

Looking Far beyond the Horizon: Interview with Hi-Target CEO Steven Xu



These are exciting times in the geomatics industry. Innovative solutions are being developed, integration is the main keyword and the big players are acquiring smaller companies that add a new dimension to their portfolio. Europe, Japan and North America are traditional strongholds of geomatics, but several very ambitious companies from China

are doing their utmost to catch up with the frontrunners. At Intergeo 2015 in Stuttgart, Wim van Wegen took the opportunity to meet Steven Xu, CEO of Hi-Target, who was more than happy to share his thoughts and expectations with *GIM International*. [Read the interview here.](#)

(By [Wim van Wegen](#), editorial manager, *GIM International*)

Hi-Target was established in Guangzhou, China, in 1999. What were its ambitions in the early years?

Hi-Target started out as a small company. The chairman, Mr Liao Dinghai, founded the company after he graduated from Dalian University. Mr Liao served for a period in the national navy as a hydrographic surveyor before Hi-Target was founded. At that time he had the opportunity to take part in some big hydrographic survey projects in China but the equipment they used for surveying was very old and difficult to operate, even dangerous at times. Slowly and surely Mr Liao realised it was his ambition to manufacture more advanced equipment on his own to change surveying conditions in China, but it remained a dream for a while. Then, he received a chance to work on another big project, this time for Nansha island exploration. The Chinese government spent lots of money to import GPS devices for this project. Mr Liao was one of the first people to use GPS for surveying. He quickly learnt how GPS devices work, and took every opportunity to attend industry events to help him develop advanced surveying technology. Mr Liao established Hi-Target in 1999. Today, Hi-Target successfully promotes RTK production localisation implementation and occupies the leading status in China.

What are your present ambitions, both nationally and internationally?

Now that's what you call a big question! But I would like to put it simply: in our domestic market, we want to be the number one. There is a unique opportunity since the Chinese market is huge with enormous potential. We are currently making great strides so things look very promising for Hi-Target in China.

When it comes to the international market, our ambition is to become one of the most respected premium brands. We dream of being mentioned in the same breath as Trimble and Leica Geosystems. When people think of 'Made in China' they traditionally associate it with copies, low quality or even worse. But this is clearly changing nowadays. Many Chinese companies already have their own core technology. But I am keen to stress that we also believe the international market offers a lot of potential for Chinese software. Without linguistic and cultural barriers, software developed by Chinese companies will be increasingly widely used in different countries. Therefore, we think there are great opportunities on the horizon in the survey industry.

Which types of users do you focus on with your products and services?

To serve the industry perfectly, Hi-Target can provide equipment, software, solutions and services to users active in digital cultural heritage, 3D digital cities, topographic mapping, deformation monitoring, digital factories, tunnel engineering, construction BIM, street map services, urban management, mine 3D measurements, hydrographic measurements, marine engineering, marine delimitation measurements, marine resource investigation, underwater archaeological survey, marine exploration, marine engineering, underwater target tracking in the salvage industry, pipelines, monitoring of oil and gas transmission pipelines, city gas pipeline networks, dangerous chemicals, water pipeline monitoring, precision agriculture, etc.

Which major developments do you foresee in GNSS technology, and what are the implications of these developments on the surveying profession in general and the manufacturers of receivers in particular?

Future GNSS technology should be developed to be more compatible, easier to use and more cost-efficient. In view of the global growth of satellites, GNSS technology should be highly compatible with various satellite systems. Furthermore, satellite-enhanced signal acquisition

should become ever-more convenient and popularised so that people can get enhanced signals in different accuracies through various channels. It is also essential to improve cost-efficiency in order to promote the use of satellite navigation technology – and especially high-precision technology – in more industries.

In terms of the implications of these developments on the surveying profession, I expect high-precision GNSS surveying data to gain in popularity. At the same time, GNSS will be combined with other surveying technology and information technology, such as geographic information technology, total stations, 3D laser, UAV and so on. The use of mass data for surveying will lower the barriers to market entry for high-precision data. And for the manufacturers of receivers, the implications are actually quite simple: there are chances but also challenges for us. GNSS technology will be used in other industries and the market demands will increase rapidly. We, the manufacturers, have to conduct research into core technology and promote our applications to more fields, beyond just surveying – otherwise we may be out of the game.

Technology and societal needs are rapidly changing. What are your thoughts on how surveyors around the world should adapt to these changes?

Surveying used to be a relatively isolated industry but it now combines with other industries. It has become easier to enter the market for professional surveying in the open air, and some manual survey activities have been replaced by unmanned aerial vehicles, 3D laser scanning, etc. However, the working standard of data processing is higher. Therefore, surveyors should adapt by moving from front stage to backstage. In other words, surveyors should learn to use high-end equipment like unmanned aerial vehicles, better understand the demand for industry applications and improve their ability to analyse data for industry solutions.

Total stations, which have now been on the market for over half a century, have evolved into sophisticated systems packed with electronics. Which developments can surveyors expect to see in the next five years?

Future total stations will be loaded with multi-sensors, highly precise, intelligent and miniaturised. RTK and unmanned aerial vehicles will replace total stations for general measurement activities as total stations become increasingly high-grade, high-precision and advanced. They will mainly be used for large-scale and sophisticated engineering surveys, construction lofting, monitoring, track surveys, etc.

How does your company keep pace with – or even stay ahead of – changing technology and societal needs, particularly in terms of R&D?

Hi-Target is a company relying on technological innovation for long-term development. Since becoming listed, Hi-Target has been focused on speeding up the layout of the R&D team, promoting and developing technology innovation constantly with the aid of capital strength. In fact, the annual investment in R&D is more than 11% of our total revenue, we have more than 1,600 staff, over 30% are R&D engineers, and over 10% of them are professors or hold PhDs. In recent years we established several research institutes and even overseas R&D centres to research the international advanced technology and achieve successful breakthroughs in technical challenges. Now we have already mastered the core technology in satellite navigation, high-end marine and 3D laser scanning industry, established a specialised R&D team and subsidiaries for those high-end business and launched more and more high-end products with proprietary intellectual property rights, like multibeam echosounders, 3D laser scanners, mobile mapping systems, etc. In this way, Hi-Target keeps seeking technology innovation and promoting R&D strength to keep pace with the technological developments and societal needs.

Another important trend is the convergence of mobile and geodetic applications. How is Hi-Target anticipating this development?

Location-based services are opening up several new market opportunities. One is that mobile devices with different levels of accuracy will increasingly be appearing on the market based on various marketing demands. Another great opportunity is based on the mobile measuring equipment and acquisition system for street-view data. Actually the application of location information is now becoming ever-more important for wide usage.

Some people say that high precision is no longer the privilege of surveyors and that today's GNSS advances, smartphones and other low-cost equipment mean that decimetre accuracy is available to people without qualifications and specialist knowledge. What's your reaction to this? How should the profession adapt?

The key thing is to keep pace with industry developments relating to geography and location information services. What we suggest is firstly apply new technology, address the market demand with rapid low-cost access to information, update data, master the real measurement technology and try to develop the highest-grade technology possible. Secondly, in near future the surveying and mapping operation will become increasingly simple. The current mode of working will be replaced by the mode of quickly acquiring large amounts of data. Therefore, measuring personnel should focus more on the data processing and application side of things rather than how to survey in the field.

Are you working with universities to develop solutions through scientific research?

Yes! We have collaborative partnerships with Southwest Jiaotong University, Wuhan University, Central South University, Chinese Academy of Sciences, etc. In one example, our Zhejiang office has cooperated with Southwest Jiaotong University to develop a 3D technology platform for 3D pipeline development. Zhu Qing, a professor at Southwest Jiaotong University, and his team are engaged in long-term research into a 3D geographic information system and virtual geographic environment. The R&D cooperation between Hi-Target and Southwest Jiaotong University is also focused on service to develop an integrated visual geographic information solution with mass geographic data applications. The system will process true 3D data, real-time input and dynamic observations into forecasts and warnings, facilitating optimisation and control.

There are many different manufacturers of survey equipment in China today. Western countries have seen a process of consolidation over recent decades. Is the situation similar in China? In other words, are some manufacturers looking to join forces or merge with other companies, either in China or abroad?

I would say yes, the current industry in China can be likened to what Western countries have gone through in the past decades; China is experiencing a process of integration. After becoming listed on the stock market in 2011, Hi-Target merged with many businesses to expand its product lines and research abilities, such as 3D laser, indoor positioning, total stations and ocean survey. Today, we're also

interested in cooperating with research centres and universities abroad, perhaps even merging with a research team.

Your company operates worldwide. What is your business model in terms of dealer and service networks around the globe?

Yes, we are active worldwide. We mainly export surveying devices through our authorised dealers in the various countries around the world, and most of the dealers work on the basis of an exclusive or non-exclusive model. Hi-Target currently has more than 100 dealers in 70 countries. To improve our after-sales service, we have set up a maintenance centre in Hong Kong to provide services for Southeast Asian countries, and in Europe we have just opened a Czech maintenance centre. At the end of this year, we will launch a maintenance centre in America to provide better services for customers in both North and South America.

What type of company will Hi-Target become over the next five years in terms of products, services and customer base?

Over the next five years, Hi-Target will evolve and specialise in devices, system integration, data services and suchlike, providing what we call “comprehensive industry solutions” including product hardware, industry application software and support services. Examples are entire and various solutions from devices to services for 3D laser scanning, high-end sounding and positioning marine applications, and BDS applications for precision agriculture, etc.

China’s economic growth is diminishing. How will that affect the geomatics industry in China?

Our country’s economic development is transforming and upgrading from an extensive high-speed model into a quality service model. Urban construction has declined compared with previous decades but the standard of living is improving so people gradually need better quality and services. Companies with a single, laggard product may be feeling considerable pressure, but at Hi-Target we have our own R&D team and comprehensive product lines and we provide system integration solutions and services, so for us there are more chances than challenges. Extra competition will stimulate development of the whole industry, just as it has in Western economies.

Looking ahead at the geomatics industry in general, do you foresee any ‘rising stars’ that will significantly change the industry, like UAVs have done over the past five years?

To discuss the future of the geomatics industry, we must consider its development in conjunction with other related technologies such as geographic information technology. With the emergence of new technology, people can now get more rich geographic information to meet their demands for geomatics-based industry applications. As we all know, UAVs, 3D laser scanning, tilted photogrammetric and remote sensing technology are being widely used and are changing the traditional geomatics approach from small-range to large-range surveying, from earth to air and from single pieces of equipment to efficient, integrated systems which greatly improve the speed and efficiency of measurements.

I expect satellite technology to be a new rising star since small-satellite and high-resolution remote sensing technologies are rapidly maturing. As launching costs drop, they will soon become very important tools for highly efficient data acquisition. All these advanced technologies are making outside field work much more convenient. People can obtain basic data more easily and also with better quality, so the focus of development and competition should be on the interior workflow and data processing ability. I think these aspects will be increasingly important in the industry’s future development.

Biography

Steven Xu is CEO of Hi-Target Surveying Instrument. He graduated from Wuhan University, Surveying and Mapping Institute, having mastered the basic theory and key technology of geodesy, engineering surveying, satellite positioning and navigation. With more than 15 years’ experience in GNSS, GIS, 3D laser scanning, and marine technology research, Steven remains committed to the satellite navigation and positioning industry. Under his leadership, Hi-Target achieves numerous technological breakthroughs, overcomes technical difficulties and successfully offers solutions for a wide range of industries. Steven also serves as director of the Chinese national satellite positioning technology association, director of Wuhan University’s Surveying and Mapping Institute (Guangdong alumni branch) and director of the Chinese national instrument industry association (surveying and mapping instruments branch).