,816	40.0
Working capital	**$1,160,273**	$ 869,286	$ 290,987	33.5

Cash, Cash Equivalents and Short-Term Investments

Cash and cash equivalents consist primarily of highly liquid investments such as money market funds and deposits held at major banks. Short-term investments consist primarily of deposits held by certain of our foreign subsidiaries with original maturities of three months to one year. The following table presents our foreign and domestic holdings of cash, cash equivalents and short-term investments as of December 31, 2023 and 2022:

(in thousands, except percentages)	As of December 31, 2023	% of Total	As of December 31, 2022	% of Total
Domestic	**$ 529,092**	**61.5**	$ 326,784	53.2
Foreign	**331,298**	**38.5**	287,790	46.8
Total	**$ 860,390**		$ 614,574	

In general, it is our intention to permanently reinvest all earnings in excess of previously taxed amounts. Substantially all of the pre-2018 earnings of our non-U.S. subsidiaries were taxed through the transition tax and post-2018 current earnings are taxed as part of global intangible low-taxed income tax expense. These taxes increase our previously taxed earnings and allow for the repatriation of the majority of our foreign earnings without any residual U.S. federal tax. Unrecognized provisions for taxes on indefinitely reinvested undistributed earnings of foreign subsidiaries would not be significant.

The amount of cash, cash equivalents and short-term investments held by foreign subsidiaries is subject to translation adjustments caused by changes in foreign currency exchange rates as of the end of each respective reporting period, the offset to which is recorded in accumulated other comprehensive loss on our consolidated balance sheet.

Cash Flows from Operating Activities

(in thousands, except percentages)	Year Ended December 31, 2023	Year Ended December 31, 2022	Change Amount	Change %
Net cash provided by operating activities	**$ 717,122**	$ 631,003	$ 86,119	13.6

- Net cash provided by operating activities increased during the current fiscal year due to increased customer receipts driven primarily by ACV growth, partially offset by payments related to higher operating expenses, interest payments due to the higher interest rate environment as compared to the year ended December 31, 2022 and increased income tax payments associated with higher taxable income.

- ***Cash Flows from Investing Activities***

(in thousands, except percentages)	Year Ended December 31, 2023	Year Ended December 31, 2022	Change Amount	Change %
Net cash used in investing activities	**$ (240,042)**	$ (411,368)	$ 171,326	41.6

Net cash used in investing activities decreased during the current fiscal year due primarily to decreased cash outlays for acquisitions of $177.4 million. We currently plan capital spending of $40.0 million to $50.0 million during fiscal year 2024 as compared to the $25.3 million that was spent in fiscal year 2023. The level of spending will depend on various factors, including the growth of the business and general economic conditions.

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Cash Flows from Financing Activities

(in thousands, except percentages)	Year Ended December 31, 2023	2022	Change Amount	%
Net cash used in financing activities	**$ (231,319)**	$ (245,508)	$ 14,189	5.8

Net cash used in financing activities decreased during the current fiscal year primarily due to decreased stock repurchases of $9.1 million and increased proceeds from shares issued for stock-based compensation of $4.5 million.

Other Cash Flow Information

On June 30, 2022, we entered into a credit agreement (the 2022 Credit Agreement) with PNC Bank, National Association as administrative agent, swing line lender, and an L/C issuer, the lenders party thereto, and the other L/C issuers party thereto. The 2022 Credit Agreement refinanced our previous credit agreements in their entirety. The 2022 Credit Agreement provides for a $755.0 million unsecured term loan facility and a $500.0 million unsecured revolving loan facility, which includes a $50.0 million sublimit for the issuance of letters of credit. Terms used in this description of the 2022 Credit Agreement with initial capital letters that are not otherwise defined herein are as defined in the 2022 Credit Agreement.

As of December 31, 2023, the carrying value of our term loan was $753.9 million, with no principal payments due in the next twelve months. Borrowings under the term loan and revolving loan facilities accrue interest at a rate that is based on the Term SOFR plus an applicable margin or at the base rate plus an applicable margin, at our election. The base rate is the highest of (i) the Overnight Bank Funding Rate, plus 0.500%, (ii) the PNC Bank, National Association prime rate, and (iii) Daily Simple SOFR plus an adjustment for SOFR plus 1.00%. The applicable margin for the borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated net leverage ratio and (2) a pricing level determined by our public debt rating (if available).

On September 29, 2023, the 2022 Credit Agreement was amended to provide for an interest rate adjustment (Sustainability Rate Adjustment) based upon the achievement of certain environmental, social and governance key performance indicators (KPIs). The Sustainability Rate Adjustment range is +/- 0.05% and will go into effect in the first quarter of 2024 based on the 2023 KPIs and will be adjusted annually based on the KPIs of the preceding year.

The rate in effect for the first quarter of 2024 under the 2022 Credit Agreement is 6.32%.

We previously entered into operating lease commitments, primarily for our domestic and international offices. The commitments related to these operating leases is $137.6 million, of which $27.0 million is due in the next twelve months.

Under our stock repurchase program, we repurchased shares as follows:

(in thousands, except per share data)	Year Ended December 31, 2023	2022
Number of shares repurchased	**650**	725
Average price paid per share	**$ 302.34**	$ 283.38
Total cost	**$ 196,494**	$ 205,571

As of December 31, 2023, 1.1 million shares remained available for repurchase under the program. Average price paid per share excludes excise tax. As of January 1, 2023, our share repurchases in excess of issuances are subject to a 1% excise tax enacted by the Inflation Reduction Act. As of December 31, 2023, we had $0.1 million of accrued excise tax. Any excise tax incurred is recognized and reflected as part of the cost basis of the shares acquired in the Consolidated Statements of Stockholders' Equity. The authorized repurchase program does not have an expiration date.

We continue to generate positive cash flows from operating activities and believe that the best uses of our excess cash are to invest in the business; acquire or make investments in complementary companies, products, services and technologies; and make payments on our outstanding debt balances. Any future acquisitions may be funded by available cash and investments, cash generated from operations, debt financing or the issuance of additional securities.

We believe that existing cash and cash equivalent balances, together with cash generated from operations and access to the $500.0 million revolving loan facility, will be sufficient to meet our working capital, capital expenditure requirements and contractual obligations through at least the next twelve months and the foreseeable future thereafter. Our cash requirements in the future may also be financed through additional equity or debt financings. However, future disruptions in the capital markets could make financing more challenging and there can be no assurance that such financing can be obtained on commercially reasonable terms, or at all.

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Contractual and Other Obligations

Our significant contractual and other obligations as of December 31, 2023 are summarized below:

(in thousands)	Total	Current	Long-Term
Long-term debt:			
Principal payments	**$ 755,000**	$ —	$ 755,000
Interest payments[1]	**169,211**	48,403	120,808
Global headquarters operating lease[2]	**27,343**	4,480	22,863
Other operating leases[3]	**110,235**	22,550	87,685
Unconditional purchase obligations[4]	**111,770**	66,421	45,349
Obligations related to uncertain tax positions, including interest and penalties[5]	—	—	—
Equity investment[6]	**300,000**	300,000	—
Total contractual obligations	**$ 1,473,559**	$ 441,854	$ 1,031,705

(1) Borrowings under long-term debt accrue interest at a rate that is based on the Term SOFR plus an applicable margin or at the base rate plus an applicable margin, at our election. The base rate is the highest of (i) the Overnight Bank Funding Rate, plus 0.500%, (ii) the PNC Bank, National Association prime rate, and (iii) Daily Simple SOFR plus an adjustment for SOFR plus 1.00%. The applicable margin for the borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated net leverage ratio and (2) a pricing level determined by our public debt rating (if available). As the interest rate is variable, interest on the long-term debt is estimated using the interest rate as of December 31, 2023. For additional information, see Note 10 to the consolidated financial statements included in Part IV, Item 15 of this Annual Report on Form 10-K.

(2) We previously entered into a lease agreement for 186,000 square feet of rentable space located in an office facility in Canonsburg, Pennsylvania, which serves as our headquarters. The term of the lease is 183 months, beginning on October 1, 2014 and expiring on December 31, 2029. We have a one-time right to terminate the lease on December 31, 2025 by providing the landlord with at least 18 months' prior written notice of such termination.

(3) Other operating leases primarily include lease commitments for our other domestic and international offices as well as certain operating equipment.

(4) Unconditional purchase obligations primarily include minimum royalty contracts, software licenses and support, and network services, which are unrecorded as of December 31, 2023. The unconditional purchase obligations are in addition to the current and long-term liabilities recorded on our December 31, 2023 consolidated balance sheet.

(5) We have $54.9 million of unrecognized tax benefits, including estimated interest and penalties, that have been recorded as liabilities in accordance with income tax accounting guidance for which we are uncertain as to if or when such amounts may be settled. As a result, such amounts are excluded from the table above.

(6) On December 5, 2023, we entered into an agreement to make a strategic equity investment. The investment is subject to regulatory approvals and customary closing conditions and is expected to close in the first half of 2024.

If the Merger Agreement is terminated under certain circumstances specified in the Merger Agreement, we would be required to pay a termination fee of $950.0 million.

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Critical Accounting Estimates

We have prepared our consolidated financial statements in accordance with GAAP. In preparing our consolidated financial statements, we make assumptions, judgments and estimates that can have a significant impact on our financial position and results of operations. These estimates, assumptions and judgments are made based on our historical experience and on other assumptions that we believe to be reasonable under the circumstances. Actual results could materially differ from any of our estimates under different assumptions or conditions.

The accounting policies, methods and estimates used to prepare our consolidated financial statements are described in Note 2 to the consolidated financial statements included in Part IV, Item 15 of this Annual Report on Form 10-K. The most critical accounting judgments and estimates that we made in preparing our consolidated financial statements involved:

- Revenue recognition;
- Valuation of assets acquired and liabilities assumed in business combinations; and
- Income taxes.

Revenue Recognition

Description

Our revenue is derived principally from the licensing of computer software products and from related maintenance contracts. We enter into contracts that include combinations of products, maintenance and services, which are accounted for as separate performance obligations with differing revenue recognition patterns.

Judgments and Estimates

Our contracts with customers typically include promises to transfer licenses and services to a customer. Judgment is required to determine if the promises are separate performance obligations, and if so, to allocate the transaction price to each performance obligation. We use the estimated standalone selling price method to allocate the transaction price for each performance obligation. The estimated standalone selling price is determined using all information reasonably available to us, including market conditions and other observable inputs. The corresponding revenues are recognized as the related performance obligations are satisfied.

Our time-based subscription lease license contracts with customers are sold as a bundled arrangement that includes the rights to a term software license as well as post-contract support (PCS), which includes unspecified technical enhancements and customer support. Revenue is recognized up front at the commencement of the lease for the term software lease license and recognized ratably over the term of the contract for the PCS in the arrangement. Utilizing observable inputs, we determined that 50% of the estimated standalone selling price of the subscription lease license is attributable to the term software license, while 50% is attributable to PCS. This determination involved judgment, particularly as it relates to the value relationship between our PCS and subscription lease licenses, the value relationship between PCS and our perpetual licenses and its linkage to the shortened term of a subscription lease license, the average economic life of our software, renewal rates of our customers and the price of the bundled arrangement in relation to the perpetual licensing approach.

Changes in these estimates could significantly impact the recognition of revenue in a given period.

Valuation of Assets Acquired and Liabilities Assumed in Business Combinations

Description

In accordance with business combination accounting, we allocate the purchase price of an acquired business to its identifiable assets acquired and liabilities assumed at the acquisition date based upon their estimated fair values. The excess of the fair value of consideration transferred over the fair value of net identifiable assets acquired, if any, is recorded as goodwill. Intangible assets are recognized apart from goodwill whenever an acquired intangible asset arises from contractual or other legal rights, or whenever it is capable of being separated or divided from the acquired entity and sold, transferred, licensed, rented or exchanged, either individually or in combination with a related contract, asset or liability.

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Judgments and Estimates

Determining these fair values requires us to make significant estimates and assumptions, particularly with respect to acquired intangible assets. We determined the fair value of our intangible assets using various valuation techniques, including the relief-from-royalty method and the multi-period excess earnings method. These models utilize certain unobservable inputs classified as Level 3 measurements as defined by ASC 820, *Fair Value Measurements and Disclosures*. The determination of fair value requires considerable judgment and is sensitive to changes in underlying assumptions, estimates and market factors. Estimating fair value requires us to make assumptions and estimates regarding our future plans, as well as industry and economic conditions. These assumptions and estimates include, but are not limited to: royalty rate, discount rate, customer attrition rate and obsolescence rate. The fair values of the intangible assets will be amortized over their useful lives.

If actual results are materially different than the assumptions we used to determine fair value of the assets acquired and liabilities assumed through a business combination, it is possible that adjustments to the carrying values of such assets and liabilities will have a material impact on our financial position and results of operations. See Note 4 to the consolidated financial statements included in Part IV, Item 15 of this Annual Report on Form 10-K for information regarding our business acquisitions.

Income Taxes

Description

Our income tax expense reflects management's best estimate of current and future taxes to be paid. We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined based on the differences between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period of the enactment date.

Additionally, as part of our accounting for income taxes, tax benefits related to uncertain tax positions taken or expected to be taken on a tax return are recorded when such benefits meet a more-likely-than-not threshold. Otherwise, these tax benefits are recorded when a tax position has been effectively settled, which means that the statute of limitations has expired or the appropriate taxing authority has completed its examination even though the statute of limitations remains open.

Judgments and Estimates

We are subject to tax in the United States and numerous foreign jurisdictions. Significant judgements and estimates are required in the determination of consolidated income tax expense. We record net deferred tax assets to the extent we believe these assets will more likely than not be realized. In making such determination, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies and recent financial operations. The assumptions about future taxable income require the use of significant judgement and are consistent with the plans and estimates we are using to manage the underlying business. In the event we determine that we will be able to realize deferred tax assets for which a valuation allowance was used to reduce their carrying value, the adjustment to the valuation allowance will be recorded as a reduction to the provision for income taxes in the period such determination is made.

The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in a multitude of jurisdictions across our global operations. Significant judgment is required in the identification and measurement of uncertain tax positions. Our liability for unrecognized tax benefits contains uncertainties because we are required to make assumptions and to apply judgment to estimate the exposures associated with our various filing positions. We adjust the liabilities when our judgement changes as a result of new information not previously available.

Although we believe that the judgments and estimates discussed herein are reasonable, actual results could differ and we may be exposed to losses or gains that could be material. To the extent actual results differ from estimated amounts recorded, such differences will impact the income tax provision in the period in which the determination is made.

Recent Accounting Guidance

For information regarding recent accounting guidance and its impact on our consolidated financial statements, see Note 2 to the consolidated financial statements in Part IV, Item 15 of this Annual Report on Form 10-K.

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Foreign Currency Exchange Risk. As we operate in international regions, a portion of our revenue, expenses, cash, accounts receivable and payment obligations are denominated in foreign currencies. As a result, changes in currency exchange rates will affect our financial position, results of operations and cash flows. We seek to reduce our currency exchange transaction risks primarily through our normal operating and treasury activities, including the use of derivative instruments.

With respect to revenue, on average for the year ended December 31, 2023, the U.S. Dollar was 0.6% stronger, when measured against our foreign currencies, than for the year ended December 31, 2022. The table below presents the net impacts of currency fluctuations on revenue for the year ended December 31, 2023. Amounts in brackets indicate a net adverse impact from currency fluctuations.

(in thousands)	Year Ended December 31, 2023
Japanese Yen	$ (13,457)
Indian Rupee	(1,988)
Taiwan Dollar	(1,666)
South Korean Won	(1,010)
Euro	13,179
Other	(811)
Total	**$ (5,753)**

The impacts from currency fluctuations resulted in decreased operating income of $1.4 million for the year ended December 31, 2023 as compared to the year ended December 31, 2022.

A hypothetical 10% strengthening in the U.S. Dollar against other currencies would have decreased our revenue by $97.2 million and decreased our operating income by $41.2 million for the year ended December 31, 2023.

The most meaningful currency impacts on revenue and operating income are typically attributable to U.S. Dollar exchange rate changes against the Euro and Japanese Yen. Historical exchange rates for these currency pairs are reflected in the charts below:

	Period End Exchange Rates	
As of	EUR/USD	USD/JPY
December 31, 2023	**1.10**	**141**
December 31, 2022	1.07	131
December 31, 2021	1.14	115
December 31, 2020	1.22	103

	Average Exchange Rates	
Year Ended	EUR/USD	USD/JPY
December 31, 2023	**1.08**	**140**
December 31, 2022	1.05	131
December 31, 2021	1.18	110

Interest Rate Risk. Changes in the overall level of interest rates affect the interest income that is generated from our cash, cash equivalents and short-term investments and the interest expense that is generated from our outstanding borrowings. For the year ended December 31, 2023, interest income was $19.6 million and interest expense was $47.1 million.

Cash and cash equivalents consist primarily of highly liquid investments such as money market funds and deposits held at major banks. Short-term investments consist primarily of deposits held by certain foreign subsidiaries with original maturities of three months to one year. A hypothetical 100 basis point change in interest rates on these holdings could have an $8.6 million impact on our financial results.

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Our outstanding term loan borrowings of $755.0 million as of December 31, 2023 accrue interest at a rate that is based on the Term SOFR plus an applicable margin or at the base rate plus an applicable margin, at our election. The base rate is the highest of (i) the Overnight Bank Funding Rate, plus 0.500%, (ii) the PNC Bank, National Association prime rate, and (iii) Daily Simple SOFR plus an adjustment for SOFR plus 1.00%. The applicable margin for the borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated net leverage ratio and (2) a pricing level determined by our public debt rating (if available).

On September 29, 2023, the 2022 Credit Agreement was amended to provide for an interest rate adjustment (Sustainability Rate Adjustment) based upon the achievement of certain environmental, social and governance key performance indicators (KPIs). The Sustainability Rate Adjustment range is +/- 0.05% and will go into effect in the first quarter of 2024 based on the 2023 KPIs and will be adjusted annually based on the KPIs of the preceding year.

Because interest rates applicable to the outstanding borrowings are variable, we are exposed to interest rate risk from changes in the underlying index rates, which affects our interest expense. A hypothetical increase of 100 basis points in interest rates would result in an increase in interest expense of $7.7 million and a corresponding decrease in cash flows over the next twelve months, based on outstanding borrowings at December 31, 2023.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The information required by this Item is included in Part IV, Item 15 of this Annual Report on Form 10-K.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures. As required by Rules 13a-15 and 15d-15 of the Exchange Act, we have evaluated, with the participation of management, including the Chief Executive Officer and the Chief Financial Officer, the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on such evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that such disclosure controls and procedures are effective, as defined in Rule 13a-15(e) or Rule 15d-15(e) of the Exchange Act.

We believe, based on our knowledge, that the financial statements and other financial information included in this report fairly present, in all material respects, our financial condition, results of operations and cash flows as of and for the periods presented in this report. We are committed to both a sound internal control environment and to good corporate governance.

From time to time, we review the disclosure controls and procedures and may periodically make changes to enhance their effectiveness and to confirm that our systems evolve with our business.

Management's Annual Report on Internal Control over Financial Reporting. Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f) or Rule 15d-15(f). Under the supervision and with the participation of management, including our Chief Executive Officer and Chief Financial Officer, we have conducted an evaluation of the effectiveness of our internal control over financial reporting based upon the *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with policies or procedures may deteriorate. Our system of internal control over financial reporting is designed to provide reasonable assurance to management and the Board of Directors regarding the reliability of financial records used in preparation of our published financial statements. As all internal control systems have inherent limitations, even systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our internal control over financial reporting was effective at December 31, 2023.

Additionally, Deloitte & Touche LLP, an independent registered public accounting firm, has audited the financial statements included in this Annual Report on Form 10-K and has issued an attestation report on our internal control over financial reporting. This report is included in Item 15 of this Annual Report on Form 10-K.

Changes in Internal Controls. There were no changes in our internal control over financial reporting that occurred during the three months ended December 31, 2023 that materially affected, or that are reasonably likely to materially affect, our internal control over financial reporting.

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ITEM 9B. OTHER INFORMATION

Trading Arrangements

None of the directors or "officers" of ANSYS, Inc. (as defined in Rule 16a-1(f) promulgated under the Exchange Act of 1934) adopted, modified or terminated a "Rule 10b5-1 trading arrangement" or a "non-Rule 10b5-1 trading arrangement," as each term is defined in Item 408 of Regulation S-K, during the fiscal quarter ended December 31, 2023.

Transition Agreement

As previously disclosed, on November 29, 2023, Nicole Anasenes notified the Company that, after three years as the Company's Chief Financial Officer and Senior Vice President of Finance, she intended to resign. On February 15, 2024, the Company and Ms. Anasenes entered into a Transition Agreement (the Transition Agreement). Pursuant to the Transition Agreement, Ms. Anasenes will resign as Chief Financial Officer and Senior Vice President of Finance effective February 22, 2024 (the Transition Date) and will remain an employee of the Company until June 7, 2024, following which she will transition to providing consulting services to the Company until August 8, 2024 pursuant to the Consulting Agreement (as defined below). Under the Transition Agreement, Ms. Anasenes provided a customary general release to the Company, and the parties also agreed to certain confidentiality, non-disclosure, non-solicitation and non-disparagement covenants.

The Transition Agreement provides that the Company and Ms. Anasenes will enter into a Consulting Services Agreement (the Consulting Agreement) with an effective date of June 8, 2024, pursuant to which Ms. Anasenes will provide consulting services to the Company beginning on June 8, 2024 and continuing through August 8, 2024. In consideration for her provision of consulting services, the Company will pay to Ms. Anasenes a total fee of $50,000. A form of Consulting Agreement is attached as an exhibit to the Transition Agreement.

The foregoing descriptions of the Transition Agreement and form of Consulting Agreement attached as an exhibit thereto do not purport to be complete and are subject to and qualified in their entirety by reference to the full text of such agreements, which are attached hereto as Exhibit 10.27 to this Annual Report on Form 10-K and incorporated herein by reference.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

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PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item is incorporated by reference to our 2024 Proxy Statement and is set forth under "Corporate Governance at Ansys," "Director Nominees," "Continuing Directors Following the 2024 Annual Meeting" and "Our Executive Officers" therein.

We have a Code of Business Conduct and Ethics that applies to our principal executive officer, principal financial officer and principal accounting officer, and all of our directors and employees. Our Code of Business Conduct and Ethics is posted under the Governance tab of the Investor Relations section of our website at https://investors.ansys.com. We post any amendments to, or waiver of, our Code of Business Conduct and Ethics that apply to our principal executive officer, principal financial officer and principal accounting officer on our website.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item is incorporated by reference to our 2024 Proxy Statement and is set forth under "Compensation Discussion and Analysis," "Compensation Policies and Practices Related to Risk Management," "Fiscal 2023 Compensation Tables," "2023 CEO Pay Ratio," "Compensation Committee Report," "Corporate Governance at Ansys--Compensation Committee Interlocks and Insider Participation," "Non-Employee Director Compensation" and "Director Compensation Table Fiscal Year 2023" therein.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item is incorporated by reference to our 2024 Proxy Statement and is set forth under "Equity Compensation Plans" and "Ownership of Our Common Stock" therein.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item is incorporated by reference to our 2024 Proxy Statement and is set forth under "Corporate Governance at Ansys--Director Independence" and "Corporate Governance at Ansys--Related-Party Transactions" therein.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item is incorporated by reference to our 2024 Proxy Statement and is set forth under "Independent Registered Accounting Firm Services and Fees" therein.

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PART IV

ITEM 15. EXHIBIT AND FINANCIAL STATEMENT SCHEDULES

(a) Documents Filed as Part of this Annual Report on Form 10-K:

i. *Financial Statements:* The following consolidated financial statements and reports are filed as part of this report:

- Reports of Independent Registered Public Accounting Firm (PCAOB ID: 34) 64
- Consolidated Balance Sheets as of December 31, 2023 and 2022 67
- Consolidated Statements of Income for the years ended December 31, 2023, 2022 and 2021 68
- Consolidated Statements of Comprehensive Income for the years ended December 31, 2023, 2022 and 2021 69
- Consolidated Statements of Cash Flows for the years ended December 31, 2023, 2022 and 2021 70
- Consolidated Statements of Stockholders' Equity for the years ended December 31, 2023, 2022 and 2021 71
- Notes to Consolidated Financial Statements 72

ii. *Financial Statement Schedules:* Schedules have been omitted because they are not applicable, are not required or the information required to be set forth therein is included in the consolidated financial statements or notes thereto.

iii. *Exhibits:* The exhibits listed in the accompanying Exhibit Index are filed as part of, or incorporated by reference into, this Annual Report on Form 10-K.

(b) Exhibits:

We hereby file as part of this Annual Report on Form 10-K the exhibits listed in the Exhibit Index of this Annual Report on Form 10-K.

(c) Financial Statement Schedules:

None.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of ANSYS, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of ANSYS, Inc. and subsidiaries (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of income, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2023, and the related notes in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 21, 2024, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue—Time-Based Subscription Lease Licenses—Refer to Notes 2 and 3 to the financial statements

Critical Audit Matter Description

The Company sells time-based subscription lease license contracts with customers that are sold as a bundled arrangement that include the rights to a term software license as well as post-contract support (PCS). Revenue is recognized up front at the commencement of the lease for the term software license and recognized ratably over the term of the contract for the PCS in the arrangement. Utilizing observable inputs, the Company determined that 50% of the estimated standalone selling price of the subscription lease license is attributable to the term license, while 50% is attributable to PCS. This determination involved judgment, particularly as it relates to the value relationship between the Company's PCS to subscription lease licenses, the value relationship between PCS and the Company's perpetual licenses and its linkage to the shortened term of a subscription lease license, the average economic life of the Company's software, renewal rates of its customers, and the price of the bundled arrangement in relation to the perpetual licensing approach.

Given the judgments necessary to determine the allocation between the term software license and PCS, auditing this estimate involved a high degree of auditor judgment.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's estimate of the allocation between the term software license and PCS in a subscription lease license included the following, among others:

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- We tested the effectiveness of controls over subscription lease license revenue, including those over the determination of the estimated standalone selling price of the Company's licenses and services, as well as the allocation of this standalone selling price within the arrangement.

- We evaluated the pricing relationship between PCS and perpetual licenses on the net licensing fee of the arrangement, as well as the Company's renewal rate of PCS sales on perpetual licenses through those arrangements selected for testing that contained both elements as a consideration point of the value relationship between the term software license and PCS when a customer purchases a bundled subscription lease license.

- We evaluated the estimated economic life of the Company's software through observable data points.

- Through our current and historical audit procedures, we confirmed that the term software license portion and PCS portion of an arrangement are not sold separately from one another.

- We selected a sample of arrangements and performed the following:

  - Compared the list price of the subscription lease license to the consideration received from the customer and recalculated the discount from list price for each arrangement.

  - Evaluated whether management appropriately calculated the estimated standalone selling price for the subscription lease license.

  - Tested management's identification of distinct performance obligations.

  - Tested the mathematical accuracy of revenue recognized at a point in time or over time based upon the identification of subscription lease licenses within the arrangement.

/s/ Deloitte & Touche LLP
Pittsburgh, Pennsylvania
February 21, 2024

We have served as the Company's auditor since 2002.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of ANSYS, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of ANSYS, Inc. and subsidiaries (the "Company") as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2023, of the Company and our report dated February 21, 2024, expressed an unqualified opinion on those financial statements.

Basis for Opinion

- The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

- We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

- Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche LLP
Pittsburgh, Pennsylvania
February 21, 2024

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ANSYS, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(in thousands, except share and per share data)	December 31, 2023	December 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	**$ 860,201**	$ 614,391
Short-term investments	**189**	183
Accounts receivable, less allowance for doubtful accounts of $20,700 and $18,300, respectively	**864,526**	760,287
Other receivables and current assets	**324,651**	289,261
Total current assets	**2,049,567**	1,664,122
Long-term assets:		
Property and equipment, net	**77,780**	80,838
Operating lease right-of-use assets	**116,980**	129,140
Goodwill	**3,805,874**	3,658,267
Other intangible assets, net	**835,417**	809,183
Other long-term assets	**273,030**	261,880
Deferred income taxes	**164,227**	84,515
Total long-term assets	**5,273,308**	5,023,823
Total assets	**$ 7,322,875**	$ 6,687,945
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	**$ 22,772**	$ 14,021
Accrued bonuses and commissions	**170,909**	160,908
Accrued income taxes	**22,454**	7,698
Other accrued expenses and liabilities	**215,645**	198,220
Deferred revenue	**457,514**	413,989
Total current liabilities	**889,294**	794,836
Long-term liabilities:		
Deferred income taxes	**75,301**	58,126
Long-term operating lease liabilities	**100,505**	112,802
Long-term debt	**753,891**	753,574
Other long-term liabilities	**113,520**	102,756
Total long-term liabilities	**1,043,217**	1,027,258
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.01 par value; 2,000,000 shares authorized; zero shares issued or outstanding	**—**	—
Common stock, $0.01 par value; 300,000,000 shares authorized; 95,267,307 shares issued	**953**	953
Additional paid-in capital	**1,670,450**	1,540,317
Retained earnings	**5,283,342**	4,782,930
Treasury stock, at cost: 8,361,447 and 8,317,389 shares, respectively	**(1,474,110)**	(1,335,627)
Accumulated other comprehensive loss	**(90,271)**	(122,722)
Total stockholders' equity	**5,390,364**	4,865,851
Total liabilities and stockholders' equity	**$ 7,322,875**	$ 6,687,945

The accompanying notes are an integral part of the consolidated financial statements.

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ANSYS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME

(in thousands, except per share data)	Year Ended December 31, 2023	2022	2021
Revenue:			
Software licenses	**$ 1,088,748**	$ 988,978	$ 945,797
Maintenance and service	**1,181,201**	1,076,575	960,918
Total revenue	**2,269,949**	2,065,553	1,906,715
Cost of sales:			
Software licenses	**40,004**	33,081	38,156
Amortization	**80,990**	69,372	60,762
Maintenance and service	**150,304**	148,188	159,066
Total cost of sales	**271,298**	250,641	257,984
Gross profit	**1,998,651**	1,814,912	1,648,731
Operating expenses:			
Selling, general and administrative	**855,135**	772,871	715,377
Research and development	**494,869**	433,661	404,870
Amortization	**22,512**	15,722	15,213
Total operating expenses	**1,372,516**	1,222,254	1,135,460
Operating income	**626,135**	592,658	513,271
Interest income	**19,588**	5,717	2,078
Interest expense	**(47,145)**	(22,726)	(12,405)
Other (expense) income, net	**(6,440)**	(334)	12,410
Income before income tax provision	**592,138**	575,315	515,354
Income tax provision	**91,726**	51,605	60,727
Net income	**$ 500,412**	$ 523,710	$ 454,627
Earnings per share – basic:			
Earnings per share	**$ 5.76**	$ 6.02	$ 5.22
Weighted average shares	**86,833**	87,051	87,100
Earnings per share – diluted:			
Earnings per share	**$ 5.73**	$ 5.99	$ 5.16
Weighted average shares	**87,386**	87,490	88,102

The accompanying notes are an integral part of the consolidated financial statements.

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ANSYS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in thousands)	Year Ended December 31, 2023	2022	2021
Net income	**$ 500,412**	$ 523,710	$ 454,627
Other comprehensive income (loss):			
Foreign currency translation adjustments	**32,451**	(66,610)	(38,337)
Comprehensive income	**$ 532,863**	$ 457,100	$ 416,290

The accompanying notes are an integral part of the consolidated financial statements.

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ANSYS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Year Ended December 31, 2023	2022	2021
Cash flows from operating activities:			
Net income	**$ 500,412**	$ 523,710	$ 454,627
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	**132,504**	114,563	106,867
Operating lease right-of-use assets expense	**23,514**	22,721	22,193
Deferred income tax benefit	**(91,306)**	(130,716)	(34,490)
Provision for bad debts	**2,704**	6,222	1,006
Stock-based compensation expense	**221,891**	168,128	166,338
Gain on equity investment	**—**	—	(15,139)
Other	**1,238**	4,680	2,708
Changes in operating assets and liabilities:			
Accounts receivable	**(102,516)**	(114,986)	(149,017)
Other receivables and current assets	**(30,204)**	30,259	(64,316)
Other long-term assets	**(8,563)**	(3,613)	(3,217)
Accounts payable, accrued expenses and current liabilities	**27,853**	(8,250)	53,846
Accrued income taxes	**13,731**	99	(18,429)
Deferred revenue	**34,507**	33,003	26,547
Other long-term liabilities	**(8,643)**	(14,817)	(42)
Net cash provided by operating activities	**717,122**	631,003	549,482
Cash flows from investing activities:			
Acquisitions, net of cash acquired	**(208,911)**	(386,264)	(510,805)
Capital expenditures	**(25,318)**	(24,370)	(23,018)
Other investing activities	**(5,813)**	(734)	(2,990)
Net cash used in investing activities	**(240,042)**	(411,368)	(536,813)
Cash flows from financing activities:			
Principal payments on long-term debt	**—**	—	(45,000)
Purchase of treasury stock	**(196,494)**	(205,571)	(134,679)
Restricted stock withholding taxes paid in lieu of issued shares	**(63,645)**	(64,242)	(97,037)
Proceeds from shares issued for stock-based compensation	**30,114**	25,595	31,377
Other financing activities	**(1,294)**	(1,290)	(513)
Net cash used in financing activities	**(231,319)**	(245,508)	(245,852)
Effect of exchange rate fluctuations on cash and cash equivalents	**49**	(27,403)	(11,822)
Net increase (decrease) in cash and cash equivalents	**245,810**	(53,276)	(245,005)
Cash and cash equivalents, beginning of period	**614,391**	667,667	912,672
Cash and cash equivalents, end of period	**$ 860,201**	$ 614,391	$ 667,667
Supplemental disclosures of cash flow information:			
Income taxes paid	**$ 144,117**	$ 115,339	$ 130,426
Interest paid	**$ 46,069**	$ 20,844	$ 11,146
Non-cash and unpaid consideration in connection with acquisitions	**$ 5,056**	$ 5,391	$ —

The accompanying notes are an integral part of the consolidated financial statements.

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ANSYS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Treasury Stock Amount	Accumulated Other Comprehensive (Loss)/Income	Total Stockholders' Equity
Balance, January 1, 2021	95,266	$ 953	$1,434,203	$ 3,804,593	8,694	$ (1,124,102)	$ (17,775)	$ 4,097,872
Acquisition of Analytical Graphics Inc.	1		3,069		(10)	819		3,888
Treasury shares acquired					347	(134,679)		(134,679)
Stock-based compensation activity			28,422		(843)	72,255		100,677
Other comprehensive loss							(38,337)	(38,337)
Net income for the year				454,627				454,627
Balance, December 31, 2021	95,267	953	1,465,694	4,259,220	8,188	(1,185,707)	(56,112)	4,484,048
Acquisition of Analytical Graphics Inc.			511		(3)	300		811
Treasury shares acquired					725	(205,571)		(205,571)
Stock-based compensation activity			74,112		(593)	55,351		129,463
Other comprehensive loss							(66,610)	(66,610)
Net income for the year				523,710				523,710
Balance, December 31, 2022	**95,267**	**953**	**1,540,317**	**4,782,930**	**8,317**	**(1,335,627)**	**(122,722)**	**4,865,851**
Treasury shares acquired, including excise tax					**650**	**(196,609)**		**(196,609)**
Stock-based compensation activity			**130,133**		**(606)**	**58,126**		**188,259**
Other comprehensive income							**32,451**	**32,451**
Net income for the year				**500,412**				**500,412**
Balance, December 31, 2023	**95,267**	**$ 953**	**$1,670,450**	**$ 5,283,342**	**8,361**	**$ (1,474,110)**	**$ (90,271)**	**$ 5,390,364**

The accompanying notes are an integral part of the consolidated financial statements.

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1. Organization

We develop and globally market engineering simulation software and services widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia, including high-tech, aerospace and defense, automotive, energy, industrial equipment, materials and chemicals, consumer products, healthcare and construction.

As defined by the accounting guidance for segment reporting, we operate as one segment.

Given the integrated approach to the multi-discipline problem-solving needs of our customers, a single sale of software may contain components from multiple product areas and include combined technologies. We also have a multi-year product and integration strategy that will result in new, combined products or changes to the historical product offerings. As a result, it is impracticable for us to provide accurate historical or current reporting among our various product lines.

Pending Acquisition

On January 15, 2024, we entered into a definitive agreement with Synopsys, Inc. (Synopsys) under which Synopsys will acquire Ansys. Under the terms of the agreement, Ansys stockholders will receive $197.00 in cash and 0.3450 of a share of Synopsys common stock for each Ansys share, representing an enterprise value of approximately $35.0 billion based on the closing price of Synopsys common stock on December 21, 2023. The transaction is anticipated to close in the first half of 2025, subject to approval by Ansys stockholders, the receipt of required regulatory approvals and other customary closing conditions. See Note 20 "Subsequent Event" for additional details.

2. Accounting Policies

Accounting Principles

The consolidated financial statements and accompanying notes are prepared in accordance with accounting principles generally accepted in the United States. Certain items in the notes to the consolidated financial statements of prior years have been reclassified to conform to the current year's presentation. These reclassifications had no effect on reported net income, comprehensive income, cash flows, total assets or total liabilities and stockholders' equity.

Principles of Consolidation

The accompanying consolidated financial statements include our accounts and those of our wholly owned subsidiaries. All intercompany accounts and transactions have been eliminated.

Recently Adopted Accounting Guidance

Business combinations: In October 2021, the Financial Accounting Standards Board (FASB) issued ASU No. 2021-08, *Business Combinations* (Topic 805): *Accounting for Contract Assets and Contract Liabilities from Contracts with Customers* (ASU 2021-08). ASU 2021-08 requires contract assets and contract liabilities acquired in a business combination to be recognized and measured by the acquirer on the acquisition date in accordance with Accounting Standards Codification (ASC) 606, *Revenue from Contracts with Customers*, as if the acquirer had originated the contracts. We adopted the standard effective January 1, 2022. Under the prior guidance, such assets and liabilities were recognized by the acquirer at fair value on the acquisition date. The adoption of the new standard did not have a material effect on our consolidated financial statements and accompanying notes.

Accounting Guidance Issued and Not Yet Adopted

Segment reporting: In November 2023, the FASB issued ASU No. 2023-07, *Segment Reporting* (Topic 280): *Improvements to Reportable Segment Disclosures* (ASU 2023-07). ASU 2023-07 requires enhanced disclosures related to segment information, including for entities with one reportable segment. It does not change the determination of reportable segments. The enhanced disclosures in accordance with the new guidance are required to be reported in the annual period beginning after December 15, 2023. Early adoption is permitted. The standard only impacts footnote disclosures and will not impact our consolidated financial statements.

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Income tax disclosures: In December 2023, the FASB issued ASU No. 2023-09, *Income Taxes* (Topic 740): *Improvements to Income Tax Disclosures* (ASU 2023-09). ASU 2023-09 requires disclosure of greater disaggregation of information in the rate reconciliation and income taxes paid disaggregated by jurisdiction. It also includes certain other amendments to improve the effectiveness of income tax disclosures. The standard is effective for annual periods beginning after December 15, 2024. Early adoption is permitted. The standard only impacts footnote disclosures and will not impact our consolidated financial statements.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements. Estimates also affect the amounts of revenue and expenses during the reported periods. Significant estimates included in or impacting these consolidated financial statements include:

- Contract revenue
- Standalone selling prices of our products and services
- Allowance for doubtful accounts receivable
- Valuation of goodwill and other intangible assets
- Useful lives for depreciation and amortization
- Acquired deferred revenue
- Operating lease assets and liabilities
- Fair values of stock awards
- Income taxes
- Uncertain tax positions
- Tax valuation reserves
- Contingencies and litigation

Actual results could differ from these estimates. Changes in estimates are recorded in the results of operations in the period that the changes occur.

Revenue Recognition

Our revenue is derived principally from the licensing of computer software products and from related maintenance contracts. We enter into contracts that include combinations of products, maintenance and services, which are accounted for as separate performance obligations with differing revenue recognition patterns.

Revenue from perpetual licenses is classified as software license revenue. Software license revenue is recognized up front upon delivery of the licensed product and/or the utility that enables the customer to access authorization keys, provided that an enforceable contract has been received. Typically, our perpetual licenses are sold with post-contract support (PCS), which includes unspecified technical enhancements and customer support. We allocate value in bundled perpetual and PCS arrangements based on the standalone selling prices of the perpetual license and PCS. Revenue from PCS is classified as maintenance revenue and is recognized ratably over the term of the contract, as we satisfy the PCS performance obligation.

In addition to perpetual licenses, we sell time-based subscription lease licenses. Subscription lease licenses are sold only as a bundled arrangement that includes the rights to a term software license and PCS. Utilizing observable inputs, we determined that 50% of the estimated standalone selling price of the subscription lease license is attributable to the term license and 50% is attributable to the PCS. This determination considered the value relationship for our products between PCS and time-based subscription lease licenses, the value relationship between PCS and perpetual licenses, the average economic life of our products, software renewal rates and the price of the bundled arrangement in relation to the perpetual licensing approach. Consistent with the perpetual sales, the license component is classified as software license revenue and recognized as revenue up front at the commencement of the lease upon delivery of the licensed product and/or utility that enables the customer to access authorization keys. The PCS is classified as maintenance revenue and is recognized ratably over the term of the contract, as we satisfy the PCS performance obligation.

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Revenue from training, consulting and other services is recognized as the services are performed. For contracts in which the service consists of a single performance obligation, such as providing a training class to a customer, we recognize revenue upon completion of the performance obligation. For service contracts that are longer in duration and often include multiple performance obligations (for example, both training and consulting), we measure the progress toward completion of the obligations and recognize revenue accordingly. In measuring progress towards the completion of performance obligations, we typically utilize output-based estimates for services with contractual billing arrangements that are not based on time and materials, and estimate output based on the total tasks completed as compared to the total tasks required for each work contract. Input-based estimates are utilized for services that involve general consultations with contractual billing arrangements based on time and materials, utilizing direct labor as the input measure.

We also execute arrangements through independent channel partners in which the channel partners are authorized to market and distribute our software products to end users of our products and services in specified territories. In sales facilitated by channel partners, the channel partner is the principal to the transaction with the end user. We recognize revenue from transactions with channel partners in a manner consistent with the direct sales described above for both perpetual and time-based licenses. Revenue from channel partner transactions is the amount remitted to us by the channel partners. This amount includes a fee for PCS that is compensation for providing technical enhancements and the second level of technical support to the end user, which is recognized over the period that PCS is to be provided.

- Non-income related taxes collected from customers and remitted to governmental authorities are recorded on the consolidated balance sheet as accounts receivable and accrued expenses. The collection and payment of these amounts are reported on a net basis in the consolidated statements of income and do not impact reported revenues or expenses.

- We do not offer right of return. We warrant to our customers that our software will perform substantially as specified in our current user manuals. We have not experienced significant claims related to software warranties beyond the scope of maintenance support, which we are already obligated to provide. The warranty is not sold, and cannot be purchased, separately. The warranty does not provide any type of additional service to the customer or performance obligation for us.

Our agreements with our customers generally require us to indemnify the customer against claims that our software infringes third-party patent, copyright, trademark or other proprietary rights. Such indemnification obligations are generally limited in a variety of industry-standard respects, including our right to replace an infringing product.

Significant Judgments

Our contracts with customers typically include promises to transfer licenses and services to a customer. Judgment is required to determine if the promises are separate performance obligations, and if so, to allocate the transaction price to each performance obligation. We use the estimated standalone selling price method to allocate the transaction price for each performance obligation. The estimated standalone selling price is determined using all information reasonably available to us, including market conditions and other observable inputs. The corresponding revenues are recognized as the related performance obligations are satisfied.

We apply a practical expedient to expense sales commissions as incurred when the amortization period would have been one year or less. Sales commissions associated with the initial year of multi-year contracts are expensed as incurred due to their immateriality. Sales commissions associated with multi-year contracts beyond the initial year are subject to an employee service requirement and are expensed as incurred as they are not considered incremental costs to obtain a contract.

We are required to adjust promised amounts of consideration for the effects of the time value of money if the timing of the payments provides the customer or us with a significant financing benefit. We consider various factors in assessing whether a financing component exists, including the duration of the contract, market interest rates and the timing of payments. Our contracts do not include a significant financing component requiring adjustment to the transaction price.

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Cash and Cash Equivalents

Cash and cash equivalents consist primarily of highly liquid investments such as deposits held at major banks and money market funds. Cash equivalents are carried at cost, which approximates fair value. Our cash and cash equivalents balances comprise the following:

	December 31, 2023		December 31, 2022	
(in thousands, except percentages)	Amount	% of Total	Amount	% of Total
Cash accounts	**$ 689,380**	**80.1**	$ 503,733	82.0
Money market funds	**170,821**	**19.9**	110,658	18.0
Total	**$ 860,201**		$ 614,391	

Our money market fund balances were held in various funds of a single issuer at December 31, 2023.

Property and Equipment

- Property and equipment is stated at cost. Depreciation is computed using the straight-line method over the estimated useful lives of the various classes of assets, which range from one year to forty years. Repairs and maintenance are charged to expense as incurred. Gains or losses from the sale or retirement of property and equipment are included in operating income.

Research and Development

- Research and development costs are expensed as incurred. Internally developed software costs required to be capitalized as defined by the accounting guidance are not material to our consolidated financial statements.

Business Combinations

When we consummate an acquisition, the assets acquired and the liabilities assumed are recognized separately from goodwill at their acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of the fair value of consideration transferred over the acquisition date fair value of the net identifiable assets acquired. While best estimates and assumptions are used to accurately value assets acquired and liabilities assumed at the acquisition date as well as contingent consideration, where applicable, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill as we obtain new information about facts and circumstances that existed as of the acquisition date that, if known, would have affected the measurement of the amounts recognized as of that date.

Goodwill and Other Intangible Assets

Goodwill represents the excess of the fair value of consideration transferred over the fair value of net identifiable assets acquired. Other intangible assets consist of acquired software and technology, customer lists and trade names. Intangible assets

- that are not considered to have an indefinite useful life are amortized over their useful lives, which range from two years to seventeen years. Amortization expense for intangible assets was $103.5 million, $85.1 million and $76.0 million for the years ended December 31, 2023, 2022 and 2021, respectively.

We test goodwill and indefinite-lived intangible assets for impairment at least annually by performing a quantitative assessment

- of whether the fair value of each reporting unit or asset exceeds its carrying amount. We have one reporting unit. Goodwill is tested at this reporting unit level and indefinite-lived intangible assets are tested at the individual asset level. This requires us to assess and make judgments regarding a variety of factors which impact the fair value of the reporting unit or asset being tested, including business plans, anticipated future cash flows, economic projections and other market data.

During the first quarter of 2023, we completed the annual impairment test for goodwill and the indefinite-lived intangible asset and determined that these assets had not been impaired as of the test date, January 1, 2023. No other events or circumstances changed during the year ended December 31, 2023 that would indicate that the fair values of our reporting unit and indefinite-lived intangible asset are below their carrying amounts.

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Concentrations of Credit Risk

We have a concentration of credit risk with respect to revenue and trade receivables due to the use of channel partners to market and sell our products. We perform periodic credit evaluations of our customers' financial condition and generally do not require collateral. The following table outlines concentrations of risk with respect to our revenue:

	Year Ended December 31,		
(as a % of revenue)	**2023**	**2022**	**2021**
Revenue from channel partners	**26 %**	24 %	24 %

No single customer or channel partner accounted for more than 5% of our revenue in 2023, 2022 or 2021.

In addition to the concentration of credit risk with respect to trade receivables, our cash and cash equivalents are also exposed to concentration risk. Our cash and cash equivalent accounts are insured through various public and private bank deposit insurance programs, foreign and domestic; however, a significant portion of our funds are not insured. The following table outlines concentrations of risk with respect to our cash and cash equivalents:

	As of December 31,	
(in thousands)	**2023**	**2022**
Cash and cash equivalents held domestically	**$ 529,092**	$ 326,784
Cash and cash equivalents held by foreign subsidiaries	**331,109**	287,607
Cash and cash equivalents held in excess of deposit insurance, foreign and domestic	**846,723**	597,471
Largest balance of cash and cash equivalents held with one financial institution, foreign and domestic	**359,362**	238,058

Allowance for Doubtful Accounts

ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* requires us to use the current expected credit loss methodology to make judgments as to our ability to collect outstanding receivables and provide allowances for a portion of receivables over the lifetime of the receivables. Provisions are made based upon a specific review of all significant outstanding invoices from both value and delinquency perspectives. For those invoices not specifically reviewed, provisions are estimated at differing rates based upon the age of the receivable. In determining these percentages, we consider our historical loss experience, current economic trends and future conditions.

The changes in the allowance for doubtful accounts during the years ended December 31, 2023, 2022 and 2021 were as follows:

(in thousands)	2023	2022	2021
Beginning balance – January 1	**$ 18,300**	$ 14,600	$ 14,000
Additions: Charges to expense	**2,704**	$ 6,222	1,006
Deductions: Write-offs	**(304)**	(2,522)	(406)
Ending balance – December 31	**$ 20,700**	$ 18,300	$ 14,600

Income Taxes

We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined based on the differences between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period of the enactment date.

We record net deferred tax assets to the extent we believe these assets will more likely than not be realized. In making such determination, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies and recent financial operations. In the event we determine that we will be able to realize deferred tax assets for which a valuation allowance was used to reduce their carrying value, the adjustment to the valuation allowance will be recorded as a reduction to the provision for income taxes.

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Tax benefits related to uncertain tax positions taken or expected to be taken on a tax return are recorded when such benefits meet a more-likely-than-not threshold. Otherwise, these tax benefits are recorded when a tax position has been effectively settled, which means that the statute of limitations has expired or the appropriate taxing authority has completed its examination even though the statute of limitations remains open.

We recognize interest and penalties related to income taxes within the income tax expense line in the consolidated statements of income. Accrued interest and penalties are included within the related tax liability line in the consolidated balance sheets.

Foreign Currencies

Certain of our sales and intercompany transactions are denominated in foreign currencies. These transactions are converted to the functional currency in the period in which they occur. Assets and liabilities denominated in a currency other than our functional currency or our subsidiaries' functional currencies are translated at the effective exchange rate on the balance sheet date. Gains and losses resulting from foreign exchange transactions are included in other (expense) income, net. We recorded net foreign exchange losses of $4.0 million for the year ended December 31, 2023, net foreign exchange gains of $1.6 million for the year ended December 31, 2022 and net foreign exchange losses of $1.8 million for the year ended December 31, 2021.

- The financial statements of our foreign subsidiaries are translated from the functional (local) currency to U.S. Dollars. Assets and liabilities are translated at the exchange rates on the balance sheet date. Results of operations are translated at average exchange rates, which approximate rates in effect when the underlying transactions occurred.

Accumulated Other Comprehensive Loss

- Accumulated other comprehensive loss is composed entirely of foreign currency translation adjustments.

Earnings Per Share

Basic earnings per share (EPS) amounts are computed by dividing earnings by the weighted average number of common shares outstanding during the period. Diluted EPS amounts assume the issuance of common stock for all potentially dilutive equivalents outstanding. To the extent stock awards are anti-dilutive, they are excluded from the calculation of diluted EPS.

The details of basic and diluted EPS are as follows:

	Year Ended December 31,		
(in thousands, except per share data)	2023	2022	2021
Net income	**$ 500,412**	$ 523,710	$ 454,627
Weighted average shares outstanding – basic	**86,833**	87,051	87,100
Dilutive effect of stock plans	**553**	439	1,002
Weighted average shares outstanding – diluted	**87,386**	87,490	88,102
Basic earnings per share	**$ 5.76**	$ 6.02	$ 5.22
Diluted earnings per share	**$ 5.73**	$ 5.99	$ 5.16
Anti-dilutive shares	**218**	300	23

- **Stock-Based Compensation**

We account for stock-based compensation in accordance with share-based payment accounting guidance. The guidance requires an entity to measure the cost of employee services received in exchange for an award of equity instruments based on the grant-date fair value of the award. The cost is recognized over the period during which an employee is required to provide services in exchange for the award, typically the vesting period.

Fair Value of Financial Instruments

We account for certain assets and liabilities at fair value in accordance with the accounting guidance applicable to fair value measurements and disclosures. The carrying values of cash, cash equivalents, short-term investments, accounts receivable, accounts payable, accrued expenses, other accrued liabilities, fixed forward contracts and short-term obligations are deemed to be reasonable estimates of their fair values because of their short-term nature. Our term loans are variable rate debt obligations and, therefore, the carrying amounts approximate the fair values.

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3. Revenue from Contracts with Customers

Disaggregation of Revenue

The following table summarizes revenue:

(in thousands, except percentages)	Year Ended December 31, 2023	2022	2021
Revenue:			
Subscription lease licenses	**$ 786,050**	$ 687,665	$ 617,643
Perpetual licenses	**302,698**	301,313	328,154
Software licenses	**1,088,748**	988,978	945,797
Maintenance	**1,103,523**	1,004,245	896,037
Service	**77,678**	72,330	64,881
Maintenance and service	**1,181,201**	1,076,575	960,918
Total revenue	**$ 2,269,949**	$ 2,065,553	$ 1,906,715
Direct revenue, as a percentage of total revenue	**73.9 %**	76.1 %	76.3 %
Indirect revenue, as a percentage of total revenue	**26.1 %**	23.9 %	23.7 %

Our software licenses revenue is recognized up front, while maintenance and service revenue is recognized over the term of the contract.

Deferred Revenue

Deferred revenue consists of billings made or payments received in advance of revenue recognition from customer agreements. The timing of revenue recognition may differ from the timing of billings to customers. Payment terms vary by the type and location of customer and the products or services offered. The time between invoicing and when payment is due is not significant.

The changes in deferred revenue, inclusive of both current and long-term deferred revenue, during the years ended December 31, 2023 and 2022 were as follows:

(in thousands)	2023	2022
Beginning balance – January 1	**$ 435,758**	$ 412,781
Acquired deferred revenue	**8,030**	5,818
Deferral of revenue	**2,305,294**	2,099,550
Recognition of deferred revenue	**(2,269,949)**	(2,065,553)
Currency translation	**621**	(16,838)
Ending balance – December 31	**$ 479,754**	$ 435,758

Total revenue allocated to remaining performance obligations as of December 31, 2023 will be recognized as revenue as follows:

(in thousands)	
Next 12 months	**$ 897,393**
Months 13-24	**371,957**
Months 25-36	**150,744**
Thereafter	**52,490**
Total revenue allocated to remaining performance obligations	**$ 1,472,584**

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Revenue allocated to remaining performance obligations represents contracted revenue that has not yet been recognized, which includes both deferred revenue and backlog. Our backlog represents deferred revenue associated with installment billings for periods beyond the current quarterly billing cycle and committed contracts with start dates beyond the end of the current period. Revenue recognized during the years ended December 31, 2023 and 2022 included amounts in deferred revenue and backlog at the beginning of the period of $846.3 million, of which $414.0 million was in deferred revenue, and $764.9 million, of which $391.5 million was in deferred revenue, respectively.

4. Acquisitions

On January 3, 2023, we completed the acquisition of DYNAmore for a purchase price of $139.2 million, or $126.4 million net of cash acquired. The acquisition expands our position as a simulation solution provider within the automotive industry. The effects of the acquisition were not material to our consolidated results of operations.

Additionally, during the year ended December 31, 2023, we completed other acquisitions to expand our solution offerings and enhance our customers' experience. These acquisitions were not significant, individually or in the aggregate. The combined purchase price of these acquisitions during the year ended December 31, 2023 was approximately $94.4 million, or $88.3 million net of cash acquired.

During the year ended December 31, 2023, we incurred acquisition-related expenses of $9.4 million. Acquisition-related expenses are recognized as selling, general and administrative and research and development expenses on the consolidated statements of income.

The assets acquired and liabilities assumed in connection with the acquisitions have been recorded based upon management's estimates of their fair market values as of each respective date of acquisition. The following tables summarize the fair value of consideration and the fair values of identified assets acquired and liabilities assumed at each respective date of acquisition:

Fair Value of Consideration:

(in thousands)	
Cash	**$ 228,520**
Non-cash consideration	**5,056**
Total consideration	**$ 233,576**

Recognized Amounts of Identifiable Assets Acquired and Liabilities Assumed:

(in thousands)	
Cash	**$ 18,870**
Accounts receivable and other tangible assets	**18,524**
Developed software and core technologies	**28,110**
Customer lists	**83,790**
Trade names	**2,910**
Accounts payable and other liabilities	**(9,176)**
Deferred revenue	**(8,030)**
Net deferred tax liabilities	**(31,597)**
Total identifiable net assets	**$ 103,401**
Goodwill	**$ 130,175**

The goodwill, which is generally not tax-deductible, is attributed to intangible assets that do not qualify for separate recognition, including the assembled workforces of the acquired businesses and the synergies expected to arise as a result of the acquisitions.

The fair values of the assets acquired and liabilities assumed are based on preliminary calculations. The estimates and assumptions for these items are subject to change as additional information about what was known and knowable at each respective acquisition date is obtained during the measurement period (up to one year from the acquisition date).

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We determined the fair value of our intangible assets using various valuation techniques, including the relief-from-royalty method and the multi-period excess earnings method. These models utilize certain unobservable inputs classified as Level 3 measurements as defined by ASC 820, *Fair Value Measurements and Disclosures*. The determination of fair value requires considerable judgment and is sensitive to changes in underlying assumptions, estimates and market factors. Estimating fair value requires us to make assumptions and estimates regarding our future plans, as well as industry and economic conditions. These assumptions and estimates include, but are not limited to: selection of a valuation methodology, royalty rate, discount rate, attrition rate and obsolescence rate.

The weighted-average useful life, valuation method and assumptions used to determine the fair value of the intangible assets related to the 2023 acquisitions are as follows:

Intangible Asset	Weighted-Average Useful Life	Valuation Method	Assumptions
Developed software and core technologies	5 years	Relief-from-royalty or multi-period excess earnings	Royalty rate: 20.0% Obsolescence rate: 15.0% - 20.0% Discount rate: 12.5% - 22.0%
Trade names	5 years	Relief-from-royalty	Royalty rate: 1.0% - 2.0% Discount rate: 15.5% - 22.0%
Customer lists	13 years	Multi-period excess earnings	Attrition rate: 5.0% Discount rate: 15.5% - 22.0%

The operating results of each acquisition have been included in our consolidated financial statements since each respective date of acquisition. The effects of the business combinations were not material to our consolidated results of operations individually or in the aggregate during 2023.

2022 Acquisitions

During the year ended December 31, 2022, we completed several strategic acquisitions to enhance our customers' experience. The effects of the acquisitions were not material to our consolidated results of operations individually or in the aggregate. The combined purchase price of the acquisitions completed during the year ended December 31, 2022 was $401.7 million, or $390.8 million net of cash acquired.

During the year ended December 31, 2022, we incurred acquisition-related expenses of $10.3 million. Acquisition-related expenses are recognized as selling, general and administrative and research and development expenses on the consolidated statements of income.

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The assets and liabilities of the acquisitions have been recorded based upon management's estimates of their fair market values as of each respective date of acquisition. The following tables summarize the fair values of consideration transferred and the fair values of identified assets acquired and liabilities assumed at each respective date of acquisition:

Fair Value of Consideration:

(in thousands)		
Cash	**$**	**397,629**
Consideration not yet paid		**4,035**
Total Consideration	**$**	**401,664**

Recognized Amounts of Identifiable Assets Acquired and Liabilities Assumed:

(in thousands)		
Cash	**$**	**10,862**
Accounts receivable and other tangible assets		**4,914**
Developed software and core technologies		**127,830**
Customer lists		**7,926**
Trade names		**5,304**
Accounts payable and other liabilities		**(7,247)**
Deferred revenue		**(6,408)**
Net deferred tax liabilities		**(19,854)**
Total identifiable net assets	**$**	**123,327**
Goodwill	**$**	**278,337**

The goodwill, which is generally not tax-deductible, is attributed to intangible assets that do not qualify for separate recognition, including the assembled workforces of the acquired businesses and the synergies expected to arise as a result of the acquisitions.

The weighted-average useful life, valuation method and assumptions used to determine the fair value of the intangible assets acquired in 2022 are as follows:

Intangible Asset	Weighted-Average Useful Life	Valuation Method	Assumptions
Developed software and core technologies	9 years	Multi-period excess earnings	Discount rate: 9.5% - 18.0%
Trade names	10 years	Relief-from-royalty	Royalty rate: 1.0% - 2.0% Discount rate: 10.0% - 18.0%
Customer lists	14 years	Multi-period excess earnings	Attrition rate: 5.0% - 30.0% Discount rate: 9.5% - 15.0%

The operating results of each acquisition have been included in our consolidated financial statements since each respective date of acquisition. The effects of the business combinations were not material to our consolidated results of operations individually or in the aggregate during 2022.

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5. Other Receivables and Current Assets and Other Accrued Expenses and Liabilities

Our other receivables and current assets, and other accrued expenses and liabilities, comprise the following balances:

(in thousands)	December 31, 2023	December 31, 2022
Receivables related to unrecognized revenue	**$ 253,646**	$ 209,139
Income taxes receivable, including overpayments and refunds	**22,104**	28,963
Prepaid expenses and other current assets	**48,901**	51,159
Total other receivables and current assets	**$ 324,651**	$ 289,261

Consumption, sales and VAT tax liabilities	**43,101**	$ 41,812
Accrued expenses and other current liabilities	**172,544**	156,408
Total other accrued expenses and liabilities	**$ 215,645**	$ 198,220

- Receivables related to unrecognized revenue represent the current portion of billings made for customer contracts that have not yet been recognized as revenue.

6. Property and Equipment

Property and equipment consists of the following:

(in thousands)	Estimated Useful Lives	December 31, 2023	December 31, 2022
Equipment	1-15 years	**$ 136,112**	$ 127,672
Computer software	1-5 years	**29,210**	27,030
Buildings and improvements	2-40 years	**39,728**	38,991
Leasehold improvements	1-17 years	**29,587**	27,560
Furniture	1-10 years	**15,921**	15,196
Land		**2,696**	2,696
Property and equipment, gross		**253,254**	239,145
Less: Accumulated depreciation		**(175,474)**	(158,307)
Property and equipment, net		**$ 77,780**	$ 80,838

- Depreciation expense related to property and equipment was $29.0 million, $29.5 million and $30.9 million for the years ended December 31, 2023, 2022 and 2021, respectively.

7. Goodwill and Intangible Assets

Goodwill represents the excess of the fair value of consideration over the fair value of net identifiable assets acquired. Identifiable intangible assets acquired in business combinations are recorded based on their fair values on the date of acquisition.

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Intangible assets are classified as follows:

(in thousands)	December 31, 2023 Gross Carrying Amount	December 31, 2023 Accumulated Amortization	December 31, 2022 Gross Carrying Amount	December 31, 2022 Accumulated Amortization
Finite-lived intangible assets:				
Developed software and core technologies	**$ 1,146,022**	**$ (557,359)**	$ 1,106,789	$ (483,033)
Customer lists	**289,874**	**(89,800)**	205,484	(71,618)
Trade names	**190,203**	**(143,880)**	186,424	(135,220)
Total	**$ 1,626,099**	**$ (791,039)**	$ 1,498,697	$ (689,871)
Indefinite-lived intangible asset:				
Trade name	**$ 357**		$ 357	

Finite-lived intangible assets are amortized over their estimated useful lives of two years to seventeen years.

As of December 31, 2023, estimated future amortization expense for the intangible assets reflected above is as follows:

(in thousands)	
2024	**$ 112,288**
2025	**114,983**
2026	**115,921**
2027	**119,111**
2028	**112,625**
Thereafter	**260,132**
Total intangible assets subject to amortization, net	**835,060**
Indefinite-lived trade name	**357**
Other intangible assets, net	**$ 835,417**

The changes in goodwill during the years ended December 31, 2023 and 2022 were as follows:

(in thousands)	2023	2022
Beginning balance - January 1	**$ 3,658,267**	$ 3,409,271
Acquisitions and adjustments[(1)]	**122,635**	284,503
Currency translation	**24,972**	(35,507)
Ending balance - December 31	**$ 3,805,874**	$ 3,658,267

[(1)] In addition to goodwill from acquisitions completed within the period, in accordance with the accounting for business combinations, we recorded adjustments to goodwill for the effect of changes in the provisional fair values of the assets acquired and liabilities assumed during the measurement period (up to one year from the acquisition date) as we obtained new information about facts and circumstances that existed as of the acquisition date that, if known, would have affected the measurement of the amounts recognized as of that date. Such adjustments are not material to our consolidated financial statements.

During the first quarter of 2023, we completed the annual impairment test for goodwill and the indefinite-lived intangible asset and determined that these assets had not been impaired as of the test date, January 1, 2023. No other events or circumstances changed during the year ended December 31, 2023 that would indicate that the fair values of our reporting unit and indefinite-lived intangible asset are below their carrying amounts.

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8. Fair Value Measurement

The valuation hierarchy for disclosure of assets and liabilities reported at fair value prioritizes the inputs for such valuations into three broad levels:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument; or
- Level 3: unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value.

A financial asset's or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

Our debt is classified within Level 2 of the fair value hierarchy because these borrowings are not actively traded and have a variable interest rate structure based upon market rates. The carrying amount of our debt approximates the estimated fair value. See Note 10, "Debt", for additional information on these borrowings.

The following tables provide the assets carried at fair value and measured on a recurring basis:

(in thousands)	December 31, 2023	Fair Value Measurements at Reporting Date Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets (Liabilities)				
Cash equivalents	$ 170,821	$ 170,821	$ —	$ —
Short-term investments	$ 189	$ —	$ 189	$ —
Deferred compensation plan investments	$ 2,337	$ 2,337	$ —	$ —
Equity securities	$ 634	$ 634	$ —	$ —
Forward contracts	$ (412)	$ —	$ (412)	$ —

(in thousands)	December 31, 2022	Fair Value Measurements at Reporting Date Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Cash equivalents	$ 110,658	$ 110,658	$ —	$ —
Short-term investments	$ 183	$ —	$ 183	$ —
Deferred compensation plan investments	$ 1,618	$ 1,618	$ —	$ —
Equity securities	$ 892	$ 892	$ —	$ —

The cash equivalents in the preceding tables represent money market funds, valued at net asset value, with carrying values which approximate their fair values because of their short-term nature.

The short-term investments in the preceding tables represent deposits held by certain foreign subsidiaries. The deposits have fixed interest rates with original maturities ranging from three months to one year.

The deferred compensation plan investments in the preceding tables represent trading securities held in a rabbi trust for the benefit of non-employee directors. These securities consist of mutual funds traded in an active market with quoted prices. As a result, the plan assets are classified as Level 1 in the fair value hierarchy. The plan assets are recorded within other long-term assets on our consolidated balance sheets.

The equity securities represent our investment in a publicly traded company. These securities are traded in an active market with quoted prices. As a result, the securities are classified as Level 1 in the fair value hierarchy. The securities are recorded within other long-term assets on our consolidated balance sheets.

The forward contracts represent currency hedges to mitigate exchange rate exposure. These contracts are classified within Level 2 because these contracts are not actively traded and the valuation inputs are based on quoted prices and market observable data of similar instruments. The liabilities associated with the forward contracts are recorded at fair value in other accrued expenses and liabilities in the consolidated balance sheets.

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9. Leases

Our right-of-use (ROU) assets and lease liabilities primarily include operating leases for office space. Our executive offices and those related to certain domestic product development, marketing, production and administration are located in a 186,000 square foot office facility in Canonsburg, Pennsylvania. The term of the lease is 183 months, which began on October 1, 2014 and expires on December 31, 2029. The lease agreement includes options to renew the contract through August 2044, an option to lease additional space in January 2025 and an option to terminate the lease in December 2025. No options are included in the lease liability. Absent the exercise of options in the lease, our remaining base rent (inclusive of property taxes and certain operating costs) is $4.5 million per annum through 2024 and $4.7 million per annum for 2025 - 2029.

The components of our global lease cost reflected in the consolidated statements of income for the years ended December 31, 2023, 2022 and 2021 are as follows:

(in thousands)	2023	2022	2021
Lease liability cost	**$ 28,481**	$ 27,543	$ 28,357
Variable lease cost not included in the lease liability[(1)]	**5,749**	4,436	4,085
Total lease cost	**$ 34,230**	$ 31,979	$ 32,442

[(1)] Variable lease cost includes common area maintenance, property taxes, utilities and fluctuations in rent due to a change in an index or rate.

Other information related to operating leases for the years ended December 31, 2023, 2022 and 2021 is as follows:

(in thousands)	2023	2022	2021
Cash paid for amounts included in the measurement of the lease liability:			
Operating cash flows from operating leases	**$ (28,281)**	$ (26,767)	$ (28,474)
Right-of-use assets obtained in exchange for new operating lease liabilities	**$ 12,913**	$ 36,735	$ 13,586

	As of December 31,	
	2023	2022
Weighted-average remaining lease term of operating leases	**6.4 years**	6.9 years
Weighted-average discount rate of operating leases	**3.4 %**	3.1 %

The maturity schedule of the operating lease liabilities as of December 31, 2023 is as follows:

(in thousands)	
2024	**$ 27,030**
2025	**22,843**
2026	**20,460**
2027	**18,930**
2028	**17,266**
Thereafter	**31,049**
Total future lease payments	**137,578**
Less: Present value adjustment	**(13,767)**
Present value of future lease payments[(1)]	**$ 123,811**

[(1)]Includes the current portion of operating lease liabilities of $23.3 million, which is reflected in other accrued expenses and liabilities in the consolidated balance sheets.

There were no material leases that have been signed but not yet commenced as of December 31, 2023.

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10. Debt

On June 30, 2022, we entered into a credit agreement (as amended, the 2022 Credit Agreement) with PNC Bank, National Association, as administrative agent, swing line lender, and an L/C issuer, the lenders party thereto, and the other L/C issuers party thereto. The 2022 Credit Agreement refinanced our previous credit agreements in their entirety. Terms used in this description of the 2022 Credit Agreement with initial capital letters that are not otherwise defined herein are as defined in the 2022 Credit Agreement.

The 2022 Credit Agreement provides for a $755.0 million unsecured term loan facility and a $500.0 million unsecured revolving loan facility, which includes a $50.0 million sublimit for the issuance of letters of credit. The revolving loan facility is available for working capital and general corporate purposes. Each of the term loan facility and the revolving loan facility matures on June 30, 2027.

Borrowings under the term loan and revolving loan facilities accrue interest at a rate that is based on the Term SOFR plus an applicable margin or at the base rate plus an applicable margin, at our election. The base rate is the highest of (i) the Overnight Bank Funding Rate, plus 0.500%, (ii) the PNC Bank, National Association prime rate, and (iii) Daily Simple SOFR plus an adjustment for SOFR plus 1.00%. The applicable margin for the borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated net leverage ratio and (2) a pricing level determined by our public debt rating (if available).

On September 29, 2023, the 2022 Credit Agreement was amended to provide for an interest rate adjustment (Sustainability Rate Adjustment) based upon the achievement of certain environmental, social and governance key performance indicators (KPIs). The Sustainability Rate Adjustment range is +/- 0.05% and will go into effect in the first quarter of 2024 based on the 2023 KPIs and will be adjusted annually based on the KPIs of the preceding year.

The 2022 Credit Agreement also provides for the option to add certain foreign subsidiaries as borrowers and to borrow in Euros, Sterling, Yen and Swiss Francs under the revolving loan facility, up to a sublimit of $150.0 million. Borrowings under the revolving loan facility denominated in these currencies will accrue interest at a rate that is based on (a) for Euros, €STR, (b) for Sterling, SONIA, (c) for Yen, TONAR and (d) for Swiss Francs, SARON, plus an applicable margin calculated as described above.

Under the 2022 Credit Agreement, the weighted average interest rate in effect for the year ended December 31, 2023 was 6.01%. Under the 2022 Credit Agreement and prior credit agreements, the weighted average interest rate in effect for the year ended December 31, 2022 was 2.72%. The rate in effect as of December 31, 2023 and for the first quarter of 2024 under the 2022 Credit Agreement is 6.32%.

The 2022 Credit Agreement contains customary representations and warranties, affirmative and negative covenants and events of default. The 2022 Credit Agreement also contains a financial covenant requiring us and our subsidiaries to maintain a consolidated net leverage ratio not in excess of 3.50 to 1.00 as of the end of any fiscal quarter (for the four-quarter period ending on such date) with an opportunity for a temporary increase in such consolidated net leverage ratio to 4.00 to 1.00 upon the consummation of certain qualified acquisitions for which the aggregate consideration is at least $250.0 million.

As of December 31, 2023, we had $755.0 million of borrowings outstanding under the term loan, with a carrying value of $753.9 million, which is net of $1.1 million of unamortized debt discounts and issuance costs. The total amount was included in long-term debt. As of December 31, 2023, no borrowings were outstanding under the revolving loan facility.

As of December 31, 2022, we had $755.0 million of borrowings outstanding under the term loan, with a carrying value of $753.6 million, which is net of $1.4 million of unamortized debt discounts and issuance costs. The total amount was included in long-term debt. As of December 31, 2022, no borrowings were outstanding under the revolving loan facility.

We were in compliance with all covenants under the 2022 Credit Agreement as of December 31, 2023 and December 31, 2022, respectively.

As of December 31, 2023, all debt is scheduled to mature in 2027 with no principal payments required prior to the maturity date.

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11. Income Taxes

Income before income tax provision included the following components:

(in thousands)	Year Ended December 31, 2023	2022	2021
Domestic	**$ 458,581**	$ 504,797	$ 460,395
Foreign	**133,557**	70,518	54,959
Total	**$ 592,138**	$ 575,315	$ 515,354

The provision for income taxes was composed of the following:

(in thousands)	Year Ended December 31, 2023	2022	2021
Current:			
Federal	**$ 115,942**	$ 103,007	$ 44,805
State	**11,759**	11,286	6,626
Foreign	**55,332**	68,028	43,786
Deferred:			
Federal	**(79,251)**	(94,398)	(32,449)
State	**(8,145)**	(9,647)	(1,691)
Foreign	**(3,911)**	(26,671)	(350)
Total	**$ 91,726**	$ 51,605	$ 60,727

The reconciliation of the U.S. federal statutory tax rate to the consolidated effective tax rate was as follows:

	Year Ended December 31, 2023	2022	2021
Federal statutory tax rate	**21.0 %**	21.0 %	21.0 %
Nondeductible expenses	**2.1**	2.3	2.8
State income taxes, net of federal benefit	**0.6**	0.9	0.6
Foreign rate differential	**0.4**	—	(0.1)
Stock-based compensation	**—**	(1.5)	(5.4)
Benefit from tax planning and entity structuring activities	**(0.3)**	(2.5)	(0.8)
U.S. federal tax (benefit) expense on foreign earnings	**(1.2)**	(2.4)	0.4
Research and development credits	**(3.2)**	(3.2)	(3.1)
Foreign-derived intangible income deduction	**(4.1)**	(5.7)	(4.0)
Other	**0.2**	0.1	0.4
	15.5 %	9.0 %	11.8 %

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The components of deferred tax assets and liabilities are as follows:

(in thousands)	December 31, 2023	2022
Deferred tax assets:		
Research and experimentation capitalization	**$ 148,355**	$ 85,677
Uncertain tax positions	**52,685**	41,569
Net operating loss carryforwards	**34,907**	39,034
Stock-based compensation	**33,473**	27,548
Debt obligation basis difference	**30,289**	28,758
Operating lease liabilities	**28,380**	31,726
Employee benefits	**13,662**	13,343
Research and development credits	**5,506**	5,390
Allowance for doubtful accounts	**4,836**	4,376
Other	**—**	2,638
Valuation allowance	**(17,608)**	(17,336)
Total deferred tax assets	**334,485**	262,723
Deferred tax liabilities:		
Other intangible assets	**(202,404)**	(192,018)
Operating lease right-of-use assets	**(26,878)**	(30,308)
Deferred revenue	**(12,080)**	(8,979)
Property and equipment	**(3,607)**	(5,029)
Other	**(590)**	—
Total deferred tax liabilities	**(245,559)**	(236,334)
Net deferred tax assets	**$ 88,926**	$ 26,389

The net increase in the valuation allowance was primarily due to $0.5 million of currency fluctuations on balances relating to foreign jurisdictions, partially offset by a $0.2 million decrease in unrealizable tax assets. As of each reporting date, management considers new evidence, both positive and negative, that could affect the future realization of deferred tax assets. If management determines it is more likely than not that an asset, or a portion of an asset, will not be realized, a valuation allowance is recorded.

As of December 31, 2023, we had federal net operating loss carryforwards of $7.2 million, which are subject to limitations of their utilization. Losses totaling $6.5 million are not currently subject to expiration dates, while the remaining $0.7 million of losses expire between 2028 - 2037. Deferred tax assets of $2.3 million have been recorded for state operating loss carryforwards. These losses expire between 2031 - 2042, and are subject to limitations on their utilization. We had total foreign net operating loss carryforwards of $128.3 million, of which $88.7 million are not currently subject to expiration dates. The remainder, $39.6 million, expires between 2025 - 2038. We had tax credit carryforwards of $7.5 million, of which $0.5 million are not currently subject to expiration dates and $7.0 million expire in various years between 2025 - 2043. Of these tax credit carryforwards, $0.9 million are subject to limitations on their utilization.

In general, it is our intention to permanently reinvest all earnings in excess of previously taxed amounts. Substantially all of the pre-2018 earnings of our non-U.S. subsidiaries were taxed through the transition tax and post-2018 current earnings are taxed as part of global intangible low-taxed income tax expense. These taxes increase our previously taxed earnings and allow for the repatriation of the majority of our foreign earnings without any residual U.S. federal tax. Unrecognized provisions for taxes on indefinitely reinvested undistributed earnings of foreign subsidiaries would not be significant.

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The following is a reconciliation of the total amounts of unrecognized tax benefits:

(in thousands)	Year Ended December 31, 2023	2022	2021
Unrecognized tax benefit as of January 1	**$ 45,772**	$ 39,641	$ 24,075
Gross changes—acquisitions	**—**	—	—
Gross increases—tax positions in prior period	**—**	403	10,183
Gross decreases—tax positions in prior period	**(1,782)**	(2,780)	(2,281)
Gross increases—tax positions in current period	**14,814**	13,905	13,223
Reductions due to a lapse of the applicable statute of limitations	**(3,236)**	(3,743)	(3,226)
Changes due to currency fluctuation	**(684)**	(1,654)	(912)
Settlements	**—**	—	(1,421)
Unrecognized tax benefit as of December 31	**$ 54,884**	$ 45,772	$ 39,641

- We believe that it is reasonably possible that $3.2 million of uncertain tax positions included in the table above may be resolved within the next twelve months as a result of settlement with a taxing authority or a lapse of the statute of limitations. If the unrecognized tax benefit as of December 31, 2023 were to be recognized, a benefit of $13.5 million would impact the effective tax rate.

- We recognize interest and penalties related to income taxes as income tax expense. We recorded penalty expense of $0.7 million, $0.7 million and $1.8 million for the years ended December 31, 2023, 2022 and 2021, respectively. We recorded interest income of $0.3 million for the year ended December 31, 2023, interest expense of $0.1 million for the year ended December 31, 2022 and interest income of $0.2 million for the year ended December 31, 2021. As of December 31, 2023, we accrued a liability for penalties of $8.7 million and interest of $2.6 million. As of December 31, 2022, we accrued a liability for penalties of $7.9 million and interest of $3.0 million.

- We are subject to taxation in the United States and various states and foreign jurisdictions. In the United States, our only major tax jurisdiction, the 2017 - 2023 tax years are open to examination by the Internal Revenue Service.

12. Pension and Profit-Sharing Plans

- We have a 401(k) plan for all qualifying domestic employees that permits participants to defer a portion of their pay pursuant to Section 401(k) of the Internal Revenue Code. We make matching contributions on behalf of each eligible participant in an amount equal to 100% of the first 3% and an additional 25% of the next 5%, for a maximum total of 4.25% of the employee's eligible compensation. We may make discretionary matching contributions. We may also make discretionary nonelective contributions in an amount to be determined by the Board of Directors for each plan year, provided the employee is employed at the end of the year and has worked at least 1,000 hours. Domestic employees of acquired businesses may participate in the 401(k) plan when they become eligible. We also maintain and contribute to various defined contribution and defined benefit pension arrangements for our international employees. We meet the minimum statutory funding requirements for our foreign plans. As of December 31, 2023 and 2022, the total unfunded portions of the benefit obligations were $11.8 million and $9.4 million, respectively.

- Expenses related to our retirement programs were $25.9 million in 2023, $21.9 million in 2022 and $20.0 million in 2021.

13. Non-Compete and Employment Agreements

Our employees have signed agreements under which they have agreed not to disclose trade secrets or confidential information that, where legally permitted, restrict engagement in or connection with any business that is competitive with us anywhere in the world while employed by us (and, in some cases, for specified periods thereafter in relevant geographic areas), and that any products or technology created by them during their term of employment are our property. In addition, we require all channel partners to enter into agreements not to disclose our trade secrets and other proprietary information.

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We have an employment agreement with our Chief Executive Officer. Under the terms of the employment agreement, in the event that the Chief Executive Officer's employment with us is terminated by us without "Cause" or as a result of his resignation with "Good Reason," (each as defined in the agreement) the Chief Executive Officer will be entitled to (i) receive an amount equal to two times the sum of his then effective base salary plus his target bonus, payable over 24 months in equal installments, (ii) receive payment of the prior year's earned annual cash incentive, to the extent unpaid, (iii) receive payment of a pro-rated target annual cash incentive for the year of termination, (iv) in certain circumstances, receive a lump sum amount equal to 24 months of the COBRA premium applicable to the health, dental and vision plans in which the Chief Executive Officer was participating prior to termination, (v) have any outstanding performance-based and time-based equity awards receive accelerated vesting treatment equal to an additional two years after termination, and (vi) have the period of time during which the Chief Executive Officer may exercise his vested stock options be extended to the longer of (x) six months after his date of termination or (y) seven days after the commencement of our first open trading window that occurs after the date of termination, but in no event later than the 10-year expiration date of such options. During his employment with us and for two years thereafter, following termination of employment under certain circumstances described in the contract, he will be subject to non-competition and non-solicitation obligations.

If a termination under the circumstances described above occurs during the period beginning 60 days prior to the effective date of a definitive agreement that will result in a change in control and ending 18 months after the consummation (closing) of a change in control, then, in lieu of the benefits described in the foregoing paragraph, the Chief Executive Officer will be entitled to the amounts described in the paragraph above, except that (a) the amount described in clause (i) will be paid in a lump sum rather than over 24 months, and (b) instead of the two-year acceleration period described in clause (v), all outstanding performance-based and time-based equity awards held by the Chief Executive Officer shall immediately become fully exercisable, vested and/or non-forfeitable on an accelerated basis, subject to any performance or metric-based requirements set forth therein which shall be separately determined as set forth in the applicable award agreement.

We also have employment agreements with several other employees, primarily in foreign jurisdictions. The terms of these employment agreements generally include annual compensation and non-compete clauses.

14. Stock-Based Compensation

On May 14, 2021, our stockholders approved the ANSYS, Inc. 2021 Equity and Incentive Compensation Plan (the 2021 Plan). The 2021 Plan is a long-term incentive plan pursuant to which awards may be granted to directors, officers, other employees and certain consultants of Ansys and its subsidiaries. These awards include stock option rights, stock appreciation rights, restricted stock, restricted stock units, cash incentives, performance shares, performance units and other awards. The 2021 Plan authorizes 4.4 million shares of common stock for issuance, plus 1.6 million shares that remained available for issuance under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (the Predecessor Plan) as of the effective date of the 2021 Plan plus any shares relating to the outstanding awards under the Predecessor Plan or the 2021 Plan that are subsequently forfeited. As of the effective date of the 2021 Plan, grants were no longer made under the Predecessor Plan.

The 2021 Plan requires a minimum vesting period or performance period of one year for most award types and a maximum period for options to be exercisable as ten years from the grant date. Upon the death or disability of a participant, performance awards are vested pro-rata, subject to any performance target requirements, and all other awards become fully vested. The Compensation Committee of the Board of Directors may, at its sole discretion, accelerate the date or dates on which an award granted under the 2021 Plan may vest in the event of a change in control or an employee's termination of employment. A change in control will result in awards either being assumed by the acquirer or the pre-existing awards becoming immediately vested and earned at target award levels. In the event an employee is terminated without cause within 18 months after the change in control, any assumed awards will become immediately vested.

We currently issue shares related to exercised stock options or vested awards from our existing pool of treasury shares and have no specific policy to repurchase treasury shares as stock options are exercised or as awards vest. If the treasury pool is depleted, we will issue new shares.

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Total stock-based compensation expense recognized for the years ended December 31, 2023, 2022 and 2021 is as follows:

(in thousands, except per share amounts)	Year Ended December 31, 2023	2022	2021
Cost of sales:			
Maintenance and service	**13,337**	10,073	12,390
Operating expenses:			
Selling, general and administrative	**126,175**	93,117	91,772
Research and development	**82,379**	64,938	62,176
Stock-based compensation expense before taxes	**221,891**	168,128	166,338
Related income tax benefits	**(53,880)**	(50,209)	(75,241)
Stock-based compensation expense, net of taxes	**$ 168,011**	$ 117,919	$ 91,097
Net impact on earnings per share:			
Basic earnings per share	**$ (1.93)**	$ (1.35)	$ (1.05)
Diluted earnings per share	**$ (1.92)**	$ (1.35)	$ (1.03)

As of December 31, 2023, total unrecognized estimated compensation expense related to awards granted prior to that date was $306.2 million, which is expected to be recognized over a weighted average period of 1.5 years. Forfeitures of awards are accounted for as they occur.

Stock Options

Prior to 2017, we granted stock option awards. The value of each stock option award was estimated on the date of grant, or date of acquisition for options issued in a business combination, using the Black-Scholes option pricing model (Black-Scholes model). The determination of the fair value of stock-based payment awards using an option pricing model was affected by our stock price as well as assumptions regarding a number of complex and subjective variables. These variables included our stock volatility during the preceding six years, actual and projected employee stock option exercise behaviors, interest rate assumptions using the five-year U.S. Treasury Note yield on the date of grant or acquisition date and expected dividends. The stock-based compensation expense for options was recorded ratably over the requisite service period.

As of December 31, 2023, there is no unrecognized estimated compensation cost related to unvested stock options.

Information regarding stock option transactions is summarized below:

(options in thousands)	Year Ended December 31, 2023 Options	2023 Weighted-Average Exercise Price	2022 Options	2022 Weighted-Average Exercise Price	2021 Options	2021 Weighted-Average Exercise Price
Outstanding, beginning of year	**226**	**$ 94.24**	375	$ 83.67	648	$ 74.26
Granted	**—**	**$ —**	—	$ —	—	$ —
Exercised	**(123)**	**$ 94.32**	(148)	$ 67.56	(270)	$ 61.42
Forfeited	**—**	**$ —**	(1)	$ 67.44	(3)	$ 55.46
Outstanding, end of year	**103**	**$ 94.23**	226	$ 94.24	375	$ 83.67
Vested and Exercisable, end of year	**103**	**$ 94.23**	226	$ 94.24	375	$ 83.67
Nonvested	**—**	**$ —**	—	$ —	—	$ —

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	2023	2022	2021
Weighted Average Remaining Contractual Term *(in years)*			
Outstanding	**2.52**	3.53	3.09
Vested and Exercisable	**2.52**	3.53	3.09
Aggregate Intrinsic Value *(in thousands)*			
Exercised	**$ 28,231**	$ 30,358	$ 82,790
Outstanding	**$ 27,717**	$ 33,361	$ 118,995
Vested and Exercisable	**$ 27,717**	$ 33,361	$ 118,995
Compensation Expense - Stock Options *(in thousands)*	**$ —**	$ —	$ —

Information regarding stock options outstanding as of December 31, 2023 is summarized below:

(options in thousands)	Options Outstanding & Exercisable	
Exercise Price	**Options**	**Weighted-Average Remaining Contractual Life (years)**
$86.01	2	0.01
$86.57	8	1.67
$94.15	1	1.58
$95.09	92	2.67

There were no unvested stock options as of December 31, 2023.

Restricted Stock Units

Under the terms of the 2021 Plan, we have issued various restricted stock unit awards (RSUs). The following table summarizes the types of awards and vesting conditions:

Award	Vesting Period	Vesting Condition
Restricted stock units with a service condition only	Three years	Prior to March 2023, one third of the awards vested annually. Commencing in March 2023, one third vests in the first year and then one eighth quarterly thereafter.
Restricted stock units with an operating performance and service condition	Three years	Operating performance metrics as defined at the beginning of each sub-performance period and subject to continued employment through the vesting period.
Restricted stock units with a market and service condition	Three years	Our performance measured by total stockholder return relative to the Nasdaq Composite Index for the performance period and subject to continued employment through the vesting period.
Board of Director restricted stock unit awards	The earlier of one year or the next regular meeting of stockholders	Continued service on the Board of Directors through the vesting period. Directors that retire prior to the vest date receive a pro-rata portion of the RSUs.

The fair value of RSUs with only a service condition is based on the fair market value of our stock on the date of the grant and is recognized straight-line over the vesting period.

The fair value of RSUs with operating performance metrics is based on the fair market value of our stock on the date of the grant and is recognized from the grant date through the vesting period based on management's estimates concerning the probability of operating performance metric achievement.

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The fair values of RSUs with a market condition were estimated using a Monte Carlo simulation model and are recognized over the vesting period. The determination of the fair values of the awards was affected by the grant date and several variables, each of which has been identified in the chart below:

	Year Ended December 31,		
Assumptions used in Monte Carlo lattice pricing model	**2023**	**2022**	**2021**
Risk-free interest rate	**4.6%**	1.8%	0.3%
Expected dividend yield	**—%**	—%	—%
Expected volatility—Ansys stock price	**36%**	37%	36%
Expected volatility—Nasdaq Composite Index	**25%**	26%	26%
Expected term	**2.8 years**	2.8 years	2.8 years
Correlation factor	**0.83**	0.84	0.84
Weighted average fair value per share	**$452.14**	$290.65	$238.87

Total compensation expense for RSU awards recorded for the years ended December 31, 2023, 2022 and 2021 was $213.5 million, $164.0 million and $162.3 million, respectively.

Information regarding all employee and non-employee director RSU transactions is summarized below:

	Year Ended December 31,					
	2023		**2022**		**2021**	
(RSUs in thousands)	**RSUs**	**Weighted-Average Grant Date Fair Value**	**RSUs**	**Weighted-Average Grant Date Fair Value**	**RSUs**	**Weighted-Average Grant Date Fair Value**
Nonvested, beginning of year	**1,220**	**$ 301.72**	1,074	$ 278.02	1,331	$ 202.30
Granted[(1)]	**867**	**$ 314.04**	861	$ 299.08	508	$ 333.45
Performance adjustment - awards with market condition[(2)]	**(11)**	**$ 279.42**	(8)	$ 276.73	17	$ 238.99
Performance adjustment - awards with performance condition[(2)]	**79**	**$ 310.37**	73	$ 300.28	63	$ 376.48
Vested	**(558)**	**$ 300.30**	(598)	$ 257.51	(802)	$ 195.12
Forfeited	**(59)**	**$ 313.58**	(182)	$ 295.13	(43)	$ 263.13
Nonvested, end of year	**1,538**	**$ 309.33**	1,220	$ 301.72	1,074	$ 278.02

(1) Includes all RSUs granted during the year. RSUs with operating performance conditions are issued annually and have one performance cycle or three sub-performance cycles. Performance conditions are assigned near the beginning of each performance cycle or sub-performance cycle, as applicable, and awards are reflected as grants at the target number of units at that time.

(2) RSUs with a market or performance condition are granted at target and vest based on achievement of the market or operating performance and service conditions. The actual number of RSUs issued may be more or less than the target RSUs depending on the achievement of the market or operating performance conditions.

Employee Stock Purchase Plan

On May 12, 2022, our stockholders approved the ANSYS, Inc. 2022 Employee Stock Purchase Plan (2022 ESPP) and the reservation by our Board of Directors of 750,000 shares of common stock for issuance under the 2022 ESPP. On October 27, 2022 our Board of Directors approved the amendment and restatement of the 2022 ESPP. The 2022 ESPP replaced the 1996 Employee Stock Purchase Plan (1996 Plan) in its entirety. Shares issued in 2023 were issued under the 2022 ESPP. The 2022 ESPP and 1996 Plan (Purchase Plans) allow our employees and employees of our designated subsidiaries to purchase shares of our common stock at a discount to fair market value. There were 671,653 shares available for future purchases as of December 31, 2023.

The Purchase Plans are administered by the Compensation Committee. Offerings under the Purchase Plans commence on the first business day occurring on or before each February 1 and August 1, and end on the last business day occurring on or before the following July 31 and January 31, respectively. An employee who owns or is deemed to own shares of stock representing in excess of 5% of the combined voting power of all classes of our stock may not participate in the Purchase Plans.

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During each offering, an eligible employee may purchase shares by authorizing payroll deductions of up to 10% of his or her cash compensation during the offering period. The maximum number of shares that may be purchased by any participating employee during any offering period is limited to 3,840 shares. Subject to limitations within the Purchase Plans, each employee's accumulated payroll deductions will be used to purchase common stock on the last day of the applicable offering period at a price equal to 85% of the fair market value of the common stock on the first or last day of the applicable offering period, whichever is less. Under applicable tax rules, an employee may not accrue at a rate that exceeds $25,000 of the fair market value of our stock (determined on the option grant date or dates) for each calendar year in which the option to purchase shares is outstanding at any time. As of December 31, 2023, 78,347 shares of common stock had been issued under the 2022 ESPP. The total compensation expense recorded under the Purchase Plans during the years ended December 31, 2023, 2022 and 2021 was $8.3 million, $4.2 million and $4.0 million, respectively.

15. Stock Repurchase Program

Under our stock repurchase program, we repurchased shares as follows:

	Year Ended December 31,		
(in thousands, except per share data)	**2023**	**2022**	**2021**
Number of shares repurchased	**650**	725	347
Average price paid per share	**$ 302.34**	$ 283.38	$ 388.35
Total cost	**$ 196,494**	$ 205,571	$ 134,679

All of the shares repurchased during the year ended December 31, 2023 were repurchased during the first quarter. As of December 31, 2023, 1.1 million shares remained available for repurchase under the program. Average price paid per share excludes excise tax. As of January 1, 2023, our share repurchases in excess of issuances are subject to a 1% excise tax enacted by the Inflation Reduction Act. As of December 31, 2023, we had $0.1 million of accrued excise tax. Any excise tax incurred is recognized and reflected as part of the cost basis of the shares acquired in the Consolidated Statements of Stockholders' Equity.

16. Royalty Agreements

We have entered into various renewable license agreements under which we have been granted access to the licensor's technology and the right to sell the technology in our product line. Royalties are payable to developers of the software at various rates and amounts, which generally are based upon unit sales, revenue or flat fees. Royalty fees are reported in cost of software licenses and were $39.0 million, $32.0 million and $36.9 million for the years ended December 31, 2023, 2022 and 2021, respectively.

17. Geographic Information

Revenue to external customers is attributed to individual countries based upon the location of the customer. Revenue by geographic area was as follows:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
United States	**$ 1,058,293**	$ 932,587	$ 867,125
Japan	**203,013**	186,199	193,096
Germany	**199,068**	198,612	158,541
China and Hong Kong	**111,467**	105,101	82,933
South Korea	**106,261**	127,948	105,853
Other EMEA	**406,719**	349,159	359,074
Other international	**185,128**	165,947	140,093
Total revenue	**$ 2,269,949**	$ 2,065,553	$ 1,906,715

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Property and equipment by geographic area was as follows:

(in thousands)	December 31, 2023	2022
United States	**$ 56,421**	$ 58,258
India	**5,057**	5,978
France	**4,771**	3,535
Other EMEA	**6,924**	7,508
Other international	**4,607**	5,559
Total property and equipment, net	**$ 77,780**	$ 80,838

18. Unconditional Purchase Obligations

We have entered into various unconditional purchase obligations which primarily include minimum royalty contracts, software licenses and support, and network services. We expended $54.8 million, $54.8 million and $44.9 million related to unconditional purchase obligations that existed as of the beginning of each year for the years ended December 31, 2023, 2022 and 2021, respectively. Future expenditures under unconditional purchase obligations in effect as of December 31, 2023 are as follows:

(in thousands)	
2024	**$ 66,421**
2025	**27,144**
2026	**9,980**
2027	**7,927**
2028	**298**
Total	**$ 111,770**

19. Contingencies and Commitments

We are subject to various claims, investigations, and legal and regulatory proceedings that arise in the ordinary course of business, including, but not limited to, commercial disputes, labor and employment matters, tax audits, alleged infringement of third parties' intellectual property rights and other matters. In our opinion, the resolution of pending matters is not expected to have a material adverse effect on our consolidated results of operations, cash flows or financial position. However, each of these matters is subject to various uncertainties and it is possible that an unfavorable resolution of one or more of these proceedings could materially affect our consolidated results of operations, cash flows or financial position.

Our Indian subsidiary has several service tax audits pending that have resulted in formal inquiries being received on transactions through mid-2012. We could incur tax charges and related liabilities of $7.1 million. As such charges are not probable at this time, a reserve has not been recorded on the consolidated balance sheet as of December 31, 2023. The service tax issues raised in our notices and inquiries are very similar to the case, M/s Microsoft Corporation (I) (P) Ltd. Vs. Commissioner of Service Tax, New Delhi, wherein the Delhi Customs, Excise and Service Tax Appellate Tribunal (CESTAT) issued a favorable ruling to Microsoft. The Microsoft ruling was subsequently challenged in the Supreme Court of India by the Indian tax authority and a decision is still pending. We can provide no assurances on the impact that the Microsoft case's decision will have on our cases, however, an unfavorable ruling in the Microsoft case may impact our assessment of probability and result in the recording of a $7.1 million reserve. We are uncertain as to when these service tax matters will be concluded.

We sell software licenses and services to our customers under contractual agreements. Such agreements generally include certain provisions indemnifying the customer against claims, by third parties, of infringement or misappropriation of their intellectual property rights arising from such customer's usage of our products or services. To date, payments related to these indemnification provisions have been immaterial. For several reasons, including the lack of prior material indemnification claims, we cannot determine the maximum amount of potential future payments, if any, related to such indemnification provisions.

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20. Subsequent Event

Synopsys Merger Agreement

On January 15, 2024, we entered into the Merger Agreement with Synopsys and Merger Sub, pursuant to which Merger Sub will merge with and into Ansys, with Ansys surviving the Merger as a wholly owned subsidiary of Synopsys. Our Board of Directors has unanimously approved the Merger Agreement and, subject to certain exceptions set forth in the Merger Agreement, resolved to recommend that our stockholders adopt the Merger Agreement. If the Merger is consummated, our common stock will be delisted from the Nasdaq Global Select Market and deregistered under the Exchange Act.

Under the Merger Agreement, at the effective time of the Merger, each issued and outstanding share of our common stock (subject to certain exceptions set forth in the Merger Agreement) will be cancelled and converted into the right to receive (i) 0.3450 of a share of common stock, par value $0.01 per share, of Synopsys and (ii) $197.00 in cash, without interest, subject to applicable withholding taxes. With regard to the Stock Consideration, if the aggregate number of shares of Synopsys common stock to be issued in connection with the Merger would exceed the Maximum Share Number, (a) the Exchange Ratio will be reduced to the minimum extent necessary such that the aggregate number of shares of Synopsys common stock to be issued in connection with the Merger does not exceed the Maximum Share Number and (b) the Per Share Cash Amount will be correspondingly increased to offset such adjustment.

The Merger Agreement contains customary representations, warranties and covenants made by each of Ansys, Synopsys, and Merger Sub, including, among others, covenants regarding the conduct of our and Synopsys' businesses during the pendency of the transactions contemplated by the Merger Agreement, the making of certain public disclosures and other matters as described in the Merger Agreement. We and Synopsys have agreed to use reasonable best efforts to take all actions necessary to consummate the Merger, including cooperating to obtain the regulatory approvals necessary to complete the Merger. We have agreed not to, among other things, (a) solicit proposals relating to alternative transactions or (b) enter into discussions or negotiations or provide non-public information in connection with any proposal for an alternative transaction from a third party, subject to certain exceptions to permit our Board of Directors to comply with its fiduciary obligations. We have further agreed to cease and cause to be terminated any existing discussions or negotiations, if any, with regard to alternative transactions.

The Merger Agreement may be terminated under certain circumstances, including that either party may have the right to terminate if the Merger is not completed by January 15, 2025, which may be extended to January 15, 2026 as provided in the Merger Agreement. If the Merger Agreement is terminated, (A) Synopsys, under specified circumstances, including termination following an injunction arising in connection with certain antitrust or foreign investment laws, will be required to pay us a termination fee of $1,500.0 million; and (B) we, under specified circumstances, including our termination of the Merger Agreement to accept and enter into a definitive agreement with respect to a Superior Proposal (as defined in the Merger Agreement) or Synopsys' termination upon the change by our Board of Directors of its recommendation in favor of the Merger, will be required to pay Synopsys a termination fee of $950.0 million.

The completion of the Merger is subject to customary closing conditions, including, among others, approval of the Merger under certain applicable antitrust and foreign investment regimes and the adoption of the Merger Agreement by our stockholders. We anticipate the transaction to close in the first half of 2025.

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EXHIBIT INDEX

Exhibit No.	Exhibit
2.1	Agreement and Plan of Merger, dated as of January 15, 2024, by and among Synopsys, Inc., ANSYS, Inc. and ALTA Acquisition Corp. (filed as Exhibit 2.1 to the Company's Current Report on Form 8-K, filed January 16, 2024, and incorporated herein by reference).
3.1	Restated Certificate of Incorporation of ANSYS, Inc., dated May 31, 2023 (filed as Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q, filed August 2, 2023, and incorporated herein by reference).
3.2	Fifth Amended and Restated By-Laws of ANSYS, Inc., adopted and effective May 12, 2023 (filed as Exhibit 3.2 to the Company's Current Report on Form 8-K, filed May 16, 2023, and incorporated herein by reference).
4.1	Description of Securities.
10.1	Form of Indemnification Agreement between ANSYS, Inc. and Non-Employee Directors (filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, filed March 20, 2013, and incorporated herein by reference).*
10.2	Non-Employee Director Deferred Compensation Plan (filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q, filed November 7, 2019, and incorporated herein by reference).*
10.3	Executive Severance Plan, as amended and restated, dated July 29, 2014 (filed as Exhibit 10.3 to the Company's Annual Report on Form 10-K, filed February 27, 2020, and incorporated herein by reference).*
10.4	Fourth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, filed May 17, 2011, and incorporated herein by reference).*
10.5	Form of Deferred Stock Unit Agreement under the Fourth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.5 to the Company's Annual Report on Form 10-K, filed February 27, 2020, and incorporated herein by reference).*
10.6	Form of Employee Non-Qualified Stock Option Agreement under the Fourth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed May 2, 2013, and incorporated herein by reference).*
10.7	Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Appendix 1 to the Company's Definitive Proxy Statement on Schedule 14A filed March 31, 2016 and incorporated herein by reference).*
10.8	Form of Employee Non-Qualified Stock Option Agreement under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.36 to the Company's Annual Report on Form 10-K, filed February 23, 2017, and incorporated herein by reference).*
10.9	2019 Form of Special Performance Stock Unit Agreement under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.18 to the Company's Annual Report on Form 10-K, filed February 27, 2020, and incorporated herein by reference).*
10.10	2020 Form of Award Notice (Total Shareholder Return) under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.24 to the Company's Quarterly Report on Form 10-Q, filed May 6, 2020, and incorporated herein by reference).*
10.11	2020 Form of Award Notice (Annual Contract Value) under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.17 to the Company's Annual Report on Form 10-K, filed February 24, 2021, and incorporated herein by reference).*
10.12	2021 Form of Award Notice (Annual Contract Value) under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.24 to the Company's Quarterly Report on Form 10-Q, filed May 5, 2021, and incorporated herein by reference).*
10.13	2021 Form of Award Notice (Total Shareholder Return) under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.25 to the Company's Quarterly Report on Form 10-Q, filed May 5, 2021, and incorporated herein by reference).*
10.14	2021 Form of Restricted Stock Unit Agreement under the Fifth Amended and Restated ANSYS, Inc. 1996 Stock Option and Grant Plan (filed as Exhibit 10.26 to the Company's Quarterly Report on Form 10-Q, filed May 5, 2021, and incorporated herein by reference).*
10.15	Amended and Restated Employment Agreement between ANSYS, Inc. and Ajei S. Gopal, dated November 1, 2023.*

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10.16	Form of Non-Qualified Stock Option Agreement with Ajei S. Gopal (filed as Exhibit 10.3 to the Company's Current Report on Form 8-K, filed August 29, 2016, and incorporated herein by reference).*
10.17	Lease by and between ANSYS, Inc. and Quattro Investment Group, L.P., dated as of September 14, 2012 (filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, filed September 18, 2012, and incorporated herein by reference).
10.18	ANSYS, Inc. 2021 Equity and Incentive Compensation Plan (filed as Exhibit 99.1 to the Company's Current Report on Form 8-K, filed May 18, 2021, and incorporated herein by reference).*
10.19	Form of Notice of Grant of Performance-Based Restricted Stock Units and Agreement (Total Shareholder Return) under the ANSYS, Inc. 2021 Equity and Incentive Compensation Plan (filed as Exhibit 10.28 to the Company's Quarterly Report on Form 10-Q, filed August 4, 2021, and incorporated herein by reference).*
10.20	Form of Notice of Grant of Performance-Based Restricted Stock Units and Agreement (Operating Metrics) under the ANSYS, Inc. 2021 Equity and Incentive Compensation Plan (filed as Exhibit 10.29 to the Company's Quarterly Report on Form 10-Q, filed August 4, 2021, and incorporated herein by reference).*
10.21	Form of Notice of Grant of Restricted Stock Units and Agreement (Non-Employee Director) under the ANSYS, Inc. 2021 Equity and Incentive Compensation Plan (filed as Exhibit 10.30 to the Company's Quarterly Report on Form 10-Q, filed August 4, 2021, and incorporated herein by reference).*
10.22	Form of Notice of Grant of Restricted Stock Units and Award Notice and Agreement (Employee) under the ANSYS, Inc. 2021 Equity and Incentive Compensation Plan (filed as Exhibit 10.31 to the Company's Quarterly Report on Form 10-Q, filed August 4, 2021, and incorporated herein by reference).*
10.23	ANSYS, Inc. 2022 Employee Stock Purchase Plan (as amended and restated effective February 1, 2023 and filed as Exhibit 10.23 to the Company's Annual Report on Form 10-K, filed February 23, 2023, and incorporated herein by reference).*
10.24	Credit Agreement, dated as of June 30, 2022, among ANSYS, Inc., as Borrower, PNC Bank, National Association, as Administrative Agent, Swing Line Lender and an L/C Issuer, the lenders party thereto, and the other L/C Issuers party thereto (filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, filed July 6, 2022, and incorporated herein by reference).
10.25	Amendment No. 1 to Credit Agreement, dated as of September 29, 2023, among ANSYS, Inc., as Borrower, PNC Bank, National Association, as Administrative Agent, and the lenders party thereto (filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed November 1, 2023, and incorporated herein by reference).†
10.26	ANSYS, Inc. Tier Two Executive Severance Plan, dated January 1, 2024.*
10.27	Transition Agreement between ANSYS, Inc. and Nicole Anasenes, dated February 15, 2024.*
21.1	Subsidiaries of the Registrant.
23.1	Consent of Deloitte & Touche LLP, independent registered public accounting firm.
24.1	Powers of Attorney. Contained on the Signatures page of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2023 and incorporated herein by reference.
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
97.1	Policy Relating to Recovery of Erroneously Awarded Compensation, dated November 30, 2023.
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase

101.LAB	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* *Indicates management contract or compensatory plan, contract or arrangement.*

† *Certain schedules, exhibits, and appendices have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The Company hereby undertakes to furnish copies of any omitted schedule, exhibit, or appendix to the SEC upon request.*

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ITEM 16. FORM 10-K SUMMARY

None.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ANSYS, Inc.

Date: February 21, 2024

By: */s/ Ajei S. Gopal*

Ajei S. Gopal
President and Chief Executive Officer
(Principal Executive Officer)

Date: February 21, 2024

By: */s/ Nicole Anasenes*

Nicole Anasenes
Chief Financial Officer and Senior Vice President, Finance
(Principal Financial Officer and Principal Accounting Officer)

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POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Ajei S. Gopal, his or her attorney-in-fact, with the power of substitution, for such person in any and all capacities, to sign any amendments to this Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorney-in-fact, or substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated below.

Signature	Title	Date
/s/ AJEI S. GOPAL **Ajei S. Gopal**	President, Chief Executive Officer and Director (Principal Executive Officer)	February 21, 2024
/s/ NICOLE. ANASENES **Nicole Anasenes**	Chief Financial Officer and Senior Vice President, Finance (Principal Financial Officer and Principal Accounting Officer)	February 21, 2024
/s/ GLENDA M. DORCHAK **Glenda M. Dorchak**	Director	February 21, 2024
/s/ DR. ANIL CHAKRAVARTHY **Dr. Anil Chakravarthy**	Director	February 21, 2024
/s/ DR. ALEC D. GALLIMORE **Dr. Alec D. Gallimore**	Director	February 21, 2024
/s/ RONALD W. HOVSEPIAN **Ronald W. Hovsepian**	Chairman of the Board of Directors	February 21, 2024
/s/ BARBARA V. SCHERER **Barbara V. Scherer**	Director	February 21, 2024
/s/ ROBERT M. CALDERONI **Robert M. Calderoni**	Director	February 21, 2024
/s/ RAVI K. VIJAYARAGHAVAN **Ravi K. Vijayaraghavan**	Director	February 21, 2024
/s/ JIM FRANKOLA **Jim Frankola**	Director	February 21, 2024
/s/ CLAIRE BRAMLEY **Claire Bramley**	Director	February 21, 2024

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Subsidiaries of the Registrant as of December 31, 2023	Jurisdiction of Incorporation
ANSYS Austria GmbH	Austria
Fluent China Holdings Limited	Barbados
ANSYS Belgium S.A.	Belgium
ANSYS do Brasil LTDA	Brazil
Diakopto Inc.	California
ANSYS Canada Limited	Canada
ANSYS Lumerical Software ULC	Canada
2011767 Ontario, Inc.	Canada
ANSYS Technology (Shanghai) Co., Ltd.	China
OPTIS CN Limited	China
Cullimore and Ring Technologies, Inc.	Colorado
Ansys International LLC	Delaware
OnScale, LLC	Delaware
Grove Financing Sub 3, LLC	Delaware
Zemax Taiwan, LLC	Delaware
Zemax, LLC	Delaware
ANSYS France SAS	France
Extrality SAS	France
ANSYS Germany GmbH	Germany
DYNAmore Gesellschaft fur FEM Ingenieurdienstleistungen GmbH	Germany
ANSYS Hellas Single Member S.A.	Greece
OPTIS Hong Kong Limited	Hong Kong
ANSYS Software Private Limited	India
ANSYS Ireland Ltd.	Ireland
ANSYS Software, Ltd.	Israel
ANSYS Italia, S.r.l	Italy
ANSYS Japan K.K.	Japan
OnScale Japan GK	Japan
ANSYS Luxembourg Holding Company S.à.r.l.	Luxembourg
Computational Engineering International, Inc.	North Carolina
Ansys Government Initiatives, Inc. AGI.	Pennsylvania
ANSYS Poland s p.z.o.o	Poland
ANSYS OOO	Russia
ANSYS Rwanda Limited	Rwanda
ANSYS Singapore Pte. Ltd.	Singapore
ANSYS Korea LLC	South Korea
ANSYS Iberia, S.L.	Spain
Engineering Simulation and Scientific Software Rocky DEM S.L.U.	Spain

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ANSYS Sweden AB	Sweden
DYNAmore Nordic AB	Sweden
ANSYS Switzerland GmbH	Switzerland
desktop.studio GmbH	Switzerland
Matterhorn Merger Sub GmbH	Switzerland
Taiwan ANSYS Technologies Co.	Taiwan
ANSYS MEA FZ-LLC	United Arab Emirates
ANSYS UK Limited	United Kingdom
Granta Design Limited	United Kingdom
Grove Acquisition Sub Limited	United Kingdom
Grove Financing Sub Limited	United Kingdom
Grove Financing Sub 2 Limited Partnership	United Kingdom
Grove Financing Sub 4 Limited	United Kingdom
Motor Design Limited	United Kingdom
OnScale Limited	United Kingdom
Phoenix Integration, Inc.	Virginia

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-152765, 333-174670, 333-177030, 333-196393, 333-206111, 333-212412, 333-256252 and 333-265553 on Form S-8 and Registration No. 333-253472 on Form S-3 of our reports dated February 21, 2024, relating to the financial statements of ANSYS, Inc., and the effectiveness of ANSYS, Inc. and subsidiaries' internal control over financial reporting appearing in this Annual Report on Form 10-K of ANSYS, Inc. for the year ended December 31, 2023.

/s/ Deloitte & Touche LLP
Pittsburgh, Pennsylvania

February 21, 2024

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EXHIBIT 31.1

CHIEF EXECUTIVE OFFICER CERTIFICATION

I, Ajei S. Gopal, certify that:

1. I have reviewed this annual report on Form 10-K of ANSYS, Inc. ("Ansys");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of Ansys as of, and for, the periods presented in this report;

4. Ansys' other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for Ansys and have:

   a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to Ansys, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c. Evaluated the effectiveness of Ansys' disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. Disclosed in this report any change in Ansys' internal control over financial reporting that occurred during Ansys' most recent fiscal quarter (Ansys' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, Ansys' internal control over financial reporting; and

5. Ansys' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to Ansys' auditors and the audit committee of Ansys' board of directors (or persons performing the equivalent functions):

   a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect Ansys' ability to record, process, summarize and report financial information; and

   b. Any fraud, whether or not material, that involves management or other employees who have a significant role in Ansys' internal control over financial reporting.

Date: February 21, 2024

/s/ Ajei S. Gopal

Ajei S. Gopal

President and Chief Executive Officer

(Principal Executive Officer)

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EXHIBIT 31.2

CHIEF FINANCIAL OFFICER CERTIFICATION

I, Nicole Anasenes, certify that:

1. I have reviewed this annual report on Form 10-K of ANSYS, Inc. ("Ansys");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of Ansys as of, and for, the periods presented in this report;

4. Ansys' other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for Ansys and have:

   a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to Ansys, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c. Evaluated the effectiveness of Ansys' disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. Disclosed in this report any change in Ansys' internal control over financial reporting that occurred during Ansys' most recent fiscal quarter (Ansys' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, Ansys' internal control over financial reporting; and

5. Ansys' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to Ansys' auditors and the audit committee of Ansys' board of directors (or persons performing the equivalent functions):

   a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect Ansys' ability to record, process, summarize and report financial information; and

   b. Any fraud, whether or not material, that involves management or other employees who have a significant role in Ansys' internal control over financial reporting.

Date: February 21, 2024

/s/ Nicole Anasenes

Nicole Anasenes

Chief Financial Officer and Senior Vice President, Finance

(Principal Financial Officer and Principal Accounting Officer)

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EXHIBIT 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of ANSYS, Inc. (the "Company") on Form 10-K for the year ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Ajei S. Gopal, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

This certification is provided solely pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed to be part of the Report or filed for any purpose whatsoever.

/s/ Ajei S. Gopal

Ajei S. Gopal
President and Chief Executive Officer
(Principal Executive Officer)
February 21, 2024

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EXHIBIT 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of ANSYS, Inc. (the "Company") on Form 10-K for the year ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Nicole Anasenes, Chief Financial Officer and Senior Vice President, Finance of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

This certification is provided solely pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed to be part of the Report or filed for any purpose whatsoever.

/s/ Nicole Anasenes

Nicole Anasenes
Chief Financial Officer and Senior Vice President, Finance
(Principal Financial Officer and Principal Accounting Officer)
February 21, 2024

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Ansys

2023

ANSYS, Inc.

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