Defense, an Industry on the Cusp of Disruption
By Jack Byers, CEO VMI

The focus of this essay is to discuss the disruption of the Defense industry including its impact on the customer along with the opportunities and challenges ahead for the industrial base.

Introduction

All industries go through periods of disruption as part of the natural cycle of development. Disruption usually comes down to the emergence of a new but critical market problem, usually expressed as a trend requiring an entirely new form of solution.

To deal with this new emerging problem, the demand side of the market begins to develop buying criteria (requirements) and a buying model (method for buying) for a solution. Since everything is new, these requirements and buying models are evolutionary. It takes the customer a while to get their arms around exactly what is this new problem, what a great solution would look like and how to buy it. The supply side, on the other hand, scrambles to stay relevant while trying to get their arms around this new customer problem. This is also the time when new players enter the market with new forms of solutions.

Some industry players like Apple see disruption as a once-in-a-generation opportunity to break out and flourish by embracing *what's next* – in this case mobile internet devices (iPhones); while others struggle and lose their market position. Our experience shows that the market leader entering a period of disruption rarely if ever emerges as the leader, for many reasons that are beyond the scope of this paper but there are some examples: BlackBerry and Nokia were buried by Apple; Kodak succumbed to digital photography (Apple and Android mobile devices). Accelerating technology disruptions hit industries with such speed and force that the incumbents didn't have much time to respond and were never able to come back to anything close to their former position, (interestingly BlackBerry is now transforming themselves into security software and services company, leveraging loyal-three-letter agencies' following). Closer to home, billionaire rivals with private capital from SpaceX, Blue Origin, Vulcan Galactic/Virgin Orbit and others have successfully broken into the space launch service industry. The once select group of defense industrial players with brilliant people, large amounts of IP, huge customer base and capital, never believed it could happen to them.

The Defense Industry

The emerging problem at the heart of the disruption for the Defense Industry specifically is the need to reduce both time and cost from concept to war fighter solution. This problem is compounded by peer competition with Russia and China for strategic technologies[1].

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[1] Strategic technologies: If you think that the US has a commanding lead with little need to look over its shoulder, it may be time to re-evaluate your thinking.

- According to Defense News 2019 Top 100 Global Defense Companies https://people.defensenews.com/top-100/ **China has six of the top 15 companies on the list** and Russia has one.
- When it comes to technology VMI has followed China at the **Consumer Electronics Show**, the world's largest technology exhibition, for more than 20 years https://e-vmi.com/ces-2019-highlights-global-innovation-vmis-best-of-the-best/. Rapid development of Chinese technology as demonstrated at that show is even more impressive than its defense companies.

The Third Offset Strategy[2] and the *Defense Innovation Initiative*[3] began to address this 2014-2015 problem, in order to deal with the erosion of US military technological superiority and to find new ways to regain and sustain US military dominance.

Since 2015, both Russia and China have moved to close key technology gaps and eventually to surpass the US in strategic competition in Sea, Air, Space and emerging technology domains such as hypervelocity vehicles, advanced analytics, machine learning, human-machine collaboration, autonomous systems and Cyber.

The DoD Customer

In order to meet these challenges, the DoD is looking to create a range of market models based on specific needs. These models will be a combination of innovative and agile approach prototypes, coupled with variations of existing defense and commercial models. To do so, the DoD is creating new processes, timelines, expectations, culture and organization structures and realigning the old, always maintaining its focus on peer competitors.

Another disruptive element will be new entrants from commercial and civil sectors who will bring new, diverse and competing ideas and solutions. Even more significantly, they will arrive as a forceful change agent, questioning and testing everything, including the patience of the DoD.

The introduction of these change agents will alter how the DoD frames and defines the problem and bring new techniques for evaluating solutions and scoring value.

All of this is great, if you are a change agent. But to make the customer's grand scheme work, everyone will have to come together as an industry and support its goals. Otherwise, we are looking at an unacceptable result.

Time from concept-to-warfighter is the new metric, and experimentation with acquisition methods such as OTA's and 15-page responses in two weeks, are becoming the new rule of the day.

The Industrial base Suppliers

For the industrial supply base, this opportunity and challenge is amazing. Traditional suppliers are trying to understand the customer's new thinking and respond as best they can to new processes that have no relationship to anything currently in place. Some are quickly realigning the old processes, culture and structures to try and fast-follow the customer's lead with some thought leadership thrown in. Some are taking the M&A hybrid path. An example would be L3Harris where a strong defense company is merging with an equally strong but mainly commercial company coupled with the new CEO coming from the commercial side. The opportunity for cross pollination of ideas, technology and competition models is awesome. No matter how L3 competed in the past I guarantee you it will be quite different in the future. While at the same time the industrial base suppliers are being faced with new competition coming from the commercial sector.

[2] *The Third Offset Strategy*, published in 2016 by then Defense Deputy Secretary Bob Work.
[3] *The Defense Innovative Initiative:The Importance of Capability Prototyping,* published in 2015 by Williams and Shaffer - Link

New Entrants from the Commercial Sector and Ramifications

The commercial sector will prove itself very capable at competing for programs. They will be quick studies, aggressive, and anxious to succeed in a new and very large market. (Think Space X). True, they don't have experience with the customer but plenty of experienced people are available to help them develop relationships that will enable them to effectively compete. The real plus will be that the acquisition barriers of the past are coming down, and defense can now be viewed as an adjacent market for existing products and solutions; their business models are already optimized around R&D, volume production, risk and low cost.

The issue for the existing industrial base is that these newcomers will not be held back by the traditional market structure, processes, or culture. While long standing experience is valuable in a stable market, it's a hazard in an industry under disruption.

Many of these new entrant companies will have significant influence in Congress and represent lots of jobs. They will not be afraid to protest and take their case to court if they feel unfairly blocked from competing for contracts. As a result, they will have significant influence over the next decade on the direction and speed of the disruption.

The Disruptive Transition from Complicated to Complex

In the past everyone knew the rules and had processes, tools, and programs to train and certify internal experts. Whatever they lacked could be supplemented by a long list of folks with decades of experience to lend a hand.

That knowledge and those connections that were once critical to success are becoming boat anchors as the industry transitions from a *complicated* environment, where knowing the rules was the only way to succeed, to a *complex* environment where the path to success is being both invented and discovered, and whoever gets there fastest wins.

General McChrystal defined the difference between the two in his book, *Team of Teams.* In a complicated system, he said, "we can put a lot of energy into them and eventually understand them to the point that we can predict outcomes with 100% accuracy." But in complex systems, "we have no chance to predict an outcome with any degree of accuracy. Dynamics of the system can change in minutes and may not be generally known for months or even years."

McChrystal also states:

> "To raise the probability of success in complex systems the best you can do is *maintain a holistic understanding* of the operating environment, *apply agile methods* and *develop adaptive approaches* based on the information at hand."

McChrystal emphasizes: "In complex environments the focus is on adapting to risk, instead of mitigating risk."

Adaption means an exciting opportunity for those who are willing to leap ahead of those still stuck in the old ways and methods.

Conclusion

Disruption in the defense industry will last for well over a decade and the future "stable period" will be nothing like the past. As the future begins to present itself, the one constant metric will "time to ______" and the most important requirement will be, "Shorten it."

Processes, procedures, and familiar paradigms such as "continuous improvement" will have their place in the disruption, but agile thinking and fast fact-based responses will be the standard practice for success. There will be no such thing as enough or too much fact-based market ISR. Coupled with analytics and great analysis, supporting a holistic understanding of the operating environment, an agile culture, leveraging of opinion leaders and aggressive leadership will be the path to success in the new defense industry.

The sooner the industrial base transitions out of the DoD 5000 ridged thinking model and begins adapting to the agile environment model the more successful they will be. For more on the topic https://e-vmi.com

-Jack Byers, CEO, Jack@e-vmi.com