

CONSTELLATION SOFTWARE INC.

MANAGEMENT'S DISCUSSION AND ANALYSIS ("MD&A")

The following discussion and analysis should be read in conjunction with the Annual Consolidated Financial Statements for the year ended December 31, 2019, which we prepared in accordance with International Financial Reporting Standards ("IFRS"). Certain information included herein is forward-looking and based upon assumptions and anticipated results that are subject to uncertainties. Should one or more of these uncertainties materialize or should the underlying assumptions prove incorrect, actual results may vary significantly from those expected. See "Forward-Looking Statements" and "Risks and Uncertainties".

Unless otherwise indicated, all dollar amounts are expressed in U.S. dollars. All references to "\$" are to U.S. dollars and all references to "C\$" are to Canadian dollars. Due to rounding, certain totals and subtotals may not foot and certain percentages may not reconcile.

Additional information about Constellation Software Inc. (the "Company" or "Constellation" or "CSI"), including our most recently filed Annual Information Form ("AIF"), is available on SEDAR at www.sedar.com.

Forward Looking Statements

Certain statements in this report may contain "forward looking" statements that involve risks, uncertainties and other factors that may cause the actual results, performance or achievements of the Company or industry to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Words such as "may", "will", "expect", "believe", "plan", "intend", "should", "anticipate" and other similar terminology are intended to identify forward looking statements. These statements reflect current assumptions and expectations regarding future events and operating performance as of the date of this MD&A, February 13, 2020. Forward looking statements involve significant risks and uncertainties, should not be read as guarantees of future performance or results, and will not necessarily be accurate indications of whether or not such results will be achieved. A number of factors could cause actual results to vary significantly from the results discussed in the forward looking statements, including, but not limited to, the factors discussed under "Risks and Uncertainties". Although the forward looking statements contained in this MD&A are based upon what management of the Company believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with these forward looking statements. These forward looking statements are made as of the date of this MD&A and the Company assumes no obligation, except as required by law, to update any forward looking statements to reflect new events or circumstances. This report should be viewed in conjunction with the Company's other publicly available filings, copies of which can be obtained electronically on SEDAR at www.sedar.com.

Non-IFRS Measures

This MD&A includes certain measures which have not been prepared in accordance with IFRS such as Free cash flow available to shareholders.

Free cash flow available to shareholders "FCFA2S" refers to net cash flows from operating activities less interest paid on lease obligations, interest paid on other facilities, credit facility transaction costs, repayments of lease obligations, the TSS membership liability revaluation charge, and property and equipment purchased, and includes interest and dividends received. We believe that FCFA2S is useful supplemental information as it provides an indication of the uncommitted cash flow that is available to shareholders if we do not make any acquisitions, or investments, and do not repay any debts. While we could use the FCFA2S to pay dividends or repurchase shares, our objective is to invest all of our FCFA2S in acquisitions which meet our hurdle rate.

FCFA2S is not a recognized measure under IFRS and, accordingly, readers are cautioned that FCFA2S should not be construed as an alternative to net cash flows from operating activities. See "Results of Operations

—Free cash flow available to shareholders” for a reconciliation of FCFA2S to net cash flows from operating activities.

Overview

We acquire, manage and build vertical market software (“VMS”) businesses. Generally, these businesses provide mission critical software solutions that address the specific needs of our customers in particular markets. Our focus on acquiring businesses with growth potential, managing them well and then building them, has allowed us to generate significant cash flows and revenue growth during the past several years.

Our revenue consists primarily of software license fees, maintenance and other recurring fees, professional service fees and hardware sales. Software license revenue is comprised of license fees charged for the use of our software products generally licensed under multiple-year or perpetual arrangements. Maintenance and other recurring revenue primarily consists of fees charged for customer support on our software products post-delivery and also includes, to a lesser extent, recurring fees derived from software as a service, subscriptions, combined software/support contracts, transaction-related revenues, and hosted products. Maintenance and other recurring fee arrangements generally include ongoing customer support and rights to certain product updates “when and if available” and products sold on a subscription basis. Professional service revenue consists of fees charged for implementation and integration services, customized programming, product training and consulting. Hardware sales include the resale of third party hardware that forms part of our customer solutions, as well as sales of customized hardware assembled internally. Our customers typically purchase a combination of software, maintenance, professional services and hardware, although the type, mix and quantity of each vary by customer and by product.

Expenses consist primarily of staff costs, the cost of hardware, third party licenses, maintenance and professional services to fulfill our customer arrangements, travel and occupancy costs and other general operating expenses.

Results of Operations

(In millions of dollars, except percentages and per share amounts)

Unaudited

	Three months ended December 31,		Period-Over- Period Change		Year ended December 31,		Period-Over- Period Change	
	2019	2018	\$	%	2019	2018	\$	%
Revenue	956	831	125	15%	3,490	3,060	430	14%
Expenses	724	604	120	20%	2,648	2,303	345	15%
Amortization of intangible assets	96	70	26	38%	331	279	52	19%
Foreign exchange (gain) loss	(9)	(6)	(3)	42%	11	(3)	14	NM
TSS membership liability revaluation charge	22	18	5	26%	52	55	(4)	-6%
Finance and other income	(2)	(4)	2	-43%	(4)	(17)	13	-75%
Bargain purchase gain	(10)	(68)	58	-86%	(45)	(69)	23	-34%
Finance costs	12	8	4	57%	42	26	16	60%
Income before income taxes	121	209	(87)	-42%	456	486	(29)	-6%
Income tax expense (recovery)								
Current income tax expense (recovery)	43	33	9	27%	164	127	38	30%
Deferred income tax expense (recovery)	(13)	(4)	(9)	225%	(41)	(20)	(21)	101%
Income tax expense (recovery)	29	29	(0)	0%	123	106	17	16%
Net income	92	179	(87)	-49%	333	379	(46)	-12%
Net cash flows from operating activities	255	208	46	22%	767	662	105	16%
Free cash flow available to shareholders	193	180	14	8%	590	559	32	6%
Weighted average number of shares outstanding								
Basic and diluted	21.2	21.2			21.2	21.2		
Net income per share								
Basic and diluted	\$ 4.34	\$ 8.46	\$ (4.12)	-49%	\$ 15.73	\$ 17.91	\$ (2.18)	-12%
Net cash flows from operating activities per share								
Basic and diluted	\$ 12.02	\$ 9.84	\$ 2.19	22%	\$ 36.17	\$ 31.24	\$ 4.93	16%
Free cash flow available to shareholders per share								
Basic and diluted	\$ 9.12	\$ 8.48	\$ 0.65	8%	\$ 27.86	\$ 26.37	\$ 1.49	6%
Cash dividends declared per share								
Basic and diluted	\$ 1.00	\$ 1.00	\$ -	0%	\$ 24.00	\$ 4.00	\$ 20.00	500%
Total assets					3,488	2,935	552	19%
Total long-term liabilities					1,069	725	344	47%

NM - Not meaningful

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

Comparison of the three and twelve month periods ended December 31, 2019 and 2018

Revenue:

Total revenue for the quarter ended December 31, 2019 was \$956 million, an increase of 15%, or \$125 million, compared to \$831 million for the comparable period in 2018. For the 2019 fiscal year total revenues were \$3,490 million, an increase of 14%, or \$430 million, compared to \$3,060 million for the 2018 fiscal year. The increase for both the three and twelve month periods compared to the same periods in the prior year is primarily attributable to growth from acquisitions as the Company experienced organic growth of negative 3% and negative 1% for the three and twelve month periods respectively, negative 2% and positive 1% respectively after adjusting for the impact of changes in the valuation of the US dollar against most major currencies in which the Company transacts business. For acquired companies, organic growth is calculated as the difference between actual revenues achieved by each company in the financial period following acquisition compared to the estimated revenues they achieved in the corresponding financial period preceding the date of acquisition by Constellation.

The following table displays the breakdown of our revenue according to revenue type:

	Three months ended December 31,		Period-Over- Period Change		Q418 Proforma Adj. (Note 1)	Organic Growth	Year ended December 31,		Period-Over- Period Change		FY18 Proforma Adj. (Note 2)	Organic Growth
	2019	2018	\$	%	\$	%	2019	2018	\$	%	\$	%
	(\$ in millions, except percentages)						(\$ in millions, except percentages)					
Licenses	62	57	4	7%	11	-10%	226	198	28	14%	42	-6%
Professional services	188	173	15	9%	32	-8%	673	616	58	9%	108	-7%
Hardware and other	51	58	(7)	-12%	7	-22%	173	175	(1)	-1%	23	-12%
Maintenance and other recurring	655	542	113	21%	101	2%	2,417	2,072	346	17%	309	2%
	956	831	125	15%	151	-3%	3,490	3,060	430	14%	483	-1%

\$M - Millions of dollars

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

Note 1: Estimated pre-acquisition revenues for the three months ended December 31, 2018 from companies acquired after September 30, 2018. (Obtained from unaudited vendor financial information.)

Note 2: Estimated pre-acquisition revenues for the twelve months ended December 31, 2018 from companies acquired after December 31, 2017. (Obtained from unaudited vendor financial information.)

For comparative purposes the table below shows the quarterly organic growth as compared to the same period in the prior year by revenue type since Q4 2017.

	Quarter Ended									
	Dec. 31 <u>2017</u>	Mar. 31 <u>2018</u>	Jun. 30 <u>2018</u>	Sep. 30 <u>2018</u>	Dec. 31 <u>2018</u>	Mar. 31 <u>2019</u>	Jun. 30 <u>2019</u>	Sep. 30 <u>2019</u>	Dec. 31 <u>2019</u>	
Licenses	6%	-4%	-5%	-9%	-3%	-3%	5%	-14%	-10%	
Professional services	7%	3%	3%	-5%	1%	-5%	-7%	-8%	-8%	
Hardware and other	17%	-16%	-11%	-20%	4%	-4%	-15%	-2%	-22%	
Maintenance and other recurring	7%	8%	6%	3%	2%	1%	2%	1%	2%	
Revenue	8%	5%	4%	-1%	2%	-1%	-1%	-2%	-3%	

The following table shows the same information adjusting for the impact of foreign exchange movements.

	Quarter Ended									
	Dec. 31	Mar. 31	Jun. 30	Sep. 30	Dec. 31	Mar. 31	Jun. 30	Sep. 30	Dec. 31	
	<u>2017</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>
Licenses	3%	-8%	-7%	-7%	-1%	1%	8%	-12%	-9%	
Professional services	3%	-3%	0%	-4%	3%	-1%	-4%	-5%	-7%	
Hardware and other	14%	-20%	-13%	-19%	5%	-1%	-14%	0%	-21%	
Maintenance and other recurring	4%	4%	4%	4%	4%	5%	4%	3%	3%	
Revenue	5%	0%	1%	0%	3%	3%	2%	0%	-2%	

As announced in January 2015, Trapeze Group (“Trapeze”), a division of Constellation’s wholly-owned subsidiary, Volaris Group Inc., was awarded a significant contract by the High Commission for the Development of Arriyadh represented by ARRIYADH DEVELOPMENT AUTHORITY (“Riyadh”), for the provision of a comprehensive intelligent transportation system (“ITS”). The hardware revenue recognized in association with this project is the primary explanation for the negative 21% organic growth in Hardware and other revenue in Q419. Hardware and other revenue associated with this project was \$11 million and \$15 million lower for the three and twelve months ended December 31, 2019 compared to the same periods in the prior year. Excluding hardware revenue associated with this project, the foreign exchange adjusted organic growth in Hardware and other revenue would have been negative 5% for the three and twelve months ended December 31, 2019.

We aggregate our business into two distinct segments for financial reporting purposes: (i) the public sector reportable segment, which includes business units focused primarily on government and government-related customers, and (ii) the private sector reportable segment, which includes business units focused primarily on commercial customers. Following the guidance set out by IFRS 8, the public sector reportable segment is derived by combining our Volaris, Harris and TSS operating groups, and the private sector reportable segment is derived by combining our Vela, Jonas and Perseus operating groups. Each of our operating groups operate essentially as mini Constellations, conglomerates of small vertical market software companies with similar economic characteristics. While the operating groups in the public sector are comprised of businesses that primarily serve government and government-related customers, they also include businesses that serve commercial customers, and similarly the operating groups in the private sector are comprised of businesses that primarily serve commercial customers but also include businesses that serve government and government-related customers. For the fiscal years ended December 31, 2019 and 2018 approximately 35% and 30% respectively of the revenue in the public sector reportable segment is generated from commercial customers, and 15% and 16% respectively of revenue in the private sector reportable segment is generated from government and government-related customers.

The following table displays our revenue by reportable segment and the percentage change for the three and twelve months ended December 31, 2019 compared to the same periods in 2018:

	Three months ended December 31,		Period-Over-Period Change		Q418 Proforma Adj. (Note 1)	Organic Growth	Year ended December 31,		Period-Over-Period Change		FY18 Proforma Adj. (Note 2)	Organic Growth
	2019	2018	\$	%	\$	%	2019	2018	\$	%	\$	%
	(\$ in millions, except percentages)						(\$ in millions, except percentages)					
Public Sector												
Licenses	41	33	8	24%	10	-4%	143	121	22	18%	34	-7%
Professional services	147	132	15	12%	28	-8%	522	471	51	11%	91	-7%
Hardware and other	42	51	(9)	-17%	5	-25%	143	146	(3)	-2%	19	-13%
Maintenance and other recurring	425	340	85	25%	72	3%	1,544	1,309	235	18%	208	2%
	655	556	99	18%	115	-2%	2,353	2,047	305	15%	351	-2%
Private Sector												
Licenses	21	24	(4)	-15%	2	-20%	83	77	6	8%	9	-3%
Professional services	41	41	(0)	0%	4	-8%	151	144	7	5%	18	-7%
Hardware and other	9	7	2	26%	2	-2%	30	28	2	7%	5	-8%
Maintenance and other recurring	230	202	28	14%	29	0%	873	763	110	14%	101	1%
	300	275	26	9%	36	-3%	1,138	1,013	125	12%	132	-1%

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

Note 1: Estimated pre-acquisition revenues for the three months ended December 31, 2018 from companies acquired after September 30, 2018. (Obtained from unaudited vendor financial information.)

Note 2: Estimated pre-acquisition revenues for the twelve months ended December 31, 2018 from companies acquired after December 31, 2017. (Obtained from unaudited vendor financial information.)

Public Sector

For the quarter ended December 31, 2019, total revenue in the public sector reportable segment increased 18%, or \$99 million to \$655 million, compared to \$556 million for the quarter ended December 31, 2018. For the fiscal year ended December 31, 2019, total revenue increased by 15%, or \$305 million to \$2,353 million, compared to \$2,047 million for the comparable period in 2018. For purposes of calculating organic growth, estimated pre-acquisition revenues included from the relevant companies acquired in 2018 and 2019 was \$115 million and \$351 million for the three and twelve month periods ended December 31, 2018, respectively. Organic revenue growth was negative 2% for both the three and twelve months ended December 31, 2019 compared to the same periods in 2018, and negative 1% and 0% respectively after adjusting for the impact of changes in the valuation of the US dollar against most major currencies in which the Company transacts business.

For comparative purposes the table below shows the quarterly organic growth as compared to the same period in the prior year by revenue type since Q4 2017 adjusting for the impact of foreign exchange movements.

	Quarter Ended								
	Dec. 31 2017	Mar. 31 2018	Jun. 30 2018	Sep. 30 2018	Dec. 31 2018	Mar. 31 2019	Jun. 30 2019	Sep. 30 2019	Dec. 31 2019
Licenses	0%	-9%	-10%	-11%	-11%	-4%	2%	-16%	-3%
Professional services	3%	-3%	-5%	-6%	0%	-2%	-3%	-6%	-7%
Hardware and other	19%	-12%	-7%	-17%	14%	1%	-16%	2%	-24%
Maintenance and other recurring	4%	3%	4%	3%	3%	4%	4%	3%	4%
Revenue	5%	-1%	0%	-2%	2%	2%	1%	0%	-1%

Private Sector

For the quarter ended December 31, 2019, total revenue in the private sector reportable segment increased 9%, or \$26 million to \$300 million, compared to \$275 million for the quarter ended December 31, 2018. For the fiscal year ended December 31, 2019, total revenue increased by 12%, or \$125 million to \$1,138 million, compared to \$1,013 million for the comparable period in 2018. For purposes of calculating organic growth, estimated pre-

acquisition revenues included from the relevant companies acquired in 2018 and 2019 was \$36 million and \$132 million for the three and twelve month periods ended December 31, 2018, respectively. Organic revenue growth was negative 3% and negative 1% respectively for the three and twelve months ended December 31, 2019 compared to the same periods in 2018, and negative 2% and positive 2% respectively after adjusting for the impact of changes in the valuation of the US dollar against most major currencies in which the Company transacts business.

For comparative purposes the table below shows the quarterly organic growth as compared to the same period in the prior year by revenue type since Q4 2017 adjusting for the impact of foreign exchange movements.

	Quarter Ended								
	Dec. 31	Mar. 31	Jun. 30	Sep. 30	Dec. 31	Mar. 31	Jun. 30	Sep. 30	Dec. 31
	<u>2017</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>
Licenses	11%	-6%	-1%	-1%	18%	11%	20%	-5%	-19%
Professional services	6%	-1%	16%	6%	15%	4%	-7%	-2%	-7%
Hardware and other	-5%	-41%	-33%	-25%	-34%	-9%	-3%	-11%	0%
Maintenance and other recurring	4%	6%	5%	6%	6%	5%	4%	2%	1%
Revenue	5%	2%	4%	4%	6%	5%	4%	1%	-2%

Expenses:

The following table displays the breakdown of our expenses:

Expenses	Three months ended				Year ended			
	December 31,		Period-Over-Period Change		December 31,		Period-Over-Period Change	
	<u>2019</u>	<u>2018</u>	\$	%	<u>2019</u>	<u>2018</u>	\$	%
	(\$ in millions, except percentages)							
Staff	481	402	79	20%	1,797	1,565	232	15%
Hardware	33	32	1	4%	101	96	5	6%
Third party license, maintenance and professional services	82	71	11	16%	300	265	35	13%
Occupancy	9	20	(11)	-55%	35	78	(43)	-56%
Travel, Telecommunications, Supplies & Software and equipment	58	50	8	15%	201	181	20	11%
Professional fees	15	11	4	40%	49	39	10	26%
Other, net	19	13	7	55%	73	52	21	39%
Depreciation	27	7	20	291%	92	27	65	242%
	724	604	120	20%	2,648	2,303	345	15%

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

Overall expenses for the quarter ended December 31, 2019 increased 20%, or \$120 million to \$724 million, compared to \$604 million during the same period in 2018. As a percentage of total revenue, expenses increased to 76% for the quarter ended December 31, 2019 from 73% for the same period in 2018. During the fiscal year ended December 31, 2019, expenses increased 15%, or \$345 million to \$2,648 million, compared to \$2,303 million during the same period in 2018. As a percentage of total revenue, expenses were 76% for the fiscal year ended December 31, 2019 and 75% for the same period in 2018. The change in valuation of the US dollar against most major currencies in which the Company transacts business resulted in an approximate 1% and 2% decrease in expenses for the three and twelve months ended December 31, 2019 respectively compared to the comparable periods of 2018.

Staff expense – Staff expenses increased 20% or \$79 million for the quarter ended December 31, 2019 and 15% or \$232 million for the fiscal year ended December 31, 2019 over the same periods in 2018. Staff expense

can be broken down into five key operating departments: Professional Services, Maintenance, Research and Development, Sales and Marketing, and General and Administrative. Included within staff expenses for each of the above five departments are personnel and related costs associated with providing the necessary services. The table below compares the period over period variances.

	Three months ended December 31,		Period-Over- Period Change			Year ended December 31,		Period-Over- Period Change	
	<u>2019</u>	<u>2018</u>	\$	%		<u>2019</u>	<u>2018</u>	\$	%
	(\$ in millions, except percentages)					(\$ in millions, except percentages)			
Professional services	103	89	14	15%	385	341	43	13%	
Maintenance	97	83	15	18%	371	327	44	13%	
Research and development	132	106	26	24%	491	421	71	17%	
Sales and marketing	69	57	12	21%	254	219	35	16%	
General and administrative	81	67	13	20%	297	257	39	15%	
	481	402	79	20%	1,797	1,565	232	15%	

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

The increase in staff expenses for the three and twelve months ended December 31, 2019 was primarily due to the growth in the number of employees compared to the same periods in 2018 primarily due to acquisitions.

Hardware expenses – Hardware expenses increased 4% or \$1 million for the quarter ended December 31, 2019 and 6% or \$5 million for the fiscal year ended December 31, 2019 over the same periods in 2018 as compared with the negative 12% and negative 1% increase in hardware and other revenue for the three and twelve month periods ended December 31, 2019 respectively over the comparable periods in 2018. Hardware margins for the three and twelve months ended December 31, 2019 were 36% and 42% respectively as compared to 46% and 45% for the comparable periods in 2018.

Third party license, maintenance and professional services expenses – Third party license, maintenance and professional services expenses increased 16% or \$11 million for the quarter ended December 31, 2019 and 13% or \$35 million for the fiscal year ended December 31, 2019 over the same periods in 2018. The increase is primarily due to third party license, maintenance and professional services expenses of acquired businesses.

Occupancy expenses – Occupancy expenses decreased 55% or \$11 million for the quarter ended December 31, 2019 and 56% or \$43 million for the fiscal year ended December 31, 2019 over the same periods in 2018. The decrease is a result of the Company’s adoption of IFRS 16, “Leases”. (See the “New standards and interpretations adopted” section below.) The Company has adopted IFRS 16 with an initial adoption date of January 1, 2019. The Company utilized the modified retrospective method to adopt the new standard and therefore, the comparative information has not been restated and continues to be reported under IAS 17, “Leases” and related interpretations. Under IAS 17 occupancy costs would have been approximately \$24 million and \$87 million for the three and twelve months ended December 31, 2019 respectively, an increase of 23% and 11% over the same periods in 2018 respectively.

Travel, Telecommunications, Supplies & Software and equipment expenses – Travel, Telecommunications, Supplies & Software and equipment expenses increased 15% or \$8 million for the quarter ended December 31, 2019 and 11% or \$20 million for the fiscal year ended December 31, 2019 over the same periods in 2018. The increase in these expenses is primarily due to expenses incurred by acquired businesses.

Professional fees – Professional fees increased 40% or \$4 million for the quarter ended December 31, 2019 and 26% or \$10 million for the fiscal year ended December 31, 2019 over the same periods in 2018. There are no individually material reasons contributing to this variance.

Other, net – Other expenses increased 55% or \$7 million for the quarter ended December 31, 2019 and 39% or \$21 million for the fiscal year ended December 31, 2019 over the same periods in 2018. The following table provides a further breakdown of expenses within this category.

	Three months ended December 31,		Period-Over-Period Change			Year ended December 31,		Period-Over-Period Change	
	<u>2019</u>	<u>2018</u>	<u>\$</u>	<u>%</u>		<u>2019</u>	<u>2018</u>	<u>\$</u>	<u>%</u>
	(\$ in millions, except percentages)					(\$ in millions, except percentages)			
Advertising and promotion	13	11	1	11%	46	43	4	8%	
Recruitment and training	5	5	(0)	-4%	19	17	2	11%	
Bad debt expense	1	1	(0)	-12%	4	4	1	23%	
R&D tax credits	(10)	(5)	(4)	76%	(24)	(21)	(3)	13%	
Contingent consideration	1	(4)	5	NM	9	(2)	12	NM	
Other expense, net	9	4	5	131%	18	12	5	44%	
	19	13	7	55%	73	52	21	39%	

NM - Not meaningful

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

The contingent consideration expense amounts recorded for the periods above relate to an increase (decrease) in anticipated acquisition earnout payment accruals primarily as a result of increases (decreases) to revenue forecasts for the associated acquisitions. Revenue forecasts are updated on a quarterly basis and the related anticipated acquisition earnout payment accruals are updated accordingly. There are no individually material reasons contributing to the remaining variances.

Depreciation – Depreciation of property and equipment increased 291% or \$20 million for the quarter ended December 31, 2019 and 242% or \$65 million for the fiscal year ended December 31, 2019 over the same periods in 2018. The increase is primarily a result of the Company’s adoption of IFRS 16 as explained in the “New standards and interpretations adopted” section below. Under IAS 17 depreciation expense would have been approximately \$11 million and \$34 million for the three and twelve months ended December 31, 2019 respectively, an increase of 59% and 26% over the same periods in 2018 respectively. The increase is primarily due to the depreciation expense associated with acquired businesses.

Other Income and Expenses:

The following table displays the breakdown of our other income and expenses:

	Three months ended December 31,		Period-Over-Period Change			Year ended December 31,		Period-Over-Period Change	
	<u>2019</u>	<u>2018</u>	<u>\$</u>	<u>%</u>		<u>2019</u>	<u>2018</u>	<u>\$</u>	<u>%</u>
	(\$ in millions, except percentages)					(\$ in millions, except percentages)			
Amortization of intangible assets	96	70	26	38%	331	279	52	19%	
Foreign exchange (gain) loss	(9)	(6)	(3)	42%	11	(3)	14	NM	
TSS membership liability revaluation charge	22	18	5	26%	52	55	(4)	-6%	
Finance and other expense (income)	(2)	(4)	2	-43%	(4)	(17)	13	-75%	
Bargain purchase gain	(10)	(68)	58	-86%	(45)	(69)	23	-34%	
Finance costs	12	8	4	57%	42	26	16	60%	
Income tax expense (recovery)	29	29	(0)	0%	123	106	17	16%	
	140	47	92	197%	509	377	131	35%	

NM - Not meaningful

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

Amortization of intangible assets – Amortization of intangible assets increased 38% or \$26 million for the quarter ended December 31, 2019 and 19% or \$52 million for the fiscal year ended December 31, 2019 over the same periods in 2018. The increase in amortization expense for the three and twelve months ended December 31, 2019 is primarily attributable to an increase in the carrying amount of our intangible asset balance over the twelve-month period ended December 31, 2019 as a result of acquisitions completed during this twelve-month period.

Foreign exchange – Most of our businesses are organized geographically so many of our expenses are incurred in the same currency as our revenues, which mitigates some of our exposure to currency fluctuations. For the three and twelve months ended December 31, 2019, we realized a foreign exchange gain of \$9 million and loss of \$11 million respectively compared to gains of \$6 million and \$3 million for the same periods in 2018. The following table provides a breakdown of these amounts.

	Three months ended December 31,				Year ended December 31,			
	2019	2018	Period-Over-Period Change		2019	2018	Period-Over-Period Change	
	(\$ in millions, except percentages)				(\$ in millions, except percentages)			
Unrealized foreign exchange (gain) loss related to:								
- revaluation of intercompany loans between entities with differing functional currencies ⁽¹⁾	(16)	4	(20)	NM	(7)	13	(20)	NM
- revaluation of the Company's unsecured subordinated floating rate debentures as a result of the appreciation (depreciation) of the Canadian dollar against the US dollar.	4	(12)	16	NM	10	(19)	29	NM
Remaining foreign exchange (gain) loss	4	2	1	63%	9	3	6	208%
	(9)	(6)	(3)	41%	11	(3)	15	NM

NM - Not meaningful

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

(1) Offsetting amounts recorded in other comprehensive income. Net impact to Total comprehensive income for each period is nil.

The remaining foreign exchange gains and losses per the table above are primarily related to the unrealized foreign exchange translation gains and losses of certain net Canadian dollar denominated liability balances to US dollars as a result of the Canadian dollar's depreciation or appreciation against the US dollar.

TSS membership liability revaluation charge – The valuation of the TSS membership liability that was put in place in Q4 2014 increased by approximately 11% or \$22 million from Q3 2019, and approximately 28% or \$52 million from Q4 2018. The increases are primarily the result of the growth in TSS' reported trailing twelve month maintenance revenue (primarily due to acquisitions). Maintenance revenue and net tangible assets are the two main drivers in the calculation of the liability. The liability recorded on the balance sheet increased by 20% or \$37 million over the twelve month period ended December 31, 2019 from \$184 million to \$221 million as a result of the revaluation charge of \$52 million offset by a distribution to the TSS minority owners of \$11 million and a \$3 million foreign exchange gain that was recorded through other comprehensive income. The TSS membership liability is denominated in Euros and the Euro depreciated versus the US dollar during 2019.

Finance and other expense (income) – Finance and other income for the three and twelve month periods ended December 31, 2019 was \$2 million and \$4 million respectively compared to \$4 million and \$17 million for the comparable periods in 2018. In September 2008 the Company acquired certain assets and liabilities of Maximus Inc.'s Asset, Justice, and Education Solutions businesses. As part of the acquisition, the Company recorded an accrual of \$8 million for financial liabilities potentially due on a long-term acquired contract. No financial liabilities were ever assessed and the statute of limitations now restricts any legal action by the customer with regards to the acquired contract. The \$8 million accrual was released into income in Q1 2018. Interest earned on cash balances

for the three and twelve months ended December 31, 2019 was \$0 million and \$3 million respectively, compared to \$4 million and \$5 million for the same periods in 2018.

Bargain purchase gain – Bargain purchase gain adjustments totalling \$10 million and \$45 million were recorded in the three and twelve month periods ended December 31, 2019 respectively relating to multiple acquisitions made during 2018 and 2019 compared to \$68 million and \$69 million for the same periods in 2018. In Q4 2018 the Company acquired a business that was undergoing an extensive restructuring. The seller of that business capitalized the balance sheet on closing with cash in the amount of \$53 million (€47 million) that is being utilized to fund losses generated by the business, contributing to a bargain purchase gain of \$63 million being recorded in Q4 2018. Revisions to the restructuring cost expectations resulted in an additional bargain purchase gain of \$4 million being recorded in Q1 2019. An additional payment from the seller relating to revisions to the acquired net tangible asset balance resulted in a further \$7 million bargain purchase gain being recorded in Q3 2019. The business recorded a net loss excluding the bargain purchase gains and amortization of intangible assets expense, of \$10 million in the twelve month period ended December 31, 2019. There was no current income tax recovery recorded in 2019 associated with these losses. Bargain purchase gain adjustments totalling \$6 million and \$30 million were recorded in the three and twelve month periods ended December 31, 2019 respectively relating to an acquisition made in Q1 2019 where the seller will continue as a minority partner in the acquired business. The seller contributed \$17 million into the partnership on acquisition. This business recorded a net loss excluding the bargain purchase gains and amortization of intangible assets expense of \$7 million and \$13 million for the three and twelve month periods ended December 31, 2019.

Finance costs – Finance costs for the quarter ended December 31, 2019 increased \$4 million to \$12 million, compared to \$8 million for the same period in 2018. During the twelve months ended December 31, 2019, finance costs increased \$16 million to \$42 million, compared to \$26 million for the same period in 2018. Interest on debt and debentures increased \$2 million and \$6 million for the three and twelve month periods ended December 31, 2019 respectively over the same periods in 2018 as a result of an increase in the average amount of debt outstanding. The remaining increase is primarily a result of the Company’s adoption of IFRS 16 as explained in the “New standards and interpretations adopted” section below. Under IFRS 16 interest expense on lease obligations totalling \$4 million and \$7 million was recorded in the three and twelve month periods ended December 31, 2019 respectively, with no similar expense being recorded in 2018.

Income taxes – We operate globally and we calculate our tax provision in each of the jurisdictions in which we conduct business. Our effective tax rate on a consolidated basis is, therefore, affected by the realization and anticipated relative profitability of our operations in those various jurisdictions, as well as different tax rates that apply and our ability to utilize tax losses and other credits. For both the quarters ended December 31, 2019 and December 31, 2018, income tax expense was \$29 million. During the twelve months ended December 31, 2019, income tax expense increased \$17 million to \$123 million compared to \$106 million for the same period in 2018. Current tax expense has historically approximated our cash tax expense however the quarterly expense can sometimes fall outside of the annual range due to out of period adjustments. Current tax expense reflects gross taxes before the application of R&D tax credits which are classified as part of “other, net” expenses in the statement of income.

Constellation is subject to tax audits in the countries in which the Company carries on business globally. These tax audits could result in additional tax expense in future periods relating to historical filings. Reviews by tax authorities generally focus on, but are not limited to, the validity of the Company’s inter-company transactions, including financing and transfer pricing policies which generally involve subjective areas of taxation and a significant degree of judgment. If any of these tax authorities are successful with their challenges, the Company’s income tax expense may be adversely affected and Constellation could also be subject to interest and penalty charges.

Net Income and Earnings per Share:

Net income for the quarter ended December 31, 2019 was \$92 million compared to net income of \$179 million for the same period in 2018. On a per share basis this translated into a net income per diluted share of \$4.34 in the quarter ended December 31, 2019 compared to net income per diluted share of \$8.46 for the same period in 2018. For the 2019 fiscal year, net income was \$333 million or \$15.73 per diluted share compared to \$379 million or \$17.91 per diluted share for the 2018 fiscal year. There was no change in the number of shares outstanding.

Net cash flows from operating activities (“CFO”):

For the quarter ended December 31, 2019, CFO increased \$46 million to \$255 million compared to \$208 million for the same period in 2018 representing an increase of 22%. For the twelve months of 2019, CFO increased \$105 million to \$767 million compared to \$662 million during the same period in 2018, representing an increase of 16%. In conjunction with the Company’s adoption of IFRS 16 on January 1, 2019, lease obligation and interest payments that have historically been deducted from CFO are now recorded as a component of cash flows used in financing activities. For the three and twelve months ended December 31, 2019 lease obligation and interest payments totaled \$19 million and \$59 million respectively. If lease obligation and interest payments were deducted from CFO for the three and twelve months ended December 31, 2019 the increase in CFO would have been 13% and 7% over the same periods in 2018.

Free cash flow available to shareholders (“FCFA2S”):

For the quarter ended December 31, 2019, FCFA2S increased \$14 million to \$193 million compared to \$180 million for the same period in 2018 representing an increase of 8%. For the twelve months of 2019, FCFA2S increased \$32 million to \$590 million compared to \$559 million during the same period in 2018, representing an increase of 6%. The primary reason for the large variance between the 6% growth in FCFA2S and the 14% revenue growth for the twelve months of 2019 is that FCFA2S includes the impact of changes in non-cash operating assets and liabilities exclusive of effects of business combinations or “changes in non-cash operating working capital”. For the twelve months ended December 31, 2019 there was \$28 million of cash used in non-cash operating working capital compared to \$14 million of cash generated from non-cash operating working capital for the same period in 2018.

	Year ended December 31,		Period-Over- Period Change	
	2019	2018	\$	%
	(\$ in millions, except percentages)			
FCFA2S	590	559	32	6%
Add back change in non-cash operating working capital	28	(14)	42	NM
FCFA2S excluding changes in non-cash operating working capital	618	545	73	13%

NM - Not meaningful

Due to rounding, certain totals may not foot and certain percentages may not reconcile.

There are many reasons contributing to the non-cash operating working capital impact variance none of which are indicative of an underlying concern with the Company’s overall non-cash operating working capital balance. See “Non-IFRS Measures” for a description of FCFA2S.

The following table reconciles FCFA2S to net cash flows from operating activities:

	Three months ended December 31,		Year ended December 31,	
	<u>2019</u>	<u>2018</u>	<u>2019</u>	<u>2018</u>
	(\$ in millions, except percentages)		(\$ in millions, except percentages)	
Net cash flows from operating activities	255	208	767	662
Adjusted for:				
Interest paid on lease obligations	(2)	-	(7)	-
Interest paid on other facilities	(8)	(7)	(31)	(24)
Credit facility transaction costs	(2)	(1)	(3)	(4)
Payments of lease obligations	(17)	-	(51)	-
TSS membership liability revaluation charge	(22)	(18)	(52)	(55)
Property and equipment purchased	(10)	(7)	(34)	(25)
Interest and dividends received	0	4	3	5
 Free cash flow available to shareholders	 193	 180	 590	 559

Due to rounding, certain totals may not foot.

Quarterly Results

	Quarter Ended								
	Dec. 31	Mar. 31	Jun. 30	Sep. 30	Dec. 31	Mar. 31	Jun. 30	Sep. 30	Dec. 31
	<u>2017</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>
	(\$ in millions, except per share amounts)								
Revenue	688	718	752	759	831	819	846	870	956
Net income	76	83	52	66	179	87	73	82	92
CFO	163	258	53	143	208	284	50	177	255
FCFA2S	143	242	27	112	178	250	12	134	193
Net income per share									
Basic & diluted	3.59	3.90	2.45	3.10	8.46	4.09	3.45	3.85	4.34
CFO per share									
Basic & diluted	7.67	12.16	2.50	6.75	9.84	13.40	2.36	8.37	12.02
FCFA2S per share									
Basic & diluted	6.75	11.41	1.27	5.29	8.39	11.81	0.58	6.35	9.12

We experience seasonality in our operating results in that CFO and FCFA2S in the first quarter of every year is typically the highest and CFO and FCFA2S in the second quarter of every year is the lowest. The key driver impacting this seasonality is the timing of annual maintenance contract renewals. Our quarterly results may also fluctuate as a result of the various acquisitions which may be completed by the Company in any given quarter. We may experience variations in our net income on a quarterly basis depending upon the timing of certain expenses or gains, which may include changes in provisions, acquired contract liabilities, foreign exchange gains and losses, bargain purchase gains, and gains or losses on the sale of financial and other assets.

Supplemental Financial Information

We will no longer be including the non-IFRS and IFRS tables that were historically included in the annual letter to shareholders. However, the Average Invested Capital figure will be provided for purposes of calculating a

return on invested capital metric. It will be left to the discretion of shareholders to determine what profitability metric to include in the numerator of such a calculation. The Average Invested Capital for 2019 was \$2,260 million.

“Average Invested Capital” represents the average equity capital of Constellation, and is based on the company’s estimate of the amount of money that its common shareholders had invested in Constellation. Subsequent to that estimate, each period the company has kept a running tally, adding a proxy for cash earnings, subtracting any dividends, adding any amounts related to share issuances and making some minor adjustments, including adjustments relating to our use of certain incentive programs and the amortization of impaired intangibles. The company believes that Average Invested Capital is a useful measure as it approximates the retained earnings of the company prior to taking into consideration amortization of intangible assets, deferred income taxes, and certain other non-cash expenses (income) incurred or recognized by the company from time to time.

Liquidity

Our net cash position (cash less bank indebtedness excluding capitalized transaction costs) decreased by \$395 million to \$36 million in the twelve months ended December 31, 2019 resulting from net capital deployed on acquisitions plus dividends paid exceeding cash flows from operations. Cash decreased by \$273 million to \$316 million at December 31, 2019 compared to \$589 million at December 31, 2018 and bank indebtedness increased by \$123 million to \$280 million at December 31, 2019 compared to \$157 million at December 31, 2018.

Total assets increased \$552 million, from \$2,935 million at December 31, 2018 to \$3,488 million at December 31, 2019. The increase is primarily due to a \$447 million increase in intangible assets and \$234 million of right of use assets set up in conjunction with the Company’s adoption of IFRS 16 offset by a decrease in cash of \$273 million. (See the “New standards and interpretations adopted” section below.) At December 31, 2019 four subsidiaries holding cash totalling \$67 million maintained debt facilities, which facilities are without recourse to Constellation. As explained in the “Capital Resources and Commitments” section below, there are limitations on the ability of these subsidiaries to distribute funds to Constellation.

Current liabilities increased \$388 million, from \$1,344 million at December 31, 2018 to \$1,732 million at December 31, 2019. The increase is primarily due to an increase in deferred revenue of \$131 million mainly due to acquisitions made since December 31, 2018 and the timing of maintenance and other billings versus performance and delivery under those customer arrangements, lease obligations of \$62 million set up in conjunction with the Company’s adoption of IFRS 16, and an increase in bank indebtedness of \$69 million.

Net Changes in Cash Flows

(\$ in millions)

	<u>Year ended December 31, 2019</u>	<u>Year ended December 31, 2018</u>
Net cash provided by operating activities	767	662
Net cash from (used in) financing activities	(496)	(49)
Cash used in the acquisition of businesses	(622)	(603)
Cash obtained with acquired businesses	118	118
Net cash from (used in) other investing activities	(39)	(23)
Net cash from (used in) investing activities	<u>(544)</u>	<u>(508)</u>
Effect of foreign currency	1	(6)
Net increase (decrease) in cash and cash equivalents	<u>(273)</u>	<u>100</u>

The net cash flows from operating activities were \$767 million for the year ended December 31, 2019. The \$767 million provided by operating activities resulted from \$333 million in net income plus \$601 million of non-cash adjustments to net income offset by \$28 million of cash used in non-cash operating working capital and \$140 million in taxes paid.

The net cash flows used in financing activities in the year ended December 31, 2019 were \$496 million, which is mainly a result of dividends paid of \$509 million, a distribution to the minority owners of TSS of \$11 million, and interest paid on bank indebtedness and the Company's unsecured subordinated floating rate debentures in the period of \$31 million. In addition, lease obligation and interest payments of \$59 million were included within financing activities in 2019 in conjunction with the Company's adoption of IFRS 16. Under IAS 17 in 2018 this cash outflow would have reduced cash flows from operating activities. Offsetting the above was a net increase in bank indebtedness of \$117 million.

The net cash flows used in investing activities in the year ended December 31, 2019 were \$544 million. The cash used in investing activities was primarily due to acquisitions for an aggregate of \$622 million (including payments for holdbacks relating to prior acquisitions) offset by \$118 million of acquired cash.

We believe we have sufficient cash and available credit capacity to continue to operate for the foreseeable future. Generally, our VMS businesses operate with negative working capital as a result of the collection of maintenance payments and other revenues in advance of the performance of the related services. As such, management anticipates that it can continue to grow the business organically without any additional funding. If we continue to acquire VMS businesses we may need additional external funding depending upon the size and timing of the potential acquisitions.

Capital Resources and Commitments

CSI Facility

On December 13, 2019, Constellation completed an amendment and restatement of its revolving credit facility agreement (the "CSI Facility"), with a syndicate of Canadian chartered banks, U.S. banks, and a Japanese bank in the amount of \$700 million, extending its maturity date to December 2024. The CSI Facility bears a variable interest rate with no fixed repayments required over the term to maturity. Interest rates are calculated at standard U.S. and Canadian reference rates plus interest rate spreads based on a leverage table. The CSI Facility is currently collateralized by the majority of the Company's assets including the assets of certain material subsidiaries. The CSI Facility contains standard events of default which if not remedied within a cure period would trigger the repayment of any outstanding balance. As at December 31, 2019, \$65 million had been drawn from this credit facility, and letters of credit totaling \$21 million were issued, which limits the borrowing capacity on a dollar-for-dollar basis.

Debt without recourse to CSI

Certain of CSI's subsidiaries have entered into term debt facilities and revolving credit facilities with various financial institutions. CSI does not guarantee the debt of its subsidiaries, nor are there any cross-guarantees between subsidiaries. The credit facilities are collateralized by substantially all of the assets of the borrowing entity and its subsidiaries. The credit facilities typically bear interest at a rate calculated using an interest rate index plus a margin. The financing arrangements for each subsidiary typically contain certain restrictive covenants, which may include limitations or prohibitions on additional indebtedness, payment of cash dividends, redemption of capital, capital spending, making of acquisitions and sales of assets. In addition, certain financial covenants must be met by those subsidiaries that have outstanding debt.

Debt without recourse to CSI comprises the following (\$ in millions):

	Revolving Credit		Total
	Facilities	Term Debt Facilities	
Principal outstanding at December 31, 2019 (and equal to fair value) \$	\$ 56	\$ 159	\$ 215
Deduct: Carrying value of transaction costs included in debt	(1)	(4)	(5)
Carrying value at December 31, 2019	55	155	210
Current portion	55	2	57
Non-current portion	-	153	153

Debentures

On October 1, 2014 and November 19, 2014, the Company issued unsecured subordinated debentures (the “Debentures”) with a total principal value of C\$96.0 million for total proceeds of C\$91.2 million. The proceeds were used by the Company to pay down \$81.2 million of outstanding bank indebtedness.

On September 30, 2015, the Company issued an additional tranche of Debentures with a total principal value of C\$186.2 million for total proceeds of C\$214.2 million. The proceeds were used by the Company to pay down \$130.4 million of outstanding bank indebtedness. The September 30, 2015 issuance formed a single series with the outstanding C\$96.0 million aggregate principal amount of Debentures, Series 1 of the Company. The Debentures have a maturity date of March 31, 2040.

TSS Membership Liability

On December 23, 2014, in accordance with the terms of the purchase and sale agreement for the TSS acquisition, and on the basis of the term sheets attached thereto, Constellation and the sellers of TSS along with members of TSS’ executive management team (collectively, the “minority owners”) entered into a Members Agreement pursuant to which the minority owners acquired 33.29% of the voting interests in Constellation Software Netherlands Holding Cooperatief U.A. (“CNH”), a subsidiary of Constellation and the indirect owner of 100% of TSS. Proceeds from this transaction in the amount of \$48.5 million (€39.4 million) were utilized to repay, in part, outstanding bank indebtedness of Constellation. In accordance with IFRS, 100% of the financial results for TSS are included in the consolidated financial results of the Company.

Each of the minority owners may, at any time, exercise a put option to sell all or a portion of their interests in CNH back to Constellation for an amount calculated in accordance with a valuation methodology described within the Members Agreement. Accordingly, the Company classified the proceeds from the Members Agreement as a liability. The main valuation driver in such calculation is the maintenance and other recurring revenue of CNH. Upon the exercise of a put option, Constellation would be obligated to redeem up to 33.33% of the minority owners’ interests put, no later than 30 business days from the date notice is received (classified as a current liability), and up to 33.33% on each of the first and second anniversary of the date the first redemption payment is made.

The seller of TSS also has an option available to it to sell approximately 68% of its interests in CNH, for an amount calculated in accordance with a valuation methodology described within the Members Agreement, in the event that Robin Van Poelje, TSS’ CEO, is no longer employed by TSS. The approximately 32% remaining interest can be sold via the put option described above.

In the event of a change of control in Constellation, the minority owners would have the option to sell 100% of their interests in CNH for an amount calculated in accordance with a valuation methodology described within the Members Agreement. Constellation would be obligated to remit payment in respect thereof no later than 30 business days from the date notice is given.

Commencing at any time after December 31, 2023, Constellation may exercise a call option to purchase all of the minority owners' interests in CNH, for an amount calculated in accordance with a valuation methodology described within the Members Agreement. Upon exercise of the call option, the full purchase price will be paid within 30 business days of the notice date, following which the minority owners' membership in CNH will be terminated. There is a valuation premium if the call option is exercised versus the put option.

If any of TSS' executive management team that participate in the Members Agreement are terminated for urgent cause as defined in Section 7:678 of the Dutch Civil Code, Constellation shall have the right to purchase all of the interests beneficially owned by the terminated executive for an amount calculated in accordance with the valuation methodology described within the Members Agreement. The full purchase price will be paid within 30 business days from the date notice is given, following which the terminated executive's membership in CNH will be terminated. An option does exist for the terminated executive to elect to be paid in annual installments of 33.33% of his interests in CNH over a 3 year period. The valuation of the interests being purchased will be calculated at each annual payment date.

Other commitments

Commitments include operating leases for office equipment and facilities, letters of credit and performance bonds issued on our behalf by financial institutions in connection with facility leases and contracts with public sector customers. Also, occasionally we structure some of our acquisitions with contingent consideration based on the future performance of the acquired business. The fair value of contingent consideration recorded in our statement of financial position was \$59 million at December 31, 2019. Aside from the aforementioned, we do not have any other business arrangements, derivative financial instruments, or any equity interests in non-consolidated entities that would have a significant effect on our assets and liabilities as at December 31, 2019.

(\$ in millions)

	Total	< 1 yr	1-5 yrs	> 5 yrs
Lease obligations	275	67	158	50
Holdbacks	101	76	25	-
TSS membership liability	221	86	136	-
Debentures	217	-	-	217
CSI facility	65	65	-	-
Debt without recourse to Constellation Software Inc.	215	58	112	45
Total outstanding commitments	1,094	352	431	311

The TSS membership liability commitment assumes that the minority owners have exercised their put option to sell 100% of their interests back to Constellation. This option however has not been exercised as at February 13, 2020. See the "Critical Accounting Estimate" section of the Company's 2019 Annual Consolidated Financial Statements for a discussion on the valuation methodology utilized.

Foreign Currency Exposure

We operate internationally and have foreign currency risks related to our revenue, operating expenses, assets and liabilities denominated in currencies other than the U.S. dollar. Consequently, we believe movements in the foreign currencies in which we transact will impact future revenue and net income. The impact to organic revenue growth for the three and twelve months ended December 31, 2019 was approximately negative 1% and negative 2% respectively. We cannot predict the effect of foreign exchange gains or losses in the future; however, if significant foreign exchange losses are experienced, they could have a material adverse effect on our business, revenues, results of operations, and financial condition. The Company enters into forward foreign exchange contracts from time to time with the objective of mitigating volatility in profit or loss in respect of financial liabilities. In entering into these forward exchange contracts, the Company is exposed to the credit risk of the counterparties to such contracts and the possibility that the counterparties will default on their payment obligations under these contracts. However, given that the counterparties are Schedule 1 banks or affiliates thereof, the

Company believes these risks are not material. During the year ended December 31, 2019, the Company did not purchase any contracts of this nature.

The following table provides an approximate breakdown of our revenue and expenses by currency, expressed as a percentage of total revenue and expenses, as applicable, for the three and twelve months ended December 31, 2019:

Currencies	Three Months Ended December 31, 2019		Year Ended December 31, 2019	
	% of Revenue	% of Expenses	% of Revenue	% of Expenses
USD	50%	45%	52%	45%
CAD	7%	11%	7%	11%
GBP	8%	9%	7%	8%
EURO	21%	21%	22%	22%
CHF	1%	3%	1%	3%
Others	12%	11%	11%	11%
Total	100%	100%	100%	100%

Off-Balance Sheet Arrangements

As a general practice, we have not entered into off-balance sheet financing arrangements. Except for short term leases, leases of low value assets, and letters of credit, all of our liabilities and commitments are reflected as part of our statement of financial position.

Proposed Transactions

We seek potential acquisition targets on an ongoing basis and may complete several acquisitions in any given fiscal year.

Critical Accounting Estimates

General

The preparation of our consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. Our estimates are based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances. Our ongoing evaluation of these estimates forms the basis for making judgments about the carrying values of assets and liabilities and the reported amount of revenues and expenses, in cases where they are not readily ascertainable from other sources. Actual amounts may differ from these estimates under different assumptions or conditions.

Our significant accounting policies are fully described in Note 3 to our annual consolidated financial statements which are available on SEDAR (www.sedar.com). Certain accounting policies are particularly important to the reporting of our financial position and results of operations, and require the application of significant judgment by our management. An accounting policy is deemed to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made, and if different, estimates that reasonably could have been used, or changes in the accounting estimates that are reasonably likely to occur periodically, could have a material impact on the financial statements. Management believes the following critical accounting policies reflect the more significant estimates and assumptions used in the preparation of our consolidated financial statements. We believe that there have been no significant changes in our critical accounting estimates for the years presented in our consolidated financial statements.

Revenue Recognition

Revenue represents the amount the Company expects to receive for products and services in its contracts with customers, net of discounts and sales taxes. The Company reports revenue under four revenue categories being, License, Hardware and other, Professional services, and Maintenance and other recurring revenue. Software license revenue is comprised of non-recurring license fees charged for the use of software products licensed under multiple-year or perpetual arrangements. Professional service revenue consists of fees charged for implementation services, custom programming, product training and consulting. Hardware and other revenue includes the resale of third party hardware as part of customized solutions, as well as sales of hardware assembled internally and the reimbursement of travel costs. Maintenance and other recurring revenue primarily consists of fees charged for customer support on software products post-delivery and also includes recurring fees derived from combined software/support contracts, transaction revenues, managed services, and hosted products.

Contracts with multiple products or services

Typically, the Company enters into contracts that contain multiple products and services such as software licenses, hosted software-as-a-service, maintenance, professional services, and hardware. The Company evaluates these arrangements to determine the appropriate unit of accounting (performance obligation) for revenue recognition purposes based on whether the product or service is distinct from some or all of the other products or services in the arrangement. A product or service is distinct if the customer can benefit from it on its own or together with other readily available resources and Constellation's promise to transfer the good or service is separately identifiable from other promises in the contractual arrangement with the customer. Non-distinct products and services are combined with other goods or services until they are distinct as a bundle and therefore form a single performance obligation.

Where a contract consists of more than one performance obligation, revenue is allocated to each based on their estimated standalone selling price.

Nature of products and services

The Company sells on-premise software licenses on both a perpetual and specified-term basis. Revenue from the license of distinct software is recognized at the time that both the right-to-use the software has commenced and the software has been made available to the customer. Certain of the Company's contracts with customers contain provisions that require the customer to renew optional support and maintenance in order to maintain the active right to use a perpetual or term license. The renewal payments after the initial bundled support and maintenance term in these cases apply to both the continued right-to-use the license and the support and maintenance renewal. Where the fees payable for the initial term are incremental to the fees for the renewal terms, the excess is treated as a prepayment for expected renewals and allocated (amortized) evenly over the expected customer renewals, up to the estimated life of the software that is typically 4-6 years.

Revenue from the license of software that involves complex implementation or customization that is not distinct, and/or includes sales of hardware that is not distinct, is recognized as a combined performance obligation using the percentage-of-completion method based either on the achievement of contractually defined milestones or based on labour hours.

A portion of the Company's sales, categorized as hardware and other revenue, are accounted for as product revenue. Product revenue is recognized when control of the product has transferred under the terms of an enforceable contract.

Revenue related to the customer reimbursement of travel related expenses incurred during a project implementation where the Company is the principal in the arrangement is included in the hardware and other revenue category. Revenue is recognized as costs are incurred which is consistent with the period in which the

costs are invoiced. Reimbursable travel expenses incurred for which an invoice has not been issued, are recorded as part of unbilled revenue on the statement of financial position.

Maintenance and other recurring revenue primarily consists of fees charged for customer support on software products post-delivery and also includes, to a lesser extent, recurring fees derived from software licenses that are not distinct from maintenance, transaction revenues, managed services, and hosted products.

Revenue from software-as-a-service (SaaS) arrangements, which allows customers to use hosted software over a term without taking possession of the software, are provided on a subscription basis. Revenue from the SaaS subscription, which includes the hosted software and maintenance is recognized rateably over the term of the subscription. Significant incremental payments for SaaS in an initial term are recognized rateably over the expected renewal periods, up to the estimated life of the software.

Professional services revenue including installation, implementation, training and customization of software is recognized by the stage of completion of the performance obligation determined using the percentage of completion method noted above or as such services are performed as appropriate in the circumstances. The revenue and profit of fixed price contracts is recognized on a percentage of completion basis when the outcome of a contract can be estimated reliably. When the outcome of the contract cannot be estimated reliably but the Company expects to recover its costs, the amount of expected costs is treated as variable consideration and the transaction price is updated as more information becomes known.

The timing of revenue recognition often differs from contract payment schedules, resulting in revenue that has been earned but not billed. These amounts are included in unbilled revenue. Amounts billed in accordance with customer contracts, but not yet earned, are recorded and presented as part of deferred revenue.

Valuation of Identifiable Goodwill and Other Intangible Assets

Acquisitions have been accounted for using the acquisition method required by IFRS 3. Goodwill arising on acquisitions is measured as the fair value of the consideration transferred including the recognized amount of any non-controlling interest in the acquiree, if any, less the net recognized amount of the estimated fair value of identifiable assets acquired and liabilities assumed (subject to certain exemptions to fair value measurement principles such as deferred tax assets or liabilities), all measured as of the acquisition date. When the excess of the consideration transferred less the assets and liabilities acquired is negative, a bargain purchase gain is recognized immediately in profit or loss. Transaction costs that the Company incurs in connection with a business combination are expensed as incurred.

We use the income approach to value acquired technology and customer related intangible assets, which are the two material intangible asset categories reported in our financial statements.

The income approach is a valuation technique that calculates the fair value of an intangible asset based on the cash flows that the asset can be expected to generate over its remaining useful life. We utilize the discounted cash flow (“DCF”) methodology which is a form of the income approach that begins with a forecast of the annual cash flows a market participant would expect the subject intangible asset to generate over a discrete projection period. The forecasted cash flows for each of the years in the discrete projection period are then converted to their present value equivalent using a rate of return appropriate for the risk of achieving the intangible assets’ projected cash flows, again, from a market participant perspective. The present value of the forecasted cash flows are then added to the present value of the residual value of the intangible asset (if any) at the end of the discrete projection period to arrive at a conclusion with respect to the estimated fair value of the subject intangible asset.

Specifically, we rely on the relief-from-royalty method to value the acquired technology and the multiple-period excess earnings method (“MEEM”) to value customer relationship assets.

The underlying premise of the relief-from-royalty method is that the fair value of the technology is equal to the costs savings (or the "royalty avoided") resulting from the ownership of the asset by the avoidance of paying royalties to license the use of the technology from another owner. Accordingly the income forecast reflects an estimate of a fair royalty that a licensee would pay, on a percentage of revenue basis, to obtain a license to utilize the technology.

The MEEM method isolates the cash flows attributable to the subject asset by utilizing a forecast of expected cash flows less the returns attributable to other enabling assets, both tangible and intangible.

Goodwill is initially recorded when the purchase price paid for an acquisition exceeds the fair value assigned to the net identifiable tangible and intangible assets acquired. Goodwill is not amortized but rather it is periodically assessed for impairment.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses, with the carrying value being reviewed for impairment at least annually and whenever events or changes in circumstances indicate that the carrying value may be impaired. We perform an annual review in the fourth quarter of each fiscal year, or more frequently if indicators of potential impairment exist, to determine if the recorded goodwill is impaired. In respect of equity accounted investees, the carrying amount of goodwill is included in the carrying amount of the investment, and an impairment loss on such an investment is not allocated to any asset, including goodwill, that forms part of the carrying amount of the equity accounted investee. No such losses have been recognized during the year.

The impairment test methodology is based on a comparison between the higher of fair value less costs to sell and value-in-use of each of the Company's cash generating units ("CGU") and the net asset carrying values (including goodwill). Within the Company's reporting structure, business units generally reflect the CGU and are one level below the six operating segments (Volaris, Harris, Total Specific Solutions, Jonas, Perseus, and Vela Operating Groups). In determining the recoverable amount, the Company applies an estimated market valuation multiple to the business unit's most recent annual recurring revenues, which are generally derived from post-contract customer support revenues, transactional revenues, and hosted products revenues. Valuation multiples applied by the Company for this purpose reflect current market conditions specific to the business unit and are assessed for reasonability by comparison to the Company's current and past acquisition experience involving ranges of revenue-based multiples required to acquire representative software companies and the Company's overall revenue based-trading multiple. In addition, in certain instances, the recoverable amount is determined using a value-in-use approach which follows the same valuation process that is undertaken for the Company's business acquisitions. An impairment is recognized if the carrying amount of a CGU exceeds its estimated recoverable amount. The recoverable amount of goodwill is estimated annually on December 31 of each year or whenever events or changes in circumstances indicate that the carrying value may be impaired.

We also review the carrying value of amortizable intangible assets for impairment whenever events and circumstances indicate that the carrying value of an asset may not be recoverable from the estimated future cash flows expected to result from its use and eventual disposition. Any change in estimate which causes the undiscounted expected future cash flows to be less than the carrying value, would result in an impairment loss being recognized equal to the amount by which the carrying value of the asset exceeds the fair value of the asset.

The critical accounting estimates described above affect both the public and private segments of the business. The approach taken by management in performing these estimates is not significantly different between segments.

TSS Membership Liability

Commencing any time after December 31, 2014, each of the minority owners may exercise a put option to sell all or a portion of their interests in CNH back to Constellation for an amount calculated in accordance with a

valuation methodology described within the Members Agreement. Accordingly, the Company classified the proceeds from the membership agreement as a liability. The main valuation driver in such calculation is the maintenance and other recurring revenue of CNH. Upon the exercise of a put option, Constellation would be obligated to redeem up to 33.33% of the minority owners' interests put, no later than 30 business days from the date notice is received, and up to 33.33% on each of the first and second anniversary of the date the first redemption payment is made.

In determining the valuation of the liability at December 31, 2019 we assumed the minority owners exercised their put option on December 31, 2019, and redeemed 33.33% of their interests on exercise, and will redeem 33.33% on each of the first and second anniversary dates. Maintenance and recurring revenue of CNH for the fiscal year ended December 31, 2019 was used as the basis for valuing the interests at each redemption date. A similar approach will be utilized to value any interests that have not been put or called at the end of each subsequent reporting period. However, the actual maintenance and recurring revenue of CNH for the trailing twelve months from the date of the related reporting period end will be utilized in the calculation. Any increase or decrease in the value of the membership liability will be recorded as an expense or income respectively in the Consolidated Statements of Income for the period.

Accounting for Income Taxes

Significant management judgment is required in determining our provision for income taxes, our income tax assets and liabilities, and any valuation allowance recorded against our net income tax assets. We operate in multiple geographic jurisdictions, and to the extent that we have profits in each jurisdiction, these profits are taxed pursuant to the tax laws of their jurisdiction. Our effective tax rate may be affected by changes in, or interpretations of, tax laws in any given jurisdiction, the level of profitability, utilization of net operating losses and tax credit carry forwards, changes in geographical mix of income and expense, and changes in management's assessment of matters, such as the ability to realize future tax assets. As a result of these considerations, we must estimate our income taxes in each of the jurisdictions in which we operate on a quarterly basis. This process involves estimating our actual current tax exposures, together with assessing temporary differences resulting from differing treatment of items for tax and accounting purposes. These differences result in future tax assets and liabilities, which are included in our consolidated balance sheet.

Current tax is the expected taxes payable or receivable on the taxable income or loss for the period, using tax rates enacted or substantively enacted at the reporting date, and any adjustment to taxes payable in respect of previous years.

Deferred tax is recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognized for temporary differences relating to investments in subsidiaries to the extent that it is probable that they will not reverse in the foreseeable future. In addition, deferred tax is not recognized for taxable temporary differences arising on the initial recognition of goodwill.

Deferred tax is measured at tax rates that are expected to be applied to temporary differences when they reverse, based on the laws that have been enacted or substantively enacted by the reporting date. Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but we intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realized simultaneously.

A deferred tax asset is recognized for unused tax losses, tax credits, difference in tax bases in the purchaser's tax jurisdiction and its cost as reported in the consolidated financial statements as a result of an intra-group transfer of assets and deductible temporary differences, to the extent that it is probable that future taxable profits will be

available against which they can be utilized. Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realized.

We are subject to income tax audits by various authorities in respect of prior periods that could result in additional tax expense in future periods. While the outcome of current outstanding actions and claims remains uncertain, it is expected that they will be resolved without a material impact to our financial position. However, there can be no assurances as to the final resolution of these matters and, if the final outcome is adverse to us, the amounts we will be required to pay and the loss of certain future tax deductions could be material to our financial statements.

Accounts Receivable

We evaluate the collectability of our trade receivables at both a specific and collective level. All individually significant receivables are assessed for specific impairment. All individually significant receivables found not to be specifically impaired, together with receivables that are not individually significant are collectively assessed for impairment by grouping together receivables with similar risk characteristics.

Work In Progress

For revenue arrangements that are accounted for under the percentage of completion method as well as other arrangements and contracts which limit our ability to invoice at certain milestones that do not match the timing of the actual provision of the services, we record such revenue and the related unbilled receivable in work in process. Similar to accounts receivable, we constantly have to evaluate our ability to bill and subsequently collect any amounts contained in the work in progress accounts. We review these balances on a periodic basis to ensure customer balances are prudent based upon a variety of factors, such as the financial health of the customer, macroeconomic considerations and historical experience. If circumstances related to specific customers change, our estimates of the recoverability of work in progress may be further adjusted.

Provisions

A provision is recognized if, as a result of a past event, the Company has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are measured at the estimated future cash flows required to settle the present obligation, based on the most reliable evidence available at the reporting date. The estimated cash flows are discounted at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The amortization of the discount is recognized as part of finance costs.

We are currently involved in various claims and legal proceedings. Quarterly, we review the status of each significant matter and assess our potential financial exposure. Because of the uncertainties related to these matters, provisions are based only on the best information available at the time. As additional information becomes available, we reassess the potential liability related to our pending claims and litigation and, if necessary, revise our provisions. Such revisions in the estimates of the potential liabilities could have a material impact on our results of operations and financial position.

New standards and interpretations adopted

IFRS 16 Leases

The Company has adopted IFRS 16 with an initial adoption date of January 1, 2019. The Company utilized the modified retrospective method to adopt the new standard and therefore, the comparative information has not been restated and continues to be reported under IAS 17, Leases and related interpretations.

IFRS 16 specifies how leases will be recognized, measured, presented and disclosed and it provides a single lessee model, requiring lessees to recognize right-of-use assets and lease liabilities for all major leases. The impact of the transition to IFRS 16 is shown in Note 31 of the Company's Annual Consolidated Financial Statements for the year ended December 31, 2019. The Company's accounting policy under IFRS 16 is as follows:

At inception of a contract, the Company assesses whether a contract is, or contains, a lease based on whether the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Company recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured based on the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received. The assets are depreciated to the earlier of the end of the useful life of the right-of-use asset or the lease term using the straight-line method as this most closely reflects the expected pattern of consumption of the future economic benefits. The lease term includes periods covered by an option to extend if the Company is reasonably certain to exercise that option. In addition, the right-of-use asset can be periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability. The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Company's incremental borrowing rate. Generally, the Company uses its incremental borrowing rate as the discount rate.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Company's estimate of the amount expected to be payable under a residual value guarantee, or if the Company changes its assessment of whether it will exercise a purchase, extension or termination option. When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero. The Company has elected to apply the practical expedient not to recognize right-of-use assets and lease liabilities for short-term leases that have a lease term of 12 months or less and leases of low value assets. The lease payments associated with these leases is recognized as an expense on a straight-line basis over the lease term.

Share Capital

As at February 13, 2020, there were 21,191,530 common shares outstanding.

Risks and Uncertainties

The Company's business is subject to a number of risk factors which are described in our most recently filed AIF. Additional risks and uncertainties not presently known to us or that we currently consider immaterial also may impair our business and operations and cause the price of the common shares to decline. If any of the noted risks actually occur, our business may be harmed and the financial condition and results of operation may suffer significantly. In that event, the trading price of the common shares could decline, and shareholders may lose all or part of their investment.

Controls and Procedures

Evaluation of disclosure controls and procedures:

Management is responsible for establishing and maintaining disclosure controls and procedures as defined under National Instrument 52-109. At December 31, 2019, the President and Chief Financial Officer concluded that the design and operation of these disclosure controls and procedures were effective and that material information relating to the Company, including its subsidiaries, was made known to them and was recorded, processed, summarized and reported within the time periods specified under applicable securities legislation.

Internal controls over financial reporting:

The President and Chief Financial Officer have designed or caused to be designed under their supervision, disclosure controls and procedures which provide reasonable assurance that material information regarding the Company is accumulated and communicated to the Company's management, including its President and Chief Financial Officer in a timely manner.

In addition, the President and Chief Financial Officer have designed or caused it to be designed under their supervision internal controls over financial reporting ("ICFR") to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements. The President and Chief Financial Officer have been advised that the control framework the President and the Chief Financial Officer used to design the Company's ICFR is recognized by the Committee of Sponsoring Organizations of the Treadway Commission.

The President and the Chief Financial Officer have evaluated, or caused to be evaluated under their supervision, whether or not there were changes to its ICFR during the period ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect the Company's ICFR. No such changes were identified through their evaluation.

A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that its objectives are met. Due to inherent limitations in all such systems, no evaluations of controls can provide absolute assurance that all control issues, if any, within a company have been detected. Accordingly, our disclosure controls and procedures and our internal controls over financial reporting are effective in providing reasonable, not absolute, assurance that the objectives of our control systems have been met.