In light of the increasing tensions in global military hot spots and the growing amount of natural disasters around the world due to global warming, the need for disruptive innovation is gaining more urgency in order to enable us to face the challenges of today and tomorrow.

The contributions to innovations that the satellite community brings evolve around 5G, the upcoming LEO, MEO and GEO High Throughput Satellite (HTS) constellations and agile, efficient and resilient communications to serve the needs of the dispersed and increasingly mobile military and humanitarian end-user.

The 5G revolution is more than simply marketing buzz. 5G is the fifth generation of cellular mobile communications, which promises higher data rates, reduced latency, energy saving, cost reduction and higher system capacity — all aspects of which are relevant in the military context. In fact, 5G serves as an aggregator technology that involves both satellite and terrestrial communications and encompasses a range of network types, applications and services including voice, data and video. The end-user remains connected to the 5G network across networks, devices and platforms such as vehicles, vessels and sensors. As such, there is a high degree of synergy between 5G and the Newtec Dialog® multi-service platform, a multi-application system that connects multiple platforms on land, air and sea.

Linked to 5G connectivity, there will be an increased need for high data throughput and low latency required by new, HTS constellations to cater for the bandwidth hungry sensors and mission critical communications. At the same time, the new LEO, MEO and GEO satellites and networks will need to address operations at sea, on land and in the air on a global scale.

To address the complexity of military operations the end-user demands, small and easy to use satellite terminals with global connectivity to provide high throughput across OTM, OTP and fixed platforms. As with the 5G network and smartphones, the ground segment technology, the space segment and the services they deliver need to go hand in hand in a satellite network. With the new satellite constellations, these can no longer be considered separate entities. The Newtec Dialog VSAT platform hosts a concerto of technologies such as efficient waveforms, adaptive coding and modulation, beam switching, roaming, beam forming and satellite hand-over technologies to provide the end-user with seamless and agile communications across government and defense satellite networks whether they are traditional wideband satellites or new HTS constellations.

European Protected Waveform
Innovations also focus on increasing security concerns. In today’s military applications over satellite, security, information assurance and link efficiency technologies are inextricably linked. Different initiatives to make satellite communications more secure and reliable have not only been kicked off in the military context, but also increasingly in government and mission critical commercial applications. Individual nations (U.S., UK, France, etc.) are investing in the creation of their own protected satellite waveform to provide their homeland and peacekeeping operations with reliable, secure and consistent communications throughout a mission. These investments are entirely carried by large military nations for their own sovereign core tactical networks. Later, a trimmed down version of the protected waveform is sometimes shared with partner nations. Consequently, smaller nations do not always have the same access to protected waveforms.

Against the backdrop of increased European focus on security, different initiatives such as PESCO (Permanent Structured Cooperation), EDAP (European Defence Action Plan), EDF (European Development Fund), EDIDP (European Defence Industrial Development Program) and GovSatcom (Governmental Satellite Communications) were launched to boost the cooperation between European nations and industries. Individual European nations are no longer capable of injecting large investments into the study and development of security and defense technology. Only through cooperation across European borders with the support of European-funded programs can both nations and industries obtain the latest innovative technology that can face the security challenges of today and tomorrow. In an increasingly digital world, secure satellite communications are at the core of the discussions to achieve a secure European environment.

Newtec supports the development of a European Protected Waveform (EPW) that can be shared among European nations for their military satellite networks to secure their communications in peacetime and during operations. A study should first check the end-user requirements and benchmark existing solutions in the market. In the end, the EPW should contribute to European autonomy and have the
flexibility to be used for multiple applications and platforms (fixed, on-the-move and on-the-pause) based on Software Defined Radio (SDR) devices.

The EPW project should be ambitious and combine the individual strengths of different nations and different members of the European satellite industry. The EPW program must be innovative and investigate future capabilities to support future government and defense operations, programs and satellite network designs.

Planning the Next Operation
Thorough planning is an intrinsic element of any peacekeeping or humanitarian operation. Planning and managing a satellite network that covers multiple operations and theaters is not an easy exercise for network operators because a lot of elements need to be considered both on the space segment, ground segment and service side. Traditionally, such a satellite capacity planning exercise took a long time to prepare, required a diverse set of tools that were not centralized and even during the operation regular interventions were commonplace because extra capacity was needed, throughput requirements changed or operations were moving locations.

The good news is that, today, planning no longer needs to be tedious, time-consuming or absorb a lot of resources. As part of the toolkit that goes along with the Newtec Dialog VSAT platform and its Network Management System (NMS), Newtec introduces the Newtec Dialog Satellite Network Calculator. This tool provides instant insight into the performance and potential of the satellite network, replacing multiple planning and calculation tools with a single user interface and the efficiency of planning the next government and defense satellite network. In short, a real-time dashboard for the next operation.

The Newtec Dialog Satellite Network Calculator was conceived out of the increasing request from satellite network operators to merge the multitude of planning, link budget and calculating tools into a common, real-time dashboard connecting inputs and results from ground segment, satellite data and network capabilities. More efficient planning results in more effective operations. A free, trial version of the tool is available at the Newtec webpage (www.newtec.eu).

2018, Another Successful Year for Newtec
With the Newtec financial year closing at the end of September, the company already have a good idea of the overall 2018 results for the company. For the fifth year in a row, Newtec can present a double-digit percentage revenue growth.

The overall revenue for FY2018 increased close to 20 percent, while the government and defence revenue grew at a stunning 45 percent. You will need to look hard in the satellite communication industry to find such impressive results. The growth can be directly related to the success of the Newtec Dialog VSAT platform and the Newtec MDM9000 DVB-S2X modem in the Government and Defense market. We saw implementations of the Newtec Dialog solution in embassy networks, MoD networks, airborne ISR networks, welfare programs and humanitarian relief projects. Some of these are published at the Newtec webpage. Both the Newtec Dialog and the Newtec MDM9000 modem are WGS certification pending. The certification for the MDM9000 SCPC modem is expected by the end of 2018. As such, the MDM9000 is the DVB-S2X modem for military applications and the first DVB-S2X modem on WGS enabling high throughput and high efficiency for bandwidth hungry applications such as ISR.

The success formula of the WGS pending Newtec Dialog® VSAT platform for the government and defense market consists of nine main ingredients. The main ingredient (and the Newtec house specialty) is waveform efficiency, where Newtec, thanks to its DVB-S2X and Newtec Mx-DMA technologies, can provide double throughput at the highest service availability. The Newtec Dialog® platform will relay and exchange a mix of video, data and voice services (multiservice) coming from remote fixed, on-the-pause and on-the-move assets (mobility) in a seamless way. These assets are either part of a regional or global network (global connectivity). The size of the network can be scaled (scalability) depending on the increase of operations over time or when budgets become available.

As the Newtec Dialog system finds its origins in commercial networks, this Commercial-Off-The-Shelf (COTS) VSAT system is affordable and also combines OPEX and CAPEX savings. The platform embraces the growing complexity of satellite government and defense networks allowing to adapt infrastructure elements and services to the operations at hand (flexibility and agility). Furthermore, the platform is easy to operate, manage and install, as demonstrated in the above segment on planning the next operation.

Finally, security is high on the list of the Newtec Dialog® platform, avoiding revealing the location of the terminal by not exchanging any GPS coordinates and providing the capability to mute transmissions during operations. Interception can be avoided through the inherent Newtec Mx-DMA government-grade frequency hopping feature.

www.newtec.eu

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NEWTEC DIALOG
MULTISERVICE VSAT
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SHAPING THE FUTURE OF SATELLITE COMMUNICATIONS