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MIRUS CAPITAL ADVISORS

VIEWPOINT

ISSUE 43

MANUFACTURING AUTOMATION REPORT – DECEMBER 2014

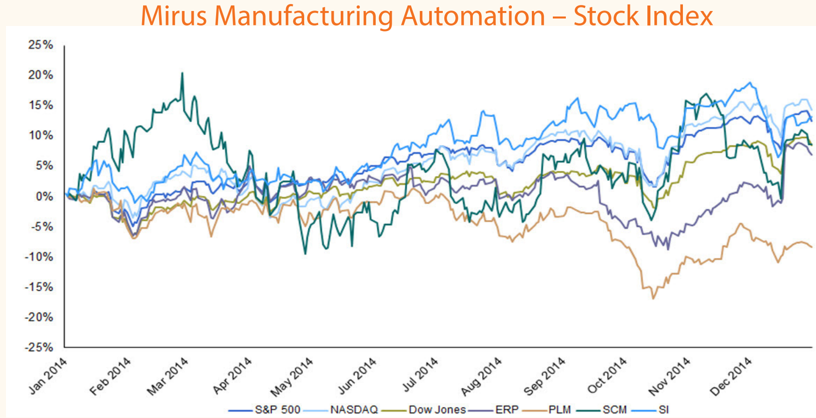
By Bruce Boes and Peter Alternative

In July of 2014, Mirus initiated its coverage of Manufacturing Automation (see end of this document for our definition of this industry). It is our goal to provide enlightening qualitative, as well as quantitative analyses that will help you track M&A activity, and develop your own corporate development strategy and transactional plans. With 2015 underway, Mirus remains optimistic about opportunities for mergers and acquisitions. 2014 was strong year for M&A in Manufacturing Automation and Software in general. While off from 2013's pace, 2014 Manufacturing Automation M&A volume remained well above recessionary levels across a broad range of applications with all Manufacturing Automation sectors represented. Mirus believes this level of activity will continue into 2015. The following report explores the 2014 performance of Manufacturing Automation, its sectors, related M&A transactions, and trends in the industry with an emphasis on the most acquisitive leaders.

Mirus Manufacturing Automation Stock Index

To the right is the Mirus Stock Index of publicly owned companies within their various subsectors superimposed on popular public indexes. As of mid-year all sectors were performing strongly; however, only System Integration vendors outperformed the indexes consistently. SCM vendors had a nice run, but have appeared to have backed off recently, while PLM vendors have consistently underperformed their peers and the indexes.

Mirus Manufacturing Automation – Stock Index



Individual Company and Sector Performance

To better understand stock performance, we must look at the individual companies in each sector and the overall valuation of the segments themselves. First and most obvious is growth. While all sectors grew revenue, the clear leader is SCM growing at an average in excess of 25% with all companies contributing, contrasted to PLM's 4.8% growth (in fact 2 major players have actually contracted as of publication). With the recent adjustment SCM valuation multiples are once again undervalued relative to other segments, however on average SCM companies are smaller (and fewer of them) and apparently more volatile. But the surprise of the year has been System Integrators with almost 12% average annual growth, driven by historically off-shore heavy companies Persistent and Tata (and to a lesser degree L&T), both of which have apparently accomplished growth without much investment in acquisition. This has allowed SI's to consistently outperform the market while maintaining relatively low revenue and EBITDA multiples hinting at room for even more stock growth to come. One notable exception has been the outstanding performance of NetSuite within the overall slowly growing ERP sector. Despite the negative impact on EBITDA in the short term, NetSuite's 34.2% revenue growth is exceptional and is on par with the SCM companies.

Product Lifecycle Management

		TTM		Enterprise Value/ TTM			1 Yr. Rev.
Company	Enterprise Value	Revenue	EBITDA	Revenue	EBITDA	EBITDA %	Growth
Ansys, Inc. (NasdaqGS:ANSS)	$6,719	$918	$428	7.3x	15.7x	46.6%	7.9%
Autodesk, Inc. (NasdaqGS:ADSK)	$12,511	$2,434	$311	5.1x	40.2x	12.8%	-1.7%
Cadence Design Systems Inc. (NasdaqGS:CDNS)	$5,295	$1,535	$305	3.5x	17.4x	19.8%	10.1%
Cimatron Ltd. (NasdaqCM:CIMT)	$75	$47	$7	1.6x	10.4x	15.5%	4.6%
Dassault Systemes SA (ENXTPA:DSY)	$14,245	$2,608	$759	5.5x	18.8x	29.1%	1.9%
ESI Group SA (ENXTPA:ESI)	$155	$128	$9	1.2x	16.6x	7.2%	0.3%
Exa Corporation (NasdaqGM:EXA)	$143	$60	$0	2.4x	NM	0.7%	11.6%
Lectra SA (ENXTPA:LSS)	$292	$247	$22	1.2x	13.5x	8.8%	2.3%
Mensch und Maschine Software SE (DB:MUM)	$160	$162	$7	1.0x	22.6x	4.4%	5.9%
Mentor Graphics Corp. (NasdaqGS:MENT)	$2,594	$1,206	$227	2.2x	11.4x	18.8%	6.2%
PTC Inc. (NasdaqGS:PTC)	$4,569	$1,357	$297	3.4x	15.4x	21.9%	4.9%
Siemens Aktiengesellschaft (DB:SIE)	$107,288	$85,798	$9,705	1.3x	11.1x	11.3%	-2.1%
Synopsys Inc. (NasdaqGS:SNPS)	$5,745	$2,058	$370	2.8x	15.5x	18.0%	4.9%
Zuken Inc. (TSE:6947)	$57	$171	$13	0.3x	4.3x	7.8%	10.5%
			Mean	2.8x	16.4x	15.9%	4.8%
			Median	2.3x	15.5x	14.1%	4.9%

Enterprise Resource Management

		TTM		Enterprise Value/ TTM			1 Yr. Rev.
Company	Enterprise Value	Revenue	EBITDA	Revenue	EBITDA	EBITDA %	Growth
Asseco Business Solutions SA (WSE:ABS)	$114	$42	$13	2.7x	9.0x	30.2%	4.8%
Industrial & Financial Systems IFS AB (OM:IFS B)	$717	$377	$55	1.9x	13.1x	14.5%	2.4%
NetSuite Inc. (NYSE:N)	$8,219	$513	$(45)	16.0x	NM	-8.7%	34.2%
Oracle Corporation (NYSE:ORCL)	$185,622	$38,822	$16,943	4.8x	11.0x	43.6%	3.0%
QAD Inc. (NasdaqGS:QADA)	$295	$289	$19	1.0x	15.8x	6.5%	5.6%
Sage Group plc (LSE:SGE)	$8,244	$1,991	$566	4.1x	14.6x	28.4%	-5.0%
SAP SE (DB:SAP)	$84,368	$20,530	$7,203	4.1x	11.7x	35.1%	3.7%
Yonyou Software Co., Ltd. (SHSE:600588)	$4,536	$707	$106	6.4x	43.0x	14.9%	3.0%
			Mean	5.1x	16.9x	20.6%	6.4%
			Median	4.1x	13.1x	21.7%	3.3%

Supply Chain Management

Company	Enterprise Value	TTM Revenue	TTM EBITDA	Enterprise Value/ TTM Revenue	Enterprise Value/ TTM EBITDA	EBITDA %	1 Yr. Rev. Growth
Manhattan Associates, Inc. (NasdaqGS:MANH)	$2,928	$469	$129	6.2x	22.7x	27.4%	10.2%
Salesforce.com, Inc (NYSE:CRM)	$38,849	$5,074	$87	7.7x	NM	1.7%	33.5%
SciQuest, Inc. (NasdaqGS:SQI)	$274	$102	$5	2.7x	NM	4.6%	35.8%
SPS Commerce, Inc. (NasdaqGS:SPSC)	$781	$121	$12	6.5x	NM	10.0%	35.4%
The Descartes Systems Group Inc (TSX:DSG)	$960	$167	$49	5.8x	19.8x	29.1%	19.2%
			Mean	5.8x	21.2x	14.6%	26.8%
			Median	6.2x	21.2x	10.0%	33.5%

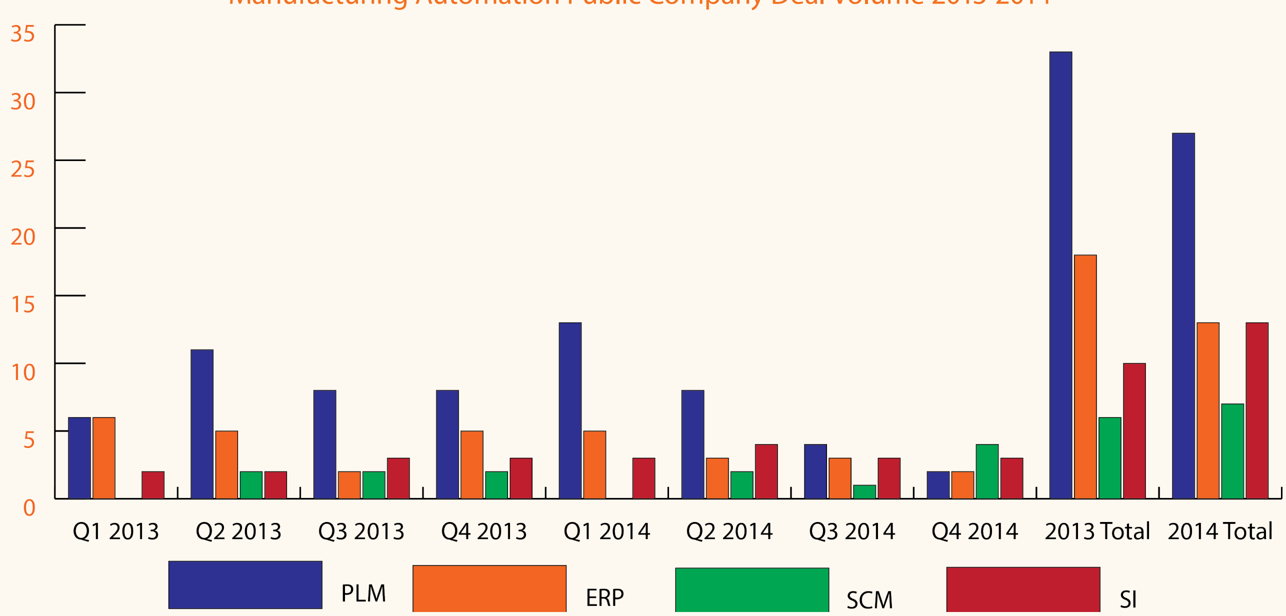
System Integration

Company	Enterprise Value	TTM Revenue	TTM EBITDA	Enterprise Value/ TTM Revenue	Enterprise Value/ TTM EBITDA	EBITDA %	1 Yr. Rev. Growth
Accenture plc (NYSE:ACN)	$52,185	$30,539	$4,821	1.7x	10.8x	15.8%	5.0%
Atos SE (ENXTPA:ATO)	$9,034	$10,141	$1,084	0.9x	8.3x	10.7%	-2.6%
Computer Sciences Corporation (NYSE:CSC)	$9,750	$12,874	$2,029	0.8x	4.8x	15.8%	-8.4%
Infosys Ltd. (BSE:500209)	$30,439	$8,526	$2,438	3.6x	12.5x	28.6%	11.5%
Larsen & Toubro Limited (BSE:500510)	$34,206	$14,028	$1,741	2.4x	19.6x	12.4%	14.3%
Persistent Systems Limited (BSE:533179)	$967	$281	$61	3.4x	15.9x	21.7%	28.9%
Tata Consultancy Services Limited (BSE:532540)	$77,204	$14,010	$4,187	5.5x	18.4x	29.9%	29.9%
Wipro Ltd. (BSE:507685)	$19,186	$7,218	$1,651	2.7x	11.6x	22.9%	16.4%
			Mean	2.6x	12.8x	19.7%	11.9%
			Median	2.5x	12.1x	18.7%	12.9%

2014 Mergers and Acquisitions in Manufacturing Automation

2014 saw another good year for M&A in Manufacturing Automation, just not as good as 2013. For tracked companies, Mirus identified 60 acquisitions in 2014 as compared to 73 in 2013, an 18% decrease in activity, with all sectors sharing in the decline

Manufacturing Automation Public Company Deal Volume 2013-2014

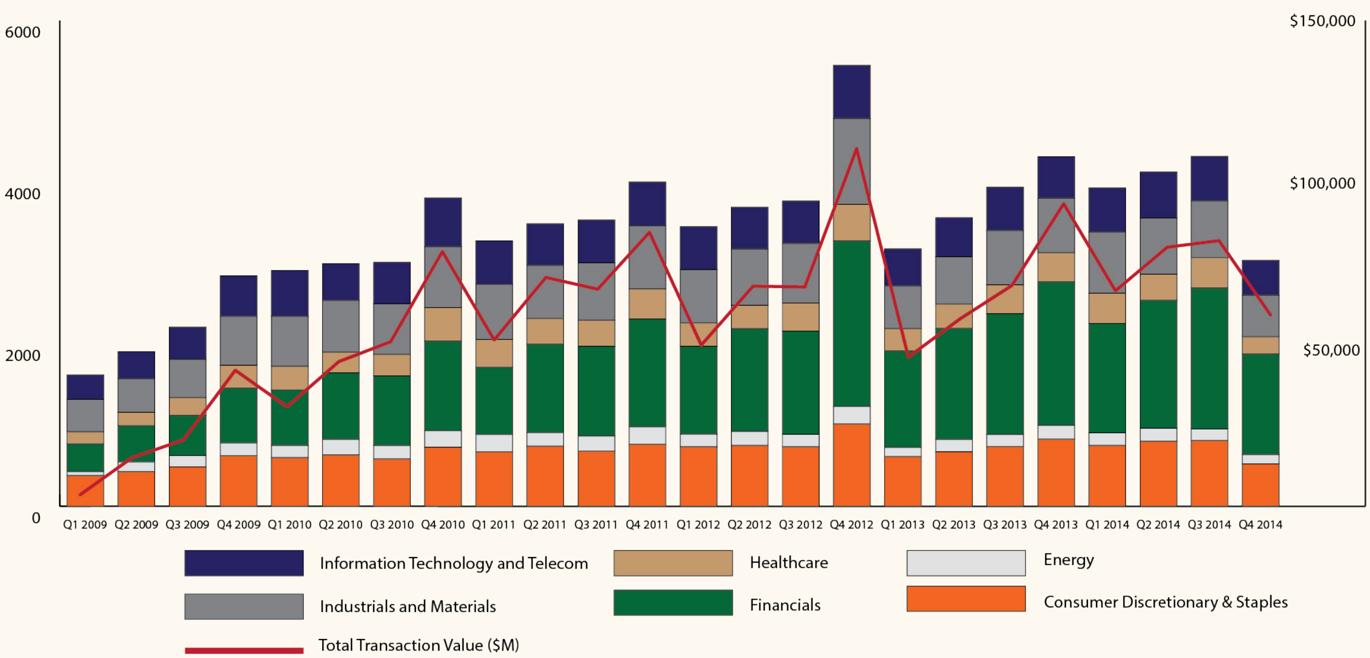


PLM was the most acquisitive of the sectors with SCM the least. Interestingly, this is the inverse of sector growth implying that SCM companies are concentrating on growing their businesses internally, while PLM companies, perhaps a more mature and saturated market, is looking for inorganic ways to grow their businesses through acquisitions. More on this later as we examine the sectors later in this document.

Number of Transactions (2013 & 2014)

Top acquiring companies have largely remained the same for 2014, with Accenture, Autodesk, Descartes and Oracle leading the way. Dassault Systems, Mentor, and Synopsis along with SAP have also been consistent substantial acquirers. Keep in mind that this report does not include all transactions by these companies, just those directly related to Manufacturing Automation where we have tried to construe applicability liberally but reasonably. Also note, the lone Siemens acquisition (CAMStar) has not yet been fully closed as of print date.

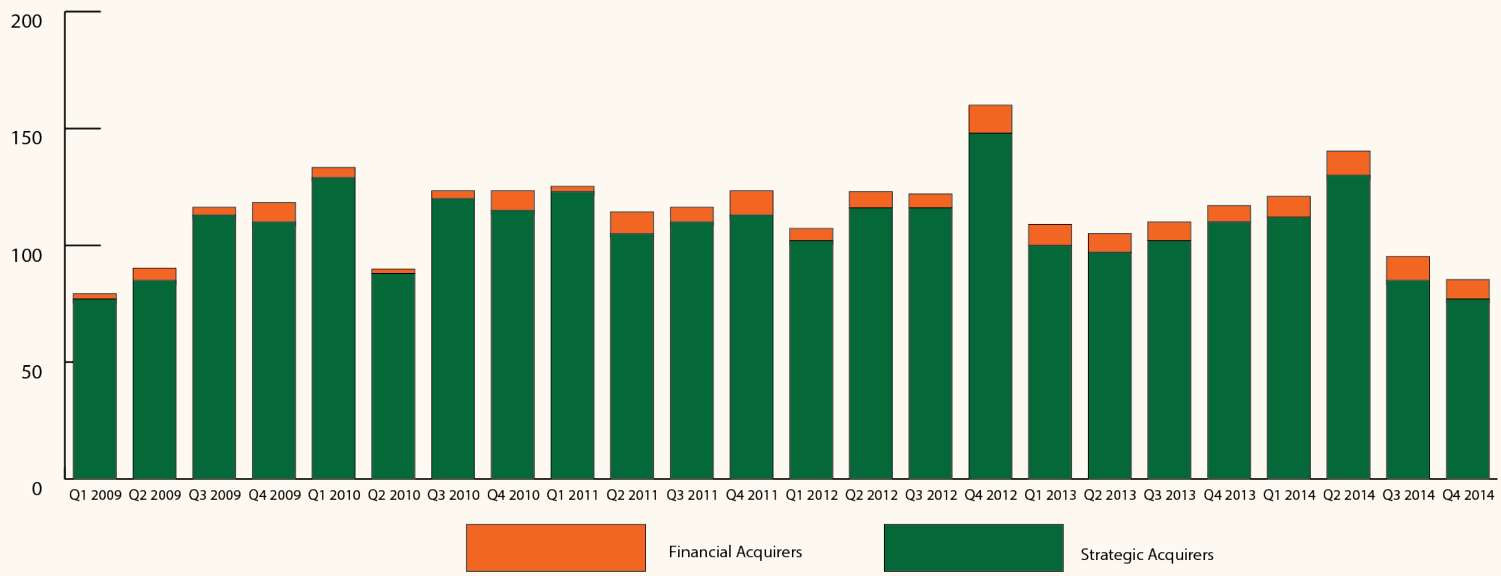
US Middle Market M&A Volume and Value (Deals by Sector)



In related news, the U.S. led middle market deal flow for Q4 was also off a bit from 2013, but Q3 was an astounding 94% above 2009 recession levels with Q1, Q2 and Q3 well above 2013 levels in aggregate, with Information Technology performing at consistent levels.

For Software, Q1 and Q2 were solidly above 2013 levels, but Q3, and Q4, while remaining above recessionary levels, failed to impress. Mirus believes this is a result of the market taking a breather from a torrid pace and perhaps some level of scarcity value than any underlying weakness in demand.

U.S. Software Industry M&A



SECTOR ANALYSIS

PLM: PLM continued to lead all sectors with over 40% of Manufacturing Automation transactions. Autodesk, Dassault Systems, Mentor Graphics and Synopsis were the most acquisitive as each acquired technologies they deemed crucial to their business. Autodesk developed their CAM position with Delcam and Magestic System, Dassault continued its CAE acquisition pace with SIMPACK, and Mentor added to its simulation capability with Berkley Design and Nimbic.

But even more important was the continued diversification of many players as they broadened their portfolios including: Synopsis emphasis on Software Development (Coverity and Target); PTC adding to its strategic "Internet of Things" play with $170M investment in Axeda (as well as continuing their investment in software management tools); Dassault continued to diversify with investments in SCM (Quintiq) and business intelligence (in life sciences via Accelrys); while Autodesk continues to opt for multiple burgeoning technologies, looking for the next big thing (ie gaming via Bitsquid and to a lesser degree composites with Magestic).

Overall PLM is a stagnant, mature market, where leaders are attempting to extend portfolios to maintain growth and attempt to find the next growth engine, while servicing their large, technology hungry installed base through acquisitions.

ERP: In ERP it is all about the cloud as ERP vendors retool and extend applications toward complete cloud based offerings with over half of 2014 acquisitions highlighting "cloud-based" as a major feature including some measure of cloud infrastructure investment (Oracle buys GreenBytes). Application ranges continue to extend into non-traditional ERP spaces such as marketing (Oracle buys Responsys), human resources (Sage buys PAI Group), and even travel (not included in this report). Cross over applications service multiple industries often including manufacturing to retail (NetSuite buys Venda), raising the question of how well they cover either industry. As a side note and as reported in a previous blog Mirus has also found a great deal of activity in and around independent BOM offerings due to the lack of comprehensive coverage by either ERP or PLM vendors. While this has not yet manifested in obvious transactions, this space bears watching over the coming year or two as end customers seek even more industry specific solutions. See www.merger.com/BOM.

SCM: As a segment, SCM was devoid of acquisitions with only 12% of Manufacturing Automation related acquisitions as vendors chose to concentrate on internal growth in this expanding market. The sole significant acquirer was Descartes Systems Group who made five purchases (out of seven for the entire sector), four of which were oriented toward international trade and logistics applications (Computer Management USA, Pentant, e-customs, and Customs Info), clearly attempting to take a leadership position. Mirus expects this sector-wide conservative acquisition pace to change as the industry matures, competition increases, and the pressure to grow at historic rates continues in excess of a company's ability to deliver strictly through organic product growth.

SI: Also one of the most interesting and active spaces in Manufacturing Automation, the Systems Integration sector continues to grow at a double digit pace as many large software purveyors consolidate to a select few large system integration partners. This has kicked off demand by larger system integrators for capacity and domain expertise in the form of both software platform and industry expertise. For more information see www.merger.com/Integware.

Specialized product engineering services (i.e. hydrocarbons), cloud computing, and CRM consulting along with domain expertise for specific product platforms (Oracle) were recurring themes. Accenture has for 2 years now been at or near the top of the acquisition race, made more interesting because of their much slower growth than other SI's (aka arch rival Tata who has only a couple of acquisitions in the last two years). Additionally, the number of now substantial public India based companies fighting for position in the U.S. and European markets (i.e. Persistent, L&T, TATA etc.) and are doing it through acquisition with deep pockets.

ACQUISITION LEADERS

Autodesk: Consistently one of the most acquisitive PLM Vendors (along with Dassault Systems), Autodesk acquired six Manufacturing Automation companies in 2014:

- Bitsquid - Gaming
- Circuits - Electronic Design and Simulation
- Creative Market Labs - Design
- Delcam – CAM
- TeamUp – Rendering
- Magestic Systems - CAM

Overall, Autodesk continues to build out its portfolio in tangential areas while placing multiple bets on the next generation of Manufacturing Automation applications.

Oracle: Having acquired five companies (including Push IO) in 2014, Oracle's acquisition activity was down slightly from eight in 2013, but continued on their themes of marketing and cloud from 2013.

- Responsys (which acquired Push IO) – Marketing
- Blue Kai – Marketing
- Corente – Cloud Based Services
- GreenBytes – Cloud Based Data Storage

Descartes: The sole significant acquirer in the CRM (SCM) space was Descartes Systems Group who made five purchases, of which four were oriented toward international trade and logistic applications:

- AirClic – Mobile Supply Chain Management
- Computer Management USA – Cargo Management
- Pentant – Cargo Compliance
- e-customs – Customs Declaration
- Customs Info – Trade Data Repository

Accenture: Despite its relatively slow growth, Accenture has continued its hefty acquisition pace as it becomes one of the preeminent System Integrators for virtually all major software developers in the MA industry including Siemens, PTC, Dassault, Oracle, SAP and others. Their six acquisitions in 2014 were the most by any Manufacturing Automation player we tracked and included:

- ClientHouse – Cloud Computing and CRM Consulting
- Evopro – Industrial and Embedded SW development Services
- I4C – Business Analytics
- PureApps – Oracle Services
- Enkitec – Oracle Services
- Hytracc – Engineering Consulting

MANUFACTURING AUTOMATION OBSERVATIONS AND TRENDS

Given the above analysis, combined with our recent experience around the industry consulting and selling to a number of these organizations, we have come across what we believe to be the current hot buttons in the industry:

1. GROWTH AND ACQUISTIONS: As mentioned a number of times throughout this report, there appears to be a short-term situation where companies (and sometimes whole sectors) with lower growth are doing more acquisitions in an attempt to maintain or re-establish growth; as opposed to higher growth organizations relying on internal product growth. This seems to be a "horse is out of the barn" where acquisition investment enters the picture only after internal efforts have failed. Smart money invests when times are good, ahead of market/product maturity, so they are ready for the next generation before it becomes critical.
2. APPLICATIONS: Applications still dominate the M&A scene. With a drive toward acquiring greater industry and domain expertise by virtually all major players as a way to differentiate themselves, approximately three-quarters of acquisitions were for application software, the balance being for tools (8%) and services (17%). This is a subtle change from 2013 where tool acquisitions were much more prevalent as many companies looked for ways to address cloud and social media needs - a demand that is largely filled at least for now. We do not see this ratio changing in the near future with perhaps the exception of the acceleration of Services Company acquisitions in the near term.
3. PLM STAGNATION: PLM has stagnated and is showing little growth driving major participants to grow through acquisition and extend themselves beyond traditional CAD/CAM/CAE and PDM:
   - PTC has made huge investments ($300M over two years) in "The Internet of Things," as well as continuing to invest in Software Management. See www.merger.com/PLMGrowth.
   - Autodesk has entered the cloud (and PLM which they once eschewed) via PLM 360 as well as entering the CAM market in a big way with multiple acquisitions.
   - Synopsis headed for Software Management as well.
   - Dassault further diversified with its purchase of SCM company (Quintiq) and Data Analytics in Lifesciences (Accelrys), following their recent spending spree in retail, in addition to continuing their torrid acquisition pace of CAE companies.
4. CLOUD and SOCIAL MEDIA: As we predicted in our introductory report on M&A in Manufacturing Automation, there has been a slowing volume of acquisitions of social media tools as most major players appear to have acquired the needed technology. On the other hand, there continued to be some acquisitions of cloud based tools, but the trend toward applications and services is clearly the predominant trend. See also section 6 below.
5. SYSTEM INTEGRATORS: We continue to see significant consolidation among System Integrators as smaller companies seek scale and off-shore cost advantages with which to compete, and larger companies battle for market share by seeking to penetrate niches through acquisition of rare domain expertise. In addition, SI's are looking for enabling technologies which can provide competitive advantage, or a market for their Tech Enabled Services. Since Mirus sold a smaller system integrator (www.merger.com/Integware) to exactly the above profile, we have seen substantial consolidation of activity among other small SI's as well as acquisitions by major corporations. This will continue until the supply of talent is exhausted.
6. PAAS: With the demand of manufacturing companies for industry specific solutions, proliferation of the cloud, formation of mega-system integrators, and the attractiveness of Software as a Service pricing models, Mirus sees Platform as a Service as the next wave in product delivery. Delivery of a preferred solution through a large reliable System Integrator, customized and maintained to customer requirements and paid for monthly, without huge capital outlays is an attractive proposition. We are already seeing SI's making strategic purchases to enable delivery in this method, the preference of PLM and ERP suppliers to work with a few large SI's. Watch this space for more news as this trend develops.
7. CAM: In August of this year, Mirus wrote about consolidation in the CAM market (www.merger.com/consolidation) Over the last few years, more than a dozen smaller companies have been gobbled up or merged with like entities. 2014 was no different as Autodesk continued to reposition itself as a major CAM player with acquisitions of Delcam and Magestic Systems (www.merger.com/Magestic), Siemens PLM recently announced their intent to purchase CAMStar and 3D Printing company 3D Systems (see more below) bought Cimatron (which included GibbsCAM). The consolidation will continue until there remain just a few major CAM competitors akin to

their CAD counterparts. Smaller companies will find it increasingly difficult to compete against these behemoths, who will in turn continue to acquire to complement existing capabilities until their portfolios are complete.

8. 3D PRINTING: Consolidation in 3D printing continued into 2014 with the Stratasys and 3D Systems leading the charge closing 6 and 3 deals respectively. These leaders along with several new entrants are positioning themselves to be "one stop shops" for all 3D printing needs across a growing number of industries. While industrial applications (Aerospace) explain most of the industry's 25% growth rate, new verticals are emerging such as medical device that support continued future growth. Many of the 2014 acquisitions we observed "followed the money". Stratasys acquisitions of Solid Concepts and Harvest technologies added the largest 3D printing service bureau in the Northeast and specialized expertise in aerospace respectively. Stratasys also added GrabCAD for file sharing while 3D Systems had previously added elements such as Geomagic and Freeform to further their design capability over the last couple of years. 3D also acquired Arcam AB, which specializes in medical modeling and additive manufacturing solutions for orthopedia implants.

   An emerging player, MakerBot has taken yet a different tact providing design and printing services (in addition to equipment) through its "Innovation Center" and the acquisition of Layer by Layer, a technology provider which will be used to improve access to and digital rights management system for 3D printable files. This acquisition speaks to our expectation that software companies that help drive overall user adoption to be hot targets in 2015. From the variety of activity, clearly 3D Printing is an area which is still evolving and growing with the major public corporations yet to engage in a meaningful way. Autodesk, however has announced that it will be investing up to $100 million in 3D printing companies over the next several years. AutoDesk claims "The Spark Investment Fund, which will be operated within Autodesk, is the first of its kind for the 3D printing industry and will invest in entrepreneurs, startups, and researchers pushing the boundaries of 3D printing technology and accelerating the third industrial revolution." Watch this space in the future. It is far from over.

9. FUTURE WILD CARD: What will become of SCM and related CRM? This high growth sector seems to be under assault again by the larger (and lower growth) PLM and ERP companies. Privately held ERP Company Infor's acquisition of Saleslogix (SRM) and PLM Company Dassault Systems' quiet acquisition of Quintiq (SCM) are this year's examples that reinforce Oracle's PeopleSoft 2004 acquisition. Further it has long been the desire of several PLM companies to combine with ERP, while ERP companies have consistently eschewed the possibilities despite the clear issues with BOM resolution (see www.merger.com/BOM) Will SCM be the lynchpin for change? Will we see a mass merge of SCM and ERP or PLM companies and subsequently further consolidation of ERP and PLM forming massive Manufacturing Automation Companies? Watch this space…

SUMMARY AND 2015

2014 was another banner year for M&A in Manufacturing Automation. Stock markets are still up, cash is plentiful and despite a dip from 2013, mid-market and software M&A is strong. Major MA leaders are placing bets on evolving technologies and trying to re-establish growth with the notion that one or more may be the next wave of the future. Often these thought leading technologies are transacting at significant premiums, highlighting the scarcity value of truly unique, differentiated technology and domain expertise.

Q4 specifically was a bit light, but while acknowledging BNY Mellon's position that "we are closer to the end than the beginning," Mirus sees no reason why 2015 shouldn't be on par with 2014 in terms of transaction volume in the Manufacturing Automation space.

While 2014 transactions were led by predominantly the same companies, there did appear to emerge a number of interesting trends within and between the sectors. Application acquisitions (CAM, CAE, SCM, Customs to name a few) continue to dominate (75% of transactions) often driven by the move to the cloud, but services (17%) transactions were strong as SI consolidation came on line.

From the sell side, the economic growth cycle is maturing and business owners need to start thinking about when the next recession will be upon us. Mirus expects 2015 to be on par with 2014 in terms of M&A volume. Combine this with increasing scarcity of quality targets (in fact we are seeing companies with rare domain expertise transact at significant multiples) and Mirus believes owners should be considering this time as ripe for exit. If you see yourself in this position, it may be worth a discussion on how you can take advantage of the current trends in M&A for PLM. For more information on the specifics of liquidity planning, or of the details behind the material in this paper, please feel free to contact us at boes@merger.com or alternative@merger.com, visit our blogs www.merger.com/Boes and www.merger.com/Alternative or give us a call directly.

WHAT IS MANUFACTURING AUTOMATION SOFTWARE?

Mirus has defined the manufacturing automation software industry as software and supporting services that are applied to help companies improve their operational efficiency in the design and manufacture of their discrete or process driven products. We do not plan to cover generic accounting or office automation software, unless it is specific to manufacturing. We plan only to cover retail to the extent it impacts distribution channels of manufactured products. We may touch tangentially on AEC as it relates to plant design and or as it is an interesting product line of MA vendors.

As such, Mirus has defined four, often overlapping, sub-sectors to manufacturing automation:

1. Product Lifecycle Management (PLM) including CAD, CAM, CAE, EDA, PDM, Plant Design and their different permutations.
2. Enterprise Resource planning (ERP) and all that mean. From BOM, to shop floor control, distribution and the various accounting and even HR systems in between.
3. Supply Chain Management. Design, planning, execution, control, and monitoring of sourced designs, materials and components.
4. System Integration. The strategic planning and supporting implementation services, often outsourced by software vendors that make it all come together on site.

For more information on how Mirus looks at Manufacturing Automation see www.merger.com/ManufacturingAutomation.

Peter Alternative *and* **Bruce Boes** *are partners at Mirus Capital Advisors, Inc. Founded in 1987, Mirus is a middle-market investment bank that specializes in advising companies on strategic mergers and acquisitions. By combining a proven process, industry and transactional expertise, creative thought, and personalized service, Mirus has completed hundreds of transactions for both public and private companies. Mirus is a registered broker-dealer and FINRA Member. Additional information is available at* **www.merger.com**.