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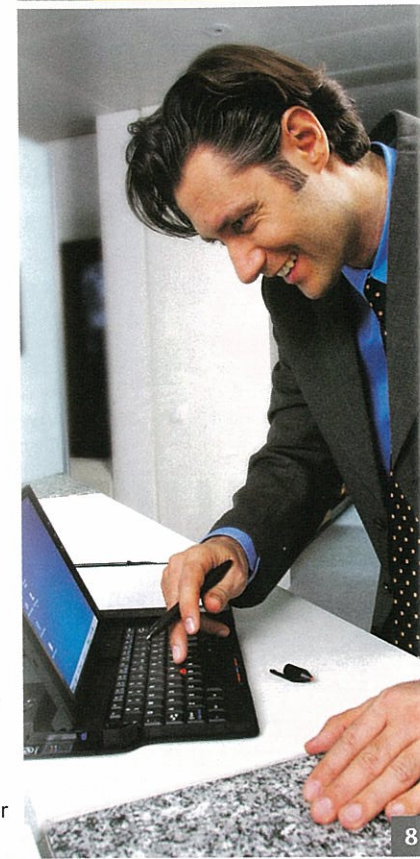
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MAVCAP – To invest in, nurture and grow the technology sector



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TERAS Technology Sdn Bhd is one of the leading payment system providers for road toll revenue collection and outsourcing services in Malaysia. As a technology company, its flagship product, Traffic Revenue and Control Systems or TRACS, has achieved international success and acclaim. The product has to date been deployed at

more than 1,000 toll lanes, both locally and internationally.

Teras pioneered the toll revenue collection system in Malaysia and remains the dominant player in the sector, serving all toll concessionaires in Malaysia, with PLUS, ELITE and Linkedua being the major players. The toll collection business in Malaysia is currently estimated to be in excess of RM1.4 billion annually, which translates to approximately 332 million vehicles passing through toll gates annually.

Teras Teknologi

International Acclaim through INNOVATION

Aside from the toll business, Teras has been busy creating and opening new markets in the area of managed services, offering network infrastructure, enterprise solutions as well as applications via an application services provider model.

The flexibility and modularity of TRACS has allowed the platform to be customised to serve parking operators through the Teras Automated Parking System (TAPS), as well as public transportation players via Teras' integrated ticketing system that makes use of the contact-free smartcard technology.

Teras's product development success came about through continuous investment in research and development, as well as its investment in a dedicated research and development team. The company has so far invested more than RM10 million in developing its technology platforms and has a team of 40 dedicated people working in its product development division.

The Journey

All of this was built on the back of a network expertise that revolutionised toll collection in Malaysia. It all started way back in 1994, when Teras was awarded the toll collection project for the North-South Highway (PLUS). The company was commissioned to design, manufacture and supply a non-stop electronic payment system. The project was valued at more than RM40 million, providing Teras with an amazing start.

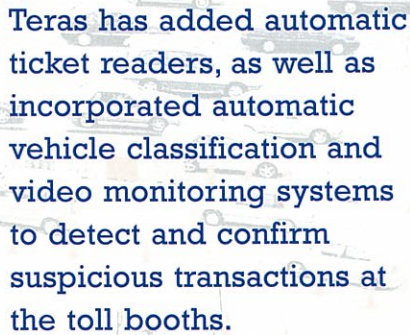
The company's success was as much about timing as it was about being in the right place at the right time. In the early 1990s, toll collection systems in use were mainly imported and suffered from the lack of real customer service or support from the foreign suppliers, who viewed Malaysia as a subservient market.

In response, the government began to identify capable local players with the ability to deliver a more flexible and lower cost solution for toll operators. After rigorous evaluation, Teras was short-listed – and eventually, the company came out tops. The government's decision has not been in vain, for Teras now operates regionally and offers Malaysian-made products that are comparable with international players.

Teras, together with Rangkaian Segar Sdn Bhd (RSSB), the operator of Touch 'n Go; SmartTAG; and Central Clearing House System (CCHS) of the Touch 'n Go network; have established the de-facto standard for electronic payment system for Malaysia for tolls, parking bays and public transportation.



Ir Abd Rahim Seliman



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Teras has added automatic ticket readers, as well as incorporated automatic vehicle classification and video monitoring systems to detect and confirm suspicious transactions at the toll booths.



Expansion into New Markets

Plans to reach further offshore are in the works, with India, Sri Lanka, Indonesia and the Middle East all being scoped. Rapid modernisation of highway systems and transportation infrastructure is fuelling the demand for the company's products overseas.

Where Teras has an added advantage over other players is its ability to provide a holistic solution to toll operators. Its design philosophy takes in all parts of the toll collection business, incorporating information at the toll lanes through to the plaza control (local hub) and eventually, connecting all plazas with the headquarters for control and management.

The future of the system seems to be anchored on more advanced technology. Teras is looking into investing more to strengthen the TRACS solution, to extend it beyond the toll collection system that has integrated the payment system with parking collection and public transportation systems to eventually cover retail purchases and transactions as well.

The toll systems have already been given added technology impetus. Teras has added automatic ticket readers, incorporated automatic vehicle classification and video monitoring capturing systems (VMCS) to detect and confirm suspicious transactions at the tollbooths, next generation rubber-type Automatic Vehicles Classification (AVC) System and SmartTAG Upgraded Version (SUV).

Looking for Partners

Teras now wants to increase its partnership reach by working with more public listed companies and smaller corporations, and is actively seeking partners. It is looking for business collaborations in the area of automated payment processing and traffic management systems, technology outsource services as well as surveillance

The next expansion sight for Teras is to move into Licence Plate Recognition (LPR) technology and Recyclables Transit Ticket (RTT), an impetus into the deployment of Multi-Lanes Free-Flow (MLFF) and Area Road Pricing (ARP) in Malaysia.

Coming On Stream: Managed Services and Surveillance

Aside from the TRACS, Teras has also developed two other lines of business, focusing on managed services and surveillance and control systems.

Its managed services business supports United Engineers (M) Berhad (UEM Group), PLUS Expressways Berhad (PEB), ELITE, Linkedua, Intria (now known as UEM Builders) as well as UEM Land. They manage the entire back office operations, network security as well as the application development needs of these companies.

Teras's managed services offering provides these companies lower operational costs and better management of their technology assets, and they get to leverage on Teras's expertise in customised product development as well as operational challenges in running an in-house information technology department. In this field, Teras also lists IT networking for Malaysia' 1998 Commonwealth Games and the design, supply and project management of TIME Data Centre as its key achievements.

Another business area that is rapidly gaining traction for Teras is its integrated surveillance and control system (ISACS). This

system uses the TRACS platform to offer a combination of surveillance and access control systems that offer both scalability and networked security for door, gate and human movement access and tracking needs deployed at over 100 sites throughout Malaysia.

Teras has developed a unique surveillance and access system development for Ledang Heights Bungalow Park at Bandar Nusajaya, a high-end housing community in Johor. The surveillance system incorporates control within the gated housing estate scheme by combining Teras's access and tracking system, which is networked by the security stations, and supported by guards on ground patrol.

The uniqueness of the system is further enhanced by incorporating the Touch 'n Go and SmartTAG systems into the secure and access environment, the first of its kind deployment of the system outside tollbooth and parking environments. The cross-over just doesn't stop here. Teras has broadened the card access system to be able to incorporate payment solutions within the gated community for clubhouse facilities and maintenance fees in the future.

This type of product development is enviable, as it allows proven technologies tested in high throughput environments, such as toll collection, to be deployed in niche yet lucrative market segments. Teras is emulating what automotive manufacturers have effectively done, by transferring motor sport technology into their consumer models.

and access control systems. The concept promises potential partners an opportunity to customise their payment and network management systems to address new and emerging markets.

With all of this in place, talk of a listing is reverberating through the industry. Teras, though, is cautiously optimistic and is looking at market conditions before embarking on a capital raising exercise of that scale.

Nevertheless, it continues to remain a fine example of how government policy on localisation has created a sustainable business.

The difference between companies offering similar opportunities seems to be that Teras is backed by a management team that is competent and is prepared to take head-on the challenge of creating new products and opening up new markets.