



INTELLIGENCE

MASA Newsletter – Winter 2014-2015



It has been a year of record success for MASA Group, as we continue our global development of Artificial Intelligence-based Modeling & Simulation software. During this period a great deal has been achieved, about which we feel we can be justifiably proud. I would like to share some of these achievements with you.

Operating across the defense, emergency management, healthcare, homeland security, and games-related sectors, MASA now has customers in 15 countries and is continuing to win business in South America, Asia Pacific, Europe and – for the first time - Australasia. Indeed, this September saw the first use of MASA SWORD in the annual SUMAN Warrior exercise, about which you will read more later.

The defense and emergency management markets remain at the center of MASA's business and the company has steadily enriched its traditional offering with enhanced product features. Last May, MASA launched an adapted version of SWORD to meet the training requirements of logistics command posts. We also broadened SWORD's functional scope to support the training of civilian crisis managers – demonstrated by the use of SWORD to train personnel of EcoPetrol, the third largest oil company in South America.

MASA also see greater potential for the diversification of Artificial Intelligence beyond constructive simulation. As a result we have further developed MASA LIFE, our decisional AI middleware, to include applications across the military, games and IT related sectors. The wider simulation and 'virtual universes' market is estimated to reach over \$50 billion in the next three years. As we continue to expand our team and capabilities, MASA is well placed to strengthen its market leadership and accelerate its growth.

Juan Pablo Torres
MASA Group President and CEO

Customer spotlight

A contract with the New Zealand Armed Forces marks MASA's first customer from a Commonwealth country

An estimated 180 military personnel from the Armed Forces of the Commonwealth's Five Power Defence Arrangements (FPDA): Singapore, United-Kingdom, Malaysia, Australia and New-Zealand (SUMAN), took part in the annual 'SUMAN Warrior' training exercise in September 2014 in New Zealand; using MASA's flagship SWORD constructive simulation software for the first time.



Pictured: Participants from the Commonwealth gathered for the annual SUMAN Warrior Exercise in New Zealand in September 2014.

SUMAN Warrior is a land-based tactical-level Command Post Exercise (CPX) focusing on planning, with military officers from each FPDA nation forming a battle group headquarters to respond to a fictitious security situation, and is designed to test and improve the way FPDA nations operate with each other while confronting such threats.

The New Zealand Army's Mission Command Training School (MCTS) has been using SWORD for less than a year, but in that time has adapted the technology to perform a variety of internal and international activities. Using a combination of SWORD and Systematic's SitaWare C2 technology, the exercise included 100 virtual units as well as insurgents embedded within a 200 km² field.

Major Michael Chivers, Chief Instructor, Mission Command Training School of New Zealand explained: *"Using the SWORD simulation system we have made **part-time personnel savings of about 50 per cent** and significant savings in the amount of computer hardware needed to support this activity. It has also **enabled us to complete training activity in hours which previously had taken weeks**. The real plus for this school has been the ability to take SWORD and integrate it into the developmental C2 suite currently being used by the Army - this process has been relatively simple but effective due to the standards-based approach of SWORD and the C2 system. The support provided by MASA has been exceptional and has gone a long way to having the product valued by the staff and users alike".*



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Interview with the Ecuadorian Armed Forces

Coronel Pablo Carrillo, director of the CIMSE (*Centro de Investigación, Modelamiento, Simulación y Entrenamiento*)

In the last few years, the Ecuadorian Army has made considerable investments in simulation and training. What are the reasons behind this new initiative?

These virtual exercises will allow us to significantly reduce the direct costs associated to field training, material deterioration, the physical risks incurred by both the military personnel and the civil population, will reduce the ecological impact as well as the damage to private property during training.



In the future, as is also the case in other countries, the aim is to develop a system that will allow for the management and training in emergency and catastrophe situations, that will aid government officials to make more informed political decisions in order to forecast, administer and mitigate the impact of natural, anthropogenic, technological and socio-organizational catastrophes that might take place in the national territory, allowing for the interaction with civil defense organisms.

Why did you choose MASA SWORD?

Because it is an extremely versatile tool allowing us to perform simulated training exercises at multiple levels, including the levels up to Commander in Chief. Also, another characteristic of SWORD is that it cannot only be employed for training in the Defense domain, but also in the Public Safety and Risk Management domains.

We engaged in a process of market research, and we could not find such a complete solution, that allows us to prepare exercises capable of simulating both army and joint military operations, with levels ranging from Battalion and Brigade, up to Division, and even Component Forces.

Another interesting characteristic of SWORD is that it allows for the combination, of units from different organizations that participate in a Civil Defense operation. As we know, today the operations in the Defense and Civil Security domains are not single-component operations, as they require the interaction of several distinct units, so it is fundamental that our tools provide us with the flexibility we require to simulate scenarios with various conditions and at multiple levels.

What are the main benefits of using MASA SWORD?

SWORD is an application that is easy to customize. The user interface is also available in Spanish, and is very intuitive to users. The process of terrain generation is simple and fast, and the learning curve for both instructors and trainees has been short. Regarding the internal technical support, SWORD does not require us to have technical staff having very specialized skills.

SWORD is also a lightweight tool that does not require state-of-the-art hardware infrastructure, and its flexible licensing scheme allows us to deploy exercises aimed for self-training as well as large scale exercises where several users interact on the same scenario.

Also, SWORD offers a number of features that permitted us to conduct more efficient simulation scenarios. The simulation engine, artificial intelligence, unit aggregation and automation of tactical tasks, allow us to create complex scenarios including large units, without forcing us to commit to a large number of operators. Other features that are worth mentioning include its handling of logistics and communications, which are fundamental aspects in the direction of operations at every level.



Finally, SWORD appeared as a tool that was easy to adapt to our simulation environment, and that interoperates with other simulations, visual tools, and C2 systems.

Do you plan to increase the use of SWORD in the years to come?

Yes, beginning 2015 CIMSE is planning to acquire additional SWORD licenses in order to fulfil its needs in distributed training.

Could you provide us with a general overview of the process behind the acquisition of training systems for the Ecuadorian Army? For instance, is there a single acquisition/management entity for the whole Army, or the different systems are brought in by Army brigades and divisions?

The software was acquired by the Academia de Guerra del Ejército (Army Academy of War). This institution communicates its budget needs via the Comando de Educación y Doctrina (Education and Doctrine Command) to the Dirección de Desarrollo (Development Office) which allocates the resources for the whole of the Army.

Could you express some ideas about what plans the Army has for the future concerning the acquisition of constructive, virtual and live training systems?

Currently, the Battalion units are undergoing training, and from the beginning of January, plans exist for every Army unit to undergo training, but since the training needs exist at all levels of the Ecuadorian Army, we are starting projects which will see the comprehensive implementation of these systems. The idea is to centralize the different solutions and to build a large simulation center for training at different levels.

Does the Army participate in virtual or constructive exercises with the Navy/Air Force involving the interoperation of simulators? If this is not the case, do you have plans for doing this in the future?

At the moment, the Army is the only force using simulation technology for training. However, plans exist to standardize the technological base in the future in order to have technological environments capable of interoperating across the different forces.

MASA's pioneering technology: Artificial Intelligence (AI)

If we look into a dictionary, intelligence is frequently described as **the ability to understand or comprehend a situation and after assessment, provide or carry out a rational response to the stimuli. Making decisions in highly complex and changing situations demands being able to comprehend various factors**, many of them not black or white but nuanced and transitory.

The sophistication of the human brain creates a major challenge for those of us involved in designing complex simulation systems that are used for training. In constructive training tools such as **MASA SWORD**, trainees are interfacing with Computer Generated Forces (CGF). These entities may represent Blue Forces (BLUFOR), enemy forces (OPFOR) and even members of the civilian population (CIVPOP).

It is imperative that the CGF behavior mirrors as accurately as possible, the tactics and likely responses of the three groups. To allow CGF entities to act and respond like humans, either as individuals or



groups, calls for the use of Artificial Intelligence (AI). In this context, AI enables software driven entities to emulate human behavior.

MASA's grounded approach, especially through its world-leading AI-middleware **MASA LIFE** product, is to continue to develop intelligent life-based applications. Known as Decisional AI, this application creates highly realistic human behavior that may be used to create virtual medical staff or teachers that make autonomous decisions and then execute actions to provide trainees with truly immersive virtual environments.

With over a decade's worth of accumulated IP, knowledge and expertise, MASA continues to set the standard when it comes to AI. Over recent years, the company has undertaken a number of studies with partners from academia and industry to further develop its AI expertise. These studies, notably Syclope, Octavia and Imoshin, have led to major enhancements in AI which has delivered increasingly realistic outcomes.

Latest product news: **SWORD** and **LIFE** innovation



Combining the most advanced realistic intelligent-life technology with flexibility and ease of use, **SWORD** is designed to improve training, analysis, and decision-support for commanding officers in both the military and the emergency preparedness sectors.

Ensuring that **SWORD** remains the most efficient tool of its kind, the latest functionalities enhance mission preparedness – such as allowing users to create and modify itineraries or new terrain. These itineraries are used during missions to order units to follow specific routes and also provide supply routes for logistic units. A new terrain rendering engine provides a display closer to a standard map - increasing the fidelity of the simulation

Reflecting MASA's diverse global customer base, further new features to **SWORD** include support for international exercises with multi-language models and additional public safety doctrine behaviors.



The core feature of the new **LIFE 1.8** update allows inter-entity communication. Messaging in **LIFE** is designed to handle communication between entities through channels. Messages can be used to notify an entity that an event has occurred, broadcast information to a group and send orders to team mates.

This process is aided with a built-in acknowledgement system to show when all recipients have read these messages. Along with other bug fixes and entity improvements, the tutorials and boot-camp demos have been improved to include these updates, allowing quicker user interaction and training on the **LIFE** software.

The new iteration of **LIFE** presents an enhanced integration with Bohemia Interactive's **VBS2** -and recently released **VBS3**-, one of the leading virtual simulations in the defense industry. MASA will also demonstrate at I/ITSEC a beta version of its **LIFE** integration with Havok's **Vision** engine, another leading virtual simulation in both the defense and the games industry. These integrations are the result of months of close collaboration between the **LIFE** team and beta-testers from the defense industry.



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They enable users of VBS2 or Havok's Vision to create operational and engaging behaviors for the non-player characters (NPC) of the simulation thanks to LIFE.

MASA profile

Najoua Rostand, New Markets Development & Sales Manager

How long have you been working for MASA and what were you doing before joining the company?

Before joining the company in 2012, I was working as Asia area sales manager for Dassault. Before that I worked for 10 years for Thomson Multimedia in the consumer electronics sector where I held a number of different positions. These included being the key account manager for Sony, Toshiba and Matsushita and various project leader appointments including a JV that we had in China. I have also set up my own training and consulting company helping Chinese companies in their operations in Europe and helping European companies to sell abroad.



Can you describe your roles and responsibilities within the company?

I am a Sales Manager and I really enjoy this role. It gives me wonderful opportunities to meet with different people, people out of my usual network, out of my country, out of my own world. I find this fascinating and have had the chance to meet great people over the years.

While I do deal directly with the end user, I often work through my network of resellers. Therefore, it is very important to identify and select a good local partner for the sales phase but also for the maintenance phase.

I am in charge of South American markets and some countries in Asia. It is really interesting to have customers and resellers in different parts of the world. It gives me a global point of view on the simulation field and on the different uses of our products by different customers in different environments.

With modern technology moving at such a pace, how do you manage to stay abreast with the latest developments?

We are lucky at MASA. We are leaders in our segment of the market because our technology is ahead compared to that used by our competitors. We have a fantastic product. It really is the best product in the market, and we are providing state of the art technology to our customers. The challenge for us is to keep this distance between our competitors and us and remain number one in the technology.

If you had a crystal ball and were able to look forwards ten years to 2024, what improvements would you predict for MASA SWORD and MASA LIFE?

I believe that we will still be very active in the military field, but I am sure we will also see a great development in the civilian area. We will probably have more missions related to civilian applications such as emergency and crisis management.



Many people outside France would envy you living and working in Paris. What are the best parts about being based in such a beautiful city?

I travel a lot and enjoy that very much, but each time I see, in the distance, the Eiffel Tower, I know that I am home. Paris is home to me. Our office is close to Opera Garnier which is a gorgeous building. Every morning when I get off the Metro, the first thing I will see is the Opera and the sky behind it. Paris is like a wonderful showcase for our products and our technology. I am sure our customers are sensitive to this point too.

Your job involves much travel for the company, so what has been your most exciting destination and why?

Every country is a specific world and has its own beauty, history and great people. Though, I have noticed that I like a country more when I have a good friend in the country. Travelling for me is about meeting people. I love China. I lived there for a time and have plenty of friends there. I love South America and am really impressed by cities like Lima, Bogota or Quito. Quito, for example, is a fascinating city sitting on the Equator at more than 2,800 metres above sea level, it is the city of the Eternal Spring, close to active volcanoes, with great history and legends.

MASA worldwide



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