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Recreating Secure Spaces

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INTRODUCTION AND OVERVIEW

A persistent trend in the modern era has been the increasing level and pace of economic, social, and cultural interactions within countries and over time across countries. The increasing variety and intensity of such socioeconomic interactions and exchanges have been made possible in recent times by the territorial state's provision of the necessary conditions. These necessary conditions are in the form of the territorial states' provision of key public goods (within their geography and across borders), namely, law, order, 'secure' interaction spaces, and physical and non-physical infrastructure networks that facilitate interactions among social and economic actors (Braudel, 1984; Lakshmanan, 1993).

In more recent decades, with many innovations in physical infrastructure technologies (transport and communications), and in non-physical infrastructures (e.g. freer markets, new financial and professional management practices, international institutions, etc.) the frictions of time and distance for the command of resources across vast spaces and economic development are being overcome. The sharply increasing level and variety of interactions are making existing economic activities more efficient and productive, and creating *new* activities never before possible. The transformation is in the form of globalization of markets and inputs, in the decentralization and networking of firms internally and in their relationship to other firms. The resulting networks—supplier, producer, financial, customer, technology cooperation networks—are leading to international networks of competition, exchange, and association, which are viewed as the emerging dynamic 'network society' (Castells, 1996, 1997).

The resultant *growth* and *development* of the world economy is evident in the explosion of global trade, globally organized production systems, widespread economic growth, extensive exchange of ideas and practices, and a 'borderless world'. This virtuous cycle of increasing secure interaction spaces, complex and varied infrastructure networks, and the cascade of technical and social innovations have indeed led to a dynamic 'network society' with its long-term secular improvements in economy and society.

Another aspect of this *metanarrative* of the evolution of the dynamic global economy--built around physical and non-physical networks and the associated long-term secular improvements in economy and society--is that this evolution has been subject to

periodic interruptions and setbacks. Such interruptions and backslidings have been caused in periods when the quality of the key public goods noted earlier (security of interaction spaces and the operationality of the transport, information and financial networks across national and international territories) was threatened and eroded. These threats have arrived in several forms: wars with territorial enemies, often deriving from security alliances and balance of power politics; and increasingly from ‘deterritorialized threats’, ranging from transnational terrorism and proliferating weapons of mass destruction to environmental degradation and ethnic nationalism (O’Tuathail, 1999).

Since contemporary transnational terrorism attempts to alter the functioning of the social fabric and bring about political change (Lacquer, 1999), its actions serve to convert the basic supportive networks of our society into ‘high risk spaces’ (with concomitant higher interaction costs and lowered level of interactions), and ‘brake’ the secular socioeconomic progress. Vigorous resumption of progress can ensue, only when such threats to ‘secure interaction spaces’ are removed by collective action by territorial governments.

The aim of this paper, concerned with the vulnerabilities of societal networks from terrorism and the necessary approaches to recreate secure interaction spaces, is threefold: first, to clarify the threats posed by terrorism to different socioeconomic networks and the vulnerabilities sustained as a consequence; second, to understand the challenges posed by deterritorialized actors such as terrorists to sovereign states who have the mission of assuring ‘secure spaces’ and the functionality of infrastructure networks; and third, to identify the elements of a strategy to manage such threats and recreate secure network spaces, partly by mining lessons from an earlier experience when states faced serious threats from deterritorialized violent actors, and partly from contemporary terrorist threats.

II. NETWORK VULNERABILITIES FROM TERRORISM

The political events of the last decade since the dissolution of the former Soviet Union have altered the perceptions of State security to the degree that terrorism appears to be the leading threat to national security in the early twenty-first century. The contemporary era is not unique in that the primary form of political conflict appears to be

terrorism. Terrorist threats have historically been directed at individuals, groups of individuals or economic and military infrastructure—illustrated by the hail of terrorist attacks upon politically elevated personages perpetrated by anarchists and budding nationalists between late nineteenth century and the onset of the First World War. However, the nature of terrorism has changed significantly over the course of the twentieth century from anarchists and nationalists in the early part of the century to leftist guerrillas in the middle to right wing fundamentalist religious groups, conservative national and ethnic organizations as well as anti-systematic/globalization movements in the later portion (Laqueur, 1996).

Laqueur (1996) defines terrorism as “. . . the sub-state application of violence or threatened violence intended to sow panic in a society, to weaken or even overthrow incumbents, and to bring about political change.” As such, terrorism is purposeful only if it alters the functioning of the social fabric.

For terrorists desirous of reducing the functionality of a society, the multiplicity of physical and non-physical networks--which govern the efficient operation of national and global economies--offer crucial targets. As noted earlier, a multiplicity of networks—transportation, communications, financial, institutional and organizational—facilitate the interactions, exchanges, and coordination mechanisms of a modern dynamic economy and society. Table 1 illustrates a variety of transport and communication networks, and financial and logistical networks and their vulnerabilities from terrorism in the form of elevated risk to flows of goods and people, of information, and of finance.

In general, the more hierarchical the network type is, the greater the vulnerability it sustains from terrorist threats. The hub and spoke airport system where air traffic is heavily routed through the hub airports provide an example of such heightened vulnerability. By contrast, less hierarchical and more spatially distributed networks (with considerable redundancies) such as roads and the Internet experience less vulnerability (see Table 1).

The continued functionality and growing productivity of these physical and non-physical networks depends upon the low and steadily declining costs of economic and social interactions within countries and across countries. Terrorist attacks or the threat of attack directed against either the population or a component of infrastructure will invoke from the State a defensive response in the form of short-term layers of infrastructure

TABLE 1. Illustrative Network Types and Vulnerabilities

Type (stocks)	Vulnerabilities
Road	Spatially extensive, less hierarchical network with distributed links and nodes where many alternate paths are available for re-routing. Links are less vulnerable than key intersections. Risk can vary spatially with inconsistencies in the road network complexity.
Air transport	Spatially hierarchical, concentrated hub-and-spoke link and node arrangements. As a result of resource concentration spawned by the hierarchical structure limited node alternatives ensure that the nodes/airports are less secure.
Pipelines	Spatially constrained networks resulting from large capital costs produce a lack of link route alternatives. As a result, the pipelines are extremely vulnerable. However, as flows in the pipeline are dependent on the pump stations for mobility, the node structures are also vulnerable. Geographic isolation from population centers may also contribute to elevated risk.
Rail	Spatially hierarchical and constrained networks with some redundancy where link concentration and complexity is great. Links are highly vulnerable in low-density areas. Conduits from the exterior to the interior of sovereign territorial States.
Sea-lanes	Networks with spatially distributed but hierarchical nodes or, port facilities. The links are non-physical, flexible and determined by ships course and destination. As such, links exhibit low vulnerabilities, though ships may be vulnerable, (especially cruise ships carrying passengers). However, ships may be effectively policed and secured. Port facilities most vulnerable. However, it is also more cost effective to secure port facilities. Effective port policing may reduce several different infrastructure network vulnerabilities.
Fiber optic/ Telecommunications	Spatially complex distributed networks with high levels of link and node (i.e., router/switchers) redundancies. Nodes are least secure.
Cellular/microwave	Spatially distributed nodes only. The nodes correspond to cell towers, which are vulnerable, but if destroyed do not threaten the loss of the network. Much redundancy.
Internet	Spatially distributed links (cable, fiber optic), and nodes (routers/servers). Much network link redundancy ensures that the routers/servers/nodes are the least secure structures.
Financial	Spatially hierarchical networks consisting of telecommunications links and markets. The physical market places are most vulnerable as the linkages provide routing alternatives.
Logistical	Spatially distributed organizations of multi-modal transport structures that minimize the total cost of transportation.

protection that increase the costs of interaction. If territorial space and infrastructure networks are subject to penetration and destructive attack by hostile non-territorial terrorist actors, costs of protection of the networks and the provision of secure spaces will have adverse effects on social interaction costs and consequently on economic and social development. Further, the increasing perceptions of personal and environmental risk impose new costs of social and economic interactions.

As the geometry of networks exhibits both links and nodes, one way of accomplishing the creation of secure spaces is through the protection of nodes, which is always economically more feasible than protection of links. Depending on the network infrastructure vulnerabilities, node protection is an initial and necessary condition (i.e., airports for the protection of passenger travel, or ports for the protection of shipping). We return to the general problem of recreation of secure network spaces in the next section.

RECREATING SECURE NETWORK SPACES: STATE'S ROLE

Secure interaction Spaces and Growth of Network Society

A primary function of the territorial State is the securing of internal regions for purposes of encouraging economic and social intercourse among its residents. A necessary condition is the provision by the state (as the monopolist in the exercise of violence), of law, order, and secure social interaction spaces. Such public goods provide predictability in social and economic interactions and lower private social and economic interaction costs. Communications and transport networks—provided in the public or private sectors -- facilitate flows of goods and information and socioeconomic interactions. Recent efforts to deregulate and privatize economic activities from government sponsorship have also promoted the social perspective that state territories and cross-border spaces were becoming more ‘secure’ from outside threats. Encouraged by the increasing security in territorial and cross-border space, other infrastructures -- financial, logistical, and institutional networks -- develop in the globally-interconnected world to promote the efficient functioning of the national and global economies.

Given the positive (and nonlinear) economies of networks, the development of these interconnected multiple physical and non-physical networks leads in time to a virtuous cycle of rapidly enhancing connectivity and socioeconomic interactions, and

growth and sustained development. This virtuous cycle can be interrupted by a variety of threats to these networks we elaborate next.

Terrorist Threats to Networks

The majority of threats affecting the stability of the international State system or the security of component networks in the last twenty years have come from sub-state, non-territorial entities such as ethnic or national groups seeking political autonomy or anti-systematic movements seeking greater economic representation in the increasingly global economy. The current threats to State security are no different. The secure spaces created by the territorial States (within and across jurisdictions) over the last 20 years, enhanced by the collapse of the former Soviet Union, led to a decade of international economic growth and prosperity. The majority of these external threats in the last fifty years had been derived from the Cold War geopolitical order, which polarized ideologies as well as the location and direction of any threat potential. However, the risk associated with the Cold War threats were known as they were ‘ordered’ according to the existing State structure of potential conflict, nuclear or conventional. The Cold War conflict involved ideological conflict among the major territorial entities, each confronted with a similar ‘risk’ to their respective populations, territories and infrastructures. As such, a level of ‘responsibility’, reflective of enlightened self-interest could be implied to the political strategies of States who had national survival as a goal (Brams, 1975; O’Tuathail, 1999; Powell, 1999; Stein, 1990).

However, global dangers today are viewed in practice as a parade of non-territorial enemies like terrorists, rogue states, nuclear-armed agents and the like. When non-territorial entities are arrayed against the power of a sovereign State, a wider array of strategies might be employed directly against the population, territory or infrastructure of the State because of the desire to equalize the great power differential that exists between the territorial state and the non-territorial players (e.g., terrorists). In general, this situation creates higher uncertainty regarding the actions/strategies of non-territorial and terrorist groups. In turn, this leads to amorphous and pervasive dangers and a greater range of risk associated with security maintenance.

We will define the notion of security or secure space as that socially perceived and built “space” or geography which permits the operation of political, social and

economic intercourse among individuals and aggregates of individuals without any additional costs for providing protection against external threats.

A major network target of terrorism has been the transport system. The first phase of airline hijackings in the decade of the 1960s led to disillusionment and enhanced danger associated with airline travel. However, through the institutional establishment of air marshals, terminal security checks and other risk-mitigating strategies, air travel security was re-established by the early 1970s.

With improved security, the subsequent airline de-regulation and the associated technological improvements led in the 1980s to dramatic expansion of air passenger traffic. As such, airports and transport aircraft cabins were perceived as secure spaces. September 11, 2001 changed the “spaces” of air travel, (i.e., airport terminals, aircraft cabins, ancillary transport system spaces), into high risk “spaces” associated with a perceived enduring threat. The threat and consequently the risk, is multiplied by the uncertain nature of terrorist activities directed at these likely spaces. Appropriate examples also include port facilities and rail infrastructure. Both of these infrastructures operate under the assumption of only low to moderate security levels. This is especially true at the ports, where seamless intermodal freight moves (with minimal if any inspection) to support ‘Just-in-time’ and ‘lean production systems. Further, both ports and airports are vulnerable and can serve as conduits for the potential movement of weapons of mass destruction.

However, virtual spaces as produced by Internet linkages are much harder to threaten owing to infrastructure redundancy as well the high levels of security and “hardening” of certain portions of the physical network (see Table 1). As such, the servers and routing apparatus are most vulnerable and usually associated with institutions such as government agencies, national laboratories, and colleges and universities. The Internet presents a major risk avenue into territorial States by non-territorial and terrorist actors.

Power projection by non-territorial actors does not occur through normal diplomatic or territorial State pathways, as no traditional or established structure exists to conduct negotiations. Many territorial states, such as Israel and the UK, exercise policies that actively prohibit negotiation with non-territorial terrorist actors. As such, existing infrastructures, such as media and the Internet may become increasingly useful to both

territorial states and the non-territorial terrorist actors as a means of information signaling among the parties involved.

RECREATING SECURE NETWORKS FROM TERRORISM

The Case of Piracy

The threat to states from non-state violent actors is not a new phenomenon. The period 1400 to 1800 witnessed extensive creative use of non-state violent actors gainfully acting in the interests of territorial states competing for prestige, territory and hegemony. From a geographical perspective, non-state actors perform tasks and exercise political options that may be unavailable to the forces of traditional state actors such as the regular armed forces. The ability to routinely violate territorial boundaries was not an option for the formal state actors. As such, non-state actors represented a minimal cost solution to territorial state governments because regular armed forces could not be employed and thus, reprisals would not be forthcoming. Similarly, non-state actors also provided a minimum risk alternative to the forces of the states because if the goal was not achieved, the state simply denied knowledge of the action. In this way, no territorial state legally violated the territory and the sovereignty of another territorial state.

Non-state actors could be engaged for either land or naval actions. As a result, mercenary armies roamed Europe from 1400 to 1800, and privateers scoured the seas during the same period. In many cases, when the services of these non-state forces were no longer required, they were disbanded and scattered. However, it is not surprising that piracy greatly increased during this time period. Indeed, piracy often served the needs of weaker states against stronger states, as was the case of England with Spain in the 16th and 17th centuries. While the names of Drake, Frobisher and Grenville were hailed with honor in England, they were decried as pirates and terrorists by the Spanish king Phillip II.

Acts of piracy involved elements of the hijacking of ships and terror enacted through the murder, rape and torture of civilians and the poor treatment of prisoners. These activities were considered to be legal privateering raids executed by state-sanctioned, but non-state forces. The English privateers exploited their advantage of non-territoriality to the benefit of the English crown. Acts such as these can be described as officially sanctioned piracy—analogueous to contemporary state-sponsored terrorism. Ritchie (1986: 11) describes officially sanctioned piracy as “. . . acts that are clearly

piratical under any system of law but that go unpunished because a particular government finds it convenient to ignore such activities or even secretly sponsor them”. Within a short time, owing to a changing political climate between England and Spain, these same privateers had been renamed “pirates” and became an embarrassment to the English authorities that had previously exploited their services.

When it suited the interests of states to halt piracy, the patrol of the sea-lanes by the navies of various cooperating states was organized. The elimination of pirates was achieved through a combination of reforms instigated by the territorial states taking action: a) for the creation of mechanisms that strengthen the central State, b) against the non-territorial means of conducting violent activities, 3) by destroying the markets where pirated goods can be traded and 4) by improving and securing the major trade infrastructure of the day: the international sea-lanes (Katele, 1988; Thompson, 1994).

Contemporary Deterritorialized Threats

As contemporary technology—mechanical and informational—moves fast across borders accompanied by complex money flows and the availability of skilled and unskilled labor, a ‘borderless world’ is emerging. While the emergence of the borderless world is generally positive, it also holds many risks. Our vulnerability increases from terrorists and other violent actors, who use our technology and informational capabilities to build black markets for weapons, and launder money to support violence against our networks. Such social enemies as terrorists, nuclear outlaws, and violent fundamentalists need to be isolated, contained, and defeated.

Fundamentalism, for example, is a contemporary phenomenon, which actively attempts to reorder society, reasserting the validity of a tradition, using it in new ways in today’s world with the aid of global means--technical and institutional. While it needs to be contained, it is critical to recognize that has its origins in real discontents experienced by ordinary people. Such discontents arise from the tensions inherent in the globalization process, in the deeply disjunctive relationships among technological flows, vast money flows, and human movement across countries (Appadurai, 1990), which differ significantly in levels of their physical, human, and institutional capital. While the tensions inherent in globalization process cannot all be resolved, efforts to ameliorate some will likely address some root causes of the fundamentalist movement. *The point made here is that containing and defeating forms of terrorist threats can be usefully supplemented by addressing some root causes of discontents underlying such threats.*

CONCLUDING COMMENTS

The recent history of our times has been a congeries of large-scale socioeconomic interactions of ever increasing variety and intensity. The explosion of these interactions within and across countries has been made possible by the progressive increase of secure interaction spaces and the many infrastructure networks that facilitate these interactions. The outcome in the emerging ‘network society’, in the context of a cascade of technical and social innovations, is a virtuous cycle of long-term secular economic growth and social development.

Periodic threats to the security of the socioeconomic networks in a society arrive in many forms, most recently from terrorism. The consequent vulnerabilities vary among network types—the more hierarchically organized (e.g. a hub airport) being more vulnerable than a distributed system with redundancies (internet or a road system). These vulnerabilities reduce the security of social and economic interaction spaces, raise interaction costs, and ‘brake’ the economic growth and social development.

Given its mission of providing secure interaction spaces and lowering threats to its functional network systems, the state attempts to isolate, contain, and defeat terrorist threats. This paper explores the strategy options for such a state by drawing lessons from a) the historical experience with combating non-territorial threats to transport networks (piracy), and b) current pervasive and amorphous threats partly emerging from the discontents of ongoing globalization and associated transformations.

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