

Future War With Russia

A scenario to consider

by Maj Ted W. Schroeder

Russia continues to develop its military forces in an effort to have greater power over its neighboring states. In particular, the Russian ground forces have grown in size, quality of arms, and doctrine. The Russian military is researching technology to develop unmanned ground systems and automation in manned systems. The technology will reduce the number of soldiers needed to fight a future battle. This will be done by developing a family of armored vehicles that will be paired with unmanned systems. The family of vehicles will coincide with the changes in the tables of organization and equipment within the Russian military. Russian military forces will use large military exercises to refine their theories on manned and unmanned teaming.

This article uses a possible future scenario to demonstrate what a Russian war against the Baltic States would look like in 2030. Russia will use its manned and unmanned weapons to fully exploit deep operations theory through high tempo operations. The small size of the Baltic States enables the Russian Army to stay at a high tempo throughout the operation. This operation is expected to last less than 60 hours—the required time for Russia to take the Baltic States.¹

This analysis focuses on the growth of the land power in the Russian military and the implications for the U.S. European Command. Any future war with Russia will clearly include the use of hybrid war where Russian agents will be used to subvert the state before conventional forces invade.² As a part of hybrid warfare, Russia will also rely heavily on cyber warfare to support their attack.³ Both of these capabilities are an important part of understanding future warfare but warrant their own separate research. This article will focus on the

>Maj Schroeder is an Infantry Officer serving as the Operations Officer, 1st Battalion, 2d Marines.

use of modern armor and unmanned teaming.

Problem Statement

By 2030, the Russian military will have refined the art and science of manned and unmanned teaming. Its UGV (unmanned ground vehicle) will be a mature system ready for the rigors of modern (and future) combat. This maturity represents the development of a system that is mechanically functional. It also means that the automation of the UGV will be advanced enough to allow for autonomous navigation, deploying itself in the framework of the battlefield and semiautonomous (or some level of restricted autonomous)

engagement of a target. The Russians will adjust their tables of organization and equipment to properly exploit these new capabilities.

This will create several problems for the Marine Corps. These problems will include avoiding detection in a sensor-rich environment and avoiding destruction in a weapon-saturated battlefield. The Marine Corps will need to destroy smaller targets (unmanned systems being considerably smaller than manned) that will be even more difficult to detect. UGVs in 2030 will empower the Russian forces to move at greater speed, with increased endurance, than the forces of today.

The Marine Corps will need to create plans to defend against a force that has a heavy reliance on UGVs. The reduced manpower, lower logistical signature, and high mobility adapts well into the Russian theory of deep operations. Along with greater anti-armor, the Marine Corps will need to produce



We need to be prepared to conduct combined operations against an opponent who relies on UGVs. (Photo by Cpl Kimberly Aguirre.)



Marines will need to be flexible, integrated, and adaptable. (Photo by Cpl Kimberly Aguirre.)

its own unmanned systems to counter the advantages of the newer Russian model.

The Marine Corps will need to increase its lethality against smaller armored targets and increase the speed of the attack/counterattack. At the same time, the Marine Corps will need to decrease its logistical requirements, allowing for a higher tempo over a more prolonged period. Finally, the Corps' UGVs will need enough autonomy on the battlefield that the workload (mental or physical) on the current Marine is not increased.

Trends and Forces

The Russian Army has been moving toward technology as a way to offset advantages of other nations' current military arsenal, including U.S.-produced hardware. To do this, the Russian military will use unmanned systems that are heavily armed and armored. They will also use automation in manned systems to increase protection given to the crews of the armored vehicles and reduce the number of tasks required of these crews. Finally, the Russians will hone their teaming of manned and unmanned systems. It will be the ways, not the means, of war that give the distinct advantage in the modern age. The scenario will demonstrate the following trends in Russian forces:

1. The Russian development of a family of armored vehicles is expected to be more powerful than their western counterparts. While increasing the firepower, the Russian developers designed the armored vehicles to offer greater survivability for the crew members through armor and automation. This has the potential of relieving the Russian Army of retraining large numbers of armored crewmembers during a sustained war. The increased automa-

Russia will have to look to technology and unmanned systems as a means of war ...

tion opens up the possibility to greater integration of unmanned systems.

2. The increased investment in and testing of armed unmanned ground systems indicates that the Russians foresee an advantage in having armored protected firepower in an unmanned platform. This technology appears to be in its nascent stages but already has produced a number of systems covering a range of capabilities.

3. The pairing of manned and unmanned systems is the greatest advantage of the modern force. The new ways offered will be greater than the sum of the means developed. The speed of the new kill chain, tempo of armored reconnaissance, reduced logistical requirements, and low signature of the striking force will fully exploit the theories of deep operations.

The scenario will take a heuristic look at how these trends will combine to produce an evolution in the character of warfare. If the Russians are able to gain a marked advantage against their opposing force, then it will be nearly impossible for a military force based off of late 20th century equipment and organization to survive the modern battlefield past the year 2030.

Scenario Development

The scenarios of this article were developed using the STEEP (social, technical, economic, environmental, and political) technique.

Social. Russia has a decreasing population. The population is expected to decrease to 100 million by 2100.⁴ Russia is also increasing its military spending.⁵ To continue the growth of its military strength, Russia will have to look to technology and unmanned systems as a means of war instead of a growth in manpower. Further, its airborne and armored units are the only units that are proven to be professional. The Russians will continue to be risk averse to sending conscript forces to spearhead any assault.⁶

Technical. The Russian Army has developed a family of armored vehicles that have unmanned turrets.⁷ This includes the T-14 tank, the T-15 infantry fighting vehicle, a tank killer based on the 2S35 Koalitsiya-SV 152mm cannon, and the T-16 armored recovery vehicle. They also developed an armored UGV armed with a heavy machine gun named MRK-002-BG-57 (Wolf-2).⁸ With this UGV, the Russian Army will increase their firepower-to-manpower required ratio.

Economic. President Vladimir Putin's actions in Ukraine have led to international sanctions against Russia. Since this event coincided with the drop in

the price of oil, the Russian economy was heavily affected. According to the World Bank, the Russian Federation GDP is expected to drop 3.7 percent over the next year.⁹ These sanctions will be lifted at some point in the future. However, the Russian economy is not diversifying in an effort to grow in the future.

Environmental. Global warming is expected to continue to open up access to the Northwest Passage. It will also allow for greater exploration of the energy reserves available under the arctic ice. The economic possibilities will drive Russia to expand its military actions in the north. This action will threaten its neighbors, who also stake a claim to parts of the arctic waters.¹⁰

Political. In April 2005, President Putin spoke to the Russian Federal Assembly in his annual address. He stated,

Above all, we should acknowledge that the collapse of the Soviet Union was a major geopolitical disaster of the century. As for the Russian nation, it became a genuine drama. Tens of millions of our co-citizens and compatriots found themselves outside Russian territory. Moreover, the epidemic of disintegration infected Russia itself.¹¹

It is clear that Putin has a political desire to rebuild Russia along the boundaries of the former Soviet Union.

Scenario: The Invasion of the Baltic States

The Invasion. In 2030, Russia simultaneously invades the Republics of Estonia, Latvia, and Lithuania. The attack is preempted by an artillery strike that opens up a deep corridor. The Russian armored forces quickly drive through the border regions, isolating civilian populations and destroying any military formations. Russia aims to occupy all three countries in under 60 hours.¹²

When the attacks start, the Russian government shuts down most of the media and telephone lines in a cyber-attack. The only sites that are left open drive a false message that any reports of the attacks are false. Then reports are circulated about rogue Baltic units attacking ethnic Russians, thereby causing Russian conventional forces to enter

the countries to bring law and order back to the people or as peacekeepers.

Amphibious assaults allow Russian forces to bypass many of the landbased defenses in the beginning stages. With enough amphibious lift for a large attack, the amphibious units are able to capture key bridges and road intersections needed for land-based formations to maintain a high tempo.

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Russian armored brigades adjust their table of organization to reduce the number of manned vehicles. The remaining crewed vehicles are paired with UGVs armed with medium cannons and anti-tank missiles. The tank crews use their unmanned paired vehicles to proceed movement by 500 meters. The UGVs spot enemy formations before the crewed vehicles are exposed. Having perfected the kill chain between UGVs and artillery, the defending forces quickly find that they have five minutes between being spotted by a UGV to either destroy it or withdraw from the area. If the defenders do not destroy the UGV or withdraw, a mass of small munitions and thermobaric munitions will destroy their positions.¹³ The synchronization between the UGV and the T-14 tanks gives instant intelligence about the targets. The targets are confirmed by the crew, and information is sent to the gun line in seconds. Long-range artillery allows the armored formations to achieve depth before artillery units need to displace to support the pressing armor.

In an experiment of concept, three special companies of UGVs are formed. They are given their own axis of advance into each country. Their mission is to drive to a predetermined military base and engage any target (effectively any heat signature) in a free-fire zone. These company-sized units (made of updated Wolf-2 UGVs) are quick, silent, and able to infiltrate enemy lines with perfect fire discipline. They wreak

havoc on predetermined targets and withdraw only when the units run out of ammunition. Many of these UGVs are destroyed, but they are able to fix enemy forces in place long enough to allow the armored units to continue the attack. The unmanned systems can be cheaply replaced. The collateral damage is confined to the preprogrammed free-fire zones, and losses are easily replaced by

military industry. This adaptive use of technology is limited in its own discernment of military targets. At the same time, this is seen by the Russian Army as a method to employ UGVs on an autonomous mission.

Implications

For the Russian forces, there are a number of opportunities available in the employment of advanced armor paired with autonomous systems. First is the ability to spread their professional soldiers over a larger number of units, reducing potential casualties. With a shrinking population, Russia has had problems maintaining a professional military. In the effort to keep its contract soldiers in the armored and airborne units, it has been looking for ways to overcome this handicap. Automation in armored vehicles reduces the crew size required. The Russian designers left an extra seat in the vehicle, which was turned into the UGV controller's seat. The armored platoons went from having three manned tanks to having two manned and two unmanned UGVs. This enabled the Russians to increase their armored formations by a third while maintaining the same manpower.

A second opportunity lies in reducing logistical requirements for the UGVs. The smaller vehicles require less fuel and oil. Having no crew means that no food or additional water is required to keep it running. Since the UGV is an inherently smaller target, it is harder to

hit with anti-armor weapons. Its survivability level turns out to be higher than crewed vehicles under the same conditions.

These opportunities are not without their risks. Fewer personnel in the units means there is a greater strain on the crews to provide security during halts. The UGVs are susceptible to being overrun by infantry if the crewed vehicles are not close enough to support them. Additionally, the remaining crewed vehicles become an especially crucial target for enemy forces. The destruction of a crewed vehicle means the UGV is without its controller.

Indications and Warnings

From the Marine Corps' standpoint, there are a number of indications and warnings for which to look. The first warning is that of the Russians mass producing a family of UGVs for their armored forces. There will be a wide range of UGVs required for operations, which include airborne, armored, and infantry support missions. UGVs will be a part of every branch of the Russian military. It is only a matter of time.

Second, the growth of automated systems in Russian vehicles should be a warning to the Marine Corps. The Armata series (which includes the T-15 and T-14) vehicles are extremely expensive. The Russians will have to produce them in large numbers to fully exploit the use of manpower in their forces. Without these vehicles, the Russians will have to settle on updated legacy vehicles, such as T-80 tanks and BMP-3s.

Third, the use of unmanned vehicles alongside maneuvered vehicles will grow. UGVs are best when employed as a part of a greater team of weapons. Until full autonomy of the UGVs is technologically practical, soldiers will need to train to include them in their use of combined arms. Ultimately, this will accelerate the kill chain in the armored battalions.

Finally, when the Russians publish new doctrine which not only adjusts the tables of organization and equipment but also fully explains the tactics, techniques, and procedures of employing UGVs, they will have a marked advantage over those who have not. This

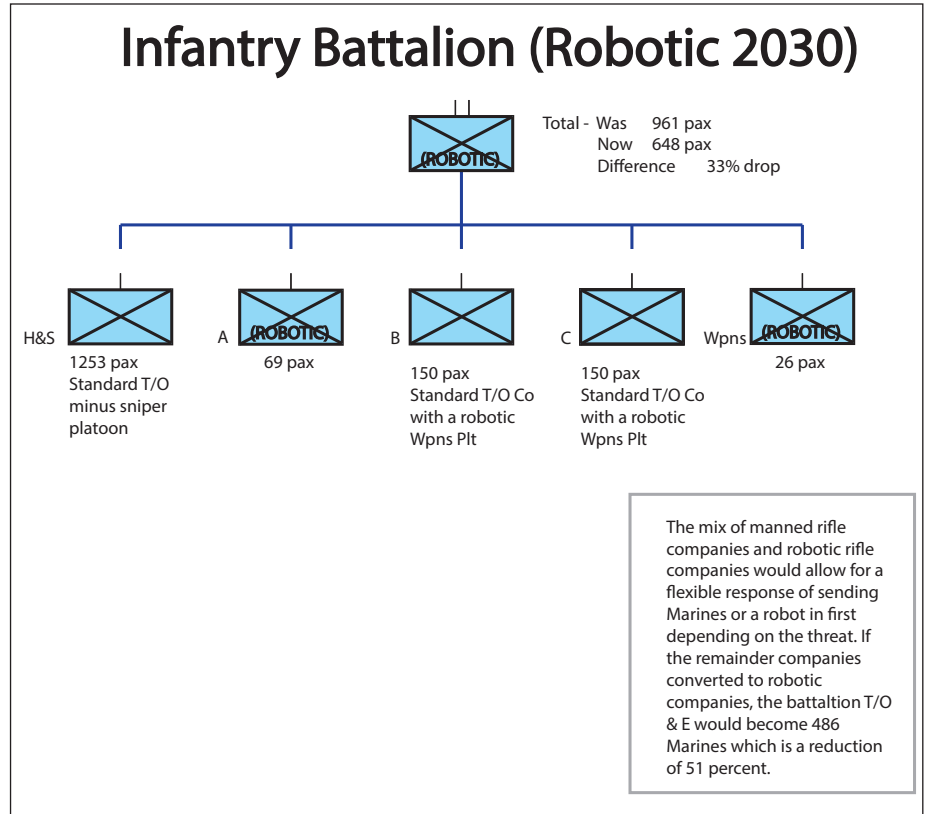


Figure 1.

integration of the new technology into doctrine will indicate a change in the character of war.

Preparing for This Future Scenario

In preparing for this possible future scenario, the Marine Corps can prepare itself through the tenets of unified land operations: flexibility, integration, lethality, adaptability, depth, and synchronization.¹⁴ Flexibility in mindset

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is the first obstacle to overcome. In developing a new weapons system, it is important to see what is possible with a new technology instead of what is impossible. The speed of the technological revolution will only accelerate in the

near future. Flexibility in understanding what UGVs can offer future commanders cannot be overemphasized.

In the future, every military force will have some level of UGV integration in their forces. Discovering what the future tables of organization and equipment should be is of the utmost importance for UGVs and manned/unmanned teaming development. Like the development of tank integration, the force that figures out how to maximize the advantages of the UGV will be the superior force in the first half of the 21st century.

The lethality to destroy UGVs is easily accomplished. Being able to destroy them at range and in large numbers will be the difficult part. UGVs are going to be cheap to replace for any enemy force. The Marine Corps will need to pay special attention to the kill-to-cost ratio as the cost per UGV goes down and their lethality goes up. An anti-UGV missile should not cost more than the UGV it is going to destroy.

UGVs developed for the Marine Corps will have a place in every fu-

Infantry Company (Robotic 2030)

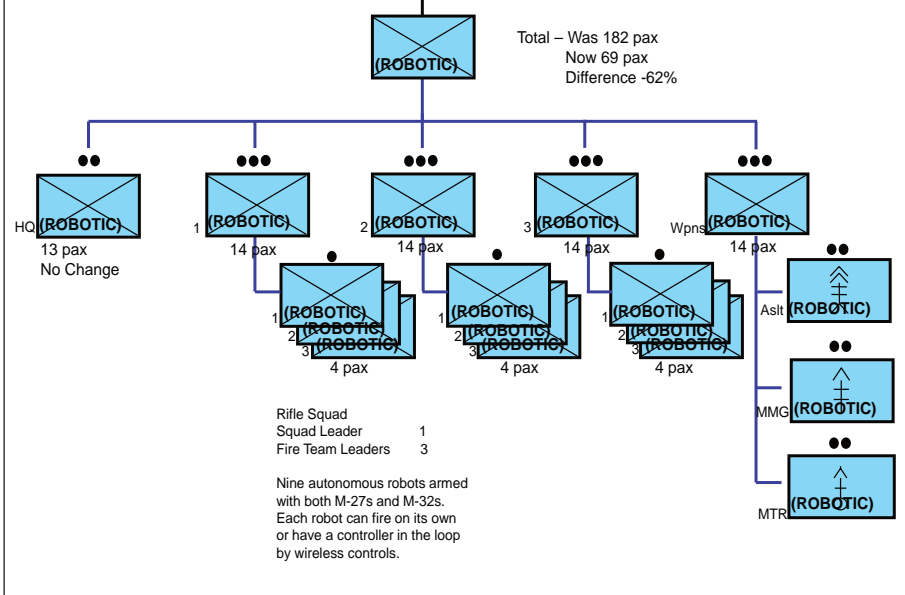


Figure 2.

ture battlefield. Whether they are being used for anti-armor or maintaining security during a key leader engagement in an asymmetric environment, UGVs will maximize modularity to enhance their adaptability to all future deployments.

Under a reconnaissance role, current UGVs can offer long-range depth to a

commander in a dynamic battlefield. When employed as the lead element of an armored unit, they can provide depth to what the advanced guard is able to affect. A UGV never needs to sleep, empowering a commander to mass his UGVs as the first defensive line while conducting maintenance or refitting for the next operation.

Infantry Platoon (Robotic 2030)

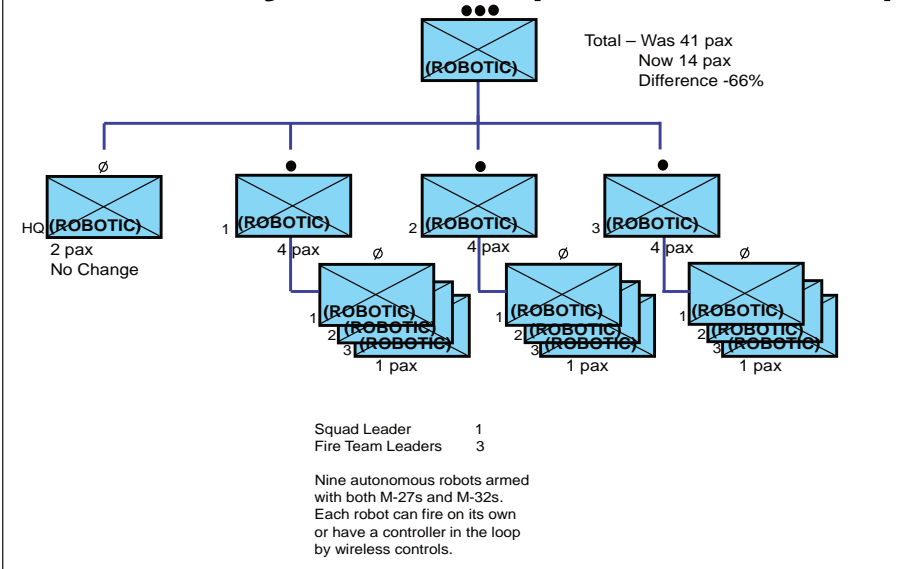


Figure 3.

The most important tenet is the synchronization of the capabilities of the UGV and the doctrine of the Marine Corps. It will properly tie UGVs into the future of warfare. UGVs will offer commanders another tool, one which will increase the lethality of each soldier.

Suggested Change of the T/O&E (Table of Organization and Equipment)

As robotic weapons and automation become reliable, it will be possible to start to replace Marines with unmanned systems. The Marine Corps could increase the number of infantry battalions by 33 percent with the suggested T/O&Es in Figures 1 through 5. Figure 1 on the previous page depicts a T/O&E of an infantry battalion in 2030. Figures 2 and 3 depict the infantry company and weapons platoons in 2030. With a heavy use of UGVs, the company required 62 percent fewer Marines, and the infantry platoon required 66 percent fewer Marines to maintain the current level of firepower. A weapons platoon (Figure 4 on the next page) can be reduced by 69 percent and maintain the same level of firepower. A weapons company (Figure 5 on the next page) could be reduced by 84 percent. To maintain the current level of mobility, the vehicles in the weapons company would have a manned or unmanned option. Each CAAT platoon would man two of the vehicles and control two unmanned vehicles from the manned vehicles.

The suggested T/O&E does not account for replacement of crewed logistical vehicles with unmanned systems. Replacing manned logistical vehicles with unmanned vehicles would allow for further reduction in need for soldiers per infantry battalion.

UGVs will offer the same benefits for Tank, AAV, and LAR battalions. The overall goal would be to decrease the number of Marines required to maintain the current level of firepower. The Marine Corps could then increase the number of battalions and regiments that it can field.

Conclusion

The scenario presented above represents only one possibility of a future

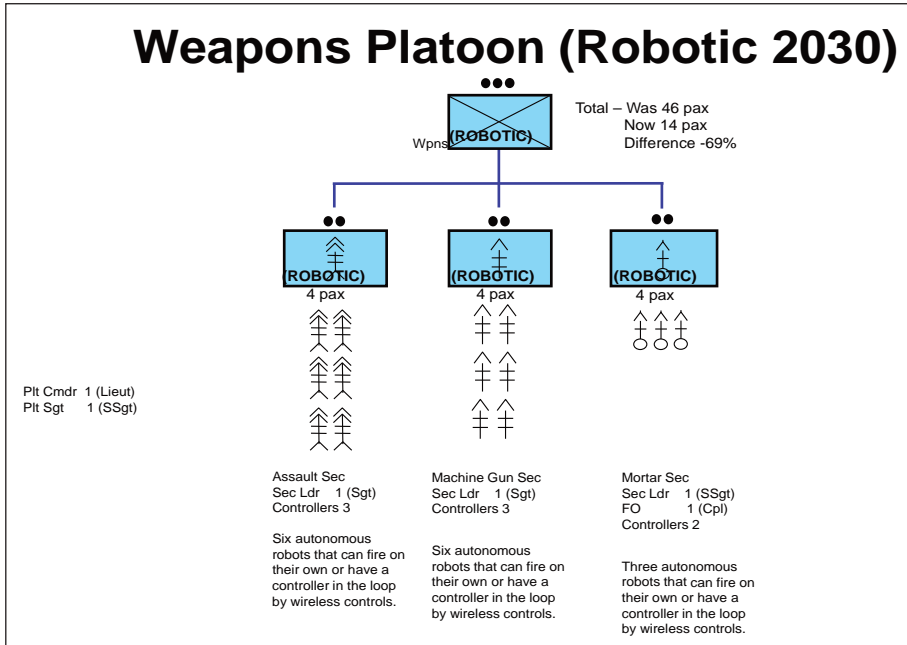


Figure 4.

war with Russia. It is meant to draw out the implications of what a modern military force will be capable of accomplishing once it fully integrates UGVs into its fighting force. A Marine rifleman remains the most lethal asset. Armor protected firepower enhanced by automation and unmanned systems only increases the lethality and survivability of the Marines in the modern battlefield.

Notes

1. David A. Shlapak and Michael W. Johnson, *Reinforcing Deterrence on NATO's Eastern Flank Wargaming the Defense of the Baltics*, (Online: RAND Corporation, 2016), available at <https://www.rand.org>.

2. Can Kasapolgu, "Russia's Renewed Military Thinking: Non-linear Warfare and Reflexive Control," (Rome, Italy: Research Division, NATO Defense College, November 2015).

3. Patrick Tucker, "Major Cyber Attack Will Cause Significant Loss of Life By 2025, Experts Predict," *DefenseOne*, (Online: October 2014), available at www.defenseone.com.

4. Joseph Chamie and Barry Mirkin, "Russian Demographics: The Perfect Storm," *YaleGlobal*, (Online: December 2014), available at <https://yaleglobal.yale.edu>.

5. Sam Perlo-Freeman, et al., "Trends in World Military Expenditure 2015," *SIPRI*, (Online: April 2016), available at <https://books.sipri.org>.

6. Phillip Karber, "The Russian Military Forum: Russia's Hybrid War Campaign: Implications for Ukraine and Beyond," (speech, Center for Strategic and International Studies, 2015).

7. Dave Majumdar, "Russia's Dangerous T-14 Armata Tank: Ready for War Next Year?," *The National Interest*, (Online: April 2016), available at www.nationalinterest.org.

8. David Hambling, "Russia Wants Autonomous Fighting Robots, and Lots of Them," *Popular Mechanics*, (Online: May 2014), available at www.popularmechanics.com.

9. The World Bank, "Overview of the Russian Federation," (Online: August 2016), available at www.worldbank.org.

10. Scott G. Borgerson, "Arctic Meltdown: The Economic and Security Implications of Global Warming," *Foreign Affairs*, (Online: March-April 2008), available at www.foreignaffairs.com.

11. Vladimir Putin, "Annual Address to the Federal Assembly of the Russian Federation," (speech, Moscow: The Kremlin, April 2005).

12. "Reinforcing Deterrence on NATO's Eastern Flank."

13. "The Russian Military Forum."

14. Department of the Army, *Army Doctrinal Publication 3-0, Unified Land Operations*, (Washington, DC: October 2011).

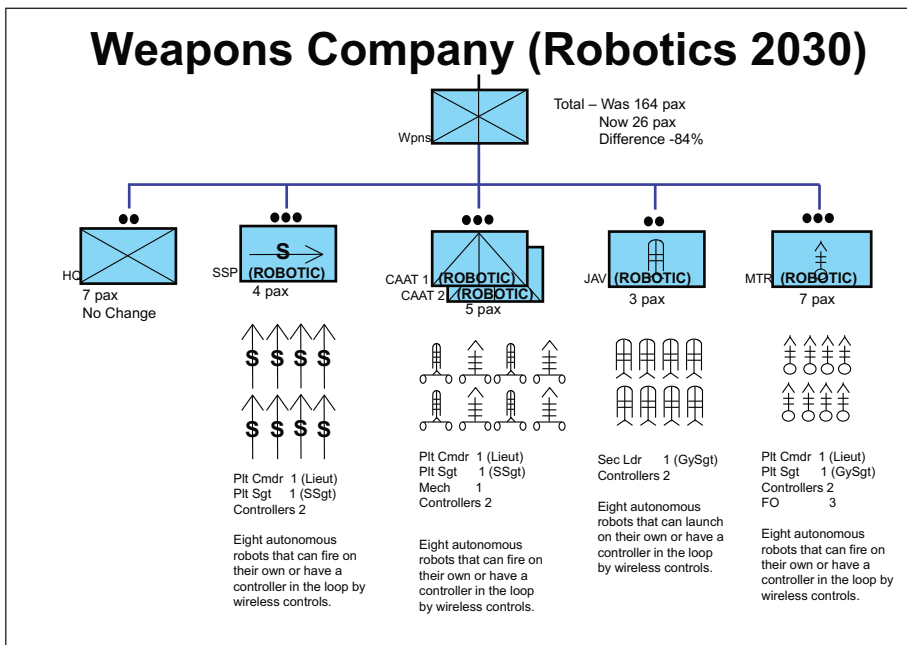


Figure 5.