

Today we will talk about the improvise explosive device, the IED. Which has killed over three thousand Americans in Iraq and Afghanistan, they have also wounded thousands who are missing legs and arms, have lost eye sight or have suffered severe burns. Regretfully the acronym IED is too common in America and in many parts of the world today. But the IED is not a new weapon. Surely after the Chinese developed gun powder, they buried it outside their cities to destroy enemy attackers, enemies of Napoleon might have been the first to attempt the vehicle born IED. Napoleon departed early for the opera one evening and a cart loaded with explosives was detonated just as he passed, America is not free of IED's, in 1995 Tim Mekvay exploded a massive IED destroying the Oklahoma federal building, killing 167 Americans, 19 of which were children under 6 years old and wounding over 700. Although not new, the IED's purpose has evolved from a tactical weapon to one of strategic influence.

Many Americans of my generation remember seeing dead and wounded lifted out of the Vietnam jungles on the nightly news and recall the impacts that those sites had on our world to fight. Current enemy wants to defeat us just as the North Vietnamese did 45 years ago, he understands the strategic nature of war and is using a tactical tool for significant strategic effect.

When Mr. Gates became the secretary of defense he described the Columbian commitment on the part of the US congress and the American people to stay the course in Iraq as a result of a projected IED violence. He saw it an ending strategic clarity to defeat the IED

as a weapon of strategic influence. We had to take bold and innovative actions.

This morning I am going to cover a little history of our cannon IED effort, what we have learned and conclude with milfoils for the future. In 2003 as the insurgency began to take shape in Iraq ample quantities of military munitions was available for IED's the Sunni extremer in this send former Iraqi military ordinance officers to build road side bombs to attack coalition forces.

The Shiya extremists were a little slower in their development of the IED. But with the help of Iran they caught up quickly, in fact they introduced the explosively formed projectile which will penetrate any armor on the battlefield. To provide our war fighters better protection for improving IED's we increase the armored vehicles.

This began the same cycle of warfare has seen for centuries, a new weapon, a counter, a better weapon, a better counter. An historic cycle continues today. During the spring of 2004 we experienced a significant increase in the use of IED's. US army's vice chief of staff general Dick Proty had the wisdom to form a small task force to help counter the IED's effect.

During now 14 months in Iraq we watched the number of IED's found and detonated grow from 300 to 1000 per month. With the IED killing and seriously injuring war fighters in ever increasing rate General John Abizei, the commander of general command decided that he

would escalate the urgency of general Cody's work and call for a Manhattan like project. His intent was not to put scientists in a back room until they came out with a solution, his intent was to bring the whole of the US government together to solve a critical problem, he understood the complexity of this problem and knew that the collaborate efforts of the services of our national land academia industry and innovative Americans were required to achieve success.

As the IED's grew to 15 hundred per month, General Cody's small task force was placed under the direct supervision of the deputy secretary of defense. And General Marley Miggs returned from retirement to establish the joined IED defeat organization in February of 2006. General Miggs is a brilliant officer, he has superbly managed a conflict in the Balkans which see the IED's grow in Iraq from 15 hundred to almost 3000 per month during his first year back in service of America.

General Miggs crafted a mission statement not to eliminate IED's altogether but to defeat the IED as a weapon of strategic influence. The former goal is both ideal and impossible. The latter is achievable and essential to victory.

The US congress did its' part by incorporating 4 billion dollars per year in supplemental funds which were three year uncovered with funds and very seldom is our congress allow funds to be spent over a three year period in such a wide variety of ways. These funds and the authority given General Miggs allowed an unprecedented flexibility in

the fight against an enemy who is smart, innovative, agile, ruthless and un-encumbered by process and bureaucracies.

They move quickly to kill and seriously wound as many members of the coalition host government and innocent civilians as possible to win strategically. General Miggs organized his effort in three lines of operation, defeating the device, attacking the networks and training the force.

First though we have made significant progress in defeating the device I think most Americans thought that the answer to General Abazei's call for a Manhattan like project meant that our scientists would build a magic ray gun that would destroy the IED's and off to victory we would go/ unfortunately defeating an armor's infinite number of ways to conduct a lethal ambush is a very difficult physics problem. Nevertheless we owe our war fighters every chance to detect the IED before it explodes and if it explodes, the ability to survive the blast. Better armored vehicles, electronic jammers, ground penetrating radars, improved mine molar, road blocks and better personal protection are examples of defeating the device.

Focusing on this line of operation is necessary but not sufficient, it is necessary but not sufficient. Because this line of operation is defensive which seldom wins wars and there in lies the importance of attacking the network. The octane of approach is to attack the networks that fund supply build and place arm ignite the IED's and record and publish their horrible results. In many cases the IED

network is one in the same with the insurgent network, although the IED's effect tend to be an artic their use by the insurgence is anything but/ Almost 100 were in place daily and undertaking that requires a recorded effort of a network, unrelenting assaults on key notes of the enemy's network is the offensive way to achieve the mission. Third and finally train the force.

I spent most of my career training soldiers and young leaders. A well trained soldier and young leaders are the best weapon against IED's. Although we have some of the best sinters in the world the soldier remains the best center on the battlefield if he is properly educated and trained. Regretfully most of our senior civilian leaders in America do not understand the tremendous value of training.

Material programs, big things that you can see and touch, things like that bring jobs and make voters happy are favored in the resource battles in the military and political environments, but to maximize our investment in the new solutions to defeat the device and to prime our forces for the attack in the networks we built a very aggressive counter IED training program across our country. We designed a joined training center of excellence at Ford Owen California. The world's premium combined arms training facility. Today it's the worlds' best counter insurgency training center that includes all the latest in counter ID training.

From this center we are networked throughout our services and there are centers of excellence in countering the IED/ we also invested

significantly in training at home stations, bases, posting camps across our country, from private to general, from squad\ad to division and core we have the worlds' vest trained force to counter the IED. as these three lines of operations came together we began to win the counter IED fight in Iraq.

Our investments in better trained war fighters and better equipment to support the counter IED campaign paid handsome dividends. The fine and clear weights continue to improve with many supply and valuable intelligence and forensics evidence. When I commanded the multi national core Iraq, each IED caused one casualty. As our counter IED campaign built momentum, the enemy had to emplace nine IED's to create that same casualty.

The ability to move and maneuver was regained which significantly improved our ability to employ doctrinal counter insurgency techniques, the IED fighter got over in Iraq but failed its' strategic purpose. But let me be clear, the organization that general Miggs and I led did not turn the tide in Iraq, we created the conditions of success by enabling a season and professional force to defeat the IED as a weapon of strategic influence and to employ itself properly in the counter insurgency campaign.

Only with the focus and energy of leaders like General Odier now portray us and thousands of war fighters they led could the IED be defeated as a weapon of strategic influence. Now the IED fight in Aphganistan took a different path, with few large cities and thousands

of small villages, with harsh dry mountain terrain and few paved roads, with porous borders and a low density of coalition soldiers, the risk adverse coalition leaders an enemy who wanted a good old fashioned fight, the IED took a back seat until about two years ago. Afghans have been ambushing their enemies for centuries, but they have learned from the extremists in Iraq that the IED should be used as a weapon of strategic influence.

Unlike the sophisticated Iraqi IED's the insurgency in Afghanistan relies on crude simple devices. With most of them being triggered with command wire or pressure plates, without a large supply of military munitions like those in Iraq they are experts in converting fertilizer into a bomb. Like the Iraqis the Afghans are smart, innovative agile and ruthless and they continue to experiment. For example, when we deployed the mine resistant ambush protective vehicles to Afghanistan the enemy increased the net explosive weight of his IED's to over 500 pounds. He soon learned that trying to penetrate our new armored vehicles was not a very good way to go and he lowered the weights to about 100 pounds which is enough to roll over the vehicle and cause a casualty or two.

Then coalition forces have to deal with the casualty evacuation and vehicle recovery which additional IED's small arms, rocket grenades and mortar attacks achieve the same strategic effect. Within two weeks of General McCrystal taking command I visited him in Afghanistan, his guidance to me was simple and direct, in order to fight a successful counter insurgency campaign, we must win the IED

fight, risk adverse coalition nations have a very limited mobility because of the IED's. we had to defeat the enemy's growing IED campaign and well before the surge we began to push counter IED solutions to Afghanistan.

General Petraeus was in full support and now enjoys almost three billion dollars worth of increased capability, we have learned many lessons in our effort to defeat the IED as a weapon of strategic influence. Our enemies are smart and seek counter at every effort and at every turn, for example they employ spectrum man lasers to determine the electronic characteristics of our jammers in order to counter them. We have learned that many of our material solutions have a short shelf life.

If the enemy can see our device, our counter IED device, he can figure out how it works, to counter this short shelf life we are investing in non material solutions that are often less expensive and have a much longer shelf life. Collecting and saving for biometric forensics and communication data on our enemies offers tremendous potential to understand their patterns of operation.

To manage these data bases and create knowledge for the war fighter for more information, we created an organization called the counter IED operations integration center. The impressive achievements of this fusion center are a result of focused passionate young men and women who are determined to counter the IED.

Most request to this fusion center come from the battalion the regiment brigades and sometimes division levels. And there is a very healthy relationship growing with our special operations community. Most often information is displayed due spatially, as you lay signals intelligence, human intelligence, significant advanced demographic data, visual and infra red imagery and all sorts of other data, the human eye will see the anomalies, we further focus the patterns of our enemy's network display themselves.

Traditionally we spend about 80 percent of their time researching and gathering the data and only about 20 percent of their time analyzing it. We have flipped that ratio by letting machines do what machines do well and y letting the brains of our analysts do what the human brain can do. In our support to war fighters we championed an ethic called the latest time of value, when a request is received we insist on establishing the latest time our answer to the request will be at value.

From my personal experience, information late is of little value, the 70 percent solution on time beats the 100 percent solution that is delivered late. The value of this data mind in creating knowledge from information grows significantly as leaders are trained too use the fusion center and all of its' capabilities.

Therefore we developed a facility to train the tools and procedures we were developing to attack the networks, using our global communications and simulation capabilities we moved the data and

the lessons learned about an IED event in Iraq or Afghanistan to the service schools and to the pulling units in a virtual format within days of the actual event. Thus training and education are connected to the attacks that occurred only days before. Young men and women join the US military with the expectations that they will be supported with the latest technology, my experience is to give it to them and let them take us into the 21st century.

As we have studied the challenges of countering the IED, the art of seeing as signature began to show itself as a very valuable tool, everything has a signature, a fingerprint, the change of a fertilizer into a bomb all have signatures and they are bound, they are everywhere.

We can make two flights over the same terrain a few hours apart and know the change of each pixel of detail in the digital camera, computer programs can be written to give us valuable information from this changed detection capabilities, likewise from many signatures in the IED chain of events, the challenge is to develop sensors that can detect unknown signatures with a low false positive rate. We are solving many of these technical challenges and they will have a long shelf life for the enemy will find it very difficult to camouflage a signature, especially when he does not know the signature exists.

The joined IED defeat organization has been a good model for how to bridge many war fighting activities from the 20th to the 21st century.

By working at the house levels of department of defense it can avoid many bureaucratic sink holes and be very risk tolerant. Our defense department normal process is damping out risk with the intention of guarding our tax payers money in delivering the 100 percent solution. But seldom do we achieve either of these goals and when we do we often don't deliver on time.

Secretary Gates are stressed over and over that our war fighters deserve 70 percent solution now, not the 100 percent solution years from now. My experience says that our young war fighters will give us the remaining 30 percent faster and better than our acquisition bureaucracy. I suspect that the joined IED defeat organization will close in a couple of years, so my successor General Mike Oats is hard working to transfer the enduring counter IED task to our services and combated commanders so that the many lessons learned are not forgotten and the solution momentum will be maintained. Allow me to conclude with a short discussion of the future.

Each month outside of Iraq and Afghanistan about 300 IED's are used for terrorist purposes, each month. This train will continue and I believe will increase. Our commanders around the world all have IED challenges which today might not be strategic in nature but they could be over night.

The Philippines, Thailand, India Pakistan, Yemen Somalia and Columbia are just a few examples of the current hot spots that IED's are used and we must not ignore the potential threats to our

homeland. A discipline IED campaign about our enemy's inside our country would have severe impact. It would not take many IED's to kill hundreds of Americans forcing us to spend huge sums of money to bring IED's under control in the homeland. We live in an age of persistent conflict.

The trains of energy, demographics, fresh water, globalization and many others all point to a very unstable world in which we will require to protect our natural interest, state, non state, habit organizations which u\you certainly understand better than I will work hard to find our weaknesses. In the irregular warfare of the coming years material solutions will have less and less impact. Our enemies will not want to meet us head on. They are not going to want to match the united states air force in the light blue skies or the unites states navy in the dark blue oceans. They will go where fighting is hard for us, urban canyons, ten thousand feet, dark jungles, the littorals in cyber space.

Our enemies might have missed the industrial revolution but they understand the information age. They will have among the 7 million people on earth and war will be population centric. Our enemies will not be encumbered by bureaucracies and they will benefit from taking risk while our requirement acquisition and budgeting contract in processes remain in the 20th century. We are fully capable of developing information fusion centers across our government like the counter IED operation and integration center. Collecting information, creating knowledge and moving it around the world at the speed of light should be our asymmetric advantage on our enemies, we do not

need another 9-11 commission like report to tell us to network our agencies and the collaborative organizations to protect America and its' friends.

Because joined IED defeat organization success, we spun off what is called a multi agency collaboration environment where any US government agency can have a presence and join the effort to make their data visible, retrievable, searchable and all of the other activities needed to turn information into knowledge. Our young men and woman know that sharing information is the way of the 21st century, they have proven to me that we can manage data and share it with our allies, our coalition partners and host nations.

But it is my generation that took 18 months to endorse and support the multi agency collaboration environment. How long will it take our government to seriously share data and develop the knowledge required to continue our leadership well into the 21st century? I fought the IED as a commander in Iraq, I fought is a trainer once I returned, I fought it as the director of the joined IED defeat organization. As I travel the war time since 9-11 I have learned that we face smart innovative agile and ruthless enemies, they have looked for where we have gaps in our defenses and where we are weak offensively.

Looking at you through the enemy's eyes is the only way to stay a step ahead of them, the enemy is already looking at us through our southern boundary with Mexico. In March Admiral Stravetus then the commander of US southern command, we see Hezbollah acting

through the region in foster fund raising and involved in drug trade, recently Mexican authorities rolled up the Hezbollah network being built in Tijuana which is just south of California, Our challenges on the southern border are daunting and our enemies know it.

My experience tells me that massive expenditures on material solutions are not the answer, as we continue to learn on the IED fight, non material solutions have a long term pay off, we must take the lessons learned from our IED fighting, and fighting the networks and apply them to the future challenges of our southern border.

Our nations' abundance of challenges could depress me if I had not served with so many young Americans who are up to the task of keeping our nation strong and free. In addition to being proud of them I am very thankful for their sacrifices and the excitement about meeting the challenges of the 21st century. God bless them. God bless all of us here today and may he bless all those in harms way today, protecting all of us who love freedom.