Ready for Another Domain?

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The reader who expects to read an argument in favour of the creation of a separate cyber domain will be disappointed. I already have argued in favour of this in my previous article. Cyber as a domain is a non-discussion. The question that I want to answer in this edition is if we need more domains to cover the whole scope of warfare. Instead of adding a domain every time we feel the urge to do so, should we not better reflect on defining a complete set of domains? Is being pro-active not part of being transformational?

Adding domains? For historical reasons we know four domains: Land, Sea (or Maritime), Air and Space. The order is not accidental but inspired by the time in which they became a domain. The Land domain was the first battle space where humans decided their conflicts -- if you doubt this, go see the movie '2001: A Space Odyssey'. The first battle on land probably occurred some hundred thousand years ago. Later, about 1210 BC, Suppiluliuma II, king of the Hittites, defeated a fleet from Cyprus and burned their ships at sea. With this event, the Maritime domain became the next one. Only some hundred years ago on 5 October 1914, the French pilot Louis Quenault opened fire on a German aircraft with a machine gun for the first time, an event that gave birth to Air as the third domain. Likewise, the launch on 4 October 1957 of the first artificial satellite, Sputnik 1, opened the door to Space, which quickly turned into a new domain. Now, almost 25 years after the creation of the internet, number 5, the Cyber domain, is born.

Looking at history, four observations hit me. First, the time between the creation of consecutive domains shortens. Second, it takes us, the military, awhile after the initiating event (e.g. first aerial duel, first satellite launch) to acknowledge a new domain. Third, the last two domains were formulated from within the Air domain. Fourth, contrary to Air, the Deep Sea as a three-dimensional environment is not considered as a domain on its own.

Can we learn something from the above-mentioned observations concerning potential new domains? Let us explore.

Why do we need a domain? The acknowledgement of a domain opens the doors for the development of a specific theory, strategy and doctrine. It creates the opportunity to focus resources for the projection of power in that specific domain without being subordinate to a parent domain. Of course, it also puts a new competitor for those resources in the field. Although these are advantages for creating a domain, they can hardly be used to identify new domains.

What makes a domain a domain? The first characteristic of a domain is the specific medium (or environment) it uses. For example, Land uses ground surfaces, and Air uses the three dimensions of the air above. A second but related characteristic is the principal vector used in that domain. For example, Land uses troops on foot or in vehicles, and Cyber uses software applications.

It is clear that the domains may affect each other. Aircrafts can destroy land targets, while Surface Based Air Defence (SBAD) is a menace to them. By considering separate domains, we can optimize the specific warfare, but it is by joining those types that we can truly optimize military power.

As already stated, Maritime as single domain seems unnatural. Ships use the sea surface, while submarines use the three dimensions of the oceans much like airplanes in the sky. For the sake of the discussion, I'll consider the Deep Sea as a separate domain, considering 18 October 1914, the day the German U-27 sank the HMS E3 in the first ever successful attack on one submarine by another.

By doing this, I completed the table with the current domains below.

Domain	Date initiating event	Medium	Principal Vector	Civilian Interest
Land	<100,000 BC	Land surface	Foot soldier / Vehicle	Commercial / Habitat
Maritime	1210 BC	Sea surface	Ship	Commercial
Deep Sea	1914	Deep sea	Submarine	Neglected
Air	1914	Air	Aircraft / Missile	Commercial
Space	1957	Space around earth	Satellite	Communication / Applications
Cyber	1989	Internet	Software	Applications

There must be a reason why the Deep Sea is not considered a domain. It is my opinion that the reason lies with the inability of this domain to directly influence civil activities, for the simple fact that there is almost no commercial interest. As long as this is the case, the Deep Sea will stay a subset of the Maritime domain.

In short: a domain is an area of military warfare characterized by unique vectors moving in a specific medium which has direct and important civilian interests, and as a consequence can project power in its own as well as other domains.

Armed with this definition, I went to look for new domains and came up with the following list:

Domain	Medium	Principal Vector	Civilian Interest
Human	People	Information	Cultural/Commercial
Outer Space	Space beyond Earth's gravity	Spacecraft	Not yet
Environment	Environment	Bio-Chemical agent	Commercial
Electromagnetic	EM Spectrum	EM emissions system	Commercial

Three of the potential domains (i.e. Human, Environment and Electromagnetic) are not considered as such today, although they are all wholly or partially the subject of specific doctrines. Maybe we missed the signals for creating a specific domain for them? Should we correct this?

Together with the Deep Sea, Outer Space is a future candidate. I'm still undecided if 'Star Trek' or 'Atlantis' will win the competition for the next domain nomination.

Did I miss a domain?