A Risk Analysis Framework of Lone-Actor Terrorism
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1.0 Introduction

Syntheses of the violent extremism research literature highlight the diversity of factors, indicators, mechanisms, processes, and overall *concepts* that have been associated, analytically or empirically, with the search for an explanation of (lone-actor) radicalisation and behaviour (Desmarais et al., 2019). Empirical efforts to unify this knowledge into general frameworks have been largely aimed at producing typologies of lone actors (e.g. Borum, Fein, & Vossekuil, 2012; Pantucci, 2011). This taxonomic approach, while a necessary step towards progress in any scientific field (Bailey, 1994), has some important limitations. While well-designed and validated typologies can provide useful definition and organisation in a new area of research, their purpose remain essentially to organise observations: a typology *describes what it is*, but it does little to *explain why it is so*. It may be tempting to think that understanding has been improved by slotting a particular event under a labelled category, but an explanation requires more than a taxonomic exercise: it requires conceptual statements as to the causes and causal processes which account for the outcome under study. The ability to tell apart (even deep) description from explanation, and to move from the one to the other, is crucial when the ultimate goal is to do away with the outcome: to prevent a problem from (re)occurring we need to remove or disrupt its causes.

Because empirical findings do not speak for themselves (e.g. statistics tell us about the presence and strength of a relation, not what it means), a knowledge-base capable of supporting policy, must be made up of more than a catalogue of statistically significant relationships between a set of factors (i.e. descriptive results). It must include theories which advance explanations as to the role these factors play in producing the outcome of interest (e.g. radicalisation) and the conditions under which they may come to interact (Wikström, 2011). This necessitates going beyond empirical generalisations to conjecture inherently unobservable, but plausible causal mechanisms (Bunge, 2004). Progress is contingent upon the emergence of theories which can not only make sense of accumulated observations and are compatible with established scientific knowledge in major disciplines, but which can, also, bridge disciplinary silos to integrate levels of analysis and, crucially, produce general rather than strictly local explanations (Bouhana & Wikström, 2008).

While observations about lone actors and their behaviour have multiplied in recent years, few, if any, meta-models or theories of lone actor radicalisation and lone actor extremist behaviour have been put forward, which articulate systematically how the kinds of factors discussed in the prior literature review interact to produce one or the other, and which are able to differentiate between those factors which may act as indicators (needed for the design of detection and mitigation measures) of lone actor extremist events, and those which may be considered causes (needed for the design of prevention and disruption measures). To arrive at this point, a number of key problems remain to be tackled, namely:

- integrating the levels of explanation (i.e. establishing through which concrete mechanisms the different macro and micro levels interact) in order to tackle the problem of specificity (why some individuals radicalise when most others do not);

- transcending the problem of locality (i.e. getting beyond local explanations to general theories), and;

- achieving conceptual clarity, in the absence of which neither of the other problems are solvable.

In spite of a noticeable uptake in data-driven research (LaFree & Ackerman, 2009), the study of the causes of terrorism and radicalisation remains theoretically fragmented, leading at least one prominent scholar to express concern about the so-called stagnation of scientific research in this field (Sageman, 2014). In a review of research on Islamic-inspired home-grown radicalisation in Europe, Anja Dalgaard-Nielsen (2010) identified three main categories of accounts of radicalisation, each concerned with a different level of analysis: French sociological accounts, which focus on the role of the macro cultural and socioeconomic context in the radicalisation process, with a particular emphasis on the factors which could explain the appeal of radical Islam for seemingly well-integrated Muslims; social movement and network theories, which privilege the individual's immediate psycho-social environment to explain how they become exposed to, and eventually adopt, radicalising ideologies to the point of involvement in terrorism; and largely atheoretical accounts, which mine the background characteristics of terrorists in search of empirically-grounded indicators and typologies of radicals, their motivations, or their 'pathways' into radicalisation.

Nielsen concludes that, while each category of account addresses salient elements of the radicalisation process, all of them come short of a full theory, which could tackle the 'problem of specificity' (Sageman, 2004) and explain why a majority of individuals experiencing these particular conditions (e.g. an inimical socio-economic context; membership in a social network containing radicalised individuals; socio-political grievances) do not undergo a process of radicalisation. Nielsen goes on to suggest that these accounts should be seen as complementary, rather than competing.

Similarly, Schmid (2014) contends that radicalisation studies have privileged the *micro* level of analysis, but that full explanations should integrate the *meso* (community) and *macro* (structural) levels as well, although the strategy to adopt to effect this integration is not outlined. Taylor and Horgan (2006, p. 587) recommend that the study of terrorism should be brought "within a broader ecological framework", but again their process model of terrorism involvement falls short of articulating those processes through which factors at different levels of analysis are theorised to interact (see, likewise, Hafez & Mullins, 2015, for a more recent synthesis that leaves out interaction mechanisms). The choice to draw from the criminological notion of 'individual pathway' leads to the inevitable conclusion that routes into terrorism are discrete, which would seem to preclude the statement of a general developmental model. Meanwhile, the psychological perspective adopted, while legitimate in itself, means that an examination of the emergence of ecological conditions which support radicalisation or terrorist involvement is largely out of bounds. Veldhuis and Staun (2009) have put forward a 'root cause model' of radicalisation in response to the weaknesses of 'phase models' – which offer, at best, chronological deep-descriptions of the radicalisation process in a particular context (Moghaddam, 2005; Silber & Bhatt, 2007) and as such do not provide a framework to differentiate between indicators (symptoms or markers) and genuine causal factors. Veldhuis and Staun (ibid) contribute a valuable synthesis of factors associated with radicalisation at several levels of analysis, but their 'model' relies on enumeration more than integration. How one should determine the exact role, and assess the relative importance, of each category of factors is unspecified; the lack of an explicit integrative framework manifests in the omission of an intermediate level linking the macro and micro levels of explanation. Kruglanski and colleagues' (2014) significance quest theory does take care to articulate the interaction between situational and individual factors, but leaves out a full appraisal of the social ecology of radicalisation (e.g. selection and emergence processes; see further in this report), which is

likely necessary to explain variation in incidence between countries and communities at any given time.

This kind of theoretical fragmentation will be familiar to criminologists. In an ambitious paper published in *Crime and Justice*, Weisburd and Piquero (2008) set out to test the respective 'explanatory power' of theories of crime located at different levels of analysis. They conclude that all theories leave the bulk of the variance unexplained and advise that each theoretical framework should look to "what is not explained" (p.453), if scientific progress is to continue. One might be tempted to address this difficulty by throwing any and all 'risk factors' – individual, situational, social, ecological, macro-social – into the pot and hunt for statistical covariates of the outcome of interest (here: terrorism), but the limitations of this approach are recognised even by its proponents (Farrington, 2000) and have been discussed at length elsewhere (Wikström, 2011). In the search for risk factors or so-called 'indicators', one quickly finds themselves overwhelmed by ever-expanding lists of significant correlates, with no way to discriminate between symptoms, markers, cause, or mere statistical accidents.

Alternatively, one might take the more difficult road, stop "segregat[ing] the 'ingredients'" of crime or terrorism, or, conversely, "including everything" willy-nilly, but instead seek to articulate the "rules of interaction" between levels of analysis (Sullivan, McGloin, & Kennedy, 2011); between the individual and her (developmental or behavioural) environment: in other words, abandon a factor-based approach in favour of mechanism-based accounts, where *mechanism* is defined, in the scientific realist tradition, as the causal process that links the cause to its effect (i.e. that explains *how* the cause brings about the effect).

Beyond theories of terrorism, the logic and value of such an approach to explanation was deftly illustrated in a seminal paper by analytical sociologists Lieberson and Lynn (2002), in which the authors argue that, rather than emulate the deterministic and deductivist model of the physical sciences, a successful and relevant social science should learn from the example of the natural sciences. Like sociology (and criminology), evolutionary science seeks to understand the trajectory of complex organisms embedded in complex ecological systems. Yet evolutionary theory, arguably one of the most successful theoretical frameworks in scientific history, did not emerge out of attempts to isolate statistically the (potentially infinite number of) possible conditions that could impact the evolution of species, and attribute to them some fixed amount of variance, net of other influence. Rather, early evidence in evolutionary theory was gathered from observation of natural experiments, and the powerful frame of the theory is not made up of a long list of statistically significant factors, but of a small set of interlocking general mechanisms (e.g. natural selection, migration and genetic drift), resulting in a meta-model or framework, which is adaptable and universally generalizable.

It is true that the general character of a meta-model can come at the cost of predictive power: evolutionary science does not set out to *predict* the evolution of specific species. To do so would require information about local ecological conditions in the very distant future, and it would require ignoring that evolutionary events (as social events) are also the product of chance (Bunge, 2006). Yet one would be hard-pressed to say that this lack of predictive power means evolution by natural selection is a failed theoretical framework. Nor does the ontological status of natural selection as more of a functional metaphor than a concrete causal mechanism in a physical system diminishes the value of the explanation. Natural selection (like, for example, 'exposure' in the model discussed in the next section) operates as a fertile synthetic construct which has guided, and continues to guide, the search for the lower-level processes and context-specific factors involved in bringing it about.

Developing a general, analytical, meta-framework capable of explaining, organising, and reconciling a knowledge-base as patchy and disparate as the one synthesised in the previous section of this chapter, however, is not easily achieved from scratch. To the extent that crime and terrorism research can be considered cognate domains (see Bouhana & Wikström, 2011, for a development of this argument), criminologists have increasingly argued that there is much to learn from research on crime and criminality, which could advance our understanding of the causes of non-state political violence, be it in terms of transferable research methodologies, analytical concepts, approaches to prevention, or theoretical frameworks (Deflem, 2004; Forst, Greene, & Lynch, 2011; Freilich, Chermak, & Gruenewald, 2014; LaFree & Freilich, 2011; Lafree, 2007; Rosenfeld, 2002).

Owing perhaps to the availability of large open datasets which aggregate event-level information, such as the Global Terrorism Database (LaFree & Dugan, 2007), this criminological enterprise has added chiefly to our knowledge of the characteristics, distribution and predictors of terrorist events, thanks to a number of studies guided by opportunity-focused approaches, such as rational choice, routine activities, crime pattern and repeat victimization (Braithwaite & Johnson, 2011, 2015; Canetti-Nisim, Mesch, & Pedahzur, 2006; Clarke & Newman, 2006; Dugan, LaFree, & Piquero, 2005; Hamm, 2005; Parkin & Freilich, 2015), or by deterrence perspectives (Argomaniz & Vidal-Diez, 2015; Dugan & Chenoweth, 2012; Faria, 2006; Hafez & Hatfield, 2006; LaFree, Dugan, & Korte, 2009). By comparison, efforts to apply general criminological theories to the development of terrorist criminality and individual involvement in terrorist action have been less conspicuous, with some notable exceptions (see, notably, Agnew, 2010; Fahey & Lafree, 2015; Pauwels & Schils, 2014). Yet, to the extent that blocking opportunities for terrorist activity and deterring terrorists have not proven (to date) enough to control the threat of terrorism, and to the extent that governments continue to promote prevention efforts aimed at suppressing the disposition to commit acts of terrorism in the population (see, for example, the 2011 Revised Prevent Strategy in the United Kingdom)[1], then robust theories are needed which can organise and articulate our knowledge-base of how individuals come to perceive acts of terrorism as an alternative for action – the process commonly known as *radicalisation*.

As previously stated, when dealing with a field which faces as many analytical and methodological hurdles as the study of terrorism in general, and lone actor extremism in particular, it is arguably worth drawing upon existing theories from areas where understanding (e.g. the ability to validate constructs and test hypotheses) is somewhat advanced.

To provide a robust foundation for its Risk Analysis Framework, this chapter draws upon a well-developed general theory of crime causation known as *Situational Action Theory* (SAT). Previously, SAT was used to organise a systematic review of empirical observations associated with al-Qaeda-influenced radicalisation (Bouhana & Wikström, 2011). The resulting meta-model clearly hypothesised the general processes (exposure and emergence) which connect categories of causal factors (individual, social ecological and systemic) in the process of radicalisation, while at the same time relating them to the discrete markers (predictors or indicators), which flag the presence of those processes in specific (e.g. geographical) contexts.

SAT has been fruitfully applied *both* to the explanation of terrorism acts and to the process of individual radicalisation (Bouhana & Wikström, 2008; 2010; Schils & Pauwels, 2014; Wikström & Bouhana, 2017), hereby demonstrating that it can provide a unifying framework for the whole of the process including radicalisation, attack preparation, attack.

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[1] Available from: https://www.gov.uk/government/publications/prevent-strategy-2011.

SAT has the advantage of being a well empirically-validated, general framework that articulates both developmental and action processes – a necessity for our RAF which aims to model all stages of the lone actor event, from radicalisation to attack. Specific aspects or stages of the RAF may, however, benefit from insights from other accounts.

The analysis of attack processes (e.g. target selection; modus operandi) will indubitably draw from the extensive literature on opportunity theories (i.e. rational choice theory, routine activities theory; crime pattern theory) and situational crime prevention, while the analysis of the roles of selection processes and social emergence in radicalisation will benefit from accumulated research in social movements, social networks, and other relational approaches, as has been made amply clear in the first section of this report. One of the many advantages of a RAF supported by an integrative general theory such as SAT is that it allows, by definition, the organised integration of different analytical approaches that may not have been brought together previously.

2.0 The Risk Analysis Framework

As a general theory, SAT sets out the key mechanisms and processes involved in the acquisition of individual action propensities and in individual action. In this section, these general mechanisms are put in the context of our knowledge of radicalisation and terrorism, with particular reference to lone actors. Given evidence of the growing role of exposure to online settings in the radicalisation and actions of lone actors, examples of social ecological processes and systemic factors relevant to the online environment are provided. These mechanisms are summarised in a Risk Analysis Matrix, which is intended, chiefly, to guide the research activities of the RAPA scripting teams.

2.1 Radicalisation

In light of the analytical background provided by SAT, the categories of factors and mechanisms which are key to explaining how LAEs acquire the propensity to commit acts of terrorism – in other words, *radicalise* – can be summarised in terms of processes that play a role in the emergence of their _individual vulnerability_ to moral change, their _exposure_ to settings with terrorism-supportive moral contexts, and the _emergence_ and maintenance of such settings in these people's activity fields. For convenience, this analytical model or meta-framework of radicalisation is referred to as IVEE.

2.1.1 Cognitive susceptibility

At the individual level of explanation, SAT suggests how certain experiences, which contribute to moral education and cognitive nurturing, play a part in the emergence of personal propensities for action. This process of personal emergence is, of course, continuous throughout the life-course, meaning that in effect the person is continually *emerging*. It is the outcome of *antecedent* experiences of moral education and cognitive nurturing which determine an individual's level of vulnerability at the onset of the radicalisation process. This outcome we may call *cognitive susceptibility* to moral change. The research observations summarised in Section 2.1 suggest that vulnerability to radicalisation is partly a factor of an individual's prior commitment, or lack thereof, to a moral framework, their capacity for response regulation and executive functioning (self-control, adaptability, and flexibility), and their lifestyle exposure to situations which deplete their (neuro)-cognitive resources.

Executive functioning (EF) is made up of the discrete but interacting higher-order neurocognitive processes which are involved in people's ability to engage in goal-oriented behaviour, maintain motivation and attention, and adapt flexibly to contingencies that require new plans and decisions (Suchy, 2009). EF develops early in life and is responsible for such key tasks as inhibiting responses, updating working memory, and shifting mental sets (switching back and forth between tasks) (Friedman et al., 2008). These processes are cognitively costly and resources can become depleted after use. Because automatic or routine responses demand less energy and guide behaviour much of the time, EF is only solicited when new and/or complex situations arise (Suchy, 2009). Rules of conduct, acquired through socialisation and maintained through habit, moderate EF. As long as it is appropriate to the behavioural context, commitment to well-established rule-guidance allows for automatism, therefore less call for effortful deliberation and self-control, *ergo* lower energy expenditure and less drain on limited resources (Gino et al., 2011).

People vary in their capacity for self-regulation and executive control (Williams et al, 2009). Some are known for their impulsivity; others for being efficient decision-makers under stressful conditions (Baumeister et al, 2003). A number of observations support the hypothesis that this variability could account, in part, for individual differences in susceptibility to radicalising moral change. Many individuals undergo radicalisation as adolescents or young adults. Age, as a marker of biological development, may be indicative of differences in executive capability. The prefrontal cortex, the seat of executive functions, is one of the last brain areas to develop, all the way through young adulthood (Beaver et al., 2007), with implications for young people's continuing openness to socialisation. Low self-control is one of the factors most consistently associated with crime and substance abuse (Pratt & Cullen, 2000). A delinquent past or a history of addiction (a notable sub-group among the radicalised population) could be evidence of weaknesses in executive control. This might, in turn, provide an explanation as to why individuals who cling to a legalistic rule system cannot help but stray from it: they lack the capacity to inhibit responses to day-to-day situations, even if these situations challenge their new moral guidance[2]. It might also contribute to the explanation as to why newly-radicalised persons or people in the process of radicalising seem to systematically cut ties with friends and family who (may) disapprove of their new value system: those individuals may be trying to protect themselves from further stress on their neurocognitive resources (an experience generally accompanied by negative affect, and therefore to be avoided) by ensuring they will not be exposed to competing moral rule-guidance that might challenge their newly-acquired morality and force them to reconcile contradictions and make choices.

Lifestyle changes (brought on, for example, by life events such as migration, incarceration or going to university) create opportunities for individuals to be confronted with new and challenging situations, which require effortful control, flexibility and adaption. Not all people may be equally able to handle such circumstances, especially if social support (attachments to relatives, networks of friends, supportive social institutions)[3] has been lost. For individuals whose early socialisation did not equip them ideally for the demands of life away from home and community of origin – as may be the case of second generation immigrants caught between parental values and the diverging expectations of the host society – growing up and gaining independence may bring on its own plethora of taxing situations. Those less able to handle cognitive demands, or facing circumstances that unrelentingly drain their mental reserves

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[2] Such as prescriptions about what to eat, drink, wear, do or not do, and so on.

[3] In other words, personal (cognitive) capital must be expended to compensate for the loss of social capital and systemic support. For a discussion of 'systemic supportiveness,' see Haidt & Rodin (1999).

(situations which generate intense and sustained anxiety, negative affect, and so on) may find relief in categorical rule-guidance[4], which alleviates the burden of decision-making.

A stable religious upbringing or a prior commitment to a non-violent value system is reportedly a protective factor in young people: this ties in well with the notion that commitment to context-relevant rules of conduct entails less reliance on costly decision-making processes, therefore less energy depletion, with its attendant negative effects of stress and exhaustion (Baumeister et al., 2004; see also Mick et al., 2004).

While much work remains to be done to establish the specific (lower-level) mechanisms and processes responsible for individual differences in cognitive susceptibility to radicalisation (see, however, Kruglanski et al, 2014, for valuable work in this domain), the ever-growing literature in cultural neuroscience (see, e.g., Kitayama & Park, 2010's model of brain-culture influence), social cognitive neuroscience (see, e.g., McGregor et al, 2015, for an application of goal regulation theory to violent religious radicalisation) and molecular genetics (see, e.g., Bakermans-Kranenburg & van Ijzendoorn, 2011, for a discussion of differential susceptibility to rearing environments) suggests fruitful avenues. This literature, and research in other problem domains, also suggests that susceptibility to moral change is a general feature of human populations (which doesn't invalidate variation within and between individuals) and is not radicalisation-specific (Bouhana & Wikström, 2011).

2.1.2. Susceptibility to selection

Another kind of susceptibility is implied in the SAT framework, which bridges the individual (person), situational (setting) and social ecological (environment) levels of analysis.

Cognitive susceptibility alone cannot account for vulnerability to radicalisation, in the sense that, while an individual may be more or less susceptible to the influence of radicalising teachings, it does not fully make sense to say that they are vulnerable to radicalisation if nothing puts them at risk of ever being exposed to such teachings. To the extent that radicalising practices are found in particular settings at particular times, people will vary in the level to which they possess characteristics which make it more likely that they will find themselves in these settings.

Research findings point to a number of personal characteristics which could be linked to susceptibility to selection, notably social selection. Place of residence is one: people who have undergone radicalisation live in communities where radicalising moral contexts are found. Age is another. Most people undergo radicalisation as young adults or teenagers, a time associated with lifestyle changes. Monitoring from parents and teachers decreases. Personal agency increases. More time is spent outside the house, in a greater variety of places. More control is gained over whom to spend time with. In short, the activity field of young people changes and expands, bringing with it opportunities for exposure to new settings, some of which may have radicalising moral contexts. Youth, then, may be an (admittedly general) factor of selection. Other factors may play a similar role. Some of the older men implicated in home-grown radicalisation, like the expatriates discussed by Sageman (2004), are immigrants. Migration is an instance of a life event, which will drastically impact an individual's activity field, not unlike moving out of the family home to attend a distant university. Many events have the potential to bring about changes in the types of environments people experience, which is why the discrete nature of life events matters less to the explanation of radicalisation than the process

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[4] For a discussion of Islamic fundamentalism as a system of rule-governance, see Taylor & Horgan (2001).

they trigger: a lasting change in a person's activity field, and, consequently, in her exposure to certain kinds of moral contexts.

Beyond its impact on activity fields, life experience may also be implicated in *preference formation* (acquisition of personal likes and dislikes). Over the course of their lives, people acquire preferences for particular kinds of setting – settings where they believe they will be able to fulfil their desires (pubs, dance clubs, libraries, malls, and so on). In the context of home-grown radicalisation, these preferences impact susceptibility to selection if they result in people being exposed to radicalising environments. For instance, repeated experiences of ethnic discrimination and associated negative feelings may, quite reasonably, lead individuals to develop a preference for settings where discrimination is less likely to occur, such as ethnically-homogeneous settings. Experiences of victimisation in prison might result in a preference for settings that offer physical protection. The experience of 'moral shock' said to accompany the viewing of disturbing videos may spur a need to share one's reaction or to seek advice on how to cope with disruptive moral emotions[5].

In the first case, the person who feels discriminated against begins to spend more time in places frequented only by members of her own ethnic group. In doing so, she exposes herself to opportunities for contact with radicalising agents who belong to the same group. In the second, the inmate in search of protection starts to hang out with members of a prison gang, some of whom may hold radical views. In the third, the young man morally outraged by images of suffering searches for a sympathetic ear and ends up in an internet forum, where users happen to hold both conventional and radicalising views. Through these examples, one can see how personal characteristics and experiences – through their impact on activity fields and the formation of personal preferences – can interact with ecological features to lead to the exposure of certain individuals to radicalising moral contexts.

2.2. Exposure

2.2.1 Radicalising Settings

Building upon the SAT concept of criminogenic settings, radicalising settings can be understood as places whose features support the acquisition of personal morals supportive of terrorism. They enable terrorism-promoting socialisation – the internalisation of terrorism-supportive moral rules of conduct, values and emotions. All radicalising settings share key features.

First, these settings host radicalising moral norms, which are either transmitted person-to-person or through media. They convey terrorism-supportive ideas and associated emotions, which promote the legitimate use of terrorism and may be delivered through 'narrative' devices. Anecdotal evidence suggests that effective radicalising teachings tend to be couched in a narrative form, which is communicated by perceived sources of moral authority and is characterised as transcendental (about 'meaning-of-life stuff'), categorical (good/evil) and prescriptive (action-oriented), in a way that appeals particularly to the young, given their cognitive needs (Bouhana & Wikström, 2011). Settings differ in the extent to which these teachings co-exist with others.

Second, these settings are further characterised by ineffective supervision. The level of formal and/or informal behavioural monitoring in these settings is ineffective or in some other way inadequate. Generally, crime-promoting settings are those where people spend time with

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[5] On the social aspect of moral emotions, see Haidt (2001).

likeminded peers and where they can express or enact rule violations without interference from formal or informal authorities (Wikström and Sampson, 2003).

Third, the research synthesis suggests that, like other crime-promoting settings, radicalising settings suffer from *ineffective monitoring*. Terrorism-promoting socialisation activity is allowed to take place and go on without effective challenge. Lack of trust can mean that people with responsibility over the setting are reluctant to involve outside authorities in sanctioning and deterring unconventional activity. Generational and cultural divides can lead to spaces where young people associate unsupervised and isolated from counter-influence (so-called 'enclaves'). Surveillance may displace activity to more private spaces. In sum, lack of awareness, willingness, and/or resources to intervene create spaces where radicalising practices go on unchallenged.

Finally, these settings provide opportunities for individuals to form *attachments* to radicalising agents. Socialisation is an interpersonal process. For the majority of people, the agents of socialisation with the greatest influence over their lives are their parents or guardians. Within families, the main mechanisms of socialisation are the teaching of rules of conduct and the supervision of behaviour (i.e. moral education). How effective family socialisation practices turn out to be depends in large part on the strength of the child's attachment to his guardians. That attachment, in turn, is a function of the caring (care-giving) relationship between child and guardians. Humans tend to get attached to the people who provide for their physical and emotional well-being (Wikström, 2005). Eventually, people form attachments beyond the circle of family – with friends, teachers and spouses, who care for them and come to have their own influence (e.g. in terms of moral education) over them. Attachment, as a mechanism, is closely associated with criminality and delinquency (e.g. Yuksek & Solakoglu, 2016).

The research on radicalisation previously reviewed supports the notion that, like any other instance of socialisation, effective radicalisation entails attachment to the sources of radicalising teachings. Radicalising settings are those which facilitate, promote or otherwise support the conditions necessary for radicalising agents (kin, peers, activists, so-called 'spiritual sanctioners') to form lasting attachments to (susceptible) others[6] – notably through caring or care-giving. This requires that the setting allows for genuine and lasting association between individuals. When radicalising agents approach individuals in positions of susceptibility, such as recent migrants or prison inmates facing a new and unknown moral context, and offer food, shelter, and spiritual comfort, they are trying to encourage a relation of *attachment* between themselves and the individual; in some sense, they may be said to emulate the parent-offspring relationship, which is the basis of human socialisation. Once attachment is created, the process of socialisation (propensity change) can proceed apace. Of course, a single setting is unlikely to offer opportunity for lasting exposure; instead, the constellation of settings in the individual's activity field may allow for repeated association.

2.2.2. Selection

As stated in the discussion of SAT, selection processes are the main social ecological processes which explain why individuals with particular characteristics (e.g. cognitive susceptibility) are more likely to find themselves in certain places at particular times and engaged in particular activities.

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[6] Research on the role of delinquent peer influence on crime suggests that strength of attachment is likely to be a factor of the 'frequency, duration and intensity' of the association between the radicalising agents and the individual. See Sampson & Laub (2003).

The operation of *self-selection* in the radicalisation process is illustrated, for example, by Olsen (2009), who recounts how a preference for political engagement led one young individual to take part in a demonstration, where he was given to observe a group of young rioters. The youth thought that this "was really exciting… this group, they were all my age, I could identify with them and they made something of themselves" (p.14). He later approached them. The example shows how the non-radicalising features of a setting can act as a personal draw, incidentally exposing people to terrorism-promoting influences. Self-selection being an on-going process, preferences acquired during the earlier stages of radicalisation can result in more intense and sustained exposure, such that some individuals may eventually graduate from sporting grounds in Birmingham and internet cafes in London to training camps in Afghanistan.

When supporters of terrorist movements upload videos purporting to depict scenes of Western soldiers harming civilians in Muslim lands, they may also lead people to expose themselves to radicalising settings though self-selection. Viewing such videos may spark anger and eventually crystallise into grievance. These emotions, in turn, may give rise for a preference for settings where negative feelings can be aired and alleviated by sharing the experience with like-minded individuals.

More positive preferences may also lead to self-selection. For example, an article published in *Foreign Affairs* entitled "The World of Holy Warcraft" (Brachman and Levine, 2011) discusses how the 'gamified' features of some online forums entices young people to involve (i.e. expose) themselves to these forums, some of which have radicalising features, with ever greater intensity as they develop a (personal) taste for competition. Hence self-selection can take someone from YouTube, Facebook and discussion forums to, eventually, Syria.

Social selection sets the stage for *self-selection*, by constraining the kinds of settings people are likely to find themselves in. Observations have suggested, for example, that individuals who belong to certain groups – young people, residents in Muslim communities, students, immigrants, people with a criminal history – are over-represented among home-grown terrorists (for a full review, see Bouhana & Wikström 2011). Nor are radicalising settings distributed randomly;: they appear more likely to be found in some kinds of environments, which in turn are more likely to be frequented by members of particular groups. Social selection means that group membership is likely to affect the chance of exposure to radicalising contexts, something echoed by the research on social movements and radical milieus already reviewed. For instance, individuals from an Islamic ethno-religious background are significantly more likely to find themselves in a setting where Muslims routinely congregate (mosque, Islamic study group, halal restaurant) compared with individuals from a non-Muslim background. Students are more likely to have the opportunity to spend several hours a day surfing the Internet than most working adults. Unemployed individuals are more likely to have the freedom to spend time in cafes during working hours than most office workers. People with a criminal history are more likely than non-offenders to be exposed to a prison environment, and asylum seekers are more likely to spend time in immigration centres – two examples of so-called 'hotbeds' associated with radicalisation. Given the organisation of social life and the location of radicalising settings, some categories of people are more likely to be exposed compared to the rest of the population, as a result of social selection (Wikström & Bouhana, in press).

In sum, selection means that *who* ends up being radicalised is influenced as much by the characteristics of the settings in which radicalisation takes place, as it is by the characteristics of the individuals who undergo the process. Social selection is likely to be the key process which explains why members of particular terrorist cells, groups or particular campaigns may share some socio-demographic characteristics – they met in places which draw people with

these characteristics –, yet the search for general terrorist 'profiles' remains futile: radicalising settings are found in new environments over time – if only as a result of counterterrorist activity –, therefore, the kinds of people socially selected for exposure changes.

To explain why some (susceptible) individuals rather than others radicalise (*the problem of specificity*) is to explain why some people rather than others are exposed to the radicalising settings in their environment through processes of selection.

2.2.3. Emergence

As discussed above, observations suggest that settings that promote terrorism are not equally distributed in space and time. Some streets, neighbourhoods, communities, prisons, societies, even some countries have more of these kinds of settings compared to others at any given time. Processes of emergence link systemic factors (community-level factors and up) with social ecological processes of exposure, such as selection. At the systemic level are those factors and mechanisms, which explain why radicalising settings appear and remain in some environments rather than others. To explain *why radicalisation occurs in particular places at particular times* is to explain why radicalising settings emerge where and when they do and are sustained.

A given systemic factor is likely to matter to the extent that they facilitate (or constrain) the emergence and maintenance of 1) ineffectively monitored settings, in which 2) susceptible individuals come into lasting or repeated contact with radicalising agents, who 3) promote terrorism-supportive moral norms. Hence, in any given context, those systemic factors relevant to radicalisation are likely to be those which allow for radicalising moral norms to spread, for certain places to experience low levels of formal and informal social control, for radicalising agents to move around freely among the rest of the population, and for susceptible individuals to be selected for exposure into particular settings.

Hence, at the systemic level, many factors are likely to matter, yet not just any factor. When confronted with analytical or statistical claims about the impact of meso- or macro-level characteristics on radicalisation, one way to assess their (potential) relevance is to ask how they might be implicated in a causal chain which ends in the emergence of radicalising environments or the exposure of susceptible individuals.

Scholarship on systemic factors and crime would suggest that levels of residential segregation and social disorganisation, the collective efficacy of communities, schools and families, and formal mechanisms of social control will affect the emergence of radicalising settings, inasmuch as these factors impact the organisation of daily routines, the establishment of cohesive rules of conduct, and the availability of resources (the willingness and the means) to enforce these rules. One can also conceive of how macro-level political processes such as civil war could, given their ultimate effect on community rules and resources, affect emergence. Historical and political processes involved in the formation of groups like Al Qaeda, processes of norms promotion which contribute to the formation of competing moral contexts at the international level, factors which affect the movement of persons – all can be reasonably linked to radicalisation in this way. Inasmuch as they facilitate contact between radicalising agents, allow their activity to escape surveillance, and are a vector for the introduction of terrorism-supportive norms in activity fields, media outlets and the rules that govern them are also plausible contributors.

Research on radicalisation at the systemic level of analysis is the least developed to date, which is understandable, as investigating causes of causes (or in this case, causes of causes of causes)

is much more challenging that investigating proximate conditions, especially when studying low-incidence phenomena.

3.0 The emergence of radicalising environments online

As was just stated, empirical research on the topic of emergence is underdeveloped in radicalisation and terrorism studies, all the more so regarding the emergence of virtual radicalising settings, a relatively recent phenomenon. Nevertheless, to illustrate the analytical uses of the RAF, some factors are discussed and their role in the emergence of radicalising settings online hypothesised:

- ***The diffusion of internet access and mobile communication technologies.*** The obvious first: without the internet and associated technologies, there would be no online radicalising spaces. The diffusion of these technologies beyond public (e.g. universities and libraries) towards private and semi-private spaces (e.g. private accommodations and personal mobile devices) is one of those systemic trends which has affected internet use, reshaped people's routines and activity fields to include increasingly more virtual environments, and, therefore, created new opportunities for exposure to a variety of moral contexts. The democratisation of broadband access and peer-to-peer technology has made the sharing of large files possible, enabling, for example, the transmission of videos with radicalising content (Edwards & Gribbons, 2013). Any future technological development, which would impact cyber access and content diffusion, has the potential to play a part in online radicalisation as a systemic factor.

- ***The diffusion of 'dark technologies'.*** Likewise, the democratisation of technologies which provide access to the so-called 'Dark Internet', such as Tor, and the availability of encryption software are likely to impact the emergence of unsupervised and unmonitored settings, some of which may host radicalising activity.

- ***The diffusion of social networking platforms.*** Social networking platforms are reported to play a number of roles in online radicalisation. Notably, they are a vector of selection, in the sense that they put individuals in (witting or unwitting) contact with radicalising agents by creating connections between networks; they create a mechanism through which moral narratives can be propagated and amplified, and; because some of them enable anonymous and/or restricted interaction (e.g. friends-only spaces), they interfere with social monitoring of socialising activity.

- ***The regulatory environment.*** Governments, international agencies, Internet Service Providers, platform owners: all are subject to rules and regulations which limit or enable their ability to regulate internet content (Neumann, 2013), and therefore monitor and interfere with activity taking place in online settings, or stem the propagation of radicalising messages. The regulatory environment may be one of the single most important factor impacting the emergence of online radicalising settings.

- ***The deficit of digital media literacy.*** Several factors come under this heading: notably, an inter-generational gap, which means that parents are not always equipped with an understanding of the technology sufficient to be able to monitor the online behaviour of their children, and that agents of law enforcement and other authorities may not always be *au fait* of the latest developments in terms of cyber-technology, and risk being always one step behind. Literacy also refers to the skills, or lack thereof, one can call upon to interpret, evaluate and interact with media content in a mature way. Though the concern about a lack of literacy is often aimed at children and young people, adults,

too, may experience psychological distortions when interacting in the new media environment. All of these factors will have an impact of the level of formal and informal supervision of various online settings.

- ***The collective efficacy (or lack thereof) of online communities.*** Collective efficacy is defined as "social cohesion among neighbors combined with their willingness to intervene on behalf of the common good" (Sampson, 1997) and is consistently associated with lower crime and violence in neighbourhoods. Likewise, the capacity and willingness (or unwillingness) of online communities to intervene to counter radicalising activity (e.g. by challenging radicalising moral norms) which occurs within their corner of cyberspace is likely to have a major influence on the moral context of online settings, and, therefore, on their effectiveness as radicalisation-supportive environments. Witness grass-roots initiatives to lobby Facebook or Twitter to take down various kinds of offensive content. Neumann (2013), however, observes that there appears to be an 'enthusiasm gap' between online extremists and other internet citizens, with the former hogging some fora while the majority, who undoubtedly disagrees with much of their discourse, remains silent.

- ***The availability of radicalising and other moral narratives.*** Radicalising, and counter-radicalising, moral norms are often effectively conveyed in the form of narratives. The availability of such narratives (and counter-narratives), which can be readily transmitted by socialising agents, is also likely to be a factor influence the emergence (or the suppression, in the case of counter-narratives) of radicalising settings.

4.0 Analytical models as guide for action

Such analytical frameworks may also have value as cross-contextual guides for action. Whether one is faced with a resurgence of ethno-nationalist terrorism in a foreign country or with sporadic cases of home-grown radicalisation, the first set of questions to ask, before intervention can be designed, are the same. Chiefly:

- Where is the radicalising activity taking place?

- On what basis (socio-demographic characteristics and personal preferences) are individuals selected for exposure to settings where this activity is taking place?

- What are the factors which have allowed (or failed to supress) the emergence of these settings in this particular environment?

  - What stands in the way of these settings being effectively supervised, either by state authorities or by community members?

  - What makes it possible for radicalising agents to gain access to these settings?

  - What makes it possible for radicalising moral norms to be introduced into these settings and what forms do these norms take?

- Why are some of the individuals who are exposed to these settings susceptible to moral change?

The point has already been made that it is analytically crucial to distinguish the process of development of propensities for action (e.g. radicalisation) from processes of action (e.g. terrorist act), if only because a person can engage in an action without having acquired the

propensity to do so. Like radicalisation, the situational model of terrorist action articulates how processes at different levels of analysis interact in the explanation of terrorist action.

A terrorist propensity results from the internalisation of terrorism-supportive personal morals (terrorism-supportive moral beliefs, values and commitments to terrorism-promoting rules of conduct, and associated moral emotions), as well as the level of capacity to exercise self-control. As expounded above, terrorist propensity is the outcome of the process commonly called radicalisation.

However, as previously stated, a terrorist propensity is not necessary for someone commit an act of terrorism: sufficient external pressures (e.g. peer pressure; a setting where terrorism is enforced as a social norm; acute stress or emotion; presence of drugs or alcohol) can override personal morals and internal controls in the face of the motivation to offend (e.g. being blackmailed into taking part in a terrorist plot). While such a configuration may be unlikely to arise in cases of lone actors, it should nevertheless be mentioned.

The same mechanisms of social and self-selection which place (or not) particular people in radicalising settings operate to place them (or not) in particular criminogenic settings. Place of residence, group membership, personal preferences and routines – here again these factors will play a part in explaining how a person came to be exposed to a setting, in which she eventually committed an act of terrorism (or from which she acquired the capability to do so).

Criminological research has shown that people with a high criminal propensity will select themselves into settings which present opportunities for offending, while individuals with a low criminal propensity will not spend time in criminogenic environments (Wikström et al, 2012). Though the same kind of longitudinal data is not available, there is every reason to believe that the relationship holds for terrorism. This means that radicalised individuals are more likely to place themselves in situations which present opportunities for involvement in terrorism than the non-radicalised.

The *situation* in which the terrorist action takes place arises from the interaction between the person and her propensity, and a setting with particular characteristics, which encourage and enable acts of terrorism (or not, as the case may be).[7] The notion of setting overlaps with that of place, in the sense that the setting is the part of a place that the actor can perceive through his or her senses at any given time. A number of characteristics of settings, recapitulated below, are hypothesised to play a pivotal role in the terrorist action process.

Criminogenic settings are characterised by the presence of features that can be perceived by actors as temptations, provocations or frictions, which may result in the emergence of the motivation to act. When a jihadist group uploads videos depicting scenes of Western soldiers harming civilians in Muslim lands, they are trying to expose people, some of whom may already have a propensity for terrorism, to situational frictions and provocations, from which the motivation to act can emerge. In other words, they are trying to get terrorism-prone individuals, most of whom would not feel inclined to move, 'off the couch'.

Closely associated with the motivational features of a setting are opportunities and affordances (Pease, 2006), which are understood as more or less immediate properties of situations which enable the commission of crime (without compelling it). The concept of opportunity is discussed at length in the situational crime prevention literature (for an in-depth discussion in

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[7] Although we speak of *a* setting and *a* situation, this is for analytical clarity only; it is evident that an action can be an extended process that carries across a series of settings.

the context of terrorism, see Clarke & Newman, 2006; Roach et al., 2005). In short, settings afford opportunities for the planning and commission of terrorist acts to the extent that they present attractive targets, allow access to convenient and effective weapons, or make available other tools that support the commission of terrorist acts (e.g. finances).

As per Wikström (2006), *motivation* is defined as "goal-directed attention." It is a situational process; in other words, *it is not a stable individual characteristic*, but the outcome of the interaction between the person and her environment. Motivation triggers the action process. It is necessary to move people to action (colloquially again, to *'get them off the couch'*) and must be sustained through time for the action process to carry on. It can direct (motivations tend to entail a set of actions), but does not *determine* the type of action which will be taken in response to the motivation (the same motivation can be served by many kinds of actions).

Because motivation is a situational process, any change in the environment can lead to a change in the situation perceived by the actor, and therefore a change in their motivation to carry out a particular act. This is a fact that terrorist groups are well aware of. When a handler accompanies a suicide bomber to the scene of the attack, they are arguably trying to ensure the continuity of a situation that may have started long before the attack process was under way and are therefore trying to maintain the bomber's *motivation* up until the last moment. Any change in the action-relevant features of the situation (e.g. a child or pregnant woman spotted in the crowd; unexpected security measures) has the potential to disrupt the motivation to act.

This underlines again an important point of difference between propensity and motivation – their respective 'lastingness'. On the one hand, propensity is the outcome of a developmental process, which, as previously noted, results in "a lasting change in the way a person perceives and deals with her environment" (Bronfenbrenner, 1979:3). On the other hand, motivation is the outcome of a situational process, which results in a short-term change of behaviour. In sum, propensity change is slow but lasting, while the kind of behavioural change which is brought about by a change in situation (and therefore motivation) is fast, but may only last as long as the source of motivation (the situation) remains. This has clear implications for prevention, as those interventions which target propensity and those which target motivation are likely to require very different kinds of efforts and will have effects of different longevity.

The RAF includes the hypothesis that one the main conditional elements which affects the maintenance (or not) of motivation is the *perception of capability*. For motivation to be sustained beyond the initial perception of a temptation or provocation, a person has to perceive (a subjective process) that they have the capability to carry out the action successfully. Without some sense that something is *doable*, most people will not 'stay off the couch', assuming they stood up in the first place.

During the attack process, the situation faced by the assailant may change and a chosen course of action will appear to outstrip their capability; as suggested above, motivation will then wane and is likely to fade. Capability explains why the majority of predisposed individuals who consider involvement in terrorism end up doing nothing, while a good number of those who do something end up getting caught. When an article like "Make a bomb in the kitchen of your mom" is published in *Inspire Magazine* (Lemieux et al, 2014), the author's intent is likely to shore up the *perception of capability* of individuals who are already terrorism-prone and already moved to act, but whose motivation may flag in the face of the challenges that have to be overcome before they can carry out a terrorist attack.

While capability entails physical, material, but also neuropsychological (cognitive) and spiritual resources, people can, of course, misjudge their abilities and *perceive* that they own

capabilities which they have not, in fact, acquired (e.g. the ability to remain calm and determined under pressure; a sufficient knowledge of explosives; a reliable group of co-conspirators), which is why a distinction must be made between subjective and objective capability (resources). Banding together with co-conspirators is arguably another way to shore up one's perception of capability and address the potential problem of flagging motivation, as well as pull together material resources. This may offer a hypothesis to explain the relatively low incidence of lone compared to group actor terrorism.

Among the features most relevant to the criminogeneity of a setting are the moral norms which are in force in the setting and how strongly (or weakly) these norms are enforced, formally (e.g. by police) or informally (e.g. by passer-bys) – what is traditionally called *deterrence*. Some settings may enable the preparation and commission of terrorist acts, because the norms which are socially promoted and enforced encourage terrorism and other acts of crime (e.g. neighbourhoods controlled by terrorist organisations and their sympathisers).

When the ideologues of a terrorist movement formulate lengthy moral and legal arguments which promote the view that terrorists are soldiers in a time of war, and therefore that the usual rules of conduct prohibiting killing do not apply, they are aiming to change the moral context to influence individuals' perception of action alternatives in favour of terrorism. In this sense, much of the same observations made about radicalising settings apply to some of the settings where acts of terrorism are planned and prepared.

Arguably, terrorism occupies a special place in most societies' legal and moral discourses specifically because, unlike most other crimes, the offenders do not limit themselves to breaking moral norms. The declared aim of their criminal activity is to usher in new rules of conduct altogether, which threatens the social order. This would entail that their (public) efforts to influence the moral context are more likely to be deterred (trigger a stronger reaction from authorities and citizens) than would the promotion of milder, less system-threatening forms of deviance.

Someone who perceives terrorism as a possible action alternative in a particular situation still has to choose to carry it out. Importantly, that choice does not have to be rational (e.g. weighing different options); it can be habitual. Habits tend to arise when people are exposed to the same settings again and again, where they perform the same actions. It may seem counter-intuitive to think that habit could play any part in terrorism acts, but one may think of the training that soldiers undergo: the purpose of some of these exercises (e.g. endless repetition of bodily gestures) is to ensure that when faced with the decision to kill the enemy, the soldier does not stop to think about it, but proceeds from automatism. The same kind of process may be implicated in the commission of terrorist acts; in fact, they may be part and parcel of the planning and preparation phase and address what a would-be attacker perceives as a weakness in their capability to act.

When not acting out of habit, people have to make the choice whether or not to get involved in terrorist action and, most likely, renew that choice each time they encounter new situations, which each time creates an opportunity for other agents to influence their decision-making. Agents can interfere in the deliberation process by making the actor perceive an action alternative he or she was not aware of. This works both ways, in that this applies to supporters and preventers alike. An agent can make the actor see terrorism as an alternative (as a co-conspirator), or they can provide them with an *alternative to terrorism*, which would still allow them to act upon their motivation. External agents can also interfere in the deliberation process

by weakening the person's self-control (e.g. applying stressful social pressure; supplying drink or drugs), but also by strengthening it (e.g. sobering them up).

Much as was the case with the analysis of radicalisation, social ecological and systemic factors are relevant to the analysis of acts of terrorism and their preparation to the extent that they support or suppress the emergence of any of the situational features involved in exposure. Taken together, these features can be thought of as the 'opportunity structure', which enables (or suppresses) the terrorist activity of LAEs. Examples of such factors are what Clarke and Newman (2006) term "facilitating conditions", such as the general availability of access to firearms in a given jurisdiction, the proliferation of anonymous communication technologies, the resources granted intelligence services, or any factors that affect the level of trust between authorities and communities, whose members are natural guardians and potentials witnesses to an LAE's preparatory behaviours.

5.0. Risk Analysis Matrix

The RAF is synthesised in a matrix (Figure 1). Each column of the matrix represents an analytical phase of the lone actor extremist event (radicalisation, attack preparation, attack), each row represents a level of analysis (individual, situational, social ecological, systemic), and each cell is populated with the key categories of causal factors and mechanisms involved. Theoretically, disrupting any causal factor or mechanism should prevent, interdict or mitigate the lone actor extremist event process.

As with any representation of multi-level processes and events, analytical distinctions are to some extent arbitrary and conventional. For example, as explained above, to the extent that motivation is a property emerging out of the interaction of the characteristics of individual (actor) and situational (setting) entities, it does not belong *strictly* to any one analytical level. Furthermore, the RAF draws from SAT in theorising individual susceptibilities and propensities, and relevant features of situational settings, as direct influences upon the development of LAEs (i.e. radicalisation) and their behaviour (i.e. attack preparation and attack), while ecological and systemic factors and processes are theorised as indirect influences (i.e. "causes of causes") of propensity development or behaviour.

This has implication for data collection, as relevant information is much more likely to be recorded and accessible regarding direct influences, rather than indirect ones. The cells of the matrix are differently shaded for this purpose. The darker the shading of the cell, the more likely it is estimated that it will be possible to capture data relevant to the factors and processes it contains. The lighter the shading, the less likely.

Figure 1 Risk Analysis Matrix

<table>
<tr><td colspan="2"></td><td colspan="3">Phase of Event</td></tr>
<tr><td colspan="2"></td><td>Radicalisation</td><td>Attack Preparation</td><td>Attack</td></tr>
<tr><td rowspan="1">Level of Analysis</td><td>Individual</td><td>Susceptibility to moral change
Susceptibility to social selection
Susceptibility to self-selection</td><td>Social, physical and cognitive resources
Susceptibility to social and self-selection</td><td>Social, physical and cognitive resources</td></tr>
</table>

Situational	Exposure to radicalising settings Radicalising agents Radicalising teachings Social monitoring context	Opportunity structure Moral context Perception of action alternative Perception of capability (risk) Emergence of motivation	Opportunity structure Moral context Perception of action alternative Perception of capability (risk) Maintenance of motivation
Social Ecological	Emergence and maintenance of radicalising settings	Emergence and maintenance of opportunity structure	Emergence and maintenance of opportunity structure
Systemic	Emergence and maintenance of radicalisation-supportive social ecologies Emergence of social selection processes	Emergence and maintenance of opportunity-supportive social ecologies Emergence of social selection processes	Emergence and maintenance of opportunity-supportive social ecologies

6.0 Conclusion

To conclude, the categories contained in the matrix, organised by level, can be described as follows. For the individual level, we need to account for:

- *Susceptibility to moral change*. Evidence of cognitive susceptibility to moral change (or lack thereof) and of the historical factors involved in the personal emergence of this susceptibility (or lack thereof).

- *Susceptibility to social selection.* Evidence of factors of social selection that dispose the LAE to exposure to radicalising settings in their environment (or lack thereof).

- *Susceptibility to self-selection.* Evidence of factors of self-selection (personal preferences) that dispose the LAE to exposure to radicalising settings in their environment (or lack thereof).

- *Social, physical and cognitive resources.* Evidence of resources relevant to the commission of the terrorist act (e.g. skills, intelligence, money, military experience; i.e. objective capability; see Ekblom & Tilley 2001) present at the outset of the action process.

For the situational level, it is important to consider:

- *Exposure to radicalising settings.* Characteristics of the settings (real or virtual) in which exposure to radicalising teachings took place and factors that explain the presence of the actor in the setting (e.g. type of personal preference).

- *Radicalising agents.* Characteristics of the actors (including virtually present) who transmit the radicalising teachings and evidence of relationship between the LAE and the actors (or lack thereof).

- *Radicalising teachings.* Content and format of radicalising teachings present in the setting (e.g. specific narrative).

- *Social monitoring context.* Evidence of willingness and capacity of formal and informal guardians to monitor and control the socialising activities taking place in the setting (or lack thereof).

- *Opportunity structure.* Characteristics of opportunities and affordances for preparation and commission of a terrorist act afforded by the environment (or lack thereof).

- *Moral context.* Characteristics of agents and measures of formal (e.g. police) and informal (e.g. neighbours) deterrence against the preparation of a terrorist act present in the environment (or lack thereof); characteristics of moral norms enforced in the environment (e.g. terrorism-supportive community values).

- *Perception of action alternative.* Characteristics of the situation in which the LAE came to perceive terrorism (as opposed to another course of action) as a viable action alternative.

- *Perception of capability (risk).* Evidence of LAE's self-assessment of their own capability to carry out preparation and attack (i.e. subjective capability).

- *Emergence of motivation.* Characteristics of the situation in which the LAE acquired the motivation to engage in an act of terrorism and evidence of the nature and maintenance of this motivation (or lack thereof).

- *Maintenance of motivation.* Evidence that the motivation to engage in an act of terrorism was affected by changes in perception of capability at any point of the preparation and attack process (or not) (e.g. downgrades ambitious attack as a result of perception that capability is insufficient; evades site of attack when faced with police).

For the social ecological level, the following warrant consideration:

- *Emergence and maintenance of radicalising settings.* Proximate factors which influence the emergence and maintenance (or lack thereof) of radicalising settings in the LAE's environment, and which influence selection processes into these settings (e.g. neighbourhood segregation).

- *Emergence and maintenance of opportunity structure.* Proximate factors which influence the emergence and maintenance (or lack thereof) of opportunities for terrorist attacks in the LAE's environment (e.g. immediate facilitating conditions; see Clarke and Newman, 2006).

And finally the systemic level entails examining:

- *Emergence and maintenance of radicalisation-supportive social ecologies.* Distal factors which influenced the emergence and maintenance (or lack thereof) of environments that produce radicalising settings, and which influence selection processes into these settings (e.g. foreign policy).

- *Emergence and maintenance of opportunity-supportive social ecologies.* Distal factors which influenced the emergence and maintenance (or lack thereof) of opportunities for terrorist attacks in the LAE's environment (e.g. gun laws).

- *Emergence of social selection processes.* Distal factors which influence social selection in society (e.g. residential segregation between social groups).

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