

EQUITY RESEARCH

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Industry Update

Protecting The Public – Bits & Bytes Weekly

Microsoft's OpenAI Faces FTC Scrutiny

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Our Conclusion

Last week, the Washington Post reported that the FTC has initiated an expansive investigation into Microsoft's OpenAI, delivering the company a 20-page demand letter seeking details on how it handles risks related to its AI models. The FTC has repeatedly warned it would take action on AI, with many articles posted on the agency's site outlining the risks of the technology dating back to over a year. The probe into OpenAI marks the agency's first substantial move to enforce consumer protection laws in the AI realm, and we expect the outcome will set the stage for future law enforcement and regulation of the space.

Key Points

Congress Has Struggled To Regulate AI: The quick success of OpenAI's ChatGPT resulted in an [AI frenzy](#), with the other tech giants racing to compete against Microsoft, and spurring Washington lawmakers into action on regulating the exploding technology. Washington faces gaps in its technical expertise which is leading to a slower turnaround on policy creation, a cause for concern for some critics when coupled with the speed at which the technology is evolving. Many industry leaders within AI have been calling for more regulation of the technology, including OpenAI CEO Sam Altman himself; however, Altman has also been accused of trying to influence policy following reports of private meetings and dinners with lawmakers.

Consumer Protection Laws: Consumer protection laws exist to protect consumers from fraudulent business practices and dangerous goods and services. In the U.S., consumer protection laws reach across various federal and state laws, and are overseen through the FTC. In regards to OpenAI, the FTC Chair has stated that the FTC is focused on whether there is substantial injury to people, noting that injury can take many shapes. OpenAI has been requested to provide detailed descriptions of all complaints it has received of its products making "false, misleading, disparaging or harmful" statements. The FTC has also requested OpenAI describe how it refines its models to address its tendency to respond with information when the model doesn't know an answer to a question. The company is facing at least one lawsuit for defamation in response to false citations of lawsuits and articles about individuals.

Data Scraping Accusations: The FTC has demanded a detailed description of the data that OpenAI used to train its products, mostly scraped from Wikipedia and other websites. Late last month, CNN reported that OpenAI was the target of a class action lawsuit alleging the company stole personal data from the internet to train its AI tools. Microsoft was also named as a defendant in the suit. The complaint alleges private information including personal identifiable information was stolen from millions of internet users without their knowledge or consent. Both OpenAI and Microsoft did not respond to requests for comment.

All figures in U.S. unless otherwise stated.

For required regulatory disclosures please refer to "Important Disclosures" beginning on page 9.

Sector:

Information Technology

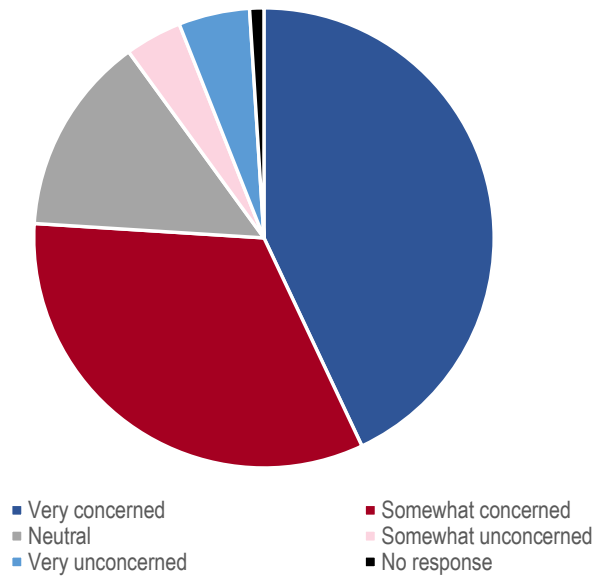
Public View On Widespread AI Use

Pew Research conducted a survey on the public views of artificial intelligence and human enhancement applications, and found that the public had in general a cautious and uncertain view on the use of the artificial intelligence in daily life. According to the study, when survey respondents were asked about the increased use of AI in daily life, 37% reported they were more concerned than excited, and 45% stated they were equally concerned and excited. A Reuters poll in May of this year indicated 61% of Americans are concerned about the negative effects of AI, and 61% believe it could threaten civilization. When it comes to misinformation the concern is even higher.

A Forbes Advisor survey conducted in June showed 76% of consumers are concerned with misinformation from AI tools such as Google Bard, ChatGPT and Bing Chat, with 43% being very concerned and 33% somewhat concerned.

Exhibit 1: Forbes Advisor Survey – Misinformation From Artificial Intelligence

Americans Concerns About Misinformation From Artificial Intelligence



Source: Forbes Advisor.

News Impacting Our Coverage

Research Highlight: [Q2/23 Software & Services Preview](#): Heading into Q2 earnings season, our focus will be on the outlook for the demand environment heading into H2/23, inflationary pressures, and the M&A environment. Overall, the Street is forecasting average Q2 revenue growth of 14% Y/Y and EBITDA growth of 5% Y/Y for our coverage universe, with margins at several names impacted by M&A integration costs. Our coverage returned -4.8% in Q2, underperforming both the S&P Software Index (+16%) and the S&P 500 (+8%), as investors repriced several names in our coverage that reported weaker-than-expected growth. We expect companies that miss growth expectations to see a similar outsized impact this earnings season, and we continue to prefer the more defensive software names, including CGI and Constellation.

Research Highlight: [Constellation Acquiring Black Knight's Optimal Blue For \\$700 Million](#): Constellation announced that its Perseus operating group has entered a binding commitment with Intercontinental Exchange Inc. (ICE) and Black Knight to acquire Black Knight's Optimal Blue business for \$700MM. We estimate Optimal Blue contributed ~\$120MM in revenue to Black Knight in 2022, resulting in a 5x-6x revenue multiple paid by Constellation. The proposed acquisition follows Constellation's acquisition of Black Knight's Empower loan origination system (LOS) business in March as ICE/Black Knight seek FTC approval of its merger. With the FTC still seeking action against the merger, we see Constellation as opportunistically acquiring Optimal Blue, as evidenced by the steep discount in valuation when compared to Black Knight's original purchase price of \$1.8B for the same assets in 2020. The deal is contingent on the close of the ICE/Black Knight transaction.

Research Highlight: [TELUS International Pre-announces Q2 And Reduces Full-year Guidance](#): After market close Thursday July 13, TI released preliminary Q2 results that were weaker than expected and revised its full-year guidance down. The midpoint of both the Q2 and FY revenue guides were ~8% below expectations, with the revenue reduction translating into reduced operating leverage. Q2 adj. EBITDA margins at the midpoint were 560 bps below expectations, although the company has put in place a series of cost savings measures that are expected to improve margins in H2 and beyond. While management's prior guide had incorporated an improving demand environment, Q2 was characterized by a reduction in demand from some of its larger clients, particularly in the technology vertical as clients focus on profitability.

Meta Unveils New AI Tech Llama 2

Meta, in partnership with Microsoft, introduced Llama 2, which was trained on 40% more data than previous version Llama 1. In a Facebook post, Zuckerberg announced that Meta will open source Llama 2 in an effort to improve safety, security, and innovation. He pointed to Meta's history of open sourcing its AI work, such as PyTorch and Llama 1. OpenAI's ChatGPT, Google's Bard, and Microsoft's AI offerings are not open source, so Meta is taking a more open-source approach than its peers.

Descartes To Provide Last Mile Delivery Solution To Stop Start

Descartes announced that it will provide its last mile delivery solution to U.K.-based distribution and warehousing company Stop Start. Stop Start is undertaking a digital transformation of its business and will leverage Descartes' tech to unlock distribution capacity and enhance customer communications. Descartes stated that it looks to help improve Stop Start's productivity to meet growing demand for high-value, high-touch delivery services through streamlining and automation.

Dye & Durham Exceeds \$100 Million In Annual Recurring Revenue

DND reached the ARR milestone of \$100MM, which represents a \$33MM increase in the company's ARR since the end of March. The company cited strong demand for its software products and new contracted-sales initiatives as drivers of the ARR growth. DND also made recent tuck-in acquisitions in the legal practice management market, which contributed as well. The company has a goal of increasing ARR to more than 50% of total revenue exiting F2026.

Exhibit 2: CIBC Coverage – Price Returns, For The Period Ending July 20, 2023

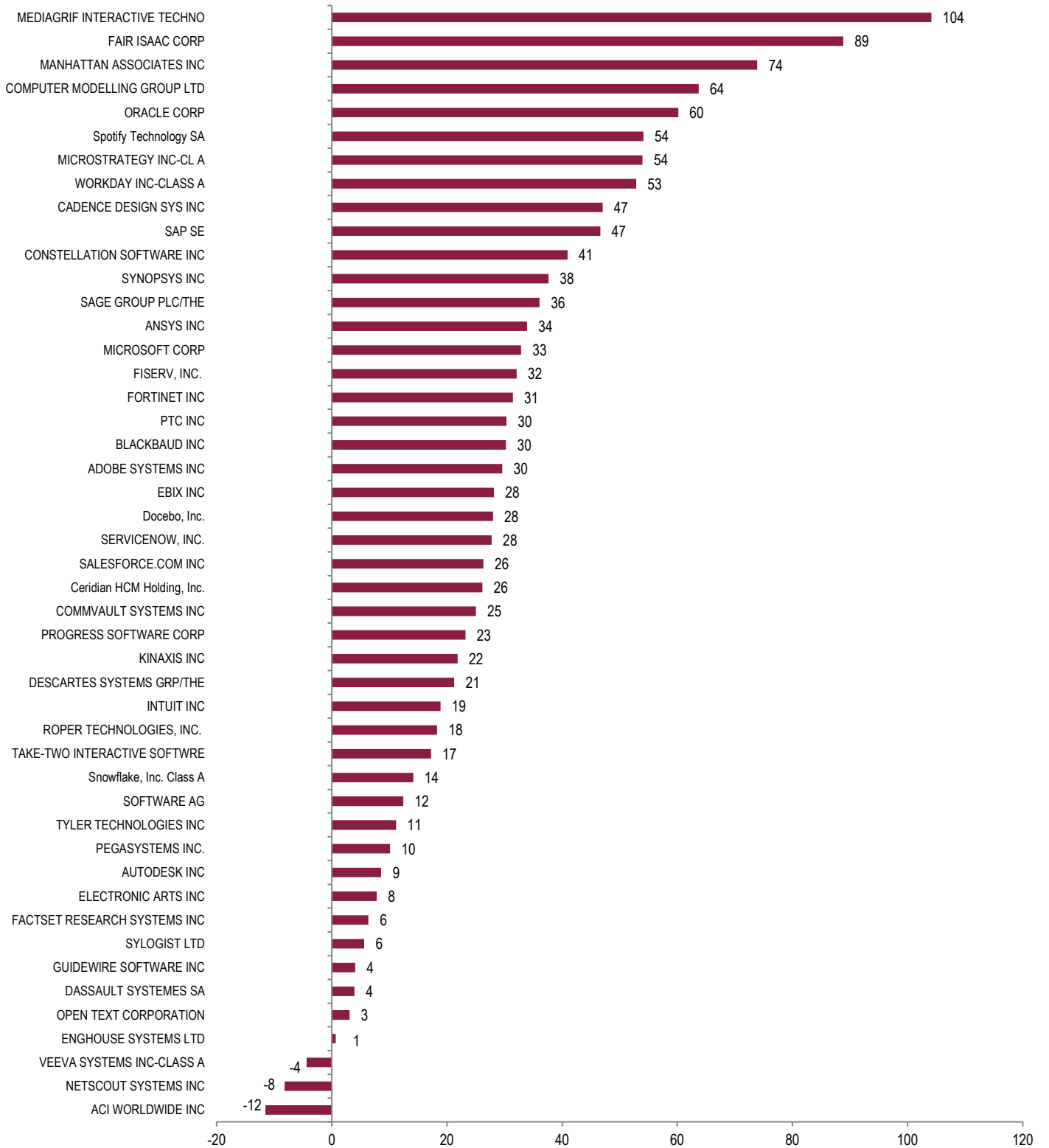
Software & Systems	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
Constellation Software Inc	2,793.52	4.1	3.6	7.1	22.6	40.9	34.9	2829.34	1747.83
Descartes Systems	80.64	2.6	3.1	2.2	13.6	18.8	15.8	82.02	61.26
Enghouse Systems Limited	31.45	1.8	(3.4)	(16.8)	(20.9)	0.7	(12.6)	44.59	27.30
Open Text Corp	41.66	2.8	1.6	9.0	26.0	3.1	40.6	43.25	24.91
Kinaxis	187.68	2.3	4.0	4.8	25.0	21.8	23.5	191.80	124.90
Docebo, Inc.	50.03	2.2	(0.6)	(1.3)	5.2	28.0	11.8	55.72	31.66
Dye & Durham	19.58	(2.9)	9.6	25.5	(7.4)	4.1	19.3	23.14	11.62
Altus Group	43.50	(2.0)	(7.1)	(21.3)	(20.2)	(11.2)	(19.5)	61.60	40.00
Q4 Inc.	4.14	9.5	25.1	10.7	86.5	NA	29.0	4.90	1.88
Average		2.3	4.0	2.2	14.5	13.3	15.9		

Business Services	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
CGI Group Inc	139.92	0.2	2.6	5.7	19.7	28.3	19.9	142.31	100.74
Converge Technologies	3.31	(3.4)	0.5	(9.2)	(39.9)	(42.6)	(28.0)	7.51	2.59
Information Services Corp	26.00	4.3	24.0	13.0	12.8	33.4	7.6	26.98	19.15
Softchoice Corporation	16.98	(2.9)	0.1	(6.8)	(7.2)	(27.7)	(7.0)	25.56	13.57
Telus International	13.54	(29.7)	(33.3)	(50.6)	(55.3)	(62.3)	(49.3)	40.55	12.73
Average		(8.9)	(7.5)	(15.2)	(20.7)	(26.1)	(16.1)		

Indices	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD
S&P/TSX Composite Index	20,434.52	0.8	3.4	(1.0)	(0.3)	7.4	5.4
S&P 500 Index	4,545.82	0.8	3.6	10.1	14.4	14.8	18.4
S&P/TSX Software Index	192.11	(1.1)	2.8	14.2	28.8	36.4	40.8
S&P500 Software Index	5,900.07	1.1	3.4	20.7	40.3	31.4	44.0

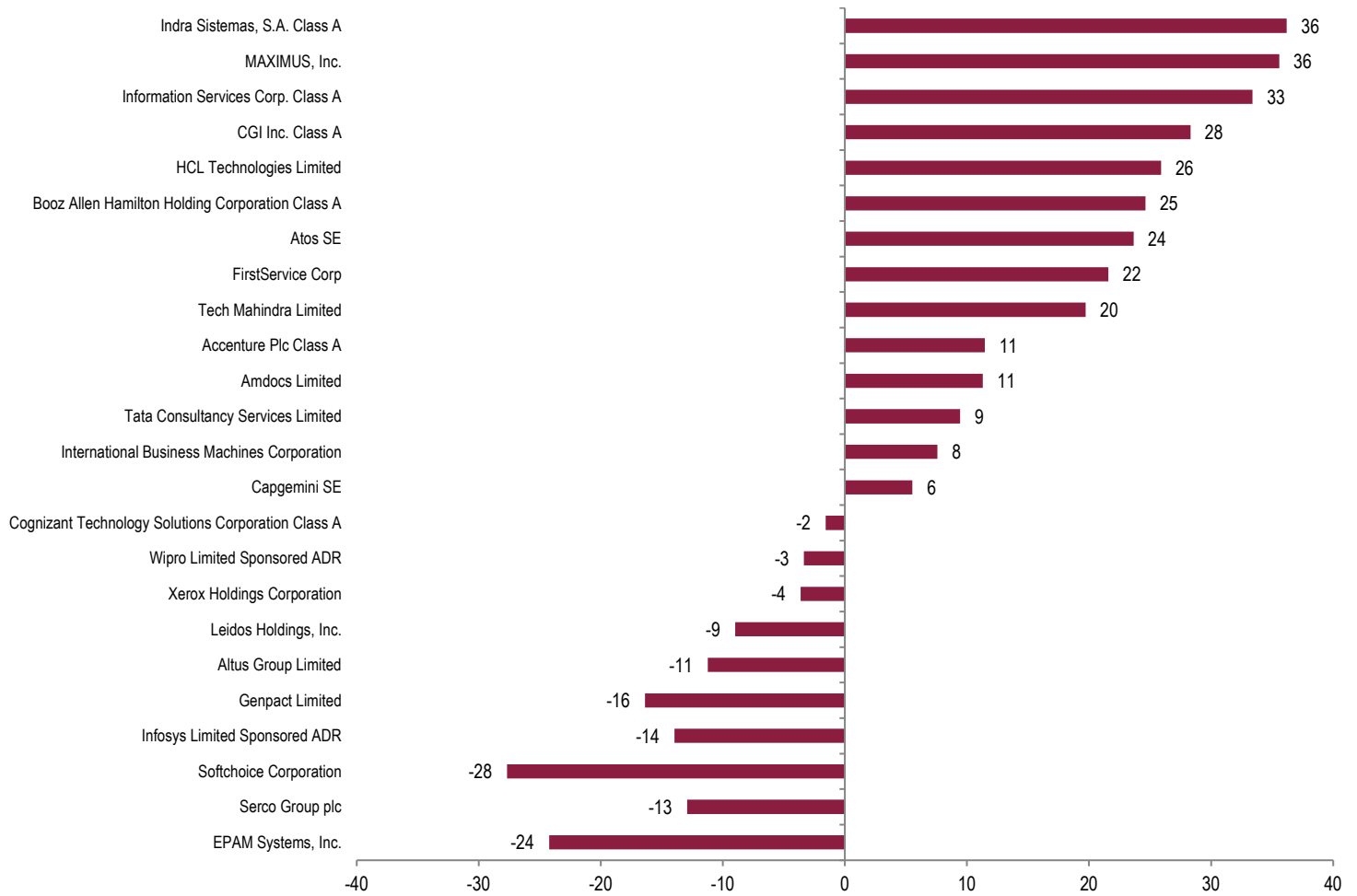
Source: Company reports, FactSet and CIBC World Markets Inc.

Exhibit 3: Software Stocks – Return Performance (%), 7/20/2022–7/20/2023



Source: Company reports and CIBC World Markets Inc.

Exhibit 4: Business Services Stocks – Return Performance (%), 7/20/2022–7/20/2023



Source: Company reports, FactSet and CIBC World Markets Inc.

Exhibit 5: Software Stocks – Comp Table, 2022–2024E

	Enterprise Value (\$mlns.)	EV/S			EV/EBITDA			P/E		
		C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Enterprise Application Software										
Constellation Software Inc.*	46,705	7.1x	5.9x	5.3x	27.5x	23.3x	20.6x	37.2x	34.3x	30.0x
BlackBerry Limited*	2,746	4.1x	2.5x	2.6x	NEG	>50	>50	NEG	NEG	NEG
Sage Group plc	10,375	5.2x	4.7x	4.4x	22.7x	20.0x	18.0x	35.0x	29.4x	26.3x
Tyler Technologies, Inc.	17,903	9.7x	9.2x	8.4x	37.7x	37.2x	33.3x	>50	>50	46.7x
Roper Technologies, Inc.	57,569	10.7x	9.5x	9.0x	26.3x	23.6x	22.0x	33.8x	29.6x	27.5x
Enghouse Systems Limited	1,521	3.6x	3.51x	3.46x	11.0x	11.3x	10.44x	15.9x	24.6x	21.81x
Oracle Corporation	400,854	8.6x	7.7x	7.1x	17.3x	15.3x	13.7x	23.1x	21.5x	19.3x
SAP SE	158,644	4.7x	5.1x	4.7x	20.0x	17.3x	15.1x	31.0x	24.1x	20.4x
Enterprise Application Software Average		6.7x	6.0x	5.6x	23.2x	21.1x	19.0x	29.3x	27.3x	27.4x
Extended ERP										
Adobe Incorporated	235,758	13.3x	12.0x	10.7x	27.0x	24.6x	22.6x	37.5x	32.9x	29.0x
Open Text Corporation	19,324	5.5x	3.5x	3.2x	15.5x	11.2x	8.3x	13.2x	16.2x	7.7x
Manhattan Associates, Inc.	12,624	16.5x	14.6x	13.1x	>50	>50	48.0x	>50	>50	>50
Pegasystems Inc.	4,967	3.8x	3.6x	3.3x	>50	29.0x	19.0x	>50	39.6x	25.7x
Software AG	2,547	2.7x	2.5x	2.4x	14.3x	14.8x	12.4x	34.5x	22.1x	18.6x
Fiserv, Inc.	101,028	6.0x	5.6x	5.2x	14.0x	12.7x	11.8x	19.9x	17.5x	15.4x
Extended ERP Average		7.9x	7.0x	6.3x	17.7x	18.5x	20.3x	26.3x	25.7x	19.3x
Software As A Service										
Descartes Systems Group Inc.	6,685	13.8x	11.9x	10.8x	31.1x	27.3x	23.9x	>50	>50	>50
Kinaxis, Inc.*	3,811	10.4x	8.8x	7.4x	48.0x	>50	45.4x	>50	>50	>50
Docebo, Inc.*	1,040	7.3x	5.8x	4.4x	>50	>50	34.1x	>50	>50	>50
Lightspeed Commerce Inc*	1,913	2.8x	2.3x	1.7x	NEG	NEG	>50	NEG	>50	>50
Veeva Systems Inc Class A	29,136	13.7x	12.4x	10.5x	35.4x	35.1x	28.1x	47.4x	44.2x	37.2x
Shopify, Inc. Class A	80,800	14.4x	12.0x	10.2x	>50	>50	>50	>50	>50	>50
Q4 Inc*	103	1.9x	1.8x	1.7x	NEG	NEG	NEG	NEG	NEG	NEG
Ceridian HCM Holding, Inc.	11,601	9.3x	7.8x	6.7x	46.3x	31.1x	25.0x	>50	>50	44.1x
ServiceNow, Inc.	116,864	16.1x	13.2x	10.9x	>50	44.6x	35.3x	>50	>50	49.1x
Workday, Inc. Class A	55,893	9.1x	7.8x	6.7x	35.6x	29.3x	24.0x	>50	43.5x	35.8x
Software As A Service Average		9.9x	8.4x	7.1x	39.3x	33.5x	30.8x	>50	>50	>50
Infrastructure Vendors										
Microsoft Corporation	2,565,096	12.5x	11.5x	10.2x	25.4x	23.0x	19.9x	37.0x	33.8x	29.3x
Infrastructure Vendors Average		12.5x	11.5x	10.2x	25.4x	23.0x	19.9x	37.0x	33.8x	29.3x
Software Average		8.5x	7.4x	6.5x	26.8x	23.9x	23.4x	30.5x	29.5x	28.5x

*Share Price Converted to USD

Source: Company reports, FactSet and CIBC World Markets Inc.

Exhibit 6: Business Services Stocks – Comp Table, 2022–2024E

	Enterprise Value (\$mlns.)	EV/EBITDA			P/E			EV/S		
		C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Business & IT Services										
CGI Inc. Class A	35,514	13.7x	12.5x	11.6x	22.3x	19.2x	18.1x	2.7x	2.4x	2.3x
TELUS International (CDA), Inc.	4,582	7.5x	6.5x	5.6x	8.3x	8.2x	6.8x	1.9x	1.5x	1.4x
Accenture Plc Class A	203,989	17.7x	16.9x	15.7x	28.5x	26.4x	24.4x	3.3x	3.1x	2.9x
Booz Allen Hamilton	17,826	17.9x	16.6x	15.4x	25.9x	23.9x	21.6x	2.0x	1.8x	1.7x
CACI International Inc Class A	9,891	14.6x	13.4x	12.6x	19.1x	18.0x	16.3x	1.5x	1.4x	1.4x
DXC Technology Co.	9,417	3.9x	4.2x	4.1x	8.1x	7.5x	6.4x	0.6x	0.7x	0.7x
Genpact Limited	8,033	10.2x	9.6x	8.6x	13.8x	12.9x	11.5x	1.8x	1.7x	1.6x
International Business Machines	171,458	10.8x	11.6x	11.1x	15.2x	14.6x	13.8x	2.8x	2.8x	2.7x
Atos SE	3,360	3.9x	3.1x	2.8x	NEG	5.8x	4.7x	0.3x	0.3x	0.3x
Capgemini SE	35,956	10.3x	9.9x	9.1x	15.3x	15.7x	14.2x	1.6x	1.6x	1.5x
Sopra Steria Group SA	5,119	8.6x	7.5x	6.8x	13.8x	11.2x	9.7x	1.0x	0.9x	0.9x
Converge Technology Solutions Corp	1,007	7.1x	6.0x	5.5x	31.2x	>50	35.9x	0.5x	0.4x	0.4x
Business & IT Services Average		10.8x	10.2x	9.4x	17.0x	14.9x	13.4x	1.8x	1.7x	1.6x
HR Outsourcing										
Ceridian HCM Holding, Inc.	11,601	46.3x	31.1x	25.0x	>50	>50	44.1x	9.3x	7.8x	6.7x
Willis Towers Watson	28,844	12.1x	12.0x	10.8x	17.3x	16.2x	13.7x	3.3x	3.1x	3.0x
Aon Plc Class A	79,795	20.1x	18.4x	17.1x	25.3x	23.6x	21.0x	6.4x	6.0x	5.7x
Automatic Data Processing, Inc.	100,406	21.8x	19.5x	17.9x	31.3x	27.9x	25.3x	5.8x	5.5x	5.1x
Paychex, Inc.	43,849	20.4x	18.9x	17.6x	30.5x	27.5x	25.4x	9.1x	8.5x	8.0x
HR Outsourcing Average		24.1x	20.0x	17.7x	26.1x	23.8x	25.9x	6.8x	6.2x	5.7x
Information Services										
Broadridge Financial Solutions, Inc.	23,787	18.2x	16.8x	15.7x	25.3x	23.4x	21.4x	4.0x	3.8x	3.6x
Dye & Durham Ltd.	2,332	14.7x	13.3x	12.2x	>50	NEG	NEG	4.9x	5.1x	4.8x
Deluxe Corporation	2,178	5.2x	5.4x	5.3x	4.6x	6.0x	5.6x	1.0x	1.0x	1.0x
Information Services Corp	501	7.8x	7.6x	7.3x	13.0x	12.5x	11.5x	2.6x	2.5x	2.4x
Information Services Average		11.5x	10.8x	10.1x	14.3x	14.0x	12.8x	3.1x	3.1x	2.9x
Financial Services Technology										
Fidelity National Information Services	54,543	8.8x	9.0x	8.5x	9.2x	10.3x	9.4x	3.8x	3.8x	3.6x
Fiserv, Inc.	101,028	14.0x	12.7x	11.8x	19.9x	17.5x	15.4x	6.0x	5.6x	5.2x
Jack Henry & Associates, Inc.	12,714	20.2x	18.6x	17.2x	35.1x	33.7x	30.5x	6.4x	6.0x	5.6x
ACI Worldwide, Inc.	3,648	9.8x	9.5x	8.8x	19.5x	25.4x	16.6x	2.6x	2.5x	2.4x
Temenos AG	6,182	16.9x	15.9x	14.0x	25.7x	23.9x	20.7x	6.5x	6.2x	5.7x
Global Payments Inc.	41,985	10.8x	9.7x	9.0x	12.0x	10.8x	9.5x	5.2x	4.9x	4.5x
Financial Services Technology Average		13.4x	12.6x	11.5x	20.2x	20.3x	17.0x	5.1x	4.8x	4.5x
Diversified Real Estate Services										
Colliers International Group Inc.	6,518	10.3x	9.8x	8.9x	15.3x	15.9x	13.9x	1.5x	1.5x	1.4x
Altus Group Limited	2,138	15.8x	16.0x	12.9x	22.8x	26.8x	23.9x	2.9x	2.8x	2.5x
CBRE Group, Inc. Class A	29,529	10.1x	11.6x	10.2x	15.5x	18.6x	15.4x	1.0x	0.9x	0.9x
Jones Lang LaSalle Incorporated	10,557	8.4x	10.2x	8.2x	10.8x	13.9x	10.2x	0.5x	0.5x	0.5x
Diversified Real Estate Services Average		11.2x	11.9x	10.0x	16.1x	18.8x	15.9x	1.5x	1.4x	1.3x
Software Focused IT Solutions/VARs										
Softchoice Corporation* USD	851	10.4x	9.8x	8.8x	16.1x	16.6x	14.6x	2.7x	2.5x	2.4x
Softcat Plc*	2,908	16.8x	14.7x	13.4x	22.4x	20.6x	19.3x	6.9x	5.8x	5.3x
Crayon Group Holding ASA*	10,666	>50	>50	>50	>50	>50	>50	24.1x	19.2x	16.6x
Bytes Technology Group Plc*	1,159	16.9x	14.5x	12.8x	22.6x	20.3x	18.2x	NA	NA	NA
Software Focused IT Solutions/VARs Average		14.7x	13.0x	11.7x	20.4x	19.2x	17.4x	11.2x	9.2x	8.1x
Business Services Average		13.8x	12.6x	11.4x	18.8x	17.9x	16.7x	4.1x	3.7x	3.5x

*Share Price Converted to USD

**Software Focused IT Solutions/VARs uses EV/GP metric.

Source: Company reports, FactSet and CIBC World Markets Inc.

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Marketweight	M	Sector is expected to equal the performance of the broader market averages.
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CIBC World Markets Inc. Price Chart

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