

Delcam: Leading the way through excellence

Q. Delcam has gained substantial market share in machine tool industry, please brief its journey from the inception & share some its milestones?

Delcam has roots in Cambridge, when in 1965, Donald Welbourn, Director in Industrial Co-operation at Cambridge University, had the vision to see the possibility of using computers to assist pattern-makers to solve the problems of modelling difficult 3D shapes. We take 3D modelling for granted. In 1965, only crude 2D drawing systems were available using terminals linked to large main-frame computers.

Initial work at Cambridge was sponsored by the Science Research Council but finding money to support the development was a constant problem for Donald Welbourn. In 1973, Donald persuaded his friend Lord Caldecote, then chairman of the Delta Metal Group and an ex-Cambridge engineer, to send Delta graduate engineer, Ed Lambourne, to Cambridge to work on the development of the software, which had been christened DUCT. The link between Cambridge and Delta Metals ultimately lead to the transfer of the system into industry. In 1974, Donald obtained additional sponsorship from Control Data in Europe in the form of access to its powerful time-sharing computing resources. Control Data offered DUCT initially on its time-sharing bureau service, most successfully to two of its largest German customers, Volkswagen and Daimler Benz.

In 1982, mini computers with much more power at lower cost started to appear. This was a major step forward and, by 1984, the technology began to be competitive with traditional methods in many more applications. For many years, aircraft had been designed using computers but now it was becoming possible to economically design saucepans and other domestic products with complex 3D shapes using a computer.

When Donald Welbourn retired in 1983,

DUCT development continued both at Cambridge and by the small team established at Delta in Birmingham. By 1984, the Birmingham team was larger than that at Cambridge and the unique features of DUCT began to be recognised. It was one of the very few systems developed from the beginning to design and machine products. Indeed, Donald Welbourn had arranged the first public display of combined CAD and CAM technology at the Machine Tool Exhibition held in Olympia, London, during June 1972. The equal emphasis on design and machining made DUCT different from its competitors and this was appreciated by the users. Most other systems had developed 2D drafting first, followed by 3D modelling with machining added later.

Since 1977, the demonstration activity in Birmingham had gradually been developed with additional machine tools being installed and a sub-contract programming service being added. This was now a separate commercial activity, Deltacam Systems Ltd, which by 1985 employed 15 people. This direct practical experience was very helpful in defining customers' needs of the software and in testing new developments.

In 1989, Deltacam Systems Ltd was bought from the Delta Group in a management and employee buyout led by Hugh Humphreys, the Managing Director, and Ed Lambourne, Technical Director. The company was renamed Delcam International

in 1991 and moved to a new purpose-built building in Small Heath, Birmingham, in October 1991.

Until then, DUCT had remained the company's sole program. However, in 1993, Delcam introduced its first new software, ArtCAM. This was a different type of software aimed at artistic applications rather than the engineering industry. It subsequently became popular in a range of industries including signmaking, woodworking, engraving and jewellery manufacture.

Overseas activities had continued to develop in the later years within the Delta Group but this was expanded significantly after the company became independent. There was a strong emphasis on forming subsidiaries and joint ventures in the most important countries, in-



Vineet Seth
Managing Director –
South Asia & Middle East,
Delcam Ltd., UK, ASEAN Business
Development Director,
Delcam Professional Services Ltd., UK

cluding a wholly-owned subsidiary in North America, to sell to the region's massive manufacturing market. The success of its international business saw Delcam win the first of its six Queen's Awards for Industry, with an Award for International Trade in 1991. Delcam has since won five more Queen's Awards, for International Trade in 2005 and 2010, and for Innovation in 2003, 2004 and 2011.

In July 1997, Delcam plc was floated on the Alternative Investment Market (AIM). In preparation for this, Delcam UK was established to focus on UK sales and customer support. The funds generated by the floatation were used to increase the size of Delcam's headquarters in Birmingham, to recruit more staff to the development team, and to grow Delcam's sales and marketing teams.

The increased investment in software development allowed Delcam to develop a new range of stand-alone products to replace DUCT. The first of this new generation of software was PowerMILL, which soon became established as the world's leading stand-alone milling software. It was followed by the PowerSHAPE CAD program and the PowerINSPECT inspection software. Despite being affected by the Asian economic crisis in the late 1990s, Delcam continued to increase its market share. By 2000, the company's sales had grown to the extent that Delcam was ranked as the world's leading specialist supplier of NC software and services by the US analysts, CIMdata. Delcam held its leading position for the remainder of its thirteen years as an independent company.

In 2005, Delcam consolidated its position with the acquisition of the US-based CAM software specialists Engineering Geometry Systems, the developer of the FeatureCAM CAM software line. Introduced in 1995, FeatureCAM was the world's first feature-based programming system.

In the following year, Delcam further expanded its range of software with the acquisition of the business and fixed assets of another US-based company, International Manufacturing Computer Services Inc., the developer of the PartMaker suite

of CAM software. The PartMaker range includes the industry-leading applications for the programming of multi-axis lathes, PartMaker SwissCAM (for Swiss type lathes) and PartMaker Turn-Mill (for turn-mill centres with live tooling).

A third important addition followed shortly afterwards with the acquisition of Crispin Systems Ltd., one of the leading specialist suppliers of software to the footwear industry. This acquisition confirmed Delcam's position as the world's leading supplier of CAD/CAM systems to the industry. The expanded company continued to grow at a rapid rate. Having taken until 2004 to reach 10,000 customers, Delcam announced its 20,000th customer in 2007 and its 40,000th client in 2012.

Delcam was acquired by Autodesk, Inc. on February 6th, 2014. Delcam now operates as a wholly-owned, independently-operated subsidiary of Autodesk. Autodesk, Inc. is a world leader in 3D design, engineering and entertainment software. It has more than 8,000 employees worldwide and is headquartered in San Rafael, California.

Similarly, Delcam India too had very humble beginnings. After initially being represented by various well known technology companies like Wipro & EDS Technologies, Delcam set up direct operations in India in the year 2000. I was the first employee of Delcam in India and I started off with a small but highly competent team of four professionals as a branch office of Delcam International.

In 2002, we registered as a private limited company and soon became a wholly owned subsidiary of Delcam plc. Delcam India has had a consistent growth since it was established. From a team of five to the current strength of 125, we have come a long way. In due course we have also set up 15 direct offices across India and are proud to have a - sales to technical staff ratio of approximately 1:4. Our success is largely due to our support & close collaboration with customers. As of date we have more than 3000 customers and counting, in the Automotive, Aerospace, Toolmaking, Energy, Consumer Goods and Woodworking domains – amongst others.

Q. Please brief us about company's global reach & what are the global alliances that have been made in order to out-front the competition?

Delcam has 300 offices across 80 countries. One of the most important reasons to have direct presence across the globe, is to maintain consistency in support, training and co-operation with technology partners. Long standing employees help build and maintain long term relations with customers and partners, which speaks volumes of stability of the company as far as knowledge capital is concerned.

In order to keep ourselves well differentiated from competition, we have done many things that are viewed as trend setting in retrospect. As a company we have always believed that investing continually in research and innovation is the way forward – and to this effect, we still continue to invest a substantial amount (25% of our revenues) into further development of our products. We also work with many industry partners including - but not limited to - Machine Tool Manufacturers, Cutting Tool Manufacturers, Industry Clusters, Consortia etc., to develop innovative solutions in CNC machining, metrology as well as emerging trends like Additive Manufacturing & Robotic Machining.

We have also been working regularly with Academia and Technology training centres to research new methods in NC manufacturing. All of the above factors have helped us engage with & address the practical aspects of our technology far better than our competition. The very fact that we have our own Advanced Manufacturing Facility in Birmingham allows us to try our software in-house before supplying it to customers. This added confidence and reliability of our software also make it a system of choice for many in the business.

Q. What are the market prospects for the Delcam products in India and how do you plan to position these products?

In the CAD/CAM scheme of things, India is largely dependent on the Automotive sector for Manufacturing growth. As a re-

sult, Toolmaking industry tends to be one of our largest focus areas, followed by the Aerospace segment. Packaging, General Machining, Medical Component Machining, Woodworking are other areas of focus which have been growing steadily in the past 5 years. Aply, we have different products for different markets and market requirements.

PowerMILL, is Delcam's core 3, 4 and 5 Axis milling product, a stand-alone CAM system that produces NC toolpaths from CAD models quickly. It is extremely powerful, yet easy to use, and generates roughing and finishing toolpaths which optimise the productivity of CNC machine tools, while ensuring the highest quality machining of models and tooling. Delcam has been at the leading edge of High Speed Machining technologies for many years, helping customers such as Magna Automotive, TATA Group and First Auto Works machine components in the shortest possible time. PowerMILL is used in the following industries – aerospace, automotive, energy, electrical appliances, footwear, ceramics, packaging, toys and sports equipment.

PowerINSPECT is the world's leading hardware-independent inspection software. It can be used with all types of measuring devices, including all major makes of CMM, as well as with portable measuring equipment and machine tools. It provides a single platform for all inspection needs, boosting flexibility and minimising training costs. PowerINSPECT is used in the following industries – aerospace, automotive and energy.

PowerSHAPE, Delcam's Tribrid Modeler, provides a complete solution for both product design and toolmakers. Whereas designers are primarily concerned with the design of a finished product, often ignoring the features required for manufacturing, mold and toolmakers require a complete model. It is also a complete point data manipulation solution, enabling engineers to quickly and accurately bridge the gap between the physical and digital world. PowerSHAPE is quick, simple and interactive, offering even casual users the power to quickly solve engineering

problems, from copy milling to feeding free form organic surfaces into the design process.

PowerSHAPE Pro places Reverse Engineering in the hands of designers by offering a CAD based approach to capturing the design intent of a part or tool. PowerSHAPE is used in the following industries – aerospace, automotive, energy, electrical appliances, footwear, ceramics, packaging, toys and sports equipment, jewellery and signmaking.

ArtCAM is a unique software program designed to produce decorative products directly from 2D artwork quicker than you ever thought possible. It can output to over 350 machine tools, enabling one to choose the right machine for their business. ArtCAM is used by 1000's of users, worldwide, across a vast range of industries, successfully enhancing their product ranges and their profits. ArtCAM is used in the following industries – automotive, footwear, ceramics, packaging, jewellery, woodworking and signmaking.

FeatureCAM offers the ultimate in programming automation for production machining. Introduced in 1995, FeatureCAM was the world's first Windows-based and feature-based milling system. The product range has grown significantly to include turning, wire-EDM, mill-turn packages and feature recognition for imported CAD files. FeatureCAM is used in the following industries – aerospace, automotive and consumer goods.

PartMaker SwissCAM is a patented system that defies comparison in automating the programming of Multi-Axis, Sliding Headstock Swiss-type lathes. PartMaker applies a Patented Visual Programming approach with "divide and conquer" programming strategy to simplify the programming of CNC Swiss-Type Lathes. The software helps the operator break a complicated part surface into a set of planes or faces. Machining tasks, such as turning, plane milling and cylinder milling are carried out separately for each face in an intuitive manner. This software is typically used in the medical and electronics industry.

Crispin FootwearCAD suite is a

PC-based system which is made up of several software modules. Each module can be used independently of the others and combined give a full Shoe Design to manufacturing solution, including a comprehensive production instruction system. CRISPIN provide the only complete footwear CAD/CAM solution that is designed to help speed up footwear design and manufacturing processes and reduce product time to market. CRISPIN offers a comprehensive, powerful, yet easy-to-use footwear design and manufacturing solution that requires minimal training. This is majorly used in the Footwear and Medical (orthotic & orthopaedic) industries.

Q. Can you brief us about the marketing strategies that were applied in order to stand out in the competition of the industry?

Delcam has always tried to lead the way in our every offering. Whether it is the speed and efficiency of our CAM products or the innovative methods of our artistic CAD/CAM product or the versatility of our tribrid modelling & metrology products, we have been the fore runners in innovating. Alongside this innovation, we have always believed that we need to partner with our customers and associates in order to educate the market about the innovations that we are working on and their subsequent benefit to the industry.

We have made every effort to showcase our technologies at seminars, technology workshops, trade fairs, academic conclaves etc. Events like our European & Asian Technical summits showcase developments in our products in the previous year to journalists, academicians, technical partners and participating customers.

We also have a dedicated website www.delcam.tv that runs on-demand videos of customer & partner testimonials as well as success stories. To compliment these, we also have an on-demand learning zone for customers, where interactive video lessons demonstrate technical innovations that help users and managers in being more efficient. We also work with leading machine tool partners during trade shows to demonstrate interesting case-studies –live

on their machines. This practical exposure helps potential prospective customers in making on-spot decisions about commercial purchases and it leaves with a lasting impression of our collective capabilities.

Q. Brief us about the R&D and Quality policy for your business?

While this question is more appropriate for manufacturing businesses, Delcam does follow a strict quality policy for software development. Keeping software bugs to a minimum by world-wide testing through application engineers and the practical implementation of our software in our Advanced Manufacturing Facility in Birmingham, we ensure that we don't treat our customers as testing sites – which is what most others end up doing eventually. As far as the R&D policy goes, both Delcam and Autodesk have firm belief that increased investment in R&D as well as innovation will help us in being industry leaders – thereby making sure that our customers are more likely to succeed in their business by using our software and services.

Q. What are the key technological trends that are driving your industry?

The CAD/CAM industry, as I had mentioned a few years back, is currently undergoing consolidation. A very big reason for this is that CAD/CAM software will not continue to be used as they are currently being used in the near future. Manufacturing technology is undergoing many disruptions and CAD/CAM needs to be in a position to support any changes that result out of this.

The key technological trends in our industry currently are Multi-Axis & Multi-tasking machining, Robotic Machining, Bespoke process automation, Unified manufacturing process, Flexible manufacturing systems and Adaptive manufacturing. A new and upcoming trend would be that of 3D printing or additive manufacturing and it holds a lot of promise for high value component manufacturing such as those in Aerospace.

We are also looking at beyond these trends ahead into the future. Autodesk's

Future of Making Things is a good example of how we as an organisation are laying the foundation for integrated and smart manufacturing methods connected via IoT amongst others.

Q. Could you brief us on Indian & Global perspective of machine tool manufacturing industry? What are the distinguishing factors?

The biggest differentiating factor between the global perspective and Indian perspective of the machine tool industry is Innovation. Where global machine tool companies look at expanding the envelope, many Indian companies are still trying to make "similar" products. There are a few Indian companies that are an exception and are on par with global manufacturing innovations, but the former are a larger crowd. Also, there is a big focus on high precision machine tools as also the reliability of such machines by Machine tool manufacturers outside of India – very specifically in US, Europe & Japan.

The positive side is that there is a huge potential for growth for Indian machine tool manufacturers and they are currently gearing up for this.

Q. Please comment on the current machine tool scenario in India?

On the commercial front, it is a field day for most Indian machine tool manufacturers due to the parity in dollar exchange rates. Save a handful of well known companies, most machine tool manufacturing companies in India are on their growth path now and are in the learning phase. They are now focussing more on quality issues, reliability and stability issues amongst others. This will have a positive impact on their brand in the near future.

Q. In your opinion how can the Indian machine tool industry become globally competitive?

In order to be globally competitive, Indian machine tool manufacturers need to offer the best quality at affordable rates, delivered quickly and followed up closely by post-sales support.

Maintaining delivery timelines, product

service & support should be the focus at the moment. Since this state is true for all, the only thing that would set an organization apart is its ability to not just supply... but to adequately support customers as well. In addition to this, it is a great time to "educate" the market on "technology of the future" - as that would help companies get branded in the right perspective. Also a great time to "Collaborate" with industry associates/partners that have similar synergies and provide a unified solution system to the customer.

We should make good use of the Make-in-India campaign to launch a new revolution which will make a positive impact on customers buying Indian machine tools.

Q. How do you perceive the future of the Indian machine tool industry?

The future of the Indian machine tool industry is bright. The IMTMA's commendable efforts in unifying manufacturers under a single umbrella, providing training and testing facilities at various centres across the country as well as sharing best practices through international forums will certainly ensure that quality and productivity will get a boost in the years to come. Also with the emphasis on training, young engineers are being groomed to take on the challenges in the industry and I'm sure that they will be armed with better knowledge through training and experience of their peers alongwith technological advancements in computer science to conquer these challenges.

Q. What is your vision for Delcam?

Delcam is a company with a rich culture and knowledge capital. As part of the larger Autodesk organisation we look forward to contribute our experience and knowledge to the bigger picture – Future of Making Things.

