CRITICAL SOFTWARE PRESENTATION

DEFENCE AND SECURITY

- *Spin-off* of the University of Coimbra (Portugal), July 1998
- Military and Civil Markets with customers around the globe
- Offices in Europe, US, South America and Africa
- Fast growth achieving 20M€ annual turnover in 2011
- NATO/EU Secret clearance
- More than 330 highly qualified engineers
- Development and Management processes aligned with best practices (ex. CMMi nível 5, PMBoK)

DEPENDABLE SOLUTIONS FOR BUSINESS AND SAFETY CRITICAL SYSTEMS

Coimbra University Founded in 1290

Critical Group

Critical SGPS Portugal

CRITICAL group

CRITICAL ventures

SERVICE COMPANIES

Critical Software S.A.

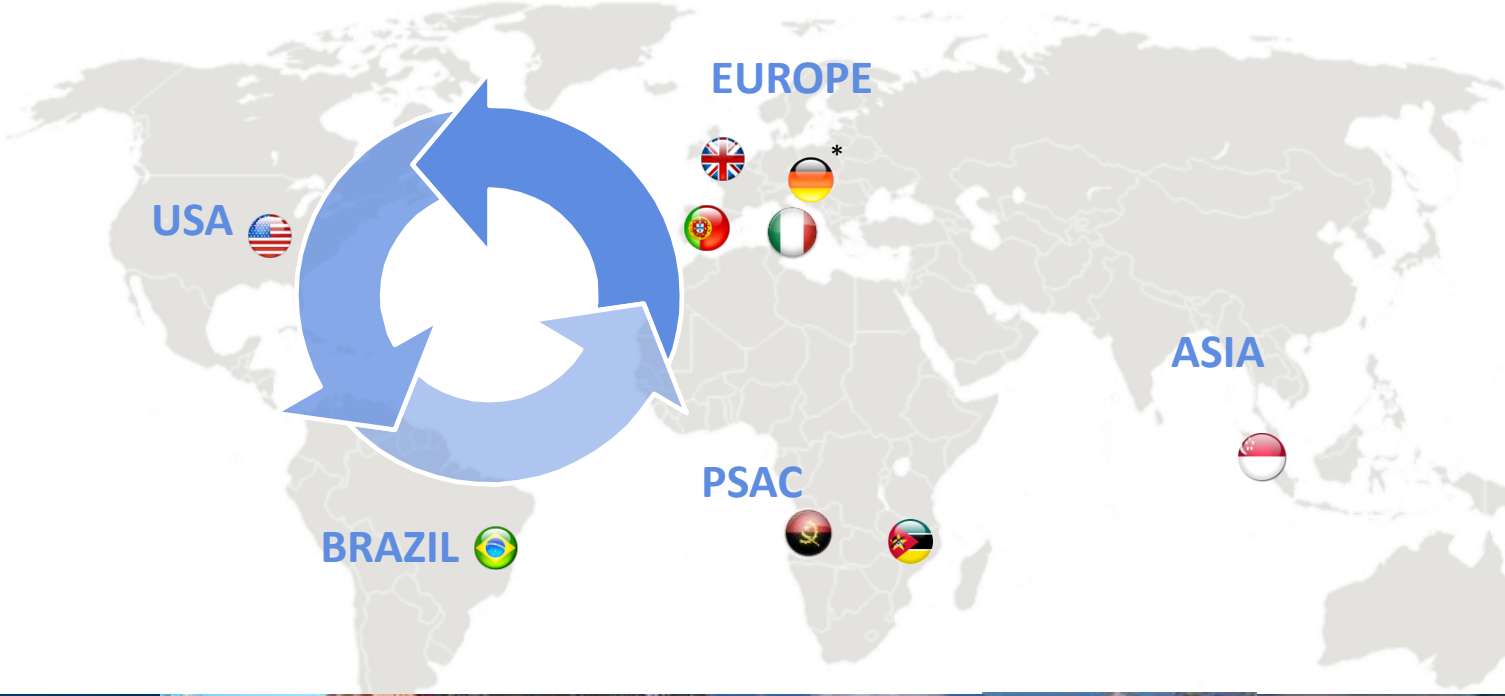
Coimbra, Porto, Lisboa Portugal	**CSW Limited** San Jose, USA	**CSW Technologies** Southampton, Yeovil, UK	**Critical Software Brazil** SJC, SP, Brasil	**Critical Software Mozambique** Maputo, MZ

PRODUCTS COMPANIES

Critical Links Coimbra, Portugal	**Critical Materials** Guimarães, Portugal	**Critical Manufacturing** Porto, Portugal Regensburg, Germany Suzhou, China	**Critical Health** Coimbra, Portugal

Critical software

Offices and Locations




COIMBRA, PORTUGAL


LISBON, PORTUGAL


OPORTO, PORTUGAL


SOUTHAMPTON, UK
YEOVIL, UK


SAN JOSE, CA, USA

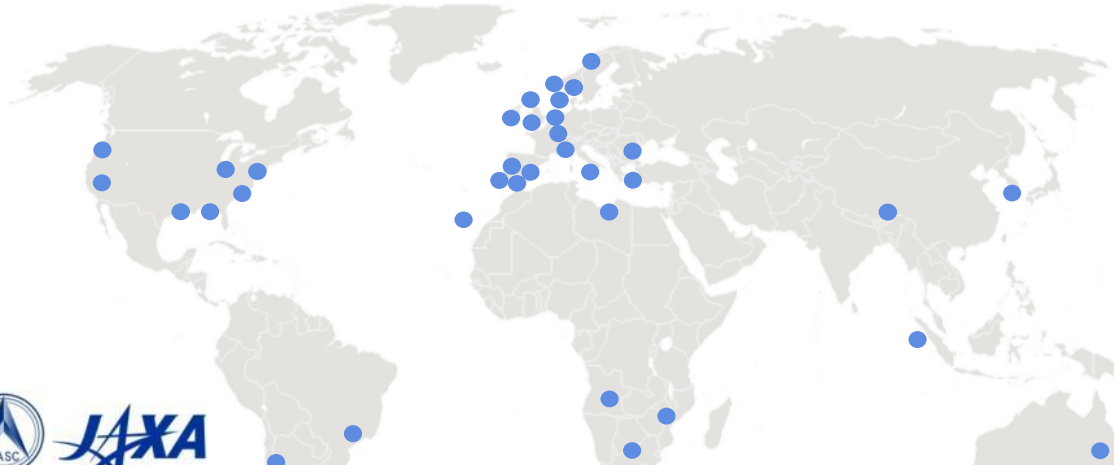

SAO PAULO, BRAZIL


Maputo, MZ

* Sales representative, German offices planned for 2012

Critical software

Customers – Worldwide Presence



esa · NASA · CASC 中国航天 · JAXA · GALILEO · ASTRIUM AN EADS COMPANY · EADS CASA ESPACIO · Thales Alenia Space A Thales / Finmeccanica Company · INPE · DCTA · IAE · JPL · MINISTRY OF DEFENCE · DIRECÇÃO DE NAVIOS · Marinha · GE Transportation · AgustaWestland · AIRBUS · VEGA SPACE Telespazio, a Finmeccanica / Thales Company · MAI · DNV · WORLD BANK · ESO · EUROCONTRO · SEF SERVIÇO DE ESTRANGEIROS E FRONTEIRAS · scisys · BAE SYSTEMS · EUMETSAT · SAE International · RUAG · softwcare · TERMA · gmv INNOVATING SOLUTIONS · AES Atlas Electronic Systems · SPACEBEL · SpaceSystems Finland · QinetiQ · efacec · ALCATEL · DaimlerChrysler · mobi europe · SOPORCEL Sociedade Portuguesa de Papel, SA · Septentrio satellite navigation · APTS Advanced Public Transport Systems · afocelca · acs ADVANCED COMPUTER SYSTEMS · ANA Aeroportos de Portugal · SEA · SAYGROVE · COTEC Portugal Somos Inovação

Critical software

Certified Quality

October 2001
Quality Department is formally created

Nov. 2001
1º SPICE Assessment ISO15504

May 2003
2º SPICE Assessment ISO15504

March 2004
ISO 9001 TickIT Certification

Dec. 2004
ITIL Certification

March 2005
ISO 9001 TickIT Certification

Set. 2005
AQAP Certification

March 2006
EN 9100 & 9006 Certification

March 2006
CMMI Level 3 Certification

Dec. 2008
Certification on Six Sigma practices

Dec. 2009
CMMI Level 5 Certification

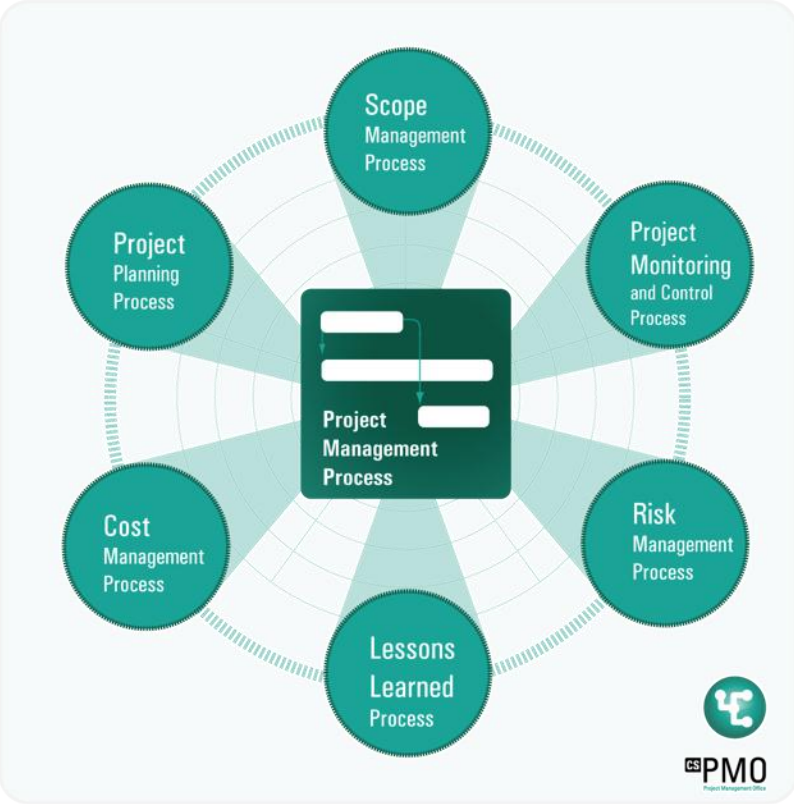
June 20011
CMMI Level 5 Intermediate Internal Evaluation

June 2012
CMMI Level 5 Certification renewal

Project Management Office

- Critical implements a directive PMO department
- Responsible for the project execution and for the definition of best practices, coaching Project Managers, portfolio management
- A significant number of the Project Managers at Critical are certified by the PMI (Project Management Institute)

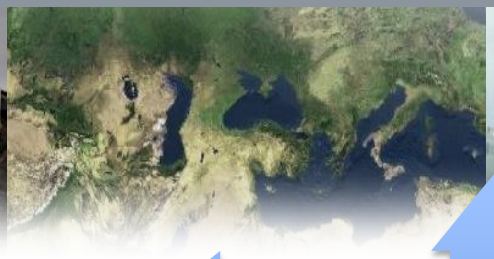
PROJECT MANAGEMENT KEY PROCESS

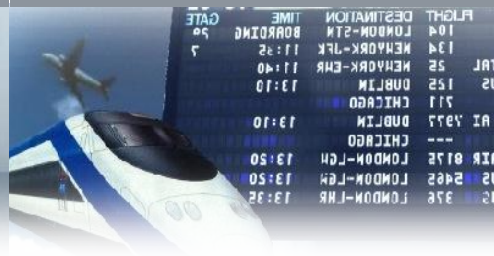


PROJECT MANAGEMENT OFFICE

Business Units and Markets

AERONAUTICS | SPACE | DEFENCE | TRANSPORTS



DUAL USE TECHNOLOGY





FINANCIAL | ENERGY | GOVERNMENT | TELECOM | MANUFACTURING

Engineering Services - Competencies

Engineering Services

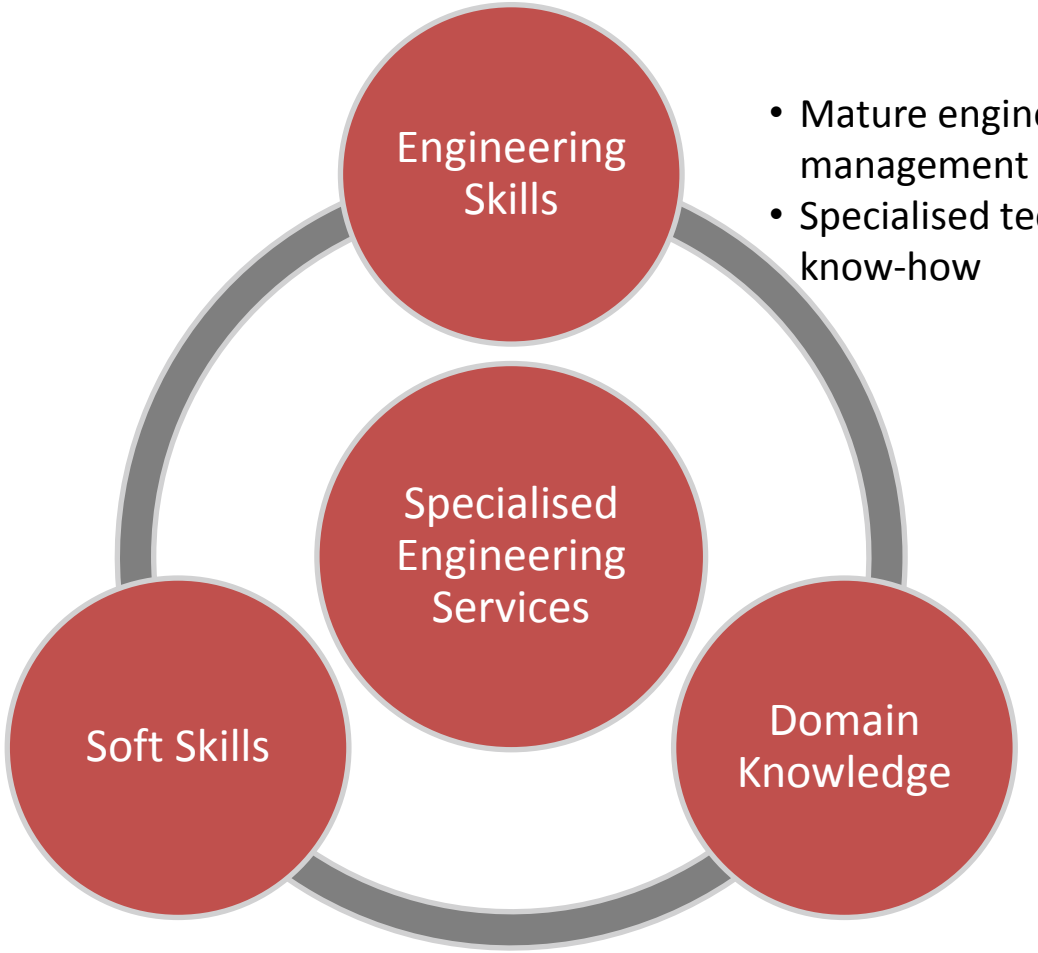
Safety Critical Development	Safety Critical Validation		Systems Development and Integration	Security
	Verification and Validation (and ISVV)	RAMS - Reliability, Availability, Maintainability and Safety Analysis		

ASD&T




AERONAUTICS	SPACE	DEFESE & SECURITY	TRANSPORTS

Engineering Services - Competencies



- Mature engineering and management processes
- Specialised technological know-how

- Team flexibility and efficiency
- High quality standards

- Industry specific know-how
- Cross domain experience

DEFENCE AND SECURITY OFFER

Overview

DEFENCE AND SECURITY OFFER

SOLUTIONS:

INTEGRATED LOGISTICS SUPPORT

MARITIME SOLUTIONS

EMERGENCY MANAGEMENT

INFORMATION SECURITY

COMPETENCIES:

EMBEDDED SOFTWARE

VERIFICATION &VALIDATION

SIMULATION

EARTH OBSERVATION

CYBERSECURITY

DEFENCE AND SECURITY OFFER

SOLUTIONS: INTEGRATED LOGISTICS SUPPORT

BEYOND LOGISTICS

Bringing efficiency to future forces logistics and operations

SOLUTIONS

Critical software

INTEGRATED LOGISTICS | MARITIME SOLUTIONS | EMERGENCY MANAGEMENT | INFORMATION SECURITY

ASSET MANAGEMENT:
General information, state, availability, condition/usage, allocation to tasks.

TRAINING:
Define and control training capability, manage competencies, plan training, training records

FLEET MANAGEMENT:
Composition and structuring, fleet capability, sustainment infrastructure, resources and facilities.

SUPPLY MANAGEMENT:
Demands and returns, inventory, stored items.

MAINTENANCE MANAGEMENT:
Identify required tasks, plan maintenance, work orders issue, execution and closure.

MISSION PLANING:
Specify operational tasks, operational context, mission definition through waypoints.

HEALTH MONITORING:
Gather health and usage related information and correlate with task assignments, prognostic and diagnostic.

MISSION DEBRIEFING:
Operational task outcome, incidents, special events.

INTEGRATION OF ALL FUNCTIONS

BENEFITS

- Improvement of each individual function benefiting from shared information
- Integrated definition of policies, objectives and metrics definitions and enforcement of these
- Integrated management and performance reports
- Integration of legacy systems

CONCLUSIONS

OBJECTIVES

- Reduce Total Cost of Ownership (TCO)
- Improved serviceability
- Better capacity planning
- Long term forecasting
- Improved supplier relationship
- Risk reduction

OUR APPROACH

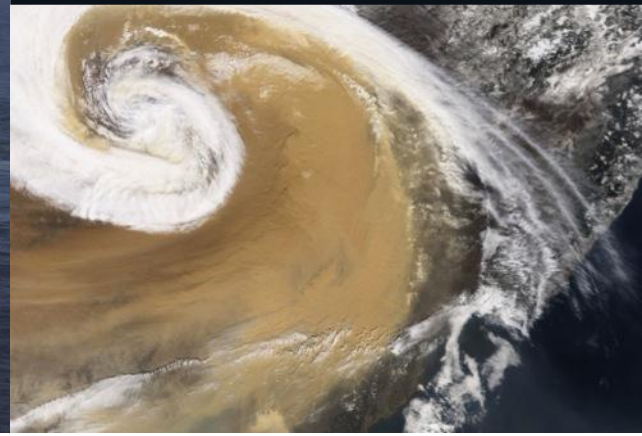
Consulting Services + Integrated Operation Support Solution

MARITIME SOLUTIONS:

SEARCH AND RESCUE

SEA LAW ENFORCEMENT

ENVIRONMENTAL MONITORING



SEARCH AND RESCUE:

Maritime Situation Awareness: Integrated and consolidated visualization of SAR alerts, maritime traffic and meteorological data

Anticipate distress situations (e.g. behaviour monitoring) and support operations planning (e.g. pre-positioning of SAR resources)

Incident response decision support (e.g. search area calculation, maritime drift analysis) and command and control (e.g. message generation, resource localisation)

Secure and reliable inter-agency data exchange and cooperation capability (e.g. namely with law enforcement and environmental agencies)

Monitor mission effectiveness and efficiency levels

SEA LAW ENFORCEMENT:

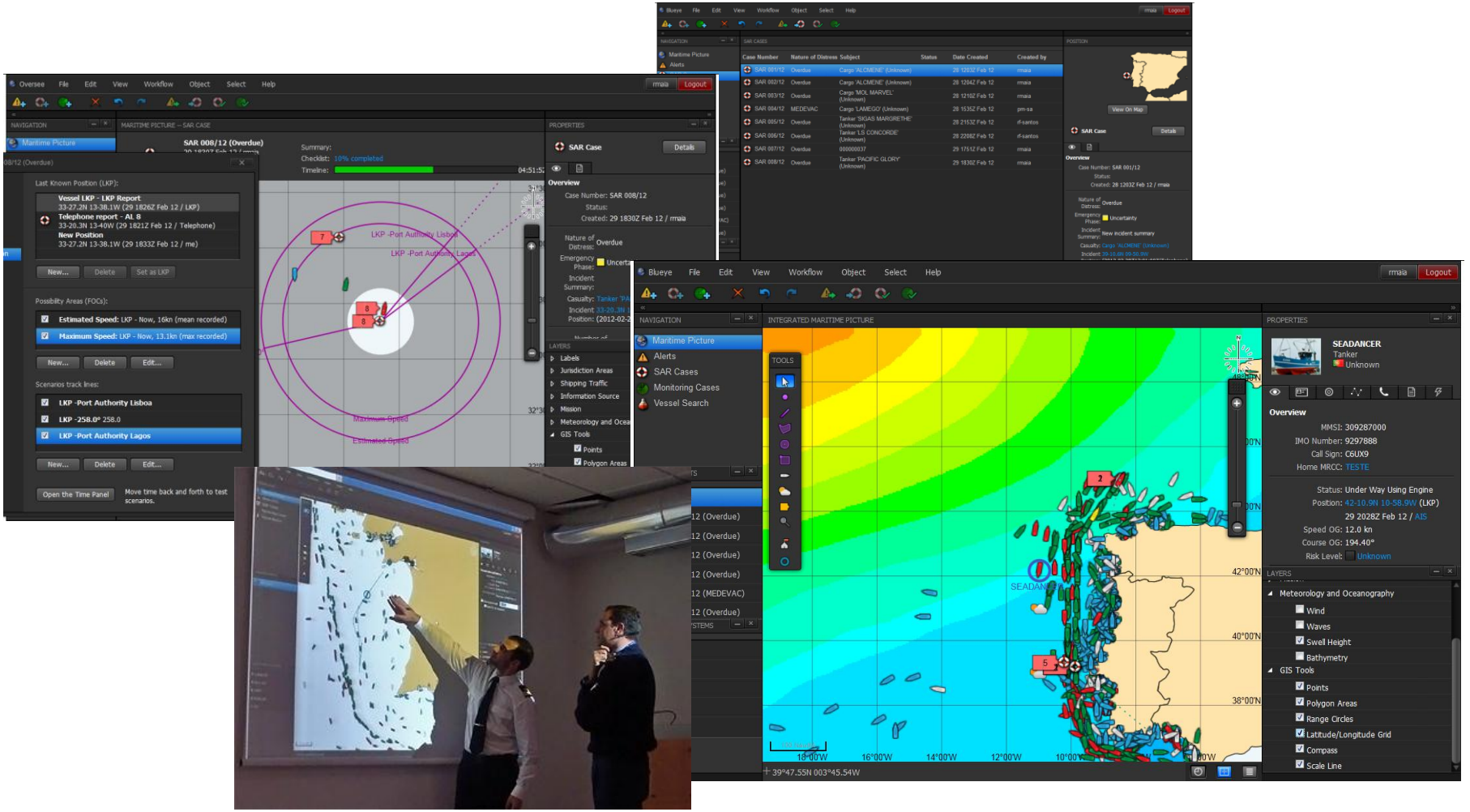
- Plan inspections based on when and where illicit activity is more likely to occur
- Improve inspection operations
- Coordination of inspection activity
- Situation awareness
- Secure and reliable information exchange with other law enforcement entities and maritime agencies
- Monitor mission effectiveness and efficiency levels

ENVIRONMENTAL MONITORING:

- Monitoring of the marine environment parameters of off-shore infra-structures
- Pollution incident prevention
- Pollution incident detection, response and decision support
- Secure and reliable information exchange with other entities and agencies (namely law enforcement)
- Monitor mission effectiveness and efficiency levels

SOLUTIONS

INTEGRATED LOGISTICS | MARITIME SOLUTIONS | EMERGENCY MANAGEMENT | INFORMATION SECURITY



- Emergency Management dispatching centers
  - Interactive Voice Response (IVR) based call taking
  - Filtering multiple reports of the same event and abusive service usage
  - Automatic user identification
  - Automatic localisation for both mobile and landline calls
  - GIS based situational awareness display
  - VOIP based connectivity
  - High availability and disaster recovery capabilities.
- C2 systems for emergency management (e.g. fire response)
- Surveillance Systems

SECURE YOUR CORPORATE DIGITAL ASSETS

- Control Mishandling and Misuse of confidential information shared on company networks
- Complete Information protection solution Integrated with Microsoft Product Suite
- Based on a multilevel approach, csSECURE controls the access to objects (documents, e-mails, …) based on the worker security clearance and on the object security classification.

csSECURE
Information Protection System

www.cssecure.net

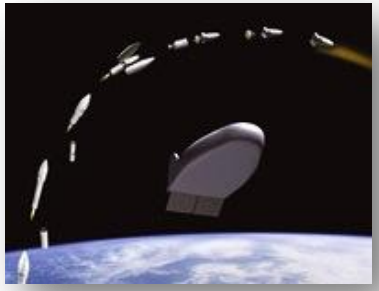
DEFENCE AND SECURITY OFFER

COMPETENCIES

- Development of embedded software with or without real-time constraints
- Mature high-integrity Software development process
- Production of all artefacts for certification according to the applicable regulations (DO178B, GSWS, EN50128)
- Technological expertise: DOORS, EA, Ada, C/C++, LDRA, IPL Cantata, AdaTest, Polyspace, etc
- Full systems development (HW+SW) supported by COTS integration and/or third parties development

Future Launcher Preparatory Programme (FLPP):

Analysis of the on-board avionics computer. Define the on-board computer requirements and validate these against mission.



Future Lynx:

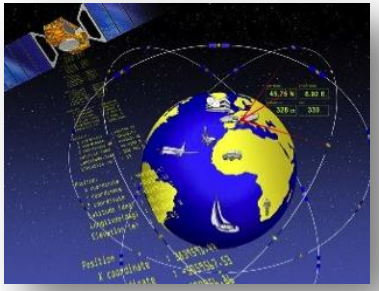
Support to all development life-cycle activities (DO178B) of the Future Lynx Helicopter tactical processor.

Autonomous Guidance System:

Development of an Autonomous Guidance System and support its certification according to CENELEC 50126, 50128 e 50129.

Galileo:

Development of the on-board software for the security units responsible for encryption/decryption of the satellite communications.



- Verification and Validation and Product Assurance
- RAMS (Reliability, Availability, Maintenability, Safety) techniques expertise
- FDIR (Fault Detection, Isolation and Recovery) techniques expertise
- Expertise in different regulations

  (ECSS-E-40B, Q-80A, RTCA/DO-178B; EUROCAE/ED-12B; ISO15504 (SPICE), S4S; DEF-STAN 00-55, 00-56; MIL-STD-498; IEEE/EIA-12207; CENELEC 50128)
- V&V processes definition
- Tools Development (csXception, csTestOO, csXpy)
- Expertise in a broad range of comercial tools
- Recognised V&V provider in Space market working with European Space Agency (ESA), NASA e China

http://asd.criticalsoftware.com.br/products_services/isvv

Space Missions ISVV:

Definition of the ESA ISVV (Independent Software Verification and Validation) guide and verification and validation of the on-board software of several missions (LisaPathfinder, CryoSat-2, GOCE, Sentinel-1, etc).

Launcher Vehicle V&V Plan:

Definition and implementation of a V&V plan for a satellite launcher vehicle on-board control software

VHDL Verification and Validation Methodology:

Definition of the Verification and Validation processes and methodologies applicable to developments using hardware descriptions languages (e.g. VHDL), namely CBERS-3 e 4 satellites development.

Avionics Systems Validation:

Validation of the Gulfstream G650 energy distribution system.

- Space, Aeronautics, and Defence
- Experience in:
  - Operators training simulators
  - Space missions operational simulators
- Technological Expertise
- Expertise in European Space Agency and prime contractors reference simulation platforms and Software Validation Facilities

COMPETÊNCIAS

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SIMUAV Flight Simulator:

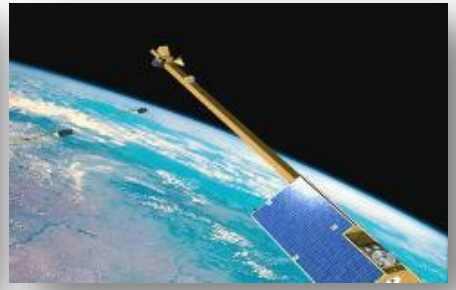
Development of SMP (Simulation Model Portability) based reusable simulation models; interoperability with HLA/IEEE 1516, Datalink STANAG 4586.

Helicopter Training Simulator:

Development of the AgustaWestland A109 Instructor Operation Station (IOS).

Space Mission Simulator:

Development of the SWARM misson operational simulator to be used in the satelite operators training

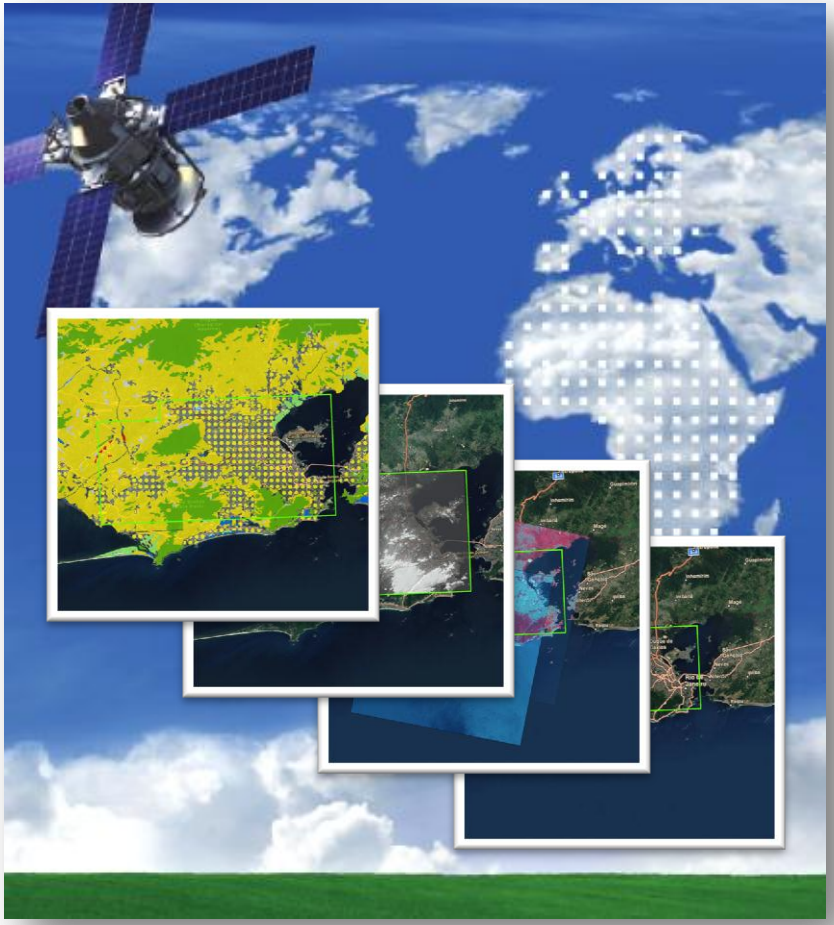


End-to-End Simulation:

Development of an infrastructure and an implementation methodology to enable integration of heterogeneous simulation models allowing end-to-end satelite simulation.

COMPETÊNCIAS

- Earth Observation (EO) data processing services
- Fire risk mapping, fire detection and monitoring, and burnt areas mapping
- Landslide and flooding risk mapping
- Land Monitoring Services:
  - Land use and land cover
  - Change detection
  - Desertification
  - Forestry management



Land Monitoring Services for Rio de Janeiro, Brazil:

Land sliding or flooding risk mapping.

Monitoring land use namely construction.

Fire Prevention and Mitigation:

Development of a C2 system to support forest fire combat in the south of Europe

www.premfire.net

SAFER – Services and Applications for Emergency Response:

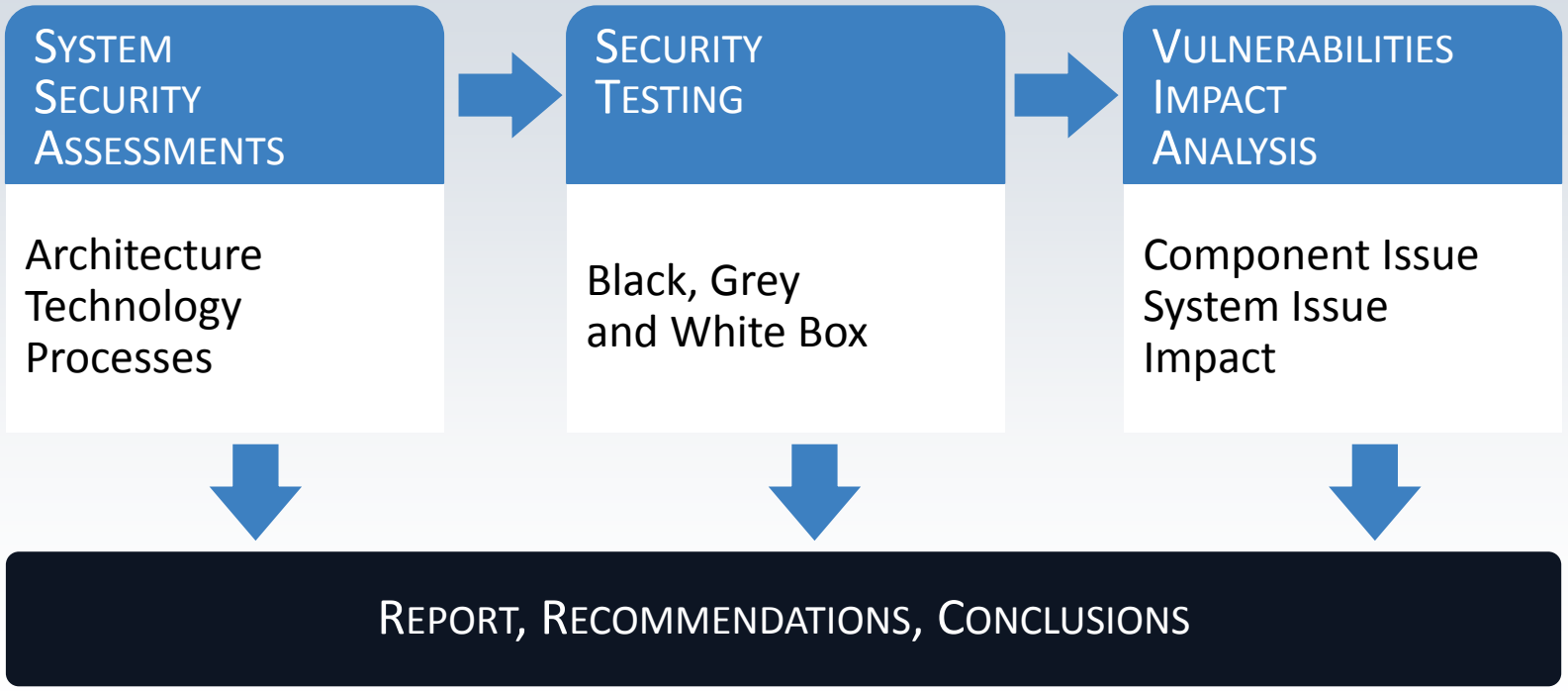
Development of Emergency Response Core Services for the automatic detection of burnt areas and real-time fire monitoring

safer.emergencyresponse.eu

Desert Watch:

Semi-automatic Earth Observation (EO) data processing extracting land occupancy cartography and desertification indicators

DEPENDABLE SECURITY SERVICES



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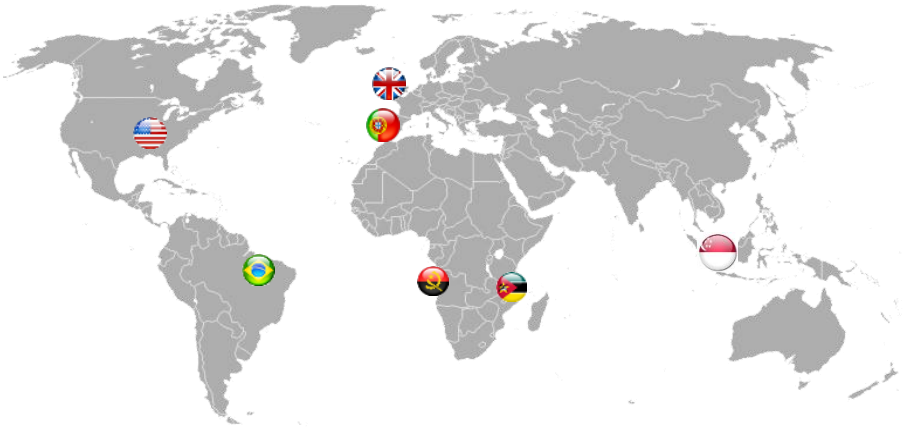

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