



SIMULATION



SUPPORT PRODUCTS



TECHNICAL PUBLICATIONS



InterActions

JUNE 2014 – # 27



BOOSTERS, FIELD 5, 5X...

SOGITEC

EXPANDS THE FUTURE

OF TECHNICAL PUBLICATIONS



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TECHNICAL PUBLICATION
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→ Sogitec was closely involved in the "Course du Cœur" (Heart Race), a 750 km long relay race run from Paris to Bourg Saint-Maurice, in the French Alps.

→ ADS Show: Sogitec to exhibiting again at the international show for defense aircraft global support.

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Editorial



"A YEAR 2014 CAPITALIZING ON SOGITEC'S KNOW-HOW AND THE AFFLUENCE BROUGHT ABOUT BY SYNERGIES BETWEEN ITS DIFFERENT FIELDS OF EXPERTISE"

ANDRÉ PIATON
Chief Executive Officer,
Sogitec Industries

2014 marks the return of Sogitec at the EuroSatory tradeshow. Our presence confirms the company's long-lasting commitment* to the French Army Light Aviation (Aviation Légère de l'Armée de Terre, ALAT) and our will to support them in their training missions for crews and mechanics.

Sogitec's news at the ALAT Academy in Le Luc deals with the NH90 helicopter simulation program. Late 2013, Sogitec delivered the first version of the helicopter simulator in its Army variant. The delivery was performed in a record 22-month timeframe after the contract had been awarded. The final version was accepted at the end of May 2014. The program goes on with the installation of a simulator at Phalsbourg Army Base, the upcoming acceptance of a "level C" motion simulator, and the current development of French Navy and Finnish Forces variants. The NH90 program makes Sogitec repositioning in helicopter simulation a reality. The results we have already got demonstrate Sogitec's willingness, and especially capabilities, to tackle challenges and satisfy their customers. Sogitec delivers on time and as specified.

2014 also marks Sogitec's involvement in Dassault Aviation's Falcon 5X and 8X new business jets programs. From the "data package" at the heart of simulators to maintenance analysis and technical publications, Sogitec relies on a range of 3D tools – developed thanks to its expertise in image generation – to improve productivity and to provide pilots and maintenance specialists with new services to use digital techpubs.

Finally, 2014 is for Sogitec the year of consolidating Rafale solutions for future export contracts in which we firmly and strongly believe. In the field of simulation, our self-financed voluntarist approach breaks with previous methods in the field. In order to meet the customers' requirement to have simulators available before aircraft delivery at competitive recurrent costs, the simulator must no longer rely on real aircraft equipment. Its development must stick to a concurrent engineering approach, before the aircraft version is validated. The same argument backs software independence from the aircraft's. In this frame, Sogitec develops a solution relying on behavioral modelling. Modelling is "lighter" than real systems, whose architecture and internal functioning are not replicated. Only interactions with the pilot and the outside world are. Moreover, the simulator – whose hardware is largely COTS-based – is free from the costs and constraints of main system-based ISS.

In a nutshell, 2014 is rich of new developments capitalizing on Sogitec's know-how and the affluence brought about by synergies between its different fields of expertise. ■

* Materialized by the Sherpa simulator at Le Luc Army Base (Puma, Cougar, Renovated Cougar convertible) and the Tiger Maintenance Simulator at the French-German Helicopter Academy in Fassberg.



« BOOSTERS »

NEW GENERATION
TECHNICAL PUBLICATION TOOLS
STILL ON THE RISE

The automation of technical publications processes and the need to adapt them to the extension of the Product Lifecycle Management (PLM)* is still a hot subject for Sogitec Industries, in the civil field as much as in the military field, within the framework of a successful partnership with Dassault Aviation.

* See InterActions #26, "Full Efficiency for 'Supplemental' Techpubs Processes thanks to 'Boosters'".

At the very core of this logic lie the "boosters", which have already proved their efficiency both in the course of the "supplemental" process (aircraft customization) and in the "basic" documentation authoring process applied to "legacy" aircraft (Falcon 900, 2000 and 7X already operated).

Within the framework of the "revision service" currently being contractualized with Dassault Aviation, (see page 18, "With FIELD 5, Sogitec expands the future of technical documentation"), the Falcon 7X

Illustrated Parts Catalog (IPC) is now targeted through the automatic integration of the various input data flows (including the Digital Mock-Up (DMU)) within a standardized environment.

A Sogitec 3D engine that makes the difference

"Thanks to our technologies, we offer users easy access to high-performance 3D", according to Sales Manager Laurent Germe. The technological core of the 7X IPC booster is the high-performance 3D engine that Sogitec has developed and enhanced

over the past few years on the basis of the Apogée image generator for aircraft and helicopter simulation. This is where the "Sogitec difference" is the most pregnant as 3D performances, when associated to the specific functions mentioned above, enable a targeted reply to the support field specific needs.

Fully integrated in a logic of digital continuity within a homogeneous environment, the input data remain perfectly stable, thus not modified, while they are being processed by the booster. The tool can be easily adapted to the aircraft of

specific expertise it deals with, as it is the case for example for the 7X booster and the "legacy" booster given the intrinsic differences between their input data. It is thus incorrect to talk about "one" booster as there are "several" boosters.

From the civil field to the military field, from upstream processes to operational maintenance, boosters are everywhere

Boosters also find applications beyond luxury bizjets, with the Rafale now being concerned. The military field is not left aside with the Maintenance Booster ❖❖❖

CREATING IPCs AND ILLUSTRATIONS QUICKER AND MORE ACCURATELY

The IPC Booster allows experts in IPC lists to analyze changes in input data which are likely to have an impact on IPCs and, consequently, to generate IPCs and illustrations in a quicker and more accurate way using the 4 key functions at their disposal:

- Display and consultation of the DMU
- DMU comparator used to identify differences between configurations quickly
- Precise color code to distinguish and identify elements according to a job-specific logic
- Search function

The Maintenance Booster Rafale supplements maintenance documentation and IPC if they do not provide sufficient information for locating any part in the aircraft.

✦ Rafale (MBR) being currently tested by the French Air Force at Saint-Dizier Air Force Base within the framework of a technical assistance service provided by Dassault Aviation.

"With a view to answering a specific need – i.e. fixing a section of Rafale electrical wiring – expressed by Dassault Aviation, Sogitec Industries offered to provide French Air Force maintenance specialists with a really innovative solution" explains Program Manager Pierre-Georges Muller. This solution relies on the Maintenance Booster Rafale. The tool is deployed internally within Sogitec and used for its own IPC purposes. After having proved its efficiency meeting IPC needs, the MBR's capacity to complement maintenance procedures is now established.

With this context in mind, what exactly is the MBR? The answer is relatively simple. The MBR is an advanced viewer for the Rafale DMU which offers, beyond the ability to browse through a very detailed DMU in terms of graphical representations, specific advanced features for IPC and illustrations creation as well as for spares justification.

Supplementing maintenance documentation

From the users' point of view, the experiment which ended in May 2014 proved to be a real success. So much so that Dassault Aviation's DGSM and the Mont-de-Marsan Air Force Base are now both interested in using the tool.

Specialists greatly appreciated how easy the tool is to handle. The version provided to the French Air Force is a light version in which only the data related to the two aircraft being maintained are loaded. The provided solution also complements the maintenance documentation and the IPC which, when it comes to finding a required piece of information upon searching for a specific element on the aircraft, are not efficient enough.

Every experiment ends with lessons learned, the MBR being no exception. Specialists from the French Air Force have, among other adjustments, underlined the need to prepare predefined "typical sessions" for each aircraft version (single or two-seater) using well identified elements and equipment. The recurrence of certain types of interventions could thus be addressed.

Remote sessions through encrypted connections

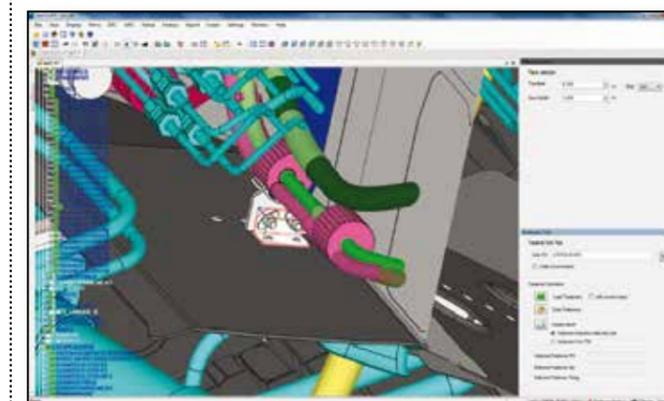
Innovations specific to the military field are completed by a complementary "booster", the Illustrated Parts List (IPL), which serves for spares selection and which also constitutes the basis for the IPC extraction. The IPL Booster is currently under development and will be deployed internally within Sogitec (only for the Rafale) by the end of 2014 so as to fully satisfy the logic of digital continuity.

This tool indeed enables easy connections between data which are necessary for supplies and their upload in just a few minutes and one session. Also based on Sogitec's 3D engine, the viewer supports any CAD solution (various versions of CATIA in the pre-

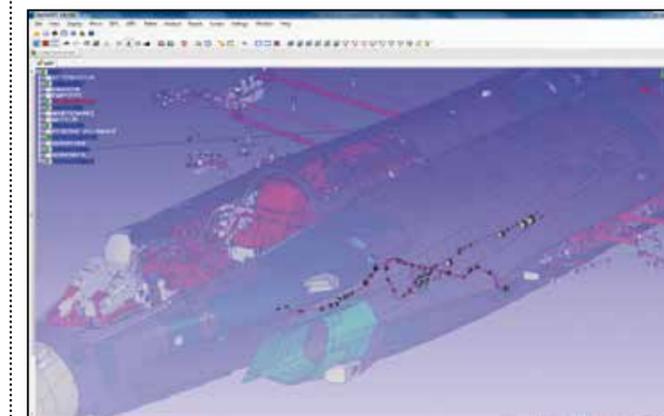
sent case), thus offering fast data loading as well as easy viewing and browsing. Productivity gains of about 30% may be expected using IPL Booster.

The logic of digital continuity is also guaranteed by the possibility to organize joint sessions between remote sites without any DMU data exchange and through an encrypted connection. Securing information systems remains one of Sogitec's main concerns. ■

HOW THE MBR FACILITATES MAINTENANCE OPERATIONS EXAMPLE: FOLLOWING A WIRING AND FINDING OUT ITS EASIEST ENTRY POINTS



■ Identifying mounting fasteners.



■ Precise identification of wiring arrangement inside aircraft internal structure.

WITH AXED FRENCH AIR FORCE ACCESSES DMO

Launched at the end of 2012 for a two-year period, the technical operational study AXED aims at identifying and assessing the benefits and constraints of collective training solutions through the networking of French Air Force simulators. Whereas the first demonstrator, Rafale Simulation Center (Centre de Simulation Rafale, CSR) - SimFAC networking) has delivered its results and the works on the second demonstrator (CSR - AWACS simulator networking) are in progress, lessons learned make it possible to report promising first results about the programme and its prospects: operational deployment in the French Air Force, synergy and contribution to NATO context, etc.

SimD2 (*Simulation Distribuée Distante, Remote Distributed Simulation*) is a fairly new acronym destined for winning its spurs in the field of Defense swarming with acronyms in general, and especially in the field of simulation. However nothing really new, since SimD2—the French equivalent acronym for American English DMO (Distributed Mission Operations)—has been of key importance for specialists and operational users of training simulation for more than a decade

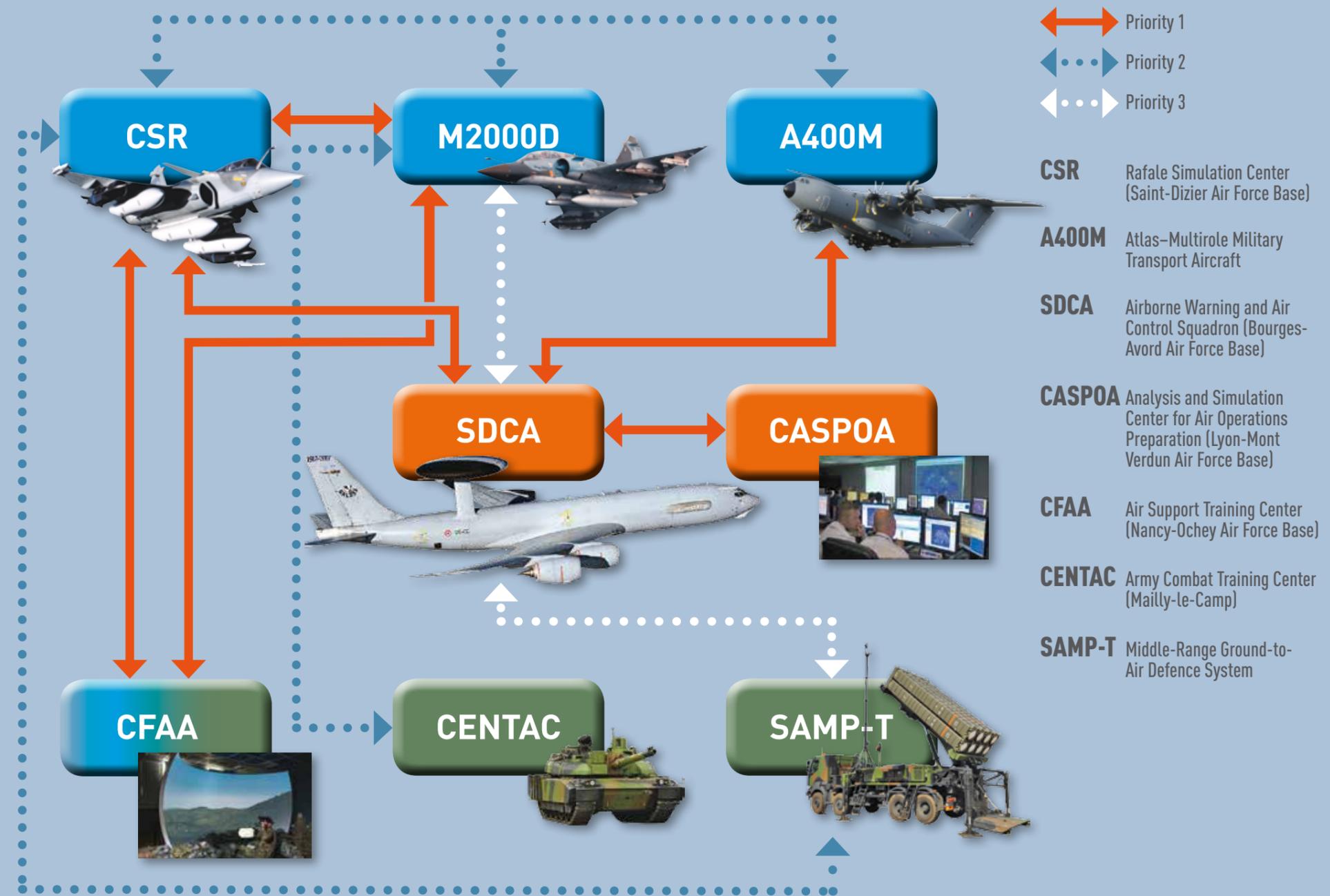
Measuring the impact of SimD2 on operational readiness

Within the French context, especially in the French Air Force, networking of the two CSRs of Saint-Dizier and Landivisiau has already been tested, with Sogitec Industries at the center of the experimentation. However AXED reaches a higher complexity level since it aims at networking training centers, the platforms of which are distinct. Besides, the study particularly focuses on measuring the impact of SimD2 on the operational readiness of all the actors making up the chain of operations, the organization of the exercises and the current systems. This is why Sogitec Industries, awarded as a prime contractor by the French Defense Procurement Agency's (DGA) Center for Defense Technical Operational Analysis (*Centre d'analyse technico-opérationnelle de Défense, CATOD*) and with Airbus Defence & Space as co-contractor, has set up an unusual and sound approach.

Overview of SimD2, functional analysis, three illustrators

SimD2 is not unknown to the French Air Force, that is already provided with a medium-term architecture including three distinct priority networking levels for "Flight", "C2" and "Support" simulator types (see opposite illustration,

TOWARDS DISTRIBUTED SIMULATION IN THE FRENCH AIR FORCE



1 See InterActions # 26, June 2013, "Sogitec Industries awarded AXED* contract by French Defense Procurement Agency (DGA)".

2 *Analyse et expérimentations technico-opérationnelles pour l'Entraînement Distribué* (Analysis and technical-operational experimentation for distributed training operations) applied to simulators for air mission operations.

3 See InterActions # 25, June 2011, "Networking and F3 aircraft version: Rafale simulation centers still at the leading edge".



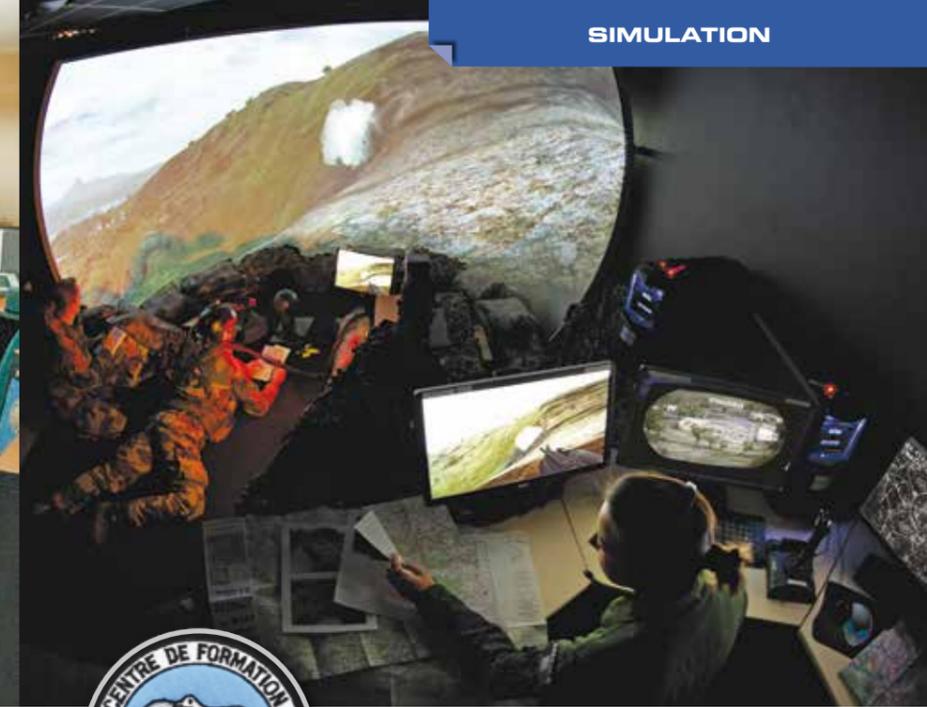
Rafale simulation center (CSR) of the Rafale Transformation Squadron (Escadron de Transformation Rafale, ETR) at Saint-Dizier Air Force Base.



AWACS simulator (SimSDCA) of the Airborne Warning and Air Control Squadron (Escadron de détection et contrôle aéroportés, EDCA) at Bourges-Avord Air Force Base.



CASPOA (Centre d'analyse et de simulation pour la préparation aux opérations aériennes / Analysis and Simulation Center for Air Operations Preparation) at Lyon-Mont Verdun with its ICC/ITC platform (Interim CAOC Capability/Integrated Training Capability) for C2 training.



SimFAC (Simulator for Forward Air Controllers) at the Air Support Training Center (Centre de formation à l'appui aérien, CFAA), Nancy-Ochey Air Force Base.

"Towards Distributed Simulation in the French Air Force").

The AXED unusual approach relies on a comprehensive functional analysis based on themes, or "parts", namely 5 in all. A "federation" part aiming at specifying the need for distributed training. An "organization" part covering the general organization and the conditions for the deployment of distributed exercises. An "interoperability" part analyzing the technical issues related to simulator networking (exchange protocols and formats, consistency conditions, etc.). An "IT security and connection" part recommending an overall approach of the information technology security. Finally, a "costs/deadlines/resources" part proposing an approach of the program issues for the SimD2 sustainability in the French Air Force.

In order to be consistent with the "priorities" of the "overview" of the French Air Force, and in the continuity of the functional analysis, three illustrators networking two remote simulation centers should make it possible to validate the concepts

and, if applicable, to provide the analysis with additional information (see box opposite "Four simulators for three illustrators").

Functional analysis, first illustrator, lessons learned

The functional analysis immediately reveals several noticeable points. The operational pre-eminence of the Rafale (CSR) - AWACS "binomial team" emerges as the main concern of the French Air Force resulting in a weekly training session intended for this "team" and deemed as necessary. Like the aforementioned concern and as expected, the IT security issue turns out to be crucial. The first illustrator is based on the operational scenario of a Rafale aircraft guided in a terminal control area by a forward air controller (FAC) and definitely provides plenty of information for the use of SimD2 in the French Air Force. Networking of two remote heterogeneous simulation centers was successful thanks to solutions that made it possible to solve the many technical and SSI constraints. The experimentation it-

self was successful while making room for future technical improvements because of the initial specifications of the networked centers, the capabilities of which are not all calibrated for remote data exchange. One of the noticeable points is the successful operational networking between the CSR and its tactical server using the reliable VBS 2 serious game operated by the SimFAC. A major first in the simulation field.

What's next? 2nd and 3rd illustrators and NATO prospect

The next step of AXED consists in setting up the following two illustrators (see framed illustration) extended with other additional actors. Although CSR - SimSDCA (illustrator 2) and SimSDCA - ICC/ITC (illustrator 3) networking is still planned, an "extended illustrator 2" (CSR - SimSDCA - SIMFAC) and an "extended illustrator 3" (CSR - SimSDCA - SIMFAC - CASPOA) will be added. The ambitious purpose of those experimentations is to assess the level of interest in networking more than two simulators and remote centers, which is a

new challenge in the world of the French "air" simulation.

This approach—a *de facto* incremental logic—is all the more relevant since it completely comes within the scope of the philosophy of talks and works currently conducted by the NATO MSG-128 working group (Modelling & Simulation Group 128) dedicated to Distributed Mission Operations at the coalition level. So the AXED technical operational study aims at setting up a base from which a French contribution is made to MSG-128 works. The purpose of these works is to make up, in an incremental way too, the technical scope for a coalition remote training capability. Networking, enhanced operational readiness, information systems security, application of a national logic to the coalition level are deciding aspects to be dealt with so that the operators can be provided in the near future with a remote training capability that can be efficient in the long term. ■

FOUR SIMULATORS FOR THREE ILLUSTRATORS

Four simulators, each operated in a distinct and remote training center, are involved in the AXED technical operational study:

- Rafale simulation center (CSR) of the Rafale Transformation Squadron (Escadron de transformation Rafale, ETR) at Saint-Dizier Air Force Base,
- Forward Air Control simulator (SimFAC) of the Air Support Training Center (Centre de formation à l'appui aérien, CFAA) at Nancy-Ochey Air Force Base,
- AWACS simulator (SimSDCA) of the Airborne Warning and Air Control Squadron (Escadron de détection et contrôle aéroportés, EDCA) at Avord Air Force Base,
- CASPOA (Centre d'analyse et de simulation pour la préparation aux opérations aériennes, Analysis and Simulation Center for Air Operations Preparation) at Lyon - Mont-Verdun with its ICC/ITC platform (Interim CAOC Capability/Integrated Training Capability) for C2 training

... and networked two-by-two to make up the three following illustrators:

- CSR - SimFAC ;
- CSR - SimSDCA ;
- SimSDCA - ICC/ITC.



NAVY NH90

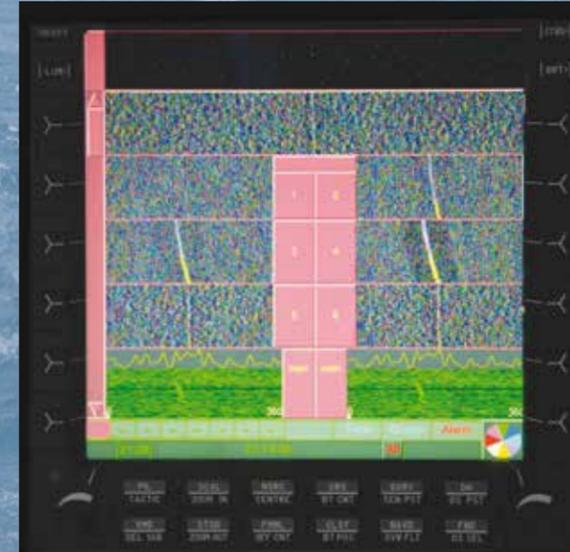
SOGITEC DIVES INTO SONAR SIMULATION AGAIN

An Atlantique 2 (ATL2) aircraft of the French Navy is flying to its patrol zone off the coast of Brittany within the framework of an Anti-Submarine Warfare (ASW) mission that consists in searching for, locating, identifying and processing a hostile nuclear attack submarine. Once within the zone, the ATL2 completes its operational preparation and starts patrolling by launching a first linear pattern composed of 16 DIFAR sonobuoys spaced by 1,000 yards. After more than one hour of monitoring, one buoy from the third released pattern detects a target and transmits a consistent signal corresponding to the submarine searched for.

At the same time, on the deck of the Aquitaine frigate (FREMM), the French Navy ASW-version Caïman NFRN09 (NH90-NFH) helicopter equipped with two MU90 torpedoes is on alert. The helicopter aircrew collects the latest information of the mission in progress via the L11 data transmission system. It receives the take-off order, which is immediately executed by the pilot. The tactical coordinator (TACCO) contacts the maritime patrol aircraft via the encrypted network and retrieves the latest pieces of information.

Once in the relevant zone, the Caïman releases a passive buoy and measures the ambient noise in order to supply data to its range prediction system. The sensor operator (SENSO) receives the information transmitted via the L11 network and can therefore take charge of part of the buoy barrier. In the meantime, the ATL2 has lost contact and has to leave the zone. With the aid of the navigation system, the aircrew initializes a search plan centered around the last buoy in contact by simultaneously releasing and processing a few DICASS active buoys and using the FLASH dipping sonar. During the second dipping station, the SENSO detects a contact with about a 12-knot speed. The target tries to perform a tactical maneuver in order to escape from the sensors. Widely using the data transmitted by the different sensors, the aircrew activates one of the two torpedoes and starts engaging the target controlled by... **the instructor seated at the operating station!**





Simulation of passive buoy processing on a SENS0 console in the NH90-NFH cabin.



Sogitec NH90-NFH simulator cockpit with Sogitec Apogée™ 7 latest image generation system and very high definition spherical screen.

These simulators will be installed at Naval Air Stations Lanvéoc-Poulmic and Hyères and will be composed of MRTDs (Multi Role Training Device) intended for the training of the cockpit crew including the TACCO, and of RCTs (Rear Cabin Trainer) intended for the training of the SENSO in the cabin. Thus the RCT provides the French Navy MRTD-RCT N1 with an additional training capacity for operation of Sonics FLASH sonar of the NH90-NFH. This training capacity is intended for specialists such as helicopter sonar operators (SENSO), which allows Sogitec to be involved again in the sonar field, on the one hand, and to meet a particular challenge regarding the integration of sensors in overall NH90 simulation, on the other hand.

From submarine sonar simulation to helicopter sonar simulation

Historically, Sogitec was involved in sonar

simulation for the first time in the mid 80's. At that time, Sogitec was in charge of supplying and integrating the submarine detection audio simulator within the framework of the SSBN (Sub-Surface Ballistic Nuclear) tactical platform simulation program at SOUMENT (*SOUs-Marins ENTrainement*, Submarine Training Center, in Brest). Supplying such a simulator aimed at training the SSBN passive sonar operators so that they would become familiar with sonar monitoring and listening in a far and continuous tactical acoustic environment, with a significant workload dedicated to submarine detection audio.

The distance and time scales used during helicopter sonar operations are very different from those used during sub-surface operations. A rotary wing aircraft such as the NH90-NFH in ASW version uses the FLASH Sonics system with two types of sensors: the FLASH dipping sonar and the passive or active sonobuoys. When the SENSO

operates such a system, he/she has to be very responsive to identify the target from a short time signal lasting only a few minutes. Besides, unlike submarine sonar, the analysis and quick interpretation of sonar images prevail over audio analysis within the framework of an ASW helicopter mission. These are essential points that distinguish the "submarine world" from the "helo world" in terms of ASW mission.

A successful industrial cooperation based on existing state-of-the-art technologies

Sogitec Industries, as prime contractor and simulation designer, has then to take up a challenge: integrating the complexity of sonar simulation within the MRTD-RCT N1 system so as to provide the operational users with a comprehensive "turnkey" training tool. This constitutes a critical stake given that the SENSO has a significant workload since, in connection with the TACCO, he/she may have to manage all monitoring and

detection sensor operations. This is why Sogitec cooperates with other specialists in sonar simulation such as Thales Safare Pons (TSP) and Thales Underwater Systems (TUS).

TSP, as a subcontractor, supplies a sonar simulation sub-system composed of the OSATIS product, suited to meet the NH90 requirements and connected to TUS CAP software (operational system for data processing and display) re-hosted to meet the simulator requirements.

The raw spectra (amplitude/frequency) of the signals received by the sonar or the buoys as well as the environment data are generated by OSATIS and supplied to CAP software. As per the actual operational system, this software processes all the data and displays the results (images and data) on a station identical to that used by the SENSO in the helicopter. The integration of these technological solutions in the MRTD-RCT system by Sogitec is an overall performance

since the OSATIS/CAP unit is also interfaced with the NFH NH90 mission system (implementing AgustaWestland models), the simulation software (implementing Airbus Helicopters models), the virtual tactical environment and the instructor operating station.

A state-of-the-art training capability

The MRTD-RCT N1 solution contributes to a high-level sonar training capability compliant with the requirements and needs of the French Navy, and provides the MRTD with additional capabilities in the field of anti-submarine and anti-surface warfare (sonar, radar, FLIR, L11, radiocommunications, electronic warfare systems, decoy launching).

A complex submarine environment can be achieved by integrating an initial library including many entities (realistic and generic) with their passive (noise sources) and active signatures. Various acoustic special

effects are simulated depending on the motion of these entities (start/stop, speed, acceleration, turn, depth, etc.). Each entity is also associated with sources of transient signals or events (sonar sequences, shocks of various types, explosions, etc.) for a more realistic environment. When a target is engaged, the release and start of the torpedo from the NH90 are fully simulated. Helicopters or planes flying in the vicinity of any buoy are also modelled together with the resulting disturbances they can generate on the sonar images.

These technological solutions and the expertise of both Sogitec and its partners therefore provide the operational users of the French Navy with a full panel of tactical training capacities applied to sensors in a complex environment. ■



FALCON 5X

TECHPUBS AND S&T: BENEFITING FROM BEST PRACTICES AND CAPITALIZING ON THE FUTURE

Sogitec Industries has long been involved in the history of the Falcon aircraft range manufactured by Dassault Aviation, its parent company's business jet ("bizjet"), a history that is about to turn another corner on its way to excellence, running on from the 7X program and its impressive technological and engineering innovations deployment, with the brand new 5X, which was officially launched at the latest NBAA show in Las Vegas on October 21st, 2013.

The present and future spirit defining Sogitec's work environment within Dassault Aviation's latest bizjet development programme is significantly similar to that of the Falcon 7X in which Sogitec was highly involved in the documentation (see *InterActions* No. 22, "VPM + Catia + DocTec: winning trio for the Falcon 7X") as well as the simulation and training aspects (see *InterActions* No. 23, "Flight simulation for the Falcon 7X") of the aircraft development and operation program.

The Falcon 7X program has brought some major technological progress to the aeronautical sector, including the entirely digital design of the aircraft and, as far as technical publications engineering is more specifically concerned, the development of a fully digital technical and maintenance documentation by the 7X program partners under the supervision of Sogitec, thus enabling the user to have access to a permanently updated documentation.

Sales Manager Laurent Germe refers to what he calls a "genuine 5X documentation DNA, which should benefit from the best

practice set up and implemented for the 7X aircraft as well as for the whole Falcon range in general".

A DNA summed up in four major aspects

- The first underlying idea is aiming at working even more efficiently with the 5X program partners as it was the case for the 7X. To reach this goal, and depending on the chosen type of cooperation, the idea is to make the exchange of directly usable data smoother and the joint use of specific expertise more systematic.
- The second idea, which is directly linked to the first one, is the objective to produce documents with an even higher degree of quality and consistency, particularly through a greater use of activities linked to logistical support analysis in which Sogitec has invested a lot of money these last few years.
- Third, the 5X documentation is ambitious both in terms of positioning and features, with the generalization of 3D, more specifically for the Aircraft Maintenance Manual (AMM) and the Illustrated Parts Catalog (IPC).
- The fourth aspect is what Laurent GERME calls the "application" twist. The idea is to synchronize part of the technical documentation with a certain number of specific software applications specifically designed to enhance certain industrial processes such as troubleshooting. ❖

“ A genuine 5X documentation DNA, inherited from the best practices and implemented for the 7X aircraft and for the whole Falcon range ”



The first cockpit (located in Saint-Cloud) is modular and it has been used during two phases, the first phase consisting in an initial ergonomics search before a model (validation of the position of the main controls around pilot and copilot seats) was defined in a second phase so as to improve the ergonomics on the basis of set elements.

Simulation and training

Sogitec Industries will naturally play an active part again in the "simulation and training" aspect of the Falcon 5X development. The present and future spirit defining Sogitec's work environment within Dassault Aviation's latest bizjet development program is significantly similar to that of the Falcon 7X.

As sales manager Jacques Bonot underlines, Sogitec Industries is responsible for the development and delivery of the "Simulation Package". This goes beyond the "Data Package" well known by those with

an interest in simulation as it includes, besides the aircraft data and models, a certain number of hardware items too.

CAE, the Canadian world leading simulation company, which already partnered with Dassault Aviation for training on Falcon 7X, 2000 and 900, is in charge of developing the simulators and providing training services to initial customers. Before the aforementioned phase, which has actually just begun, Sogitec delivered two Falcon 5X cockpit replicas to Dassault Aviation (one being located in Saint-Cloud, the other one in

Istres). These two simulators have been designed to perform studies, in particular ergonomics studies. Their purpose is thus radically different as it is "design-oriented" and it does not rely on the "simulation package" at all but rather on an extrapolation of the 5X initial drawings. ■

BEYOND THE « DATA PACKAGE »

- Choice of real cockpit hardware to be integrated in the Full Flight simulator so that the pilot could feel immersed in a realistic environment. Sogitec acquired a knowledge of the cockpit by collaborating with Dassault on the design works (see infra).
- Falcon 5X design data from the different partners is structured and managed in the PLM. The data from the data package necessary for training development originates from the PLM in the latest version applicable for training.
- In addition to design data, the PLM contains system behavior models, some of which are directly integrated into the training simulator.

More than four years after an in-depth renovation the SHERPA simulator – 20 years in service this year – keeps on upgrading to meet the French Army Light Aviation's needs with the planned arrival of an additional "Renovated Cougar" capability besides helicopter deliveries to the Forces.



RENOVATED COUGAR

SHERPA

SHOWS ITS CLAWS FOR ITS 20TH ANNIVERSARY

* See InterActions n°24, June 2009, "SHERPA moves towards the summits"

Designed and installed at the French Army Light Aviation Academy (*École de l'Aviation Légère de l'Armée de Terre, EALAT*), aimed at training and conversion-to-type of Puma and Cougar pilots and flight engineers, the SHERPA simulator is evolving since a third "332 e – Renovated Cougar" configuration is now being installed.

The Army Light Aviation have already been delivered two renovated Cougars. The twenty-one other that are left shall be renovated in order to improve their self-protection system and include a night detection capability, to improve interoperability, and to adjust helicopters to air traffic regulations in general. For the time being, in the context of the SHERPA simulator renovation, tactical aspects are outside the scope of the current works though.

Switching from Puma to Cougar in less than four hours

A roll-in roll-out sim, SHERPA allows to switch from Puma to Cougar configuration, and vice versa, in less than four hours (changing control panels and testing). With modernized avionics implementing MFDs (Multi Function Displays) and the addition of a fourth motorized axis for stationary flight with the autopilot on, the additional configuration will allow to tackle several challenges linked to the entry into service of the renovated Cougar, while keeping a full quick reconfiguration capability.

First, French Army Aviation are not alone to use SHERPA for training purposes as foreign Armed Forces train their personnel there too. Then, the French Air Force's interest is strong as the Caracal helicopters they fly have the same avionics as the renovated Cougar's. Last but not least, pilots and flight engineers obviously keep on training using SHERPA.

More than 2,800 hours in use per year

Thus, making sure all potential users of the simulator are served will be crucial, all the more since SHERPA is one of France's most used helicopter simulation means with 2,800 hours per year. With the delivery planned for February 2015, EALAT and Sogitec Industries have precisely determined the work schedule that allows a clever share of working hours spent using the simulator. The industrial partner can move forward to meet the contractual deadline while military users retain a sufficient training capability to meet their own needs.

Prime contractor for both hardware and software aspects (autopilot, cabin displays, CMA 9000 flight management system), Sogitec Industries, in full consistency with the current NH90 simulators program, establishes itself as a first class simulation designer *via* renewed trust from its EALAT customer. ■



FIELD 5 EXPANDS THE FUTURE OF TECHNICAL PUBLICATIONS

Technical publications have been at the center of a close collaboration between Sogitec Industries, Dassault Aviation and Falcon business jet operators for many years. Today, Sogitec Industries carries on with its innovating approach in the supply of a standardized and homogeneous techpubs for even more efficient maintenance operations.

FIELD 5 (Falcon Interactive Electronic Library by Dassault), i.e. the acronym for the whole set of technical documentation "collections" provided to thousands of Falcon operators, has been keeping them satisfied for four years, *via* quicker access to useful information, a more intensive processing of the extensive content of the documents collection and the integration of third-party application programs (see *InterActions* No.25, " 'Wide Field' Documentation with FIELD 5"). The developments which led to the current FIELD version, which were designed to prepare the future of technical publications, aimed at that time at standardizing an environment in which aircraft maintenance specialists are provided with all the information and application programmes for everyday use. The aim of the "revision service" functions is to carry on with this ambitious and long-term approach and definitely make this solution more exhaustive.

An updated documentation almost immediately usable on aircraft!
"We offer to provide more than six thousand users of the Falcon techpubs with an even more operational technical publications" Sales Manager Laurent Germe explains, which first implies reducing the time interval between two revisions by going further into the lessons learned logic. Lessons learned are not something new since the users daily inform Dassault Aviation of any difficulties encountered when using their support products and services. In addition to this daily reporting, meetings such as Operator Advisory Boards are regularly held by Dassault Aviation commercial support head office (DSC). These meetings aim at collecting the customers' lessons learned to be then analysed by the

relevant teams in Saint-Cloud and Little Rock. At the present time, the periodicity of the revisions is two per year for all the 7X, 2000 and 900 "collections". However the periodicity of revisions directly depends on the analysis of the aforementioned lessons learned. Some information is applicable and therefore taken into account immediately, which is a good solution. On the other hand, other information requires several weeks, or even several months to be analysed and is then integrated into the documentation. Hence accelerating the lessons learned "loop" is a necessity benefiting all users who no longer will have to wait three to six months to get a "collection" update. This is why Dassault Aviation and Sogitec Industries

“ Providing more than six thousand users of the Falcon documentation with an even more operational technical documentation. ”



Six instead of two techpubs revisions per year in the frame of the "revision service". A major leap in quality.

intend to issue six revisions per year instead of two within the framework of the "revision service", which is a major leap in quality.

Additional features for easier daily maintenance operations

Beyond the essential improvement constituted by more frequent revisions, the "revision service" brings additional functions that also aim at making the daily maintenance operations easier for aircraft maintenance technicians and even more

for other aspects. The large number of synoptic diagrams present in maintenance technical publications is processed very carefully in order to improve the graphic quality of the descriptive parts they contain—for better readability—as well as the quality of the updates. This aspect is very important since the synoptic diagrams are widely used in some procedures, especially troubleshooting, and the training sessions of leading partners such as CAE or Flight Safety International also often refer to these diagrams.

An improved multicriteria search function

Another expected new feature: the "reply cards" that meet the need for taking measures regarding a significant number of maintenance procedures: these measures are then recorded for storage and also compared with previous or future measures.

Finally, the FIELD 5 documentary environment, taken as a whole, has improved via a multicriteria search function integrated in FIELD four years ago and recently provided with increased capacities. Additional hyperlinks make it easier to navigate through the documentation, especially when browsing the wiring sections. The software updating processes have been simplified and access to the illustrations is quicker via the "contact sheets".

FIELD 5 goes on preparing the future of the maintenance trade and the related documentation; with the "revision service", FIELD 5 definitely comes within the scope of a continuity and excellence process with innovating solutions focusing on users and their daily needs.



SOGITEC TO LAND AT



SOLUTIONS FOR THEORETICAL AND HANDS-ON TRAINING OF AIR-LAND SPECIALISTS

Sogitec will attend the 2014 edition of the Eurosatory exhibition, which will take place from Monday, June 16th until Friday, June 20th at the Parc des expositions Paris Nord in Villepinte (Seine-Saint-Denis). The company will have a booth in the now traditional Simulation & Training sector and will be closely involved in the SIMDEF 2014 seminar as well as in the 60th anniversary of the Franch Army Light Aviation. It will present its offer in terms of theoretical and hands-on training of the air-land specialists.



Where to find us: Hall 5, pôle technologique «Simulation et entraînement», stand LK83 To contact us: contact@sogitec.fr

All lights will be on the NH90 simulator. The capacities and performances of the MRTD presently operated in Le Luc will be demonstrated via a full and realistic operational scenario. The Tiger attack helicopter will also be showcased with a demonstration of its maintenance trainer developed in partnership with Airbus Space & Defence and currently operated by the French-German Academy.



Two years after participating to the first edition, Sogitec Industries will be exhibiting again at ADS Show, the international show for defense aircraft global support, September 9-11, at Bordeaux-Mérignac Air Force Base.

Sport, health, and solidarity: the three key components presiding over the "Course du Cœur" (Heart Race) which has been a major event for many years. Held yearly to promote organ donation, this year's Race was contested by sixteen teams. Athletes competed in a demanding four-day-four-night-long relay race run between Paris and Bourg-Saint-Maurice, in the French Alps. A faithful partner to the Course du Cœur, the Dassault Group was part of the 2014 race with a mixed international team of 14 runners representing the Group's diversity. For the first time, a prestige patronage was held since former Minister and astronaut Mrs Claudie Haigneré was the Dassault Group's team's patron.

SOGITEC ACE OF HEARTS



Closely involved in the race's preparation, promotion and running, Sogitec was represented by Dominique ROBIN, from the Bruz facility. Beyond physical and sports performance, it is the joint contribution to a paramount and just cause that must be underlined. Sogitec Industries, within the Dassault Group, is glad and proud of having made its contribution to this cause. Sogitec was also involved in World Kidney Day 2014, March 13. Like many around the world, Sogitec's employees showed their support to this public health cause by drinking one big glass of water. A simple gesture for much greater awareness.

www.lacourseducoeur.com www.fondation-du-rein.org



MIRAGE 2000D SIM REACHES 50,000 HOURS

The Mirage 2000D simulator operated by 2/7 Argonne Squadron at Nancy-Ochey Air Force Base has reached 50,000 hours in operation. Around 400 pilots and navigators have been trained using this "flight and mission" training system first delivered by Sogitec in 1996. It is today maintained by Sogitec within the framework of an ISS contract with the French SIMMAD (the French Defense Ministry agency in charge of aircraft joint ILS). The simulator is used 2,000 hours per year.



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