

Radio Technical Evolution in the Finnish SDR Program

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A few decades ago military domain was leading the technical evolution on many different technology areas – including wireless communication technology. One good example is spread-spectrum communications technology. Third generation mobile communication (3G) used this technology and actually in Finland Nokia and Finnish Air Force had a common technology demonstrator. After this commercial mobile communication has been leading the technical evolution and military domain has only adapted new technologies developed by commercial domain.

Also the military threat scenarios are totally different compared to those some years ago – today hybrid warfare blends conventional warfare, irregular warfare and cyber warfare. In military communication this means that we have different operating environments, changing needs and as a result also different communication solutions are needed for different kind of operating environments.

Military domain has eagerly adopted Software Defined Radio (SDR) technology and this has happened also in Finland. It is expected that next evolution version of SDR i.e. Cognitive Radio (CR) technology will bring new capabilities to military radio communication. Spectrum is very scarce resource and Cognitive Radio exhibits a tremendous promise for increasing the spectral efficiency. In practice this means introduction of shared spectrum technologies i.e. primary/secondary use of spectrum. It seems that next generation 5G technology is very usable from military point of view and offers solutions to some military communication needs.

All previous topics are shortly discussed from Finnish Defense Forces point of view including the radio technical evolution in Finnish Defense Forces.