CSI: Software Santa eating the VMS market

Disclosure: I am long CSU.TO/CNSWF shares

Mark Leonard is bit of a mythical character. There is perhaps not too many billionaire CEOs out there with only three/four images available on the internet. Speaking of images, if you didn't know what Mr. Leonard looks like, click here and you'll see why some Constellation Software (CSI) shareholders affectionately call him "Software Santa". Unlike Santa, however, Mark Leonard is very much real, and he gifted the shareholders some incredible goodies so far. And while Marc Andreessen explained "why software is eating the world" in 2011, Mark Leonard was diligently eating away the Vertical Market Software (VMS).

Since IPO in 2006, CSI (ticker is CSU in Canada, and CNSWF in the US) compounded its market cap at ~34%, a ~100-bagger in just ~15 years. While there might be stocks out there which generated higher return over the same period, what I personally find even more remarkable is it never experienced even a 30% drawdown during this time (Source: KoyFin). On a rolling one-year basis, it never even experienced worse than -10% return since IPO (Source: KoyFin). Since almost all highflying stocks go through severe drawdowns on their way to eventual glory, I wonder whether CSI had been the easiest mega-winner to hold for its shareholders. Even during this recent carnage in tech/growth, CSI is only down ~10% from its 52-week high.

I know, I know unfortunately the past success cannot predict the future return. As one of the less fortunate investors who hadn't been riding the Mark Leonard's millionaire factory, I laid my fresh eyes on the company over the last month and came out sufficiently impressed.

Here's the outline for this month's deep dive:

Section 1 Understanding the basics of a serial acquirer

A couple of years ago, I read a book named "*Billion Dollar Lessons: What You Can Learn from the Most Inexcusable Business Failures of the Last 25 Years*" (published in 20008). As an investor/analyst who mostly experienced bull market so far, the book was a good source of vicarious learning. Chapter Three of that book was titled "Deflated Rollups". As I was studying CSI for this month's deep dive which you will see have a particular penchant in acquiring companies, I went back and re-read that chapter to remind myself why so many rollups failed. I will discuss these points of failures and whether CSI seems similar or differentiated from the companies that eventually failed their hands on serial acquisitions.

While the late 90s was primarily known for the formation of the tech bubble, an average of five rollups *per week* went for IPO in 1998. In late 60s and early 70s, Wayne Huizenga started acquiring garbage-hauling businesses and founded "Waste Management". Huizenga later founded "AutoNation" (a serial acquirer of auto-dealership) in 1996. Thanks to his and some others' success, serial acquirers' gained prominence which led to the rollup boom in the late 90s.

The appeal of rollups is quite intuitive. Since many industries are quite fragmented and many of the companies within these fragmented industries may not be well run, a competent operator can acquire dozens, hundreds, or even thousands of these companies to run them more efficiently, creating synergy by centralizing duplicated expenses. It can also enjoy negotiating leverage with suppliers and other players in the value chain, access capital at lower cost than any of the smaller players to deploy the capital and buy even more companies. Because of the competent capital allocators at the helm and associated benefits mentioned, there is also a multiple arbitrage the serial acquirer may enjoy i.e. the acquirer buys companies at lower multiples and the accumulated earnings from all these fragmented players receive higher multiple in the public market.

While the appeal is intuitive at first glance, a Booz Allen study found rollups lost more than 50% their market value between 1998 and early 2000 which means the rollups bubble popped even before the internet bubble. "Billion Dollar Lessons" elaborated a case study on spectacular failure of Loewen Group, a Manitoba, Canada based serial acquirer of more than 1,100 funeral homes and more than 400 cemeteries in North America. While I'm going to skip the details specific to this particular case study (I encourage readers to read the chapter from the book), I'll mention some broad inferences the book presented on why rollups failed:

- *"Rollups went for scale that wouldn't produce economies. Sometimes, rollups wound up with diseconomies of scale.*
- *Rollups required an unsustainably fast rate of acquisitions.*
- *Companies didn't allow for the tough times—and it seems "that every rollup runs into tough times at some point.*
- *Companies assumed that they could get the benefits both of decentralization and of integration. The rollups often found, however, that they could choose either decentralization or integration but not both."*

But wait a minute. We know CSI is a serial acquirer and it appears the base rate for serial acquirer is not great, but is it a roll up? While the idea of base rates is robust, a lot of mistakes happen due to the incorrect categorization based on which base rates are calculated. While all rollups are serial acquirers, not all serial acquirers are rollups. To explore the distinction in more detail, we will borrow from three books/articles: Gustaf Hakansson's "The Serial Acquirer Book" (download the book with my highlights at the end of this deep dive), and Scott Management's piece on "Serial Acquirers".

Here's how Scott Adams bucketed Serial acquirers:

Buckets of Serial Acquirers

Type	Roll-up	Platform	Accumulator	Hold Co
Degree of Integration	High			Low
Attributes	Commodity-like product Scale-driven synergy targets	Product differentiation, clustering of subsidiaries Shared operational excellence programs	Product differentiation, little to no integration Shared operational excellence programs	Portfolio of unrelated businesses Influence only-via board representaiton
Examples	Waste Mgmt, Berry Global, Johnson Service	Danaher, Roper, Interpump, Lifco, Assa Abloy	Constellation Software, Addtech, Judges Scientific, Vitec Software	IAC, Leucadia, Bollore, HAL Holding, Investor AB

Source: Scott Management

As you can probably understand, while serial acquisition is a common denominator among all these categories of firms, there are still considerable differences among them. There are couple of reasons why serial acquirers can be challenging to study. When we study any company, we primarily focus on what products/services the company sells, how it makes money, competitive dynamics for such products/services, profitability, and capital intensity in the business. When it comes to serial acquirers, it is almost impossible to closely study all the businesses they own. Therefore, what you're buying is essentially a ***system***. Any one businesses' failure may have no bearing on the overall success or failure of the system. As a result, the judgment call is focused on whether investors think the system employed to acquire more and more companies is fundamentally sound.

Scott Adams mentioned the reasons serial acquirers can be misunderstood and underappreciated are two folds:

a) acquisition-oriented culture makes many investors quite nervous. He quoted Peter Lynch to make the point: *"acquisitions, in general, make me nervous. There's a strong tendency for companies that are flush with cash and feeling powerful to overpay for acquisitions, expect too much from them, and then mismanage them."*
b) Analysts typically don't factor into acquisitions while forecasting in the future which systematically undervalues serial acquirers, especially when they are led by competent capital allocators who can deploy capital consistently at high ROIC for a long time.

To be clear, following the incredible success of many serial acquirers, the second point doesn't quite apply anymore, especially for CSI although the degree to which the engine of acquisition is appreciated can still be debated. In his 2013 letter to shareholders, Mark Leonard wrote, *"If we assume that CSI makes no further acquisitions, the Consensus Model calculates an intrinsic value that is roughly half of the current price."* This remains more or less true today; therefore, we cannot say market does not give them credit for CSI's ability to allocate capital, but we can debate among ourselves to what extent the credit should be given.

Okay, back to serial acquirers. Given the considerable differences among the types of serial acquirers, it is important to understand in more detail how they are differentiated before we explore the ***system of CSI***. Gustaf Hakansson expanded on the pros and cons of each of these categories in his book on serial acquirers:

	Considerations
Roll-ups	✓ Can create more monopolistic markets. ✓ Single market focus facilitates DD, network nurturing, and integration. ✓ Synergy potential. ▪ TAM constrained by levered PE entrants when the opportunity is noticeably attractive. ▪ Scale-driven rational invites potentially destructive competition. ▪ Risky when debt service is conditional on synergy realizations. ▪ Acquisitions may continue beyond the point of no economic return, when management executes an equity story marketed with an M&A protagonist. Incentives need to allow for "just rolling" if target pricing gets unattractive.
Platforms	✓ Starting with a quality stand-alone business caps operational downside. ✓ Often less integration risk, as established operational excellence resides in the platform. ✓ Bolt-ons can be "coerced" into joining when the platform is powerful. ✓ Easier to rationalize the addition of internal M&A resources than for smaller roll-ups. ▪ Bigger financial risk up front. Platform valuation is contingent on bolt-on acquisitions. ▪ Bigger onus on knowledge transfer and capital allocation incentives below the c-suite, as centralized HQ M&A function may not scale. An excellent study by Exploring Context shows that few serial acquirers seem to surmount ten deals annually.
Accumulators	✓ Accumulators are several platforms with aggressive capital reallocation. Information sharing enables KPI gamification between firms, which – thanks to distance and differentiation – can engage in productive emulation (with less ego interference). ✓ Industry agnosticism increases TAM, while not necessarily losing all focus advantages: • Roper focuses on "*Business Model vs. End Market*", giving them some of the standardization advantages commonly ascribed to roll-ups. • Constellation Software (CSI) has scaled M&A via decentralization, a niche software focus, and incentives that force subsidiaries to invest in M&A staff: "*Each of the Operating Groups is the equivalent of what CSI was ten years ago.*" ✓ In contrast to roll-ups, they often *"Compete on Customer Intimacy, Not Scale"* – Roper ✓ Without integration, you cannot hide failures as easily, which subconsciously forces a long-term view. Plausible deniability gets – well, it gets less plausible! ▪ Many asset-light businesses are just people-heavy. Is the asset-light distributor, dentist, or lawnmowing company just "acqui-hires" (providing little entry barriers or employee exit barriers) with minimal enabling tangibles?
HoldCos	✓ Cost efficient exposure to diversified long-term oriented portfolios. ✓ Potential for HoldCo shareholders to postpone taxable events by coat-tailing. ✓ Board influence is valuable in emerging economies where regulatory and financial capital ties are vital. ▪ Black box bets on the Warren Buffetts (BRK) and Wallenberg families (Investor AB) of the world. What are the inherent business moats vs. just exemplary stewardship? ▪ Some investees are outside of the control needed for aggressive capital reallocation.

Source: Serial Acquirer Primer

Section 2 The system of CSI

Before I explain the system of CSI, I want to tell how it all started.

In 1995, Mark Leonard raised CAD 25 mn mostly from Ontario Municipal Employees Retirement System (OMERS). While Leonard graduated from University of Guelph, he was also allegedly a bounder, mason, gravedigger, dog handler, sapper, and wind energy researcher. He played basketball, football, and rugby in school, and it took him seven years to finish college. After enjoying the heyday of youth, he eventually went to University of Western Ontario for his MBA, and then went on to work in Venture Capital (VC). He spent almost eleven years in VC before founding CSI.

Why did Leonard start CSI? During his VC days, he noticed VCs' excessive penchant for TAM, and anything that would not be able to serve a large market or disrupt a large incumbent almost by definition could not get access to VC funding. Leonard thought there are a lot of companies out there who are fundamentally good businesses, and at the right price (and a decent batting average), investing in such businesses could give the TAM-chasing VCs a run for their money. One area of the market he felt was consistently underserved and yet had a very attractive business model: Vertical Market Software (VMS).

Although CSI went public in Canada in 2006, it did not raise any money; they only became public to create liquidity for the VC investors who sold at the then $70 mn valuation. The current market cap of CSI is ~$35 Bn.

But what is VMS? It is customized and industry specific/niche software solutions that have all the typical attractive properties of Horizontal Market Software (HMS) except the TAM. HMS products such as Microsoft Office (excel, word etc.) have demand from almost every industry whereas each VMS company has a very limited market to go after.

Why is VMS an attractive market? Canuck Analysts provided a couple of reasons (underlined emphasis mine):

- *"There are tens of thousands of VMS businesses around the world, meaning a huge number of niche TAMs to go after (tons of submarkets within industries such as transportation, healthcare, payments, education etc. etc.). While there are key differences based on end-market, customer type etc., those different VMS TAMs are still a lot more homogeneous than the TAMs that most accumulators and platforms target. Homogeneity in turn is key to develop some standardization and best practices in the M&A process, which you need in order to push M&A down the organization and scale deal volume."* (**MBI's note**: The point on homogeneity in software business reminds me of this quote by Robert Smith of Vista Equity Partners: *"Software companies taste like chicken. They're selling different products, but 80% of what they do is pretty much the same."*)

- *"The average VMS business is a very good business. VMS has <u>solid unit economics</u> (requiring negative tangible capital when done right) as well as <u>pricing power</u> (lots of <u>mission critical software</u> out there), and the business resilience remains very strong even as you go down market into small enterprises given the <u>inherent switching costs and recurring revenues</u>. That last part is very important – small businesses sell at lower multiples for a reason… in most industries, size provides vastly more resilience via all sorts of diversification (internal talent, customer, product, end-market, etc.). Most small enterprises are just owners with jobs in corporate ownership form. In VMS, you can* *acquire small businesses at attractive multiples and still get decent business resilience with high retention rates and cash that comes in no matter what's happening in the world. Fishing in a pond with lots of fat healthy fish vastly reduces the odds that you're accidentally buying a turnaround project, and small deal sizes (each transaction is immaterial individually) mean you just have to be right on average, both of which make it easier to push M&A down the organization."*

Today, CSI is a perpetual owner of 700+ VMS companies across the world spanning over 75 verticals which range from golf course software to marina management, and diagramming tools for crash scenes to police departments. CSI consists of six "Operating Groups (OGs) which is shown below (you can also see a more granular org chart here):

VOLARIS	• Agri-Food • Bio Sciences • Cultural Collections Management • Education • Justice • Marine • People Transportation • Retail	• Asset Management & Logistics • Communication & Media • Drinks • Financial Services • Library Management • Non-Profit • Rental Management
HARRIS	• Utilities • Public Safety & Justice • Education	• Healthcare • Local & County Government • Property Management
Jonas™	• Hospitality • Clubs & Resorts • Spa & Fitness	• Construction • Payments • Moving & Storage
Vela SOFTWARE	• Mining / Oil & Gas / Aerospace • Manufacturing & Supply Chain • Public Housing	• Financial Services • Travel • Retail & Dealerships
Perseus Group Constellation Software Inc.	• Homebuilders • Dealerships • Real Estate Brokers & Agents	• Pulp & Paper • Leasing & Financing • Pharmaceutical manufacturing
topicus.com	• Government • Real Estate • Healthcare • Automotive	• Finance • Retail • Legal

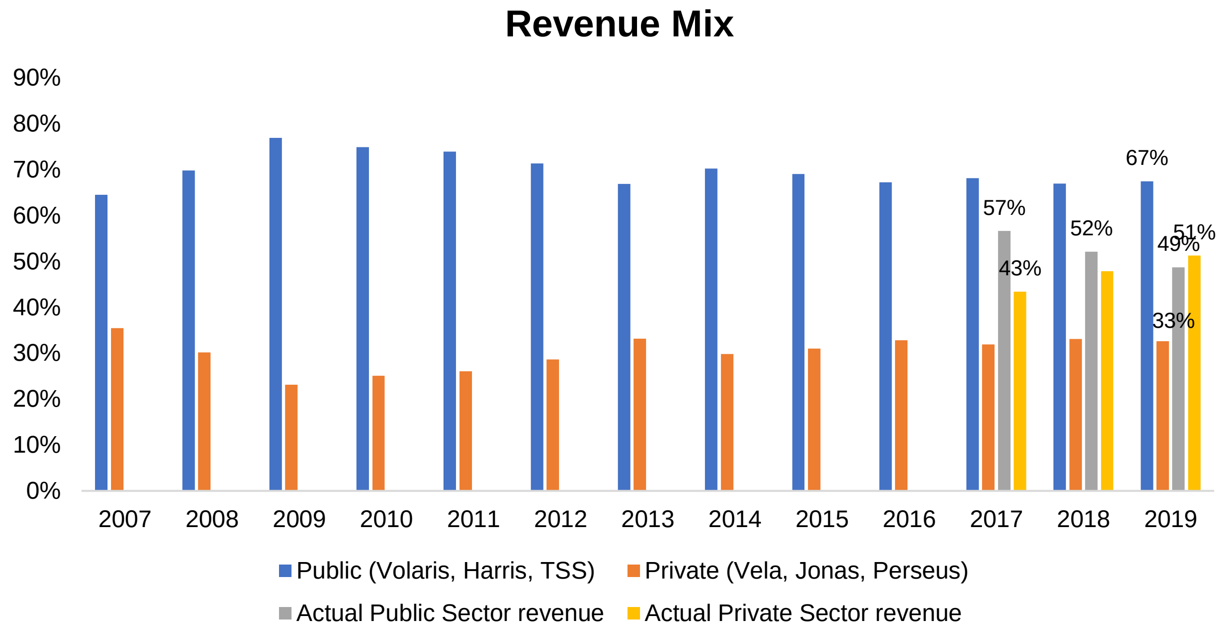
Source: CSI Website

As you can see, all of these OGs have tens of different software companies under each of their umbrella. Mark Leonard wrote in his 2016 letter: *"Each of the Operating Groups is the equivalent of what CSI was ten years ago (plus or minus three years)."* **Note:** *you can download Mark Leonard's shareholder letters from 2007-2018 in one single pdf including my highlights at the end of this deep dive. If you are trying to understand CSI more, I strongly encourage you to read the letters. My deep dive is in no way a substitute to actually reading his letters. Even if you are not interested in CSI the stock, I still recommend the letters.*

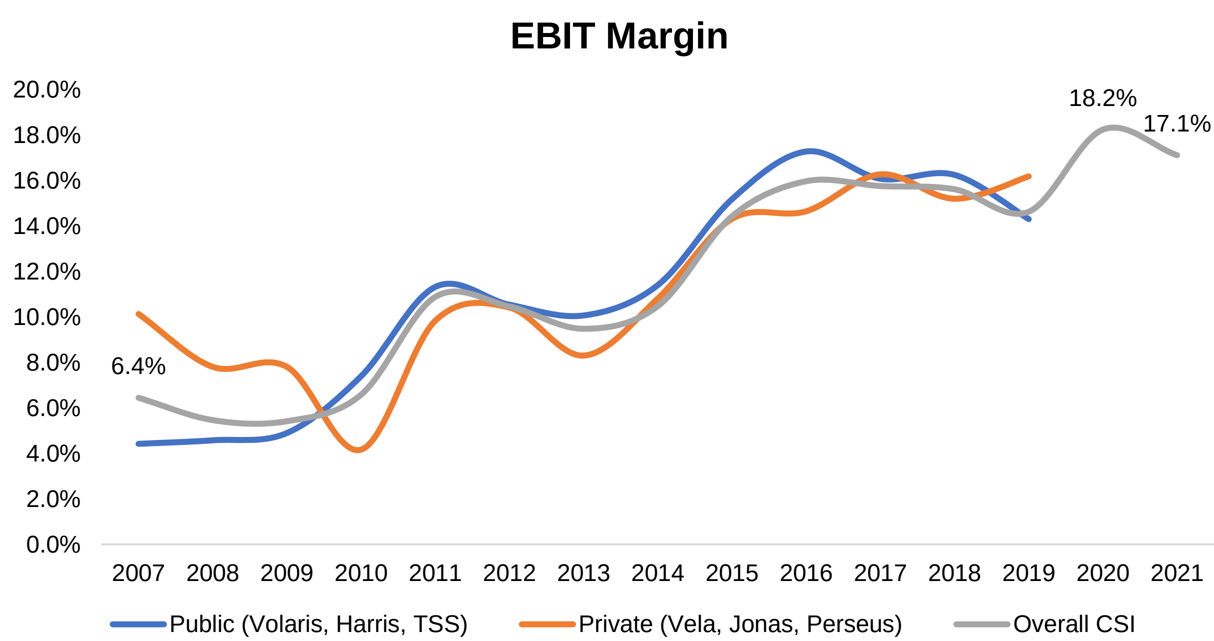
Each OG is composed of several verticals, each vertical has at least one Business Unit (BU), and and each BU can consist of one or several companies. In 2015 letter, Leonard mentioned CSI had 182 BUs serving more than 75 verticals. Since CSI adds 3-5 verticals each year, number of verticals are perhaps ~100-120 by now.

Of the six OGs, Topicus.com needs to be mentioned separately for a couple of reasons: a) Unlike other OGs which are primarily focused on the North America market, Topicus.com is active in European markets, and b) Topicus.com is the only OG that's been spun out from CSI in 2021. CSI acquired Total Specific Solutions (TSS) for €240 million back in 2013, followed by Topicus for €217 million in 2020. CSI then merged these two companies to spin-off Topicus.com. It is publicly traded company (Ticker: TOI in Toronto Stock Exchange) with a current market cap of ~$5 Bn, of which CSI owns ~30% shares. However, given CSI has >50% voting control, it consolidates Topicus' results. I will mostly confine my deep dive to CSI related discussions, and will not delve into Topicus in greater detail, but curious readers are encouraged to read this piece on Topicus by the 10th Man.

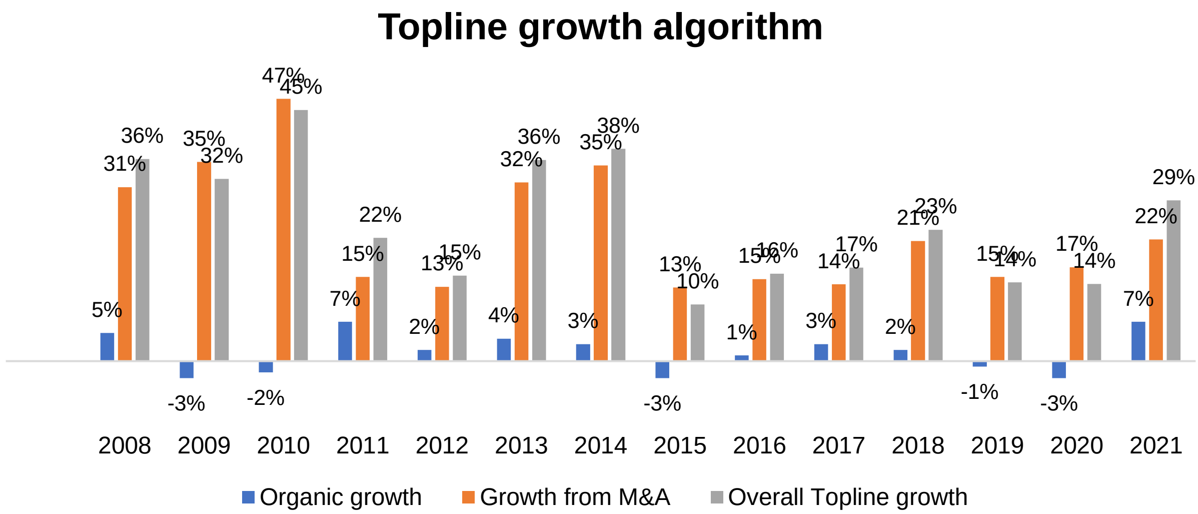
Since IPO till 2019, CSI used to segment its revenue in two categories: Public, and Private sector. If you just looked at the headline number, it would appear CSI generated 67% of its revenues from public sector which is generally seen as positive among many CSI shareholders. Public sector (local govt, schoolboards, police departments etc.) customers can be quite sticky and they have far less incentive to switch to an alternative compared to private sector who may be more prone to look for better alternative. However, these headline numbers are somewhat misleading as CSI disclosed more nuances in 2017, 2018, and 2019 annual report. Although they reported the segments as "Public" and "Private" sectors, in reality Public was just aggregate revenue from the following OGs: Volaris, Harris, and TSS/Topicus and Private was just aggregate revenue from Vela, Jonas, and Perseus. 35% of "Public" sector revenue in 2019 actually came from commercial customers i.e. Private sector, and 15% "Private" sector revenue came from Public sector. When you properly categorize these revenues, it turns out the mix between Public and Private is 49%/51% in 2019 which came down from 57%/43% in 2017. CSI stopped reporting these segments since 2019 as they now think this disclosure has stopped being meaningful for shareholders. To the extent one may think revenue from public sector is stickier compared to revenue from Private sector, this is perhaps not heading in the right direction. Of course, the reality is private market VMS is likely to be much larger than public sector VMS, and therefore, the terminal revenue mix of Private and Public is likely to be skewed to Private sector. This may mean higher churn and/or R&D intensity than what CSI experienced in its history.



Having said that, if you look at EBIT margin by segment in 2007-2019, even though there are differences of EBIT margins from year to year between the two segments, by and large they seem to be almost the same line. I know this isn't quite public and private sector margins (as discussed earlier), but the segment margins tell me there may not be material differences in terms of profitability among the OGs. This also sort of substantiates the homogeneity of the parent CSI's approach and CSI's ability to ripple its core philosophy to all its OGs despite being decentralized operations.

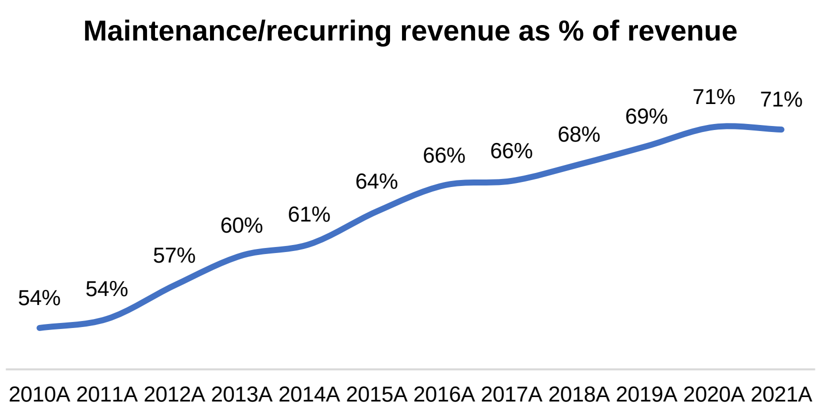


While CSI's topline CAGR from 2007 to 2021 was 24.3%, organic growth averaged at only ~2% and the rest of it came from hundreds of acquisitions over the years as one might expect from a serial acquirer. Many investors become understandably worried at such anemic organic growth, a topic I will elaborate in section 3. But the overall organic growth masks a few nuances.



CSI reports revenue in four categories: Licenses, Professional Services, Hardware, and Maintenance/recurring revenues. As software persistently shifted from licensing to subscription or recurring mode, the shift dampened the overall numbers even though the maintenance/recurring revenue has generally done much better than the overall numbers. In fact, recurring revenue has likely never declined since IPO. Since recurring revenue increased from 54% in 2010 to 71% in 2021, it may be driving factor for overall organic growth going forward.

Segment	2016	2017	2018	2019	2020	2021
Licenses	-10%	-2%	-5%	-6%	-14%	5%
Professional Services	0%	2%	0%	-7%	-9%	9%
Hardware & Other	-8%	5%	-10%	-12%	-10%	-7%
Maintenance and other recurring	3%	4%	5%	2%	1%	8%
Overall organic growth	1%	3%	2%	-1%	-3%	7%



There are few other nuances about revenue shifting from license to recurring revenue. As more and more software revenue moves from upfront licensing fee to recurring (in many cases monthly) revenue model, it can understate run-rate revenue in the topline. In 2014 shareholder letter, Mark Leonard mentioned SaaS revenues increased from less than 1% of maintenance/recurring revenue in 2009 to ~20% of maintenance/recurring revenue in 2014. Although we don't know the number today, SaaS is likely to be higher than 30% of recurring revenue. While on one hand SaaS business exhibit higher organic growth, it also experiences higher churn, higher maintenance expense, and hence lower profitability. In fact, Leonard explained in 2012 letter why he expects ROIC to go down over time because of this shift to SaaS:

"If our conventional license businesses are growing organically, there should be a natural upward bias in ROIC, as those businesses tend to use less and less working capital as they grow their "annual in advance" maintenance streams. Most SaaS businesses tend to have monthly rather than annual payment cycles, and hence are more working capital intensive and are also more fixed asset intensive. As SaaS and other alternative economic models become an ever-larger portion of our maintenance streams, the economics of our businesses will become somewhat less attractive and there will be downward pressure on ROIC."

Given how SaaS business models are widely admired today, the aforementioned paragraph may sound a bit counterintuitive and perhaps even a bit surprising to many investors. I consider myself one of those admirers of SaaS businesses. I do agree with Leonard's points, especially in the context of VMS market. But I think the major appeal of a SaaS model is the potential expansion of TAM which is largely absent in the context of VMS market. But for any HMS market, SaaS models do create a possibility that a new market or customer set will be interested in the product who were perhaps priced out of the market because of the upfront licensing software pricing. If there is a very low probability of expanding the TAM, a licensing model is indeed a better business model from financial metrics perspective. Of course, even if it is less appealing, companies still need to evolve to meet customers' expectation today. Having said that, I don't think this is a huge concern and the differences of ROIC between the two models are not likely to be substantial. A downward trend of ROIC is almost equivalent to law of gravity, something CSI has mostly avoided so far. SaaS model or not, CSI would probably experience some pressure on ROIC anyway, considering the growing pile of FCF they need to deploy each year. It is this system of capital allocation that we need to understand and delve into to get a better grasp on CSI. I like how 10th man framed CSI:

"CSU is effectively a private equity business with permanent capital, that happens to be owned in a public vehicle. The portfolio companies operate independently, and while they might spend some capital on R&D and S&M, the majority of FCF is pushed up to "capital allocators" to deploy through acquisitions. This makes the suite of existing VMS businesses the perfect cash generating engine for Mark's M&A machine"

With that framing in mind, it is a good segue to gain a better understanding of CSI's acquisition engine.

Section 3 Acquisition engine and runway for CSI

There are four things I would like to delve deep into this section: a) the acquisition process and the operating philosophy of CSI for the acquired companies, b) growth runway for future acquisitions, , c) bear concerns on terminal value questions on acquired VMS companies, and d) c) benchmarking CSI against other serial acquirers.

The acquisition process and the operating philosophy of CSI for the acquired companies

Jeff Bender, CEO of Harris, explained the typical deal sourcing process for CSI can come from three ways: dedicated M&A team in any of the OG (primary sourcing means), senior leaders, and corporate carve-outs i.e. other companies trying to exit their non-core software business. On CSI's website, they also outline the kind of business they would like to acquire. A caveat, however, is not every company necessarily fits into this framework given on the website. For example, even though CSI mentions they want to acquire companies with hundreds of customers (not dozens), I have personally spoken with a former Harris employee who mentioned he is aware of a small acquisition in which one customer contributed majority of revenue.

Our Acquisition Criteria

While we are open to discussing any opportunity, our preferred businesses are categorized below.

Exceptional Businesses

We are pleased to hear from principals or representatives of Exceptional Businesses that meet the following criteria:

- A mid- to large-sized vertical market software company (a minimum of $1-million earnings before interest and tax)
- Consistent earnings and growth — generally EBITDA/revenue + revenue growth of 20 percent or more per year
- Experienced and committed management
- An offering price that has been determined

Good Businesses

We are pleased to hear from principals or representatives of Good Businesses that meet the following criteria:

- Number 1 or Number 2 market-share holder in a niche vertical market
- Revenues of at least $5-million
- Hundreds or thousands (not dozens) of customers
- Unimposing competitors
- An offering price that has been determined

Our Philosophy

- We promise the strictest confidence and will generally respond to enquiries within one business day
- We will not engage in unfriendly takeovers
- Although we prefer 100 % ownership in our companies, we will buy less if vendors wish to continue to participate in the success of their business, particularly if their business is Exceptional and/or large

Here's how the acquisition engine works:

The board and/or headquarter (HQ) recommends and sets hurdle rates for acquisition -> HQ creates a threshold for acquisition for OGs for which they won't be required to ask for approval from HQ/board (similarly, the OGs can have similar threshold for BU managers)-> the M&A/business development team or the deal sourcing manager calculates potential IRR for the deal and creates bull/base/bear case scenarios for each acquisition to see where exactly their base case scenarios fall in distribution based on historical acquisition track record (is it 55th percentile or 95th percentile; the manager better has VERY high confidence if their projections appear to be 95th percentile)-> one year after the acquisition, there is Post Acquisition Review (PAR) in which the manager/team discusses the initial projections and actual result as well as the lessons from the experience-> BUs try to use cash to acquire more companies and if they don't see much opportunity, they can repatriate cash to HQ. But if a BU consistently generates high IRR and wants to repatriate money to HQ, HQ may ask the BU to "Keep Your Capital" (KYC) so that BUs are more incentivized for deploying capital at lower IRRs (but higher than hurdle rates). On the other hand, if an acquisition does poorly, it remains in your capital base while calculating your ROIC. You cannot "adjust" your capital for impairment later which also acts as an incentive to allocate capital prudently.

Sourcing a potential deal and maintaining relationship with the founder/CEO of the target can typically take 4/5 years (at times a decade long process, as per Jeff Bender from Harris). The idea is when the founder is prepared to sell, CSI (or any of the CSI's OGs) should be the first company they think about. Because of these interactions, CSI professionals have a much better grasp on their verticals and when they come across a deal, they can come with a price usually much quicker than other parties. Moreover, CSI generally exhibits a far better price discipline than perhaps shown by other market participants. CSI is the highest bidder in less than 10% of auctions (which CSI tries to avoid). An anecdotal experience shared on twitter demonstrates some of these dynamics. Many sellers may choose to avoid the exhausting process of shopping around in the hope for a better price, and would rather opt for a certain deal at hand. Moreover, CSI lets these acquired companies run independently, and founders/CEOs can, as well as most employees working at the company, keep their jobs if they want. The legacy management can run things autonomously, and CSI can just share best practices with them to streamline some operational aspects. I do want to mention that during my conversation with my acquaintance who's a former employee at Harris, I came to know CSI (at least Harris) does downsize the acquired company at times. I suspect given the autonomy among OGs, there can be some differences in strategies and perhaps CSI is not as lenient as they are portrayed in Mark Leonard's letters.

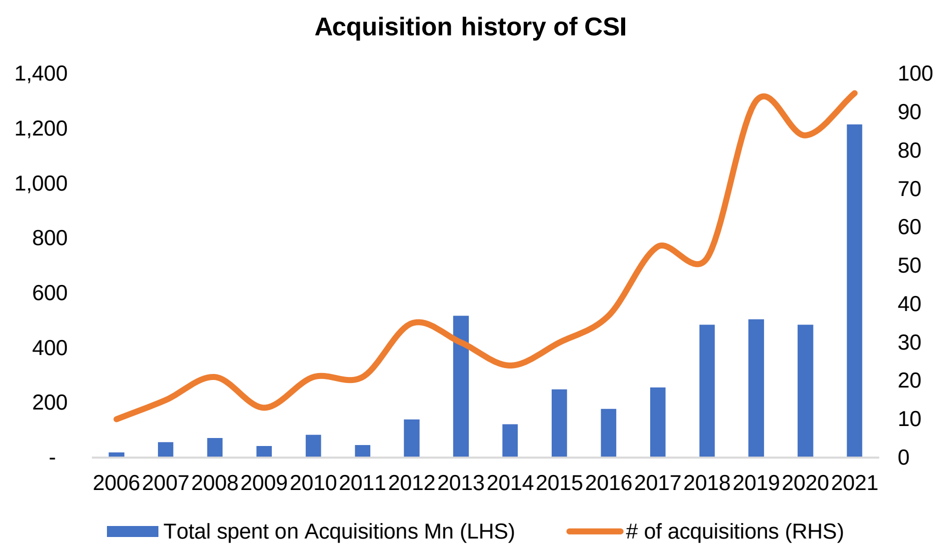
Unlike many rollups or serial acquirers, Mark Leonard is not a big fan of synergies (thank Goodness!), and wants to keep things "human scale" (think Dunbar's number). In 2014 letter, Leonard explained why he doesn't want to pursue economies of scale by integrating:

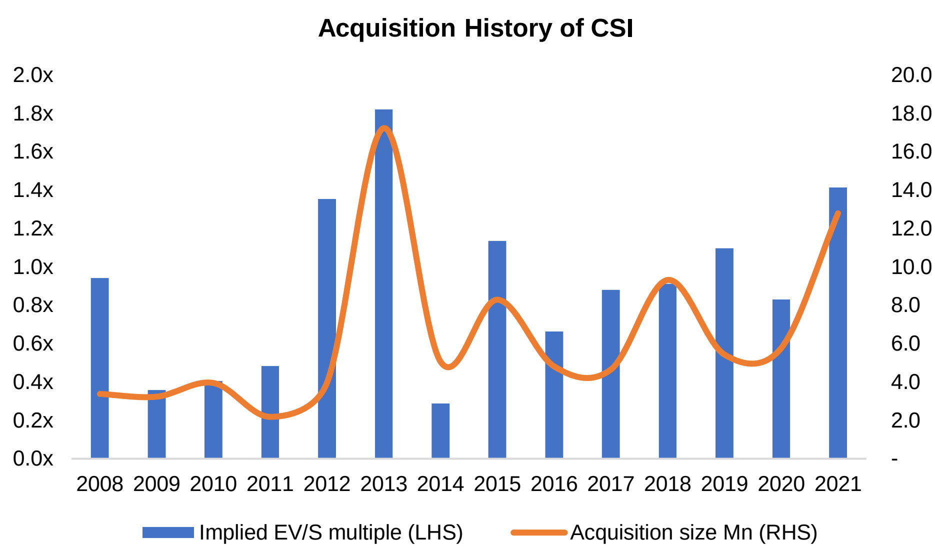
"Shareholders sometimes ask why we don't pursue economies of scale by centralising functions such as Research & Development and Sales & Marketing. My personal preference is to instead focus on keeping our business units small, and the majority of the decision making down at the business unit level. Partly this is a function of my experience with small high performance teams when I was a venture capitalist, and partly it is a function of seeing that most vertical markets have several viable competitors who exhibit little correlation between their profitability and relative scale. Some of our Operating Group GM's agree with me, while others are less convinced. There are a number of implications if you share my view: We should a) regularly divide our largest business units into smaller, more focused business units unless there is an overwhelmingly obvious reason to keep them whole, b) operate the majority of the businesses that we acquire as separate units rather than merge them with existing CSI businesses, and c) drive down cost at the head office and Operating Group level."

If you remember the concerns highlighted in "Billion Dollar Lessons" for the rollups, CSI doesn't share much of those concerns. CSI doesn't believe in economies of scale; what they believe in is just buy good business across many different VMS sectors. CSI pursues decentralization and purposefully don't assume integration benefits while acquiring other companies (many rollups assume both decentralization and integration benefits in acquisition). Unlike many rollups or serial acquirers, CSI is not highly financially leveraged. But CSI does share one aspect that the book highlighted as a concern: CSI's stock price sort of assumes persistent fast rate of acquisitions. Let's dig into this more to see how reasonable this is.

CSI's growth runway for future acquisitions

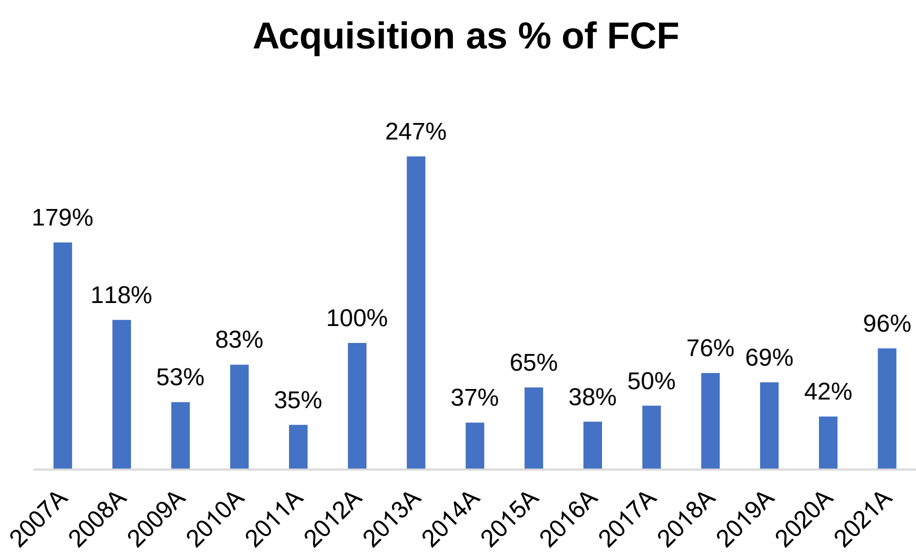
In 2006, CSI acquired just 10 companies; in 2015, they did 30 acquisitions, and last year, it shot up to 95 acquisitions. Excluding the impact of large acquisitions (TSS for $270 mn in 2013, Acceo for $250 Mn, and Topicus for €217 Mn last year), the average size of the acquisitions increased from $2-3 Mn in 2006-2011 to ~$5 Mn in recent years. Excluding the large acquisition which CSI generally paid higher multiple as the hurdle rate for larger deal is lower, the price for smaller acquisitions hovered around ~1.0x sales all these years, indicating the strong price discipline CSI has. This is perhaps even more remarkable given how interest rate has moved during this period, and a general recognition of the appeal, power, and competition to buy software businesses.





The obvious question is whether CSI can continue this pace of acquisition. Raymond James wrote about the VMS opportunity in 2016: *"Our analysis of software vendors indicate substantial fragmentation with approximately 38,000 VMS vendors spanning more than 12 vertical markets, with the highest concentrations in Retail and Media & Services verticals… Constellation has also expanded their database of potential targets with now well over 30,000 targets (adding 4k+ targets per year for the last 3-4 years). Each target has a contact name next to it, with the expectation of staying in contact 3-4 times a year."*

Moreover, in 2017 Forrester estimated there were more than 100,000 independent software companies globally, a number that's growing at 25% per year. Of course, a lot of these companies are going out of business or getting acquired. Given CSI's reputation, track record, and vast network, CSI (mostly its OGs and BUs) try to be always in-the-know about these deals. CSI estimated that their coverage ratio (% of those sold that come to CSU) is ~30%. Today, we are living in the age of software, and it's difficult to imagine why the number of software companies (and hence potential targets) will decline over the next 10-20 years. Therefore, the runway for number of acquisitions is unlikely to be a concern for CSI. However, CSI's FCF increased from $31 mn in 2007 to $328 Mn in 2014 to ~$1.3 Bn in 2021. Given its success, CSI found itself in a position to need to acquire ever greater number of companies given that the size of an average deal didn't increase significantly. If CSI doesn't increase the average deal size, they may have to buy 300-400 companies each year which, frankly speaking, doesn't seem quite realistic. It is really a question of when, not if, CSI will lean to do more large deals more frequently. As you can see below, barring the years CSI did large deals, it has been facing challenges to deploy all FCF to acquisitions. CSI pays quarterly dividend, and paid special dividend in three occasions in the last ten years when they felt they're out of ideas on how to deploy this capital.



Many shareholders and CSI board encouraged Mark Leonard to consider more larger acquisitions, even if that requires to drop the hurdle rate a little. Leonard wasn't a fan of this idea and he explained his rationale in 2015 letter:

"We analysed the weighted average expected IRR's for each of our acquisitions by year from 1995 to early 2015 and compared them with the prevailing hurdle rate we were using when the acquisitions were made. During that twenty year period we made three changes to the hurdle

rate, one up, two down. The weighted average expected IRR for each vintage (e.g. all of the acquisitions done in 2004) of acquisitions tended to drop or increase to the newly implemented hurdle rate. Said another way, when we dropped our hurdle rate, it dragged down the expected IRR's for all the opportunities that we subsequently pursued, not just those at the margin. We try to capture this idea by saying "hurdle rates are magnetic". It now takes a very brave soul to propose a hurdle rate drop at CSI."

It appears there are quite a few brave souls in CSI as Leonard seems to have "converted". CSI now has two hurdle rates: a lower one for larger deals, and maintained a higher hurdle rate for the smaller acquisitions. In the most recent shareholder letter, Leonard promised to stop all special dividends and alluded to a possibility that even regular dividend may be in jeopardy if compelling enough opportunities come to his sight. This is an interesting turnaround from what Leonard mentioned in 2012: *"The dividend was a tactic, not a strategic move. It broadened the appeal of our stock and thereby helped us find an exit for our private equity investors. We appreciate the confidence in CSI that many of the new investors expressed in buying the PE shares. We recognise that these investors bought, in part, because of the dividend and the implicit promise of continued yield. Eliminating it would disenfranchise a group of shareholders to whom we owe our independence. That wouldn't sit right with me and many of the senior management team, so I don't see it happening."*

Perhaps after more than 15 years of relentless compounding, Leonard feels less constrained in being a bit more adventurous. In late 2021, CSI announced a $200 Mn VC fund named "VMS Venture Fund" which aims to invest in 20-40 companies in the next 3-4 years. Leonard also mentioned he wants to experiment and develop skillsets in allocating capital beyond VMS as well. Moreover, given CSI's experience and success with the few relatively larger deals they did in the last decade, they gained some confidence that their capital allocation skill can come equally handy in larger acquisitions. In fact, CSI just did its largest ever acquisition (Allscripts' Hospitals and Large Physician Practices business segment, a corporate carve-out of their software and some services business) for ~$700 mn ($670 Mn cash+$30 mn earn-out targets in future). For context, except for 2021, CSI never deployed such amount in aggregate for all the acquisitions in a year. Even though CSI typically pays higher sales multiple for larger acquisitions, it paid 0.75x P/S multiple for this deal. Since the seller of this asset is publicly listed (ticker: MDRX), they did a call with analysts in which MDRX mentioned the following: *"The Hospitals & Large Physician Practices segment has shrunk for 3 years and is expected to shrink again this year, which will make the third year in a row. And frankly, that will continue as far out as we can see. In fact, our thresholds that are tied to the earn-out targets are sequentially lower each year."*

It may be quite surprising to many investors why CSI would be interested in buying an asset that is in decline. In fact, it seems to be one of the biggest complaints from CSI's detractors. The critics allege most of these VMS businesses have questionable terminal value. Let me respond to this terminal value question.

Bear concerns on terminal value questions on acquired VMS companies

Every company on earth has an eventual terminal value of zero. Therefore, the debate is not whether a company can eventually go to zero, but the question is the duration it may take to get there. All things equal, we want to own companies that will be around longer than the alternatives out there. Of course, all things are never equal; in fact, one of the most important variables is price you pay to buy a business. At a certain price, even the best businesses can turn out to be average or below average investments, and similarly, a declining business can be lucrative

investment at the right price. At the end of the day, everything really comes down to expectations vs reality.
Given CSI acquired 700+ businesses since inception, there is simply no question that many of these businesses will die and may not even survive 10 years after being acquired. One investor encouraged me to look into some of the acquisitions of CSI and watch some YouTube videos of their products. I did, and it isn't pretty. But the challenge is it is impossible to infer anything by looking at a couple of YouTube videos to evaluate whether the "system" of CSI is durable. Let me show you some calculation to explain why I am less worried on the terminal value question.

Let's assume CSI acquired a VMS company which went out of business in seven years. In fact, the business consistently declined sales by double digit every year and the pace of decline accelerated over time. While speaking with my acquaintance working at one of the OGs of CSI, he mentioned VMS businesses can be very high margin business, and after some operational streamlining, it can be ~50-60% FCF margin business. Software is non-rival good which can be replicated many times with very little marginal cost as long as the core value proposition of your product is defensible. That's why CSI focuses a lot on assessing how mission critical the software is for existing customers. Anyways, in this hypothetical example, we have a declining business which will reach zero sales in year 8, and I have assumed FCF margin would gradually go from 50% in year 1 to 0% in year 7.

Year	1	2	3	4	5	6	7
Sales	100	90	77	61	46	32	21
Growth		*-10%*	*-15%*	*-20%*	*-25%*	*-30%*	*-35%*
FCF Margin	*50%*	*40%*	*30%*	*20%*	*10%*	*5%*	*0%*
FCF	50	36	23	12	5	2	0

While intuitively some may think this is the kind of business we should avoid, we do have to remind ourselves that there is a price point for which even this declining but high margin business can have attractive IRR profile. I have shown below the IRR ranges based on different price you would pay for the business:

Price	**P/S multiple**	**IRR**
75	0.75x	31%
80	0.80x	26%
85	0.85x	22%
90	0.90x	19%
95	0.95x	15%
100	1.00x	12%
105	1.05x	10%
110	1.10x	7%

As you can clearly see, the only way you would experience a bad outcome on this business is if we overestimate the quality of the business and/or pay a high price to acquire this business. We know CSI historically paid ~1.0x P/S multiple. So, even if many of its acquisitions have a declining sales profile, CSI may still be largely unaffected as long as it can a) continue to acquire new businesses to maintain overall IRR, and b) the parent company has low leverage so that it can withstand any potential macro rough patches.

However, we know from CSI's disclosure that even though they pay 1.0x P/S multiple on average, the average business is far from the hypothetical business I showed. CSI used to show a bit more granular breakdown of organic growth sources for maintenance/recurring revenue (~71% revenue now), and even though there seemed to be ~3-5% customer churn and ~2-4% module churn, it was outweighed by new customer acquisitions and price increases every year. Therefore, we can be reasonably confident that the hypothetical example I shared may even be the bottom 20-30 percentile acquisitions of CSI and assuming they paid the "right" price, it may still have worked out okay for CSI.

(US$MM)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Maintenance Revenue	142	193	252	337	417	510	725	1015	1170	1400
Growth from:										
Acquisitions	11%	25%	27%	25%	15%	15%	34%	32%	15%	16%
Organic Sources										
a) New Maintenance	9%	9%	8%	8%	8%	8%	10%	10%	8%	9%
b) Price Increases & Other	9%	9%	4%	6%	5%	5%	6%	7%	5%	5%
c) Attrition- lost modules	-2%	-3%	-3%	-3%	-2%	-2%	-2%	-4%	-2%	-4%
d)Attrition- lost customers	-4%	-4%	-4%	-4%	-3%	-4%	-5%	-5%	-5%	-5%
Total organic growth*	12%	10%	4%	7%	7%	8%	8%	8%	7%	5%
Estimated effect of FX	0%	0%	-1%	1%	2%	-1%	-1%	-1%	-6%	-2%
Total maintenance growth*	23%	35%	31%	34%	24%	22%	42%	40%	15%	20%

* Certain totals may not reconcile due to rounding

Even though it may make sense to buy declining or slow growth businesses based on cold hard numbers, I imagine in an era of eternal fascination for "growth" stocks, CSI may have materially less competition in that niche than otherwise. In 2007 letter, Leonard mentioned since the inception of the company, CSI generated less than 10% IRR in only one acquisition, 10-20% IRR in another acquisition, and >20% IRR in all other acquisitions. If you still find my explanation a bit unconvincing, let me borrow from Leonard's 2015 shareholder letter:

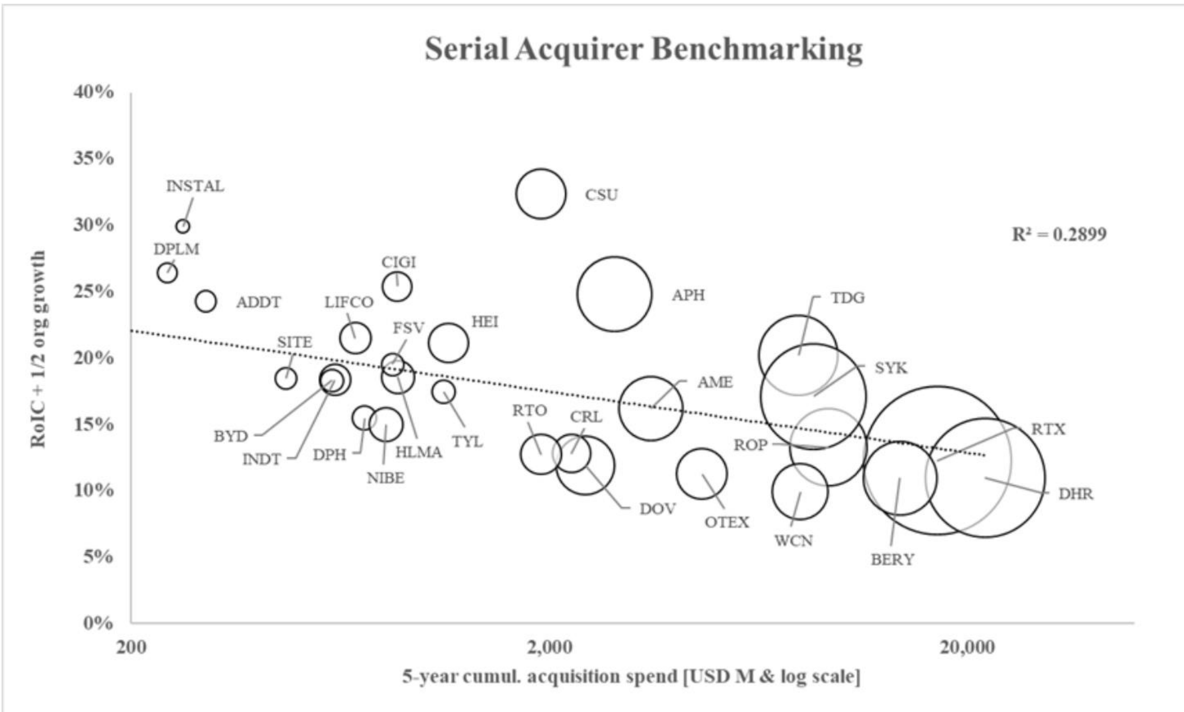
"We have tracked the IRR for all of the acquisitions that we've made since 2004 (i.e. >95% of the acquisition capital that we've deployed). When we graph the IRR's vs the post-acquisition Organic Growth (OGr) of each investment, there is little correlation. If you are really striving to see a relationship, you might argue that our best and our worst IRR's are both associated with low post-acquisition organic growth. Based on the data, there are much more obvious drivers of IRR than OGr. For instance, Revenue multiple paid (lower purchase price multiples are better - no revelation there), and post-acquisition EBITA margin (fatter margin acquisitions tend to generate better IRR's – somewhat intuitive, but needs further work).

How about a thought experiment? Assume attractive return opportunities are scarce and that you are an excellent forecaster. For the same price you can purchase a high profit declining revenue business or a lower profit growing business, both of which you forecast to generate the same attractive after tax IRR. Which would you rather buy?

It's easy to go down the pro and con rabbit hole of the false dichotomy. The answer we've settled on (though the debate still rages), is that you make both kinds of investments. The scarcity of *attractive return opportunities trumps all other criteria. We care about IRR, irrespective of whether it is associated with high or low organic growth."*

Benchmarking CSI against other serial acquirers

Canuck Analysts did some excellent analysis on benchmarking CSI against other serial acquirers which I thought showed how CSI had been an anomaly even among some of the most successful serial acquirers in the last three decades:



Source: Canuck Analysts

- bubble size = amount of EBITDA, USD
- X axis = log scale of cumulative M&A spend over the past 5 years
- Y axis = ROIC + 50% of organic revenue growth

"You don't need the help of the line of best fit in the chart to be able to tell that things go downhill as serial acquirers age and the amount of cash flow available for reinvestment gets larger.

The issues at hand are that

(1) it's simply very difficult to scale M&A if you go after a broad TAM (platforms, accumulators), and,

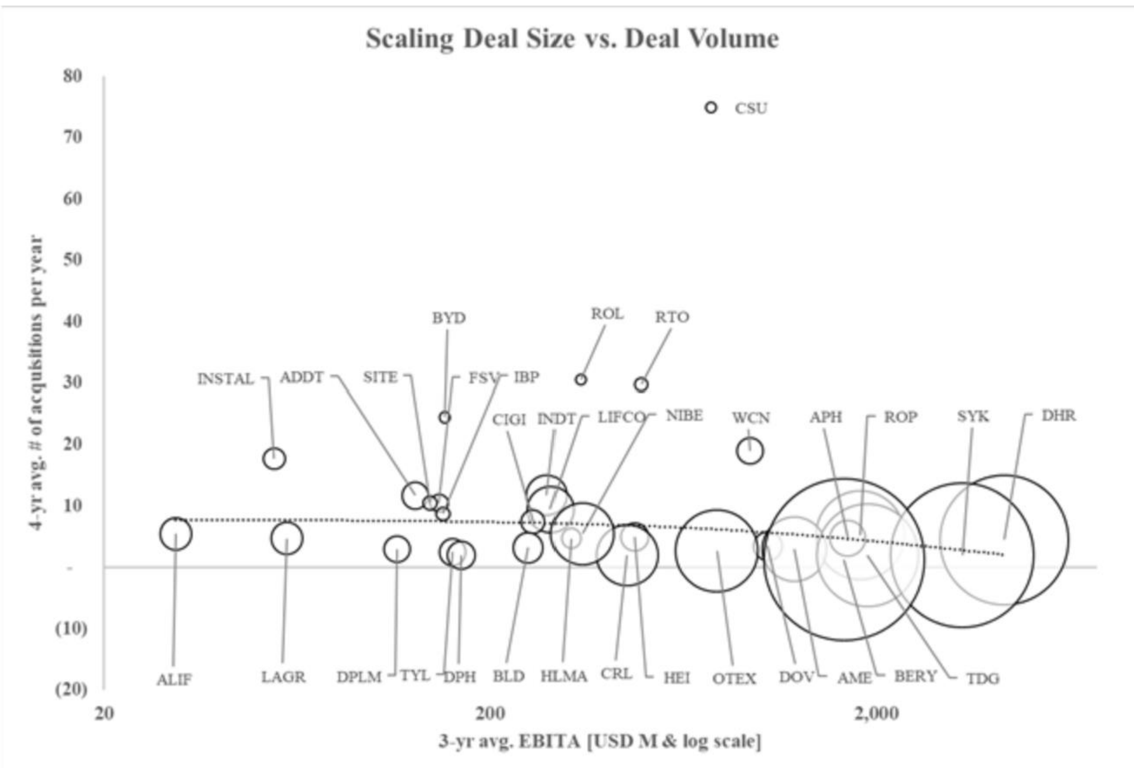
(2) narrower TAMs can get very competitive and excess returns can get competed away (roll-ups, portfolios).

…As a) average deal sizes grow and b) the amount of annual cash flow that must be reinvested grows, incremental returns on capital decline.

The biggest roadblock to defying the law of diminishing returns to M&A is that most serial acquirers, particularly platforms and accumulators, do not sufficiently scale the human capital involved in M&A and the structures and processes guiding them – as they get larger.

Inevitably, this lack of investment in human capital creates a bottleneck, leading them to scale by doing larger deals to move the needle rather than doing more deals. Very few serial acquirers end up scaling to more than 10 deals a year as they grow in size. The chart below shows the same serial acquirers by how many deals they do in a year (y-axis), and what the average deal size has been in millions of USD (bubble size).

This chart, together with the previous chart, encapsulates why Mark Leonard (CSU) is the GOAT."



Source: [Canuck Analysts]

Despite the glowing praise, it is very likely that the next ten years is likely to be trickier for CSI than last ten years was. When it comes to competition, CSI perhaps used to have material moats because big Private Equity (PE) firms such as Thoma Bravo, Vista aren't quite in a position to compete for $5 mn deals, especially considering their AUM base (just these two firms collectively manage more than $150 Bn AUM). There have been several smaller copycats of CSI, but it is hard to compete against a "system" which is carefully calculating base rates, adapting based on new data points, and honing its reputation to be permanent home for any good VMS businesses. However, going forward, now that CSI wants to be more frequent in closing large deals as well as eyeing beyond VMS, some of those earlier moats may not largely apply in these instances. Vista/Thoma Bravo as well as some of the other public serial acquirers such as Roper would probably be very much willing to participate in the auction of companies worth hundreds of millions. While CSI is still on more of a learning curve in dealing with these larger deals, their competitors are likely to be further ahead of them.

To what extent CSI's playbook can be fit to be successful in larger deals as well as beyond VMS, we'll have to be patient to find more concrete answers. I don't want to penalize CSI for this "style drift" as I said it was always inevitable that CSI would have to pursue this given their size grew substantially over time; I'm just pointing out that's the risk today's shareholders are underwriting. Of course, on the other side of the risk lies the opportunity that CSI consistently deploys all of its FCF to future acquisitions without hurting its IRR hurdle rates too much.

Section 4: Management and Culture

As you can probably sense by now, the management is likely to be the center piece in the success of CSI's system. There is a lot to like about CSI's management and culture. But what truly stood out to me is their employee incentive system: *"Our employee bonus plan requires that all employees who make more than a threshold level of compensation invest in CSI shares and hold those shares for an average of at least 4 years"*

I am not sure what this threshold income is; the number is likely to be around CAD $75K. What differentiates this bonus plan from any other companies I have studied is instead of issuing SBC to employees, CSI asks its employees to buy shares from the open market. As a result, CSI has never issued any share as part of SBC plan. In fact, some CSI shareholders like to iterate a popular bitcoin meme, *"there will ever be 21 million of them"* (for the uninitiated, CSI has ~21 mn shares outstanding since IPO, and bitcoin's maximum supply is also ~21 mn bitcoins).

Because of this incentive plan, Leonard seems to be more concerned if the stock becomes overvalued. If his employees are forced to buy overvalued stock from the market and loses money over a long period of time, it can hurt morale or even worse, many senior employees could just sell their shares and leave the company to take their skillset elsewhere. Employee shareholders, however, seem to be quite loyal. Leonard mentioned the average holding period among employees is far higher than the required four years. When I read In-Practice's interviews of former CSI employees (see here, and here), they both mentioned they did not sell their stock. However, when I spoke with my acquaintance (former Harris employee) who likely have not crossed the threshold, he mentioned there is widespread frustration within Harris about the base salary. Many employees even joke that *"we work at Harris, but get McDonald's salary"*. So, there seems to be some discrepancy between what I have read in public, and what I have heard in private. CSI's base salaries for employees may not be quite competitive, and I wonder if the stock stops rising, that would create a pressure on raising salaries for CSI.

I'm not being able to find the tweet, but I read this interesting story on twitter. In an email response to an investor's question, Leonard mentioned that he doesn't think CSI's stock can generate lucrative return from the then price (probably in 2013-2015 period). The investor didn't pay heed to Leonard and ended up buying the stock anyway. We don't quite see too many CEOs who ask investors not to expect decent return if they buy their stock. Of course, CSI's stock did incredibly well over the last 5, 10, and 15 years and CSI became a millionaire factory in Canada and beyond. In 2015 letter, Leonard mentioned 100 of CSI's employees became millionaires, thanks to the stock's performance, and he hoped to have 500 millionaires by 2025.

Like Buffett, Leonard is great at communicating with shareholders. There are too many bits to choose from the letters, and I strongly encourage you to read the letters even if you have no interest at all in buying the stock. Here's one of the many bits that I enjoyed from the letters (this one in 2014):

"Last year I asked the board to reduce my salary to zero and to lower my bonus factor. CSI had a great year, so despite those modifications, my total compensation actually increased. This year I'll take no salary, no incentive compensation, and I am no longer charging any expenses to the company.

I've been the President of CSI for its first 20 years. I have waived all compensation because I don't want to work as hard in the future as I did during the last 20 years. Cutting my compensation will allow me to lead a more balanced life, with a less oppressive sense of personal obligation. I'm paying my own expenses for a different reason. I've traditionally travelled on economy tickets and stayed at modest hotels because I wasn't happy freeloading on the CSI shareholders and I wanted to set a good example for the thousands of CSI employees who travel every month. I'm getting older and wealthier and find that I'm willing to trade more of my own cash for comfort, convenience, and speed … so I'm afraid you'll mostly see me in the front of the plane from here on out."

Having said that, I do have a couple of points of disagreement with Mr. Leonard. Here's what he wrote about buybacks in 2013 letter: *"Buybacks are tempting to management and boards: they tend to improve the lot of managers and insiders, while being applauded by the business press. I think they are frequently a tolerated but inappropriate instance of buying based upon insider information. Instead of shareholders being partners, they become prey."*

It all seems puppies and kittens when your stock just continues to CAGR at 20-30% in the last 10-15 years, but I bet if/when the stock ever experiences a 50% drawdown and many of his millionaire employees become non-millionaires, Leonard will think about "preying" on some shareholders, considering he thinks the stock price is no where close to what he considers to be fair value.

Here's another point of disagreement on valuation when Leonard was making a correct point about how great companies are not always great stocks in 2015 shareholder letter:

"When really good companies start trading at 5 and 6 times revenues, it's time to start worrying. I hope our shareholders are never in that position."

Such rule of thumb violates first principles; there's no magical multiples number at which point we can start worrying or stop worrying. As a matter of fact, CSI's stock is currently trading at ~6x NTM revenue, and typically ranged from 4x-7x in the last 5 years. Multiples are function of profitability, reinvestment runway, moats, and interest rates. Michael Mauboussin's "what Does Price-Earnings Multiple Mean?" is perhaps a much better read than Leonard's rule of thumb here.

Despite these minor criticisms, the letters helped me understand why many investors are such big admirers of Leonard. His ideas on balancing between centralization and decentralization, autonomy, and delegation deeply appealed to me as well. See the following excerpts:

"Head office provides the Operating Groups with capital allocation assistance and decisions, and tries to disseminate some best practices, a few clear rules, a bit of coaching, and coughs up the occasional partly trained employee for the Operating Groups. Compliance, investor relations, and handling the finance function round out the head office duties. Whenever we feel stretched at head office, we download more of our work to the Operating Groups. This delegation to the point

of abdication philosophy (first discussed in the 2010 Letter to Shareholders) seems to have worked so far."

"One of the fundamental beliefs at CSI, is that autonomy motivates people, and bureaucracy does the opposite, so we try to do as many of the important monitoring tasks with as light a touch as possible."

CSI doesn't believe in revenue growth for the sake of it, and evaluates its success based on the metric: *growth of FCF per share*. CSI used to mention the single best metric to focus was ROIC+ Organic growth, but in 2017, Leonard mentioned at the current lifecycle of the company, FCF/share may be a better metric to focus. What I probably love about Leonard is he's clearly a diligent student of good businesses. In his letters, he mentioned how he studied the "High Performance Conglomerates" (HPC) and discussed his learnings from them. While Leonard is 65 years old, I wouldn't be surprised if he is a lifer of CSI in a literal sense. I would be surprised if he thinks about retiring instead of adding more stars to his "Constellation".

I should note that it's just not Leonard's show; it appears CSI has been very much benefitted by some other talented executives such as Jamal Baksh (joined CSI when it acquired Jonas in 2003; Baksh has been CFO since 2013), Mark Miller (COO of CSI, and CEO of Volaris; held positions in various subsidiaries of CSI for more than two decades), and Bernard Anzarouth (he's been with CSI since the very beginning, and a key individual in acquisitions, especially large ones). Admittedly, I am still learning about them, and information about the rest of the management aren't plentiful on the internet. If readers have any interesting insight on CSI's management beyond Mark Leonard, I would be keen to hear from you. In aggregate, Mark Leonard and the OG's CEOs own more than 5% of the outstanding shares. Given the incentive plan mentioned earlier, it's not just these senior leaders, but many other employees are very much aligned with shareholders.

OG	CEO	Shares	As % of outstanding shares	Value (USD Mn)
Volaris	Mark Miller	279,204	1.3%	448
Harris	Jeff Bender	77,781	0.4%	125
Jonas	Barry Symons	152,840	0.7%	245
Perseus Group	Dexter Salna	251,568	1.2%	404
Topicus	Robin Van Poelje	3,149	0.0%	5
HQ	Mark Leonard	430,507	2.0%	691
Total		1,195,049	5.6%	

**This is taken from 2021 Management Information Circular; Mark Leonard also transferred about a million share to his family office and hence his effective ownership of CSI is higher. I'm not sure why Vela's CEO Damian McKay (who became CEO of Vela in 2020), Jamal Baksh, and Bernard Anzarouth's ownership wasn't mentioned/disclosed. Did they sell their shares? Let me know if any reader has any insight on this.*

Section 5: Valuation and model assumptions

If you are reading my deep dive for the first time, I strongly encourage you to read my piece on "approach to valuation". Please read it at least once so that you understand what I am trying to do here. I follow an "expectations investing" or reverse DCF approach as I try to figure out what I need to assume to generate a decent IRR from an investment which in this case is ~8%. Then I glance through the model and ask myself how comfortable I am with these assumptions. As always, I encourage you to download the model and build your own narrative and forecast as you see fit to come to your own conclusion. None of us have the crystal ball to forecast 5-10 years down the line, but it's always helpful to figure out what we need to assume to generate a decent return.

As explained earlier, there are two sources of revenue growth for CSI: organic and M&A led growth. Since 2006, average organic growth was 2%, and my projected average organic growth is ~1% in this decade. This appears even more conservative when you take into account maintenance/recurring revenue had become 71% of total revenue in 2021 (vs 54% in 2010); while average organic growth of recurring revenue in the last five years was 4%, my model assumes 2% organic growth in recurring revenue going forward.

For M&A, the model is basically predicated on how much FCF is deployed for acquisitions. Although CSI sort of struggled to deploy all its FCF for acquisitions in the last 5 years, I have assumed almost the entire FCF to be deployed in M&A in this decade. As Leonard laid out in his 2021 letter to shareholders, he's going to do more large acquisitions and he's also willing to invest beyond VMS. What prompted me to assume utilization of all of CSI's FCF for M&A is how Leonard emphasized on stopping special dividend or even regular dividend (if required) for future acquisitions. It made me think Leonard will keep pursuing large deals, and perhaps shareholders should expect one or a couple of large deals every year. The jury is still out there to what extent CSI can pull it off and whether such frequent large deals will be just as successful as the smaller deals were for CSI. For what it's worth, I have gradually increased P/S multiple from 1.0x to 3.0x over this decade. This may also prove to be conservative assumption; CSI has been in operation at a time when interest rates kept falling and competition for software businesses increased, and yet their P/S multiple didn't quite budge much over the last 15 years. Therefore, P/S of 3.0x may be a little too much to pay for Leonard and his team. Moreover, if we enter a recession or tech in general goes through a winter period, CSI may enjoy a countercyclical benefit in M&A market as the perpetual buyer of such businesses. As a result, they may be able to buy a higher quality business for 1.0x P/S multiple in future. There are obviously if's and but's here, but I think broadly speaking, the forecast here appears to be largely conservative to me (with the possible exception of high utilization of FCF in M&A compared to the recent history).

Amount in USD Mn, except %	2016A	2017A	2018A	2019A	2020A	2021A	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenue	**2,125**	**2,479**	**3,060**	**3,490**	**3,969**	**5,107**	**6,675**	**8,134**	**9,523**	**11,097**	**12,758**	**14,499**	**16,267**	**18,138**	**20,088**
Growth $	287	354	581	429	480	1,138	1,568	1,459	1,389	1,574	1,661	1,741	1,768	1,870	1,950
Growth %	*15.6%*	*16.7%*	*23.4%*	*14.0%*	*13.7%*	*28.7%*	*30.7%*	*21.9%*	*17.1%*	*16.5%*	*15.0%*	*13.6%*	*12.2%*	*11.5%*	*10.8%*
Segments															
Licenses	143	170	198	226	234	287	316	331	348	365	365	365	365	365	365
Professional Services	434	498	616	673	751	1,033	1,219	1,316	1,422	1,536	1,582	1,629	1,678	1,728	1,780
Hardware & Other	148	168	175	173	169	176	194	203	213	224	224	224	224	224	224
Maintenance and other recurring	1,400	1,643	2,072	2,417	2,815	3,611	4,947	6,283	7,539	8,972	10,587	12,281	14,000	15,820	17,718
Total	2,125	2,479	3,060	3,490	3,969	5,107	6,675	8,134	9,523	11,097	12,758	14,499	16,267	18,138	20,088
Revenue Mix															
Licenses	7%	7%	6%	6%	6%	6%	5%	4%	4%	3%	3%	3%	2%	2%	2%
Professional Services	20%	20%	20%	19%	19%	20%	18%	16%	15%	14%	12%	11%	10%	10%	9%
Hardware & Other	7%	7%	6%	5%	4%	3%	3%	2%	2%	2%	2%	2%	1%	1%	1%
Maintenance and other recurring	66%	66%	68%	69%	71%	71%	74%	77%	79%	81%	83%	85%	86%	87%	88%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Organic growth															
Licenses	-10%	-2%	-5%	-6%	-14%	5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Professional Services	0%	2%	0%	-7%	-9%	9%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%
Hardware & Other	-8%	5%	-10%	-12%	-10%	-7%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Maintenance and other recurring	3%	4%	5%	2%	1%	8%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Overall organic growth	1%	3%	2%	-1%	-3%	7%	0.7%	0.9%	1.0%	1.1%	1.2%	1.3%	1.3%	1.4%	1.4%
M&A															
Licenses	19%	22%	21%	20%	18%	18%	15%	10%	10%	10%	5%	5%	5%	5%	5%
Professional Services	13%	13%	24%	16%	21%	29%	20%	10%	10%	10%	5%	5%	5%	5%	5%
Hardware & Other	5%	8%	14%	11%	8%	11%	15%	10%	10%	10%	5%	5%	5%	5%	5%
Maintenance and other recurring	17%	13%	21%	15%	15%	20%	35%	25%	18%	17%	16%	14%	12%	11%	10%
Overall M&A growth	15%	14%	21%	15%	17%	22%	30%	21%	16%	15%	14%	12%	11%	10%	9%
Revenue from M&A	268	291	531	460	584	860	1,531	1,399	1,308	1,472	1,530	1,580	1,575	1,644	1,689
Total spent on Acquisitions	178	256	485	505	485	1,216	1,531	2,099	2,355	2,944	3,366	3,950	4,409	4,932	5,067
As % of FCF	*38%*	*50%*	*76%*	*69%*	*42%*	*96%*	*90%*	*100%*	*95%*	*101%*	*99%*	*102%*	*101%*	*101%*	*93%*
Implied EV/S multiple	0.7x	0.9x	0.9x	1.1x	0.8x	1.4x	1.0x	1.5x	1.8x	2.0x	2.2x	2.5x	2.8x	3.0x	3.0x
# of acquisitions	37	55	52	93	84	95	95	105	115	125	135	145	155	165	175
Increase in acquisitions	7	18	-3	41	-9	11	-	10	10	10	10	10	10	10	10
Acquisition size	4.8	4.7	9.3	5.4	5.8	12.8	16.1	20.0	20.5	23.6	24.9	27.2	28.4	29.9	29.0

For expenses, I have assumed no margin expansion in any of the line items. Overall EBIT margin still is assumed to increase from 17.1% in 2021 to 19.8% in 2030 because of the revenue mix shift from low margin businesses such as licensing and professional service to high margin maintenance/recurring revenue. Although CSI's EBIT margin increased from 6.4% in 2006 to 10.5% in 2014 and 18.2% in 2020, I am not quite confident that the projections in this model are necessarily conservative. A lot depends on the future acquisitions and their margin profile which are inherently difficult to forecast. Some efficiency and scale can appear, of course, over time but if CSI ends up acquiring lower margin businesses (as they did for Allscripts which posted ~15% LTM adjusted EBITDA margin), this model may not turn out to be conservative. CSI does not and should not optimize for margins; what they care much more is ROIC and IRR. While I expect the parent company CSI's balance sheet to remain conservative, it is likely that OGs may take ring-fenced debt in their balance sheets while closing large deals.

Amount in USD Mn, except %	2016A	2017A	2018A	2019A	2020A	2021A	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Expenses															
Professional Services	238	270	341	385	431	558	695	737	782	829	854	880	906	933	961
As % of related revenue	54.8%	54.2%	55.4%	57.2%	57.4%	54.0%	57.0%	56.0%	55.0%	54.0%	54.0%	54.0%	54.0%	54.0%	54.0%
Maintenance	214	251	327	371	402	539	742	942	1,131	1,346	1,588	1,842	2,100	2,373	2,658
As % of related revenue	15.3%	15.3%	15.8%	15.3%	14.3%	14.9%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
R&D	294	341	421	491	579	732	1,001	1,220	1,428	1,665	1,914	2,175	2,440	2,721	3,013
As % of total revenue	13.8%	13.8%	13.7%	14.1%	14.6%	14.3%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
S&M	148	181	220	253	283	369	534	651	762	888	1,021	1,160	1,301	1,451	1,607
As % of total revenue	7.0%	7.3%	7.2%	7.3%	7.1%	7.2%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
G&A	165	193	257	297	355	497	668	813	952	1,110	1,276	1,450	1,627	1,814	2,009
As % of total revenue	7.8%	7.8%	8.4%	8.5%	8.9%	9.7%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Staff expenses	**1,059**	**1,237**	**1,565**	**1,797**	**2,050**	**2,695**	**3,640**	**4,364**	**5,055**	**5,837**	**6,652**	**7,507**	**8,374**	**9,292**	**10,248**
As % of total revenue	49.8%	49.9%	51.1%	51.5%	51.7%	52.8%	54.5%	53.6%	53.1%	52.6%	52.1%	51.8%	51.5%	51.2%	51.0%
Hardware	82	93	96	101	97	99	109	114	120	126	126	126	126	126	126
As % of related revenue	55.7%	55.3%	54.9%	58.3%	57.4%	56.3%	56.3%	56.3%	56.3%	56.3%	56.3%	56.3%	56.3%	56.3%	56.3%
Third party license, maintenance, professional services	193	213	265	300	330	433	583	714	838	979	1,128	1,285	1,444	1,612	1,788
As % of related revenue	9.7%	9.2%	9.2%	9.0%	8.7%	8.8%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Occupancy	52	59	78	35	35	40	52	64	75	87	100	114	127	142	157
As of total revenue	2.4%	2.4%	2.6%	1.0%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Travel, telco, supplies, software and Equipment	130	155	181	201	152	186	243	296	347	404	465	528	592	661	732
As % of total revenue	6.1%	6.2%	5.9%	5.8%	3.8%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%
Professional fees	28	31	39	49	60	79	103	126	147	172	197	224	252	281	311
As % of total revenue	1.3%	1.3%	1.3%	1.4%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Other, net	29	49	52	73	13	62	81	99	116	135	155	176	197	220	244
As % of total revenue	1.4%	2.0%	1.7%	2.1%	0.3%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Depreciation	22	23	27	92	105	121	158	193	226	263	302	344	385	430	476
As % of total revenue	1.1%	0.9%	0.9%	2.6%	2.6%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Amortization of Intangibles	191	231	279	331	403	518	677	825	966	1,126	1,294	1,471	1,650	1,840	2,038
As % of total revenue	9.0%	9.3%	9.1%	9.5%	10.2%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%
Total Expenses	**1,786**	**2,089**	**2,582**	**2,979**	**3,245**	**4,233**	**5,647**	**6,794**	**7,889**	**9,127**	**10,419**	**11,773**	**13,149**	**14,603**	**16,119**
As % of revenue	84.0%	84.2%	84.4%	85.4%	81.8%	82.9%	84.6%	83.5%	82.8%	82.3%	81.7%	81.2%	80.8%	80.5%	80.2%
EBIT	339	391	478	511	724	874	1,028	1,340	1,634	1,969	2,339	2,726	3,119	3,535	3,969
EBITDA	552	644	784	934	1,232	1,513	1,864	2,358	2,825	3,358	3,935	4,540	5,154	5,804	6,483
EBITA	530	621	757	842	1,127	1,392	1,705	2,165	2,599	3,095	3,633	4,196	4,769	5,375	6,007
Margins															
EBIT	16.0%	15.8%	15.6%	14.6%	18.2%	17.1%	15.4%	16.5%	17.2%	17.7%	18.3%	18.8%	19.2%	19.5%	19.8%
EBITDA	26.0%	26.0%	25.6%	26.8%	31.0%	29.6%	27.9%	29.0%	29.7%	30.3%	30.8%	31.3%	31.7%	32.0%	32.3%
EBITA	24.9%	25.1%	24.7%	24.1%	28.4%	27.3%	25.5%	26.6%	27.3%	27.9%	28.5%	28.9%	29.3%	29.6%	29.9%

Valuation: Since CSI owns ~30% of fully dilutes shares of Topicus (TOI) but has controlling voting power, TOI's numbers are consolidated in CSI. As a result, the FCF we see are not available to common shareholders of CSI and we need to adjust it for the non-controlling interest in TOI. As TOI is publicly traded, I added ~70% of TOI's current market cap and then converted the amount in terms of CSI's shares. I understand this is perhaps a bit convoluted way to tackle the non-controlling interest, but for the sake of consistency of my models, I wanted to keep the format similar and decided to do this admittedly unintuitive adjustment (*see excel model for details*).

To generate ~8% IRR, I needed to assume 13.5x FCF multiple in 2030 which seems to be very reasonable. Market still seems to be somewhat concerned about the terminal value of the CSI "system" or/and don't yet trust CSI's ability to allocate all of its FCF. I feel reasonably comfortable in both points, and given the model/projection itself seems somewhat conservative, I sense a reasonable margin of safety. Perhaps one can argue for 2-3% organic growth company, we probably should pay 12-15x terminal FCF multiple; that's a fair argument if the runway in 2030 appears to be short. As I explained in section 3, VMS runway should keep expanding for a long time and given CSI's ambition to go beyond VMS, valuing the business in 2030 just on organic value seems quite conservative to me. I think 20x FCF or 5% yield (with the caveat of interest rates) may seem more "fair".

Items		2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
OCF		1,874	2,323	2,730	3,219	3,730	4,264	4,799	5,375	5,972
Capex		(174)	(212)	(248)	(289)	(332)	(378)	(424)	(473)	(524)
FCF		**1,700**	**2,111**	**2,482**	**2,930**	**3,397**	**3,887**	**4,375**	**4,903**	**5,449**
FCF/share		80.2	99.6	117.1	138.3	160.3	183.4	206.5	231.4	257.1
Terminal FCF multiple										**13.5x**
Terminal Stock price										**3,471**
Dividend/share		4	4	4	4	4	4	4	4	4
Current price of CNSWF*	**1717.3**									
Add: non-controlling interest of TOI	**184.2**									
Cash flow		(1,897)	4	4	4	4	4	4	4	3,475
IRR	**8.0%**									
#diluted shares outstanding		21	21	21	21	21	21	21	21	21
**Closing price of March 18, 2022*										

Section 6: Final words

One of the joys of studying CSI was reading Mark Leonard's letters. The letters are very well articulated, thoughtful, and clearly written by someone who is less driven by dogma and more motivated by a sense of curiosity. You also get a sense of partnership with fellow shareholders, as evidenced by his book recommendations, sharing of findings from his study of other High Performing Compounders (HPC), and of course the compensation plan. While investors seem to be concerned about terminal value of CSI system, there are indications that the system may outlive VMS or any other sector. From his 2018 letter:

"If Constellation had started in 1895 instead of 1995, we might have had the objective of being a great perpetual owner of daily newspapers. The newspaper industry underwent a long period of high growth which attracted many new entrants, followed by local consolidation, conglomeration, and eventual decline. I anticipate that the VMS industry will evolve similarly.

One day Constellation may find that VMS businesses are too expensive to rationally acquire. If that happens, I hope we'll have had the foresight and luck to find some other high ROE non-VMS businesses in which to invest at attractive prices. I am already casting about for such opportunities. If we don't find attractive sectors in which to invest, then we'll return our FCF to our investors. Even if re-investment opportunities become scarcer, Constellation doesn't end… it will continue to be a good (hopefully great) perpetual owner of its existing VMS portfolio, and will still deploy some capital opportunistically."

I initiated ~5% position, and I hope it becomes a more sizable core holding over time as I'll closely follow the company going forward.

Portfolio Discussion: Please note that these are **NOT** my recommendation to buy/sell these securities, but just disclosure from my end so that you can assess potential biases that I may have because of my own personal portfolio holdings. Always consider my write-up as my personal investing journal and never forget my objectives, risk tolerance, and constraints may have no resemblance to yours.

I have made quite a few changes in my portfolio since my last deep dive. I have increased my position in META/FB. I have explained my rationale here. You can also explore some bear cases/arguments for META in this post. The other major change was lowering my exposure to AMZN as I am slightly worried about AMZN's ability to navigate a higher inflation environment, especially in light of the recent geopolitical developments. Given the high capex intensity of both retail and cloud, I wonder to what extent AMZN can insulate itself in a persistent higher inflation scenario. Of course, if AMZN can fully pass the higher cost to customers, it may all work out fine. While AMZN may have pricing power in AWS given the oligopolistic structure in hyperscale cloud, I wonder whether pricing power in retail can be fully exercised in a political environment in which grocery chains' margins are scrutinized and vilified. AMZN may also be quite affected by supply chain issues that may continue to persist longer than anticipated. Moreover, we have lot less clarity on AMZN's "other bets" compared to META and GOOG. I wish AMZN started disclosing EBIT by segment (1P, 3P, Subscription, AWS, Ads, and Others). In a volatile and bearish market sentiment, investors may decide to forget the economics of those segments and focus on the aggregate number which presumably consists of the masked losses from "other bets". I don't have high confidence on the validity of these concerns which is why I still own ~6% in AMZN.

I think it's reasonable to say at this point that it may take a while before we get back to ~2% inflation. When I look at my portfolio, I want to acknowledge my discomfort in the face of potentially persistent higher inflation, and considering the recent geopolitical risks and supply chain bottlenecks, a recession may be in the realm of possibility in a year or so. Given GOOG and META's size of advertising business and the cyclical nature of ad spending, I cannot rule out that softness in the economy will also affect their topline growth. Higher duration equities such as TRUP, SPOT, and SHOP can also face a particularly volatile period in market, as has been the case over the last few months. However, I want to focus on owning companies that I know, and I'm okay with enduring through the volatility. I'm less concerned about the path of the stock price in the short-term, and more focused on the business trajectory over the long-term.

My current portfolio is disclosed below:

Ticker	Avg. Cost	Current Weight*	Unrealized Gain (loss) %	First Bought	First Buy Price	Last Bought	Last Buy Price
BRK.B	204.0	16.2%	67.9%	Aug'19	199.7	Nov'21	285.2
META	224.7	11.6%	-3.7%	Aug'18	172.8	Mar'22	196.0
GOOG	2,379.2	11.2%	15.0%	May'19	1,150.2	Feb'22	2,692.2
IAC	110.5	10.8%	-4.9%	Jul'20	83.0	Feb'22	114.1
ADSK	285.5	9.0%	-25.3%	Feb'21	301.3	Nov'21	261.7
SPOT	180.0	7.3%	-19.6%	Dec'21	239.6	Mar'22	120.0
AMZN	3,000.5	6.6%	7.5%	Feb'20	1,820.0	Feb'22	2,905.6
LULU	346.7	5.5%	-8.6%	Jun'21	337.9	Jan'22	331.7
CNSWF	1,733.8	5.3%	-1.0%	Mar'22	1,733.8	Mar'22	1,733.8
TRUP	80.0	5.2%	13.0%	Oct'21	80.0	Oct'21	80.0
SQ	217.1	4.8%	-35.2%	Sep'21	271.3	Jan'22	151.0
SHOP	701.6	3.6%	11.2%	Jan'22	826.3	Feb'22	635.2
ANSS	364.0	1.6%	-12.5%	Dec'20	364.0	Dec'20	364.0
ANGI	11.7	0.9%	-47.2%	Nov'20	11.7	Nov'20	11.7
Cash		0.4%					
Total		100%					

**Based on closing prices as of March 18, 2022 (time-weighted YTD: -16.0%); Since inception (August 24, 2018) time-weighted annualized return +15.4%*

If someone forwarded this piece to you, please consider subscribing to MBI Deep Dives. Your support is deeply appreciated. Thank you so much.

Recommended readings

1. Mark Leonard's shareholder letters (you can find a merged PDF containing 2007-2017 letters with my highlights on the website; go to the end of the deep dive)

2. The book *"Billion Dollar Lessons: What You Can Learn from the Most Inexcusable Business Failures of the Last 25 Years*"Serial Acquirer Primer
3. Gustaf Hakansson's "The Serial Acquirer Book" (download the book with my highlights at the end of this deep dive on the website)
4. Scott Management's piece on "Serial Acquirers"
5. Canuck Analysts on "Studying Serial Acquirers"
6. The 10th Man on Constellation Software, and Topicus
7. In Practise interviews: Constellatio Software: M&A Best Practices, and Culture & M&A
8. Operating Manual of CSI by Colin Keeley
9. Jeff Bender on Harris podcast

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