# *Dzień dobry!*

# CRITICAL COMMUNICATIONS TODAY AND TOMORROW

***"Reports of the death of TETRA have been greatly exaggerated"***

**Tony Gray**

***Board Member***

***TETRA & Critical Communications Association (TCCA)***

RadioEXPO 2016
Konferencja Radiokomunikacji Profesjonalnej

# *Current TETRA market*

- Norwegian TETRA network was completed, BDBOS Germany network with around 4,500 BS and almost 600,000 users is becoming fully operational.
- There are plans for enhancements (Italy), refreshments (Belgium, Finland...) and also replacements (Netherlands) of nationwide TETRA networks in Europe with new TETRA equipment.
- Numerous new contracts announced worldwide including the TETRA communication systems for the Rio Olympics, major security events and vital transportation infrastructure.
- North America is seeing rapid growth following FCC and Industry Canada rulings, with increasing numbers of TETRA contracts awarded in the region, e.g. BC Hydro, Toronto Transit, New York City Transit, New Jersey transit, etc.

# Current TETRA market

## Some Contracts Announced January – May 2016 (links on the TCCA site)

- **May:**
  - *Latin American forestry* http://www.tandcca.com/about/article/25667
  - *Public safety in South Africa* http://www.tandcca.com/about/article/25666
- **April:**
  - *Brasilia metro* http://www.tandcca.com/about/article/25634
- **March:**
  - *Fiumicino Airport, Rome* http://www.tandcca.com/about/article/25483
  - *Coverage for Rio 2016 Olympic Games* http://www.tandcca.com/about/article/25482
  - *Biathlon World Championships Norway* http://www.tandcca.com/about/article/25468
  - *Police in Madhya Pradesh* http://www.tandcca.com/about/article/25448
- **February:**
  - *German Federal security forces* http://www.tandcca.com/about/article/25305 *(one of several German public safety contracts announced)*
  - *Munich Security Conference* http://www.tandcca.com/about/article/25277
- **January:**
  - *Reinvestment nationwide Hungarian network* http://www.tandcca.com/about/article/25224
  - *Public security in Peru* http://www.tandcca.com/about/article/25225
  - *Network upgrade in New Jersey for Diverse Power* http://www.tandcca.com/about/article/25222

# *Current TETRA Market - regions*

## Installed base

- The worldwide installed base is projected to increase at a rate of 6.2% from **3.6 million** active radios at the end of 2015 to nearly **5 million** at the end of 2020.
- Europe remains the largest market for TETRA in active radios with a **53% share** of the world installed base at the end of 2015. However Europe's share of the overall market is predicted to decline slightly to **48%** at the end of 2020, as the installed base in other regions including MEA and the Americas grows.
- Asia is projected to be the second-largest region in the installed base with the MEA the third largest.
- The American installed base is forecast to be led by Latin America from 2015 to 2020 although North America is also forecast to grow substantially from 2015 to 2020 and beyond. The installed base of active radios in the Americas is projected to grow from **24,000** at the end of 2015 to **147,200** at the end of 2020.

Source:

# Current TETRA Market - verticals

- The public safety and security (PSS) sector represents the largest installed base by far for TETRA.

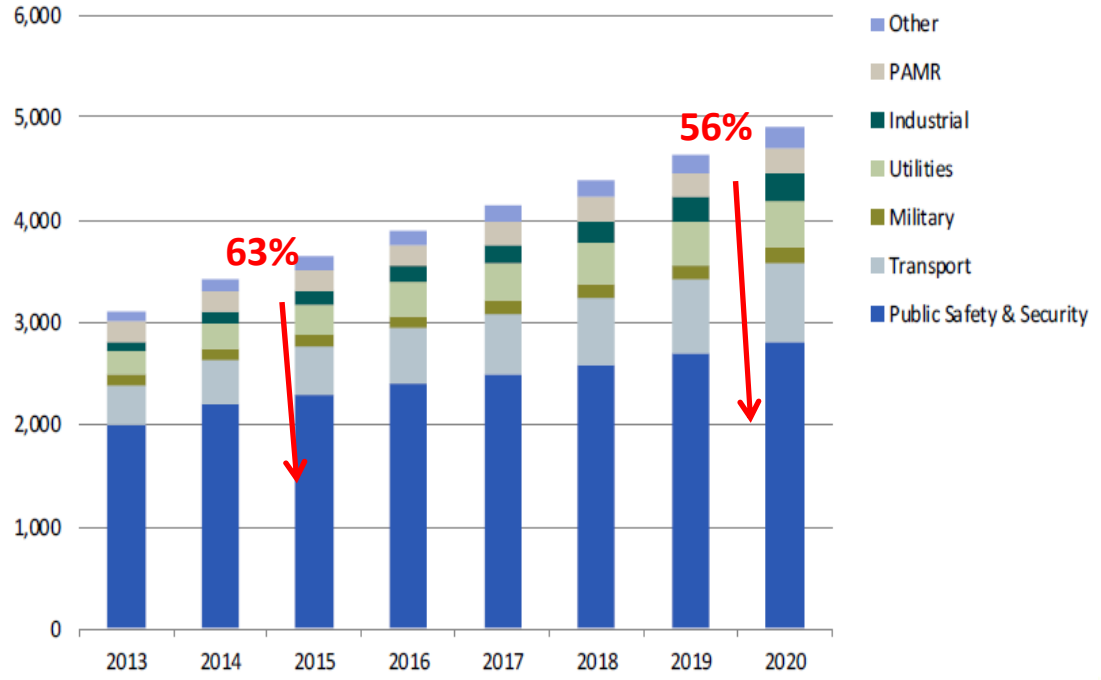
- The utilities and industrial sectors are predicted to see high growth in new users from 2015 to 2020

- PSS operators are also broadening the scope of users and services.

Figure ES.1

**World - TETRA Installed Base Split by User Application Area**

Measured at 31st December of each year. Thousands of active radios.




Source: IHS

# *Emerging TETRA Markets*

TETRA continues to be adopted by public safety organisations as they:

- *install dedicated networks for the first time*
- *evolve from existing analogue deployments (transition from analogue to digital is not set to be complete until well into the 2020s ) or:*
- *refresh existing TETRA networks that have now been in place for 10 + years.*

Operators of public safety networks tend to extend their use to other users who play a critical role in maintaining a country's critical infrastructure and / or services (e.g. utilities, transportation, etc.).

The number of new networks for the utilities, industrial and transport sectors is also predicted to increase from 2015 to 2020.

# *Critical Communications Evolution*

- With more complex safety and security challenges and with the evolution of technology, user needs have evolved as well.
- The critical communications community  is looking forward towards a broadband future, where bandwidth is no longer a limitation to users' requirements
- LTE technology is expected to satisfy all the bandwidth and key broadband user requirements defined by the **ETSI "Mission Critical Broadband Communications Requirements – ETR 102 022-1"** specification in the future, when the current 3GPP standards work items are adequately completed and implemented by manufacturers.
- **In practice, however, the only clearly differentiated application having an absolute requirement for LTE-like bandwidths is real-time video streaming...**
- The more bandwidth is made available over time, the more it will be leveraged and utilized by future, as yet unimagined, applications!

# Critical Communications Evolution

**Radio systems for voice and narrow-band data**

- Specific purpose-fit technologies (TETRA, P25, ...)
- Limited numbers of solution and terminal providers
- Standards mainly concentrating on air interface
- Dedicated systems with variety of mission critical features and specific security solutions

**Multimedia systems for voice and broad-band data**

- Mainstream technologies applied
- 3GPP standardization and interoperability
- Communication solutions merging with IT and applications
- Many new players: LTE equipment providers, IT providers, Mobile Network Operators, application providers, etc.

# *How can TETRA be enhanced?*

- The growth of data applications and the smart use of TETRA capabilities to extract data that can be turned into intelligence and used to support mission critical and business critical users. **TEDS, Bluetooth, Advanced terminals**

- Augmenting the capabilities of TETRA through the use of LTE. Enabling TETRA and LTE to work synergistically is key to the successful future of both technologies in mission and business critical markets. **Common infrastructure. Accessories.**

- Extending the reach of TETRA:  through the use of **interface solutions - gateways** to enable PTT to be extended into the cellular world.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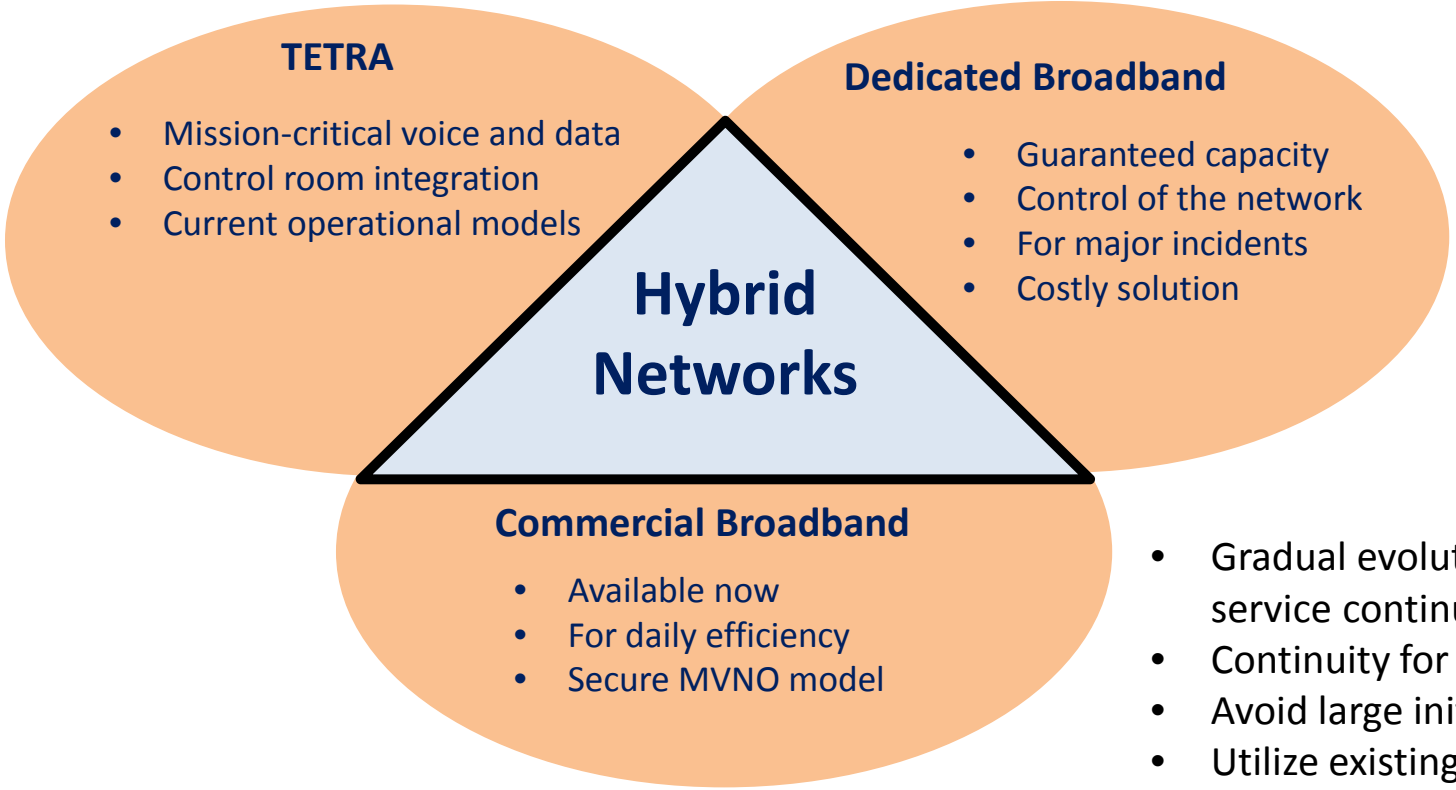
# *How can TETRA be enhanced? Hybrid networks*




- Gradual evolution model ensuring service continuity
- Continuity for operational models
- Avoid large initial investment
- Utilize existing large narrowband investment
- Enables efficiency improvements with new data applications

# *Dziękuję!*
# *Czy są jakieś pytania?*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