Dossier - Strategie dello spazio

Global Commons, Space Power and Strategy
di Colin Gray

Security in Space: Moving toward a New Paradigm for Cooperation
di Theresa Hitchens

China’s Space Capabilities and US Security Interests
di Ashley Tellis

Diplomazia: La politica spaziale europea: il programma Galileo
di Alberto Cutillo

Il diritto internazionale dello spazio e le sue prospettive
di Marco Pedrazzi

Economic Issues of Space Industry
di Henry R. Hertzfeld

Osservatorio Internazionale

Dai Balcani al Caucaso. Le guerre di successione e i nuovi sistemi regionali
di Alessandro Colombo

The Chechen Conflict at 18: Historical and International Perspectives
di Matthew Evangelista

Documentazione

ISBN 1125-9663
L’umanità, con la sua politica, la sua economia, le sue guerre è entrata in un’era spaziale da cui non sembra più possibile tornare indietro. Oggi il controllo dello spazio è una necessità non soltanto militare ma anche economica e commerciale. L’economia mondiale, le operazioni militari, l’industria dell’informazione e dell’entertainment, solo per citare alcuni esempi, sono oggigiorno strettamente dipendenti dai sistemi spaziali e dai satelliti in orbita. Le nuove forme di comunicazione e di fare business attraverso connessioni satellitari sono entrate così profondamente nella vita quotidiana che i tradizionali sistemi non sono più praticabili e/o non vengono più considerati come alternative valide e competitive.

Da un punto di vista strategico, sebbene lo spazio sia un ambiente geograficamente “unico”, ad esso si applica la teoria generale della strategia, intesa in questo caso come l’applicazione di una funzione generale a una geografia particolare. Tuttavia, al contrario del territorio su cui è stanziata una comunità statuale, lo spazio non è soggetto alla sovranità di alcuno stato, da qui il suo peculiare carattere. Ciò non significa che esso non sia soggetto a un regime giuridico. Tra il 1967 e il 1979 sono stati aperti alla firma degli stati cinque trattati in materia spaziale. Ma i trattati esistenti riescono a soddisfare solo in parte le importanti trasformazioni che negli ultimi decenni hanno conosciuto lo sviluppo delle attività spaziali, delle tecnologie e delle conoscenze.

Così come avvenuto in precedenza per gli oceani e i cieli, anche lo spazio da oggetto di sfruttamento si sta trasformando in ambito di competizione, e di conflitto, tra gli stati. Non si può pertanto escludere che l’era spaziale possa diventare un’era di conflitti spaziali.

Se durante la guerra fredda vi era un sostanziale equilibrio nella corsa alla conquista dello spazio tra le due superpotenze, a partire dal 2001 l’amministrazione americana ha promosso un concetto di sicurezza spaziale che include anche strumenti militari. La sicurezza spaziale, intesa tra l’altro come sicurezza dei sistemi a supporto di operazioni militari o di intelligence, e lo sviluppo di armi spaziali difensive e offensive sono stati così inseriti dagli Stati Uniti in un più ampio concetto di sicurezza nazionale.
Negli ultimi anni stiamo assistendo a una corsa all’acquisizione di capacità spaziali che vede impegnati *in primis* gli Stati Uniti e la Cina. Oltre che in campo economico, la Cina sta infatti emergendo come nuova “potenza” spaziale, nonostante sia ancora lontana dai livelli statunitensi e russi. A dimostrazione della crescente presenza cinese nello spazio, a fine settembre 2008 un taikonauta, astronauta cinese, ha effettuato la prima passeggiata nello spazio. Si è trattato di evento storico ma non del tutto inatteso alla luce degli importanti progressi che la Cina ha compiuto in campo spaziale negli ultimi anni. Infatti, il lancio dell’astronave Shenzhou VII rientra nel più ampio obiettivo della Cina di creare un laboratorio spaziale nel lungo periodo. Ma ciò che ha suscitato il timore di una corsa spaziale agli armamenti è stato il primo test anti-satellite effettato dalla Cina a gennaio 2007 – nello stupore generale tranne che degli addetti ai lavori statunitensi e dei servizi di intelligence – cui gli Stati Uniti hanno risposto, un anno dopo, con la distruzione di un loro satellite spia.

Le imprese spaziali cinesi non hanno mancato di richiamare in Occidente le apprensioni suscitate dal lancio dello Sputnik nel 1957 e dalla successiva messa in orbita del primo uomo nello spazio, l’astronauta sovietico Yuri Gagarin, che diedero inizio alla corsa allo spazio tra le due superpotenze. Le mosse “spaziali” di Pechino e Washington se da una parte hanno fatto temere un’escalation nella corsa spaziale agli armamenti, dall’altra hanno avviato nuove iniziative diplomatiche volte a evitare che lo spazio diventi in futuro un campo di battaglia. In questa direzione si è mossa soprattutto l’Unione europea proponendo un “codice di condotta”; parallelamente il comitato dell’Onu per l’uso pacifico dello spazio ha iniziato in via informale a definire misure volte ad assicurare uno sviluppo sostenibile delle attività spaziali nel lungo periodo. I paesi europei, tra le altre cose, si sono distinti per la loro opposizione alla militarizzazione dello spazio e per il sostegno alla Conferenza sul disarmo.


Sebbene la percezione della necessità di regolamentare l’accesso e l’utilizzo dello spazio si stia diffondendo, un consenso politico non sarà raggiunto in tempi brevi non soltanto per le diverse esigenze strategiche degli stati, ma anche perché le attività spaziali oggi coinvolgono – oltre agli stati – numerosi attori privati con molteplici interessi.
Strategie dello spazio
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Global Commons, Space Power and Strategy

The first and most obvious light in which the sea presents itself from the political and social point of view is that of a great highway; or better, perhaps, of a wide common, over which men may pass in all directions, but on which some well-worn paths show that controlling reasons have led them to choose certain lines of travel rather than others. These lines of travel are called trade routes; and the reasons which have determined them are to be sought in the history of the world.

Alfred Thayer Mahan, 1890

Pierre Joxe, French minister of defense at the time of the 1991 Gulf War, concluded that that conflict had shown that “the stakes in space go beyond the strict definition of defense. They are national. Not to possess this capacity would affect the very status of the nation”. In essence, a state seeking to be a major power must be a space power.

Dean Cheng, 2007

If we amend Admiral Mahan’s text by substituting “orbital space” for “sea”, and “orbits” for “lines of travel” and “trade routes”, it becomes apparent that both the sea and Earth’s orbital space can be viewed as a “great highway” or a “wide common”. But whereas mankind has ventured upon the sea since a time that preceded recorded history, orbital space has been penetrated and exploited by us humans only for 66 years (taking Nazi Germany’s first test firing of its V-2 ballistic missile in 1942 as the beginning of the space age in a strictly technical sense). This historical knowledge of seapower, both naval in character as well as more broadly maritime, eventually coupled to current concerns to promote a strategic theoretical literature. Mahan’s writings in the decades immediately prior to the First World War sailing loosely in convoy with the strategic histories and theoretical works of British lawyer-historian, Sir Julian Corbett, have served as foundation texts for a general theory of seapower. They are far from perfect, indeed they differ markedly and their arguments are eminently contestable. Nonetheless, they stand, float perhaps, as massive achievements for the education, hence guidance, of all who must follow upon matter narrowly naval and expansively maritime. By way of sharp contrast, at present there are no iconic texts on space power; indeed there is not even one serious candidate.

Of course, it is possible to practice, to execute, space power in the absence of a well crafted theory which explains what we should be doing and why. After all, the Phoenicians, Greeks, Romans and a host of others up to and including the

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British, “did” seapower long before Mahan’s first, and greatest, book appeared in 1890. At this time of writing in 2008, the world’s spacefaring countries have been “doing” space power at an ever accelerating rate since the 1950s, quite bereft of a dominant broad theory or even of persuasive military doctrine. Despite the exceedingly high, and growing ever higher, scientific, commercial, and military, importance of space power, we have yet to design a robust theory about space behaviour. This is not merely a scholar’s complaint about an intellectual deficit. In addition it is a claim that there are practical errors in spacefaring activity that derive directly from a lack of understanding of the space environment. It is the purpose of this essay to explain both the nature and some of the detail of the contemporary challenge posed by the unique opportunities and risks associated with operating in orbital space, and also to suggest some practicable answers to the challenge.

An Argument

By way of essential background to the argument presented here, it may be helpful to some readers to be reminded of the paradox that is current space power. On the one hand, as we shall argue, space power is just another geographically specific basket of assets, in company with land power, sea power, air power, and – now – cyber power; while on the other hand it is utterly distinctive. Although the exploitation of Earth orbit for civil and military purposes has proceeded at an ever speedier gallop only over the course of the past three decades, human space activity has been a growing reality for so many years that it has long ceased to be news. The space age of science, commerce, and – alas – warfare, has crept into human history since the middle of the twentieth century. Despite the spectacular “firsts” – Sputnik I in 1957, the lunar landing in 1969 – manifestations of space power have occurred so much in apparent isolation from each other, and from much else besides, that they have not been explained properly in context. There is extant no theory of space power worthy of the name. Why does this matter? The great economist, F.A. Hayek provides the answer: «Without a theory the facts are silent»5. We know facts in abundance about spacefaring behaviour, but what do these facts mean? The answer to this question is presented here in the form of an Argument in three parts.

Before proceeding into the detail of the Argument, it is necessary to be clear as to the meaning of the concept of space power. Space power refers to any and every orbital asset useful to a polity for the increase or protection of its wealth and security, as well as to the value of the use of those space assets relative to the worth of the orbital and non-orbital assets of friends and foes. This definition is

identical in spirit to the one coined by American General William “Billy” Mitchell (1879-1936) for airpower.

Space power is not an option, it is a necessity

Probably the most fundamental of the errors that hinder recognition of the meaning and implications of space power is the belief that we can behave in this relatively novel geography more or less as we prefer. For example, militarily, there is a widespread conviction that “we” (EU-Europe, NATO, the USA, the human race) can choose not to regard space as just another environment for warfare. In that respect, there has long been a hope that weapons, variously defined, can be kept out of space by means of international agreement. Indeed, from time to time there have been exploratory discussions between states on the possibility of controlling anti-satellite (ASAT) weapons. Alas, both policy ideas are technically unsound. To explain: consider space power as partially analogous to rail power and air power. Railways and aircraft have profound military and strategic significance, but many of the key technologies in both cases were not invented or even developed primarily with the requirements of defence in mind. Military establishments, by and large, did not demand the invention or rapid expansion of railways: as a matter of historical record, defence communities were uncertain how, and even whether, railways should be employed. As for aircraft, most armies and navies initially could envisage only a very restricted, if any, practical utility to the fragile and unnatural flying machines.

The historical argument which applies today to space systems, as it did yesterday to the railways and then to aircraft, is that some technological developments prove to be so irresistibly useful, regarded commercially and militarily, that their broad and deep endorsement really is beyond human choice. The coming of the railways could no more be resisted successfully than could the advance of aircraft, of spacecraft, and exploitation of the electromagnetic spectrum (EMS). There are always reasons why new and therefore untried technologies should not be permitted to overthrow entirely older ways of doing business, and often the sceptics and hostile critics will be right. Every clutch of new technologies initially must offer only limited and unreliable performance, and thinking strategically, each prospective technological contribution to military power is certain to motivate a hunt for offsetting technologies and tactics. Sweeping criticisms of early railways, early aircraft, and, now, fairly early space systems, have much merit. But, they will prove ultimately to be forlorn bids to halt technological advance, while many of the specific charges levelled at the new machines will

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*I have been more inclusive than was the General. W. Mitchell wrote «Air power is the ability to do something in the air», *Winged Defense*, New York 1988 (1925), p. xii.
play a necessary role in speeding the technical and operational journey to maturity.

Today, it is an uncontested commonplace to claim that space power is a military and commercial necessity. It is rather less commonplace to argue, as in this essay, that the contemporary global economy, and military operations by modern states (and by some modern insurgent and terrorist groups), have become irreversibly dependent upon space system enablers. To risk only a slight exaggeration, were the U.S. military establishment suddenly, in other words by enemy action or natural catastrophe, to lose reliable access to its enabling vehicles in orbit, it would be so severely challenged as to be all but unable to function effectively. Needless to say, America’s adversaries, current and anticipatory, have noticed this technical fact.

For the civil side of the story, the intense commercial and social networking that is understood by the catch-all term “globalization”, would be infeasible in the absence of reliable access to space systems. On the lighter side, today’s global media and entertainment, news and information industry is irretrievably interconnected with its clients by orbiting satellites. The point is not that older ways of doing business strictly are no longer possible. After all, we could still move goods by horse and cart, we could travel by sea instead of by jet aircraft, and we can communicate by terrestrial cable. However, for many functions which we humans deem vital – defence, wealth creation, entertainment – the space option has become relatively so cost-effective that the nominal alternatives are not really alternatives at all.

Of course, one must not overstate the case regarding space dependency. New technologies of terrestrial application can and do limit notably the attractions of the space option. For a leading example, the arrival of fibre-optic cabling in the late 1980s has reduced dramatically the then massive dependence of long-haul voice communication on satellite housed transponders. Over a twenty-year period (early 1980s to early 2000s) the percentage of long-distance telephone traffic carried via satellites in geosynchronous orbit (36,000 kilometres high) declined from 70 to 25 percent. This is an example of a rare technological “contraflow” development. A soaring process of dependency is reversed. Today, global communications are provided by a synergistic mix of terrestrial and orbital technologies. It is necessary to note, however, that quite often the substitution on offer among geographically specific technologies cannot be complete. To illustrate: fibre-optic cables truly are magnificently useful, but only to clients reachable by the routes where they are laid.

By way of a summary of this first element in the Argument: the exploitation of orbital space for commercial, scientific, and military purposes has now well transcended the zone of “very useful” into that of “literally necessary”. In short,

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2 Space is big business. To illustrate, in 2006 the global industry that manufactured satellites and provided launchers and satellite services was worth $220 billion. In D. CHENG, Setting future directions in space, cit., p. 225.
The global economic and security systems have become addicted to, and dependent upon, their access to the benefits of space systems. For some functions currently performed largely from space, terrestrial alternatives remain, but they are not competitive – unless there is literally no choice, for reason, say, of war or natural disaster.

The space environment is geographically, and as a result tactically and operationally, unique as a geography for warfare, but it is governed by the general theory of strategy.

Strategically approached, space is no different from the land, the sea, the air, or the EMS, currently partially translated as “cyberspace”. Many people and organizations have great difficulty thinking strategically about orbital space. But, as often as not those difficulties can be traced not so much to the novelty of space geography, but rather to a widespread failure to think strategically about anything. For example, governments regularly produce so-called “strategy” documents that, first, specify policy goals of self-evident desirability, which, second, proceed to discuss behaviours (the realm of tactics). But, metaphorically speaking, policy and tactical matters essentially are left on opposite banks of a river, unconnected by a strategy bridge. To cite just one example, albeit a major case in point, for many years the U.S. government has committed itself to the achievement and maintenance of “space control”. It has yet to specify how this highly significant goal is to be attained, let alone to acquire the physical ability to achieve it. In fact, Washington has yet to define the concept of space control plausibly and therefore usefully.

To understand strategy for the space environment one must first understand strategy in general\(^2\). After all, strategy for space is simply the application of a general function to a particular geography. If we understand how to “do” strategy in general, then we have been educated in mastery of the basic ideas, questions, and generic content that are equally applicable to each of the five geophysically distinctive environments for warfare itself or for peacetime defence preparation. Whether our concern is the protection of bandwidth, the physical survivability of logistical assets on the ground and at sea, or the suppression of enemy air defences, strategy should rule. An official, military or civilian, may begin by knowing little about orbital mechanics, space “weather”, and the details of space logistics. But, if he understands strategically how to think about the challenge of operating to, at, and from the sea (or on land, in the air, or in cyberspace), for example, then he has already the basic education that he needs. Strategy in action as plans, which is to say as specific


strategies, produces strategic effect as its output. At the highest level, for the politician policymaker, it does not matter whether the strategic effect derives more from one geographically specialized form of military power than from another. Strategic effect is a currency with both physical and psychological (i.e., the adversary’s will to resist) components, and it is a common coinage transcending its aerial, orbital, or other, producing agents.

The few authors of our general theory of strategy are as relevant to those who must employ military space behaviour, as they are to those who are charged with wielding land power, sea power, air power, and cyber power. A fundamental challenge to those who must cope with security and defence challenges as a whole, is to be sufficiently well advised as to what is, and what is not, possible of achievement from forces tailored both to operate in each of the five geographies, and shaped to function synergistically “jointly” (in multi-service mode).

While the general theory of strategy à la Thucydides, Sun-tzu, Clausewitz, and Luttwak, always matters, so also do the contemporary details of prowess in each geography. As a basket of assets, civil and military, space power is a highly dynamic reality. It is subject to some eternal physical verities, most significantly to the three laws of orbital motion as codified by German astronomer, Johannes Kepler (1571-1630) in 1609 and 1619, and to the universal law of gravitation registered formally by England’s Sir Isaac Newton (1642-1727) in 1684. However, the specifics of space power are ever shifting. The technical story of the evolution of terrestrial imaging from orbit has evolved dramatically over the decades, for example. Suffice it to say, with respect to this highly classified area, that directly defence relevant satellite imagery has improved from the early 1960s from a resolution of more than ten metres, to today’s level which can achieve a resolution of much better than a single metre. This is a major example of a technical difference that really matters. On the civil side, terrestrial imagery from orbit could attain only approximately a 10-20 metre resolution in the early 1980s, while today one metre is available. It should be needless to make the point that one metre resolution imagery from a “civilian” spacecraft is sufficiently precise as to be militarily useful, perhaps even essential.

It is a problem for all defence communities to know both what contemporary land power, sea power and so forth might plausibly accomplish, and, of even greater local relevance, what their current land power and the rest might achieve against the actual extant assets of particular enemies. History is amply populated by communities who, for example, fought well on land, but did not understand how that excellence should be employed for the purpose of securing victory or advantage in war as a whole. The argument here thus has dual thrusts.
On the one hand there can be no substitute for performing well in orbit with the assets tailored for operation only there. But, on the other hand, an impressive space power, regarded as assets, capabilities, must be given direction and purpose from beyond itself. One does not survive or win in orbital space as ends in themselves. So, the policymaker and the strategist must grasp what today’s space power can, and cannot, achieve, and also how that achievement should be made to count towards overall strategic effect in the totality of the polity’s effort.

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Space is not sovereign and most space technology is common to military and civilian projects

The old saying that geography is destiny is especially salient to Earth-orbital space. Astrophysics does not yield discretionary opinions, but rather laws that politics, strategy, and commerce must obey. On terrestrial Earth states are legal entities with geographically specific sovereign rights on land, some distance from their coasts if they have coasts, and in the airspace over their sovereign land and sea. By way of sharp contrast, states have no sovereign rights over tracts of orbital space, even though that space differs from their airspace only in vertical distance up Earth’s gravity well. In short, orbital space is not owned by states. This does not mean that there is no legal regime for outer space. General international law applies to state behaviour in orbit, as it applies to behaviour everywhere else. Also, there is a specific body of space law, comprising five treaties. With the exception of satellites in geostationary orbits, orbiting spacecraft are physically obliged to transit high above sovereign lands and seas. It has to follow that orbital space is even more genuinely “a great highway” or “a wide common” than is the sea. Geostrategic wisdom tells us that “all the seas of the world are one”. This nugget of refined commonsense is even more true a descriptor of orbital space. As maritime law has much to say about proper and improper behaviour at sea, including the sea space beyond sovereign jurisdiction, so space law should provide vital rules for the maintenance of good order in orbit. But, while maritime law has emerged literally over millennia, space law unavoidably is desperately recent and distinctly immature. Moreover, both the pace of technological change in space systems, and the nature of those systems, work synergistically to frustrate worthy aspirations for desirable order in orbit.

For example, orbital debris is a major and growing problem for spacefarers, especially, inevitably, for those who wish their satellites to function in Low Earth and Geosynchronous orbits (LEO and GEO). Current space law has nothing to say about space debris; indeed it does not even define

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it. The reason is not hard to find. Recognition that debris in orbit is a severe hazard to necessarily fragile spacecraft has occurred only since the very late 1970s and early 1980s, while all of our space law was drafted and agreed between 1967 and 1979. So today, dead, dying, and the disintegrated parts of, spacecraft can be abandoned in orbit quite legally. These often tiny and untrackable fragments move at a velocity that more than compensates for their modest mass with respect to the damage they can effect. If we move from the nightmarish topic of “space junk” to the most general matters of purposeful behaviour in orbit, the story is much the same, it is one of what might be called under-governance. Also to the point, much of the kind of governance we might like to see is quite literally technically, if not politically, infeasible.

Logistics meaning supply and movement is a concept first popularized by the Swiss-French general and military theorist, Baron Antoine Henri de Jomini, but it simply serves as a useful compound concept that has always described geographically driven reality. Regardless of the physical environment at issue – land, sea, air, orbital space, and the EMS – logistics are always very largely technologically common as between civilian and military tasks. Horses, ships, railways, the internal combustion engine for land and aerial vehicles, rocket technology, and the computer, are none of them generically and definably civilian or military. They can and have served across the board of human endeavours. This technological fact of life has not prevented foolish but well meaning people, including some governments, from seeking to control those endeavours by banning or constraining what were deemed to be undesirable technologies, machines, and capabilities. For example, in the 1920s and early 1930s, many people believed that aerial bombing could be prohibited by a law that prohibited bombers. But, what is a bomber? And, what is the difference between a civil airliner and a bomber? Furthermore, how swiftly could the former be adapted to serve well enough as the latter? International law could ban aircraft, but it could not ban aircraft capable of bombing; at least it could not do so in a sufficiently meaningful way, technically regarded.

Just as an aircraft can be designed to serve several purposes, as can many different kinds of terrestrial vehicles, so are many space systems inherently technically ambiguous. The technology capable of propelling a rocket into LEO, which is to say able to attain a velocity of 28,000 kph, can move payloads of any kind for any purpose. Of course the orbital parameters of a particular satellite constellation will identify strongly, even make unmistakeably plain, the primary mission of the system, but there is an inherent possibility of ambiguity because of the commonality of space technology, space logistics if you prefer the term. The same rockets can transport scientific, commercial, and military payloads. To

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complicate matters yet further, even payload can have some common value across the three broad categories of activity.

It is important not only to understand what can or may well be achievable technically in space systems and behaviour to, in, and from orbit, but also why states would want to build particular capabilities and operate in specific ways. To clarify, let us pose a basic question of fundamental importance to this discussion, “Why would polities and commercial organizations wish to behave in a competitive manner in Earth orbit?” The answer, unsurprisingly, was provided 2,400 years ago by Athenian general Thucydides: “fear, honour, and interest”\(^\text{15}\). Why have states fought for some measure of control over lines of communication on the high seas? Because it has been strategically essential for them to do so is the obvious, and obviously correct, answer. Since satellite systems in orbital space already are vital to commerce and to military prowess, \textit{inter alia}, it does not require deep analysis in order to reason that the motivation to exercise some control over who does what in orbit is going to prove irresistible. When we overlay recognition of the growing benefits of such space control as may be achievable, upon appreciation of the fundamental logistical commonality of civilian and military space systems, it becomes readily apparent that Earth-orbital space is not likely to remain a “geography of peace” for very long into the future. Human beings always are obliged to fight for control over the geographies critical to their survival. As the deep ocean and then the sky became technologically accessible and were duly exploited, so the geography of warfare expanded. This logical progression from exploitation to competition and conflict is occurring today in cyberspace; recall the world’s first cyber war, waged unilaterally by the Russian Federation against Estonia in April-May 2007\(^\text{16}\). All too obviously warfare in future strategic history will feature an orbital dimension.

History, Analogy, and Prediction

The human race, its politics, its prosperity and, inevitably, its wars, have entered a space age from which there can be no exit. This age is permanent as a layer of activity integral to the course of terrestrial history. We can no more decide whether or not to exploit orbital space than our forefathers a century ago were at liberty to choose whether or not to invest in heavier-than-air craft. The limitations and problems of early aviation were real and continuing as well as challenging to technical and commercial pioneer-adventurers. Similarly, our contemporary spacecraft, most especially the technologies fundamental to efficient transportation into orbit, are hugely unsatisfactory. Exploitation of orbital space


continues to be slowed by the high cost of placing weight, essentially meaning payload of any kind, into orbit. The American Shuttle programme was envisaged and advertised in the 1970s and early 1980s as providing a functional “bus service” into orbit, a decreasingly remarkable means of routine transportation. A quarter century on, it is clear to see that spacefaring logistics are far from routine in cost and technical risk of accident. But, historical education tells us that the undeniable immaturity of the technologies of space transportation is simply a matter of time. The scientific, commercial, and military motives to explore and exploit space are, and will continue to be, so strong that the science and technology assuredly will be funded and directed to routinize much of what today remains insufficiently routine about spacefaring. With reference to practicable spacefaring beyond the Earth-Moon system, significant progress will not be registered until the dominant technical, perhaps the scientific, paradigm is changed. Mere improvement in current technologies will not suffice to render inter-planetary, let alone inter-stellar, travel, practical for humans. Totally new technologies are needed. So much for the bad news. The much better news is that we can be certain that over time those new technologies will be developed and engineered into practical space systems.

Understandably enough, it can be difficult to convey to a non-spaceminded audience the truly awesome meaning, and some fragment of the potential implications, of extra-Earth-orbital space. Outer space cannot be without limit (I believe, but naturally cannot prove), but it is no exaggeration to claim that discovery and exploitation of its potential contribution to the human race is effectively limitless. Terrestrial concerns focussed on land, sea, air, orbital space, and the EMS, somehow shrink almost alarmingly when they are considered in the full geographical context of “outer” space. The point is not to dwell upon necessarily vague dreams at the expense of proximate Earth bound realities. Rather it is to argue that although Earth orbital space is but one geography among five of immediate contemporary significance, in addition it merges into a geography that is utterly distinctive. Above all else, perhaps, “outer” space is a domain without known, beyond currently knowable, limits. This is a truly big idea, at least it is for those who, while well anchored on terra firma, nonetheless can conceive of a human future not entirely enclosed by Earth’s gravity well.

With respect to warfare to, in, and from, Earth orbital space, future strategic history can be trusted to provide a thorough education. To date, there has been no bilateral space warfare. This is a historical reality that must enjoy only a brief half-life. The military advantages yielded by space assets already have become so great that no
competent belligerent capable of competing for space control or denial could afford to donate freedom of space passage to an enemy. Space warfare is coming, and it is coming for the same reasons that the grand strategic utility of using the high seas and then the air triggered the necessity for warfare at sea and in the air. Assertions, one can hardly say arguments, to the effect that orbital space will be, or even just could be, radically different from the other geographies, approached as environments for warfare, are alas thoroughly unconvincing. Why will orbital space differ from the land, sea, air, and the EMS. Each of those geographies, including the EMS, has been, and remains, “battlespace”.

The only way to keep warfare out of orbit would be to cease to use orbital space for commercially and militarily vital purposes. Since that option is not practical, one is compelled to assume that the permanent space age also must be the permanent age of space warfare.

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18 For the most competent recent statement of a fundamentally unsound argument, see J.C. MOLTZ, The Politics of Space Security, Stanford 2008.
Following China’s January 2007 anti-satellite (ASAT) test, and the subsequent U.S. destruction of an ailing spy satellite in February 2008, the chances for avoiding a global arms race in space seemed dim. The long-simmering debate in U.S. policy circles about pursuit of space weapons seemed to shift in favor of proponents. Analysts such as Ashley Tellis of the Carnegie Endowment for International Peace argued that «Beijing will not entertain any arms-control regime that requires it to trade away its space-denial capabilities» and exhorted Washington to pursue its own ASATs, long-time supporters of space-based weapons systems, such as Sen. Jon Kyl, renewed their push with the new rationale of thwarting Chinese ASATs. China’s regional rival India entered the fray by standing up a new military space command as Indian Air Force officials issued dire warnings about the need for Indian ASATs. Even the European Union, which has been unanimously opposed to space weaponization, began touting the «right of self defense» in space.

By mid-2008, however, the picture had shifted. Washington had reversed its policy of refusing to discuss possible restraints on its behavior in space, and instead State Department officials were traveling abroad to tout the new Bush administration message that «new [transparency and confidence-building measures], implemented on a voluntary basis, have the potential to enhance satellite safety and reduce uncertainty in an evolving space security environment». The European Union was in the end-game of drafting a voluntary “code of conduct” to constrain negative behavior in space, and had begun consultations with other nations on the issue. The outgoing chairman of the UN Committee on the Peaceful Uses of Outer Space (COPUOS), Gerard Brachet, had begun an informal working group – which included representatives of the U.S. State Department and NASA – to define measures aimed at ensuring the “long-term sus-

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6 R. COUCHOUX, EU proposal for a code of conduct for outer space activities, IFRI Seminar: The French Presidency of the EU and the dynamics of European space, July 2, 2008; http://www.ifri.org/
tainability” of space. Several non-governmental organizations were well into the effort of fleshing out ideas for “space traffic management”. All in all, a new paradigm is emerging that views space not simply as a national and/or international security asset, but instead as an “environment” to be protected and prudently managed to ensure future utility.

As of the time of this writing (August 2008), it is impossible to say whether the nascent international consensus on the need for strengthening the norms underpinning the peaceful uses of outer space would be sufficient to block a march toward arming the heavens. But with U.S. elections around the corner, French President Nicolas Sarkozy’s public dedication to achieving a European “code of conduct”, and China’s apparent rethinking of the wisdom of further pursuing its destruct ASAT program, there are signs of hope.

U.S. Fear and Saber Rattling

The current state of affairs regarding outer space cannot be adequately explained without a brief review of recent history, particularly regarding policies and strategies in the United States. While the history of the Cold War shows an oft teetering balance in the space race between the two superpowers, with both sides testing and then backing away from ASAT and space-based weaponry, a fundamental shift in U.S. thinking emerged in 2001 with the administration of President George W. Bush. The changed attitude regarding the U.S. use of space was part of a larger national security strategy built around the concept of American dominance and, in the aftermath of the 11 September 2001 terrorist attacks, the embrace of preemptive use of military force. As James Clay Moltz explains:

The period after 2001 brought a fundamental challenge to the norms of space security established and followed since the early 1960s. In many respects, the rhetoric and direction turned back to the Reagan administration, but in other respects it turned back to 1950’s assumptions about space competition. Changes in U.S. policy caused this confrontation with existing approaches: the result of a dramatic shift in power and perspectives in the White House and single-party control over both houses of Congress … [A] team dominated by leading neoconservative thinkers and former officials entered office with a self-perceived mandate for dramatic change. In space, they identified shortcomings of simultaneous U.S. dependence and vulnerability. Instead of continuing Clinton-era and Cold War space security policies and cooperation with Russia, the
George W. Bush administration promoted concepts of space security aimed at largely military means ... It also pointed at potential future threats to its space assets.10

Indeed, the writing on the wall concerning this strategic shift in U.S. space policy came very early in the Bush administration’s tenure, with the appointment of Donald Rumsfeld as Secretary of Defense. Rumsfeld had been plucked from his previous appointment as chairman of the Commission to Assess United States National Security Space Management and Organization, known as the Space Commission. The Commission’s report, published in January 2001, warned that the United States could face a “Space Pearl Harbor” if direct action was not taken to secure and provide defense for U.S. space assets. The report stated:

Assuring the security of space capabilities becomes more challenging as technology proliferates and access to it by potentially hostile entities becomes easier. The loss of space systems that support military operations or collect intelligence would dramatically affect the way American forces could fight, likely raising the cost in lives and property and making the outcome less secure. American space systems, including the ground, communication and space segments, need to be defended in order to ensure their viability.11

Highlighting growing U.S. fears, one of the Commission Report’s several annexes detailed a dizzying, and in some cases futuristic, list of possible technologies that enemies could use to disrupt or destroy U.S. space systems.

Despite the fact that reducing vulnerabilities of and protecting U.S. space assets arguably does not rely on an offensive strategy, the Bush administration’s intent to follow just such a strategy was also highlighted in the Space Commission report. The report stated: «The [United States] must develop the means both to deter and to defend against hostile acts in and from space». It further recommended that the Defense Department «vigorously pursue the capabilities ... to ensure that the president will have the options to deploy weapons in space». The Space Commission report opened the way for advocates of ASATs and space-based weapons – particularly within the U.S. Air Force, which is the service most responsible for providing military space capabilities and, ostensibly, to protect them – to begin a public relations campaign based on the meme that war in space was “inevitable”. In a 2001 book, Steven Lambakis, then of the neconervative National Institute for Public Policy (NIPP) and soon later a key Bush

administration appointee, argued the inevitability of space warfare and advocated a preemptive move by the United States to prevent other nations from seeking to undermine the overwhelming U.S. edge in military space from the ground, with a particular focus on China. “I believe that weapons will go into space. It’s a question of time. And we need to be at the forefront of that,” Peter B. Teets, undersecretary of the Air Force and director of the National Reconnaissance Office, told a 6 March 2002 conference in Washington.

But it wasn’t until November 2003 that the U.S. Air Force published a formal document detailing plans for developing both defensive and offensive space weapons (although the document was not released to the public until early 2004.) The *U.S. Air Force Transformation Flight Plan* revealed long-term (post 2015) intentions to develop and deploy a wide array of so-called “counterspace systems” including: an Air Launched Anti-Satellite Missile, a Ground Based Laser, a Space-Based Radio Frequency Energy Weapon and a Space Operations Vehicle. It also trotted back out an old concept that had been rejected by the Air Force in the 1990s (although under a new name): Hypervelocity Rod Bundles, nicknamed “Rods from God”, to strike targets on the ground. In August 2004, the service released its first ever formal doctrine document to outline how it would fight a space war: “Counterspace Operations (AFDD 2.2-1)” which established as fact U.S. intentions to conduct ASAT operations, even preemptively.

The *chapeau* for the shift in U.S. space thinking came in the form of the Bush administration’s new National Space Policy, quietly released on the eve of the Columbus Day holiday in October 2006. While stopping short of explicitly promoting space weapons, the document used strong, even confrontational, language regarding U.S. intentions to both aggressively protect U.S. space assets as well as counter – up to the use of preemptive force – space capabilities of adversaries. It stated:

*The United States considers space capabilities – including ground and space segments and supporting links – vital to its national interests. Consistent with this policy, the United States will preserve its rights, capabilities, and freedom of action in space; dissuade or deter others from either impeding those rights or developing capabilities intended to do so; take those actions necessary to protect its space capabilities; respond to interference; and deny, if necessary, adversaries the use of space capabilities hostile to U.S. national interests.*

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Unlike earlier U.S. National Space Policies (even that of President Ronald Reagan), the Bush policy rejected the notion of arms control and/or international agreements as a method of securing U.S. space assets, stating:

The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space. Proposed arms control agreements or restrictions must not impair the rights of the United States to conduct research, development, testing and operations or other activities in space for U.S. national interests\(^\text{16}\).

Public and media reaction from nearly all sides of the political fence – both within the United States and elsewhere around the world – was relentlessly negative about the policy’s perceived saber rattling. For example, the U.S.-based trade journal Aviation Week, not exactly a hot-bed of liberal opinion, called the policy “jingoistic”. The right-wing Times of London hurrahmed that the language was «comically proprietary in tone about the U.S.’s right to control access to the rest of the solar system». Official reaction from outside the United States was predictable: Russia condemned the policy, while U.S. allies and friendly nations were largely silent and/or resigned. While the Chinese media (largely state controlled or at least state censored) was particularly harsh, the Chinese government was almost eerily silent\(^\text{17}\).

The Red Dragon Roars, The World Quakes

Just as the political and media hullabaloo over the new U.S. space policy was starting to die down, another space-related shock wave erupted on the international scene: on January 11, 2007, China destroyed one of its aging weather satellites using a ground-based missile fitted with a kinetic energy (hit-to-kill) warhead. The destruction of the Feng Yun (FY) 1C satellite at about 850 km in altitude represented the first successful public test of an ASAT weapon in more than two decades. Further, the satellite’s spectacular break up created hundreds of thousands of pieces of dangerous space debris that will threaten working satellites in much of low Earth orbit (LEO) for decades to come.

The move by the Chinese – who for many years had been one of the strongest proponents of a new treaty to ban space weapons – stunned most of the world, apparently with the exception of the U.S. Pentagon and intelligence community. Although the evidence supplied in its annual report to Congress on Chinese military power has been somewhat thin, and at times based on dubious sources, DOD has been arguing for years that the People’s Liberation Army (PLA) is in-


vesting heavily in an array of satellite attack space systems including direct ascent ASATs and laser weapons. The most recent 2007 version of Military Power of the People’s Republic of China calls Chinese efforts «a multi-dimensional program to generate the capability to deny others access to outer space».

Following the Chinese ASAT test, unnamed U.S. government officials were widely quoted by American media outlets admitting that the U.S. intelligence community was aware of two previous tests of the system with the FY 1C as the apparent target – although no impact was made, either deliberately or in failure. However, Washington apparently made no effort to either query Beijing about the testing – something that would have been fully justified under the consultation clause of the 1967 Outer Space Treaty – nor to warn other nations.

Reactions in the United States largely fell out along political and bureaucratic lines. The State Department publicly smacked Beijing with a formal diplomatic démarche and department officials bemoaned China’s lack of transparency about the test itself and its military space ambitions/plans in general. Pentagon and U.S. Air Force officials stepped up rhetoric regarding the need to defend U.S. space assets, while quietly moving to speed efforts to develop “Prompt Global Strike” capabilities that could be used against Chinese ground-based ASATs. Indeed, DOD and Air Force positioning now seems to have moved considerably toward a neo-Cold War stance regarding the Chinese space program. For example, in April 2007, then-Air Force Chief of Staff Michael Moseley compared the event to the seminal act of the Cold War-era space race, the Soviet launch of Sputnik, and asserted that space is now “a contested domain”. Part of the problem, of course, is that Chinese military space programs and plans are extremely opaque, which has led to considerable worst-case-scenario thinking among U.S. military officials. That said, China’s long-standing allergy to spy satellites and imagery services such as Google Earth – as well as a good deal of published military/academic research on asymmetric, space-related responses to U.S. military might in any future conflict over Taiwan – does raise some cause for U.S. military concern. And the progress made by China over the past several years in both its manned space program and its commercial satellite ventures testifies to capabilities that could, if Beijing so chose, be utilized to develop an offensive military capability.

In congressional and policy-making circles, reactions were likewise predictable. Hawkish Congress members, such as Sen. John Kyl, R-Ariz., thundered about the need for U.S. ASAT weapons and space-based missile defenses to counter the Chinese threat. Jeff Kueter, director of the right-wing George C. Marshall Institute in Washington, said: «If the international community is truly


worried about the debris-generating effects of ASAT weapons, then it ought to embrace, indeed demand, development and deployment of boost-phase missile defense capable of intercepting ASAT missiles long before they reach their satellite targets. More dovish members of Congress, such as Rep. Edward Markey of Massachusetts, called on the United States to begin negotiations to ban such weapons.

The test further put a chill on nascent U.S. efforts to develop lines of communication and perhaps even some cooperation with the Chinese civil space program that began with a September 2006 trip to China by NASA Administrator Michael Griffin. U.S. National Security Council spokesman Gordon John-drof told reporters on Jan. 18, 2007 that «The United States believes China’s development and testing of such weapons is inconsistent with the spirit of cooperation that both countries aspire to in the civil space area».

International condemnation also was swift and vociferous, perhaps in part because Beijing refused to confirm the test for nearly two weeks after clear evidence of it was provided by the U.S. government and amateur satellite-watchers. Despite belated Chinese declarations that it remained committed to avoiding an arms race in space, diplomatic protests were lodged by Australia, Britain, Canada, the European Union, India, Japan, South Korea and Taiwan. However, with the exception of a statement by the Japanese Prime Minister, none of the protests went so far as to label the Chinese move as illegal under the Outer Space Treaty – although it is clear that such a case could be made with regard to the treaty’s requirements under Article IX for notification of space activities that might place the space assets of others in harm’s way. More interesting was the reaction of Russia, which has been partnering with China in the effort to launch negotiations on a treaty to ban space weapons at the U.N. Conference on Disarmament in Geneva. Instead of chastising Beijing, Russian President Vladimir Putin reiterated Russia’s opposition to the weaponization of space and laid the blame on the United States for forcing China’s hand by Washington’s hard-line space policies.

Perhaps most worrisome from the perspective of avoiding an arms race in space was the reaction of India. As China’s long-time regional rival, India has for a number of years been watching Beijing’s emerging space program with concern. India’s own space program is well developed, but traditionally has been focused on national economic development and civilian purposes such as remote sensing. And while India’s Air Force had been lobbying since the 1990s to launch a separate military space program, the service’s entreaties had largely fallen on deaf ears in New Delhi. That situation changed dramatically after the Chinese test. Suddenly, military priorities for developing improved satellite reconnaissance capabilities and establishing an “aerospace command” rocketed to the top

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of the government agenda. In March of 2007, Indian President A.P.J. Kalam addressed the Indian Air Force, asserting that by 2025 the service would «succeed in the electronically controlled warfare in the midst of space encounters, deepsea encounters and ballistic missile encounters»\(^2\). More specifically, public debate emerged regarding the wisdom of India’s own pursuit of ASATs and space-based weapons. Former president Abdul Kalam on February 22, 2008 stated that India already has capability to «intercept and destroy any spatial object or debris within a radius of 200 km»; V.K. Saraswat, chief controller of the Defense Research and Development Organization charged with weapons system development, said India’s deployment of such technology was simply «a matter of times»\(^2\).

From a technical point of view, India’s space program is certainly capable of developing dual-use technologies that could be put to offensive purposes vice satellites. In particular, India has been pursuing hit-to-kill missile defense interceptors, with a publicly stated goal of standing up the network by 2010\(^2\). From a political viewpoint, however, the argument that may be most likely to sway India’s leadership is of a more strategic nature. Several prominent Indian defense experts have suggested that to avoid the situation India found itself in with regard to the Nuclear Non-Proliferation Treaty, the country should rush to test space weapons capabilities now before any international restraints are put into place. Given the deep-seated sensitivity in Indian political circles of all stripes about its former nuclear “have not” status and the international heat it took for its nuclear testing outside the treaty in 1998, this line of thinking has strong resonance in New Delhi. What remains unclear at this time is whether India has the political will to invest resources in anti-space technologies, as well as risk the international displeasure that would no doubt result from an overt Indian ASAT program. At the moment, the Indian government formally continues to reiterate its opposition to the weaponization of space, and its own commitment to peaceful uses.

**Turning Point?**

The U.S. destruction of USA 193, an out-of-control spy satellite, using a modified version of its ship-based missile defense system, in February 2008 shifted the focus from China back to Washington. While the Bush administration argued that the February 20 intercept was necessary to avoid hazards to human life from the satellite’s hydrazine fuel tank, the widespread conclusion both


\(^{23}\) J. GUINEY, *India’s Space Ambitions*, cit.
in the United States and abroad was that the shoot-down was at least in part designed as a warning to Beijing that the U.S. military also has ASAT capability in its back pocket. The fact that the primary modifications to the Aegis-based Standard Missile used for the intercept were simply to re-calibrate targeting software could not have underscored that point any more clearly. Nonetheless, international reaction to the U.S. move was largely muted by the “human safety” rationale, and the fact that U.S. officials went out of their way to brief other nations well in advance (thus strictly adhering to the Outer Space Treaty’s notification provisions).

At the same time, however, the specter of an emerging Sino-American space arms race arguably re-energized those seeking diplomatic solutions to prevent outer space from becoming a future battlefield.

Particularly in Europe, what had been a trickle of activity to develop new approaches to circumvent the decades-long stand-off in the Conference on Disarmament on treaty talks became a torrent over the course of 2008. Already in September 2007, the European Union had detailed, at the 62nd Session of the U.N. General Assembly in New York, its intentions to develop and formally propose a «comprehensive code of conduct on space objects and space activities».

The EU move, in fact, followed a June 2007 working paper penned by then COPUOS chairman Brachet, suggesting that the committee’s Science and Technical Subcommittee take up an analysis of potential “rules of the road” for space as a part of a package of possible future committee activities. The pace of these efforts, however, accelerated noticeably after the U.S. destruction of USA 193.

On February 7-8, 2008, Brachet called a first meeting of an informal working group to draft proposed rules of the road – including representatives of several COPUOS member states, intergovernmental organizations and the commercial telecommunications industry. There were discussions among some of the group members in the margins of the June 11-20, 2008, COPUOS meeting in Vienna in hopes of speeding the process; and a second meeting is now planned for the margins of the 59th International Astronautical Congress in Scotland on September 29 to October 3, 2008, at which set of draft papers are to be reviewed.

On February 11, 2008, French President Nicolas Sarkozy gave a major speech in Kourou throwing Paris’s weight behind a more robust European space policy and strategy, as well as expounding on the need for international agreement on transparency and confidence-building measures. Sarkozy’s speech was widely read at the time as a signal that France intended to make space a priority during its stint at the EU Presidency from July to December 2008 – something that has since been proven true. At the February 22 meeting of the Science and Technical Subcommittee, France declared its intent to propose a new multi-year agenda item for COPUOS on the “long-term sustainability of space activities” be-

\[\text{Statement by Portugal, contained in } \textit{Transparency and Confidence-Building Measures in Outer Space Activities, Report of the Secretary-General, Addendum, A/62/114/Add.1, United Nations General Assembly, New York, September 17, 2007.}\]
ginning in 2009: at the June COPUOS meeting France said it would wait to make the proposal until after seeing the outcome of the Brachet informal working group.

By June 2008, the EU had drafted the promised code of conduct language, focusing on voluntary best practices for space traffic management and confidence-building measures. EU diplomats intend to begin briefing other nations on the code language this fall in hopes of getting additional signatories, and European officials say they fully expect to be able to present a final version to COPUOS for consideration next year. The next full COPUOS meeting is currently slated for June 3-13, 2009.

While it remains somewhat unclear how all these European-led efforts will come together and how ultimately they will inter-relate, they all share a focus on space “sustainability” and “security” writ broadly, in contrast to past concentration on the narrower issue of outlawing space weapons. It is clear that a new paradigm is emerging that centers on space as an “environment”: one that can be collectively preserved and utilized responsibly or one that can be polluted and squandered. That is not to say that European nations have abandoned their opposition to space weaponization; many EU countries continue to pledge support for weapons ban treaty negotiations at the Conference on Disarmament. However, the EU seems to have shifted gears toward “a pragmatic and incremental approach” toward developing a multilateral space security framework through COPUOS rather than immediate pursuit of a legally binding treaty at the Conference on Disarmament.

Somewhat surprisingly, given the 2006 National Space Policy, Washington has welcomed the EU efforts – although U.S. officials are careful to make clear they want no part of any formal treaties or agreements. Indeed, U.S. diplomats are uncomfortable with the terms “code of conduct” and “rules of the road” for space as those phrases carry some connotation of formality, instead consistently using the terminology “best practice guidelines”. The Bush administration began signaling interest in confidence-building and transparency measures in the run up to the September 2007 62nd Session of the U.N. General Assembly, quietly interceding with Russia on its planned resolution on the issue. In the end, Washington voted against the resolution as Moscow insisted (apparently at the urging of Beijing) on tying the development of such measures with an eventual treaty negotiation. In a January 24 speech at George Washington University, U.S. Acting Deputy Assistant Secretary of State Donald Mahley explicitly endorsed pursuit of voluntary transparency and confidence-building measures (TCBMs). And in an April 1, 2008,

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24 R. COUCHOUD, EU proposal for a code of conduct for outer space activities, cit.

Security in Space: Moving Toward a New Paradigm for Cooperation

presentation to a conference organized in Geneva by the United Nations Institute for Disarmament Research, Garold Larson, U.S. deputy permanent representative to the Conference on Disarmament, formally welcomed the Brachet process. Larson also praised ongoing "bottom up" efforts by the commercial telecommunications industry to establish more structured processes for space traffic management and collision avoidance, as well as similar efforts by a variety of non-governmental organizations (NGOs) such as the International Academy of Astronautics and International Space University. In fact, both U.S. State Department and Pentagon officials have been actively participating in a number of NGO-sponsored meetings and studies regarding space security over the past year.

While the impending presidential election raises a number of questions regarding future U.S. intentions and plans in space, there is little reason to expect a change of heart regarding voluntary confidence-building. Although Republican candidate John McCain's published space policy is focused on NASA rather than on space security issues, his call for nuclear non-proliferation dialogue with not only allies but also with Russia and China provides some reason to believe that he would not reverse the current U.S. course. On the other hand, McCain is a long-standing and vocal supporter of missile defense—which would be a roadblock to any progress on space arms control. In contrast, Democratic candidate Barak Obama has explicitly opposed the deployment of space-based weapons and the development of anti-satellite weapons, and explicitly committed to pursuit of a code of conduct for space activities. Whether an Obama administration would be willing to pursue any sort of space arms control treaty remains an open question, however.

Ball in Beijing’s Court

China and Russia, as expected, formally put their draft space weapons ban treaty on the table at the Conference on Disarmament on February 12, 2008—after some eight years of work. Also as expected, the United States immediately rejected it—with White House Press Secretary Dana Perino telling The New York Times that it would be impossible to enforce, and reiterating Bush administration support for «discussions aimed at promoting transparency and confidence-building measures». U.S. officials also have pointedly noted that the draft treaty

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text would not ban deployment of ground-based ASAT weapons, such as that tested by China.

The U.S. position at the Conference on Disarmament resisting negotiations on the Prevention of an Arms Race in Outer Space (PAROS) has long been decried by the other 65 member nations, and heavily criticized by Moscow and Beijing. The history of the Conference on Disarmament in truth more complicated, due to linkages that have been made in the past between the space and nuclear issues and the need for consensus voting. The body has not produced an arms control agreement since 1997, and the blame can be shared somewhat widely. Nonetheless, the United States has traditionally – and not without some reason – taken most of the political heat for lack of progress on the space issue.

The move by Western nations to actively pursue voluntary measures as an alternative and to inject the space security debate into COPUOS, however, in some ways takes the political onus off Washington, and puts it on to Moscow and Beijing. Particularly if a large number of COPUOS members agree to participate in code discussions, Russia and China will risk being seen as the new “problem children” if they try to throw road-blocks in front of progress.

Russian diplomats in Geneva have indicated (including specifically to this author) that Moscow believes transparency and confidence-building measures would be useful – as demonstrated by their U.N. General Assembly resolution – and that the Kremlin might be talked into working on a space code of conduct separately from treaty talks. However, given the serious souring of U.S.-Russian relations in the wake of the August 2008 war between Russia and Georgia, and expectations of a continued Russian military presence in Georgia, the two sides may not be willing to talk about any form of cooperation in the near term. Indeed, that issue is already threatening to negatively impact U.S.-Russian cooperation on the International Space Station – with some in Congress threatening to cut off NASA’s ability to contract out the use of the Soyuz for flying payloads and astronauts to the station after 2011, by which time the U.S. Space Shuttle will be out of commission. On the other hand, the code discussions are being led by the Europeans, and specifically France, whose relationships with Russia have traditionally been less fraught. In addition, unlike China, there is no evidence that the Russians have revived technical efforts to develop ASAT technologies and thus it may be in their interests to avoid having to make new investments in that arena.

The reality, however, is that the ball is very much in China’s court at this time. That is because China has been adamant in insisting that any discussions of a code of conduct or confidence-building measures must be linked to a pledge to

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negotiate on a weapons ban. Essentially, Chinese diplomats are arguing that a voluntary code of conduct is not enough – and that the effort to develop such measures will undercut any possibility of a treaty. In addition, it appears that there may be some concern in Beijing that the code concept is primarily aimed at China’s military space program – an effort by the West to force more transparency down the throat of the People’s Republic of China and to hobble any plans for continued ASAT development.

That said, it remains unclear whether China intends to move forward with the ASAT program – there appears to be some debate in China over the wisdom of doing so despite the obvious military rationale. Indeed, Chinese diplomats have indicated that the leadership was stunned by the international outcry about the ASAT test, as well as the actual debris impacts of the test. While Chinese officials may have thought about the test as simply “catching up” to Russia and the United States, who tested ASAT technologies in the 1970s and 1980s, they seriously misjudged the changed political climate. Unlike during the Cold War, when very few nations possessed satellites, there are currently more than 40 nations owning or operating satellites – all of which were put at risk by the Chinese test. Chinese diplomats concede that Beijing also “lost face,” in that the test caused many nations to question China’s sincerity regarding a space weapons ban.

Nonetheless, entreaties (spearheaded by the Canadian government) to convince Beijing that it risks political isolation if it continues to be recalcitrant on confidence-building measures so far have failed to convince the Chinese government to rethink that stance. Whether diplomatic or economic “carrots” – such as a formal invitation to join the International Space Station – can be found to change Beijing’s mind remains an open question.

Conclusion

The past year and a half has seen a confluence of negative and positive trends for space security. The Chinese and the U.S. militaries sit poised at the edge of an ASAT arms race that might cause others, particularly India, to follow suit. Chances for an actual space weapons ban seem as remote as ever. On the other hand, the political forces – led by the Europeans – urging restraint have grown much stronger and there is an emerging consensus about the need to protect the space “environment” for future use. The involvement of the telecommunications industry and civil society in the efforts to craft stronger, more coherent processes for managing space activities also bodes well in that

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it signifies the recognition by a wide variety of stakeholders in the importance of sustaining space security.

It is highly possible that both these trend lines will continue for some time, without either coming fully to fruition.

The major space-faring powers are likely to continue, or begin to, develop ASAT and space-based weapons technologies. In the United States, pursuit of such technologies is seen not only as a hedging strategy but also as necessary for any future conflict with a space-savvy enemy. In China, ASAT technology may well be viewed as an “ace in the hole” in deterring any American intervention in a conflict over Taiwan. In India, the goal of a space arms program would be to serve as a deterrent to China as well as to project India’s great power status; any Indian program would further be sure to spur a similar effort by rival Pakistan. In these circumstances, Russia would also be likely to reconstitute technology development efforts in both kinetic and laser ASAT technologies in order to “stay in the game”.

It must be remembered that the concept of space warfare is highly unpopular with publics around the world. For example, a poll released in January 2008 by World Public Opinion showed that 72 percent of Russians and 80 percent of Americans support a space weapons ban. Likewise, 78 percent of Americans and 67 percent of Russians say their country should refrain from placing weapons in space as long as no other country does so.

Meanwhile, the efforts to develop a framework of restraints on behavior and activities in space, to regulate (even if via a voluntary code) space traffic, and to build transparency and confidence are likely to continue to build. There seems to be an emerging agreement among space-powers about the need for, at a minimum, a new set of principles for ensuring access to and the use of space. However, achieving political consensus on the details of any “code of conduct” or set of “rules of the road” is also quite likely to take some time. This is not only due to differing perceptions among nations about their strategic needs, but also due to the fact that any new process governing space activities would necessarily involve a wide variety of stakeholders: commercial interests, civil society, scientists, and numerous domestic government bureaucracies.

It remains to be seen which trend line might emerge as dominant, but unlike at the beginning of 2008 when a space arms race looked almost inevitable, there is now grounds for hope that one can be at least contained, if not avoided completely. The fact is that the arming of the heavens and/or a shooting war in space

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would be in no one’s long-term interests. The use of space is too important to the fate of humanity. One can only hope that short-term national interests are not allowed to obscure and undercut long-term human needs.
China’s Space Capabilities and U.S. Security Interests

Ashley J. Tellis

The Chinese space program has been rightly described as «a mystery within a maze». Although some elements of this program are visible in principle – for example, space launch vehicles, launch sites, and satellite systems – even these components are rarely, if ever, accessible to close scrutiny. Other dimensions of the program, such as its organizational structure, its directing and coordinating mechanisms, and the relationships between its constituent entities, can only be dimly perceived, and the pervasive secrecy and compartmentalization that persists throughout the Chinese military-industrial complex ensures that this lack of clarity affects not simply outside observers but also participants within the Chinese space program itself.

Analyzing China’s space capabilities at a high level of resolution in such an environment is a daunting enterprise. Stated simply, the Chinese space program is large, complex, and closed. What follows, therefore, is fundamentally an overview of Beijing’s space efforts, primarily from the perspective of assessing how its military components affect U.S. security. Toward that end, this article will be divided into three parts. The first section assesses the key characteristics of China’s space program writ large. The second section briefly describes China’s military space capabilities in different dimensions and provides summary evaluations of their significance. The third, and final section, appraises the impact of China’s space and counterspace investments on U.S. national security and its military operations.

Key Characteristics of China’s Space Program

China’s space program represents a major investment aimed at enabling Beijing to utilize space in expanding its national power. The expansion of comprehensive national power, which has been China’s grand strategic objective since at least the reform period initiated in 1978, is critical to recovering the greatness that China enjoyed internationally for most of the last millennium. Recovering greatness, in turn, requires China to sustain high levels of economic growth, preserve internal stability, and neutralize the external threats to its national security.

It has been clearly recognized in China that a space program helps to advance all these three goals simultaneously. As in the United States, Chinese investments

China’s Space Capabilities and U.S. Security Interests

China’s space programs advance this goal either through the direct application of space-related technologies for discharging law-and-order functions or for providing disaster relief, or through the more indirect, but nonetheless equally important, means of sustaining the “social contract” that enables continued Communist rule. China’s space achievements also providing the requisite symbolic gains that enable China’s rulers to justify their continued rule. Finally, space technologies have become critical to the successful conduct of military operations: they enable China to use its armed forces more effectively either because they permit better collection, transmittal and exploitation of information or because they support the development of new weapons such as responsive directed energy and other non-kinetic technologies.

China’s space program is intended to advance all these objectives seamlessly and synergistically. Consequently, its space policy goals could be characterized as simultaneously focused on securing economic and development benefits, enhancing national military capabilities, and procuring symbolic benefits that both aid regime survival at home and enhance Chinese prestige abroad.

China’s space program writ large is marked by three distinguishing characteristics. First, it is comprehensive. Unlike some other developing countries which are involved in a few discrete activities, China is a major space-faring nation pursuing endeavors that span the entire spectrum. Today, almost fifty years after China formulated its first space development plans, Beijing is deeply involved in space science; it possesses an inclusive space research, development and manufacturing base that produces everything from launch vehicles to satellites; it has a large ground segment that oversees space launches and includes an extensive telemetry, tracking and control (TT&C) network; it possesses a diverse set of space launch vehicles, currently consisting of some ten variants of four basic Long March boosters, now also complemented by newer mobile launch systems; it owns a diverse set of orbital assets, primarily indigenous satellites that provide communications, meteorological, navigation and positioning, remote sensing, reconnaissance, and electronic intelligence services; it has recently embarked on

As in the United States, Chinese investments in space are judged to contribute to enhanced economic growth in multiple ways

a manned space program that besides being a source of great national pride also represents its most difficult space endeavor, one that promises however to push Beijing to the limits of technology innovation; it has an emerging space services industry that is aimed at offering hardware, launch services, and space-derived products to domestic and international clients; and, finally, China is engaged increasingly in various activities involving international collaboration, be they scientific, technical, or diplomatic. China’s space presence is thus marked by the possession of an end-to-end capability. While Beijing still lags behind advanced space powers such as the United States, Russia, and key European states, it nonetheless has laid the foundations for a major presence in space.”

Second, China’s space program is integrated. Unlike the United States, for example, where a significant divide exists between civilian and military space activities, and where diversity, heterogeneity, and atomistic competition are the norm in both realms, civilian and military space programs in China are not only centrally directed but are also mutually reinforcing by design. Although specific activities in the Chinese space program may be biased towards civilian or defense applications, the entire enterprise, strictly speaking, is a strategic program with no firewalls whatsoever between the civilian and the military. This “unity-in-difference,” centered on the primacy of military considerations which suffuse even the scientific, domestic, and commercial elements of the space effort, is protected at the programmatic level by the organizational structure of the Chinese system. Although a now-civilianized Commission on Science, Technology, and Industry for National Defense (COSTIND) sits at the apex of the Chinese defense-industrial complex, it is responsive to both the Central Military Commission of the Chinese Communist Party and the General Armaments Department of the Peoples Liberation Army (PLA) on whose behalf it coordinates the activities of the major aerospace holding companies, the principal research academies, and the third-line industrial organizations that perform work on contract to these institutions. In this context, the China National Space Administration, which is sometimes depicted as China’s National Aeronautics and Space Administration (NASA), is essentially a civilian front for international cooperation and a liaison between the military and Chinese defense industry. The military interests of the Chinese state in the space program are thus affirmatively protected, even though Chinese policymakers rarely, if ever, own up to the military dimensions of their space endeavors. As Kevin Pollpeter summarized it succinctly, «China’s space program is inherently military in nature … Indeed, China’s space program is a military-civilian joint venture in which the military develops and operates its satellites and runs its infrastructure, including China’s launch sites and satellite operations centers».

The policy consequence of this fact, from an American perspective, is that any

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3 See M.S. SMITH, China’s Space Program: An Overview, CRS Report for Congress, October 18, 2005.
collaboration with China’s “civilian” space program inevitably ends up aiding its military.

Third, China’s space efforts are focused in multiple ways. To begin with, although some Chinese activities are intended to procure symbolic benefits that enhance the control or legitimacy of Communist rule, these gains are usually conceived of as positive externalities that derive from some other material benefits of exploiting space for specific economic, political or military aims. To that degree, Beijing’s space investments are in fact conservative. Given its relative under-development, China has consistently sought to avoid frittering its resources on showcase projects that provide few tangible gains, preferring instead to invest in those activities that provide highest value within what are acknowledged fiscal constraints. Given the desire to secure the most while spending the least, even more controversial initiatives such as the manned space program have been authorized mainly because it is expected that this effort would push the frontiers of innovation, create a new quality control culture across the space program, generate new demands for technical education, and produce spin-offs that would benefit the economy more generally. China’s space program is focused in other ways as well. Beijing abundantly recognizes that for all its impressive space achievements in recent years, it still operates in a milieu characterized by emerging political competition with a technologically dominant United States. Consequently, given the differences in cultural ethos, political systems and comparative advantage, the Chinese space program has deliberately avoided either replicating the American endeavor or attempting to compete with it across the board. Rather, Beijing’s space efforts have been characterized by two different orientations in this regard. To the degree that raising its technological standards to American levels is judged necessary, China has embarked on a quite calculated “buy, copy, or steal” approach in regards to procuring various critical technologies. Where competing with the United States is deemed necessary, China has focused its space programs not on mustering any comparable superiority but by aiming at Washington’s «soft ribs and strategic weaknesses»1. In any event, and irrespective of the endeavor in question, Beijing’s space efforts have been marked by deliberation and purposefulness.

A net assessment of China’s space program would, therefore, justify the following conclusions. To begin with, China is a major space-faring nation with an impressive end-to-end space capability that serves substantially military ends. Further, China's remarkable space achievements, however, mask important weaknesses in technological sophistication, gaps in capability, and operating regimes. These limitations compel it to look for foreign technology – bought,
copied, stolen or acquired through joint ventures – as solutions designed to overcome its weaknesses. And, finally, China’s real constraints notwithstanding, it is poised to become an international player at least in the launch services market and perhaps as a niche provider of low-cost satellites to other developing countries.

China’s Military Space Capabilities

China’s military space capabilities cannot be understood outside the context of its military strategy which today is summarized by the phrase “active defense”. As David Finkelstein has so illuminatingly described, although this approach is oriented towards defense at the strategic level – meaning that China would unleash violence only in the context of the threat of force materializing against it first – Beijing’s actions nonetheless would be offensive, with these activities not being limited by the preferences of the adversary, undertaken at times and under conditions of China’s choosing through the exclusive use of its own forces, and directed not at the opponent’s strengths but at his weaknesses, through the simultaneous use of offensive and defensive maneuvers designed to maximize China’s military advantages. Beijing’s current military strategic guidelines require the PLA to prepare for such an active defense in a specific context, namely what is now labeled, “Local Wars Under Modern Informationalized Conditions”.

This particular locution is meant to convey the insight gained from recent Chinese reflection that possession of information superiority will be the critical ingredient making the difference to winning or losing the kinds of wars that Beijing will most likely be confronted by in the prospective future. In this struggle to collect, process, and disseminate information about the adversary’s capabilities, disposition, and intentions to one’s own forces, while simultaneously denying such data to the enemy, space – along with the electromagnetic and the cyber dimensions – is seen as a critical medium whose control permits its possessor to shape the earthly battlespace to its advantage. Because space has acquired such a privileged position, Chinese military thinkers appear to be gravitating towards three broad conclusions.

First, China must develop the entire spectrum of capabilities required to exploit space in the manner necessary to advantage its conventional military operations against a wide range of potential adversaries.

Second, China must prepare to deny space to superior adversaries who could otherwise use their vulnerable but sophisticated space systems to multiply the conventional military advantages they already enjoy vis-à-vis Beijing.

Third, the centrality of space to information dominance and the pivotal significance of information dominance for producing victory in war imply that a struggle for space control is inevitable and, consequently, China must prepare itself for such rivalry by fully integrating space into its own military operations and, as required, developing its own space-related deterrent and warfighting capabilities.

China’s current military space program takes its bearings from these three conclusions in varying degrees. Since Beijing is still a relatively weak, although rising, power, its publicly visible military space activities today have been manifested primarily through programs associated with utilizing space in support of its conventional military operations. Yet, even as these efforts continue apace, China has quietly and with no acknowledgement pursued a wide variety of counterspace investments aimed primarily at the United States, but which could be brought to bear with equal felicity against its regional rivals in Asia, such as Japan, India, and Russia. While current Chinese programs suggest that Beijing continues to emphasize investing in space support, force enhancement, and space denial in order to advance its three immediate security goals – preserving internal security, deterring regional adversaries, and defeating American intervention in a conflict over Taiwan – it nonetheless continues to prepare in more incremental ways for geopolitical rivalries that may materialize over the longer term. This includes coping with American military power in scenarios which transcend Taiwan, managing the rise of regional rivals such as Japan, India, and Russia in the context of preserving a pacified periphery, and utilizing China’s emerging military capabilities to protect its extended interests in the larger global system. China’s utilization of space to advance these objectives is, for the moment, largely nascent. However, as Larry M. Wortzel has described, it has begun to debate internally a quite ambitious space doctrine centered on the necessities of preparing for space warfare, while simultaneously investing in theoretical, basic, and applied research in a variety of cutting-edge space combat technologies such as satellite jamming, space body collisions, kinetic energy weapons, space-to-earth attack weapons, trans-space attack aircraft, high-power lasers and microwave weapon systems, particle beam weapons, and electromagnetic pulse systems.

China’s military space capabilities currently are manifested in five distinct areas: (i) space launch capabilities; (ii) the TT&C network; (iii) space orbital systems; (iv) connectivity to military operations; and (v) counterspace technologies.

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China maintains a robust space launch capability centered on ten different Long March booster configurations capable to deploying various payloads from low-earth to geosynchronous orbits. These launch vehicles use three launch sites: recoverable satellites and manned spacecraft are launched from the Jiquan Satellite Launch Center in Gansu Province; orbital platforms headed for geostationary orbit are launched from Xichang Satellite Launch Center in Sichuan Province; and satellites intended for polar orbit are launched from the Taiyuan Satellite Launch Center in Shanxi Province. China intends to construct a new spaceport on Hainan Island, which would be optimal for launches aimed at equatorial orbits, but it is unclear when this facility will become operational. Because fixed launch sites are inherently vulnerable, the recent Chinese demonstration of a mobile launch capacity exemplified by the Pioneer rocket represents a significant innovation insofar as it would bestow on Beijing a responsive launch capability even if its fixed bases were destroyed.

A summary assessment of China’s launch capabilities is that they are adequate for its national purposes. The prospective development of the Long March 5 booster, with its modular design, will provide China with a versatile system capable of carrying a variety of payloads reliably into orbit. The heaviest versions of this booster will permit China to reach the moon and deploy its planned space station in orbit. China’s launch performance has improved considerably in recent years, even though some variants of the Long March booster have not enjoyed success rates comparable to the international standard.9

China possesses an extensive network of ground stations and data reception and processing centers, some dedicated to operations involving specific satellite systems, as well as numerous TT&C facilities spread throughout the country. Beijing also has a fleet of four space event support ships and two other vessels capable of supporting space tracking. There is little information available about the robustness of this capability though the fact that it sustains a large number of orbital systems suggests at least its adequacy in peacetime.10

China has launched scores of satellites since its first launch in 1970, though the number currently operational is unclear. What is certain is that the satellites associated with its military-civil program are quite diverse. The largest number of satellites and perhaps the most impressive capability seems to reside in China’s communications platforms: these include satellites in the Chinasat, APStar, Asiasat, and Sinosat series, which are either owned by China or are privately-owned regional systems that lease transponders to Chinese users. These quintessentially dual-use systems serve both Chinese civilian and military customers

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10 For more, see Z. YINLONG, *Xian Satellite Control Center and China Satellite Telemetry, Tracking, and Control Network*, National Air Intelligence Center, March 22, 1996.
China’s Space Capabilities and U.S. Security Interests

through the transmission of telephone, data, television and very small aperture terminal (VSAT) signals. China also utilizes foreign satellite systems such as Intelsat and Inmarsat. China operates a series of Earth surveillance satellites capable of providing imagery intelligence, remote sensing data, oceanographic information, synthetic aperture radar (SAR) imagery, and environmental monitoring: the Ziyuan, China Brazil Earth Resources Satellite (CBERS-2), Haiyang-1, JianBing 5, and Huanjing series respectively, represent examples of such capability. China also has access to Landsat data and uses foreign commercial satellite products extensively for military intelligence purposes. Most analysts agree that while China has made progress in developing a space-based imagery collection capability, it has not invested heavily in these programs historically, preferring to collect its intelligence by other means.

China is known to possess space-based electronic intelligence (ELINT) or signals intelligence (SIGINT) capabilities, though the specific platforms associated with these missions are not identified. China does possess a space-based meteorological and weather assessment capability provided through its Fengyun series satellites and it has reception centers to receive foreign meteorological data. It has now moved ambitiously into the navigation and positioning segment through its Beidou satellite constellation which, though not as precise at the U.S. GPS system, could nonetheless be used to improve the accuracy of China’s conventional weapons. China’s space systems also include other scientific satellites and an orbital module associated with its manned space program. China does not possess any dedicated early warning satellites, largely because its nuclear strategy is not predicated on the necessity for tactical warning of adversary missile launches. While some Chinese communications satellites perform data relay functions, Beijing still appears to lack a dedicated data relay satellite – a limitation certain to be rectified in coming years.

A summary assessment of China’s satellite capabilities suggests that its indigenous systems, combined with its access to foreign platforms or services, provides its military forces with sufficient capability as far as communications, remote sensing/reconnaissance, navigation, and meteorological services are concerned within China’s borders or at some distance around them. The new SIGINT/ELINT platforms, electro-optical and SAR imagery satellites, and dedicated data relay satellites likely to be launched within the next decade would enable the PLA to expand its battlespace awareness and targeting capabilities tremendously, support its regional presence and projection operations in East and Southeast Asia and in the Indian Ocean, and fill the missing links required to complete its area and access denial strategy vis-à-vis the United States across the entire western Pacific.

12 Ibidem.
13 The requirements for this mission are usefully explored in M. MCDEVITT, China’s Approach to Taiwan and the U.S. Navy’s Imperatives for Action, and J. MULVENON, Counter-Intelligence, Surveillance, and Reconnaissance, both in Coping with the Dragon: Essays on PLA Transformation and the U.S. Military, Center for Technology and National Security Policy at the National Defense University, Washington D.C. 2007, pp. 59-70, and pp. 71-82.
China has invested heavily in recent years in strengthening the connectivity between its space systems and the military users tasked with performing different tasks such as intelligence collection, force planning, military operations, and battle assessment. Beijing’s space capabilities have in fact now become central to its regular global intelligence collection activities and the comprehensive modernization of the national military information networks in the past several years has made it possible for the PLA to rapidly fuse and distribute space-derived data to multiple echelons at various headquarters and in the field. The network used for this purpose, the Regional Integrated Electronic System, or “Qu Dian”, is an automated battle management system that employs multiple phenomenologies, enjoys significant redundancy, is secure, survivable, and interoperable among multiple users, and is designed to support joint operations involving ground, naval, and air forces. As China increases the number and quality of its space collection systems over the next decade, the quality of the information reaching down to the tactical levels of command will further improve. A summary judgment about China’s ability to share space-derived information with its combatant forces must therefore conclude that it has been nothing short of transformational and is poised for even more improvement.

Finally, and not surprisingly, China has made enormous investments in developing counterspace capabilities. While its other space acquisitions serve the purpose primarily of enhancing China’s own combat capabilities, the counterspace programs, which have been accelerated since the 1991 Gulf War, have been directed primarily at being able to interdict or hold at risk those critical space assets that permit U.S. conventional forces to operate with superlative effectiveness. China’s counterspace programs today are remarkable for their diversity, depth, and comprehensiveness. They include major investments in: upgrading China’s space object surveillance and identification systems; developing direct attack weapons to include direct ascent and co-orbital capabilities; exploring directed energy weapons for dazzling or damaging orbiting satellites; acquiring various technologies for electronic attack against space platforms and their associated links as well as against conventional forces and their warfighting operations; and, improving kinetic and non-kinetic forms of ground attack aimed at the control segments of an adversary’s space infrastructure. These counterspace programs continue to persist even after China’s infamous ASAT test in January 2007 – an event that demonstrated, if nothing else, that all satellites traversing the Chinese mainland in low earth orbit are at risk. While the ASAT test certainly served to highlight the existence of these dangers, it has also unfortunately obscured the larger panoply of Chinese counterspace capabilities.

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China's Space Capabilities and U.S. Security Interests

In point of fact, direct attack systems remain only one component of a much larger stable of Chinese counterspace assets and, hence, must not be overemphasized to the disregard of the rest.

While it is no doubt easier to assess the impact of any specific element in China's counterspace quiver on U.S. military operations, it is much harder to evaluate the compound effect of all (or some of) these systems when employed synergistically. In any event, a summary judgment about China's counterspace programs ought to suggest, as has been argued elsewhere, «that the U.S. dominance of space, which underwrites both America's civilian and military advantages, and which is often taken for granted, is at serious risk like never before» for reasons that are unique to Sino-American competition¹⁷. This does not imply, however, that China is «certain to wrest control of space during any future war with the United States. [Beijing's counterspace] programs, while real, are not all mature and will not end up being equally successful. Moreover, the United States still has immense counter-counterspace capabilities, and many of these emerging threats can be countered, albeit at significant cost»¹⁸.

On balance, the evidence suggests that although China is continuing to modernize and expand its military space capabilities, and although Beijing's dependence on space for both civilian and military purposes will progressively increase during the next ten years, China's dependence on space relative to that of the United States will remain considerably lower. In great measure, this is a function of China's limitations: the Chinese space program is relatively small (various sources suggest that its budget ranges between $1-5 billion); China's space efforts continue to remain handicapped by significant deficiencies in technology; and China still remains constrained by the quality of its manpower base. However, the relatively lower Chinese dependence on space prognosticated for the future is also deliberate. Despite its efforts to improve its military space capabilities along the entire spectrum, Beijing appears conscious of the need to avoid becoming overly dependent on space. Given its fears of vulnerability to U.S. counterspace capabilities – which remain formidable – China will be careful never to rely solely, or even dominantly, on space for the success of its military operations. Consequently, space will remain for some time to come one supporting element among many others, at least as far as force enhancement efforts in China are concerned.

This increasing but still minimized dependence on space, coupled with its significant conventional inferiority vis-à-vis the United States (and in specific realms vis-à-vis Japan, India, and Russia as well), suggest that while Beijing will be cautious about the easy use of its direct attack counterspace weapons, it is unlikely to surrender its counterspace options anytime soon. The responsive developments arising from this fact imply that China will inevitably, even if only

¹⁸ Ibidem, pp. 59-60.
reluctantly, move further in the direction of taking space warfare seriously, if for no other reason than to protect its emerging space assets and neutralize the offensive capabilities possessed by an adversary.

The Impact of China’s Space and Counterspace Investments on U.S. National Security and its Military Operations

The cumulative consequences of China’s space and counterspace investments for U.S. national security will become manifest over the years in multiple ways. To begin with, Chinese military forces will experience significant increases in operational effectiveness as they become capable of exploiting their space systems to provide either the information or the capabilities critical to successful warfighting. The Chinese military will also enjoy greater real-time situational awareness at longer and longer ranges, thus enabling it to avert strategic, operational and tactical surprise and better cope with an adversary’s actions. Finally, China will be able to increasingly disrupt the U.S. ability to maintain the superior situational awareness required for the success of its military operations at the lowest cost in human lives and tactical burdens. China’s investments in both space and counterspace will thus affect U.S. national security and its military capabilities in consequential ways.

These consequences will be manifest most clearly in the increased burdens imposed on the United States in regards to discharging its security obligations in Asia, burdens that may be discerned as materializing along five different dimensions.

First, China’s space and counterspace programs presage an increase in the vulnerability of key U.S. military assets. The emergence of new Chinese long-range precision attack capabilities, exemplified by highly accurate ballistic and cruise missiles exploiting information derived from various sensors including space-based assets, has already sharpened the dangers facing fixed U.S. and allied bases in the Asia-Pacific. As China’s anti-ship ballistic missile capability matures – something that is certain to occur in the policy-relevant future – the threats posed to mobile power projection assets, especially aircraft carriers, which have been the capital ship symbolizing the reach and puissance of American power since at least World War II, would increase dramatically. China’s emerging space capabilities will be critical to the success of this area denial innovation: today, Chinese satellites can be used mainly to localize and classify its intended targets, but as time goes by, Beijing’s space assets would become critical to the entire de-

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China’s Space Capabilities and U.S. Security Interests

China’s space capabilities and U.S. security interests are interconnected with significant operational consequences. The maturation of such innovative area and access denial technologies would not only increase the tactical burdens facing the most important ship-of-the-line and the lynchpin of American power projection throughout Asia, but would also progressively erode the credibility of U.S. security commitments which would be at risk in any case as China’s growth in national power gathers steam.

Second, the expansion of China’s space and counterspace capabilities is an ineluctable part of the change in the balance of power in the Asia-Pacific and in the Asian continent more generally. To the degree that emerging Chinese capabilities make the discharge of U.S. security obligations more burdensome, they undermine the one important advantage that the United States enjoyed with the fall of the Soviet Union: unencumbered strategic access to the Asian rimlands. The rise of new Chinese space-supported denial capabilities promises to erase this gain – perhaps permanently. Until these capabilities can be neutralized either through technical counter-innovations or new operating stratagems, U.S. power projection operations will be confronted by two challenges: first, overcoming the barriers to entry surrounding a region of interest and, thereafter, overcoming the adversary’s forces within the tactical area of operations itself. The collapse of the Soviet Union had ensured that the success of U.S. power projection was guaranteed so long as American military forces were capable of mastering the latter challenge; the rise of new Chinese space-supported denial capabilities presages a return to an older era when the United States had to overcome both problems in order to make good on its security guarantees and, to that degree, signifies a more extensive contest that is to America’s disadvantage.

Third, the growth of China’s space and counterspace capabilities contributes to raising the costs of American victory in any future conflict with Beijing. Should the United States find itself in an unlimited war with China, the outcome cannot be in doubt: Washington will win such a conflict and perhaps even win “decisively”, if there are no restraints imposed on its use of force. The presence of nuclear weapons, however, ensures that such unlimited conflicts are thankfully unlikely. Assuring victory in a limited war with China, however, becomes more problematic not because the United States suddenly loses all its military advantages in such a scenario but because a limited conflict, over Taiwan or elsewhere, would involve restrictive rules of engagement and other political-operational constraints which, even if not ultimately subversive of victory, would nonetheless increase its burdens. Because most future conflicts that can be en-

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20 See the discussion in P.S. GIARRA, China’s Maritime Reconnaissance-Strike Complex, Annotated Briefing, China Current Events Workshop, The Fairbank Center for East Asian Research, Harvard University, September 28, 2007.
22 For a useful discussion of the burdens, not from the perspective of military operations but from the perspective of escalation in regards to China, see F.E. MORGAN - K.P. MUELLER - E.S. MEDEIROS - K.L. POLLPEATER - R. CLIFF, Dangerous Thresholds: Managing Escalation in the 21st Century, Santa Monica 2008, pp. 47-81 and pp. 159-195.
visaged with China involve limited wars of some kind or another, Beijing’s increasing space and counterspace capabilities – if well used – could become critical, if not decisive, in some quite representative scenarios.

Fourth, China’s evolving space and counterspace capabilities promise to expand the dimensions of the battle-space – virtually and physically – in the context of any future Sino-American conflict. Because space-supported conventional operations will become critical for victory for both sides; because the space component of military actions – that is, the space, ground, and link segments in their totality – is conspicuous, highly valuable, vulnerable, and contains relatively few nodes; because defensive and offensive counterspace operations may be hard to distinguish especially in the early phases of a conflict; because both sides will seek to competitively use space to expand their situational awareness while denying the same advantage to the adversary; and, because Chinese operational planning, given its overall conventional weakness, calls for counterspace operations as an integrated element of its military response, it is likely that a future Sino-American conflict, even if intended to be limited in a political sense, will be unable to either bound its offensive operations to the local battlefield alone or resist the temptation to launch crippling attacks first. The demands of victory, even in limited wars, will thus require that the force applied – in both material and virtual senses – range far beyond the physical battlefront to the “rear”: in the adversary’s homeland, possibly in territories of third-parties, and certainly in the realms of space, electronic combat, and computer network operations. Moreover, it may create strong incentives for “first strikes” because of the perceived benefits to conventional operations arising from being able to blind an adversary decisively, even if only for a short time. In such circumstances, ensuring that a future limited war between China and the United States stays restricted will itself become a significant challenge.

Fifth, and finally, the rise of China’s space and counterspace capabilities poses specific challenges to the dominance traditionally enjoyed by the United States in the heavens. The list of antidotes required to mitigate these challenges are long and have been detailed elsewhere. But at the very least the United States must pursue a variety of defensive solutions complemented by some limited offensive options. The kinds of solutions relevant to the defensive counterspace mission are diverse and numerous, but three elements stand out: the United States must improve its space situational awareness to be able to comprehensively identify and assess all orbiting objects, better assess anomalies and anticipate the sources and capacity for counterspace attacks, and effectively identify the origin of any attack; a program to enhance the survivability of space plat-

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forms though systems hardening, increased maneuverability, autonomous operations options, integrated organic attack-reporting technologies, and possibly on-board active defenses, is long overdue; and the United States must increase its capacity to recover from space attacks by investing in reserve satellites either on-orbit or on the ground, in rapid and responsive space-launch capabilities, and in redundant, preferably mobile, control stations capable of seamlessly managing space operations in case of damage to primary control centers. Above all is the need for a longer-term change in the American approach to space. Recognizing that this “final frontier” will no longer remain the sanctuary it has been, the United States must move away from reliance on a few, large, highly specialized space platforms supported by a complex but narrow ground segment – all of which are disproportionately vulnerable to enemy action and are difficult and costly to replace in case of interdiction – and shift towards smaller and flexible distributed capabilities both in space and terrestrially.

The maturation of China’s space and counterspace capabilities reflects in a larger sense the challenges facing the United States as it reacts to the rise of Chinese power. How well Washington responds to this development will determine not only its future capacity to dominate the high ground but also a variety of outcomes terrestrially.
La politica spaziale europea: il programma Galileo

Alberto Cutillo*

Da oltre trent’anni, la cooperazione europea per la ricerca e le tecnologie dello spazio e per la loro applicazione si realizza in seno all’Agenzia spaziale europea (Esa). A questa consolidata forma di collaborazione si è andata affiancando nell’ultimo decennio quella, meno conosciuta, realizzata in sede Unione europea. I contatti tra le due organizzazioni hanno portato alla firma di un accordo quadro di cooperazione, entrato in vigore il 28 maggio 2004.

I cittadini europei hanno avuto poche opportunità di accorgersi di questo mutato quadro di riferimento, ma dovrebbero prendere coscienza nei prossimi anni, in particolare dal 2013 quando, salvo imprevisti, entrerà in funzione il sistema di navigazione satellitare europeo Galileo, senza dubbio la più importante e impegnativa iniziativa congiunta Ue-Esa.

Come per altre materie non previste dai trattati europei in vigore, l’ingresso dell’Unione in questa “area di business” che interseca diverse politiche europee ha seguito il cammino consolidato di libri verdi e bianchi e di consultazioni pubbliche, seguiti da una comunicazione della Commissione europea al Consiglio e al Parlamento, quale preludio all’attivazione di politiche europee (e relative linee di finanziamento) prima ancora che esse trovino la loro sanzione giuridica.

Nel caso delle attività spaziali, le vicissitudini del Trattato Costituzionale, prima, e quelle attuali del Trattato di Lisbona (entrambi i testi contengono un articolo che attribuisce alla Ue competenza in materia di spazio), hanno spinto la Ue a dare attuazione ad un embrione di politica europea dello spazio nelle mori del perfezionamento della sua base giuridica.

Le linee guida di tale politica sono definite in una proposta presentata congiuntamente dal direttore generale dell’Esa e della Commissione, adottata dai paesi membri delle due istituzioni nella quarta riunione del Consiglio Spazio (la riunione periodica a livello ministeriale dei Consigli della Ue e dell’Esa), tenutasi a Bruxelles il 22 maggio 2007.

Il mandato strategico della politica spaziale europea si basa “sullo sfruttamento pacifico dello spazio extratmosferico da parte di tutti i paesi”, ed è ispirato al perseguimento di cinque finalità distinte: 1) sviluppare e sfruttare applicazioni spaziali che rispondono agli obiettivi politici europei e alle necessità delle imprese e dei cittadini; 2) soddisfare le esigenze europee in materia di sicurezza e difesa; 3) sostenere un’industria spaziale forte e competitiva; 4) contribuire alla società basata sulla conoscenza; 5) garantire un accesso illimitato alle tecnologie.

Questa ambiziosa elenco di finalità “trasversali” – che interagiscono con la Politica estera e di sicurezza comune (Pesc), la Politica europea di sicurezza e difesa (Pesd) e le politiche economiche (strategia di Lisbona, imprese e mercato interno, scienza e tecnologia, ecc.) – si ritrova perfettamente esemplificata nel programma Galileo, che non a caso occupa un ruolo centrale nella cooperazione tra le due istituzioni.

Galileo è un sistema globale di rete satellitare (Gnss, Global Network Satellite System), destinato a far concorrenza ai già esistenti Gps (americano) e Glonass (russo) e a sistemi comparabili che altri paesi si accingono a mettere in orbita. Si caratterizza per il suo controllo interamente civile e per la maggiore precisione con la quale dovrebbe permettere di tracciare i segnali. Ad oggi sono stati messi in orbita soltanto i primi satelliti experimental, che devono consentire la fase cosiddetta di validazione del sistema. La fase successiva, di messa in orbita dei restanti sa-

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telliti e di attivazione delle loro funzionalità, ha appe-
na preso l’avvio con l’apertura delle procedure di as-
segnazione dei relativi appalti, il cui valore complessi-
vo è stimato in 3,4 miliardi di euro nel periodo 2008-
2013.

A quel punto, Galileo sarà pronto per entrare in
servizio e per produrre reddito. Ai di là della sua va-
enza strategica, Galileo è infatti concepito anche co-
me un programma commerciale, che punta a ritagi-
gliarsi una fetta considerevole del lucroso mercato
della navigazione satellitare, il cui fatturato cresce a
ritmi sostenuti e dovrebbe raggiungere, alla data di
entrata in servizio del sistema, 50 miliardi di euro. I
segni provenienti da Galileo saranno quindi utilizza-
ti sia per servizi aperti gratuiti, destinati ad applicazio-
ni di navigazione satellitare di massa e per la sicurez-
za della vita umana, sia a servizi a pagamento per lo
sviluppo di applicazioni a fini professionali o commer-
ciali attraverso prestazioni potenziate e dati con un
valore aggiunto superiore rispetto a quelli forniti dal
servizio aperto.

Galileo racchiude in sé la dimensione politica, eco-
nomica e tecnologica dell’Unione; non sorprende,
quindi, la forte aspettativa che i paesi membri e la
stessa Commissione ripongono nel suo successo.

La sfida, tuttavia, è ancora lunga e la laboriosa cro-
naca della sua attuazione negli anni passati, caratte-
rizzata, in particolare, dal fallimento della partnership
pubblico-privato che avrebbe dovuto gestire il pro-
gramma, e dai ritardi da esso causati, induce alla pru-
denza.

Un aspetto, in particolare, che merita di essere
menzionato è la complessità del sistema di governan-
ce di Galileo, basato su un regolamento che assegna
ruoli ad una pluralità di soggetti: il Parlamento euro-
peo e il Consiglio, cui spetta in ultima istanza l’ado-
zione di decisioni politiche in relazione ai programmi;
la Commissione, responsabile della gestione dei pro-
grammi e dei fondi destinati agli stessi; l’autorità eu-
ropea di supervisione dei Gns (Gsa), che svolgerà
compiti attinenti alla sicurezza dei programmi e con-
tribuirà a prepararne la commercializzazione; l’Esa,
che opererà in nome e per conto della Comunità eu-
ropea nell’attuazione del programma Galileo, gesten-
done il bilancio.

Questa frammentazione di responsabilità ha ri-
chiesto la creazione di organismi ad hoc, quali un
gruppo interistituzionale Galileo (Gip), composto di tre
rappresentanti del Parlamento, tre del Consiglio e uno
della Commissione, il comitato dei programmi Gns
 europei, composto di rappresentanti degli stati mem-
tri e il comitato per la sicurezza dei Gns, composto
di esperti in questioni di sicurezza. Infine, una con-
venzione di delega tra la Commissione e l’Esa forma-
lizza l’attuazione dei compiti e del bilancio affidati al-
l’Esa.

Assicurare l’ordinato funzionamento di questa
complessa macchina di gestione e controllo non sarà
semplice, anche tenuto conto dell’esigenza di conci-
liare due “filosofie” gestionali (quella dell’Esa e quella
della Commissione) profondamente diverse. Basti
pensare al principio dell’equo ritorno, applicato dall’E-
sa – in base al quale gli investimenti vengono fatti in
ciascun paese membro in misura pressoché equiva-
mente all’importo dei contributi provenienti da quel
paese – che non trova applicazione in ambito comu-
nitario, dove vige la regola degli appalti assegnati al
miglior offerente.

In definitiva, Galileo risente del non ancora defini-
tivo assetto in materia di cooperazione spaziale a li-
vello continentale, che neppure la ratifica del Trattato
di Lisbona completerebbe. La strada indicata dal-
’art.189, infatti, punta ad accrescere la cooperazione
tra paesi membri, Esa e Commissione per definire un
programma spaziale europeo da co-finanziare attra-
verso il programma quadro di ricerca e sviluppo. Ri-
mane sullo sfondo l’opzione più radicale di un’agenzia
spaziale eccellente unica in cui far confluire tutte le attivi-
dità nazionali e intergovernative, opzione che allo stato at-
tuale appare oggettivamente prematura, ma che in
prospettiva sembrerebbe la più idonea a mettere l’Eu-
ropa in grado di competere alla pari con i suoi mag-
giori concorrenti nella ricerca spaziale e nell’applica-
zione commerciale delle sue tecnologie.

Anche per questo motivo, sul successo tecnologi-
co e commerciale di Galileo poggia in larga misura
non soltanto il futuro della proiezione europea nello
spazio, ma anche la dimostrazione della capacità del-
l’Unione di assumere un ruolo di protagonista nelle
sfide del ventunesimo secolo.
Il diritto internazionale dello spazio e le sue prospettive

Il diritto internazionale dello spazio, cioè quel settore del diritto internazionale che disciplina le attività spaziali, ha avuto un notevole sviluppo negli anni immediatamente successivi all'avvio di queste ultime. Sotto l'impulso dell'Organizzazione delle Nazioni Unite, cinque trattati di codificazione (e di sviluppo progressivo) sono stati aperti alla firma, con diversa fortuna, fra il 1967 e il 1979. La disciplina di base delle attività spaziali è rimasta, da allora, immutata, se si toglie l'indubbio impatto normativo di alcune dichiarazioni di principi dell'Assemblea generale delle Nazioni Unite. E tuttavia i cambiamenti che hanno interessato gli usi dello spazio negli ultimi tre decenni sono stati notevoli, in conseguenza dell'emergere di nuovi attori, degli sviluppi delle tecnologie e delle conoscenze, dell'evolversi dell'assetto della società internazionale, delle difficoltà di carattere finanziario che hanno investito tutti gli attori pubblici. D'altro canto, il sempre maggiore intensificarsi dell'utilizzo dello spazio, in particolare di quello orbitale, ha dato luogo al sorgere di problemi nuovi. Lo spazio di oggi è radicalmente diverso da quello che, nel 1957, accolse il lancio del primo satellite artificiale da parte dell'uomo, ma è anche molto diverso dallo spazio di tre decenni or sono. Queste evoluzioni non hanno mancato di produrre conseguenze nel campo del diritto: da un lato, è emersa in modo sempre più evidente la necessità per gli stati di attuare sul piano interno talune norme fondamentali dei trattati, di cui appaiono peraltro sempre più chiaramente le lacune e le ambiguità; dall'altro, si sono accentuate le critiche a taluni aspetti della normativa vigente, ritenuti incompatibili con le nuove esigenze, e le conseguenti proposte di modifiche dei trattati o di elaborazione di strumenti nuovi. Nel contempo, le forme giuridiche della cooperazione tra gli stati e gli altri attori internazionali nell'uso dello spazio si sono arricchite, disegnando un panorama sempre più complesso e interessante. Sotto l'apparente immobilismo del quadro giuridico non mancano dunque i fermenti e vari sono gli interrogativi che nel prossimo futuro dovranno trovare risposta. Si cercherà in queste pagine di dare brevemente conto di alcune tra le questioni più attuali.


Privatizzazione dello spazio e responsabilità degli stati

Uno degli sviluppi più evidenti degli ultimi decenni nel mondo delle attività spaziali riguarda il prepotente ingresso sulla scena, accanto ai vecchi e nuovi attori pubblici, dei privati, presto subentrati ai primi nel controllo di vasti settori degli usi commerciali dello spazio, dalle telecomunicazioni via satellite ai lanciatori, alla stessa gestione di basi di lancio. Il fenomeno della privatizzazione ha reso sempre più attuale e ineludibile per gli stati che ne sono coinvolti l’elaborazione di una disciplina interna delle attività spaziali. Una disciplina di questo tipo, oltre a rispondere a esigenze proprie degli ordinamenti interni, rappresenta anche uno strumento essenziale al fine di attuare taluni precetti fondamentali delle norme internazionali applicabili. Altrettanto importante per l’applicazione di questi precetti risulta la conclusione di accordi internazionali tra gli stati coinvol- per l’attività del privato è attribuita.

Si tratta di una disciplina assolutamente innovativa nell’ambito internazionale, poiché di regola le attività private, ovunque si svolgano, non necessitano, in base al diritto internazionale, di autorizzazione statale ne sono attribuibili allo stato, il quale risponde soltanto se sia venuto meno a propri specifici doveri di controllo, quali esistono ad esempio anche nell’ambito delle attività di navigazione marittima o aeronautica. La norma è figlia della guerra fredda, del compromesso fra le tesi opposte degli Stati Uniti, i quali avrebbero voluto che allo spazio si estendesse la libertà di iniziativa privata, e dell’Unione Sovietica, che al contrario voleva bandire completamente i privati dall’accesso alla nuova frontiera. Nonostante l’origine, si deve riconoscere che le particolarità dell’am-

1 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, aperto alla firma a Londra, Mosca e Washington il 27 gennaio 1967, entrato in vigore il 10 ottobre dello stesso anno.

biente spaziale, e dei rischi che ne caratterizzano l’utilizzo, anche e soprattutto per la terra sottostante, giustificano ancor oggi questa disciplina sui generis. Va anche detto, peraltro, che se nei primi decenni delle attività spaziali l’applicazione dell’art. VI non poneva grosse difficoltà, a fronte di uno spazio dominato dal settore pubblico (e prevalentemente da quello militare), in particolare delle due superpotenze, oggi, a fronte della ricordata proliferazione delle attività spaziali private a tutti i livelli, i problemi si manifestano con sempre maggiore evidenza.

Essi sorgono, da un lato, nell’identificazione della precisa portata della categoria delle attività “nazionali”; dall’altro, nell’individuazione dello stato “appropriato” a fronte di attività con doppia o multipla “nazionalità”, in particolare di quelle svolte in cooperazione tra più organismi privati provenienti da paesi differenti. Secondo alcuni autori, infatti, lo stato appropriato dovrebbe essere in ogni circostanza uno solo. Per quanto riguarda il primo problema, un’interpretazione lata dell’aggettivo “nazionale”, che faccia gravare sullo stato la responsabilità per tutte le attività che si svolgano nell’ambito della sua giurisdizione territoriale e personale, dunque quelle svolte da cittadini o persone giuridiche “nazionali” (secondo le norme generali del diritto internazionale) o effettuate a partire dal territorio dello stato, o a partire da navi o aeromobili o oggetti spaziali immatricolati nei registri dello stato, appare preferibile, poiché qualunque altra lettura rischerebbe di consentire la sussistenza di ampie zone franche (si pensi solo ai lanci effettuati dall’alto mare). Una conferma dell’interpretazione data pare provenire dalla risoluzione sullo stato di lancio, approvata dall’Assemblea generale delle Nazioni Unite il 10 dicembre 2004, laddove raccomanda agli stati impegnati in attività spaziali, tra l’altro, di «consider enacting and implementing national laws authorizing and providing for continuing supervision of the activities in outer space of non-governmental entities under their jurisdiction»: l’utilizzo del termine jurisdiction senza ulteriori precisazioni presenta, è vero, una certa ambiguità, ma si presta agevolmente a comprendere tanto la territorial quanto la personal jurisdiction.

Naturalmente, l’interpretazione qui accolta apre la via alla possibile coesistenza di più stati “nazionali” e dunque responsabili per la medesima attività spaziale, anche nell’ipotesi in cui uno solo di essi, normalmente (ma non necessariamente) il sovrano territoriale, disponga della capacità di controllo effettivo su tale attività. Proprio questo motivo spinge una parte della dottrina a ritenere che uno solo debba essere lo stato “appropriato”, tenuto ad autorizzare e sorvegliare l’attività privata. Qualche che sia l’interpretazione corretta (si tralascia in questa sede di approfondire la complessa problematica), pare condivisibile che i vari stati interessati possano accordarsi per delegare a uno solo tra loro il com-

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6 A/RES/59/115.
7 Cfr. il par. 1 della risoluzione.
pito di emettere le debite licenze ed effettuare l’attività di controllo, senza che ciò faccia naturalmente venir meno la responsabilità di ciascuno degli altri⁹.

Altro tema rispetto al quale è importante l’intervento delle legislazioni nazionali e degli accordi tra stati è quello, correlato al precedente, della responsabilità per danni. Al di là della norma assai generica contenuta nell’art. VII del Trattato sullo spazio, lo studio che disciplina più specificamente questa materia è la Convenzione del 29 marzo 1972 sui danni causati da oggetti spaziali (Convenzione sulla responsabilità)¹⁰. Tale Convenzione pone la responsabilità (che è assolta per i danni a terra o ad aerei in volo, per colpa nel caso di danni causati ad altri oggetti spaziali in volo) in capo allo stato di lancio dell’oggetto spaziale, definito come lo stato che lancia, fa lanciare («procures the launching», «fait procéder au lancement») o dal cui territorio o dalle cui basi è lanciato l’oggetto spaziale¹¹. Che cosa questi termini comportino rispetto ai lanci effettuati da privati è ancor oggi oggetto di dibattito. Se invero non vi è dubbio che lo stato parte della Convenzione sia responsabile dei danni causati da un oggetto spaziale lanciato dal suo territorio, meno chiaro è su chi gravi la responsabilità per i lanci effettuati dall’alto mare o dallo spazio aereo internazionale o da altri luoghi sottratti alla giurisdizione degli stati. Certo, una nave o un aeromobile aventi la nazionalità di uno stato possono a giusto titolo considerarsi “basi di lancio” di quello stato; lo stesso discorso vale per una struttura permanente collocata sulla piattaforma continentale di uno stato costiero. Per quanto riguarda i lanci effettuati da privati e che non dovessero rientrare nelle predette ipotesi, nell’interpretare la Convenzione del 1972 non si può trascurare quanto prevede l’art. 31, par. 3 lett. c) della Convenzione di Vienna sul diritto dei trattati del 23 maggio 1969: e cioè che nell’interpretare un trattato occorre tener conto «di qualsiasi regola pertinente di diritto internazionale applicabile nei rapporti fra le parti». In questo caso, la regola pertinente, per gli stati parte dei due strumenti, è quella dell’art. VI del Trattato sullo spazio. Ne consegue che, per questi stati (e va detto che la quasi totalità degli stati parte della Convenzione del 1972 è parte anche del Trattato del 1967)¹², lo stato che “lancia” (o quello che “fa lanciare”, il che è lo stesso) è anche quello che possa considerarsi “nazionale” dei privati in questione, secondo i criteri sopra esposti¹³. La stessa interpretazione può valere per gli stati che non siano parte del

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² Convention on International Liability for Damage Caused by Space Objects, aperta alla firma a Londra, Mosca e Washington il 29 marzo 1972, entrata in vigore il 1° settembre dello stesso anno.

³ Cfr. artt. I (c), II e III. Si rimanda ancora in proposito a M. PEDRAZZI, Dannii, cit., pp. 38 ss., pp. 53 ss.


Trattato sullo spazio, qualora si ritenga che le disposizioni dell’art. VI di quest’ultimo abbiano acquisito status consuetudinario.

Le disposizioni in tema di responsabilità per danni non possono che confermare l’opportunità per lo stato di prevedere, nella sua legislazione interna, l’autorizzazione, attraverso il rilascio di apposite licenze, dei privati che intendano intraprendere attività di lancio dal suo territorio o da basi comunque sottoposte alla sua giurisdizione, o che, avendo la sua nazionalità o cittadinanza, intendano lanciare dall’estero e, in particolare, da un territorio o spazio non sottoposto alla giurisdizione di alcuno stato. Lo stato potrà prevedere che il rilascio della licenza sia subordinato all’assunzione dell’impegno da parte del privato a indennizzare lo stato stesso delle spese che esso abbia dovuto affrontare in conseguenza della sua responsabilità per i danni causati dall’oggetto del privato, se necessario fissando un limite massimo all’ammontare di tale indennizzo, se lo stato è disposto ad accollarsi l’onere di coprire danni di entità catastrofica; e potrà imporre al privato di contrarre adeguata assicurazione atta a garantire l’impegno di cui sopra13. Naturalmente, anche con riferimento alla responsabilità per danni possono darsi casi di responsabilità plurima e anche in tal caso nulla impedisce ad esempio allo stato nazionale di riconoscere l’autorizzazione e disciplina del lancio effettuata dallo stato del territorio: essendo inteso che comunque lo stato nazionale potrà essere chiamato a rispondere da uno stato terzo, salvi i diritti di rivalsa sullo stato del territorio, con questo concordati14.

Ancora, lo stato che sia parte della Convenzione sull’immatricolazione degli oggetti spaziali del 14 gennaio 197515 (Convenzione sull’immatricolazione) dovrà introdurre nella propria legislazione interna le previsioni necessarie all’istituzione di un registro degli oggetti spaziali e alla disciplina del medesimo; ma è opportuno che lo faccia anche lo stato non parte, data la norma dell’art. VIII del Trattato sullo spazio che attribuisce giurisdizione e controllo (esclusivi) sull’oggetto spaziale, mentre questo si trova nello spazio extra-atmosferico o su un corpo celeste, allo stato di immatricolazione. E qui occorre ricordare che la Convenzione del 1975 pone l’obbligo di immatricolazione a carico dello stato di lancio (art. II), definito in termini corrispondenti a quelli dell’art. I (c) della Convenzione del 1972 (art. I (a)). L’art. II.2 della stessa Convenzione precisa poi che, in caso di più stati di lancio, essi debbano determinare per via di accordo quale tra loro debba procedere all’immatricolazione e possano accordarsi anche sul l’esercizio della giurisdizione e del controllo sull’oggetto spaziale.

Le ultime disposizioni menzionate permettono di chiudere in qualche modo il cerchio del ragionamento fin qui seguito: lo stato di immatricolazione deve essere, come si è detto, uno stato di lancio, e possiamo dire che, procedendo al-

14 Si veda l’art. V della Convenzione sulla responsabilità, in base al quale i diversi stati di lancio, responsabili in solido, possono concludere accordi per ripartire tra loro l’onere della responsabilità per danni.
Il diritto internazionale dello spazio e le sue prospettive

l’immatricolazione, quale che sia la sua relazione di fatto con l’oggetto spaziale, viene a qualificarsi automaticamente come tale. Esso ha giurisdizione e controllo esclusivi sull’oggetto in questione e dunque è pure, per definizione, stato “nazionale” in relazione alle attività spaziali poste in essere dall’oggetto medesimo e stato appropriato, tenuto ad autorizzare e vigilare su tali attività, a meno che tali poteri e oneri non siano attribuiti per accordo a un altro stato. Si evidenzia ancor meglio, comunque, quantomeno per gli stati parte tanto del Trattato sullo spazio, quanto della Convenzione sulla responsabilità e di quella sull’immatricolazione, la possibilità, nei casi di più stati “responsabili”, tanto sulla base dell’art. VI del Trattato sullo spazio, quanto sulla base della Convenzione sulla responsabilità, che siano attribuiti per accordo a uno solo tra loro tanto l’onere dell’immatricolazione dell’oggetto spaziale, quanto la giurisdizione e il controllo esclusivi, quanto ancora l’onere di rilasciare le opportune licenze e di svolgere l’attività di vigilanza sull’oggetto in questione, e infine anche l’obbligo di indennizzare qualunque degli altri stati “responsabili” la cui responsabilità fosse fatta valere sul piano internazionale. In tal modo il meccanismo dell’identificazione di uno stato appropriato (e uno solo) può funzionare nella prassi.

Non solo: tale meccanismo può sicuramente funzionare non solo sulla base di accordi formali tra i vari stati “responsabili”, ma anche, almeno in parte, sulla base di accordi per facta concludentia, quali risultino, ad esempio, dalla semplice concordanza delle disposizioni delle leggi nazionali.

La disciplina interna delle attività spaziali

Naturalmente le leggi interne sulle attività spaziali possono regolare vari aspetti oltre a quelli dell’autorizzazione delle attività private nello spazio, della l’immatricolazione degli oggetti spaziali, dell’esercizio del controllo sulle predette attività e delle varie problematiche attinenti alla responsabilità: dalle questioni di proprietà intellettuale collegate a invenzioni in orbita alla disciplina delle attività degli astronauti nello spazio, compresi i connessi problemi di diritto internazionale privato e di diritto penale; dalla regolamentazione del passaggio di oggetti spaziali stranieri nello spazio aereo dello stato al turismo spaziale, ai problemi legati all’eventuale (e futuro) sfruttamento delle risorse della luna e degli altri corpi celesti16. Le questioni di cui sopra presentano un’urgenza particolare, soprattutto per gli stati maggiormente coinvolti in attività spaziali e con un settore privato sviluppato.

Nonostante ciò, non si può dire che lo sviluppo di legislazioni nazionali sia avvenuto fino ad oggi in modo del tutto coerente con questo criterio: se è vero che gli Stati Uniti, massima potenza spaziale, dispongono di una legislazione in-


In quest’ultimo senso cfr., ad esempio, il § 1 dell’Act on Launching Objects from Norwegian Territory into Outer Space del 13 giugno 1969. Dispone invece in senso assoluto la necessità di una licenza per chiunque intraprenda attività spaziali dal territorio dello stato e per qualunque cittadino o persona giuridica nazionale le intraprenda da qualunque altro territorio l’Act on Space Activities svedese del 1982 (Section 2).
Il diritto internazionale dello spazio e le sue prospettive

data la mole delle attività spaziali private ad essi riconducibile, che in quest’ultimo senso disponga la legge degli Stati Uniti\textsuperscript{21}. Se è forse prematuro trarre dall’esame delle normative interne vigenti considerazioni conclusive, e se è vero che queste normative possono essere dovute più alla volontà di tutelarsi da ogni eventuale attribuzione di responsabilità sul piano internazionale che da quella di fornire un’interpretazione vincolante delle norme convenzionali, è però anche vero che la concordanza, per quanto imperfetta, tra le leggi dei vari stati, e in particolare di quelli fra questi coinvolti in attività spaziali e interessati dal fenomeno delle attività spaziali private, contribuisce a rafforzare l’interpretazione data sopra dei trattati rilevanti.

Le misure tese a ridurre l’affollamento delle orbite

Il problema dell’affollamento delle orbite circumterrestri si è notevolmente aggravato negli ultimi decenni, sia per quanto riguarda l’orbita geostazionaria, sia e a maggior ragione per ciò che attiene alle orbite basse. Esso presenta due facce di rilievo: da un lato si tratta di una questione ambientale, poiché gli oggetti spaziali orbitanti, soprattutto quelli non più operativi, e ancor più i frammenti di varie dimensioni e natura prodotti dal funzionamento o dalla disintegrazione di oggetti spaziali, costituiscono fonte di inquinamento visivo, di interferenza nelle comunicazioni, di pericolo di collisione con i satelliti operativi e i veicoli spaziali (tanto più se abitati), e di rischio di ricaduta a terra con conseguenti eventuali danni a persone o cose e comunque ulteriore inquinamento. Dall’altro, è chiaro quanto tale affollamento rischi di pregiudicare l’utilizzo delle risorse orbitali da parte di nuovi aventori, siano essi soggetti pubblici o privati.

È noto quanto i trattati vigenti siano inadeguati a fronteggiare il problema dell’inquinamento da debris\textsuperscript{22}, dal momento che non contengono alcuna norma specifica sull’argomento e, più in generale, dedicano un’attenzione molto limitata alle questioni ambientali. Recentemente, peraltro, sono state assunte sul tema iniziative di un certo rilievo. Il 15 ottobre 2002 l’Inter-Agency Debris Coordination Committee (Iadc), comitato di coordinamento informale tra le maggiori agenzie spaziali, ha prodotto delle direttive per la riduzione del fenomeno del debris (Space Debris Mitigation Guidelines)\textsuperscript{23}. Nella sua sessione del febbraio 2007, il sottocomitato tecnico-scientifico del Copuos (Committee on the Peaceful Uses

\textsuperscript{21} United States Code, Title 49, § 70104 (così come emendato dal Commercial Space Launch Amendments Act del 23 dicembre 2004).

\textsuperscript{22} Secondo le Space Debris Mitigation Guidelines del Copuos (v. infra) «space debris is defined as all man-made objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional» (par. 1).

of Outer Space), organo sussidiario dell’Assemblea generale delle Nazioni Unite nel cui ambito tutti gli strumenti del diritto dello spazio sono stati elaborati\(^ {24}\), ha a sua volta adottato delle direttive analoghe, basate in effetti su una rielaborazione di quelle dello Iadc, le quali hanno avuto l’approvazione finale nella sessione del Comitato del giugno dello stesso anno\(^ {24}\). L’oggetto di tali direttive, di carattere prettamente preventivo, attiene essenzialmente alla limitazione del rilascio di frammenti nel corso delle normali operazioni degli oggetti spaziali, alla minimizzazione delle disintegrazioni di oggetti in orbita, alla prevenzione delle collisioni in orbita e alla rimozione degli oggetti dall’orbita al termine della loro vita operativa, tramite rientro calcolato ovvero spostamento su un’orbita più alta. L’elaborazione di questo documento è abbastanza significativa di quanto sta avvenendo nel diritto internazionale dello spazio: dopo il 1979, gli stati membri del Copuos non sono più stati in grado di adottare strumenti giuridici vincolanti, riunendo invece su risoluzioni, poi adottate dall’Assemblea generale, produttive, in linea di massima, di meri effetti di raccomandazione. Con le direttive sul debris si compie un passo ulteriore, poiché per la prima volta il sottocomitato giuridico del Copuos è stato escluso dai lavori preparatori e il documento finale non è stato adottato con risoluzione dell’Assemblea generale, quasi a voler enfatizzare la natura tecnica e non vincolante delle linee di comportamento sottoposte all’attenzione degli stati\(^ {26}\). Esse costituiscono comunque un esempio interessante di come sempre nuove manifestazioni di soft law vengano ad affiancarsi ai trattati nell’orientare l’azione nello spazio degli attori rilevanti e la loro efficacia pratica dovrebbe essere attentamente valutata, poiché non è detto che essa risulti inferiore a quella delle norme formalmente obbligatorie\(^ {27}\).

Le ambiguità del diritto a fronte della prospettiva dello sfruttamento delle risorse dei corpi celesti

Se un senso deve essere attribuito al principio espresso nel primo paragrafo dell’art. I del Trattato sullo spazio, in base al quale l’esplorazione e l’uso dello


\(^{25}\) Il testo delle *Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space* è riprodotto nel rapporto del Copuos all’Assemblea generale del 2007 (UN Doc. A/62/20).

\(^{26}\) Il par. 3 delle *Guidelines* afferma in modo inequivoco: «Member States and International organizations should voluntarily take measures … to ensure that these guidelines are implemented, to the greatest extent feasible … These guidelines … are not legally binding under international law».

Il diritto internazionale dello spazio e le sue prospettive

spazio extraatmosferico, compresi la luna e gli altri corpi celesti, devono essere effettuati per il beneficio e nell’interesse di tutti i paesi, indipendentemente dal loro livello di sviluppo economico e scientifico, e sono da considerarsi appannaggio dell’umanità intera, esso richiede come minimo che a tutti gli stati sia garantita la possibilità di accedere alle risorse spaziali, e dunque che tali risorse non siano interamente dominate o esaurite dalle attività di esplorazione e uso di alcuni stati più avanzati. È chiaro che laddove sussista questo rischio spetta alla comunità internazionale intervenire con l’adozione di misure tendenti a salvaguardare gli uguali diritti di tutti. Non sembra peraltro che un qualche apporto utile derivi a questo proposito dalla Dichiarazione adottata dall’Assemblea generale delle Nazioni Unite il 13 dicembre 1996 sulla cooperazione internazionale nell’esplorazione e uso dello spazio a beneficio e nell’interesse di tutti gli stati, tenendo in particolare considerazione i bisogni dei paesi in via di sviluppo: la quale anzi tende a sottolineare ciò che è ovvio e cioè quanto la cooperazione internazionale poggi sulle libere scelte degli stati che vi partecipano.

Tra le risorse, non illimitate, che lo spazio offre, vanno considerate quelle presenti sulla luna e sugli altri corpi celesti, specialmente, per ovvi motivi, all’interno del sistema solare. Non è prevedibile che lo sfruttamento delle stesse possa iniziare in tempi rapidi, perché si oppongono al momento serie ragioni di ordine tecnologico e soprattutto economico. Ma è anche prevedibile che in tempi non molto lunghi l’opzione possa e debba essere considerata seriamente, dato il prossimo esaurirsi di talune risorse terrestri. Non per nulla gli ultimi anni hanno visto lo scatenarsi di curiose compravendite di porzioni di suolo lunare, rivendicazioni della proprietà di asteroidi, affermazioni da parte di comunità di scienziati della necessità che il loro paese estendesse la propria sovranità su corpi celesti. Naturalmente tutte tali manifestazioni più o meno folcloristiche contrastano con principi fondamentali del regime internazionale dello spazio, qual è quello del divieto di appropriazione nazionale dello spazio, compresi la luna e gli altri corpi celesti, «by claim of sovereignty, by means of use or occupation, or by any other means» (art. II del Trattato sullo spazio)

Più problematica e più seria è invece la questione dell’eventuale sfruttamento economico delle risorse, si pensi in particolare a quelle minerarie, vuoi da parte di stati vuoi da parte di privati. Tale questione non è specificamente affrontata nel Trattato sullo spazio. È vero che qualunque attività unilaterale di sfruttamento sembra incompatibile con l’Accordo sulla luna del 5 dicembre 1979, il quale non solo prevede che la luna e gli altri corpi celesti e le loro ri-

28 UN Doc. A/RES 51/122. La risoluzione è stata adottata senza voto.
sorse siano patrimonio comune dell’umanità e debbano quindi essere utilizzati in conformità di un regime internazionale la cui istituzione l’Accordo rimanda, peraltro, a negoziati ulteriori; ma vieta espressamente l’appropriazione delle risorse in questione, prevedendo che gli stati possano rimuovere soltanto campioni delle medesime a scopo scientifico. Ma nonostante qualche segnale recente di interesse per questo trattato, esso vincola al momento un numero ridottissimo di stati, tra i quali non figura nessuna tra le potenze spaziali di maggior rilievo. La rilevanza della sua disciplina di dettaglio è dunque da escludersi, anche se si dovesse ammettere che l’applicazione del principio del patrimonio comune dell’umanità alle risorse della luna e degli altri corpi celesti gode del consenso generale della comunità internazionale. L’esperienza della elaborazione della Convenzione di Montego Bay e dell’accordo che ne ha modificato la parte XI insegnano quanto un tale principio possa essere tradotto in regimi applicativi molto diversi.

De iure condito, dunque, e per la grande maggioranza degli stati impegnati in attività spaziali, la questione della liceità di uno sfruttamento unilaterale deve essere risolta sulla base delle scarne indicazioni del Trattato sullo spazio. Tanto scarne da essere oggetto di due letture opposte: da un lato quella di chi vede nell’art. II un divieto di appropriazione delle risorse; dall’altro quella di chi ritiene che la norma non proibisca l’estrazione di materiali dalla luna e dai corpi celesti, ma solo la rivendicazione di proprietà o di diritti sovrani su porzioni del suolo dei medesimi. Né le leggi interne in materia spaziale, che per lo più non prendono in esame il tema dello sfruttamento delle risorse dei corpi celesti, contribuiscono a chiarire l’interpretazione del Trattato sul punto.

Quale che sia l’interpretazione teoricamente preferibile, è indubbio che in questa situazione l’inizio dello sfruttamento delle risorse della luna o di altro corpo celeste da parte di chicchessia darebbe luogo ad aspre controversie. È dunque necessario che gli stati impegnati in attività spaziali trovino in tempo utile una soluzione concordata, sia, e sarebbe l’ipotesi preferibile, che questa consista nella ratifica e nell’attuazione dell’Accordo sulla luna, attraverso la previsione di un regime internazionale che presieda allo sfruttamento delle risorse, sia che essa si traduca in un accordo di altro tipo, che ad esempio chiarisca la liceità dello sfruttamento unilaterale alla luce del Trattato sullo spazio, ma allo stesso tempo fissi dei limiti tesi a salvaguardare gli interessi di tutti gli stati.

Quale regime per lo spazio suborbitale?

Tra le questioni insolute del diritto dello spazio vi è fin dall’origine quella della delimitazione tra spazio aereo e spazio extraatmosferico. Un limite non è
Il diritto internazionale dello spazio e le sue prospettive

mai stato fissato in virtù dell’opposizione di alcuni stati importanti, che ne temono la rapida obsolescenza in conseguenza dell’evolversi delle tecnologie e delle esigenze; mentre anche a livello teorico autorevoli giuristi ne hanno contestato la necessità, prediligendo una prospettiva funzionale 32. È parere di chi scrive che, da un lato, l’approccio funzionale ha effettivamente consentito che si evitassero sinora problemi di rilievo, permettendo che le attività spaziali fossero rette da un loro regime, diverso e indipendente da quello che disciplina le attività aeronautiche, esso non sia in grado di risolvere tutte le questioni che già oggi si pongono e ancor più si porranno un domani, a seguito dei prevedibili sviluppi delle tecniche e delle applicazioni. Un problema può essere costituito dall’attraversamento dello spazio aereo di altri stati da parte di oggetti spaziali in fase di lancio o di discesa verso terra: ipotesi per la quale la scarna prassi non conferma l’esistenza di un diritto consuetudinario di passaggio inoffensivo, come emerge del resto chiaramente dall’insieme delle risposte degli stati al questionario indirizzato loro dal sottocomitato giuridico del Copuos nel 1995 33. Un altro problema potrà sorgere dagli sviluppi concernenti i c.d. mezzi aerospaziali, veicoli anfibi, in grado di navigare tanto nello spazio aereo quanto in quello extratmosferico, e di cui esistono già alcuni prototipi, anche se le applicazioni più avveniristiche devono ancora essere realizzate 34.

Il problema concreto cui si vuole qui dedicare una breve riflessione è quello delle fasce suborbitali (entro i cento chilometri circa di altezza), oggetto di un utilizzo sempre più frequente, da parte di razzi-sonda, palloni e recentemente veicoli privati che effettuano brevi voli per quei pochi turchi facoltosi che oggi possono accedere a questo tipo di svago. Il turismo spaziale, attività fortunatamente ancora molto elitaria, ha sollevato negli ultimi anni un certo interesse in dottrina, poiché pone vari problemi giuridici, anche se non sembra debba considerarsi illecito alla luce dei trattati vigenti, nemmeno quando svolga chiaramente nello spazio extratmosferico, purché naturalmente abbia luogo nel rispetto dei vari principi che presiedono all’uso dello spazio e dunque, in particolare, non interferisca negativamente con le altre attività spaziali 35.


La questione che rileva in relazione ai voli suborbitali è peraltro quella del regime di base applicabile, poiché trattasi di attività che si svolge con modalità tecniche simili a quelle utilizzate dai voli spaziali e raggiungendo quote ove le attività aeronautiche non sono più possibili; tali quote però, allo stesso tempo, non appartengono a quello che nell’opinione prevalente, e sulla base dei trattati vigenti, è considerato spazio extratmosferico (cioè lo spazio orbitale ed extraorbitale). Come è stato anche rilevato in un documento dell’Icao\(^{36}\), le attività suborbitali si svolgono in uno spazio “senza legge”, nel senso che mancano norme internazionali che regolino specificamente l’utilizzo di quest’area. Urge dunque che il regime giuridico di quest’area, o se si preferisce, in una prospettiva funzionale, delle attività che vi si svolgono, sia oggetto di accordo tra gli stati interessati, tenendo comunque presenti gli interessi della comunità internazionale nel suo insieme. La prospettiva funzionale eliminerebbe, almeno temporaneamente, il problema di fissare una linea di confine rigida, ma non si può prescindere dal fatto che la stessa “funzione” è determinata dalle diverse caratteristiche fisiche che distinguono un’area dall’altra, mano a mano che ci si allontana dalla superficie terrestre, rendendo possibili certi utilizzi a esclusione di altri: dunque la funzione è impregnata per sua natura di spazialità. D’altro canto, se le attività suborbitali fossero assimilate a quelle aeronautiche, ciò verrebbe inevitabilmente a spostare verso l’alto il confine dello spazio aereo, in particolare, per ciò che più interessa, di quello sovrastante il territorio e il mare territoriale degli stati, e dunque sottoposto alla sovranità di questi ultimi. Se fossero assimilate a quelle spaziali, avverrebbe l’opposto, nel senso che si abbasherebbe il limite inferiore dello spazio extratmosferico, soggetto ad un regime di libertà. Se infine fossero considerate quale tertium genus, ciò comporterebbe la convalidazione dell’esistenza, invocata da parte della dottrina, di una zona intermedia tra lo spazio aereo e quello extratmosferico, soggetta ad un regime distinto, e potrebbe in futuro porsi la necessità di definire due diverse linee di confine: il limite superiore dello spazio aereo e quello inferiore dello spazio extratmosferico. Ciò che si può condividere dell’approccio funzionale è la prudenza nello stabilire dei confini rigidi in una situazione che rischia di modificarsi di continuo in conseguenza delle evoluzioni tecnologiche e degli sviluppi di nuove forme di utilizzo degli spazi\(^{37}\).

Gli usi militari dello spazio

Nonostante la rilevanza acquisita, nell’ambito delle attività spaziali, dai fenomeni della privatizzazione e della commercializzazione, gli usi militari dello spazio continuano a rivestire un’importanza fondamentale. È anche nota la natura “duale” di molte applicazioni spaziali: dal telerilevamento alla meteorologia, dai servizi


\(^{37}\) Si veda, a tal proposito, F. POCAR, Voli aerospaziali e delimitazione dello spazio, in F. DURANTE (a cura di), La regolamentazione giuridica dei mezzi di trasporto aero-spaziali, cit., pp. 27 ss.
di posizionamento e navigazione alle telecomunicazioni, le possibilità di doppio uso, civile e strategico/militare, delle prestazioni offerte da buona parte dei satelliti e dei mezzi spaziali sono evidenti e largamente sfruttate. La militarizzazione dello spazio rischia, tuttavia, di divenire ben più massiccia e preoccupante nel prossimo futuro, qualora dovessero realizzarsi vari progetti, per ora allo studio, di sviluppo di “armi spaziali”, cioè (in senso stretto) di sistemi d’arma collocati nello spazio, con funzione antisatellite o antimissile (ad esempio nell’ambito del National Missile Defense program (Nmd) in corso di realizzazione da parte degli Stati Uniti)
, se non addirittura finalizzati a colpire obiettivi terrestri. Per tacere del fatto che lo spazio potrebbe divenire teatro di attività militari condotte con mezzi non propriamente “spaziali”, in quanto basati a terra o su navi o aeromobili.

I trattati vigenti sono del tutto inadeguati a prevenire una tale weaponization dello spazio. Il Trattato sullo spazio del 1967 limita solo parzialmente le possibilità di utilizzo militare dello spazio: a poco serve la previsione, già menzionata, dell’art. I, primo paragrafo, secondo cui lo spazio deve essere usato a beneficio di tutti gli stati (che di per se dovrebbe escludere la liceità di qualunque uso militare, come del resto affermato da vari autori: la prassi, peraltro, smentisce completamente questo asunto) a fronte delle disposizioni ben più specifiche dell’art. IV del Trattato. L’art. IV contiene due distinte previsioni: mentre il secondo paragrafo determina una completa militarizzazione della luna e degli altri corpi celesti, il primo proibisce la collocazione in orbita intorno alla terra o in qualunque altra porzione dello spazio o l’installazione sui corpi celesti, “in qualunque modo”, di armi nucleari e di altre armi di distruzione di massa (tra le quali vanno certamente annoverate le armi chimiche e biologiche). Il divieto è comunemente inteso non coprire il semplice “transito” attraverso lo spazio extraatmosferico dei missili balistici intercontinentali, non assimilabile ad una “collocazione” permanente in orbita. Il divieto di collocazione non copre l’uso delle armi nucleari (le armi chimiche e biologiche sono comunque bandite da altri strumenti di diritto internazionale”). Peraltro, tale uso va inteso ricadere sotto il divieto di “esplosioni nucleari” nello spazio (non solo test, ma anche qualunque altra esplosione) contenuto nel Trattato per un bando parziale degli esperimenti nucleari, aperto alla firma a Londra, Mosca e Washington l’8 agosto 1963.

Nonostante la rilevanza acquisita, nell’ambito delle attività spaziali, dai fenomeni della privatizzazione e della commercializzazione, gli usi militari dello spazio continuano a rivestire un’importanza fondamentale.


17 Si veda a tal proposito N. RONZITTI, Diritto internazionale dei conflitti armati, Torino 2006, pp. 178 ss.

È dunque evidente quanto il diritto internazionale non bandisca in modo generale non solo gli usi militari dello spazio (ad esempio a fini di osservazione o di posizionamento) ma neppure la collocazione o l’uso di armi nello spazio, in particolare nelle orbite circumterrestri (anche se, naturalmente, qualunque utilizzo della forza nello spazio dovrebbe essere conforme alla disciplina restrittiva dell’uso della forza contenuta nella Carta delle Nazioni Unite, così come chiarito del resto, ad abundantiam, dall’art. III del Trattato sullo spazio). Proprio per questo motivo varie iniziative sono state intraprese negli anni più recenti per prevenire una “corsa agli armamenti” nello spazio. L’Assemblea generale delle Nazioni Unite ha emanato una serie di risoluzioni tese alla «Prevention of an arms race in outer space»\(^{41}\). Nell’ambito della Conferenza sul disarmo, sede (formalmente indipendente dalle Nazioni Unite) deputata alle negoziazioni internazionali in materia di disarmo, anche in ambito spaziale, un progetto di trattato sulla prevenzione dello spiegamento di armi nello spazio e della minaccia e uso della forza contro oggetti spaziali, è stato elaborato tra il 2002 e il 2008 e presentato quest’anno da Federazione russa e Cina, appoggiate da altri paesi\(^{42}\). Il progetto, in particolare, estende il divieto di collocazione di armi nello spazio ad ogni tipo d’arma e proibisce la minaccia e l’uso della forza contro qualsiasi oggetto spaziale, compresi gli oggetti di carattere civile. Non vi è dubbio che il documento contenga previsioni capaci, se accolte su scala universale, di impedire alcuni degli usi dello spazio sopra prospettati, anche se vanno rilevate, al di là di moventi non certo cristallini, importanti lacune: ad esempio quella per cui nes-

\(^{41}\) Cfr., da ultimo, la Ris. n. 62/20 del 10 gennaio 2008.


Ciò che pregiudica peraltro, in questo momento storico, il successo di tali iniziative è la ferma opposizione alle stesse manifestata, sia in sede di Assemblea generale, sia in sede di Conferenza sul disarmo, dagli Stati Uniti, che sono al tempo la prima potenza spaziale e uno degli stati maggiormente interessati a collocare sistemi d’arma nello spazio o, comunque, a mantenerli le mani libere per poterlo fare all’occorrenza. Come chiaramente affermato nella U.S. National Space Policy approvata dal presidente americano il 31 agosto 2006: «Proposed arms control agreements or restrictions must not impair the rights of the United States to conduct research, development, testing, and operations or other activities in space for U.S. national interests»\(^{43}\). Fino a che dura tale opposizione di principio, sarà difficile non solo che si concluda un nuovo strumento di controllo degli armamenti nello spazio, ma anche che le prese di posizione degli altri stati, peraltro differenziate nelle motivazioni e nell’entità della loro opposizione alle armi spaziali, diano luogo al formarsi di una consuetudine internazionale che integri il contenuto lacunoso dei trattati vigenti nel porre un argine all’intensificarsi della militarizzazione dello spazio.

Gli attori dello “spazio europeo”

Mutamenti significativi sono recentemente avvenuti anche in alcuni dei principali attori “istituzionali” nell’ambito delle attività spaziali. Si pensi, da un lato, ai fenomeni di privatizzazione che hanno interessato varie organizzazioni internazionali operanti nell’ambito della gestione delle telecomunicazioni via satellite; dall’altro, agli importanti sviluppi che caratterizzano tuttora la più rilevante tra le organizzazioni internazionali impegnate in attività spaziali, l’Agenzia spaziale europea (Esa), e, più in generale, la suddivisione delle competenze in materia di utilizzo dello spazio extraatmosferico tra i vari attori pubblici in Europa. In particolare, è emerso sempre più chiaramente nel corso degli ultimi due decenni il ruolo, nel delineare una politica spaziale europea, della Comunità e poi dell’Unione europea: da qui l’esigenza di un coordinamento via via più stretto tra l’Unione e l’Esa.

Qui preme rilevare come il Trattato di riforma di Lisbona del 13 dicembre 2007, la cui sorte appare al momento molto incerta a seguito del referendum irlandese, formalizzi per la prima volta, dopo il tentativo fallito del Trattato costituzionale, la competenza dell’Unione europea in materia spaziale, con una disposizione che si limita peraltro a consacrare l’esistente. E come la Comunità abbia tentato negli ultimi anni di promuovere la trasformazione dell’Esa in agenzia spaziale dell’Unione europea. Il processo di raccostamento, ancora in corso e di cui non si conosce l’esito finale, è complicato da tanti fattori: la membership non coincidente delle due organizzazioni, l’esperienza trentennale di vita autonoma dell’Esa, le resistenze di taluni stati membri, le difficoltà che caratterizzano qualunque fenomeno di integrazione tra strutture profondamente diverse e dal peso politico così dissimile, le gelosie reciproche, la crisi che ha interessato l’Unione europea negli ultimi anni. Ma già ora, pur tra mille ostacoli, la Comunità europea e l’Esa stanno sperimentando una sinergia affatto nuova.

Da una parte, la Comunità si serve dell’Esa per realizzare grandi progetti spaziali che essa ritiene necessari al conseguimento di determinati obiettivi economico-politici: è il caso dei progetti Galileo, comportante l’installazione di un sistema globale di navigazione via satellite, autonomo ma complementare all’americano Gps, e Gmes (Global Monitoring for Environment and Security), finalizzato alla realizzazione di un sistema integrato (terrestre e spaziale) di osservazione della terra a fini di protezione ambientale e di sicurezza. Nel quadro di questi progetti l’Esa agisce di fatto quale agenzia di ricerca e sviluppo dell’Unio-

\[\ldots\]

\[\ldots\]
ne, in quanto quest’ultima le affida la realizzazione e la sperimentazione di sistemi che saranno poi controllati e gestiti dall’Unione. Dall’altra parte, le due organizzazioni cooperano nel tracciare insieme le linee della politica spaziale europea. I rapporti di cooperazione tra le due organizzazioni sono stati formalizzati in un accordo quadro siglato nel dicembre 2003 e rinnovato nel 2007\(^{48}\): esso prevede che l’attività di coordinamento sia gestita dal Consiglio spazio (Space Council), consistente in riunioni concomitanti del Consiglio dell’Unione europea e del Consiglio dell’Esa a livello ministeriale. Il Consiglio spazio ha approvato la Politica spaziale europea, elaborata congiuntamente dalla Commissione europea e dal Direttore generale dell’Esa nell’aprile 2007, nonché gli Elementi preliminari di un programma spaziale europeo: documenti ove sono tracciate le linee principali di sviluppo delle attività spaziali in Europa nel prossimo futuro\(^{49}\).

Il quadro della cooperazione europea nel campo spaziale è dunque in gran- de fermento ed è presumibile che i prossimi anni vedano ulteriori sviluppi, nei limiti in cui si potranno superare gli ostacoli politici e quelli di bilancio, che tanto hanno pesato, non solo in Europa, sulla evoluzione delle attività spaziali negli ultimi decenni. Sotto il profilo istituzionale, si dovranno trovare le architetture più adatte a realizzare un coordinamento sempre più intenso tra l’Esa e l’Unione europea. E dovranno risolversi problemi giuridici di non poco conto, dalla difformità della politica industriale dell’Esa rispetto alla disciplina comunitaria del mercato interno al vincolo degli obiettivi esclusivamente pacifici che caratterizza le attività dell’Esa, a fronte della natura ambigua ma sostanzialmente “duale” dei progetti spaziali da questa realizzati per l’Unione: natura suscettibile di creare difficoltà anche all’interno dell’Unione, come del resto accade per qualsiasi fenomeno interessante la politica di difesa comune, in virtù della distinta posizione che alcuni stati membri mantengono in questo settore.

Il futuro del diritto dello spazio

Le prospettive del diritto internazionale dello spazio per il prossimo futuro dipendono da una serie di fattori: in primo luogo esse sono collegate strettamente agli sviluppi che interesseranno le attività spaziali. È chiaro che, quanto più esteso sarà lo sfruttamento delle orbite, quanto più rilevante la presenza umana nello spazio, quanto più precoce lo sfruttamento delle risorse della luna o di altri corpi celesti, quanto più incisive la privatizzazione e la commercializzazione delle attività spaziali, tanto maggiore sarà l’esigenza di integrare la normativa vigente. Lo stesso discorso potrà valere per l’ambito militare, qualora si creassero nuove applicazioni e ancor più nel caso in cui le stesse fossero effettivamente usate nel corso di conflitti armati. Naturalmente tali sviluppi dipendono...


Il diritto internazionale dello spazio e le sue prospettive

no a loro volta da decisioni politiche e queste ultime sono condizionate da vari elementi, non ultimo dei quali le risorse finanziarie disponibili.

Un secondo fattore, indirettamente collegato al precedente, che sta influendo e influirà maggiormente in futuro sulla interpretazione ma anche sullo sviluppo della normativa vigente è dato dalla prassi degli stati, sempre più abbondante non tanto in termini fattuali, quanto in termini di legiferazione. La cresita in estensione e in volume delle normative interne in materia spaziale è in grado di dare un impulso notevole di tipo nuovo tanto alla interpretazione dei trattati, quanto alla eventuale modifica dei medesimi per accordo tacito, e ancora alla affermazione delle norme consuetudinarie. Già significativo, come si è visto, è l’apporto che le leggi interne danno alla interpretazione degli obblighi di autorizzazione, controllo, immaterializzazione e in tema di responsabilità per le attività private discendenti dai trattati, ma è prevedibile che l’utilità delle stesse cresca in modo rimarchevole.

Un terzo fattore da prendere in considerazione, anch’esso inevitabilmente collegato al primo, saranno presumibilmente dato dalla comparsa di nuovi attori, pubblici e privati, nel settore spaziale, dal diffondersi di forme di coordinamento “soffice” fra questi (si pensi a quello esistente tra le maggiori agenzie spaziali) e delle ulteriori ristrutturazioni che caratterizzeranno le forme di cooperazione maggiormente strutturata, in particolare le organizzazioni internazionali attive nel campo spaziale e tra queste soprattutto l’Unione europea e l’Agenzia spaziale europea e i loro rapporti reciproci.

L’epoca della grande codificazione del diritto dello spazio è probabilmente conclusa, perché, da un lato, nonostante i loro difetti e le loro lacune i trattati vigenti offrono tuttora un quadro normativo adeguato a rispondere a molte delle nuove esigenze che l’evoluzione delle attività spaziali pone; dall’altro, gli stati, e soprattutto i più pesanti, sono più restii a vincolarsi in questo periodo storico, in tempi delicati come quello spaziale. A questo proposito, va ancora una volta rilevata la posizione molto netta espressa dagli Stati Uniti: nel ricordato documento del 2006 enunciato le linee della politica spaziale americana, non è espressa soltanto l’opposizione a nuovi trattati sul controllo degli armamenti; ben più in generale, gli Usa dichiarano che contrasteranno lo sviluppo di nuovi regimi giuridici “that seek to prohibit or limit U.S. access to or use of space”.

È certamente possibile, e auspicabile, che in certe materie si continui a ricorrere a strumenti di *soft law*, siano essi le risoluzioni dell’Assemblea generale delle Nazioni Unite, preparate nell’ambito del sottocomitato giuridico del Copuos, ovvero altri esempi più innovativi di normazione soffice, quali le direttive sul *debris* elaborate dalle agenzie spaziali o, più recentemente, dallo stesso Copuos. D’altra parte, non c’è dubbio che obiettivi quali la prevenzione dell’inquinamento, la tutela del diritto di accesso allo spazio di tutti gli stati, una disciplina dell’eventuale sfruttamento delle risorse dei corpi celesti, o il contrasto alla corsa agli armamenti nello spazio richiedano, per essere perseguiti, la creazione di nuove regole e possibilmente di forme di controllo internazionale più incisive di quelle esistenti. Le prospettive, nell’attuale fase storica, sembrano tutt’altro che incoraggianti.
Economic Issues of Space Policy

This article presents an overview of some of the important and often overlooked economic and management aspects of the space economy and the economics of the space industry. The space economy is the impact that space has on all industries, on innovation, and on the quality of human life. The economics of the space sector is the process of investing in space, creating value, analyzing the allocation of resources for space programs, and calculating the returns on those investments to the economy. There is a complex interrelationship between technology and economics in the space arena and because engineers and scientists dominate, the economic questions are often marginalized. Decisions affecting the economics of space and space programs can mean the difference between the success and failure of a space program. The article demonstrates that even though the annual expenditures on space are relatively small, less than one-half of one percent of global GDP, the impact of space has grown and changed. What was and still is awe and inspiration from major government funded technological programs has now also become a part of the backbone of the critical infrastructure for communications, entertainment, finance, and security.

Economics and Space

It is most common to think of space only as “rocket science”. In the public mind space is launching rockets, landing on the Moon, and people floating in a near-zero gravity environment.

But space is also improved weather forecasts, climate monitoring, direct to home TV broadcast, and rapid global telecommunications. Space has become essential for national security using observation and navigation satellites for monitoring and guiding defense and civil needs. Similar space applications are used for financial and corporate purposes, enabling global businesses to function efficiently. Space is also “Tang and Velcro”, the shorthand term for many everyday innovations that were first invented for space flight and have become successful consumer products that have greatly improved the quality of life. These also include a number of medical innovations such as using space-developed instruments for non-invasive procedures.

Economic realities are part of all space programs. From financing to customers, the willingness to invest and the ability to insure that a program has a positive return to that investment is the fundamental basis and motivation for its success. Regardless of the economic system, capitalist or otherwise, and re-
Regardless of the military and political overtones of many space programs, and regardless of whether the returns to the program are easily captured in normal monetary values, these economic hurdles are real. Convincing a nation that the allocation of resources to a space project is a good thing to do in the light of the multitude of other claims for those resources is a challenging hurdle.

Therefore the economic principles of space encompass all parts of the economic and social and political system from initial budget allocation to assessing the long-term impacts of space programs and space technologies. Strong space advocates sometimes try to ignore economic realities; they sometimes try to avoid them; and they sometimes try to hide them under the broader concepts of national security, essential exploration, or human destiny. But ultimately only those investments with true economic value will last and succeed.1

A profit-oriented capitalist economic society is organized around markets where the price system functions as the short-term signaling mechanism for buyers and sellers to clear the market and is an efficient allocator of resources. One problem in analyzing the space sector, and one of the reasons traditional economic analyses are not always accurate when applied to space technologies, is the very heavy influence of governments in space investment decisions, the access to space, and the use of space. Governments most often do not act as competitive buyers or sellers would and the monetary decisions of governments are influenced by long-term political and social goals as much as they are by short-term price fluctuations. But government policies are also about budgets, foreign trade balances, taxes, and other fiscal and monetary mechanisms to support long-run economic growth, advance the quality of life, and insure security.

Virtually all space hardware and services are dual-use (can provide both defense and civilian capabilities). Space is unlike other economic sectors because it was initiated and developed by governments for their own purposes and use.2 In the 1950s and 1960s launch vehicles were built for their capability of delivering weapons of mass destruction. The same technology and crash program mentality was used for civilian research and development (R&D) programs in the Cold War race to land a human being on the Moon and demonstrate a nation’s superiority in technology. These purposes have little to do with direct short-run commercial or economic benefits.

Even the communications satellites of the 1960s were instruments of government policy and control. It is well documented that the U.S., for example, had a space telecommunications policy that was intended to provide the U.S. with a global monopoly on that sector, even though private companies were building and operating the equipment.3

1 Economic value as broadly defined includes social and security values as well. Although not easily measured in economic statistics, they can be quantified and should be included in an economic system.
2 The commercial nuclear power industry does have parallels in its development that stems from the WWII Manhattan Project.
Purely commercial activities in space are now important, growing, and trying to adapt to a sector historically dominated by government programs, with governments still being the major purchasers of space-based and space-related goods and services. Heavy government regulations exist for space activities due to the security aspects of space (dual-use capabilities) as well as legal and treaty obligations that were crafted in a different era before private enterprise was involved.

Further tempering the commercial industry are some basic structural issues. Space is expensive. It costs a lot of money (many thousands of dollars per kilogram) to get to space. Firms face high up-front costs requiring not only launch vehicles but highly complex equipment as well. It is almost impossible to repair equipment once it is launched, and efficient and cost effective means to return space hardware to the Earth are not in place.

Space is also dangerous. Besides natural phenomenon such as radiation, asteroids, and meteoroids, an increasing amount of man-made debris also threatens the health of satellites.

In summary, the economics of space is dominated by a variety of high risk factors that are unique and often not easily measured by standard business tools such as discounted cash flow analysis. Space activities are also largely for government use, although private markets for telecommunications and other services are developing. In the future the share of government activity in space in relation to commercial activity is likely to decrease. A slow transition is occurring, but purely private business in space is many years away, and will continue to be subject to a number of different types of regulation ranging from safety and security to environmental controls.

The Space Economy

The space economy has become pervasive in the global economy in a very short time frame. Perhaps the best definition is summed up by NASA: «The space economy is the full range of activities and the use of resources that create and provide value and benefits to human beings in the course of exploring, understanding and utilizing space».

A very precise definition of the space economy does not exist. Space activities cover a broad spectrum and include activities on the Earth as well as in space. Space begins with R&D done by governments, universities, and private companies. The manufacturing of launch vehicles, satellites, and related equipment is part of the space economy as are the various professional and technical services that support all types of space systems. Operating and controlling satel-
Space activities cover a broad spectrum and include activities on the Earth as well as in space.

What is the value of a more accurate weather forecast? How much time and energy has been saved by space-based navigation systems using the GPS signals and what is the value of those savings. Similarly for businesses, can the access to global information through space services be adequately measured? And, how can a value be attached to the many lives that have been saved using satellite search-and-rescue equipment that can quickly pinpoint the location of people lost or in danger.

Finally, there are the indirect benefits from technological spin-offs traced back to the R&D done in support of space programs. New companies have been formed and others are producing and marketing everything from medical prostheses using space-developed new materials to more efficient solar panels. Many spin-offs also are helpful behind the scenes to companies. Examples of process technologies from space R&D include using better clean-room procedures (electronics and biotech), long-lasting lubrication materials (machinery), and advanced computer routines for evaluating structural strength (automobiles).

The Major Space-Faring Nations

The United States is by far the world’s largest investor in space with a combination of civil and military space programs that have annual expenditures of about $40 billion. The European Space Agency, an international organization of 17 European nations and 3 associate members (Canada, Czech Republic, and Hungary), has expenditures of approximately $3.8 billion. Individual nations in Europe also have national space investments with France, Germany, Italy, and the U.K. having the largest programs. Japan invests close to $2 billion per year in space, India spends slightly less than $1 billion per year, and Russia’s space budget is also close to $1 billion per year.

China’s space investments remain difficult to estimate because of the lack of publically available data and technical problems of comparing the value of their government expenditures to those of other nations. But China has a full space program with demonstrated successes that include launched people (Taiko-
nauts) into orbit and returning them safely. Estimates of the total expenditures on space vary greatly, but it is clear from their comprehensive program that these expenditures sum to the equivalent of many billions of dollars per year.

Military space budgets are hard to estimate because of the dual-use capacity of most space assets. Many nations do not publish figures with sufficient detail to accurately separate space from other expenditures. Since most defense/security use of space is for communications, navigation, and for Earth observations, the total dedicated space defense expenditures outside of the U.S. are presumed to be relatively small.

Commercial space is measured primarily by sales (turnover) and, although companies may be headquartered in a nation, total sales are often based on global business. The Space Foundation study estimates worldwide commercial satellite and launch services to be close to $140 billion. They also estimate 2007 commercial infrastructure investments to be about $34 billion7.

Even more important than the amount spent on space is the rapidly growing number of nations with space programs. Besides the large space powers, nations such as Brazil, Nigeria, South Africa, Israel, Algeria, Indonesia, and Malaysia have space programs. Organizations such as Eumetsat (21 member States), Arabsat (also 21 member States), and IMSO (International Mobile Satellite Organization with 92 member States) are well subscribed. Of the 192 nations in the United Nations, 124 have ratified or signed the Outer Space Treaty. The UNCOPOUS (United Nations Committee on Peaceful Uses of Outer Space) has grown from 18 members in 1958 to 69 today. Space activities over the past 25 years have moved dramatically from being the province of only the superpowers to being available for all nations.

Space Activities and Businesses

There are a number of ways of looking at the way space activities are conducted. The first is to look at how government’s spend their space investments. In Europe, the largest budget allocations are for space launch vehicles and the infrastructure supporting them, Earth observation programs, navigation, and exploration. A similar distribution of expenditures occurs in the U.S., with the addition of a larger science budget and investments in human space flight. Nations with smaller space programs tend to emphasize programs that support specific needs of their nations. In particular, Earth observations, and telecommunications are very important to nations with larger land mass and a population that is widely dispersed.

Another way is to look directly at space businesses. Access to space is essential. There are a number of firms that build launch vehicles and support launch infrastructure and operations. Companies such as Lockheed-Martin and Boeing in the United States and Arianespace and EADS in Europe, along with competitors in other nations such as Russia, China, and India are primarily government contractors with commercial launch operations. In recent years, particularly in the United States, there are a number of entrepreneurial firms attempting to develop privately funded launch vehicles that promise less expensive access to space in the near future.

The largest market for commercial launch vehicles is to launch telecommunications satellites into orbit. Telecommunications is the oldest and most mature of all space applications and the types of services offered has multiplied while the price has fallen. Today, these satellites are the backbone of cable TV distribution, banking and financial data, entertainment, and many other services. Direct TV broadcast satellites and direct satellite radio are also major purchasers of launch services and operate routinely in space. The major economic advantage of these satellites is their ability to provide efficient and instantaneous point-to-multipoint data flows.

Other companies have built and are operating remote sensing and other Earth observation satellites. Although this part of the commercial market is relatively small in the value of sales, it includes a number of potential profitable applications from space. The value of remote sensing information is magnified greatly when it is combined with other information, some from satellites such as the GPS positioning and navigation system as well as from terrestrial databases.

Although weather satellites are not generally private or commercial, they provide very valuable information to both individuals and businesses. From simple decisions such as whether to carry an umbrella to work, to much more crucial data about major weather events such as hurricanes, these data have economic value and affect every-day life.

Besides supplying the opportunity for in-space operations, space systems also provide a very large terrestrial business ranging from manufacturing the equipment to providing value-added services to businesses. Services such as precision farming, land use planning, energy-related weather forecasting, resource exploration and monitoring, flood predictions, and disaster assessment as well are enhanced by economically valuable space-based data processed and sold by companies that fine-tune the information for specific clients.

It is still too early to judge the outcome of these new businesses. They are creative and innovative. But, they are also well behind the promises of having reliable and inexpensive space transportation. Most of the companies are developing suborbital vehicles with only development plans for the far more powerful and complex systems needed to actually reach orbit. As time and investments drag, costs go up. What actual prices they will have to charge customers to cover their actual costs when they are operating is still unclear. And, even if they are able to manufacture vehicles at less cost than a government can, the commercial price may be close to the current “market” price charged by the existing major space companies.
How Important is the Space Economy?

Space is actually a very small segment of the world’s economic activity. Even the most generous estimates of the total global activities associated with all aspects of space only sum to about $250 billion. That is less than one-half of 1% of a worldwide GDP that approaches $60 trillion. Some of the world’s largest companies had revenues that were larger that all space expenditures in 2007.

Yet, in spite of these numbers, it is well recognized that space has become very important to the world economy, to the continued trends in economic globalization, and to national governments and consumers. Space assets have allowed a new economic infrastructure that is shared by all nations. Rapid international telecommunications and related services, coupled with Earth observations (EO) and position, navigation, and timing (PNT) satellites have revolutionized the way business is done. Direct broadcast TV satellites and satellite radio are viable businesses and compete with cable and radio wave transmission modes.

One way to look at the importance of satellites to the economy is to envision the amount of disruption that would occur if all satellites were suddenly not functioning. We know from experience that major electric power outages can incur economic losses of many billions of dollars in just a few hours. There are no simple answers or even any existing calculations on what might happen if satellite services were significantly disrupted. But it is clear that over the past 15 years critical parts of the economy have become dependent on the seamless working of the space sector with terrestrial systems.

Another way of looking at the importance of space to the economy is through the long-term impact of space R&D investments. Since most R&D for space is initiated in government programs (but often performed by industry, non-profit firms, or universities) the open question is comparing the return on those investments with investments in other projects. A series of studies on this topic were conducted in the 1970s and 1980s and generally find that returns from government space R&D are quite positive.

The impact calculated in the various studies range from a return to government R&D in space of 3:1 up to 9:1 and include both the direct and indirect benefits. Other studies have analyzed specific industries and specific innovations and show even larger returns.

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3 Exxon Mobil, for example, had 2007 revenues of $450 billion.
It is very important to note that the returns to government space programs should not be subjected to a comparison with returns to the R&D that private firms engage in. Governments are not profit-making entities. They usually invest in R&D to promote some public interest such as defense. As noted above, the United States had the primary motivation for space R&D in the 1960s as a Cold War technological race for superiority. The NASA, and in particular the Apollo program, accomplished this mission. That success alone justified the expenditures. Any measurable economic benefits such as new technologies with commercial value being manufactured by private firms are additional benefits. And, these products often require additional private R&D to make them usable and marketable. Thus, government R&D should be viewed as having a public purpose that includes the stimulus for private investment, not as a measurable rate of return (ROI) comparable to that a profit-making business would calculate.

Government Programs and Commercial Space

Over the past decade there has been a rapidly growing trend to change the way governments do business with the space industry. Instead of the government awarding cost-plus R&D contracts with detailed technical specifications and requirements, the move has been toward changing the government to being a purchaser of space hardware and services that are also available from companies selling in the open market.

Several things have stimulated this change in attitude, particularly in the United States. First is the maturation of the space industry. Although space still requires cutting-edge new technological development, many activities have become much more routine. The private sector is fully capable of building many types of satellites and launch vehicles. Only very special vehicles now require a large infusion of government R&D and direct support.

Second is the strain on government budgets of large R&D programs. Space agencies in all nations face difficult challenges in justifying their programs when other priorities on limited resources are growing. Aging populations and the associated medical and pension fund pressures, immigration, welfare programs, se-

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14 With the exception of the direct benefits such as jobs created or income generated by the expenditures, these benefits evaporate as soon as the spending stops. The long-lasting economic benefits are the knowledge generated and the use of that knowledge as building blocks for industrial innovation and further R&D.

15 A cost-plus contract is one where all costs and overhead are directly reimbursed and an additional percentage fee is added. A more standard business contract would be to supply goods or services for a fixed price that includes a profit. The company would make more if it produces at or below its estimated cost but would have to absorb losses if there are overruns.

16 The NASA requirement for a very heavy human-rate vehicle as a replacement for the aging Space Shuttle and for the lunar landing program is one example. Other examples are deep space probes and the Mars Rover.
Economic Issues of Space Policy

curity and defense, etc. all compete for funds with space programs. Even though space applications have proven useful to governments in dealing with many structural problems, the very large investments for exploration and new space R&D are not easily obtained in light of more pressing social and security needs. Thus, in order to accomplish the goals space agencies desire, they look to partnerships with the private sector that include private sources of investment funds.

Third, the spread of space capabilities from two major superpowers in the early years of space to many nations around the world today has created global opportunities for companies and has also made the purchase of space services a truly multinational possibility. This trend is discussed in the following section of the paper.

Governments and government procurement do not change quickly or easily. The policy changes in the U.S. that began to encourage agencies to purchase commercially began in the 1980s. It was further stimulated by the Space Shuttle Challenger accident in 1986 that led to the 1988 Amendments of the 1984 Commercial Space Launch Act\textsuperscript{17}. That legislation encouraged private firms to build new expendable vehicles for government and private purposes in order to expand the options for different types of access to space for U.S. programs.

Other events of the late 1980s and 1990s also contributed to this changing policy. The launching of the U.S. military GPS system, which began in the 1980s and matured in the 1990s, created vast new opportunities for private profit-making terrestrial applications using its freely available signal. Direct television broadcasting satellites also rapidly grew in numbers and in customers in the 1990s. And, telecommunications services expanded in the same timeframe, particularly in the mobile satellite services networks. All of these private businesses depended on space assets and fueled a number of economic changes ranging from economies in scale of operations reducing costs to consumers to stimulating new privately financed R&D and new services.

Within government there were other stimuli for industry as well. A policy in the U.S. to create fewer space firms through mergers was in effect in order to reduce the burden on industry of making multiple expensive proposals to DOD and NASA when only one firm would get the contract award. And, in theory, larger firms would be able to operate more efficiently as well. Another policy was “outsourcing”, which encouraged all types of means to use private companies instead of public enterprise. Space programs such as weather satellites and the Space Shuttle were studied as possible candidates for “privatization”\textsuperscript{18}.

Government and government policy has evolved from encouraging purchases of private services to now actively requiring it. An interesting example, and experiment that has received a lot of attention in this effort, is the NASA Commercial Orbital Transportation System (COTS). NASA has always had a provi-


\textsuperscript{18} Although neither occurred for a variety of reasons, it is important to note that the effort toward privatization was pervasive in government.
in its enabling legislation allowing it special authority in contracting. This has allowed NASA to circumvent some of the procedures that are required in more traditional procurements, essentially making the process quicker and simpler. NASA has used this in the past for agreements with industry that do not require the exchange of money. For instance, it may be used when NASA provides an in-kind exchange such as the use of its facilities for testing and industry provides and pays for the equipment.

The use of a Space Act Agreement for the COTS program does involve NASA payments to the winners of a competed proposal. The payments are geared to specific milestones and progress. NASA allocated $500 million to the COTS effort which is focused on providing a transport and supply system to the International Space Station. In August 2006 awards were made to two entrepreneurial space transportation companies, Kistler Aerospace and Space Exploration Inc. (SpaceX). Each received close to $250 million to demonstrate their ability to provide these services. In addition to the money allocated for COTS, the companies would then sell the transport services to NASA over a period of years. Essentially the $500 million is seed money for the development of commercial space capabilities, with the expectation that the companies would raise the remaining development costs from private capital sources as well as market the services commercially.

One of the companies, Kistler Aerospace, did not meet their first milestone and did not receive payment. After a re-compete, Orbital Sciences has replaced Kistler and is working on the COTS program.

NASA, facing the retirement of the Space Shuttle, needs reliable access to the ISS. In addition to the COTS program, the Agency has agreements with Europe and with Japan for the use of the ATV and HTV (both are vehicles designed to be launched on an expendable rocket and transfer payloads to the ISS). NASA also has an agreement with Russia on using the Soyuz launch system to take astronauts to the ISS. COTS represents an experiment in commercializing space, but the government is also spreading its own risks by funding partnerships with other foreign government programs with similar (but not identical) capabilities.

The economic question that remains is the long-run success of the program. If the companies can solve the technological challenges within budget and develop an independent commercial market to remain in business, the COTS initiative will represent a very important beginning of a change in the way the U.S. government can approach the development of some space programs. If not, COTS will be yet another footnote in the long history of unsuccessful attempts.

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The National Aeronautics and Space Act of 1958, as amended (42 U.S.C. § 2451 ss.).
to artificially stimulate a market that either doesn’t really exist outside of public-use purposes or is too immature to support a free-standing business enterprise.

Globalization and Commercial Space

Globalization is the process of human interaction characterized by the ease of transcending national borders for variously defined ends. There are many different aspects of globalization occurring at any given point in time. It is important to distinguish between geopolitical globalization, multinational economic globalization, and cultural/information networks that have become global20.

The availability and advantages of satellite communications, as noted above, has greatly contributed to this trend through both its global coverage and the opening up of the global communications services and markets to all nations. In addition, the growth of other rapid telecommunications such as fiber optic cable has enabled other global services to be coordinated with space capabilities.

Globalization is not a new phenomenon, nor it is inevitable21. The following quotation could have been written about today’s economy.

What an extraordinary episode in the economic progress of man that age was which came to an end in August 1914! ... The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole Earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his doorstep; he could at the same moment and by the same means adventure his wealth in the natural resources and new enterprises of any quarter of the world, and share, without exertion or even trouble, in their prospective fruits and advantages; or he could decide to couple the security of his fortunes with the good faith of the townspeople of any substantial municipality in any continent that fancy or information might recommend. He could secure forthwith, if he wished it, cheap and comfortable means of transit to any country or climate without passport or other formality ...

In fact, John Maynard Keynes wrote it almost 90 years ago22. Similar eras of increased interaction among peoples have existed before the most recent times, but have then been followed by wars, economic depressions, or other occurrences, which slowed or stopped the trend toward globalization. Even in the

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first few years of the XXI Century, it is clear that the events of 9/11 have changed policies and attitudes toward international travel and security that, at least temporarily, slowed the rapid globalization pace established in the 1990s which were characterized by decreases in barriers to trade, such as NAFTA and the WTO.

Other economic influences may also slow economic globalization. As described by Abdelah and Segal, the speed of globalization may not be as rapid in the upcoming years for the following reasons: politicians are more nervous about letting capital goods and people move more freely across borders, energy is the object of intense resource nationalism, and bilateral agreements appear to be replacing multilateral agreements (particularly with the U.S. skeptical of “global rulemaking”).

As impressive as the economic and cultural spread of ideas and interactions have been during the past several decades, it must be balanced by the decided lack of geopolitical globalization. With the important exception of the European Union (a limited form of primarily economic globalization on a regional basis), nations have not changed their approach to territorial rights. These rights are jealously guarded and are strong limits to true international geopolitical globalization.

Although there has been a trend toward multinational firms and a global economic regime, history has shown that there is no assurance that this trend will continue on a smooth path. Current economic globalization is dependent on nations moving toward a free market based economy that also implies some form of democratic government. Economic globalization is also dependent on the establishment of a relatively uniform regulatory system that is predictable, fair, and enforceable.

Space is a global industry. Within limits established by the political system, companies compete for launch services internationally. Satellite manufacturing, once virtually dependent on U.S. companies, is now an industry with companies located around the world. Space services are also available internationally.

There are many good economic reasons that explain why commercial space needs to be global in nature to survive in a competitive world. To make a profit on an investment that has high technological risk and very high up-front demands, a large market is essential. The additional cost of adding a new ground receiving station is very small in comparison to the cost of the space system. Since satellites can have global coverage and a global market enables an attractive profit potential.

Globalization is also closely linked with overall economic growth trends. The period of the early 2000’s was marked by a slowdown in growth that may have temporarily slowed globalization trends. The 9/11 events had a particular strong influence on U.S. policies. It is unclear how much those policies affected other nations.


Even in the EU, nations have retained jurisdiction over many areas, including telecommunications policy. And, it is important to note the failure of a popular vote on establishing a European Constitution.
Current Issues in Economic Space Policy

Listed below are selected major developments in the space sector that will affect economic decisions, government policy, and the ability of the private sector to use space and have the opportunity to invest and make a profit from space activities. The developments have been occurring over the past ten or fifteen years and are expected to continue into the foreseeable future. Not all of these describe a rosy future for commercial space, but on balance, it appears that the space sector will continue the trend of being an increasingly important resource for all governments and for industry. At the same time, space will remain a harsh, fragile, and risky environment that will limit its vast potential.

1. There will be only slow growth of government space programs in the nations with a long history of space accomplishments. Rapid growth will occur in nations developing new large space programs

Since the massive infusion of money into the U.S. Apollo program in the 1960s there has been a general public feeling that civil space programs today account for a large percentage of government budgets. A counter reaction to this has occurred and takes the argument that there are more pressing social needs that deserve higher priority than space R&D. Neither is completely true. NASA’s budget for over 30 years has been less than 1% of the total U.S. budget. And, the use of many space applications makes a positive and significant contribution to working with and solving a number of social issues.

In fact, the U.S. Apollo Moon landing program was an anomaly in space and R&D funding with a spending spike that lasted for only a few years from 1965 to 1970. A number of factors had come together at just the right time to create the conditions for this crash program. The political mood of the Cold War dictated a showing of technological prowess, the technology was maturing to the point where going to the Moon was feasible, and the economy was stable and growing with the budget close to being balanced.

However the space community, having had a surge of prominence and almost unlimited resources in the successful Moon landing program, has continuously pressed the government for new Apollo-type programs. Conditions have changed and space R&D has remained an important part of the U.S. government’s activities. But no sudden huge influx of funds has occurred, even though large new space efforts have been initiated.

Given the cumulative investment in space over the past 50 years and the importance of space to the economy, there is a realization that continued ad-
The advancement in space technology is important. Most civil government space budgets in the U.S., Europe, and Japan have remained relatively stable over the past decade. They have increased approximately at the rate of inflation, keeping purchasing power level. Certain programs such as those related to security have received additional funds. But even the ambitious NASA Exploration Initiative has a budget that reflects a “pay-as-you-go” approach; one that is scheduled to grow, but at a very controlled and modest rate.

The exceptions to limited growth of space budgets are in nations that are expanding their programs to compete with the major space-faring nations. China and India are the most notable nations with a new focus on having a space program that will have the capabilities that now exist in the United States. Developing nations also are starting new space programs, albeit with very modest budgets that are geared to their own specific needs which are mainly in telecommunications and remote sensing.

2. The rise in security uses of space will continue

The events of September 11, 2001, the rise of terrorism, the Iraq War and other smaller regional disputes, the continued shift in population and immigration patterns, the occurrences of diseases that spread rapidly such as Avian Flu, and the focus on climate change and its effects have underscored the valuable contributions of satellite systems. These systems can monitor and help identify global problems and are essential to providing warnings and information to help save lives and mitigate damages.

In addition, the use of space systems for precise positioning and navigation have become essential for all forms of transportation, and especially for coordination and guidance for ships and airplanes. These systems are funded by both commercial and military organizations and have dual-uses. As PNT technologies improve and more applications are added to the many that are already in use, the space component will become increasingly important.

In addition to the operational U.S. GPS system, the Russian GLONASS system has been revitalized in recent years. Europe is beginning to build its GALILEO system and China and India are planning to initiate their own PNT satellite systems.

Earth observation satellites that include weather, land use, ocean, and other sensors continue to improve and are operated by many nations. One trend is for the commissioning of smaller and less expensive Earth observation and resource

The use of space systems for precise positioning and navigation have become essential for all forms of transportation.
monitoring satellites by developing nations in Africa and South America to be owned and operated by these nations and used for their specific requirements.

Finally, it must be recognized by all nations that the use of space for security purposes also includes the risk of aggressive actions in space by one nation to prevent or deny information to another. The use of space for these purposes is counter to the spirit of the U.N. Outer Space Treaty that has been ratified by all major space-faring nations and that declares that space is to be used for «peaceful purposes». It will become even more important for nations to carefully monitor their actions and to not endanger the space environment since even non-aggressive pollution of space can endanger all spacecraft. The January 2007 test by China that destroyed their own satellite created a debris fall-out that will affect all satellites for hundreds of years.

Efforts are underway to create an international agreement on rules of the road to prevent unnecessary space debris. It is, however, a very difficult and slow process of negotiations. The important realization is that space assets are very fragile and if, as described above, the future infrastructure behind many industries and services relies on space assets and the growth of commercial space activities is a multinational goal, then, through international negotiations and cooperation, it will be essential to reduce the risk of losing space assets.

3. Space laws and regulations that create the framework for economic development are not optimized for private enterprise. There is no strong likelihood of a major change in the Treaties dealing with space nor is there a likelihood of the various national space laws being harmonized into a uniform global system.

The legal framework for international space activities is embodied in a series of 5 U.N. Treaties that came into force during the late 1960s and early 1970s. They were primarily a set of negotiated principles that reflected the two major governments with space programs, the United States and the Soviet Union, protecting their own space efforts and insuring that each nation would be responsible for its actions in space and for any damage that might occur to uninvolved third parties.

The Outer Space Treaty is the master document, with the other 4 treaties providing more detail on issues such as the rescue and return of astronauts, liability, a space registry, and the use of the Moon. These treaties also form the basis for many nations’ space laws. However, because these Treaties were written before the more recent developments of private space entrepreneurship, they are not particularly friendly to business interests.

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27 Outer Space Treaty, cit., and the Convention on International Liability for Damage Caused by Space Objects, (1972), art IV, 24 UST 2389, 2393 (1973); Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, (1968), 19 UST 7570 (1969); Convention on Registration of Objects Launched into Outer Space, (1975), 28 UST 695 (1978); and Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. (1979), 1363 UN Treaty Ser 3 (1984). The Moon Treaty has been signed or ratified by only 13 nations and is the most controversial of all of the treaties.
The specific commercial risks that are not clearly delineated in the documents include: possible ambiguities concerning definitions of ownership and potential liability if a space asset creates terrestrial damage; lack of a definition of exactly where space begins and the atmosphere ends; different national laws and interpretations of the law for registering space assets; and restrictions on sovereignty and property rights in space. In addition, the Treaties have no rigorous enforcement mechanism and essentially rely on diplomatic solutions for resolving disputes.

It is highly unlikely that new treaties will be drafted and adopted in the near future. One effort in this direction is the Unidroit Protocol to the Convention on International Interests in Mobile Equipment that focuses on satellite assets. This protocol has been open for ratification since 2001 and has yet to be adopted. The commercial sector will most likely develop solutions to all of these issues through specific contracts, negotiations, and possibly case law as space commerce matures and inevitable disputes arise. The added risk of legal ambiguity has the effect of adding costs to any commercial investment and discouraging potential initiatives.

4. The use of space is still dependent on new technology for cheaper access

As mentioned above, it is expensive to get to space. For over 50 years the basic rocket propulsion technology and system has not changed. Companies involved have lowered the costs and prices somewhat by moving up the learning curve and taking advantage of economies of scale and scope. But, even reducing the cost/kg. to low Earth orbit by as much as half is not sufficient to generate enough extra demand and stimulate new activities. Most estimates suggest that the cost would have to be dramatically lower to make space accessible for many business purposes.

Space access is not the same type of high-technology industry as electronics or computer chips where progress in capacity and speed is very rapid and the price has decreased dramatically. Breakthroughs in propulsion and access to space have not occurred. Until they do, commercial space activities that require frequent launches and return to Earth will remain very limited.

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30 The cost per kilogram to low earth orbit has been in the range of $20,000. Manufacturing improvements have lowered this a bit, but reductions of one or two orders of magnitude have not occurred in spite of over 50 years of R&D and a modest annual growth in the demand for launches. Given the high costs of insurance, security, payload integration, spaceport operations, even reducing the cost of the vehicle itself would probably not lower the total cost of a launching a heavy-lift vehicle enough to generate a large increase in demand. (Smaller launch vehicles capable of taking some science experiments and material to space are less expensive, but large vehicles will be needed to meet the demands of human space travel and major manufacturing/processing facilities in space).
5. Economic uses of space technology on Earth will grow

The unmistakable trend toward private sector ownership and operation of companies specializing in delivering services from space-based activities will continue to expand. Revenues in the U.S. from direct broadcast television and radio and various telecommunications and PNT-related services, as well as other space applications are today larger than all U.S. government expenditures in space. This represents a major shift in the industry and could be a highly significant indicator of the importance of space to the economy. Governments as well as consumers are the purchasers of these services.

6. The rapid growth of space entrepreneurial activity

Spurred by monetary prizes such as the Ansari X-prize, the Google prize, and the NASA Centennial Challenge program, many firms have initiated projects to develop space transportation and space activity. In addition, programs such as the NASA COTS initiative described above along with the promise of government contracts and private customers for space activities ranging from launch services to satellite repairs have also contributed to the private sector’s interest. Assuming that some of these ventures are successful and that the risks of accidents and failure do not dampen the enthusiasm for developing space-based businesses, it is likely that more entrepreneurs will invest in providing space-based applications to customers.

7. The concept of “New Space” is not really new

The space entrepreneurs refer to themselves as “New Space”. In fact, there is nothing new about their business or business plans. They are businessmen trying to make a profit. Either they have to invest their own money or go to the capital markets for it. That means that they must evaluate the rate of return (ROI), the cost of the money, and the alternative uses of the funds before deciding to invest or not to invest.

The only unique feature of the space entrepreneurs is that they are building systems for market sales not solely for government use. The space “tourism” market appears to offer the potential for large sales at high prices – enough potential to warrant private investments. However, these companies did compete for the government’s COTS funds, some of them have DOD contracts for future launch services, and some have separate R&D facilities that specialize in aerospace research. Also, at least as a starting effort, many of these companies are of-
ering future rides only on a sub-orbital trajectory. It can be argued that going to the edge of space but not into orbit is not really a space business, even though much of the technological development is very closely related and could eventually lead to developing true in-orbit space transportation businesses. It is currently too early to predict the success or failure of “New Space”.

8. There are near-term profit opportunities in space business

Several factors need to be present in today’s space environment for a company to make money. First, the good or service must represent a high value return on the investment. This is necessary to overcome the high risks associated with space ventures.

Second, the venture should not require many or frequent launches. Putting assets into space is expensive, risky, and unpredictable with respect to actual launch dates. A business that depends on many launches (and possible return from space) cannot guarantee on-time services. In contrast, a business such as telecommunications that uses satellites with lifetimes in orbit of 10 years or more has a much higher chance of providing reliable service to customers. Historical data indicate that launch vehicles fail to put their payloads into orbit about 4% of the time, a rate that is too high for a business to rely on in the way they do for airplane transportation where catastrophic accidents are extremely rare. Launches are often delayed for either technical or weather conditions. Until space transportation is less expensive and more reliable, most profitable business opportunities will attempt to minimize the number of launches.

Third, leave human beings on Earth. Taking human beings to space will subject a company to a multitude of expensive requirements ranging from double and triple redundancies in operating systems (for safety reasons) to more expensive insurance costs. If a machine or robot can do the job, it will be much less costly and far more predictable. Space adventurism might ultimately prove to be a feasible business opportunity. But, as described above, those seeking to profit from this market have not as yet succeeded. And those planning to enter that business are focusing on suborbital flights that are technically and economically very different from reaching orbit.

Finally, business and profits are made by selling goods and services to customers on Earth. If the special conditions of the space environment are necessary for the product, then use space as little as possible. Terrestrial equipment is repairable, upgradable, and less costly. Taking information and data from satellites, for example, and further processing it in traditional facilities on Earth for sales to customers has proven profitable for many value-added firms in the re-

Many are calling space travel for private citizens “space tourism”. That is an overstatement since space travel will be much more like high-risk adventure vacations such as climbing mountains in the Himalayans or trekking in Antarctica than it is vacation on a resort island or even going on an amusement park ride.
mote sensing industry. Space-based manufacturing in microgravity offers some unique and possibly very valuable results. But, to date, no company has successfully and profitably developed a manufacturing business based in orbit.

Some profit-making opportunities may develop to supply in-space services such as power generation or communications in support of government exploration or even supporting systems aboard the ISS. A partnership arrangement with a government could be one avenue that will open the door for future commercial enterprises actually doing business and making money through in-space activity.
Un mutamento costituente

La breve guerra tra Russia e Georgia dell’agosto 2008, il controverso riconoscimento del Kosovo di pochi mesi prima, la recrudescenza del conflitto in Kashmir, per non parlare dell’immenso conflitto israelo-palestinese, hanno in comune una dimensione tra le più tenaci (ma, paradossalmente, tra le meno riconosciute) nella politica internazionale del ‘ultimo secolo: quella della successione, negoziata a volte ma quasi sempre combattuta, a insiemi unitari preesistenti quali l’Unione Sovietica, appunto, la Federazione jugoslava, l’impero britannico o quello ottomano.

Al livello più superficiale, la frammentazione di questi insiemi ha disseminato e continua a disseminare la politica internazionale contemporanea di conflitti o vere e proprie guerre di successione. Ma, prima ancora di produrre questo esito, il nocciolo vero e proprio dei processi di frammentazione è la trasformazione della convivenza interna in convivenza internazionale. Se l’integrazione è il processo nel corso del quale un centro territoriale si sostituisce a delle comunità periferiche, concentrando su di sé una parte (più o meno grande) delle loro funzioni, nella frammentazione la sostituzione avviene a ruoli invertiti. Il tramonto del’unità politica “libera” contemporaneamente le sue parti e le sue funzioni, ponendo il problema del rapporto tra queste e quelle. Che cosa avviene, alla loro scomparsa, di queste funzioni? Chi può svolgere, per esempio, il ruolo geopolitico affidato dalla storia agli Asburgo, all’impero ottomano, a quello russo e a quelli coloniali? Basta affidarsi al principio di nazionalità come elemento regolatore dei nuovi assetti regionali? Oppure, come dovrebbe essere chiaro, non è sempre possibile applicare questo principio alle nuove regioni?

Il mutamento costituente consiste, prima di tutto, in questo processo di sostituzione. La disgregazione degli spazi accentrati crea, infatti, il sistema internazionale nel senso che dà contemporaneamente origine agli attori e all’ambito delle loro relazioni. A differenza che in Europa occidentale, dove la formazione del sistema interstatale fu un fenomeno di semplificazione territoriale e di progressiva riduzione del numero degli attori, qui il sistema interstatale non nasce da un processo di semplificazione ma, al contrario, dalla rottura e come sostituzione di un ordine. Il percorso verso i sistemi internazionali post-imperiali – e, in generale, verso tutti i sistemi internazionali che sorgono sulle rovine di un sistema centralizzato – è un processo di “differen-
I conflitti costitutivi: chi ha diritto di succedere all’unità venuta meno?

Come nell’evoluzione della politica e delle guerre europee degli ultimi quattrocento anni, tuttavia, anche in questi casi il consolidamento del nuovo sistema internazionale deve passare attraverso tre grandi questioni che corrispondono, a propria volta, a tre tipi di conflitto.

La prima questione, anche in ordine temporale, è quella dei conflitti costitutivi, la cui posta in gioco non è ancora chi avrà più potenza degli altri, ma chi potrà essere riconosciuto come potenza. La frammentazione di una unità politica nelle sue parti, infatti, solleva prima di tutto la questione di quali siano queste parti e di quali abbiano diritto di essere riconosciute come soggetti internazionali. Che la competizione tra di loro venga risolta pacificamente, oppure sfoci in guerre civili costituenti come quelle che si sono combattute all’indomani della guerra fredda, dipende da innumerevoli fattori, di carattere sia interno che internazionale, quali la presenza di un mediatore esterno, il grado di organizzazione del sistema regionale, o la disponibilità a trasformare i confini interni tra le unità amministrative in confini statuali. Ma quello che conta, al di là delle differenze storico-concrete, è che il collasso della vecchia unità pone di per sé un problema di successione, mentre questo problema è l’atto di nascita della nuova convivenza internazionale.

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Questa fase originaria per eccellenza deve essere liberata, tuttavia, da un doppio pregiudizio di coerenza. Il primo, di carattere ideologico, è l’attitudine tipica delle nuove unità a trasfigurare la propria origine in modo da farla apparire come un fatto “naturale”, invece che come il prodotto storico e sempre controverso di comportamenti

1 J.G. RUGGIE, Territoriality and beyond: problematizing modernity in international relations, in «International Organization», 47, 1, 1993, pp. 139-174.

e interpretazioni che tra loro si sono combattuti, combinati o elisi. Al contrario, il nocciole vero e proprio della fase costitutiva è il suo carattere creativo e, almeno in parte, indeterminato. Se l’integrazione può essere raffigurata come il passaggio dalle comunità primordiali al nuovo centro territoriale, la prima non inverte semplicemente il percorso, ma lo scompagina. Sebbene ampi raffigurarsi come una “rinascita”, la ricostruzione del limite (nel senso politico-territoriale del limes, ma anche in quello psicologico-politico del “noi”) non rimanda a un generico “prima” dell’unificazione, interrompendosi lì dove questo aveva il suo radicamento spaziale, bensì varia a seconda dei riferimenti linguistici, religiosi o culturali in base ai quali gruppi e individui scelgono di definire la propria identità. Le unità che succedono a quella venuta meno non sono le uniche che avrebbero potuto succederle né, a maggior ragione, sono necessariamente quelle che c’erano prima di essa.

La seconda caratteristica dei conflitti costitutivi, ancora più distante dall’immagine di coerenza che i vincitori si affrettano a imporre loro, è l’aggrovigliarsi – tante volte osservato in quel fenomeno per molti versi gemello che è la guerra civile – di finalità e moti venti plurimi, che penetrano nel solco percorso dalla corrente principale e tendono a spezzarne gli argini. Invece di presentarsi isolata, la lotta di liberazione contro la vecchia unità si rivela quasi sempre il contenitore di una pluralità di conflitti e, quel che più conta, di una pluralità di attori in conflitto, i quali spesso non concordano neppure su quale sia quello principale.

Contrariamente alla loro immagine superficiale, i conflitti costitutivi si giocano su almeno tre diversi fronti. Il primo, e il più evidente, è quello – che potremmo definire, accettando la sua stessa definizione, di indipendenza – che oppone chi rivendica l’uscita dall’unità politica e chi ha interesse a tenerla in piedi. La ripoliticizzazione di istanze che le vecchie unità si erano sforzate di spoliticizzare o di sopprimere ha l’effetto di introdurre definizioni del sé e dell’altro alternative a quelle dettate dalla cittadinanza (o dalla comune sudditanza a un sovrano), le quali entrano immediatamente in conflitto con la sua definizione. Il nocciole della questione è quella che potremmo definire una competizione sullo spazio, o meglio sulla frattura che definisce lo spazio: quella dello stato divide cittadini e stranieri mentre passa sopra a tutte le altre fratture, da qualunque parte si trovino; quella delle nuove istanze etniche, nazionali o religiose è centrata invece proprio su queste fratture – per esempio quella che divide un’etnia dalle altre – e “passa sopra” a quella dello stato.

Il secondo fronte, che a differenza del primo non ha una traccia definita, è quello che oppone le unità possibili tra loro. Per la stessa ragione per la quale non è un percorso obbligato, la riscoperta delle unità è una competizione tra diversi percorsi. In questa fa-

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1 G. RANZATO, Un evento antico e un nuovo oggetto di riflessione, in G. RANZATO (a cura di), Guerre fratricide. Le guerre civili in età contemporanea, Torino 1994, pp. XXXIX ss.
se costitutiva, chi si impossessa di un confine (nazionale, etnico, religioso) non si contrappone soltanto a chi prende posizione sull’altro versante, ma anche a tutti coloro che rivendicano un confine diverso. Enfatizzare la comunanza linguistica o etnica può significare, per esempio, mettere tra parentesi le differenze culturali o religiose, così come enfatizzare le seconde può significare mettere tra parentesi le prime. Quali che siano gli esiti, *state and nation-building* sono processi doppia mente selettivi, perché richiedono che certe somiglianze siano considerate politicamente rilevanti e altre no, e perché, in questo modo, impongono questa selezione a chi avrebbe preferito selezionare elementi diversi.

Prendiamo la parabola storica esemplare della Jugoslavia. Il principio di nazionalità in base al quale, all’indomani della prima guerra mondiale, fu costituito il nuovo stato adottò paradossalmente la nozione tedesca di nazionalità, fondata sulla comunanza (o almeno sulla somiglianza) delle lingue slave meridionali, mentre scelse di trascurare tanto le differenze religiose quanto, infine, quelle sociali derivanti in buona parte dalle prime. La ripoliticizzazione di queste fratture co stituiti sin dal principio la principale minaccia contro l’unità dello stato. Se, infatti, persino nei giorni della disfatta asburgica non mancavano i croati favorevoli all’indipendenza della Croazia ma contrari all’unione con i serbi, mentre i musulmani della Bosnia-Erzegovina restavano in larga parte pro-Asburgo⁴, nei decenni successivi gli abitanti dei Balcani politizzarono ora una ora l’altra di queste fratture. L’ideale della comunanza tra gli slavi del sud si incrinò presto, tra le due guerre, sotto l’effetto congiunto dell’egemonismo serbo e dell’autonomismo croato; si infranse, in coincidenza con l’occupazione tedesca, nella prima dissoluzione della Jugoslavia; si affermò nuovamente, anche grazie al *mytonotheur* della guerra di liberazione “nazionale”, nel secondo dopoguerra, fino ad infrangersi definitivamente con la seconda dissoluzione degli anni Novanta, che ha ripoliticizzato ciò che la Jugoslavia si era sforzata di spoliticizzare e ha spoliticizzato ciò che la Jugoslavia aveva politizzato.

L’ultimo fronte, e il più nascosto, dei conflitti costitutivi è quello che si installa non già tra un gruppo e l’altro, ma all’interno di ciascuno di essi⁵. Le mino ranze nazionali, infatti, non sono entità date una volta per tutte e, come tali, unitarie, bensì sono il luogo di incontro di posizioni e obiettivi diversi e competitivi adottati da diverse organizzazioni, partiti, movimenti ed élite, ciascuno dei quali cerca di rappresentare il gruppo e di monopolizzare la sua rappresentanza. La competizione tra di loro non ri-

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guarda soltanto che cosa rivendicare come minoranze ma, prima di tutto, se perceparsi e rappresentarsi come tali. Divisioni di questa natura sono rinvenibili in tutti i fenomeni di mobilitazione etnica e nazionale del secolo scorso. Il nazionalismo arabo dell’anteguerra, per esempio, restò diviso tra una corrente che insisteva sull’aspetto etnico della nazionalità e che puntava alla disgregazione dell’impero ottomano, e una corrente che, identificando rinascita araba con rinascita musulmana, considerava l’affrancamento dalla dominazione ottomana in un certo senso secondario rispetto al dovere di bloccare la minaccia occidentale. Analogamente, la mobilitazione dei cechi e degli slovacchi non si indirizzò univocamente verso la creazione di uno stato comune, perché non mancava chi si opponeva al separatismo da Vienna e, soprattutto, chi si opponeva all’unione dei due popoli. Un esempio recente e gravido di conseguenze è offerto dai russi che vivono in Ucraina. Una parte di essi si percepisce come di origine e di lingua russa, ma comunque parte di una “nazione” ucraina intesa in senso civico-territoriale. Un’altra parte, invece, deriva dalla diversità etnica e linguistica una diversità nazionale, e tende a percepirsi pertanto come minoranza estranea.

I conflitti configurativi: come dividere i beni comuni?

Il secondo stadio del region-building è quello dei conflitti configurativi, cioè dei conflitti sulla spartizione delle spoglie del sistema unitario. Una volta che sono costituiti i nuovi attori, infatti, il conflitto si sposta su come ripartire tra loro i beni che, in precedenza, dovevano essere goduti in comune.

Questi beni, a propria volta, seguono sorti molto diverse tra loro a seconda della loro natura e del loro valore. Alcuni, come i crediti, i debiti e le riserve valutarie della vecchia unità politica, essendo beni immateriali sono facilmente divisibili, tanto da poter essere «trattati come in una ristrutturazione aziendale».

Altri, come gli impianti industriali, le centrali elettriche o le materie prime, rimangono per così dire impiantati al territorio, e tendono quasi sempre a seguirne le sorti. Alcuni conservano inalterato il proprio valore, come le risorse economiche e quelle militari sulla cui ripartizione sorgono, non a caso, i primi conflitti tra gli attori: basti pensare ai delicati negoziati dei primi anni Novanta sul futuro delle armi strategiche sovietiche, al contenzioso tra Russia e Ucraina sulla flotta del Mar Nero, o alla questione ancora irrisolta della presenza delle truppe russe sul territorio (o addirittura sui confini) delle nuove repubbliche, come la Georgia e la Moldova. Altri beni, come quella risorsa immateriale per eccellenza che è il prestigio, possono venire meno insieme all’unità, come avvenne per il titolo imperiale asburgico e per quello ottomano, oppure trasferirsi più o meno ridimensionati a uno degli stati successori, come è avvenuto con il passaggio...
delle consegne dall’Unione Sovietica alla Federazione russa (sia dal punto di vista politico-diplomatico, sia nelle organizzazioni internazionali, a cominciare dal Consiglio di Sicurezza delle Nazioni Unite).

Il nucleo vero e proprio dei conflitti configurativi riguarda, tuttavia, la realtà materiale sulla quale si esercita il controllo degli attori: lo spazio e la sua interazione con la popolazione (la congruenza dei quali è, appunto, il più tipico prodotto del discorso dello stato). Il collsso di una unità politica, e la nascita al suo posto di altre unità di natura e dimensioni diverse tra loro, comporta una vera e propria catastrofe spaziale: alcuni spazi che erano divisivi dal vecchio confine si ritrovano uniti mentre altri, che erano uniti, si ritrovano divisi; alcuni, che erano centrali, diventano periferici, mentre altri che erano periferici diventano centrali; alcuni, infine, che avevano una forma fisicamente perderla, mentre altri che non la avevano la acquisirono.

Il collasso di una unità politica, e la nascita al suo posto di altre unità di natura e dimensioni diverse tra loro, comporta una vera e propria catastrofe spaziale

La riorganizzazione e la redistribuzione dello spazio coinvolgono tutte le dimensioni della geografia politica, anzi mettono a nudo una dietro l’altra le sue stratificazioni. La prima, e la più profonda, riguarda quelli che potremo definire i principi organizzativi dello spazio: non i limiti tra una appropriazione e l’altra, ma la natura di questa appropriazione. Se è vero, infatti, che qualunque potere politico ha la propria estensione spaziale, non è detto che questa debba assumere la forma dello stato moderno fondato su «una superficie territoriale conchiusa, delimitata verso l’esterno da confini precisi e capace di regolare in modo specifico i rapporti esterni con altri ordinamenti territoriali similmente organizzati»10. Anzi, come è noto, da un punto di vista storico l’idea moderna di territorialità è l’ecccezione, piuttosto che la norma11, mentre nella maggior parte dei casi la politicizzazione dello spazio ha seguito altre strade, estranee alle demarcazioni nette tra territori “pubblici” e domini “privati” e tra sfera “interna” e sfera “esterna”12.

Mentre l’ordine territoriale al quale siamo abituati è uno spazio parcellizzato, contrassegnato dall’alternanza tra cesure (confini) e spazi omogenei (territori), situazioni di sovranità multipla13 come quelle che si sono ripresentate negli ultimi quindici anni nel corso dei processi disgregativi della ex Jugoslavia o della ex Unione Sovietica appaiono come un continuum – e, nella rappresentazione cartografica, come una geografia caotica, a macchie di leopardo. Il problema posto dai processi di disgregazione è quello costitutivo di qualunque ordinamento spaziale: come può essere diviso, e seguendo quali principi, uno spazio che è stato

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11 J.G. RUGGIE, Territoriality and beyond: problematizing modernity in international relations, cit.
(più o meno a lungo) unito? Come è possibile conciliare la realtà dei nuovi soggetti internazionali con i legami (politic, economici e demografici) del passato? È concepibile qualche attenuazione del principio di sovranità che tenga conto dell’esistenza delle enclave nazionali, etniche o religiose, o addirittura sottraggia queste enclave all’ordine territoriale stato-centrico?


I conflitti configurativi sono i conflitti nel corso dei quali le nuove unità sorte dalla disgregazione conquistano la propria forma o, più concretamente, il proprio territorio. Che essi proliferino all’indomani del collasso dei grandi spazi organizzati è uno degli elementi di continuità più macroscopici del dopoguerra fredda, ma anche una delle esperienze meno discutibili della storia del Novecento: dalle guerre balcaniche seguite al rilusso dell’impero ottomano alla guerra greco-turca dell’immediato primo dopoguerra, dalla congerie di controversie territoriali nell’Europa centrale post-asburgica e post-zaarista (tra Polonia e Russia, Polonia e Lituania, Polonia e Ucraina, Polonia e Cecoslovacchia) al revisionismo tedesco, russo e ungherese, dal sistema dei mandati imposto ai territori dell’ex impero ottomano alla lunga scia dei conflitti armati seguiti alla decolonizzazione.

Proprio l’impressionante ripetitività di questi conflitti consente di mettere in luce le due caratteristiche più rilevanti. La prima è l’effetto di diffusione che li lega, o attraverso l’intervento di una terza parte a fianco di una delle due originarie (conflit expansion), o attraverso l’innesco di un nuovo conflitto più o meno collegato al primo (conflit generation)15. L’altra caratteristica, contigua ma non equivalente all’altra, è l’altissimo grado di persistenza, che ha consentito a molti di essi di riemergere nell’ultimo quindiciennio dopo il periodo di latenza dell’epoca bipolar.

I conflitti ordinativi: con quale ordine internazionale sostituire l’ordine interno venuto meno?

L’ultima fase del mutamento costitutente è quella dei conflitti ordinativi, che sono quelli che si giocano sulle caratteristiche più familiari della politica internazionale: la gerarchia di potenza e di prestigio, la politica delle alleanze,
le regole (pattuite o imposte) della convivenza.

Oltre che un problema di successione e uno di organizzazione dello spazio, la disgregazione dei sistemi accentrati pone un elementare problema di ordine. Qualunque fosse il suo contenuto, infatti, l’unità venuta meno ne garantiva uno e si legittimava almeno in parte per il fatto di garantirlo: al proprio interno, istituendo un sistema di attese per i cittadini e coordinando istituzionalmente gruppi, regioni o etnie diverse; all’esterno, mediando geopoliticamente la forza di altri attori, come la Federazione jugoslava negli anni della guerra fredda, o svolgendo un ruolo frenante o di riequilibrio, come l’impero asburgico e quello ottomano nei confronti della Russia zarista, oppure addirittura dettando l’ordine di una intera regione, come l’Unione Sovietica nei riguardi di quella che, dal suo punto di vista, era l’Europa orientale.

La disgregazione dei sistemi accentrati pone un elementare problema di ordine

L’implosione di questo complesso organizzato apre un processo di revisione, non solo delle identità e della configurazione degli stati vecchi e nuovi, ma anche degli insiemi regionali nel loro complesso. Diffusione di potenza e diffusione dello spazio procedono fianco a fianco, anzi si alimentano reciprocamente. Da un lato, la minore capacità del sistema sub-regionale, regionale o di quello internazionale nel suo complesso di “polarizzare” attorno ai maggiori attori la “potenza” complessiva del sistema comporta la moltiplicazione delle spinte centrifughe sia da parte degli stati medi e piccoli, sia da parte di attori non-statuali come i gruppi etnici e micro-nazionali. Dal l’altra parte, questa de-concentrazione della potenza si traduce nella politicizzazione di una pluralità di spazi che, nell’ordine venuto meno, giacevano sepolti sotto il controllo o l’egemonia di qualcuno. Basti pensare, per limitarci agli aspetti più superficiali, alla moltiplicazione delle frontiere, alla creazione o allo spostamento delle capitali, al riaffiorare del conflitto tra gli spazi della cittadinanza e quelli dell’appartenenza etnica.

Quello che si instaura tra ordine e disordine è un vero e proprio legame esistenziale. È proprio perché le relazioni tra le parti erano strettamente organizzate all’interno dell’unità che esse non lo sono per niente una volta che questa si dissolve. Il “vuoto di sicurezza” patito dagli attori di nuova formazione – come i paesi dell’Europa centro-orientale tra le due guerre mondiali e il Caucaso e l’Asia centrale oggi – è solo l’altra faccia del fatto che, nella condizione precedente, un problema di sicurezza non si poneva neppure. Tutto – sicurezza, regole, principi – presupponeva l’esistenza del centro monopolizzatore; e tutto, pertanto, viene spazzato via dalla sua scomparsa. Dal momento in cui non può più essere coordinata e/o negoziata fra il vec-
Dai Balcani al Caucaso. Le guerre di successione e i nuovi sistemi regionali

Il nuovo ordine può essere qualcosa di meno dell’ordine iniziale, ma molto di più di ciò che si sperimenta nella fase della disgregazione.

Quello che importa, e il nocciolo vero e proprio dei conflitti ordinativi, è che alla fine di questo processo di realignment, o di ricomposizione, il vecchio spazio organizzato riacquista fi-

chio centro e le nuove unità, l’irradiazione di spazio e potenza dal centro verso la periferia diviene il risultato di un caotico arrembaggio degli attori medi e minori al patrimonio di potenza del leader, al quale si possono aggiungere attori esterni miranti a colmare il “vuoto di potenza” o costretti a intervenire per arginare la destabilizzazione di questa o quella area regionale"). Il disordine si rivela, in termini quasi letterali, una infrazione dell’ordine: e non di un ordine inteso, astrattamente, come un ideale meta-storico, ma di un determinato ordine storico di cui restituisce, come in un negativo, l’immagine capovolta.

Lo stesso legame esistenziale lo si ritrova, d’altra parte, tra disordine e nuovo ordine. I fattori (nazionali, etnici, religiosi) che muovono la deconcentrazione dello spazio e della potenza, infatti, sono gli stessi che muovono la loro riaggregazione. Nulla sfugge a questo apparente paradosso; né la ri-politicizzazione delle etnie, né quella delle “piccole patrie”, né quella di segno opposto delle grandi sintesi culturali o religiose. Le stesse cose che dividono qualcosa ne uniscono qualcun’altra, mentre l’accento cade sull’unione o sulla divisione solo a seconda dell’istanza (impero, stato, nazione, etnia) che si adotta (quasi sempre polemicamente) come unità di misura.

I processi di diversificazione seguono un caratteristico andamento ciclico. Sebbene la formazione del nuovo sistema internazionale prenda avvio da una fase di deconcentrazione dello spazio e della potenza, da questa fase esso tende a “risalire” a forme molteplici di riaggregazione. I conflitti ordinativi sono quelli che oppongono le diverse ipotesi di “nuovo ordine”. Se, infatti, l’obiettivo di ridare forma alla convivenza accomunata tutta gli attori, esso non è concepito secondo un’idea irenica e impolitica dell’ordine, ma secondo principi, norme e regole tra loro alternativi. Una volta esaurita la fase discendente del ciclo di concentrazione/diffusione, la posta in gioco non è più l’alternativa astratta tra “ordine internazionale” e instabilità – anche se è nella natura della competizione che tutti i pretendenti si sforzano di fare credere che il loro sia l’unico ordine possibile – ma è il tipo di ordine che prenderà il posto di quello che si è sgretolato. Alcuni attori possono aspirare a imporre una “propria” pace (egemonica), utilizzando la propria superiorità politica, militare e/o economica; altri possono legarsi tra loro, o cercare un contrappeso esterno, con l’obiettivo di prevenire il disegno dei primi; altri ancora, o tutti gli attori insieme, possono perseguire un progetto di sicurezza collettiva.

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Ibiden, p. 17.

nalmente la propria forma. Essa può coincidere con la chiusura perfetta del ciclo di ordine, crisi e nuovo ordine, che è quanto avviene quando un attore (che può anche essere lo stesso di prima) riesce a riunificare ciò che la frammentazione aveva diviso. Oppure, più frequentemente, il nuovo ordine può essere qualcosa di meno dell’ordine iniziale, ma molto di più di ciò che si sperimenta nella fase della disgregazione: un sistema di limiti, dettato da una egemonia più o meno rispettosa delle sovranità altrui, o da un equilibrio più o meno istituzionalizzato tra le parti, o da qualche organizzazione collettiva più o meno inclusiva e più o meno egualitaria.

Le illusioni dell’autonomia: le eredità dell’ordine precedente e il ruolo degli attori esterni

Rimane, tuttavia, un ultimo e duplice paradosso. Sebbene, come è normale che sia in una fase di costruzione o ricostruzione dell’identità politica, i vincitori dei conflitti e delle guerre di successione aminono accreditarsi come frutto di una rivincita dei legami naturali o storici su quelli artificiali degli stati o degli imperi preesistenti, la configurazione del nuovo spazio politico dipende quasi sempre da due elementi esogeni (e, in termini di legittimità, ciononostante problematici).

Da un lato, sebbene aspiri a sostituire la vecchia unità, la riorganizzazione muove proprio dall’organizzazione precedente e dalle sue ripartizioni. Se è vero, come osserva Tzvetan Todorov, che «il rapporto di ogni conquistatore con il suo predecessore è di continuità implicita, e talvolta inco-sciente, a cui si accompagna la negazione del rapporto stesso»¹⁹, la stessa ambiguità si ripresenta al momento del disfacimento della conquista. Questo paradossale delle unità inventate dal vecchio centro territoriale, ma sopravvissute alla sua scomparsa, è uno dei grandi elementi di continuità della storia del Novecento. Basti pensare, per cominciare dal caso più evidente, alla trasformazione in stati delle unità amministrative degli imperi coloniali africani²⁰; oppure alle eredità territoriali dei mandati britannico e francese in Medio Oriente, dall’allargamento del Libano alla fissazione dei confini tra Siria e Turchia e tra Turchia e Iraq, alla nascita stessa dello stato di Israele.

Lo stesso rapporto ambivalente tra rinascita e invenzione è rintracciabile nella disgregazione dell’Unione Sovietica e della Jugoslavia. Anche se le nuove unità non hanno niente a che sparare con quelle inventate all’epoca della decolonizzazione, la loro formazione non è del tutto estranea alla politica delle nazionalità dei due complessi venuti meno, che avevano fissato e cristallizzato le nazioni etno-culturali e le avevano ancorate a un “proprio” territorio²¹. Il caso della disgregazione jugoslava è, anche sotto questo profilo, esemplare. Tra le parti che sono succedute all’unità venuta meno, infatti, alcune rimandano a identità e fratture di...
lungo periodo – a cominciare da quelle, tipiche dell’Europa orientale, tra musulmani e cristiani, cattolici e ortodossi, città e campagne22. Ma altre, o addirittura le stesse, si richiamano a identità più recenti, come gli stessi musulmani bosniaci trasformati in “nazione” solo a partire dagli anni Sessanta, e proprio per rinforzare l’equilibrio “jugoslavo” tra Serbia e Croazia; o la controversa “nazione macedone” inventata venti anni prima per porre fine alla competizione tra Serbia, Bulgaria e Grecia23.

La questione è resa ancora più complicata dal fatto che molte delle nuove frontiere sono il risultato delle politiche di redistribuzione del territorio operate dai vecchi centri territoriali. A essere emblematico, questa volta, è il caso dell’Unione Sovietica. Dal 1921 al 1991, la politica di “divide et impera” attuata da Mosca ha fatto sì che i confini interni fossero ritoccati ben novanta volte. Basti pensare, per restare ai casi più scottanti degli ultimi mesi, alla divisione dell’Ossezia in due regioni autonome appartenenti l’una alla Federazione russa e l’altra alla Georgia; al trasferimento alla Repubblica di Moldova dei territori originariamente ucraini al di là del Dnestr; e, soprattutto, alla concessione della Crimea all’Ucraina in epoca krusceviana. Ereditando questi confini, le nuove repubbliche ereditano paradossalmente il disegno territoriale dell’impero. La riorganizzazione dello spazio non cambia la maglia territoriale precedente, ma la strappa alla sua trama. Dall’altro lato, i conflitti di successione e la riorganizzazione dello spazio che ne deriva presentano una spesso decisiva dimensione esterna. Sebbene amino raffigurare la propria “rinascita” come un fenomeno autonomo, le nuove unità sono coinvolte ancora prima di nascere in un complesso gioco politico-diplomatico, che affonda le proprie radici in uno degli elementi fondamentali del sistema internazionale moderno: il carattere collettivo e reciproco del riconoscimento tra gli stati.

Dal 1921 al 1991, la politica di “divide et impera” attuata da Mosca ha fatto sì che i confini interni fossero ritoccati ben novanta volte

Nella maggior parte dei casi, questo riconoscimento esterno si limita a sanzionare l’esistenza dei nuovi attori, ponendo un argine tanto alle velleità del vecchio “centro territoriale” quanto alle spinte verso un’ulteriore frammentazione. Ma non mancano casi nei quali i conflitti per il riconoscimento arrivano addirittura a precedere i conflitti per l’esistenza. Un esempio di questo capovolgimento è la convulsa attività diplomatica che si svolse, negli anni della prima guerra mondiale, tra le “minoranze nazionali” in lotta per lo stato e le potenze occidentali. Anche senza arrivare a scrivere, come fa François Fejto24, che «le tendenze centrifughe, autonomiste e separatiste non avrebbero potuto sfociare in una disgregazione dall’interno [dell’impero

24 F. FEJTO, Requiem per un Impero defunto, cit., p. 9.
asburgico] se lo smembramento della monarchia non fosse stato deciso dal-
lesterno, se le forze separatiste (che nulla prova fossero unite, né ch’esse rappresentassero la maggioranza della populazione) non fossero state soste-
nute, incoraggiate, dai “décideurs” del-
l’Intesa», è certo che le cancellerie occi-
dentali divennero il crocevia di tutti 
coloro che aspiravano a vedere ricono-
esciuta “in anticipo” la propria indipen-
denza: dai “cecoslovacchi” Masaryk e 
Benes allo slovacco Stefanik al presi-
dente del Consiglio serbo Pasic. La 
stessa cosa avvenne, negli stessi mesi, 
per l’epilogo della “questione orienta-
tele”. Con l’aggravante che, in questo ca-
so, l’arrembaggio all’eredità ottomana 
da parte delle potenze europee (Grecia 
e Italia comprese), dei nazionalisti ar-
bi, dell’Organizzazione sionista, dei 
circoli armeni e curdi – ciascuno dei 
quelli strappò agli anglo-francesi una 
promessa diversa – fece addirittura sì 
così fossero riconosciute più unità di 
quante ne potessero esistere.

L’intervento delle potenze “externe” 
può perseguire obiettivi diversissimi 
tra loro. Il “terzo interessato” può pun-
tare, per esempio, al semplice protrarsi 
della frammentazione (quale terzium 
gaudens), come avviene ogni volta che 
vengono sostenuti i gruppi autonomi-
isti o secessionisti che operano all’inter-
no delle nuove unità; o al ristabilimen-
to di una situazione di normalità, 
quando il timore di contagio o di com-
plikazioni di carattere internazionale 
prevale su ogni altra considerazione, 
come sembrava essere il caso della po-
sificita occidentale nei confronti delle re-
pubbliche ex-sovietiche e, tra esse, del-
la Federazione russa nel corso degli an-
ni Novanta; oppure, le potenze esterne 
potrebbero puntare all’emergere di un 
nuovo polo di aggregazione o alla rac-
colta di futuri alleati, come sembra av-
venire da qualche anno a questa parte 
con il deciso inserimento degli Stati 
Uniti e della Nato nei Balcani e nell’ar-
rea ex-sovietica.

Anche i modi dell’intervento varia-
nano notevolmente da un caso all’altro. 
Essi possono andare dal semplice soste-
gno politico o economico che lo stato 
terzo concede all’attore o agli attori 
prescelti, siano essi gruppi secessionisti, 
stiti successori alleati, o restauratori 
della normalità; all’appoggio militare 
più o meno esplicito alle parti coinvol-
te in una crisi o in un conflitto militare 
aperto; fino all’intervento diretto che 
renderebbe la violazione più evidente 
della separazione del passato, e la di-
mostrazione conclusiva che la politica 
internazionale ha rifatto irruzione nel-
lo spazio che prima era dominio della 
politica interna. Basti pensare all’interv-
vento delle potenze occidentali e, più 
tardi, della Polonia, nella Russia rivolu-
zionaria tra il 1919 e il 1921; a quello 
pressoché contemporaneo in Anatolia, 
è nel luogo d’elezione del vecchio 
impero ottomano; oppure, più recente-
mente, a quello della Nato nella ex Ju-
goslavia il quale, per quanto radical-
mente diverso dagli altri, sanzionata co-
me questi la fine dell’hortus clausus e la 
“estensione” del sistema internazionale 
oltre il recinto dal quale era escluso.
Quali che siano gli obiettivi e gli strumenti dell’intervento, tuttavia, grazie a esso il terzo entra a far parte del nuovo sistema regionale, persino quando continua a rappresentarsi (e a essere rappresentato) come “terzo” – cioè interessato ma estraneo al nuovo spazio. È qui che il conflitto o la guerra di successione acquisiscono definitivamente i caratteri della competizione internazionale. Ed è qui, non a caso, che si sta giocando anche la competizione più recente: quella tra il tentativo della Russia di difendere quello che resta del proprio “estero vicino”, e quello degli Stati Uniti di portare in fondo la revisione degli equilibri strategici e geopolitici del dopoguerra fredda.
The Chechen Conflict at 18: Historical and International Perspectives

Matthew Evangelista

It has been eighteen years since the Supreme Soviet of the Chechen-Ingush Republic issued its “declaration of state sovereignty of the republic” in November 1990. Eighteen years. The lifetime of a first-year student at a Chechen university – to the extent that such institutions still function. Eighteen years. The typical age of a conscript in the Russian army, sent to participate in the “counterterror operation”. What we may prefer to call the second Chechen war is still not completely over – and many aspects of the conflict have spread to other regions of the North Caucasus. Nevertheless, eighteen years gives us enough distance to try to put the conflict initiated by this declaration of sovereignty into some historical perspective, and especially to consider its broader international context.

In the late autumn of 1990, the Soviet Union had barely a year left to exist – but nobody knew that. We think of that time as the period of conservative reaction to the reforms of Mikhail Gorbachev – historians might want to call it the Thermidor – and it culminated in the failed coup attempt of August 1991. That event, in turn, prompted Russian President Boris Yeltsin to join with his Ukrainian and Belarusian counterparts to withdraw their republics from the Soviet Union, triggering its disintegration by the end of the year.

That is the briefest summary of the domestic context in the period that coincided with the rise of the Chechen national movement, leading up to the Russian invasion of November-December 1994. What was the international context? It was no less dramatic. Gorbachev’s reforms, in international policy as well as domestic, represented a sharp break from the past, even though the leaders of some countries – the United States in particular – took a long time to recognize that. Italy was in some respects better prepared to take seriously Gorbachev’s reforms. Before becoming general secretary of the Communist Party of the Soviet Union in March 1985, Gorbachev had traveled to Italy on several occasions (including for the funeral of Enrico Berlinguer) and met with prominent leaders of the Italian Communist Party. He and his wife Raisa even spent time in the country as tourists – something only the most privileged of Soviet citizens were allowed to do. The policies of glasnost’ and perestroika, when exported to the states of the “fraternal alliance” in Eastern Europe led to the overthrow of communist regimes there, mainly through peaceful means. And the “new thinking” in foreign policy meant that Soviet mili-

1 This article is an expanded version of a presentation given in Russian at a conference on The End of the Cold War and Ethnic Conflict, Platigorsk, Russia, July 2008.


tary power would no longer prevent “freedom of (political) choice” in the former Soviet sphere. The fall of the Berlin wall in November 1989 symbolized the end of the division of Europe and the possible end of communism, even in the Soviet Union.

But not all of the changes were peaceful. Within the Soviet Union, popular movements for independence or sovereignty led to violent episodes – in the Nagorno-Karabakh (the Armenian enclave of Azerbaijan) in 1988, in Tbilisi, Georgia in 1989, and in Latvia and Lithuania in 1991. Outside the Soviet Union, in the Balkans, the situation was much worse. In June 1991, the Yugoslav republics of Croatia, Slovenia, and Macedonia declared independence, setting off years of violent conflict in which tens of thousands of innocent civilians died.

What was the reaction of the “international community” to these events and how did it affect the international response to the conflict in Chechnya? It is important to recognize that the international reaction was not a unified one. Even the “West” – the countries of the NATO alliance, for example – disagreed among themselves. In the Yugoslav crisis, for example, Germany and Italy were quick to recognize the independence of Croatia and Slovenia. Other European countries and the United States thought such precipitate action unwise in the absence of commitments by the new states to protect groups that would now become ethnic minorities. The Federal Republic of Germany (West Germany) took the initiative to absorb the German Democratic Republic (East Germany) at a time when France, for example, was strongly opposed, and the United States was ambivalent.

If the process of Soviet disintegration culminated in Russia’s defection from the Union, it began in the Baltic region. Estonia had declared its sovereignty in November 1988, to be followed by Lithuania in May 1989 and Latvia in July. The Baltic republics, and in particular Estonia, are important to our story for two reasons. First, part of the inspiration for the Chechen independence movement came from their example. Dzhokhar Dudaev, the leader of the movement and Chechnya’s first president, served in Estonia as a general in the Soviet air force and commander of the strategic air base at Tartu. Dudaev, who was killed in 1996, is still widely admired in Estonia for his refusal to use his troops to suppress protests in favor of Estonian independence. The protest movements in turn inspired Dudaev to support similar independence efforts in Chechnya.

The second reason the Baltic republics are important to our story is that they represent the limit of U.S. tolerance for the nationalist movements that threatened to break up the Soviet Union.

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1 M. Evangelista, Unarmed Forces: The Transnational Movement to End the Cold War, Ithaca 1999.
Union. This may seem surprising, given popular notions, especially in today’s Russia, to the effect that the disintegration of the Soviet Union was a long-standing CIA plot. In fact, the U.S. government was led during the late 1980s and early 1990s by George Herbert Walker Bush (the first President Bush) – himself a former director of Central Intelligence. Yet Bush and his advisers did not anticipate or welcome the Soviet collapse. They were primarily concerned about stability in the region and resisted movements that could lead to a violent disintegration of the federal system that Gorbachev was trying to reform. In an important respect, the Baltic states of Latvia, Lithuania, and Estonia were exceptional. The United States had never recognized their incorporation into the Soviet Union during World War II and therefore could hardly oppose their bids for independence. Even here, however, the U.S. administration encouraged the Baltic leaders to proceed cautiously so as not to provoke a violent response.

President Bush articulated this view on independence most clearly in a speech he gave in Kiev, the Ukrainian capital, in August 1991, just weeks before the coup attempt in Moscow. The speech was widely understood as a gesture of support for Gorbachev’s central government in the face of nationalist challenges from the constituent Soviet republics such as Ukraine. Bush had this to say: «Freedom is not the same as independence. Americans will not support those who seek independence in order to replace a far-off tyranny with a local despotism. They will not aid those who promote a suicidal nationalism based upon ethnic hatreds».

Critics in the United States dubbed this the “Chicken Kiev” speech. In English to be called a “chicken” is an accusation of excessive timidity or fear. And, indeed, Bush and his advisers (Condoleezza Rice – an adviser to both Presidents Bush – is credited with writing the speech) were genuinely afraid of instability in the Soviet Union that independence movements might provoke.

That provides some context for understanding the U.S. reaction to the Russian invasion of Chechnya in late 1994. In analyzing that reaction, I limit most of my attention to the first year of the war and I will not say much about the Putin era. My point is that we do not need the events of 11 September 2001 and the “global war on terror” to explain the restrained reaction of the United States to the humanitarian catastrophe in Chechnya that resulted from the Russian invasion. To summarize my argument in its simplest form, one can understand the U.S. reaction to the war in Chechnya by considering the values that the U.S. government favored at the time, and which ones it preferred when those values came into competition with each other. President Bush already told us in August 1991, for example, that the United States valued stability over freedom and independence.


† For consideration of these factors, see M. EVANGELISTA, Il caso Cecenia, Putin e la guerra al terrorismo, in «Vita e Pensiero», 4, 2004.
Even though a new administration had come into office under President William (“Bill”) Clinton in January 1993, U.S. policy’s emphasis on stability remained consistent. The break-up of the Soviet Union only reinforced the system of values that Clinton inherited from Bush. In the wake of the Soviet collapse, each of its fifteen constituent republics had become an independent state. Several of them, such as Georgia, Armenia, and Moldova, faced their own secessionist crises. So did the Russian Federation – the formal name of the largest and most populous of the Soviet successor states. Stretching across eleven time-zones, from Kaliningrad (the former Koenigsberg) in the West to Vladivostok in the East, Russia contained some hundred different ethnic groups or “nationalities”, as they were known in Soviet parlance, speaking as many languages. Administratively Russia was divided into 89 sub"ekty ("subjects"). These ranged in size from the two cities of Moscow and St. Petersburg to the enormous territory of the resource-rich Republic of Sakha (Iakutia) – at 3,103,200 square kilometers, about the size of the entire continent of Europe west of Russia. Twenty-one of these political units, including Chechnya, are designated “national republics” because they are considered the homeland of a major nationality. During the late 1980s several of these republics, such as Tatarstan and Bashkortostan, as well as Chechnya, sought greater independence from Moscow. Both Chechnya and Tatarstan refused to sign the Federative Treaty that formed the basis for relations between the central government of post-Soviet Russia and the regions, and Bashkortostan only did so after appending a separate bilateral agreement. In all of the cases except Chechnya, the poorest of Russia’s 89 regions, the Moscow authorities pursued a compromise solution that kept the republics from seceding. In all of the cases except Chechnya, the poorest of Russia’s 89 regions, the Moscow authorities pursued a compromise solution that kept the republics from seceding. In the Chechen case, Boris Yeltsin chose war, supposedly for fear that Chechen independence would provoke a rash of other secessions. As he put it in one of several volumes of ghost-written memoirs, «We cannot stand idly by while a piece of Russia breaks off, because that would be the beginning of the collapse of the country»8. In 1999, Vladimir Putin renewed the war in response to an incursion of rebels across the Chechen border into Dagestan, led by opponents of the elected president of Chechnya, Aslan Maskhadov. In one of his own quasi-autobiographies, Putin justified the new invasion and bombardment of Chechnya with the same argument that Yeltsin had used: «What’s the situation in the Northern Caucasus and in Chechnya today? It’s a continuation of the collapse of the U.S.S.R.». He spoke of the “Yugoslavization” of Russia9.

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9 V. PUTIN, First Person: An Astonishingly Frank Self-Portrait by Russia’s President, New York 2000, p. 139.
In fact, there was little danger that Russia would go the way of the Soviet Union and break up into its constituent units. Yeltsin’s administration was willing to negotiate with the leaders of republics that were demanding greater autonomy and made numerous concessions. Many of those leaders were the former Communist officials who had headed their republics in the Soviet period. Their nationalism was of a moderate, if somewhat opportunistic, variety, and they managed to keep their more extreme nationalists at bay. The “treaties” they signed with Moscow helped undermine the extremists by creating a system of “asymmetric federalism” that gave the regions numerous advantages, including some control over their natural resources. Again Chechnya was the exception. In that case, the Kremlin initially backed the former Soviet air force general Dudaev, an idiosyncratic, radical nationalist, at the expense of the ex-Communist leader, whom Moscow abandoned. Dudaev’s mercurial personality and provocative rhetoric would have made it more difficult for Yeltsin to strike a deal with him than with the leaders of Tatarstan and Bashkortostan, for example. But Yeltsin did not even try and refused even to meet with Dudaev. He thought he could easily overthrow the upstart Chechen’s regime in short order. Two years and tens of thousands of deaths later, he withdrew the Russian army in 1996, leaving the status of Chechnya unresolved. Putin’s renewal of the war in autumn 1999 produced destruction of a near-genocidal character, prompted retaliatory acts of brutal terrorism, and helped spread the conflict well beyond Chechnya’s borders.

The Clinton administration appears to have shared the fears of Yeltsin and Putin that the Chechen crisis would create a “domino effect” and lead to the violent break-up of the Russian Federation. Indeed several secessionist conflicts in other post-Soviet states did lead to violence – in the Transdniestrian region of Moldova, in the Abkhazian and South Ossetian regions of Georgia, and in Nagorno-Karabakh. Moreover, Tajikistan suffered a devastating civil war.

In dealing with Russia, Bill Clinton sought, much like his predecessor’s approach to the Soviet Union, to support the federal center against the separatist regions. And like Bush, that support was signified by endorsement of the individual leader – in this case, Russian President Yeltsin, rather than Soviet President Gorbachev, now a pensioner. Moreover, for Clinton and his advisers, support for Yeltsin meant not only acceptance of his ends – preservation of Russian territorial integrity – but also his violent means. In this respect stability was valued more highly than non-violence or peace. U.S. officials shared the myopic view of their Russian counterparts that war would lead to stability rather than to further instability. Such an approach reminds us of George Orwell’s remarks in his 1946 essay, *Politics and the English Language*. 
«Defenceless villages are bombarded from the air, the inhabitants driven out into the countryside, the cattle machine-gunned, the huts set on fire with incendiary bullets: this is called pacification»10. Orwell’s point comes across equally well in Russian.

Not all of the international response to Russia’s attempt at violent suppression of the Chechen independence movement resembled the U.S. position. Thanks to a joint memoir written by nine of Yeltsin’s advisers, we have some specific details about the early response to the invasion of Chechnya. On 27 December 1994, for example, a group of Finnish parliamentarians expressed their concern to the governments and presidents of Russia and the United States, to the United Nations, and to the Organization of Security and Cooperation in Europe11. The next day, an assistant to President Yeltsin met with officials from the International Committee of the Red Cross who conveyed their view to the Russian president that the situation in Chechnya now attained «the legal status of an armed conflict of non-international character». That status, according to the Red Cross «above all signifies that the government authorities involved in the conflict must adhere to specific humanitarian obligations»12. From this point, as Yeltsin’s advisers have documented, Russia’s president was made aware of his international legal obligations with language taken directly from the 1977 protocols to the Geneva Conventions. Expressions of international concern intensified in the next few days, as German foreign minister Klaus Kinkel made an “emotional call” to his Russian counterpart Andrei Kozyrev on behalf of Prime Minister Helmut Kohl and the European Union13.

Reports from nongovernmental organizations, such as Helsinki Watch (now known as Human Rights Watch), as well as intergovernmental bodies, such as the Council of Europe, provided great detail on the damage to civilians inflicted by Russian attacks. Representatives of the Organization for Security and Cooperation in Europe who conducted a fact-finding mission to Chechnya «were appalled by the magnitude of destruction and compared the condition of Grozny with that of Stalingrad during World War II»14. Others compared the situation in Chechnya to that of Bosnia when its capital city was under siege by Serbian militia forces and the Serbian army – actions that eventually provoked NATO intervention. In the winter of 1995

12 Ibidem, p. 625.
«at the height of the shelling of Sarajevo there were thirty-five hundred detonations a day, while in Grozny the winter bombing reached a rate of four thousand detonations an hour».

The most important and reliable information about the consequences of the Russian invasion came from the brave Russian human rights activists who were on the scene and upon whose testimony the international organizations depended.

In contrast to the Germans, the Finns, and the various international organizations, the U.S. government responded quite late to the Russian invasion. President Clinton did not contact Yeltsin to discuss the situation until 13 February 1995, two months into the conflict. His remarks, according to the summary by his press secretary, were not particularly hard-hitting: «President Clinton reiterated the importance of an end to the bloodshed and the start of a process leading to a peaceful settlement of the dispute». Making even that statement more palatable, «he stated once again that Chechnya is part of Russia, but noted the legitimate international concern over the humanitarian toll the fighting has taken».

Most of the U.S. response to the first war in Chechnya was premised on the assumption that everything must be done to support President Yeltsin as the only hope for Russian democracy. Electoral gains by communists and supporters of the fascist politician Vladimir Zhirinovskii were particularly worrying to U.S. officials who sought to avoid weakening Yeltsin any further with their criticism. U.S. policymakers, from President Clinton on down, referred to the war in Chechnya as an “internal matter” and compared it to the U.S. civil war of the mid-19th century, implying that all-out war, with massive civilian casualties, was fully justified to preserve the country. Warren Christopher, the U.S. secretary of state at the time, explained that Yeltsin was in «full control» of his military forces (something that contemporary observers doubted), that «Russia is operating in a democratic context», and therefore the United States should «not rush to judgment».

The U.S. response even to atrocities such as the well-documented massacre at the village of Samashki in April 1995 was weak. The Clinton administration did acknowledge that Russia had «not fulfilled all of its commitments under the OSCE and the Helsinki Final Act», but it made no mention of war crimes. The timing of the Samashki massacre was especially inconvenient for Western leaders. Boris Yeltsin had invited them to Moscow to celebrate the fiftieth anniversary of the defeat of Nazi Germany on 9 May 1995. It would have been difficult to decline the invitation to honor the millions of Russians killed in the fight against fascism without creating a serious rift in relations with Moscow and risking a
The Chechen Conflict at 18: Historical and International Perspectives

popular anti-Western backlash. Paradoxically, however, the approach of the anniversary might itself have contributed to the Russian decision to terrorize Samashki in order to speed the end of the war before the Western visitors arrived. This is a question that historians might try to explore. In any event, Western leaders attended the victory celebration, including a major parade of military equipment and soldiers on Red Square, as the war continued to rage in Chechnya. President Clinton made some mildly critical remarks about the Russian conduct of the war, but they had no effect.

In summing up the Western countries’ response to the first Chechen war, a group of Yeltsin’s liberal advisers wrote that is seemed to follow a formula: «You there, straighten things out quickly please, while we close our eyes a little» . This seems to me an accurate assessment.

As I suggested, one of the reasons for the weak character of the U.S. response is that the U.S. government when facing conflicting values had to choose certain ones over others. It chose former Communist Party official Yeltsin’s newfound anti-communism (which it named “democracy”) over peace. And it chose economic liberalization over democracy. Americans, and not only they, like to think that all good things go together – for example, free markets, strong economies, peace, democracy. But consider how George H.W. Bush put it in his lesson to his Ukrainian audience in 1991: «In modern societies, freedom and democracy rely on economic liberty» . That means, economic liberty first, freedom and democracy next. That is a very typical American formulation.

Economic liberty first, freedom and democracy next. That is a very typical American formulation

How is this relevant to the Chechen war? The United States gave the impression that its top priority in its relations with post-Soviet Russia was the opening of the Russian economy to foreign investment. Preventing the return of communists or the rise of nationalists to power in Moscow was a means to that end. The Clinton administration was unwilling to link economic aid to Russian compliance with its international treaty obligations and observance of humanitarian law in Chechnya. On the contrary, it supported continued assistance from international financial institutions. Six months into the war, for example, Moscow received a $6.8 billion loan from the International Monetary Fund. As Rachel Denber, the Moscow representative of Helsinki Watch, pointed out, «despite the Chechen conflict, 1995 must be considered a jackpot year for the Russians as far as funds from the international community are concerned». The 1995 loan was followed by a further $10.2 billion from the IMF in early 1996. The two loans combined exceed most estimates  

21 Yu.M. BATURIN et al., Epokha El’tsina: Ocherki politicheskoi istorii, cit., p. 786.
22 BUSH’s speech, cit.
of the total cost of the first war, leading some observers to argue that the West actually «paid for the Russian invasions».23

The West’s priority emphasis on economic freedom over human rights or democracy seems to me a constant in its relations with Russia (and most other countries). During the second Chechen war, for example, there was far more concern expressed by Western governments about the fate of Mikhail Khodorkovskii, one of the richest people in Russia, than about the thousands of civilian victims of the Chechen conflict. For the U.S. administration, the arrest of Khodorkovskii, former head of the YUKOS oil conglomerate and a potential challenger to President Putin’s political and economic objectives, posed the specter of insecure property rights in Russia. What is the message that vocal U.S. protests over Khodorkovskii conveyed, in the face of prolonged silence over Russia’s abuses in Chechnya? Whether intentional or not, the message seemed to be: the rule of law is sacrosanct when it comes to the economy and individual rights to property, but optional when it comes to human rights.

I have suggested that one important element of the international context of the first Chechen war, at least as far as U.S. behavior was concerned, was the priority of stability over peace and the priority of economic openness over human rights and democracy. There is another priority that political leaders typically put above all others: their own political survival. This value is clearly evident in passages from the memoir of President Clinton’s main adviser on Russia, Strobe Talbott. Talbott was Clinton’s housemate when they were both Rhodes Scholars at Oxford University in the late 1960s. As a student in Moscow, Talbott had smuggled out tapes and transcripts of what became, under his editorship, the published memoirs of Nikita Khrushchev. He went on to a distinguished career as a journalist at Time magazine and a chronicler of U.S.-Soviet relations, especially in the realm of arms control, before joining the Clinton administration as Deputy Secretary of State for the post-Soviet region. Talbott accompanied Clinton in some twenty meetings with Boris Yeltsin (and a further half dozen with Vladimir Putin) and offered his advice for how to deal with Moscow. Yet Clinton always made his own judgments, often contrary to Talbott’s advice. With some irony, Talbott titles his memoir The Russia Hand—an apt description of himself as a life-long Russia expert, but one he intends to apply to Clinton instead.

One important element of the international context of the first Chechen war, at least as far as U.S. behavior concerned, was the priority of stability over peace and the priority of economic openness over human rights and democracy

In April 1996, almost a year and a

23 Quotations are from S.E. CORNELL, International Reactions to Massive Human Rights Violations: The Case of Chechnya, cit.
half into the Chechen war, Talbott attended a press conference during a summit meeting between Bill Clinton and Boris Yeltsin in Moscow. To Talbott’s chagrin, Clinton repeated his analogy of Yeltsin to U.S. President Abraham Lincoln: «I would remind you that we once had a civil war in our country […] fought over the proposition that Abraham Lincoln gave his life for: that no state had a right to withdraw from our Union». Talbott told him afterwards that Clinton’s remark would make him subject to criticism at home for appearing to justify Russia’s violence in Chechnya, but the President had already realized it. In his characteristically earthy language, Clinton admitted, «I guess I really painted a bull’s-eye on my butt with that Lincoln line»24. But he was unrepentant: «If Yeltsin wins, then nobody will remember that the Republicans kept telling me to back off from supporting him. But if he loses, you just watch: they’ll blame me». Clinton might be an extreme example, but for most politicians, much of politics, including foreign policy, is all about “me”. That is the first priority, the highest value. Looking on the bright side, however, this fact suggests that human rights groups have the right idea in one of their main strategies: seeking to “shame” politicians into doing the right thing by threatening to undermine their political popularity25.

This article has sought to put the origins of Chechnya’s conflict with the Russian Federation into historical and international perspective, some eighteen years after the region’s declaration of sovereignty. The conflict is still far from over, even though most of the major military action has ended26. Under Vladimir Putin’s reign, Moscow established a pro-Russian Chechen warlord, the thirty-year old Ramzan Kadyrov, as president of the republic. He has imposed his own authority by institutionalizing his militia forces into units of the Interior Ministry and has used them to carry out vendettas against his enemies and protect himself and his corrupt allies. Superficially, Putin’s policy of “Chechenization” has been a success, in that the large-scale armed conflict has ended. But the vast loss of life, and the degradation, demoralization, and impoverishment of the majority of the Chechen population, traumatized by more than twelve years of nearly continuous warfare, have undoubtedly sown the seeds of future conflict. It would not be an understatement to suggest that Russia’s shortsighted and unnecessary attempt to prevent a chain-reaction of secessions has resulted in the worst humanitarian disaster Europe has seen since World War II.

Given the historical emphasis of this article, it seems appropriate to conclude with some reflections of what might have been. Historians and political scientists often use the technique of counterfactual reasoning or thought experiments to pose “what if” questions. The origins of the Chechen conflict lend themselves well to this

kind of questioning, and the answers could have implications for other such situations.

In lieu of conclusion, let me pose what I see as a few of the key counterfactual questions:

Could greater Western criticism of the Russian invasion of Chechnya in late 1994 have made Yeltsin reconsider his decision? Egor Gaidar, a former minister in Yeltsin’s cabinet, has claimed, for example, to be “convinced that in December, right up to 31 December, the beginning of the assault on Grozny … it was possible, by coordinated force of pressure, to change the course of events to one of negotiations on the basis of a demonstrated threat. It was the moment when we had to, and we could have used all channels and levers of influence to convince Yeltsin that he had made a mistake … and at that moment the West was silent”\(^{27}\). There is indeed evidence that Gaidar himself sought to put the brakes on Yeltsin’s decision, and other liberal advisers expressed their opposition\(^{28}\). Yet Yeltsin at that point was apparently only listening to his more “hawkish” advisers. A future task of historians – given adequate availability of documents and participants to interview – is to answer the question whether a “louder” West could have made a difference.

A second set of questions concerns whether the efforts of the International Committee of the Red Cross, the OSCE, or the Council of Europe had any effect on the course of the war. Did the political authorities in the Kremlin convey to the military leaders their obligations under international law, the Geneva Conventions, the European Convention on Human Rights, or the other instruments that Russia was obliged by its own constitution to follow? That Russian forces violated the laws of war and engaged in atrocities with impunity seems quite clear. Did they do so with official acquiescence or ignorance?

The final questions are more speculative than even these. We saw how much a priority the Clinton administration put on Yeltsin’s victory in the 1996 elections. How important for Russia’s future was that victory? Would the situation in Chechnya and the broader North Caucasus be worse today if Yeltsin had lost the election? Would the situation in Russia be worse?

\(^{27}\) C. GALL - T. DE WAAL, Chechnya: Calamity in the Caucasus, cit., p. 187.

\(^{28}\) Yu.M. BATURIN et al., p. 625.
La politica spaziale europea

Nel 2007 l’Unione europea (Ue) ha approvato il primo documento relativo alla politica spaziale europea con l’obiettivo di assicurare un maggiore e migliore coordinamento delle attività e programmi in materia spaziale – anche nei settori della sicurezza, della difesa e della politica estera europea – tra la Ue, l’Agenzia spaziale europea (Esa) e i loro stati membri e facilitare gli investimenti comunitari nelle attività spaziali. Viene così riconosciuto il valore strategico dello spazio per la sicurezza, l’ambiente e la prosperità dell’Europa nonché la necessità di un accesso autonomo allo spazio. La risoluzione del Consiglio europeo del 27 maggio 2007 riprende le linee indicate nella proposta del “Consiglio Spazio”, composto dai ministri competenti della Ue e dell’Esa, e nella comunicazione della Commissione europea di aprile 2007 che, a sua volta, richiama la comunicazione della Commissione sugli elementi preliminari della politica spaziale europea del 2005.

In precedenza, per rafforzare il rapporto tra Esa e Ue e coordinarne le azioni erano state adottate importanti iniziative: la firma di un accordo quadro a novembre 2003 (entrato poi in vigore a maggio 2004) e il lancio dei progetti Galileo e Gmes, volti rispettivamente allo sviluppo di un sistema di navigazione satellitare e al monitoraggio globale dell’ambiente e della sicurezza. La risoluzione del Consiglio evidenzia come lo sviluppo dei sistemi spaziali sia prioritario perché l’Europa possa mantenere in materia spaziale una posizione competitiva, e allo stesso tempo indipendente, a livello globale. Oggi, infatti, i sistemi spaziali sono attività strategiche di primaria importanza in quanto interessano molteplici aspetti della vita quotidiana: dalle attività militari e di difesa alle telecomunicazioni, alla meteorologia, ai sistemi finanziari e commerciali. Inoltre, viene preso in considerazione il contributo che le attività spaziali potrebbero dare allo sviluppo della strategia di Lisbona, in particolare alla crescita e all’occupazione attraverso tecnologia e servizi volti a favorire una società europea della conoscenza.

Il mandato strategico della politica spaziale europea si basa sullo sfruttamento pacifico dello spazio extratmosferico da parte di tutti i paesi per il conseguimento dei seguenti obiettivi:

- sviluppare e sfruttare le applicazioni spazio utili alla politica europea e alle esigenze delle imprese e dei cittadini europei anche in materia di ambiente, sviluppo e cambiamento climatico globale;
- soddisfare le esigenze europee in materia di sicurezza e di difesa per quanto riguarda lo spazio;
- favorire un’industria spaziale forte e competitiva;
- investire nelle scienze spaziali e partecipare alle imprese internazionali di esplorazione;
- garantire un accesso illimitato alle tecnologie, ai sistemi e alle capacità innovative per ottenere applicazioni spaziali europee.

Il raggiungimento di questi obiettivi non può prescindere dall’istituzione di un

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1 L’Esa conta 17 stati membri: ne fanno parte i 15 paesi membri dell’Unione europea, prima dell’allargamento di maggio 2004, la Norvegia e la Svizzera.
programma spaziale europeo, da un coordinamento tra attività nazionali ed europee e da maggiori sinergie tra i programmi e le tecnologie spaziali militari e civili.
Sul piano pratico, sono stati identificati i seguenti settori chiave su cui si focalizzeranno le applicazioni spaziali europee:

- la navigazione satellitare in ambito civile attraverso i programmi Egnos (servizio complementare geostazionario europeo di navigazione) e Galileo;
- il miglioramento della capacità di monitoraggio e valutazione della politica ambientale, anche in materia di sicurezza, con il programma Gmes;
- le comunicazioni satellitari per l’introduzione di servizi innovativi nell’ambito delle tecnologie dell’informazione e della comunicazione;
- l’utilizzo di tecnologie civili per lo sviluppo della strategia europea in materia di sicurezza, inclusa la difesa.

Nel documento europeo si sottolinea l’importanza di investimenti, sia pubblici che privati, durevoli e coordinati, per l’innovazione tecnologica, lo sviluppo delle competenze tecniche dell’industria spaziale europea nonché di capitale umano nei settori della scienza, ingegneria e tecnologia. Lo sviluppo delle tecnologie e gli investimenti riguardano anche le infrastrutture di terra, in particolare i sistemi di lancio. Tutto ciò anche con l’obiettivo di evitare che l’Europa rimanga indietro rispetto a Stati Uniti, Cina e Russia che hanno varato ambiziosi piani di esplorazione dello spazio. Prioritario è anche l’impegno europeo alla partecipazione alla Stazione spaziale internazionale (Iss).
Per il periodo 2007-2013 il finanziamento comunitario alle applicazioni e alle attività spaziali ammonta a più di 2,6 miliardi di euro; di questi circa un milione di euro è assorbito dal programma Galileo, cui si aggiunge un ulteriore finanziamento di 2,4 miliardi di euro approvato a dicembre 2007. Dal canto loro, gli stati membri investono poco meno di 3 miliardi di euro all’anno attraverso l’Esa e una cifra simile nei programmi nazionali. Un finanziamento di 1,43 miliardi di euro è stato incluso nel settimo programma quadro (adottato nel 2006) che, per la prima volta, ha introdotto un capitolo tematico “spazio”, all’interno del programma “Cooperazione”. Tali fondi saranno destinati a progetti di ricerca, in particolare al progetto Gmes, incluso il finanziamento di apposite infrastrutture spaziali.
L’ambizione è quella di fare diventare il programma spaziale europeo una base programmatica comune, inclusiva e flessibile per la realizzazione di tutte le attività connesse con lo spazio.
La risoluzione del Consiglio di settembre 2008, che riprende la risoluzione del quinto Consiglio Spazio sui progressi della politica spaziale europea, identifica quattro ambiti prioritari per la realizzazione della stessa:

- spazio e cambiamento climatico;
- contributo delle attività spaziali allo sviluppo della strategia di Lisbona;
- spazio e sicurezza, che mette in evidenza il contributo delle attività spaziali alla Pesc e alla Pesd;
Viene riaffermata l’importanza per l’Europa di mantenere un accesso autonomo allo spazio, un programma scientifico di livello internazionale e dei servizi di punta in materia di applicazioni satellitari soprattutto per quanto riguarda i settori della meteorologia e delle comunicazioni commerciali. A tal fine è importante, innanzitutto, garantire agli stati membri della Ue e dell’Esa libero accesso ai vantaggi delle attività spaziali in materia di politiche pubbliche, di dati scientifici, di sviluppo tecnologico nonché in ambito industriale e dei servizi. E in secondo luogo, rafforzare il coordinamento tra investimenti della Comunità europea, intergovernativi e nazionali nonché le sinergie tra programmi spaziali civili e militari. A ciò si aggiunge l’esigenza, da una parte, di elaborare un appropriato quadro normativo e, dall’altra, di creare appositi strumenti finanziari della Ue in ambito spaziale.

La realizzazione in tempi brevi dei programmi Galileo e Gmes viene identificata come l’obiettivo prioritario. Sebbene ancora molto rimanga da fare tanto sul piano operativo che a livello regolamentare e di governance, il Consiglio ha accolto con favore i recenti passi verso l’implementazione dei due progetti, quali il lancio del satellite Giove-B nell’ambito di Galileo; l’adozione da parte del Parlamento europeo e del Consiglio del regolamento sull’implementazione dei programmi europei di radionavigazione attraverso Gnss; la decisione degli stati membri dell’Esa di lanciare il programma sulla componente spaziale Gmes e la conclusione di un accordo Ce-Esa sul contributo comunitario al programma; la dimostrazione dei servizi Gmes pre-operativi in occasione del Forum Gmes di Lille; il lancio del partenariato “Gmes-Africa”.

Il documento ribadisce, inoltre, il sostegno europeo agli sforzi del Comitato della Nazioni Unite per l’uso pacifico dello spazio in materia di riduzione e prevenzione dei rifiuti spaziali. A tal proposito va ricordato che la Ue è il promotore di un codice di condotta per la regolamentazione delle attività nello spazio extratmosferico. Lanciato dall’Italia e attivamente sostenuto dalle successive presidenze, il codice di condotta rientra nel più ampio obiettivo dell’attuale presidenza francese di rilanciare la politica spaziale europea, non solo delle attività civili ma anche di quelle militari, per fare dell’Unione europea una potenza spaziale in grado di competere con Stati Uniti, Russia e Cina. Secondo la bozza di proposta europea elaborata nel 2008, il codice di condotta dovrebbe comprendere delle linee guida, cioè delle buone pratiche e regole di comportamento che gli stati dovrebbero accettare su base volontaria al fine di prevenire eventuali conflitti nello spazio, nonché dei meccanismi di consultazione per la soluzione degli incidenti. Sul piano pratico, l’obiettivo è di ridurre i rischi di incedenti e collisione tra oggetti spaziali, diminuire la produzione di rifiuti e infine promuovere fiducia e conoscenza reciproca tra stati e altri attori pubblici e privati in materia di attività spaziali. In generale, e a differenza degli altri attori internazionali, la Ue propende per una struttura multilaterale per preservare la sicurezza dello spazio extratmosferico e per il suo sfruttamento pacifico da parte di tutti i paesi.
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