

The Cyclops Vision

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Executive Summary

Cyclops Technologies, the brainchild of visionary entrepreneur John Chigos, is a company with a tight focus on the future. The Company is currently in the midst of a 4-phase plan that will see it become one of the dominant players in the marketplace of Video Data Intelligence. Phase I, which involved the creation of the world's first software-only solutions for License Plate Recognition (LPR) and LPR-based video analytics, is complete. The products created during this period, PlateSmart Mobile LPR and ARES (Automatic Recognition Enterprise Solutions), are selling well and have earned acclaim from clients and industry peers alike. Phase II, the phase that Cyclops is currently engaged in, has seen and will see the completion of important sales of ARES in the governmental and commercial sectors. It will also see the full integration of the ARES software with Video Management Systems (VMS) from such security industry giants as OnSSI, Exacq, and Pelco by Schneider Electric, among others. Cyclops is also in talks with Milestone, the largest and best known VMS maker in the industry. Finally, this phase will see the rollout of Cyclops' cloud-based services, already in beta testing.

With Cyclops ever mindful of the rising dangers worldwide from such threats as ISIS in the Middle East, Phases III and IV will involve the expansion of ARES into a complete solution for data acquisition and analysis. With LPR and related video data continuing to be the cornerstone of its functionality, ARES will incorporate facial recognition, thermal imaging, camera association, and the ability to import data from third-party sources. At the same time, the Cyclops team will be expanding the analytic capabilities of ARES, already some of the most powerful on the market, to ensure that ARES users have the best solution for providing mission-critical actionable data in real time. The data analytics market, often referred to as Big Data, is currently dominated by monolithic corporations such as Palantir Technologies in Silicon Valley. While impressive and powerful, the analytics offered by Palantir and others are primarily after-the-fact; in other words, in most cases, data is gathered and analyzed later. With ARES, Cyclops Technologies intends to carve out a substantial share of the data analysis market by offering something Palantir cannot—true real-time situational awareness.

Phase I

John Chigos, a successful entrepreneur in the finance game, founded Cyclops Technologies largely as a response to the terrorist attacks of September 11, 2001 (see the Cyclops White Paper entitled *The Cyclops Strategy* for more information). He chose the name for his new company based on the Greek myth of the Cyclops, a giant creature with one all-seeing eye. Chigos began with a set of proprietary algorithms he owned, his intent being to create the best solution available for the automatic scanning of license plates. Early on, Cyclops looked





at, and filed patents for, three separate schemes: (1) Radio Frequency Identification (RFID), which would have required the installation of a radio transponder on all license plates; (2) Symbol, or barcode, technology, which would have enabled law enforcement to scan barcodes on license plates using a laser scanner similar to that found in most supermarkets; and (3) License Plate Recognition (LPR), a technology based on object recognition and Optical Character Recognition (OCR) that had already enjoyed great success in Europe. Repeatedly, Cyclops found that LPR was the only practical option, and eventually ceased work on the other two technologies in order to focus on LPR.

Although LPR was somewhat effective in European markets, it faced insurmountable obstacles on North American shores due to its inability to effectively read U.S. license plates or to distinguish state jurisdictions. It was also prohibitively expensive due to the specialized camera and image processing hardware it required. The Company's first mission became to create the world's first software-only LPR solutions that would function with practically any camera and standard PC, as well as be able to reliably read US license plate numbers and state jurisdictions. The first product in this series, called PlateSmart, was a mobile LPR solution designed for law enforcement. The beta version of the software was successfully implemented at the 2012 Republican National Convention, and the final version was rolled out in 2013. In addition to doing brisk sales to law enforcement agencies since its debut, PlateSmart has been certified by independent third-party experts as the most accurate LPR solution on the market, with an accuracy of 90% or better and the ability to recognize all 50 state jurisdictions. It is capable of scanning hundreds of plates per hour and comparing them to law enforcement databases for active wants or warrants. Hits are returned in less than a millisecond.

While continuing to develop and improve PlateSmart, Chigos and Cyclops Technologies set their sights higher. Now in possession of the only software-only camera-agnostic LPR solution available, Chigos knew that there was huge potential for his line of products beyond law enforcement. PlateSmart had been an excellent start, but to create true market acceptance for his unique software-only solutions, he had to create a full-featured LPR-based video analytic suite that would integrate with existing fixed-location security systems and provide complete situational awareness in real time. That product became known as ARES (Analytic Recognition Enterprise Solutions), named for the Greek god of war. Based on the same revolutionary object recognition engine that powered PlateSmart, ARES combined industry-leading LPR accuracy with a full set of data mining features for pattern recognition, lot counts, identifying potential perimeter threats, and more. ARES can also be configured for automatic access control, allowing access to parking garages to be controlled by license plates instead of requiring ID badges and/or human supervision.





ARES proved a huge success almost from the moment of its 2013 rollout. Cyclops' first sale of ARES was to the Naval Criminal Investigative Service (NCIS) of the United States Navy. The NCIS awarded a sole-source contract to Cyclops because it had determined that only ARES could meet its LPR and analytic needs. Later that year, ARES was the recipient of the 2013 Technology Innovation Leadership Award in LPR from Frost & Sullivan. The following year, ARES won a 2014 Platinum Govies Award at the annual GovSec expo in Washington, DC. The highly coveted award recognizes excellence in government security products.

The ARES software was subsequently deployed by hospitals in the Adventist Health System, The University of San Diego and The University of Miami, among others. ARES was also adopted by The National Gallery of Art, a tremendous strategic success, and Port Tampa Bay, which handles a substantial traffic in nitrate fertilizers every year. These agencies and many more remain Cyclops customers to this day (Port Tampa Bay is currently negotiating their second purchase of camera equipment to expand their system), and have standardized their security around ARES, which is one of Cyclops' chief goals. With ARES' reputation firmly established, Phase was complete.

Phase II

In 2014, Cyclops and CEO John Chigos have turned their attention toward the next development phase of their revolutionary ARES solution. With a slow economy causing higher costs in most sectors of the marketplace, software solutions available in the cloud on a subscription basis are rising in popularity worldwide. Cyclops believes that this can apply to security and video data analytics as well. As a rule, video surveillance systems require a great deal of infrastructure and do not provide much functionality beyond recording and monitoring. Many public and private agencies purchase such systems but forego implementing any sort of video data analytics or intelligence technology because the quality and availability of such technology is limited—a great deal of human intervention and supervision is still required. Cyclops decided that its LPR solutions, which are automatic, intuitive, and powerful, needed to be offered as cloud-based subscription services. This is a model generally known as Software-as-a-Service (SaaS).

A beta version of the ARES SaaS solution has already been certified and vetted for use by federal agencies through Amazon's GovCloud web service, and is the only LPR/analytics system to be vetted by Amazon. In this configuration, subscribers are charged on a per-click basis, and only pay for the LPR and the analysis they need. The network infrastructure is completely offloaded to the hosting provider (Cyclops) and with industry-leading security and best practices, real-time monitoring is just a click away from anywhere in the world, while maintaining system and data integrity. In addition, a cloud-based solution provides a



much easier means to seamlessly integrate different devices into the ARES umbrella. Mobile applications, desktop applications and websites can all be powered by a common system with a simple configuration to the end-user.

Cyclops' internal research shows that the SaaS version of ARES will not only be a substantial cost and labor savings for clients, but also a major source of revenue for the company. Clients who purchase ARES licenses, with all concomitant maintenance and upgrades packages, earn the Company approximately \$XX per month per license. Subscriptions to the cloud-based service, on the other hand, will earn the company approximately \$XX² per month per subscription, depending on the Company's final pricing structure.

Estimated completion and rollout for the ARES Cloud service is Q4 2014 or Q1 2015.

Phase II will also see the completion of several ARES integration projects that Cyclops has undertaken with security industry giants such as OnSSI, Exacq, Pelco by Schneider Electric, and Milestone. ARES is the only LPR product that integrates with all of these products. Part of the original design of ARES was the ability to integrate with security systems and cameras that clients were already using; indeed, this integration ability has been the key to the success of the product with many Cyclops clients. By the Fourth Quarter of 2014 or the First Quarter of 2015, the aforementioned security vendors will offer ARES as a standard add-on to their Video Management Systems (VMS).

In addition, Samsung will offer ARES as the only available LPR software for its new openplatform surveillance camera system. In fact, Samsung was so keen to incorporate ARES into its new product that it actually redesigned a camera with more processing power specifically to accommodate the ARES engine. This camera, the first and only one of its kind, will be announced at the ASIS show at the end of September.

Finally, during this phase the Cyclops team is developing new expansions for the ARES object recognition engine that will allow for facial recognition, thermal imaging, and camera association. These new data acquisition schemes will be implemented during Phase III.

Meanwhile, PlateSmart Mobile LPR continues to prove itself on an international scale as well as domestic. By the end of September 2014, Cyclops will begin an install of PlateSmart in Kosovo through the U.S. State Department for the use of local customs and police for protection of the American embassy. In Quarter 4 of 2014, Cyclops will begin a series of PlateSmart installations for the Emir of Qatar through one of the largest private contractors in the Middle East. This series of contracts, once finalized, will involve installing PlateSmart on somewhere between 200 and 1000 vehicles.



Phase III

The next phase of development for Cyclops Technologies will be the expansion of the ARES software to include new data acquisition methods, including facial recognition, thermal imaging, and camera association. The goal will be ultimately to link this new incoming data with a license plate, as approximately 75% of all crime is linked to a vehicle. Creating this link will open up a gateway to comprehensive profiles of wanted individuals and make their movements easy to track. This phase will also involve the full deployment of ARES in the cloud, which, as mentioned earlier, will make real-time monitoring of criminal or terrorist movements available from anywhere in the world via PCs, mobile devices or any other communication or data delivery service.

The resurgence of terrorism in the Middle East, thanks to groups like the ultra-militant ISIS in Iraq and Syria, provides a clear illustration of the need for such a tool. The U.S. State Department knows of at least 100 ISIS fighters who are in possession of valid U.S. passports. It is well known from past experience that such individuals can enter the country relatively easily when immigration relies solely on human supervision, and ISIS has stated in no uncertain terms that it is the group's intent to perpetrate terrorist attacks on U.S. soil that will rival or even eclipse 9/11. Considering that a computer belonging to ISIS was recently captured that contained instructions for constructing biological weapons, there is more of a need for advanced video data intelligence than ever before.

With ARES in place, an ISIS fighter with a passport could be recognized through facial capture by cameras at the airport, and then tracked through the building. The authorities could decide either to immediately apprehend the suspect, or to let him enter the country and continue to track his movements in real time via the license plate associated with him using surveillance cameras placed all over the city. This could lead to the rapid apprehension of an entire terrorist cell before its members can take any violent action. This is only one of many potential use cases that ARES makes possible. The private sector can benefit from the ARES advantage as well—a capture, whether by license plate, facial recognition, or other methods, of someone coming onsite could immediately trigger an alert to a business manager, who would then have instant access to this individual's record of previous business with the company. The improvement in customer service, more important in our current economy than ever, would be invaluable and provide the business owner with an ROI unmatched by any other technology he could install.

During this phase, Cyclops will also add a new component to its business model by giving away LPR software for free. Although LPR is the foundation of its engine, Company founder and CEO John Chigos recognizes that it is the ability to analyze raw data, to digest it into



real actionable intelligence, that is the real market value of what Cyclops offers. Without the ARES engine to analyze the data, LPR by itself is not of much value, but once users are given the opportunity to put the hyper-accurate Cyclops LPR engine through its paces, they will want to come back and find out more about what the Company's products can do for them.

Phase IV

Cyclops Technologies' ultimate goal is with ARES is to be able to deliver a complete stream of actionable proactive data in real time, which allows for immediate action. The complete expanded ARES suite will be able to employ LPR, facial capture, and other data sources as previously discussed. It will also have the ability to import third party data from other sources, including some that must remain undisclosed for security reasons. Cyclops will strike deals with vendors of data acquisition technologies such as shot locators, which automatically detect gunshots. Such data can be used to trigger a coordinated set of cameras to begin recording, as well as capture and track the individual's face and license plate. At the same time, the system automatically accesses and displays his or her criminal record and other personal data, including known associates, current and previous addresses, and more, all in real time. With this information instantly available, catching the perpetrator becomes a matter of hours, not weeks.

When complete, ARES will be a first in the industry—a true video data intelligence solution that combines video data acquisition via multiple input streams with true analytics, providing mission-critical actionable data in real time. This means that Cyclops will begin to penetrate the marketplace of data analytics, commonly known as Big Data. Much is made of the major players in this field, companies like Palantir Technologies of Palo Alto, California. Palantir is currently valued at \$10 billion, but started rather inauspiciously with a \$40 million investment from a founding partner. In its early stages, the company ran through that money with nothing to show for it, and it was only \$2 million backing from the CIA that prevented Palantir from closing its doors. The company now boasts a client list that includes most of the intelligence community, many of the heavy hitters in the financial markets, and some big-city police departments.

Indeed, the abilities of Palantir's software to combine many disparate and disorganized sets of data and produce meaningful analysis of the situation are impressive. In law enforcement, such analysis is often used for predictive policing, which is the use of previous crime statistics such as location, time of day, day of week, time of year, etc. to "predict" where and when crimes are likely to occur and deploy forces accordingly. Unfortunately, although predictive policing showed some early promise, it has not lived up to expectations. For example, a



RAND Corporation study published this year described a predictive policing experiment in an American city that had no significant statistical impact on crime.

The main disadvantage of technology like Palantir's is that although the data analysis is deep and thorough, it is also usually after-the-fact. Palantir's software does not do any data acquisition on its own; rather, it still requires human beings to feed it data that has already been collected and which may quickly become outdated. The complete ARES analytics suite provides built-in automatic data acquisition in addition to analysis, which means that it can provide complete situational awareness in real time. Cyclops believes that ARES will be able to not only provide the same depth of analysis that Palantir provides, but also exceed Palantir's results in markets where license plates are the primary source of data. It will perform the same tasks, and do so in real time with proactive data versus reactive data. That fact, plus the dramatic cost advantage over typical Big Data solutions, will make ARES the only viable video data analytics option for many if not most public and private agencies.

What this means is that Cyclops will be able to carve out for itself a substantial share of the video data analytics market, which is projected to exceed a value of \$50 billion by 2017¹.

Conclusion

Under the watch of visionary founder and CEO John Chigos, Cyclops Technologies is engaged in the second phase of a 4-phase development program. While continuing to improve upon its PlateSmart Mobile LPR software and serve the law enforcement client base for that product, Cyclops is on track to place its flagship solution, ARES, in a prominent position in the data analytics marketplace. ARES is an award-winning video data analytics solution that combines data acquisition via LPR with state-of-the-art analytic capabilities, as well as access control and camera association functionality. By the end of 2014, ARES is expected to be available as a cloud-based subscription service, or Software-as-a-Service (SaaS). Further developments will see the enhancement of ARES' data acquisition capabilities to include facial capture, and the importation of all types third-party data such as that produced by shot locators, 911 calls camera association, and other types of data available from numerous providers. ARES will combine all of this disparate data into one stream of mission-critical, actionable intelligence, all in real time. The added functionality and affordable price point of ARES compared to products offered by companies like Palantir Technologies translates to a higher ROI for organizations that adopt it, be they security agencies or private businesses. Additionally, organizations with limited funds will find ARES their only viable option for providing them with the situational awareness they need.

¹ Source: Wikibon 2014.

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Cyclops will chip away at various portions of the data analytics market, drawing business to itself.