

'THE REAL VALUE OF A MAP IS IN BEING REAL-TIME'

IN AN EXCLUSIVE INTERVIEW WITH **SANJAY KUMAR**, CEO OF GIS DEVELOPMENT, **OLA ROLLÉN** SHARES HIS VISION ON FUTURE TRENDS OF GEOSPATIAL INDUSTRY AND HEXAGON'S ROADMAP FOR MARKET DEVELOPMENT AND HARNESSING ITS POTENTIAL

Hexagon is originally a scientific instrumentation company with expertise in metrology and engineering. How did it all begin?

Hexagon started as a 3D measurement company and not really as a scientific instrumentation company. When we started expanding our 3D measurement capabilities, we started off our operations in metrology and engineering. We then tossed around with ideas on what all we could do with the sophisticated 3D software capabilities we had.

We looked at this from two different perspectives - CAD world and GIS world. Looking at the CAD world, for instance in the case of design of a car, it has many components and while designing using sophisticated CAD capabilities, those components form the basis for the final product and from CAD processes we generate certain commands on how to manufacture these products. Those commands will be the basis for programming drilling machines, turning machines and other processes and from these operations, we generate several components. Hexagon has traditionally been at this stage of the industrial world to check these components and create Direct CAD Interface (DCIs) to reference the actual component against the original CAD drawing. This is the step wherein one could determine the quality of the components and accordingly decide on the next steps.

The next step is assembly process at an industrial site wherein Hexagon is heavily involved in guiding and monitoring robots and reducing cost and increasing productivity by analysing CAD files against the real world objects.

What motivated Hexagon to enter the geospatial market?

Having said that the analysis and relationship of CAD drawing with the real world is very unique to the core business of Hexagon, we realised that this is not happening in the field of civil engineering, housing and infrastructure. A few obvious questions that arose in our minds were - why don't we use these processes and methodology of DCIs to increase productivity and quality while building a large plant, bridge or motorway? Why don't we take the learning from industrial world wherein these methodologies and processes have been successfully used for more than 100 years?

Against this background, our interest in GIS and geodetic applications stems from the desire of using knowledge which could measure components and complexity of building houses and infrastructure. Building a small, traditional house may not require such a high level of measurement and processes, but today we have a variety of businesses like plant and production management wherein these measurement tools could be

effectively used. These businesses have complex products and therein lies the possibility to measure their components and put them together to create a final product. For instance, a nuclear power plant has a fairly complex set of operations and processes. Their components can be measured through CAD capabilities and further complemented by scanning technology that can capture each and every object and convert them in 3D models. That's where the combination of Intergraph and Leica Geosystems' capabilities with the existing capabilities and experiences of Hexagon makes valuable sense. In such an instance, content measurement capabilities of Hexagon are strengthened by scanning technology of Leica Geosystems and CAD/ GIS capabilities of Intergraph. In a nutshell, Hexagon still has measurement technology at its core while the acquisition of Leica Geosystems and Intergraph has strengthened its position in scanning and GIS technologies.

Having entered in geospatial market with acquisition of Leica Geosystems, Hexagon has kept on marching with its journey with many more acquisitions. But the latest acquisition of Intergraph has been the largest not only for Hexagon, but also for the core geospatial industry. What has been the rationale for the same and how does it fit into your agenda?

“

Our rationale is to provide the entire measurement cycle and deliver real-time information to our customers about their business and associated activities

”

Ola Rollén

President & CEO, Hexagon AB

Having derived the value of scanning, sensors and camera capabilities to capture each and every object of business and processes, which made for an appropriate combination and extension of Hexagon's offerings of measurement tools, there still was an important missing link in the whole process, namely GIS and CAD capabilities. So the rationale is clearly visible and that is to provide the entire measurement cycle and deliver real-time information to our customers about their business and associated activities. I believe GIS is all about maps and that it is now a public commodity. There are several companies like ESRI, Google, Intergraph and Microsoft providing GIS tools and maps. But the real value of a map is in being real-time which can actually convert a map into an activity rather than just being a static map. It requires much quicker capabilities to

capture the ongoing activities and update the same in a map in real-time. For customers in the business of defence, security, infrastructure and transportation, real-time information is very critical. And that's where real-time information of an activity being captured by scanners, sensors and aerial cameras could be analysed and represented by using GIS tools. So this offers a combination and synergy between the capabilities of Intergraph and Leica Geosystems. Against this background, GIS is an important component of our business. Not necessarily as standalone GIS, but as a part of the system.

What are the key business drivers for Hexagon?

The changing pattern of global economy is the major driving force for Hexagon's business. In the past 100

years, about 90 percent of the global economy was concentrated in Europe, North America, with significant presence and purchasing power of middle class being the main engine of the economy. But in the past 10 years, Western societies lost their balance. The emergence of stronger middle class in countries like China, India and Brazil is primarily due to the fact that the cost of a middle class resource in these countries is 1/5th of that in Western economies and that determines business policies to invest in building their capabilities in emerging markets. Another significant change that is taking place is the emergence of labour arbitrage that will squeeze the western middle classes for purchasing power even more. Eventually things in the global economy will get back to equilibrium and we will see the emergence of a strong global middle class with

“The changing pattern of the global economy is the major driving force for Hexagon's business. Hexagon remains focussed on constant innovation”

greater purchasing power. What has been driving this is the price and productivity comparison between, for example, engineers from emerging markets with respect to that from Western countries. Given the low prices, companies are inclined to provide salary incentives on a regular basis which motivates them to deliver

better. If you look at the growth of income in the US, the top

1 percent of people grew 74 percent in the past few years while 99 percent grew about 30 percent which is equivalent to the inflation, which essentially means they had no growth. Similar situations emerged in the employment

scen-

nario wherein millions of people lost their jobs and in order to control this situation, government provided stimulation and created 10 million new jobs. But then these jobs were created in health, education, government and social sector and about 6.6 million jobs were lost in manufacturing and engineering, making them lose a competitive edge.

Typically in an economic recession causing unemployment, the government steps in with stimulus packages and invests in building infrastructure and public utilities and in the process provides employment to its citizens. But what changed in the recent economic recession is that though the government provided stimulus packages to companies, jobs were created overseas to remain competitive and profitable, resulting in a situation where unemployment continues to be a challenge.

Against this backdrop, Hexagon remains focussed on constant innovation and continues its investments in emerging markets of Asia (especially China and India) and South America. China will continue to be our top priority. Hexagon has 20 percent of its revenues from China which reduced to 15 percent with the acquisition of Intergraph but we will quickly rebound to 20 percent and are targeting at getting 30 percent of our business from China in the next five years. India shall be our second largest market in Asia and in next five years, we expect Asia to form over 50 percent of Hexagon's business revenues. This situation will likely motivate us to shift our headquarters to Asia.

Broadly speaking, we will continue to provide leadership to business opportunities in North America and Europe, but our major growth will be driven out of Asia and South America. At present, we have about 38 percent revenues being generated outside Europe and America, which is likely to grow to 60 percent in the

next five years. We think that China's growth path has increased demand for nickel, copper, oil, coal and minerals. Countries like Brazil, Indonesia, Mexico, Venezuela, Kazakhstan, Chile and Middle East will benefit from this growing demand and to take advantage of the same, these countries will need to invest in cadastre, infrastructure and utilities. Interestingly, the case of India is quite different. India's growth is fuelled by developments within the country. It is more driven by the purchasing power of middle class within the country and it will be an interesting market for Hexagon. At present, India contributes 3 percent to Hexagon's business which is equal to our revenues from entire South America. Industry-wise business drivers for Hexagon are agriculture and food; infrastructure; mineral resources; utilities; power; constructions; security; and urbanisation.

It is estimated that population will grow to nearly 10 billion in the next 30 years which means greater demand for food in general. On top of this, the burgeoning middle class with better purchasing power will demand better quality of food, creating extra demand for agriculture and food processing industries. Hexagon looks at this as an opportunity to invest heavily in precision farming and develop solutions to improve productivity. We need to be more intelligent with agriculture production. For instance, measurement companies like Leica and Trimble do provide steering equipments for tractors in the field. Leica also has airborne sensors, but there is no connection. With Intergraph's capability, we can fly over a field and colour-reference it using GIS and present it to an agronomist for improved decision making while providing an analysis on what is going on in the field. Based on standards set about 100 years ago, we normally leave 45 cm gap between seeds. The same can now be reduced



to 30 cm with an application of GIS and measurement tools, leading to dense agriculture plantation requiring less water and fertiliser and yielding higher productivity. It's all about addressing deficiencies and enhancing productivity by interfacing the real world and the model world and information exchange back and forth.

Should we believe that the acquisition of Intergraph is the end of 'acquisition-journey' of Hexagon or is it just another important milestone in the ongoing process?

Acquisition is a process for Hexagon. Today, we are big enough to fund our own development, but one would wonder if that is so clever especially when advanced technologies are already available in the market. We have Erdas in our GIS portfolio but it has its own limitations and constraints. We could have gone ahead with developing and designing our own strong GIS, but we decided to acquire one of the two strong GIS technologies available in the market to save on time and begin integrating our solutions.

Though we initially made an attempt to develop more GIS components in Erdas, we soon realised that we don't need just GIS but GIS in combination with an activity. This is where Intergraph steps in, with far more sophisticated tools than ESRI as Intergraph has added computer-aided dispatch and records management tools to its portfolio. Intergraph fits into our future vision which goes beyond traditional GIS. Today, we have many consumer solution providers in GIS market like Google and Microsoft but we decided to focus on the professional market which needs more than just maps and images.

How do you propose to integrate various offerings of Intergraph and Leica Geosystems especially when

there are a few competing product lines?

Integration will be done over a period of time and we will choose one or two industries to begin with. As we select the industries, we will build a team sourced from different businesses and they will form a new unit to integrate the new technologies.

Though there are a few overlapping areas of competing product lines, on a closer look we found quite complementary characteristics. Erdas is quite strong in image processing whereas Intergraph is leading in photogrammetry. Let us take the example of airborne sensors. Leica wanted to develop mid-frame camera and Intergraph has very good mid-frame capabilities. Similarly, Intergraph wanted to develop large-frame camera and Leica Geosystems has the same already in its existing portfolio. So we will continue to develop both these technologies to suit the requirements of our customers in each segment. We also understand that people are in love with different workflows of Intergraph and Leica and wish to stay there but I think we may combine these two in future and develop next generation technologies. Another possibility is to re-organise our business to be more industry driven and our future technology developments could be driven out of these markets.

Let's take the case of agriculture. Future will require very high resolution, small and light weight cameras so that they can be used by UAVs which consume less energy. With Hexagon's current capabilities, we expect UAVs to become a major tool for geospatial applications. We have GNSS capabilities of Novatel for designing navigation models for UAVs; aerial borne sensors of Leica/Intergraph will help develop light weight high resolution cameras, while the image processing capabili-



“ Integration of various offerings of Intergraph and Leica Geosystems will be done over a period of time and we will choose one or two industries to begin with ”

ties of Erdas and geospatial capabilities of Intergraph will provide us almost real-time information of geospatial activity.

Intergraph's addition to Hexagon Group seems to have augured a new order for the geospatial industry and is perceived to have left not many choices for large geospatial companies. Do you foresee a polarisation of geospatial industry?

I think we see it as a process of consolidation of geospatial industry. First, it is very important for us to keep open standards so that, for example, companies like Trimble and ESRI are able to connect with our sensors and software. I see Intergraph and Hexagon as a solution to move away from 'Frankenstein' type solutions wherein we borrow different systems from different suppliers which are difficult to fit together in one body. With such comprehensive offerings from Hexagon, customers may get more productive systems without having to worry about communication protocols and interface standards among different components of their geospatial system and workflows. Having said that, one should never lock anyone out of the business by shutting down communication and that's where open standards and interoperability shall be the key for the industry. At the end of the day, users will be the real winners.

A general perception is that Intergraph has not been progressing well in the last ten years as compared to its position a decade back. So, was it the right time to buy and that too at such a price?

First of all, it is not correct to say that Intergraph's progress has slowed down in the past one decade. This is more of a perception of traditional geospatial community and Intergraph has been moving away from traditional to modern geospatial business opportunities. Today, Intergraph is less of a competitor to ESRI which is focussed on traditional GIS market. With regard to timing, this was the right time but it is also true that there is not just one right time. We looked at Intergraph and Leica Geosystems at the same time in 2004. We could have combined the capabilities of the two with some other company, but it's all about timing and cost of the combination. Intergraph was available for sale in 2004 at much lower price but at the same time with much lower profits.

What would be different at Intergraph under your leadership?

Hexagon will bring in more aggressive investment and re-investment to keep customer satisfaction and belief in Intergraph intact. Process, Power and Marine (PPM) business of Intergraph has grown sig-

nificantly in the last few years but I do agree that GeoMedia has not advanced as much as it should have. There is definitely an opportunity for Hexagon to turn it around. It is a great product and with capital investments of Hexagon, I am quite confident of bringing it to the required levels and Erdas will provide a great support and help in this endeavour.

Shall we presume that Erdas will get integrated with Intergraph?

Yes, we can presume that Erdas will become a part of Intergraph as it makes more sense to be integrated with Intergraph and at the same time Zeiss/Intergraph (ZI) will become a part of Leica Geosystems. There will be an exchange of technology between the two groups.

How do you intend to implement this integration and break long-lived legacies of individual companies under one umbrella?

We have adequate experience in bringing in such integration. I have been involved with acquisitions and integrations since 2001. I work from London with a purpose to connect myself better with our facilities around the world. We will have four major strategic centers i.e. Heerbrugg, Hyderabad, Huntsville and Qingdao and all these locations are well connected from London. We will

bring people from different centres to a common place and create common technology platforms to achieve large business objectives. Moreover, London is a neutral location away from Hexagon's major facilities and it helps to

keep away biases of operations while making decisions. What we need is people with right and open attitude and clever mind to achieve the laid down business objectives.

What will be the unique value proposition for end users?

The future of technology lies not only in accurate sensors, but also in enhancing productivity of people working with the technology and helping them deliver better end products. In this case, the end product is CAD and GIS that supports civil engineering structures. We need to take that view and rationalise value and cost. Common improvement will be productivity for everyone and it will always depend on specific industry segment we are talking about.

Acquisition of Intergraph, for sure, puts Hexagon well ahead of other geospatial companies, making it the leader of the geospatial market. Such a position also puts extraordinary pressure to not just maintain the leadership position, but also to invest in market development and provide direction to the industry. What specific plans do you have to address this situation?

Hexagon is one of the leaders of the geospatial industry and we understand our responsibility well. In the short term, we have the obligation to provide a more competitive GeoMedia for traditional and loyal users who relied on it for decades. In the long term, I think it is even more important to provide a path to the GIS user to remain competitive against the large movements led by Google and Microsoft as they begin to encroach upon the professional GIS space. I think that's where Hexagon could provide a more stable solution to professional GIS community to further their profession.

