There has been some saying that Blockchain technology due to its distribution and transparency and not being owned by any body is the next thing that revolutionize our world since internet.

The most popular application of blockchain the bitcoin is an immutable ledger that was created by Satoshi Nakamoto and it’s no one job to keep the network growing but this ecosystem will reward the people who has volunteered with a currency named Bitcoin so manly the currencies are the fuel of blockchain ecosystem.

There are several advantage of blockchain that can be used in defence such as its immutability security and etc. but the most important one is because of its decentralize nature that can help in defence it can be a very good and efficient technology for defending cyber attacks and can be used in defence supply chain because first of all it can ensure about the identity and then it can improve the traceability of defence material wich in the most important case it’s weapons so it can give a good overview of resources .

Thirdly the blockchain resilience can improve this property for communications between armies and departements of defence as well as defence industry. It also can improve the confidentiality because of the private blockchains so this type of blockchains are so popular for defence industry.

But there are some disadvantages of this technology for example the so called immutability is only reliable when the network is big enough and the users are distributed well. But if an infected user comes into a permissionless network and other nodes be aware of that they can easily ignore the blocks that he is trying to post but if data goes to a network that requires permission and data be accessible for the owner of the network or the consortium member the consequences will be huge if them were spying on those data.

The advantage of Blockchain technology makes it useful for both operational and support role.

In here I’m going to peruse Three of the blockchain application in military :

1. Cyber Defence
2. Supply chain management
3. Resilient communication

1- Cyber defence: There are many properties of blockchain that will benefit Cyber security which makes it so good for cyber security industries.

The most important ones that are offered by blockchains are their resilience and distribution which will help the cyber security department to prevent cyber attacks.

For example the soldiers in the battlefield must be ensure about the orders they are receiving and be sure that that’s not the attackers who infiltrated the system and are sending them orders and the other challenge is if in a centralize system a part of system be infected there will be not a lot of trust to the network but blockchain has provided some solutions to these challenges that can make a safe environment and can maintain the integrity of the network even if there are some infected nodes.

For example us military are trying to improve some their critical weapons using blockchain or trying to secure their missile command and control system using blockchain technology.

Another advantage of the blockchain technology is that which can ensure the reliability of data which is very important since with inaccurate or biased data we may have an not true insight that may makes us to make a wrong decision that is why 86% of US and Europe aerospace firms are turning into blockchain so they can have more accurate data and can manage their supply chain way more efficient.

So the collecting and decentralized approach will keep the decision making process protected from cyberattacks because the blockchain are indeed secure and not alterable due to the cryptography.

So this field can benefit from the data integrity which is offered by blockchain because once a data is stored inside a block can not be modified unless with consensus of all participants or the chain administrator so datas that comes through the blockchain is secure and reliable and we can be sure that data comes from a legitimate actors.

2- Supply Chain Management: Right now there are so many actors in military supply chain management and it is becoming more complex every day when developers and startups joins this chain this will result in unnecessary cost in time and money, inaccuracies and failure point and traceability is a key element when it comes to critical weapons and systems.

Regarding to military supply chain blockchain has some applications that can help to reduce these unnecessary costs and will have some advantage such as: High speed delivery, traceability and safety.

One of the most important uses of blockchain in military supply chain is that it makes the supply chain transparent, secure and efficient.

One of the key elements in military supply chain is the identities verification according to some research about blockchain in Us military by using blockchain you can verify that all of the partners are acting within established parameters and they are who they claim they are.

The traceability of parts and materials are crucial in the defence industry.

The blockchain can help to trace each part or material from the production to the point that it is being used and they can be checked at every origin due to data -stamp nature of blockchain any material can be traced easily and not just where it is now but where it was at each point in the time this can be achieved embedding sensors and reporting process and Internet of things so combining blockchain with this technology will help to find out where a equipment was when and where it was manufactured how it was transported and stored and any repair maintenance that it has undergone.

And by combining blockchain technology with other technology such as artificial intelligence , quantum computing and extended reality the companies that are active in defence industry can facilitate analysing and exchanging data.

The integration of blockchain technology with every steps of manufacturing such as Design, Prototyping, testing and production would offer a trust worthy and secure supply chain. So goods scanned be scanned at each steps and the result goes on blockchain that the supply management can see it so they would have a overview of the production process so this would prevent confusion as well as lack of trust between the manufactured and defence supply chain team.

By contrast a supply chain partner can be identified by the private key that he uses and so sensitive information like type of goods, destination, current location can be encrypted so only partners who are allowed to see those information.

Moreover while defence industry is using already programmed programs (commercial-off-the-shelf) and has no supervision on the process of its programming or designing (in case of that which it is hard ware) then there is possible that the product deliberate

vulnerabilities exploitable by enemies any time they want.

The blockchain technology can be solution to this problem which can help to supervise the production process of a board or a software from beginning to end.

On the battlefield visibility and traceability over the production’s path is essencial. And also being able to trace pre-positioned goods and materials movement is essencial in order to succeed in operation.

Blockchain technology not only can be used in the materials supply chain but also can be used in food and healthcare supply chain which can prevent food related out break and also can be used to trace critical commodities such as pharmaceutical which is very necessary in the battlefield . and using blockchain in all of this supply chains and manufacturing helps the commanders of battlefield to have an overview of materials, food and healthcare and other things that are available right now or what they can have in the future to take the right decisions based on what they have.

Waste of money is another problem both in the defence industry and operations using blockchain it can be determined that how much were spent and where they were spent and avoid unnecessary costs.

3- resilient communications:

Resilient communications are useful in the battlefields notably during the operations of course it requires network to communicate. Also in the case of high-end conflict blockchain can make resilient communication.

In this kinds of conflict the defence department must be prepared for threats such that the enemy might want destroy the critical communication systems such as electronics, satellites, underseas cables or tactical datalinks also enemy might want to manipulate the data to confuse the defence department when the defence department is facing such threats it must be able to protect or generate or send data through a trustworthy way which is possible because of the blockchain technology.