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NOTE: Fictional Intelligence (FicInt), “SubT Quantum Team 1, Singapore” by P.W. Singer and August Cole. 10JUN2021, Radio Research Group, Army Mad Scientist Laboratory, US Army TRADOC Command.

Storytelling — creative fictional writing and narrative building — is one of the tools Army Mad Scientist uses to help the Army explore how concepts, technologies, and other capabilities could be employed and operationalized. As previously [shared](#) by proclaimed Mad Scientists and best-selling authors **P.W. Singer** and **August Cole**, narrative effectively packages information the way our brains are designed to absorb it, creating lasting messages. By connecting information to our emotions, narrative is more likely to promote action. People are driven to share narratives, leading the audience to become part of its marketing. This virality contributes to the creation of a network of people with increased understanding of potential futures.

Fictional Intelligence: The importance of storytelling, narrative, and verisimilitude in crafting tales of future possibilities that resonate and inform; and the significance of imagination.

“FicInt”, also known as fictional intelligence or ‘useful fiction,’ combines extensive research and futures forecasting with worldbuilding and narrative, one of the oldest forms of communication. The finished product involves an engaging and plausible storyline to introduce readers to novel trends and problems.

FicInt has four “rules of the real” that separate it from science fiction: research must be embedded in the story (usually via footnotes); the story must take place in a real-world setting; the story must involve real world people; and the timeline must be realistic. Using these rules, any white paper, report, or executive summary can be distilled into its key themes and drafted into narrative.

FicInt is also distinguished from science fiction via its engagement with the policy community. Fictional intelligence strives to react and be useful to the policy community, and thus engages with policy experts before, during, and after its development. This engagement may involve commissioned stories, workshops on how to create FicInt, or briefings on the end product.

The goal of FicInt is often to expose and prevent a possible future, rather than predict it. By creating plausible storylines, the security industry can adapt and develop programs and technologies to create an alternate future that prepares for the situations exposed by FicInt.

The value of narrative, compared to non-fiction research, can be found in three elements:

Understanding: Narrative packages info the way our brains are designed to absorb it, creating lasting messages.

Action: By connecting information to our emotions, narrative is more likely to promote action.

Connection: People are driven to share narratives, leading the audience of FicInt to become part of its marketing. This virality contributes to the creation of a network of people with increased understanding of potential futures.

Establishing FicInt credibility involves connection with target audiences and the real-world people featured in the narratives and responding to their feedback. This process ensures the end story is as accurate and plausible as possible.

Mad Scientist Laboratory is pleased to feature today’s guest post by the **Radio Research Group**, with their compelling story about the challenges a Special Operations team face in executing a SubTerranean (SubT) mission beneath Dense Urban Terrain in the future Operational Environment. Degraded situational awareness and comms, lethal autonomous weapons, psychotropic gas, and a transparent battlefield, all wrapped within Great Power Competition — Aqsa and her SubT Quantum Team 1 “embrace the suck,” adapt, and overcome to execute their harrowing mission and exploit their target beneath the streets of Singapore — Read on!]

SubT Quantum Team 1, Singapore



SubTerranean (SubT) combat.



Her Next Generation Squad Weapon sat heavy in her hands, made by Sig Sauer and running plastic-cased 6.8mm ammunition.

Freaking ridiculous, Aqsa thought to herself, looking down at the heavy rifle, a relic of the War on Terror. The least useful piece of kit we have. Give me a Glock and a more powerful tactical computer.



Aqsa and her battalion were a select group of female warriors, specially trained in SubT combat and infiltration. The women came from a [diverse background](#) of computer scientists, physicists, cryptographers, and even a digital artist — *true modern warriors*.

“*Going Hot! Smoke, Smoke, Smoke!*” whispers from the point woman filled Aqsa’s earpiece.



The Breacher stabilized an oxygen acetylene torch, and the tunnel filled with toxic smoke.

Each member of the twelve woman unit was kitted out with ELABS (Extreme Limited Access Breathing Systems). These units were SCBA (Self-Contained Breathing Apparatus) systems specifically designed for SubT combat. A single thermobaric grenade could remove the oxygen from an entire tunnel network, hence the need for ELABS.



Aqsa looked up at the conduits above, bundles of wires, ethernet, and quantum encrypted fiber snaked above. One of these was their target. She wished they could simply cut and splice the damned cable, then and there. Lives had been taken for this mission, and it was never as simple as just “a simple splice” — not in a [post-quantum key cryptography world](#).



A drone was thrown into the room.

Fifteen seconds,

“Clear!”

The women flooded the new chamber, trained since childhood for a mission like this.

Slow is Smooth. Smooth is fast. Aqsa worked her feet and her rifle as she entered the room. A flashlight was lit, and her night vision came off, revealing a tightly confined server room.

Nothing, no enemy, no weapons, just servers and bundles of wires.

The air was still trash, so with her gas mask fogged out, Aqsa moved up to the shimmering server rack. A large cable snaked up through the floor.





But Aqsa, like the rest of her colleagues knows that nothing is “unbreakable” — there is always a way. Aqsa wrote her PhD on the topic. She knelt down before the shimmering server rack, or a *Quantum multiplexer*, to be more precise. She retrieved a small black box from her belt, and plugged it into her SDR (Software Defined Radio). A temperature was displayed on her ATAK display.

Near absolute zero degrees kelvin.

Aqsa set the portable quantum computer atop the fiber optic multiplexer, and plugged in a dangling CAT-7 running from the portable quantum computer.

The multiplexer rebooted. Logs began appearing on her display. Aqsa wiped the sweat from the outside of her gas mask. She looked down to her ATAK display trapped to her arm, code scrolled up the 30 Hz, full color, flexible display.



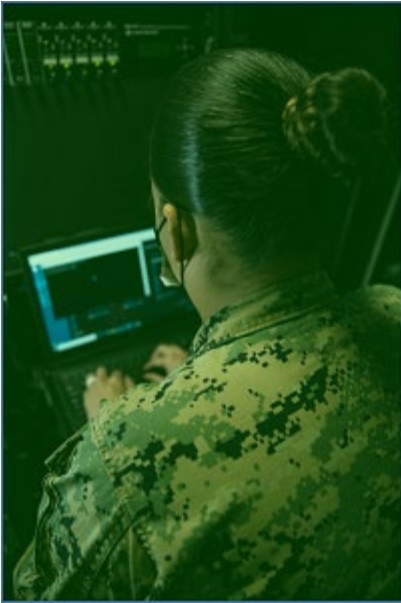
The display was hooked up to her SDR. It held a considerable amount of computing power, which in this case was being used to run an exploit model on a commercially manufactured ethernet switch.

Intel couldn't provide the manufacturer of the switch, but if it is not SSITH (Systems Security Integration Through Hardware and firmware)-certified, or used commercial cryptography in any way, Aqsa would break it.

"We've got company, automated, entering the tunnel" the head ISR officer sounded out calmly, *"Five units, verified enemy."*

The sounds of safeties flicked off, as two Soldiers surrounded an Israeli-made ballistic barricade in front of the door.

Nav looked to Aqsa, *"Time?"*



ISR looked down to her display, *"We've gotta go!"*

Aqsa made a quick decision, unstrapping her SDR, unplugging her display and removing velcro patch antennas from her shoulders. She tucked the radio into the server rack, leaving the antennas at random locations behind the server.

She plugged her display and comms cables into her backup SDR located on the back of her plate carrier, and ran the new patches.

A feeling of intense anxiety crept over the team. The exploit had failed — for now, and enemy forces had entered the tunnel.

"Lights out!"

The server room descended into darkness, as Aqsa flipped on her night vision.

“Comms check,” Her radio synchronized with the MANET using spread spectrum LPI/ LPD (Low Probability of Intercept / Low Probability of Detection) waveforms.

“Roger,” her colleague retorted back.

An ISR notification pinged across the MANET, detecting a slight decrease in electronic background noise entropy. Someone, or something was transmitting encrypted data nearby. Our local instance of EWIRDB (Electronic Warfare Integrated Reprogramming Database) declared it was most likely a Red-made generic SDR, a copy of a Persistent Systems unit, and was attempting to jam.

“Visual Contact!”

Several robotic grenades were thrown into the tunnel. Gunfire erupted.

“Gas, Gas, Gas!” someone yelled. “AQGR-12” flashed across their wrist screens.



Aqsa checked her gas mask, and ensured everyone’s ELAB was running nominally from her ATAK display.

One of the robotic grenades exploded on target as a nightmarish scene unfolded in the tunnel ahead.

“Formation!” the point woman yelled, showing a hand signal for a charge. Two women fired semi-automatic Benelli shotguns into the void. Command had refused to purchase shotguns, arguing they had already made a significant investment in new 6.8mm assault weapons. The automatic shotguns had to be “smuggled” into their unit from the States. Counter robotic units had found them to be invaluable.

Gunfire erupted from ahead, slamming into the self-healing, ballistic barrier. Another robotic grenade went off, then gunfire stopped.

Aqsa, now working to control her breathing, checked her display. Still connected via 60 GHz MANET to the quantum computer in the server room. The exploit had made its way into the ethernet controller using a cracked certificate, and was working on the multiplexer's CPU. A popup appeared: "Success, rebooting..."

"Exploit Delivered, Nice job ladies!" Aqsa whispered into her radio. She triggered a self-destruct of the SDR.

The exploit was complex, and classified to everyone except Aqsa. It would take months to know if it had worked.

Now it was time to get the hell out.



Someone threw a flare into the smoky, noxious gas filled void. The visible flash from the dazzler was still wearing off. They were going in blind.

Another autonomous grenade went off.

ISR: *"We've still got signal!"*



A soft thump echoed through the chamber, Grenade!

An explosion.

Aqsa screamed as she was knocked on her fourth point of contact. Her Team Wendy helmet scraped against cement. She heard her colleagues crying out, someone lost their gas mask, inhaling the psychoactive atmosphere.

More gunfire.

Aqsa steadied herself, grabbing a second level barricade. The first layer had been wiped out. Three of her colleagues were down.

“I need backup here, three down. Taking point!” Aqsa held up the barricade and moved forward. Two of her team joined behind and fired through the barricade, launching two more robotic grenades. An Explosion.

ISR: *“Signal Gone, No movement!”*

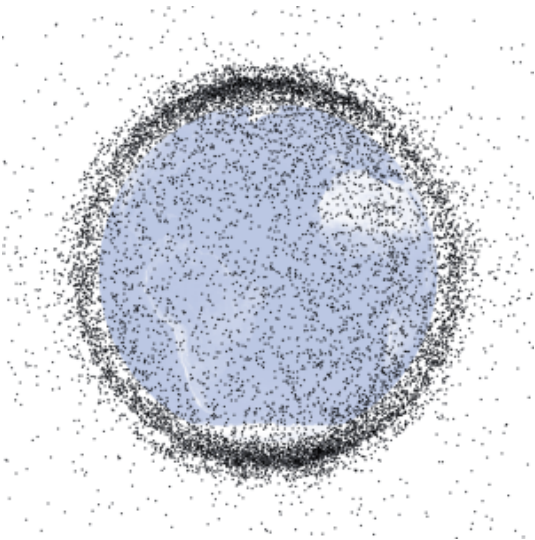
Aqsa reached the staircase to the surface, retrieving the robotic grenades and clipping them to her plate carrier. Their rear ISR drone floated above the spiral staircase in the smoke, its LED lights flashing the “friendly” color code for the day. Their medic, who had inhaled some of the toxins, had been sedated and was now under oxygen — but not before she confirmed two of her colleagues KIA, and applied medical aid (still hallucinating) to another.

They carried the bodies of their downed teammates behind them and hoisted the corpses up the staircase.



Aqsa stripped off her gas mask, without checking CBRN, and nearly finished the contents of her Camelbak.

“Watch out for your hands and face,” Aqsa spoke into her bone mic. *“The Chems are active for 12 hours unless neutralized. Comms?”*



Comms: *“I’ve got nothing on the uplink.”* While their local MANET was live, and extremely difficult to jam (due to the short range of 60 GHz), SATCOMs had been taken out months ago. Low earth orbit had gone full [Kessler](#), meaning the cascading effect of a few anti-sat missiles had caused every single object in [low earth orbit](#) to be completely obliterated.

No GNSS, no Comms, no LEO ISR. The remaining SATCOMS in geostationary, and even arctic elliptical were blown. While SOCOM was working on launching a few interplanetary optical relays (*Try shooting SATCOMs out in Lagrange points, Reds!*), such deployments were still months away.

Allied forces at that point in time relied on a “Targeting Mesh,” made up of millions of small drones for ISR and comms.

The only problem was that the Targeting Mesh wasn't there!

Aqsa sat down in a rubble covered office chair, her headlamp glowing red, night vision fried by the IR dazzler. The office building's ceiling had collapsed, posters lined what was left of the walls encouraging workers to "Wear a Mask", and "Social Distance". She laughed, and looked over to Comms, who had stripped off her gas mask and was working a Harris SDR from a tablet.

"We need to get outside," Comms looked up to Aqsa, who was now in command. *"It's like the Mesh isn't even there. Even HF is out. No Barrage Jamming, just silence."*

There was only one way to get a message back to command, and it was insane. *"Get me the latest sky charts,"* Aqsa ordered Comms, opening Google Earth on her tablet, *"You know what I'm thinking. SOCOM is going to be pissed!"*



Lightning flickered in the distant dry summer heat.



Aqsa swore out loud. The Allied targeting mesh was obliterated.

“Relax ladies,” ISR whispered over the MANET, *“Red Coherent Change is garbage, and with these suits we will be very hard to detect.”* The Suits were designed with a camouflage pattern designed to trick computer vision systems. *“Just move slow, we are close to our target!”*

The output power of their MANET was reduced to below 1 watt, bringing their IP based conversations far below the noise floor of enemy sensors.



Comms unfolded a small, portable microwave SATCOM antenna, and aimed it below a gap between two buildings. Incredible thunderclouds rolled above. The Enemy targeting mesh remained unmoving, the thunderclouds rolling through and blurring the floating spots of red. Aqsa removed a SAR (Synthetic Aperture Radar) smoke grenade from her pouch marked “KA Band,” and adjusted the timer.



“What on Earth are we aiming at?” A team member asked.

Comms retorted back, “It’s not on Earth, we are aiming for the Moon,” she smiled, the Harris SDR established a microwave data link at full power. Aqsa pulled the pin on the SAR grenade.

A message decrypted across Aqsa’s wrist screen



Aqsa looked up to the heavens, and prayed. They were to head by underwater, autonomous vehicle deep into the jungles of Indonesia...

About the Authors: *The Radio Research Group is a collection of experts in wireless mesh networking, electronic warfare, privacy, blockchain and decentralized systems. The group focuses particularly on fifth generation warfare, and the convergence of new technologies as they define modern conflict.*

Disclaimer: *The views expressed in this blog post do not necessarily reflect those of the U.S. Department of Defense, Department of the Army, Army Futures Command (AFC), or U.S. Army Training and Doctrine Command (TRADOC).*