

Conceptualisation of Terrorism in Modelling Tools: Critical Reflexive Approach

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ABSTRACT *This paper outlines a critical reflexive approach to an assessment of modelling/simulation tools. The concepts of terrorism and terrorism threat in modelling literature are analysed and compared with the contesting definitions of terrorism in political science and counter-terrorism discourse. Possible social implications of using particular concepts of terrorism and terrorism threat are identified. This study discusses how modellers provide better support to counter-terrorism analysis and decision making, by taking the above-mentioned approach.*

Keywords: terrorism; threat; modelling; critical reflexive approach; sociology of science; social informatics.

Terrorism has been situated—and thereby implicitly also defined—in various contexts such as crime, politics, war, propaganda and religion. Depending on what framework one chooses, certain aspects of terrorism get exposed while others are placed ‘outside the picture’ if only one framework is utilised.¹

1. Introduction

Modelling and simulation tools and techniques are used in such areas as research, intelligence analysis, decision making, planning, and training.² The use of such tools may have important social and political implications due to the fact that, as every other technology, they offer particular visions of phenomena and support certain strategies and actions. Therefore, the development of modelling tools has to involve an assessment of their potential effects on work practices, institutions, and society. Also, modellers need to explicitly and critically reflect upon the concepts of social phenomena that inform their research and development in order to assess the validity of their models.³

The purpose of this paper is to develop a critical reflexive approach to an analysis of modelling and simulation tools for counter-terrorism analysis and decision

making. This paper explores the concepts of terrorism and terrorism threat in modelling literature. These concepts are analysed in order to understand: what aspects of terrorism they highlight and what aspects are not addressed? What ways of dealing with terrorism threat are supported?

2. Previous Studies

This study draws upon social informatics, sociology of science, philosophy of technology, and social constructivist studies of technology as a social construct and a 'social actor' that may affect work practices and contribute to social changes.⁴ Specifically, it draws upon studies of the role of different groups (media, government, and different research communities) in conceptualising terrorism.⁵

Reid⁶ explores the methods of researchers' influence upon the US government's conceptualisation of terrorism and, ultimately, its political decisions. Reid identifies three groups of researchers according to their approach: (1) from question; (2) from data; and (3) from method (i.e. modelling). According to Reid, the first group has the biggest influence upon political decisions; the last group (modellers) has not been considered as a source of any specific concepts of terrorism. Weinberg *et al.*⁷ analyse how terrorism is conceptualised by academics in three terrorism journals and argue that since 1985, the conceptualisation of terrorism has shifted from the psychological toward political aspects of terrorism. They explore the contesting definitions provided by political scientists and psychologists while modellers are not even mentioned.

Both studies show that terrorism is a highly contested concept. However, they focus on the conceptualisation of terrorism in qualitative social research. In this paper, the purpose is to draw attention to the modelling community as yet another source of the concepts of terrorism.

3. The Contested Concepts of Terrorism

There are a number of studies aiming to analyse the epistemological, practical, and social implications of using particular definitions of terrorism in political science, criminology, psychology, and sociology.⁸ The definitions are analysed in order to understand whether they facilitate an observation of the phenomenon; whether they enable researchers to discriminate between different types of politically driven violent activities (terrorism, guerrilla warfare); and whether they help provide a legal basis for the implementation of force and security measures.⁹

In political science, terrorism is defined in relation to the category of violence. The definitions of terrorism as a form of violence enable researchers to conceptualise terrorism as behaviour, as a form of coercive, violent communication.¹⁰ More detailed and contextually specific definitions of terrorism as a form of political violence include the identification of its specific motives and causes (criminal activity, political conflict, or war), the perpetrator (political criminals, insurgents, or state actors), and the target (political actors, casual targets).¹¹ According to a study of definitions of terrorism in three scientific journals, threat is just one of the aspects of the meaning of terrorism, and not always a necessary one: '[t]errorism is a politically motivated tactic involving the threat or use of force or violence in which pursuit of publicity plays a significant role'.¹²

In contemporary counter-terrorism discourse, however, there is a trend to define terrorism in relation to the category of threat. One of the consequences is

the extension of the area of counter-terrorism to such phenomena as drug trafficking, IT security, organised crime, illegal immigration, and infectious diseases.¹³ As Crelinsten argues, the conceptual blurring of crime and terrorism, and the resultant blurring of internal and external policing and national and societal security, have serious implications for liberal democracies (the rule of law, accountability, openness and public trust, and confidence in the government).¹⁴

The adoption of the military concept of threat results in the proliferation of an ontological metaphor of terrorism. The ontological metaphor is a way of 'viewing events, activities, emotions, ideas, etc., as entities and substances'.¹⁵ On the one hand, ontological metaphors are useful because they allow people to quantify their experience, identify a particular aspect of it, consider it as a cause, act with respect to it, etc. For example, the conceptualisation of terrorism as an entity enables researchers and practitioners to focus on the intent of the threatening agent, the probability of this threat becoming a reality, as well as on its capability to inflict human loss and damages to property. On the other hand, the conceptualisation of terrorism as an entity may contribute to the perception of terrorism as a threatening agent similar to such threatening agents as foreign states. This perception may result in silencing the psychological and moral aspects of terrorism. Terrorism research and counter-terrorism efforts are then re-directed away from an analysis of individual terrorists' sociological and psychological profiles and motivations towards such issues as terrorism as a new/old threat, or the life cycle of terrorism.¹⁶ Also, such a conceptualisation of terrorism highlights societies and economies, rather than individuals, as the primary targets of terrorism:

What should we conclude finally about the threat posed by the supposed new terrorism? It is possible that terrorists could get hold of a CBRN weapon and devastate a city. Without minimizing the damage this would do, especially the possible political damage, we must conclude that this is not the greatest threat posed by terrorism. The economies and societies of the industrial countries are wealthy enough, networked sufficiently, and their political life principled and resilient enough to survive such an attack. As far as terrorism is concerned, what has always posed the greatest threat is the shrewd and ruthless use of terrorism in the service of a strategically significant objective contrary to the interests of the target country or government, especially when this kind of terrorism has had the backing of an equally clever and ruthless state authority. From this perspective, the lethality of a group is not critical. Neither is it critical whether a particular group is networked or hierarchical or composed of amateurs or professionals.¹⁷

Many researchers find this omission of the individual and moral dimensions of terrorism to be problematic.¹⁸ Nonetheless, the conceptualisation of terrorism as a threatening agent still allows researchers and practitioners to focus on the agent of the violent activity and analyse its attributes. For example, the structure of terrorist organisations can be analysed, even though different conclusions regarding particular attributes' relevance may be made by different researchers. In addition, the use of this concept in political science is embedded in multifaceted qualitative studies of terrorism as a specific historical and sociocultural phenomenon, where terrorism is studied as an activity or *modus operandi*. However, the fact that the modelling community is becoming more actively involved in terrorism research may change the balance and cause a proliferation of the concept of threat in

counter-terrorism discourse. It is useful to understand how this trend may contribute to the re-conceptualisation of terrorism.

4. Concepts of Terrorism Threat in Modelling Literature

This paper emphasises modelling literature that uses economic and engineering approaches to assess the catastrophe/hazard risk and system vulnerability. For example, Coffin¹⁹ uses measurements made by a catastrophe risk modelling firm in order to predict the threat of terrorism to the US and other countries. The risk of terrorism is calculated on the basis of such measurements as the number of attacks and their severity (fatality and casualty rate). Chittester and Haines²⁰ assess the vulnerability of IT-based controls and equipment. Haines and Horowitz²¹ develop a modelling game for tracking terrorist scenarios, which aims to support intelligence gathering and analysis for countering terrorism. This modelling game deals mainly with vulnerability issues. Zilinskas *et al.*²² discuss quantitative models of bioterrorism risk assessment and argue that these models can help develop credible attack scenarios. Major²³ develops a mathematical model for evaluating terrorism risk; terrorism risk is compared with a catastrophe risk.

Such models draw upon an abstract concept of threat, defined as a potential adversarial intent to cause harm or damage by changing the states of the system: 'Threat is a potential intent to cause harm or damage to the system by adversely changing its states. A threat to a vulnerable system with adverse effects results in risk'.²⁴ The adoption of this abstract concept of threat may result in focusing on the target of the terrorist attack rather than on the attacker, and on the issues and problems related to protection measures, for example, the agents' incentive to adopt risk-reducing measures and to invest in protection.²⁵

The increasing interest in modelling the economic consequences of terrorist attacks may be explained by the fact that in November 2002, the US Senate passed the Terrorism Risk Insurance Act that requires all commercial property and casualty insurers to cover losses due to international terrorist activity within the US. The insurers were forced to make difficult pricing decisions regarding terrorism risk, and 'modelling companies are consequently bracing themselves for an upsurge in business'.²⁶

The risk assessment and risk management models seem to be quite appropriate for providing solutions to such problems as infrastructure protection and the provision of a cost-benefit analysis of terrorism counter measures, as is practised in risk management applied to other hazards.²⁷ It is, however, useful to be aware that this perspective is more reactive than proactive and, therefore, orientates towards living with terrorism threat rather than towards its anticipation and elimination. It may also be suggested that such models have a rather narrow area of application in the practices of counter-terrorism agencies aiming at the prevention of terrorism and the anticipation of terrorism threat.

Although these models measure the effects of terrorism in terms of casualties and damages, they do not aim (and are unable) to take into consideration the social, cultural, political, and moral aspects of these effects. In fact, the conceptualisation of terrorism as a factor/cause of economic loss silences the moral aspects of terrorism. Instead, it promotes a perception of terrorism as a catastrophe or a disaster whose consequences need to be priced. Therefore, the conceptualisation of terrorism threat as yet another hazard (or a factor influencing a consumer's

choice) may contribute to the naturalisation of terrorism. This, in turn, may be considered as a defeat of liberal democracies in the war on terror.

On the operational level, the use of the models shaped by abstract concepts of risk and threat also may have serious social implications. For example, there are quite sophisticated and reliable methods of risk assessment developed within systems engineering. However, one must be very cautious about using these methods in such areas as, for instance, security checks, because the development of rigorous models for the assessment of the risk that a person seeking entry into a country may pose, requires that a correlation is established between the sociological categorisation used for individuals' profiling and their commitment to terrorism. However, as Testas²⁸ notes, quantitative models that are not supported by qualitative studies of specific contexts may be misleading in regard to the real causes of certain people being involved in terrorist activity. Also, the application of models which may result in labelling individuals as potential terrorists simply on the basis of statistical correlations, often grounded within uncertain data,²⁹ seems to be in conflict with basic human rights and democratic values.

5. Conclusion

This preliminary analysis suggests that the current modelling literature highlights the catastrophe-centred concept of terrorism. In terms of its implications, the adoption of this concept may be misleading in regard to the causes of the terrorism threat emergence as well as individuals' involvement in terrorism activity; it may encourage security agencies (and the society in general) to adopt a reactive rather than a proactive position in relation to certain threats; and it may also contribute to the naturalisation of terrorism. In order to provide a balance to this concept of terrorism, it is necessary to employ a wider range of methods and approaches within modelling and simulation.

This paper also suggests that the analysis of the rigorous methods and techniques is only one aspect of the assessment of the modelling/simulation tools. This assessment also requires a critical reflexion upon the operational and social implications of the concepts offered together with these tools. These concepts may affect the users' practices if they are accepted uncritically. Therefore, the analyses of the concepts which inform simulation and modelling can help the modellers assess existing methods/models in terms of their suitability for particular purposes and practices and provide a better guidance to the user regarding the modelling/simulation tools' capability.

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