



Marco Salvietti

SVP Defence Communications Systems
Land & Naval Division

WinnComm Europe 2014 - Rome



Keynote

Selex ES, Defence Communication Systems Line of Business

Selex ES solutions/products are ready, duly experimented and on-field

- Software-Defined-Radio Background
- Scenarios
- Solutions & Products

Military Land&Naval Software-Defined-Radio Market is ready to massively start

- Selex ES in favour of the national and international market





Key facts

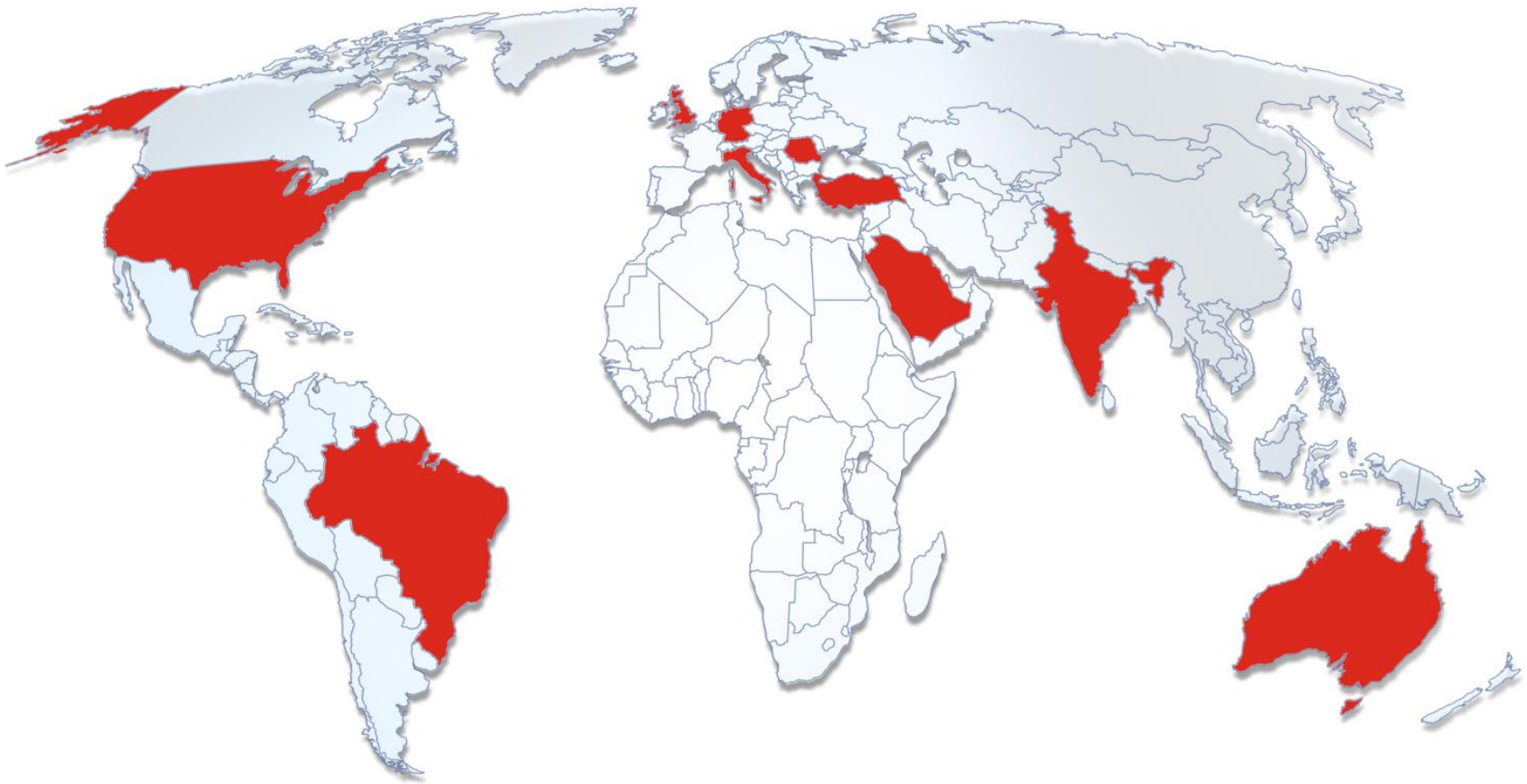
- 17,000 people
- Revenues in excess of 3.2 billion Euros
- More than 17.5% of investment in R&D
- 70% engineers and personnel with technical qualifications
- Worldwide industrial footprint



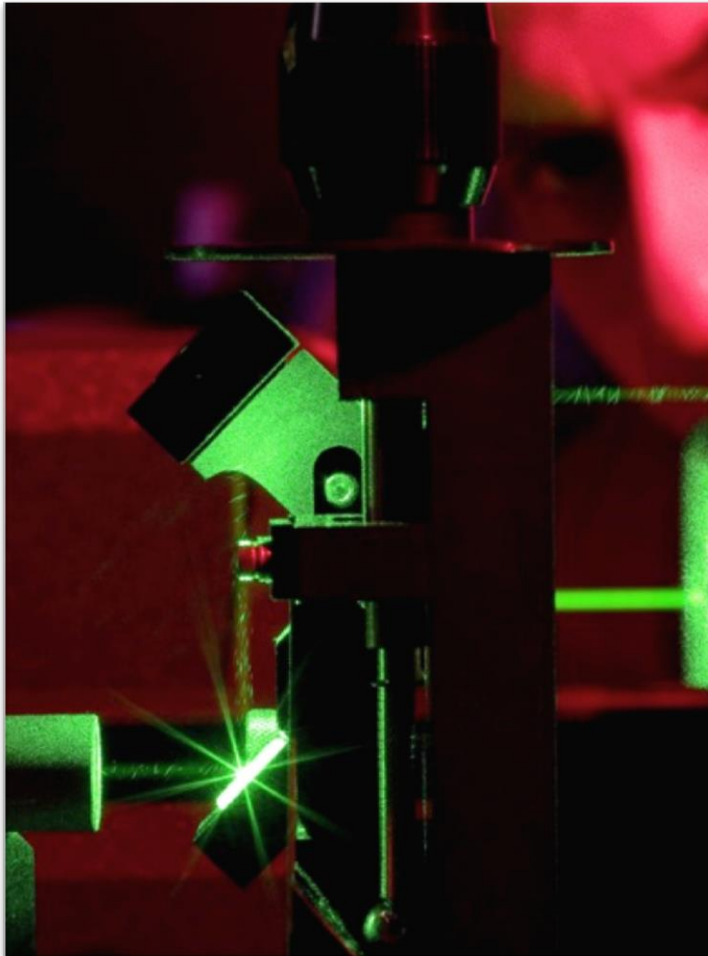


An international leader

- Industrial and commercial footprint in the US, Germany, Turkey, Romania, Brazil and Saudi Arabia
- Fully owned subsidiaries across the globe



Innovation is in our DNA



- **From Universities, Academia and SMEs to European funded projects and EDA, ESA, ASI and NATO** programmes to innovation activities rooted in home markets, Selex ES invests and nurtures innovation wherever it will grow
- **Focused on new technologies and emerging domains** to widen our capability and provide the answers required by technological innovation
- **With an overall strategy to ensure technological growth**, Selex ES has in-house laboratories devoted to specific areas of applied research and effective integration of innovative components within the existing capability portfolio
- **Protection of intellectual property** through both patent and trademark registration and in-house initiatives that stimulate the proposal of new ideas
- **Continuous and stable investment in Research and Development** on key technologies with collaboration in joint research and innovation with a wide range of partners.

An aerial photograph of a naval fleet at sea. In the foreground, a large aircraft carrier is moving towards the viewer, leaving a white wake. Behind it, several other ships, including destroyers and frigates, are positioned in a loose formation. The water is dark blue, and the sky is a pale, hazy blue. The image is framed by a white diagonal line in the top right corner.

Land and Naval Systems

Strategic Assets and Mission Systems
Solution to enable operability of
defense organizations worldwide.

Design capabilities to meet the most
challenging military requirements and
insertion of edge technologies.

- Integrated Command & Control Systems for Naval & Land applications
- Land & Naval Sensors
- Communication Systems to enable interoperability
- Battlefield solutions and equipments to support out of area operations
- Protection Systems

Selex ES' Land and Naval Systems offer

Innovative and affordable critical mission systems for demanding customers

- We offer a complete product portfolio, integration capabilities and services to meet the most demanding requirements of Armed Forces, Military General Staff, NATO
- We are acknowledged suppliers of integrated, innovative and affordable turnkey solutions for the military sector all over the world, with a leading role in many important programs.

Naval & Air Defence Systems



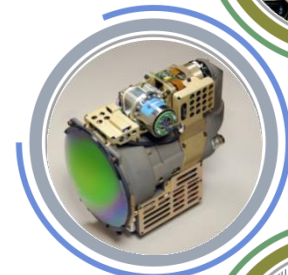
Land & Battlefield Systems



Defence Communications Systems



Optronics Systems



Support & Service Solutions



Defence Communications Systems

Key products

- Soldier Systems
- Software Defined Radio (SDR) Systems
- HF radio systems
- Tactical IP-based networks (Land & Naval)
- Naval communications systems
- Counter-RCIED systems
- Electronic Warfare systems
- High Grade crypto and Secure systems
- Routers and Switches
- Satellite communications
- Communications Management systems



Personal Role Radio



SDR Vehicular terminal



HF Radio systems



Satcom TSM305 terminal

IT & Selex ES Investments in military SDR

Deep Roots in Company's culture

- **Background** – Selex ES has been involved since early 2000s in Design&Development of SDR with the aim of developing a SDR family based on the new emerging requirements.
- **Know-How** - Gained a deep understanding of the Software Communications Architecture (SCA) concept and specification.
- **International experience** – A position of leadership has been recognized to Italy and Selex ES of the works of design/development of the SCA Architecture within the **ESSOR European SDR program**.
- **From technology to products** - At the beginning of the current decade, Italian MoD paved the way to the industrial transition of the SDR technology, kicking of the “**Forza NEC**” program (2010), for NEC Transformation of Land/Amphibious Forces, and establishing **National SDR Program** (2011), for the design & development of Waveforms and extended SDR Platforms.

SDR design & development has always been financially supported by the Italian MoD (partly GFX products). More on IT national vision has been told by Adm. Di Biase.

Foundations of product solutions come from...

Deep Roots in Company's culture

		EU	<ul style="list-style-type: none"> •Background studies (WINTSEC)
		JTRS MIDS	Know-How development <ul style="list-style-type: none"> •Link 16 PA Design •Terminal integration
		EDA	<ul style="list-style-type: none"> •Background studies (SCORED/WOLF/ESSAC) •CORASMA (Cognitive Radio)
		NATO	<ul style="list-style-type: none"> •Working Groups (C3SNR SDR (5 nations)-SDRUG •NATO Narrow Band Waveform (Cap1/LoSCommsCat) •NATO WBWF
		WINNF	<ul style="list-style-type: none"> •Member Wireless Innovation Forum Board •SCA Coordinating Committee, SCA4.1
		SDR-N / F-NEC Program	<ul style="list-style-type: none"> • Design & Develop Joint SDR Platforms • Design & Develop legacy waveforms for Joint interoperability(SDR-N /FNEC) •Land Platform integration •Design & Develop Networking WFs
		ESSOR Program	<ul style="list-style-type: none"> •EU ESSOR SDR Architecture •HDR Coalition Wideband Networking Waveform •Promote SDR activities in NATO
		COALWNW	<ul style="list-style-type: none"> •Multinational Coalition Wideband Networking Waveform



Software-Defined-Radio Products

Status & Market Approach in Selex ES



The **Software-Defined Radio** (SDR) technology is now **ready into products** and enables radio functions to be defined in warfighters' radios across the globe, not just in national government programs

Products are **nationally and internationally deployed** and recently the number of trials, experimentations and bid process abruptly increased.

Selex ES is **ready to support** nations by:

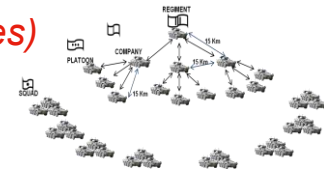
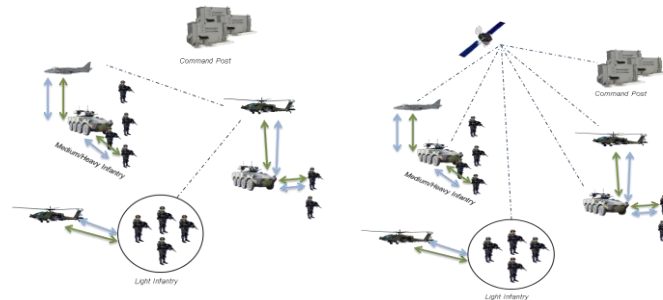
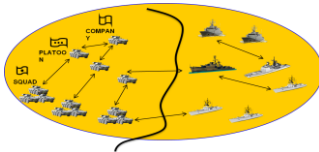
- Delivering systems/products for **digitalization of the battlefield**, as in Italy
- Building services and infrastructures to **localize the SDR product capability** in emerging nations

Operational use cases vs SDR Waveform Products

Highly representative scenarios

Selex ES Waveform portfolio covers a wide range of operational scenarios.

- #1: *Multi-services (critical) wideband communications for Dismounted Squad*
- #2: *Land Mobile (“Coalition”) Backbone Communications (Light multirole /armored vehicles)*
- #3: *SAT Assisted Land & Airborne*
- #4: *Ground-Air-to-Ground Land & Airborne*
- #5: *Long Distance BLOS Land & Maritime*



In Tactical Radio Workshop, dedicated presentations will show :

- how Selex ES WF product portfolio suits in the above scenarios show
- the experiences through which Selex ES is now one of the **major player in SDR communications** in the international panorama

SDR Platforms

Hardware PLTFs

- Handheld HH
- Manpack MB1/VB1
- Vehicular Radio/Node VQ1
- Infrastructural/Naval

Software PLTF

- Software Communication Architecture
- Operating Environment
- Platform Apps

Ancillaries

- HPA/Couplifier
- Headset/Wireless PTT
- PTT/Video box
- Multirole Antennas
- Battery charger
-



SDR HH



SDR VM-3
Single-Channel
Vehicular

SDR Waveforms

New Generation WFs

- Soldier Wideband Radio/Network
- Vehicular Wideband Network
- Soldier/Backbone Narrowband Network
- Critical squad Communications

Legacy Waveform

- Soldier Radio
- Combat Net Radio
- Ground-Air-Ground
- SATCOM
- BLOS connectivity



SDR VQ1
Vehicular 4 Channels



SDR MB1/VB1
ManPack & Vehicular
2 Channels

SW Applications

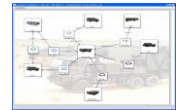
Off-the-field

- Waveform Upload
- Software Update
- Test Tool
- Mission Configuration Planning



On-the-field

- Network Management System (Planning, EMS, NMS)
- MIB/SNMP Manager
- Waveform plug-in



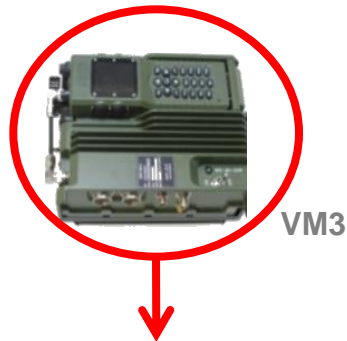
Communication Services



Multi-Channel SDR
Infrastructural Naval

SWave® SDR HH in Deployed systems

- Mass production phase
- Fielded in Soldier Systems (Soldato Futuro, SIC)
- Fielded in VBM 8x8 and VTMM Vehicles



Several
Thousands
manufactured
and delivered
in current
Production
line



- ✦ Dismounted Soldier and Vehicles Product Accessories
- ✦ 50 W PA Units

Dual channel MB1/VB1 Manpack SDR Platform



- F-NEC CD&E
- VTLM 2
- Centauro 2
- VBM



MB1



VQ1

Vehicular Platform four channels VQ1

- ✦ Breakthrough Product Ancillaries
- ✦ Network/Service Management System





Software-Defined-Radio Products

A ready technology



SDR **product portfolio is ready** to address the requirements and challenges of modern military Forces

Selex ES has a **continuous improvement** commitment for further strengthening SDR Products Family

Increasing the supported waveforms and applications vs **customers needs** is our main goal.

We are ready and willing to **establish partnership for national-level activities** to tailor waveforms/applications in front of specific needs.



THANK **YOU** FOR YOUR ATTENTION

Marco Salvietti
SVP Defence Communication Systems
Land & Naval Systems Division



Selex ES S.p.A.
via Tiburtina km 12.400 – 00131 Rome, Italy
Tel. +39 064150.1 – www.selex-es.com