Lethal Crossroads: The Evolution of Taliban Violence in Response to Counterinsurgency Strategies in Afghanistan 2006-2021.

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  Operationalisation of key IED variations elaborated by the author.

Abstract

This thesis examines how the Taliban's use of the Improvised Explosive Device (IED) evolved in response to changing counterinsurgency strategies in Afghanistan between 2006 and 2021. The work aims to identify the role of state counterinsurgency strategies in affecting variation in IED use by insurgents. The evolution of methods of violence in Afghanistan has rarely been focused on. Yet, the Taliban's return to power in 2021 amid the withdrawal of the last coalition forces necessitates reflection on the conflict across academia and policy making. To investigate the evolution of the IED this research employs a longitudinal case study design applying qualitative research methodologies such as the constant comparative method to analyse three distinct phases of insurgent and counterinsurgent violent competition in Afghanistan between 2006 and 2021. An evolutionary theoretical framework outlined by Veilleux-Lepage (2020) grounds this work in the mechanisms of evolution with a focus on the variation, transmission, and selection of IED design, tactics, and strategy. The main findings suggest that US-led counterinsurgency strategies influenced the Taliban's variation of IED's design, tactics, and strategic purpose. It is also suggested that the Taliban's organisational structure facilitated shorter decision loops and gave a degree of autonomy to networks supporting a trial-and-error process of variation. As a result, the IED remained effective between 2006-2021 despite concentrated efforts by counterinsurgents to defeat the influence of the device. The thesis advances claims about the mechanisms through which the use of IEDs by insurgents evolves in the context of asymmetric warfare. Further, this work contributes to understandings of the resilience of certain methods of violence in asymmetric conflicts and the organisational processes that facilitate insurgent violence. The continued effectiveness of the IED across the conflict and the Taliban's success in 2021 holds significant implications for counterinsurgency approaches which likely face a reckoning.

Introduction

On the 7th of October 2001, tomahawk cruise missiles, laser guided bombs and hellfire missiles struck targets across Afghanistan's Kabul, Kandahar, Jalalabad, Kunduz, and Mazar-e-Sharif. Guided by CIA intelligence analysts and directed from the United States' new Combined Air Operations Centre (CAOC) in Saudi Arabia, this aerial offensive was the opening salvo of the US led "Global War on Terror" (GWOT) (Blanchette, 2021). Over the following weeks, British and US forces coordinated with the Northern Alliance - the Taliban's long-standing enemy - and a variety of warlords, to overthrow the Taliban's government in Kabul. The CIA and coalition special forces led a campaign to destroy the vestiges of Al Qaeda across the country, employing targeted killings by drones for the first time. The images of plumes of smoke rising above the Al Qaeda stronghold of Tora Bora dominated the front pages of western newspapers, who sympathetically concluded that this was appropriate vengeance for 9/11. This invasion sparked a 20-year war during which the Taliban raised a resilient and effective insurgency, eventually sweeping back to power in Kabul, as US forces withdrew, and the Afghan government collapsed in 2021.

At the heart of the Taliban's successful insurgency lay an adaptable and highly lethal weapon, the Improvised Explosive Device (IED). The IED is a weapon that ranges from a crude and simple device forged from easily accessible materials to more complex devices expertly crafted by experienced bomb makers, re-purposing conventional munitions or producing their own explosive components. There exist thousands of variations of these devices and their use over centuries has left deep scars, carrying political consequences across the world. From anarchists in 19th century Europe, to the assassination of the Russian Tzar in 1881, the PIRA in Northern Ireland, Hamas in Palestine, Al Qaeda in their global Jihad and the Taliban in Afghanistan, the IED has evolved to become a defining weapon of political violence and asymmetric conflict (Overton and McCafferty, 2021). While the use of the IED has therefore proliferated across time, there is still little research on how this process

happened, making such an investigation an important endeavour for political scientists.

This thesis fills this gap in the literature by asking how the use of IEDs by insurgents evolves in the context of asymmetric warfare. As such, this thesis investigates the evolution of violent methods and of the IED in particular, by non-state actors in response to state-led violence in the specific context of asymmetric conflict. It does so by looking at the case of the Taliban's insurgency in Afghanistan post 9/11, analysing the development of their use of violence in a context of competition *vis-à-vis* the US-led counterinsurgency campaign. The thesis' narrow focus on Afghanistan serves the goal to identify the significance of specific context factors affecting the evolution of IED violence, and the role of state counterinsurgency strategies in affecting variation in IED use by insurgents. While doing so, the thesis also aims to de-sensationalise violence by non-state actors, and as such it does not make normative value judgements on Taliban-led violence, because doing so often obscures the extent of the use of violence by states, leading to biased analyses. Overall, the thesis adds to scholarly efforts aimed at disaggregating insurgent violence to give focus to the role of context in the process of analysis, contributing to a better understanding of how non-state methods of violence evolve in competition with state-led violence.

The main findings suggest that changing US-led counterinsurgency strategies influenced the Taliban's variation of IED's use, design and tactics. The Taliban's organisational structure was central to the IED's evolution, as its flexibility facilitated a fast process of innovation influenced by environmental and contextual necessities, allowing the insurgents to retain the effectiveness of the IED use and achieve their political goals. Therefore, the thesis demonstrates that the relationship between state and non-state actors' violence instigates a trial-and-error process through which non-state actors hold an advantage vis-à-vis the state, due to their higher degree of flexibility in organizational structures, which allows them to adopt new methods of violence in a faster manner

when faced with state-led violence. Whether through design or in response to necessity, an often-amorphous networked organisational structure involving a smaller number of decision-makers and therefore a shorter and quicker decision loop, allowed the Taliban to adapt IED tactics and designs at a rate that outpaced that of counterinsurgents. The use of IED allowed the Taliban to deny counterinsurgents manoeuvrability, cripple their attempts to engage with the local population and stage complex high profile attacks undermining the legitimacy of the Afghan government and their military capabilities. As such, the thesis demonstrates that the use of IED, a weapon with great variety in its strategic and tactical use, also evolved in the process of interaction between insurgents and counterinsurgents.

The thesis proceeds as follows: First, a literature review section positions the thesis within the existing academic literature on insurgency, asymmetric conflict, and explosive violence, to highlight the thesis' contribution to this literature, and to the research on the interaction between insurgent and counterinsurgent strategy in particular. Second, the research methodology discusses in depth the application of an evolutionary framework to the use of violence, including advantages and potential limitations. Third, the thesis provides a brief history of the Taliban's insurgency, which serves as a background context for the analysis. The following three empirical chapters look at how Taliban-led violence evolved in relation to key changes in the US-led counterinsurgency campaign, between 2006 and 2021. Breaking down the analysis over three periods is important to assess how the Taliban's explosive violence evolved in response to contextual factors, both external and internal to the Taliban. The case study will finish with a section assessing the Taliban's selection of IED variation across all three time periods. A discussion section reflects on the evolution of the IED in the process of competition between insurgents and counterinsurgents, while a final section concludes summarizing the main finds.

Literature Review and Theoretical Framework

Modern violence, asymmetry, and the Global War on Terror

On the 9th of August 1945 'Fat Man', a plutonium nuclear weapon, was detonated over the Japanese city of Nagasaki (Southard, 2015). This concluded the Second World War, bringing a violent end to the peak of interstate warfare in the 20th century. Since then, the world witnessed the increasing emergence of intra-state conflicts, in which explosive weapons continued to have a central role, allowing violent non-state actors to become increasingly successful against more powerful state actors (Arreguín-Toft, 2008).

In intra-state conflicts which have dominated since 1945, the warfare environment is most often asymmetric, featuring a state and a non-state actor possessing different resource capabilities and/or pursuing different strategies (Berglund and Souleimanov, 2019). As noted by Kaldor (1999) and Hoffman (2005), asymmetric conflicts are distinct from traditional inter-state war in that they feature non-state actors as key protagonists and blurred boundaries of violence. Newman (2004) criticised this distinction between new and old wars, arguing that a historical perspective suggests the difference between 'new' and 'old' wars is not so stark; that the forms of organised violence do not reflect new patterns in terms of actors, objectives, spatial context, human impact, and the social structure of conflict (Newman, 2004). Newman's critique is valid; however, wars have taken on new characteristics over the last century, notably the shift away from inter-state conflict that Kaldor (1999) highlights as well as taking on a new ecology through the weaponisation of changing technology which has radically altered processes of war away from the state-based focus of Clausewitz (Ford and Hoskins, 2022). This shift towards intra-state asymmetric conflict makes the non-state actor a core protagonist and focal point of research on modern war.

When it comes to how non-state actors survive and operate in asymmetric environments, the existing research suggests that violent non-state actors look to use all capabilities available to survive in the face

of materially superior adversaries (Hoffman, 2007), by deploying a changing range of strategies to shift the balance of power (Wood, 2010). As Arreguín-Toft (2008) highlights, non-state actors have been increasingly successful in defeating conventionally superior forces. One specific form of violence, the IED, has become central to non-state actors' ability to compete with state-led violence, to the extent that James Revill (2016) characterises it as a paradigmatic weapon of asymmetric conflicts. The IED, has proliferated over the last 20 years (Overton, 2020), becoming a force multiplier that allows those with fewer resources to challenge the states counterinsurgency methods and latest technologies, such as drones and increasingly devastating airstrikes. The importance of this form of explosive violence, particularly in Afghanistan, however, requires more academic attention as there is a lack of research on the factors that led to the IED becoming a widely diffused and successful method of violence that has proven resilient to unprecedented countermeasures.

While a variety of aspects of modern violence have been researched, much of the literature centres on actors' motivations and ideological justifications rather than the strategic evolution of methods of violence. For instance, Andrew Silke (2003) summarised the lessons that the field of psychology had learned about terrorists during the opening years of the war on terror. Following this, research by Horgan (2008) and Hoffman (2016) contributed seminal work on radicalisation, psychology, motivations, and strategy.

Conditions for participation in political violence also have been heavily theorised, with the greed versus grievance debate central in analysis of why individuals take up arms in civil war. The greed theory finding economic incentives compelling for violent action was supported by Paul Collier and Anke Hoeffler in 2004. However, Keen (2012) argues that a lack of political opportunities and perceptions of grievance are a more significant factor. Dyrstad and Hillesund (2020) focus on grievance and weak political institutions as central drivers. This builds a growing middle path that attempts to identify the selective incentives and nuance

of each conflict emphasising the importance of context. The reality is likely a mix of the greed and grievance theories with added contextual factors. There is a rising trend that examines the role of coercion by insurgent groups in this equation as an under theorised but likely significant component of individuals' participation in insurgency (Graham, 2007). Further, Kalyvas and Sánchez-Cuenca (2005) look at the relationship that violent groups have with their supporters developing important contributions in terms of changing forms of violence and the role of a groups supporting constituency in shaping their behaviour.

These works are significant in that they explain why individuals participate in violence and build important steps towards viewing insurgents as rational actors. However, much of the existing literature, particularly from 'terrorism studies', focuses on the psychology of non-state actors, their grievances, and their culture, often reproducing non-state actors' violence as sui generis and non-state actors as non-rational. This often manifests as an ethical hierarchy applied to forms of violence in which low-tech violence – particularly by Muslims - is categorised as irrational terrorism while high-tech violence perpetrated by states and western powers is rationalised as ugly but legitimate and necessary (Stefanini, 2021). There is therefore a necessity to analyse these groups as rational actors shaping their violence in response to their environment to meet their political goals.

Indeed, Huntington's 'Clash of Civilisations' (1996) set the tone for research on how cultural and theological differences would drive political violence in the post-cold war era. This idea was picked up in the statements of politicians in the aftermath of 9/11. The following wave of academic work on modern warfare developed because of the Global War on Terror (GWOT), as funding and political interest drove academia. Yet many aspects of these works have been criticised for their orientalist connotations (Aggarwal, 2011). Alongside the GWOT, widespread literature on the theological roots and cultural drivers of terrorist violence spread.

Within security studies and its 'counterinsurgency' and 'terrorism studies' branches, there are significant epistemological, methodological, and political-normative problems that persist, extending from a lack of conceptual clarity and theoretical solidity to political bias and a continuing lack of primary research data (Gunning, 2007).

In reaction to these biases, a body of critical literature emerged. This was to challenge the status quo in security studies and the influence of the narratives of the GWOT. Security studies was state focused and based around policy relevance (Burke, 2008). Analyses of non-state violence have often come with a value laden judgement which damages these works' contribution (Jackson, 2007). Much of the research post 9/11 has failed to recognise that it was saturated in a particular socio-political moment and that the narratives of the GWOT were shaping the questions being asked (Aggarwal, 2011: 4). This is particularly the case for Afghanistan and research on the Taliban as a violent organisation which was often viewed as disorganised, ineffective, and irrational.

Similarly, the concept of asymmetric conflict, has become a normative idiom to distinguish between civilized and uncivilized warfare, an idiom that converts ostensibly technological or strategic differences between state and non-state actors into moral and civilizational hierarchies (Winter, 2011). As a result, state violence as counterterrorism and counterinsurgency are often taken as distinct and separate from the violence of terrorism and insurgency (Duveyestyn, 2021: 7). It is therefore important to remove value judgements when analysing the processes of violence and innovation in such conflicts to avoid re-producing the narratives and assumptions which often place state violence as rational opposed to irrational non-state violence.

Crucially, military conflict is always about adaptation for all sides regardless of resources, with the ability to adapt to the context of each conflict often defining victory or defeat (Hoffman, 2021). Williamson (2011) highlights that, due to the unique properties of each conflict, armed forces always must recognise and adapt to the new tactical, operational, strategic, and political challenges that war inevitably

generates. Insurgents attempt to do the same. In this process of adaptation both sides attempt to gain an advantage. As such, the asymmetric relationship in warfare pre-dates the academic concept of asymmetric conflict, as violent actors always look to exploit opponents' vulnerabilities, thus naturally leading to the evolution of technology and strategy in conflict. Drawing on Duyvesteyn (2021) this thesis adopts the view that during armed conflict the intensity of violence and methods deployed fluctuate according to escalation and de-escalation, and that the deployment of violence is often messy and unpredictable, resting on a variety of interacting factors rather than purely calculated strategic decisions.

The level of resource asymmetry seen during the war in Afghanistan was extreme and the widespread and long-lasting deployment of counterinsurgency unique. Therefore, incorporating Kaldor's new war theory alongside its critique and the understandings of insurgency in asymmetric contexts from Berglund and Souleimanov (2019) brings a base understanding of the function of insurgency on which to build. Further, we can not only talk of types of war but types of warfare which often co-exist to different degrees within the same context with even conventional and guerrilla taking on different shapes and consequences in different contexts (Krcmaric, 2017). This brings us to contemplate the specific context of the war in Afghanistan and to focus on its specific dynamics with these theories in mind but without imposing them on the conflict without careful consideration.

Counterinsurgency

A growing scholarship investigates insurgency through state violence and the role of different counterinsurgency (COIN) strategies in defining insurgent violence. For instance, Dixon (2009), Mumford (2011), and Hazelton (2017) provide a sophisticated deconstruction of the idea that the hearts and minds doctrine represents a competent, democratic, or human rights-based approach to COIN. They highlight that coercive and violent action remains at its core and that its colonial roots undermine its possible success. This raises important questions for political

scientists studying Afghanistan and the notion of the 'nation building' project. Rhetoric around education and democracy often covers a multitude of coercive actions against the Afghan people. Even those who are advocates for the hearts and minds doctrine highlight that it functions by either providing rewards to the population for supporting the incumbent, or by imposing costs on the population for supporting the insurgents (Miller, 2016). Gentile (2013) suggests that the bottom line of all counterinsurgencies, regardless of rhetoric, is ultimately death and destruction produced by the fighting between the insurgent and counterinsurgent forces.

This is reflected in the work of Byman (2015), who analyses what he calls the authoritarian model of counterinsurgency in which extreme coercion and indiscriminate violence are privileged to force a population into acquiescing to an incumbent's authority. As his works title suggests, 'death solves all problems' (Byman, 2015). He highlights those authoritarians are more successful counterinsurgents than the focus on a hearts and minds approach would suggest. However, there are many claims that indiscriminate violence and mass repression comes with later consequences often boosting support for insurgents in the long run (Lyall, 2009). Yet context is a key factor in the use of indiscriminate violence as Souleimanov and Siroky (2016) highlight, retributive violence by COIN forces or violence that produces short term results often outweighs long-term thinking by counterinsurgents. Further, concentrated state violence can displace violent retaliation to other areas rather than prevent insurgent violence (Souleimanov and Siroky, 2016).

This is important because, unlike Gentile's (2013) assertion that counterinsurgency is only about death and destruction between the insurgent and the counterinsurgent, it is largely the population that is being fought over in both doctrines. In this context, narrative, legitimacy, daily experience, and selective incentives are important (Wood, 2010). All models of counterinsurgency must consider these factors. In Afghanistan, the Taliban became expert at using examples of coercion

and violence against civilians by state forces as a means of building legitimacy and support for their insurgency (Farrell, 2018).

As the US led counterinsurgency often relied on indigenous Afghan forces, the study of indigenous actors has become an important aspect of scholarship on insurgency. Indigenous forces are often viewed as more effective counter insurgents that foreign troops due to their expertise of the local political and geographical landscape. Souleimanov and Aliyev (2015) highlight that the Russian use of indigenous forces as counter insurgency actors in Chechnya and Dagestan had varying results, while corruption and nepotism was particularly damaging to its success in Dagestan. In Afghanistan, Lushenko (2015) traces the impunity of irregular indigenous security forces as a counter insurgency actor, raising a multitude of questions. This is particularly important for the case of Afghanistan as the US and the Afghan government built a reliance on local warlords and militias (Mehran, 2018), and must be considered as a factor influencing the Taliban's strategy of insurgency. Overall, there appears to have been a blend of attempts at population centric (hearts and minds) and enemy centric (search and destroy) COIN operations at play in Afghanistan (Lushenko and Hardy, 2015). Arguably these practices straddle authoritarian as well as hearts and minds-based schools of thought. As such, this thesis understands counterinsurgency operations as of a collection of tactics and practices and as an operational doctrine subject to variation in practice and evolution across the three key periods of US led COIN strategy. Therefore, COIN doctrine must be thought of as a part of the practice of an overall strategy as well as a distinct function of the war.

The ways in which this shifting COIN strategy influenced the changes in the Taliban's methods of violence bring us to the question of 'How' these factors interact in an evolutionary process. However, despite extensive research on insurgency and COIN doctrines, few scholarly works deal with the 'How' question and investigate the development of methods of violence by non-state actors. An example is that of Seifert and McCauley (2014), who disaggregated the targets of Iraqi suicide bombers to assess

the strategic function of suicide bombing. Araj (2008) highlighted the role of state violence, and repression in the selection of methods of violence. A small group of researchers are building on conceptual and methodological disaggregation of different forms of violence to better understand violent conflicts (De Fazio, 2020: 1691). Importantly, Wilson (2020) argues that there is a need to focus on these violent acts alongside the changing social context and technological reality that shapes them, so as to understand the process through which violence evolves and the broader political and social phenomena that these changes mirror. Overall, it becomes clear that looking specifically at the evolution of forms of violence gives us an insight into the strategic processes of conflict.

Studies of Insurgent IED Violence

Braithwaite and Johnson (2011) extended specific research on the fluctuation of IED violence with a case study of Iraq, analysing the timing and location of a variety of coalition counterinsurgency (COIN) operations as a potential correlating factor to instances of IED violence. Their research suggests that there is a consistent increase in COIN operations in areas with high IED use, however IED use follows a less consistent pattern in response to increased COIN operations. The findings also suggest that more indiscriminate COIN operations are associated with an elevated occurrence of subsequent insurgency in the medium to long term, whilst for more discriminatory and capacity reducing COIN operations the reverse appears to be true. This thesis aligns tightly with the research objectives of Braithwaite and Johnson (2011) applying an investigation into the correlation and strategic evolution of the interaction between these two factors in Afghanistan.

There have also been significant contributions on IED violence within Afghanistan with Curtis et al (2015) establishing a space-time analysis of IED use in Afghanistan between 2004 and 2009. Drawing on 6 years of granular data in the form of IED locations available in the Wiki Leaks Afghan War Diary (AWD), they compared explosive violence data with

health data, thus addressing a weakness in the nexus of health and conflict research, which had previously excluded this factor.

Barker (2011) researched IEDs in Southern Afghanistan and Western Pakistan between 2002 and 2009, using kernel density estimation (KDE) to provide a comprehensive analysis of violence across districts. He concluded that detonations had increased in number and lethality (Barker, 2011). For this research Barker drew on three data sources the Maryland Global Terrorism Database (GTD), the National Counterterrorism Centre's Worldwide Incidents Tracking System (WITS) and Hazard Management Solution's (HMS) TRITON Database, all of which contain information extracted from open-source media. Sophisticated primary data analysis and the merging of data sets as done in the research above brings significant scope for analysis and crucial contributions to the study of explosive violence and insurgency. However, such quantitative processes remain outside of the scope of this thesis due to incoherent available data across the large time frame and time constraints. Instead, this thesis aims to identify the shifts in Taliban use of the IED in response to counterinsurgent strategies across three key turning points between 2006 and 2021 looking at secondary data and changing strategies.

Carter (2011) looks at the timing of deadly events in Afghanistan, to build an understanding of relevant factors for increased fatality. His research suggests that proximity to Taliban supply areas bordering Pakistan is significant for the lethality of Taliban attacks. He also highlights two novel factors displaying the relevance of religious observance (Ramadan) and extreme weather as factors in the increased lethality and quantity of attacks (Carter, 2011). Further, a factor commonly discussed in the conflict in Afghanistan, the production of opium, proved to be very important. As provinces with greater opium cultivation are much more dangerous (Carter, 2011).

Specifically, this thesis builds on the work of Wilson (2020) and Veilleux-Lepage (2020) to target 'deeds': or, more precisely, violent

methods of contention, incorporating the importance of state violence through counterinsurgency. Context is important in this research. As Veilleux-Lepage's (2020) analysis drawing on Darwin's (1859) revolutionary notion argues, the environment forces, encourages and obligates organisms to evolve. This leads to three key mechanisms of evolution: variation, transmission, and selection (addressed in more details below). This dissertation, therefore, places particular attention on how non-state actors' violence evolves in a system of competition characterised by asymmetric warfare.

The US led forces and Afghan government constitute the state led violence in the form of counterinsurgency operations, the Taliban's insurgency is recognised as the movement in which the evolution of these methods of violence will be analysed. Crucially the conflict in Afghanistan features a vastly more complex array of violent actors that this binary equation. However, the Taliban's return to power in 2021 after waging a remarkably sustained insurgency necessitates a focus on the evolution of their methods of violence. Building on this the collaboration between the Taliban and US forces at points during the conflict in Afghanistan can be viewed through Duyvesteyn's theorisation that opposing forces can deescalate and even cooperate when their norms align (Duyvesteyn, 2021: 4). As a result, it must be understood that at points during the conflict cooperation did exist to varying degrees. This however presents a further opportunity to analyse how this convergence impacted the Taliban's use of IED violence.

Overall, there have been significant contributions on the violence of non-state actors and counter insurgency methods in asymmetric conflict. Yet, many of these studies have been led by the narratives of the GWOT without necessary introspection. The critical turn and emerging work which seeks to counter this by providing balanced, context-led analysis is promising. Further, many excellent quantitative studies have been produced on insurgent violence and specifically the IED in Afghanistan. Building on the previous literature this thesis aims to position itself as part of attempts to disaggregate individual conflicts and build a context

led understanding of the relationship between counterinsurgency operations and the Taliban's use of IED violence in Afghanistan.

Structure, Agency, and Evolutionary Theory

This thesis' approach is intimately tied to the structure-agency debate that permeates all social science research and which demands that all political science scholars must take a stance, explicitly or implicitly. However, when it comes to the evolution of insurgent violence in response to state counterinsurgency, structure and agency are both crucial elements that affect this process. For instance, in the case of the Taliban use of IED the asymmetric conditions of the conflict, their resource implications, and the seasonal nature of Taliban offensives due to harsh winter and poor transportation (structure) hold significant weight affecting the quantity of IED attacks across each year (Carter, 2011). Also, decisions made about which strategies of violence to pursue, the specific targeting of the Afghan government, individuals, or choosing indiscriminate attacks (agency) influence the evolution of IED use as shown below. Therefore, both strains influence each other as the insurgency is shaped overtime by structural and agency led factors. Thus, this work takes inspiration from Berger and Luckman's (1966) research, which suggest that the social construction of reality is a dialectic process, society shaping individuals and individuals shaping the structure of society in turn. The establishment of this context through a dialectic approach to the structure agency debate forms a foundation for a focus on one aspect of the evolution of violence during insurgency. Therefore, when analysing the evolution of the Taliban's use of the IED both agency and structure will be considered in a dialectic fashion (McAnulla, 2002).

This thesis applies the evolutionary and context specific approach advanced by Veilleux-Lepage (2020) to analyse the process of evolution that the Taliban's use of the IED in response to counterinsurgency strategy. Veilleux-Lepage applies evolutionary logic to the evolution of plane hijacking by terrorists and criminals to explain how methods of contention evolve, are adopted, or are abandoned. His framework rests on three key principles of evolutionary logic: variation, transmission,

and selection (Veilleux-Lepage, 2020: 10). These three principles are defined by drawing on Darwin and the logical mechanisms of biological evolution. The first principle, variation, states that members of a relevant population vary with respect to at least one characteristic with selective significance. In terms of IED evolution this corresponds to the decision to re-design IEDs with less metal parts, deploy secondary explosives in ambushes or shift to more sophisticated suicide attacks. These tactical and design variations in IED use have selective significance as they produce varying results as part of the trial-and-error process in violent competition with counterinsurgents. The second principle, transmission, posits that there exist copying mechanisms to ensure continuity over time in the form and behaviour. This suggests that the Taliban communicated variations in IED use that were effective across their networks and that new designs and tactics were communicated to the insurgents from foreign advisors and the central leadership. The third principle, selection, states that the characteristics of some entities are better adapted to prevailing evolutionary pressures and, consequently, that these entities increase in numerical significance relative to less well-adapted entities (Veilleux-Lepage, 2020: 10). This relates to understanding the process through which certain tactics and designs of IED use are favoured or abandoned depending on their effectiveness.

These principles exist as a theory of the logic of evolution that allows us to interrogate the specific mechanisms of evolutionary processes. As such they will be used as empirical categories to analyse the development of IED use. While this framework draws from biological science, it has useful explanatory applications in the social sciences, and can be used to explain the evolution of methods of violent contention such as the IED. Each method of using the IED requires an epistemic base defined as propositional knowledge, which evolves throughout the experience of conflict informing the resulting variation (Veilleux-Lepage, 2020: 24). As such, these principles allow gaining insights into the development of methods of violent contention by insurgents as a trial-and-error process, resting on innovation and resource disparity in asymmetric conflict to

succeed under the pressures of state violence. This process is not straightforward and planned as many interpretations of evolutionary theory suggest. It is driven by unexpected mutations caused by environmental (context-specific) demands.

The logic of evolution is pertinent to understanding the causal impact of a variety of factors on the variation of methods of violence deployed in insurgency. For instance, in Northern Ireland in 1990 the hardening of military checkpoints and development of radio jamming techniques by the British military aimed to decrease the effectiveness of IED attacks and prevent remote detonations by the Provisional Irish Republican Army (PIRA) (Bloom and Horgan, 2008). In response the PIRA bomb makers developed a variation in their method of IED violence. They deployed a version of the SVBIED in which a civilian marked as a collaborator was kidnapped and their family was held at gunpoint as they were forced to drive an explosive-laden vehicle to a British checkpoint, at which point a PIRA Active Service Unit would detonate the device. On 24 October 1990, the PIRA held the families of three men hostage and tied the men into vehicles to drive into British Army checkpoints. Two of the bombs detonated, killing six soldiers and Patrick Gillespie one of the three coerced drivers, injuring another 35 people (*Irish Times*, 25 October 1990: 1). These attacks were an effective innovation in response to the hardened checkpoints (counterinsurgency strategy), yet this variation was shortly abandoned despite the successful attack on a British checkpoint due to the outcry amongst the PIRAs supporting constituency (Brooks, 2022).

The development of the proxy bomb is a crucial example for the explanatory power of an evolutionary framework. Critics argue that all evolutions can simply be circularly identified as naturally selected. This may be the case as state COIN operations influence variation in insurgent violence which further evolves COIN practice. It is nonetheless important to narrow down on one section of this process as this focus allows us to investigate the evolution of a single function of insurgency such as explosive violence. Despite its effectiveness, the proxy bomb was

swiftly abandoned due to its unpopularity amongst the PIRA's supporters. Here we see the variation of IED techniques in response to changing methods of state counter insurgency, proxy bombing being deployed and then abandoned with other methods of IED attack being selected for long term use instead.

When applying this logic to conflicts such as Afghanistan, it is crucial to understand that war is messy, the escalation, de-escalation and shifts in the deployment of violence often happen outside of hierarchical or strategic control (Duyveyestn, 2021). As a result, it is understood that many of the crucial innovations in strategy happen at the edges, amid desperation, necessity, or the fog of war. The variation of violence is sometimes driven by central policy makers and as part of a hierarchical command structure but shifts in violence are often the product of local innovations and iterative developments by those closer to the violence and are often transmitted and selected outside of the control of an organisational command structure. Further, the Taliban's own command structure incentivises this. In the Afghan conflict a plethora of actors engaged in violence for their own selective incentives and strategic aims. The binary dichotomy between the Taliban and US forces simplifies a vastly more nuanced conflict. As a result, it must be considered that evolution in the variation, transmission, and selection of methods of IED violence cross the boundaries of different non-state actors in Afghanistan and that the Taliban's insurgency gained propositional knowledge from experienced non-state actors and from observing other violent acts. In interaction with the state, non-state actors appear to have an intrinsic evolutionary advantage, innovating and replicating successful techniques at a much quicker rate (Veilleux-Lepage, 2020). This is likely due to the flexibility and personal agency available in non-state organisations as well as necessity creating quick decision loops which the state is unable to replicate. This is particularly pronounced as military institutions in the western tradition have long based their instilling of discipline and hierarchical authority at the core of their training to ensure effective response to commands in wartime (Williamson, 2011). This has built tension between disciplined, obedient

military organisations, and the ability to adapt in a world of constant change that necessitates military innovation (Williamson, 2011). Counter IED doctrines and organisations account for an actively engage with the evolution of the enemy violence yet are still bound to cumbersome processes for decision-making.

Though a higher degree of agency than present in much literature must be attributed to groups like the Taliban in their effective insurgency the complexity and messy nature of this process must be noted. Therefore, the explanations set out by Veilleux-Lepage (2020) provide a framework to step towards understanding the development of violent methods of contention in a complex environment of asymmetric warfare and an insurgency layered with a variety of strategic interests and local actors. By giving primacy to the role of context, this analysis allows insights into why certain methods became resilient or were abandoned by non-state actors during the conflict, and thus an understanding of the conditions that led to the proliferation of IEDs. Ultimately, this approach allows understanding of how non state violence interacts with state violence under the principles of asymmetric conflict suggesting an evolutionary explanation for the ever-changing IED use in Afghanistan.

Research Design and Methodology

To qualitatively assess how state-led violence affects repertoires of violence by non-state actors in contexts of asymmetric conflict, this research draws upon the case study of Afghanistan between the 1st of January 2006 and the 30th of August 2021, adopting a longitudinal case study design. The case study approach is outlined by Gerring (2004) as an adaptable and core method in political science. Alongside qualitative comparative analysis this method sets out a structure apt for process-tracing (George and Bennet, 2004). In this thesis the method facilitates a descriptive approach to identify the causal effect of counterinsurgency on the process of violent innovation within the Taliban.

The focus on this period is due to two factors. In the spring of 2006, the Taliban's insurgency returned in strength to Afghanistan with a wave of IED attacks capitalising on the weakness of the Afghan government and

the distraction that US involvement in Iraq provided. Further, during this time the US strategy features three key shifts in 2006, 2009 and 2014 before total withdrawal in 2021. In 2006 US led COIN doctrine was codified and Counter-IED efforts given central focus. From 2009-2011 the newly elected Barack Obama led a surge of resources and violence aimed at wrestling back control of Afghanistan, assumptions of success were built on the confidence of similar efforts in Iraq. The subsequent decision to drawdown, end combat operations in 2014, negotiate and withdraw over the following years saw a focus placed on the Afghan forces as the main counterinsurgent actor as US political will faded. As such, the case of Afghanistan allows mapping the iterative interaction of state and non-state violent competition drawing on how state led violence has forced non-state violence to evolve. The selection of the IED as the object of analysis derives from its extensive use as a method of violence in Afghanistan both by the Taliban and by other actors. IED is a weapon which can be considered paradigmatic of asymmetric conflict and therefore the evolution of its use in effective insurgency begs academic enquiry (Revill, 2016).

A longitudinal case study design allows employing comparability between sub-case studies, which is important to assess the interaction of actors involved in a process that leads to the evolution of methods of violence such as the IED. As such, within this timeframe I identified three distinct periods marking changes in the use of Taliban violence, resulting in three sub-case studies. The identification of these key turning point periods is dictated by changes in external contexts, affecting the response of the Taliban's IED use and its evolution. Each of these periods feature a unique relationship between the strategy of counterinsurgency and the Taliban's insurgency, allowing assessment of the variation and innovation of IED violence in response to different counterinsurgency and counter-IED strategies.

2006 The Lethal Crossroads: covers the period between 2006 and 2009, which marks the US led implementation of new COIN doctrine,

coinciding with a growing Taliban insurgency and their mass use of IEDs.

2009 Blunting the Surge: covers the period from 2009-2014, and therefore the US led surge in which huge material and financial resources were poured into Afghanistan intensifying COIN operations and drone strikes to regain control.

2014 Towards Kabul: covers the period from 2014 to 2021 highlighting the transition from NATO International Security Assistance Force (ISAF) deployment, the US realisation that increased levels of resources did not provide the progress that they expected, and that the Afghan government was cripplingly reliant on US led action. This period featured a sustained drawdown, reliance on drone strikes and Special Forces alongside emphasising the Afghan security forces role at the forefront of the war.

This thesis applies qualitative research methodologies such as the constant comparative method to analyse three distinct phases of insurgent and counterinsurgent violent competition in Afghanistan between 2006 and 2021. Constant comparison allows analysing the interaction between counterinsurgent strategy and the evolution of Taliban IED, using Veilleux-Lepage's (2020) theoretical framework of variation, transmission, and selection. The process of selection will be analysed in a separate section at the end of the case study comparatively analysing its changing nature across all three phases. Dealing with selection after the analysis of the three phases is important as it is tied more specifically to the broad changes in the Taliban's strategic focus and organisational structure which carry across the phases. This approach allows an interrogation of the process of changing violence and isolates changes in counterinsurgent strategy allowing identification of its role as a driver of insurgent innovation. It also allows gaining an insight into the process of design, tactical and strategic variation in insurgent violence allowing a scalable analysis of the 'how' the process of violent innovation responds to environmental, contextual, and adversarial factors.

In this analysis, strategies of state violence will be treated as the key variable to isolate the impact of the US led COIN operations and the Afghan government's strategies on the variation of IED violence by the Taliban. The tight focus on these narrow factors provides a useful window to analyse the evolution of methods of violence during insurgency. The application of evolutionary logic to social science has been derided as tautological in its reasoning and lacking true explanatory power. Its critics, such as Popper (1972), suggest that employing this logic brings circular arguments that confirm preconceptions. However, these arguments suggest that the conclusions are deterministic yet, this case study provides probabilistic explanations. As a result, it must be recognised that alongside state strategies, the role of power, hierarchy, debate, symbolism, ideology, luck, and negotiation feed into the adaptive properties of this evolution. It is therefore useful to employ a structured comparative analysis of this case to narrow down the focus on a single aspect that is the Taliban's evolution of explosive violence and its relationship with state counterinsurgency strategies.

Defining Counterinsurgent Actors

State actors are represented by two central counterinsurgent forces in Afghanistan. Coalition forces comprising the NATO led ISAF as well as various US conventional and counter-terrorism forces and the Afghan government and its security forces. Although they often worked closely the distinction between the two is important as the Afghan government and the coalition forces often diverged in strategy and political goals throughout the three distinct phases of the conflict.

US-led Counterinsurgents

The US-led coalition consisted of many foreign partners using discretionary power and often separate COIN doctrines to address the conflict (Lambert, Coyne, and Goodman, 2021). The US-led coalitions doctrine of counterinsurgency followed the 'good-governance' or 'hearts and minds' model in which legitimacy building and economic support for a democratic counterinsurgency state pairs military action against insurgents with the desire to limit civilian casualties and build trust (Hazelton, 2017). The US approach in Afghanistan was at times far more

coercive. Their 'hearts and minds' approach ran parallel to coercive counterinsurgency operations, drone strikes, kidnappings, CIA black sites, extraordinary rendition, assassinations, and conventional military operations which featured indiscriminate violence (De Lauri and Suhrke, 2020). This aligns more with the authoritarian methods of COIN, which are often effective in the short term but leave deep memories and grievances in a damaged population (Byman, 2015). This in turn alienated the Afghan population, leading to the resuscitation of a defeated and unpopular Taliban (Abbas, 2015). The US led strategy shifted across three key turning points in 2006, 2009 and 2014. These changes in doctrine and practice alongside the US led counter-IED effort are key factors to analyse in the interaction between counterinsurgency and the Taliban's use of the IED.

Afghan Counterinsurgents

The Afghan government and security forces will be considered as a counterinsurgency state, as their main purpose from their foundation until being overthrown was to fight against an insurgency while trying to build legitimacy, governance, and services for their citizens. The Afghan security forces include the Afghan National Army, Afghan National Police, Afghan Local Police, and a patchwork of local warlords and militias with shifting allegiances and capabilities. NATO and coalition partners poured resources into the Afghan security forces including the Afghan Local Police (ALP) who deployed a mix of local militia to engage in protective violence, yet they often engaged in predatory and abusive violence (Goodhand and Hakimi, 2014). Hazelton (2017) argues that small nations involved in counterinsurgency more often pursue a coercive practice of COIN more regularly engaging in violence against the civilian population. The Afghan government distinctly pursued its own strategies and crucially was constituted by bureaucrats and policymakers with their own political agendas, grievances, and ethno-linguistic influences. Their central desire was building legitimacy amongst the Afghan people, consolidating control, and retaining the foreign funding which kept them afloat. Thus, there are two distinct

counterinsurgent actors in this analysis: that of the US led coalition and the Afghan government.

Defining Taliban Violence

In this study, insurgency is defined as a political-military campaign by non-state actors seeking to overthrow a government or secede from a country by controlling territory using unconventional—and sometimes conventional—military strategies and tactics (Lewis, 2020). The actors considered as part of the Taliban's insurgency are defined as the Afghan Taliban consisting of the Quetta Shura, the often-autonomous Peshawar Shura, and the Haqqani Network. Although sporadically acting autonomously with strong links to Al Qaeda the Haqqani Network will be considered an associated network and part of the Taliban movement due to the influence of the Haqqani network on the Taliban's strategy and the current prominent role of the Haqqani's in the Taliban's government. The group is amorphous to a certain extent and attribution is always difficult. However, these key elements provide the core of the Taliban movement's insurgency for this study.

It must be recognised that the Taliban's successful insurgency and return to power shrouds a complex conflict in which many more violent non-state actors were active. While many of these other actors necessitate academic attention, the success of the Taliban drives the need for analysis of their strategies and success.

This analysis will focus tightly on the use of IEDs by the Taliban for two central reasons. First, the IED remains the most widespread use of explosive violence by non-state actors worldwide and has a high prevalence in Afghanistan. Between 2001 and 2021 the Taliban were among the most prolific users of this explosive violence (AOAV, 2021). Second, the IED is a weapon that naturally falls into the hands of the non-state actor, offering them a force multiplier that allows them to attack state and civilian alike (Overton and McCafferty, 2021). Further, in the context of asymmetric conflict the IED is crucial as a weapon that is central to strategic success for non-state actors (Revill, 2016). The combination of the extensive, varied use of the IED and the Taliban's

organisational structure shaped around building a flexible insurgency appear significant in the eventual success of the Taliban's insurgency and are therefore the central focus of this research.

IEDs provide a relative economy of means. They include iterations ranging from car and roadside bombs, victim activated IEDs, to suicide bombs, Suicide Vehicle Borne IEDs (SVBIED) and, most recently, IEDs attached to small commercial drones. IEDs contain a main charge, initiator, firing switch, power source and a container, often these weapons are constructed from conventional munitions that are augmented into powerful IEDs. In different contexts, each method delivers its own form of destruction lending the IED to an evolutionary trial-and-error process, crucially the sharing of information and skill sets, has allowed the tactics of violence to shift in relation to different conflicts and develop over time becoming central to insurgency in Afghanistan. Importantly, a substantial number of instances of explosive violence remain unattributed or unclaimed, this adds to the complexity of assessing what violence originates from the Taliban and what may be the use of IEDs by other violent non-state actors.

Assessing Counterinsurgency and IED Data

To assess the cause-and-effect relationship between state and non-state violence, the research relies on secondary data. Data is drawn from 48 sources listed in Appendix A, firstly the strategic documents and reports of counterinsurgent actors. This includes 16 reports of the US Department of Defense between 2012 and 2021, six Joint Improvised Explosive Device Defeat Organisation's reports from 2007-2011, and 13 United Nations International Security Assistance Force reports between 2006 and 2014 all detailed in Appendix A. The reports from these three sources provide a year-by-year account of the shifts in counterinsurgent strategy, the coalitions perception of Taliban strategy and data on IED use drawn from their own data collection. This data will be used to understanding the assessments that counterinsurgents were making about the threat of IEDs as well as track coalition casualties and the implementation of countermeasures and counterinsurgency.

A second source of data comes from NGO's and research institutions. Action on Armed Violence (AOAV) provides a global database of explosive violence incidents registered in English language media from 2010 (AOAV Explosive Violence Monitoring Project, 2022). For this thesis their data has been filtered to Afghanistan between 2010 to 2021, highlighting IED attacks identified as perpetrated by the Taliban and the Haqqani network. Their publications and reports have also been consulted alongside this data to identify the broad trends of IED use in Afghanistan. The Chicago Project on Security and Threats Suicide Attack Database gathers data on suicide attacks from 1982 to 2020 with basic information including location, time, and attack type alongside target information and attacker biographical information (CPOST, 2021). For this study the Suicide Attack Database country specific data has been used with a focus on 2006-2020. This data is important when assessing the tactical changes in the deployment of suicide attacks in Afghanistan as it provides a reliable sample of the quantity of attacks and perpetrator identity. Iraq Coalition Casualty Count available at icasualties.org provides a database of coalition fatalities broken down by time and cause including a section that covers Afghanistan from 2001-2021. This data is used to supplement ISAF and US Department of Defense reports on casualties and to give an understanding of the shifting patterns of casualties both fatal and injured between 2006 and 2021.

It is important to note that the actors involved in the conflict held separate methodologies for data collection and often under-reported instances of IED attacks. Further many IED attacks likely the work of Taliban went unattributed. In terms of data, Afghanistan between 2006 and 2021 is an opaque environment; nonetheless the available data of the mentioned organisations drove US led COIN strategy and influenced the response to the IED as well as suggesting shifts in its use. In dealing with the available data the reports and data mentioned above have been gathered and organised across the three phases of the case study to identify the variation in IED use highlighted in reports and the rising trends visible in the data such as the growing use of suicide attacks and a focus on attacks in urban centres.

Further, academic work such as Trebbi et al (2020) analysed the location, timing, targets, and outcomes associated with 94,679 IED-related events from 2006 to 2014 to analyse the role of insurgent learning in Afghanistan. This data and qualitative insight provide an important source for the first two time periods of the following case study. All available data is likely an under reporting of the actual extent of Taliban IED use in this period however, it provides a base of data from a variety of sources both researching or actively involved in the conflict.

A significant limitation is a lack of language skills which prevents incorporating qualitive analysis of primary source material in Afghan languages. To address this gap, the work of Mike Martin (2017) was important as his selection of interviews from Helmand province provide a seminal contribution to understanding the conflict in the English language. Furthermore, Giustozzi's (2019) analysis of the Taliban's organisational development and methods of war draws on a reliable base of primary sources, particularly interviews that provide the Taliban's accounts of their own strategy. As a result, this work was consulted to gain insight into the Taliban's own perception of their insurgency and evolution of IED use. This method features several limitations largely due to the unreliability of available data yet provides a narrow approach to explaining the role of state strategies in impacting the innovation of IED use by insurgent groups.

The Conflict and the Taliban's Organisational Structure

The Taliban's organisational structure facilitates the insurgency, as such understanding the ways in which the Taliban's network's function is a crucial component to understanding the environment that supported variation in IED use and strategic direction in response to counterinsurgency.

On the morning of 11th of September 2001 two planes crashed into the towers of the world trade centre, a third striking the Pentagon and a fourth crashing in a field in Pennsylvania (9 11 Commission, 2013). This

attack is often marked as a watershed moment in the field of security studies and epoch defining for the beginning of the 21st century. For Afghanistan and the Taliban, the attack had a profound impact. US military intelligence had identified Afghanistan as the base of operations for Al Qaeda's leadership and had associated Osama Bin Laden's organisation with the 9/11 attacks. As a result, the US led an invasion of Afghanistan on the 7th of October 2001. The Taliban were removed from power in a swift and comprehensive military offensive but few plans for the peace had been made. Amidst the resulting chaos the US promoted Hamid Karzai to lead the new Afghan government.

While the US backed Afghan government scrambled to establish itself and the US dug into the realisation that a long reconstruction effort was required, the Taliban's leadership licked their wounds in the Federally Administered Tribal Area of Pakistan. The following two decades featured the longest application of counterinsurgency in recent history, bringing insurgency to the front of the security agenda of numerous nation states and academic works. After the invasion 8,000 US troops and 13 CIA groups were tasked with tackling the Taliban and Al- Qaeda leadership in the south and east of Afghanistan (Abbas, 2015). The separate UN- mandated International Security Assistance Force (ISAF) was established in early 2002 to secure Kabul, the western coalition followed the suggestion of Lakhdar Brahimi, the UN's special representative for Afghanistan in 2001 who argued that Afghans would never accept large foreign military presence, yet the light footprint approach was ineffective (Abbas, 2015). The light footprint meant that Hamid Karzai had to rely on local warlords to establish control and as a result the western messaging of reform, democracy and security was a world away from the reality of daily life for most Afghans (Mehran, 2018). NATO assumed control of the ISAF and a growing remit followed until in 2006 ISAF held responsibility for security across the entirety of Afghanistan.

The US led war in Iraq proved a crippling distraction which diverted resources and attention away from Afghanistan at a crucial time. Reform

of the security sector in Afghanistan was delegated to four states: the US was given responsibility for the military; Italy, the judiciary; Germany, the police; and Britain, counter- narcotics (Abbas, 2015). The foundations of this rebuilding project were poorly coordinated and over the following years the Afghan government suffered from corruption, inadequate management, and a lack of legitimacy among large sections of the population. Significant socio-political and economic failures in these early days gave a space in the political landscape for a returning Taliban that otherwise may have been comprehensively removed from the equation.

The Resurgence

In 2006 the Afghan government was still failing to provide basic services for its citizens, creating the perfect environment for the Taliban to remobilise. Afghan security forces were too weak to establish law and order; and light footprint international forces were unable to compensate (Jones, 2008). The Taliban played on the corruption and ineptitude of the Afghan government to provide for its citizens. This became the founding framework for the Taliban's fight. In conjunction with the return of the warlords terrorising Afghans and the indiscriminate counterterrorism operations run by the US, Afghanistan became the perfect incubator for the continued support of an insurgency.

The neo-Taliban as they have been branded are a different movement from the Taliban of the 1990s. They retain their sharp focus on political goals within Afghanistan and desire for implementing their interpretation of sharia but many of the structures, tactics and means have shifted. This resurging Taliban have consistently shown remarkable resilience and the ability to adapt their strategy of insurgency while avoiding fragmentation or disintegration (Jackson and Weigand, 2019). The neo-Taliban returned in force to Afghanistan in 2006 and 2007 across a growing list of areas in southern, central, and eastern Afghanistan. Crucially increased Taliban activity in neighbouring Pakistan—signalled a turning point in the war providing a haven for training, logistics and finance as well as contact with other sympathetic militant groups in the Federally Administered Tribal Area (FATA)

(Crews and Amin Tarzi, 2009). A reinforcement of Pashtun tribalism, the growing influence of criminal networks, incompetence of international contractors and huge floods of poorly controlled US money created new avenues for the Taliban to fund themselves (Abbas, 2015). The new insurgency became built around a nucleus in Quetta, where power, dogma and money held primacy, the resurgent Taliban movement had weaknesses but had shaped the basis of a resilient insurgency from its haven in Pakistan (Abbas, 2015).

The Surge and the Shadow Government
In the face of a deteriorating situation in 2009 Barak Obama ordered a surge in the belief that an overwhelming increase in resources and military personnel would restabilise the Afghan government and counter the Taliban's growing insurgency (Marsh, 2013). Yet the Taliban remained resilient with its use of societal grievances and local identity as well as its military innovation and escalation of IED violence blunting the surge. The deliberate evolution of tactics by the Taliban became crucial to challenging the advanced weaponry wielded by the US-led coalitions and the Afghan government. The Taliban's continued modification of IEDs, assassinations and information warfare demonstrated their strategic effectiveness. Their singular focus on building alternative governance to the ineffective Afghan government explains the extent of their success among a vulnerable and disenchanted Afghan population. The Taliban has capitalised on both their social environment and the military environment to adapt their strategies in ways which prolong their movement and maximise mobilisation. The Taliban became adept at exploiting the weaknesses of the Afghan government as their dependence on the US became apparent rebalancing political legitimacy in their own favour while spreading their ideology transgressing tribal and ethnic divisions.

The surge failed to deliver the results that the US anticipated, the inaccuracy of its COIN operations became apparent and US political will began to falter. The absence of progress after the surge of civilian and military assistance between 2009 and 2011 made it clear that the fundamental problems were unlikely to be addressed by changing

resource levels (Sopko, 2021). As a result, the US began a decade long drawdown of its commitments in Afghanistan culminating in negotiations with the Taliban and the eventual withdrawal in 2021.

The Structure of the Taliban's Insurgency

In this renewed insurgency the Taliban's poly-centric organisational structure facilitated short decision loops and strategic innovation. In its early years the insurgency was fragmented but between 2002 and 2006 charismatic leaders and patrimonial structure began to integrate various segments on the movement into a coordinated and dynamic insurgency built on a network of networks (Farrell et al., 2013). The Taliban's leadership, the inner shura included leadership committees and key commanders headed by Mullah Omar. Its military and political leadership committees were based in Quetta across the border in Pakistan, from this haven they increasingly coordinated Taliban offensives and oversaw elements of the shift towards asymmetric tactics (Jones, 2008). Beneath the movement's leadership councils, the Taliban is structured horizontally as a web of networks and fronts, usually called 'Mahaz,' led by local military commanders (Ruttig, 2021). These local leaders have a significant degree of autonomy, in decision-making and day-to-day affairs allowing flexibility in the Taliban's insurgency (Ruttig, 2021). Their operational art combines information operations, including appeals from tribal elders alongside text messages and Twitter, with decentralised orders that allow local commanders who know the terrain and politics in their areas to identify opportunities for taking the initiative. This structure allows strategic autonomy at the local level which contributes towards consistent local engagement and legitimacy building, a deep knowledge of terrain and peoples and the tactical dexterity to innovate methods of violence at a higher rate than state forces can respond. There is often a misconception in the west that the Taliban is therefore a movement of loosely connected and incoherent Mahaz (Dorronsoro, 2009). The Taliban's leadership enacted a process of adaptation bringing strategic, tactical, and organisational structures under their coordination. This process was often resisted by various networks and influential figures within the Taliban movement causing

significant frictions within the movement. However, most elements of the movement's insurgency were under centralised control by 2011 engaged in strategic planning and coordination directing the emphasis on asymmetric strategies and building the capacity and support network for a mass IED campaign (Farrell et al, 2013).

IED networks in Afghanistan are commonly structured through family or tribal relationships with information, resources and skills feeding into the network from local community, sympathetic radical groups, Taliban leadership, and foreign advisors (Revill, 2016). This constitutes a dynamic horizontal and vertical support system that has ensured the resilience and tactical flexibility while retaining a central focus on the strategic interests of the Taliban leadership (Revill, 2016).

The insurgents often relied on high-value attacks using vehicle-borne IEDs to terrorise the population and strike at the government, yet we have seen several shifts in their strategy. In the lead-up to the 2021 campaign they shifted their tactics to a war in the shadows that proved more effective in undermining the legitimacy of the Afghan government with targeted assassinations (Jensen, 2021). The IED was then used by the advancing Taliban movement as a shock tactic striking police stations and checkpoints before the Taliban forced the surrender of towns and cities.

For the Mahaz and the wider Taliban strategy two attributes are key, mobilisation, and time. Both attributes are present in the Taliban's strategy and are key factors in their resilience and success (Kirkas, 2019). The IED features prominently as one of the Taliban's most effective forms of violence. The Taliban focused their efforts in the rural areas of Afghanistan where lawlessness was greater. Launching military attacks in conjunction with operating a shadow government displayed both the weakness of the Afghan government and the strength of the Taliban. The Taliban managed their shadow government through the central command with the incorporation of local knowledge to guarantee they were operating in a way to win over the community (Farrell, 2018).

Importantly, the Taliban are seasonal fighters, their ranks swell in the spring and shrink in the winter, this must be considered when looking at increases in amounts of violence as the swelling of ranks often coincides with official declarations of spring offensives (Koven, 2017). This seasonal increase in Talib's willing to fight in Afghanistan is due to several structural factors, the end of the harsh Afghan winter, which both limits transportation within Afghanistan and across to the crucial areas of Pakistan which provide refuge and logistic supply chains, the culmination of the poppy harvesting season and the end of teaching in Pakistan's Madrassas (Koven, 2017). Crucially, the Taliban rely on the extensive cultivation and trafficking of opium poppy to finance their insurgency (Koven, 2017). After the return of the Taliban Afghanistan produced 8,200 tonnes of opium in 2007, more than the production of the entire world the previous year (Chouvy, 2009). As such, the fiercest fighting follows cultivation cycles. Similar patterns in terms of quantity of IED violence have been observed by the studies of Carter (2011) and Barker (2011).

2006 The Lethal Crossroads
Counter Insurgency Strategy/ Doctrine

2006 represents a seminal moment with two strategic changes shifting counterinsurgency doctrine in Afghanistan. In February the Joint IED Defeat Organisation (JIEDDO) was established as the IED became recognised as the most significant threat to US strategy in Afghanistan. In December Field Manual-3-24 (FM-3-24) was published, the US first counterinsurgency doctrine since the Vietnam war (Amos and Petraeus, 2006). In this timeframe coalition forces began to realise that they were facing a long fight against a growing Taliban insurgency and that their security posture was not appropriate for this type of conflict. As a result, there is an effort to shift focus towards counterinsurgency and wrestle back control of the South and East where the Taliban had grown. The 'Hearts and Minds' approach to counterinsurgency is emphasised in FM-3-24 with population centric efforts at its core (Amos and Petraeus, 2006). This strategy was a permutation of classic colonial counterinsurgency aimed to focus on the political issues at the local and

national level as well as raising the cultural awareness of troops to engage in development projects and building the legitimacy of the US backed Afghan government (Ozdemir, 2018). However, the US was distracted by Iraq and the implementation of policy in Afghanistan suffered. In Afghanistan the focus became developing a unity of effort among all coalition partners and aligning the political goals with the reconstruction effort and operational action (Farrell et al, 2013). In terms of developing a coherent implementation of counterinsurgency a lack of resources hampered progress in a period characterised by strategic neglect (Farrell et al, 2013).

This focus went alongside more aggressive 'search and destroy' missions with an uptick in raids and drone strikes (Meilinger, 2017). The focus on adapting the US and ISAF capabilities left little emphasis on the Afghan forces. The Afghan government were implementing a separate political military strategy relying on local militias and warlords (Mehran, 2018). This incoherence and lack of capacity building among the ANSF is a problem that would impact the conflict across the following 15 years. Despite being a key goal of ISAF during this period attempts at security sector reform were incoherent, beset by corruption and poor management on all sides (Yasa, 2020). This slowed the capability building of the Afghan security forces and their ability to operate independently of ISAF forces.

Practice/operations

The implementation and practice of counterinsurgency is incoherent between 2006 and 2009. During this time there is a wide variety of strategies and tactics employed at the local level by counterinsurgents as there was a lack of overall strategic alignment (Farell et al, 2013). Much of this comes down to a lack of clearly stated overarching strategic goals with confused priorities between a counterterrorism focused on Al-Qaeda, counterinsurgency, and nation building projects as well as the tension between localised choices to employ more aggressive and enemy centric approaches or population centric operations. The ISAF and US forces are key components of a complex counterinsurgency landscape

with the ISAF taking responsibility for the whole of Afghanistan in late 2006 consisting of contingents from 32 different countries. The ISAF had a weak command chain with its regional commands mainly allocating regional taskforces with air assets to support a variety of taskforces who pursued their own local strategies (Farell et al, 2013). While such local agency over approach may be desirable to match the tactical flexibility of the Taliban the incoherence left taskforces such as the British effort in Helmand province without the resources to carryout comprehensive counterinsurgency operations while maintaining security across the province.

 The network of counterinsurgent forces included many private actors and contractors as well as the ANSF, unofficial militias, auxiliary police forces, and sometimes tolerated warlords. The fractured and incoherent nature of efforts to establish control meant that power and violence was often focused on the local level leading to different dynamics across different districts (Schetter and Glassner, 2011). Afghanistan's complex political, geographical, and insurgent landscape required a diversity of approach across the country, but a lack of overarching strategic coherence meant that local commanders could not relate their local actions to long-term goals and any measurable progress (Farell et al., 2013).

The US war machine which dominated the ISAF was built to win conventional conflicts with overwhelming force, shifting to an overt counterinsurgency focus took time. Most troops across the ISAF and US forces did short tours of duty meaning that there was little long-term institutional memory or awareness of the local context among operating counterinsurgents (Roberts, 2009). Further, without experience or expertise many of the growing population centric measures were deeply coercive and failed to win over the population as surveillance, suspicion, and control set in (Mujahid, 2016). The Human Terrain System for example was suggested to embed social scientists in counterinsurgent forces to address the knowledge gap, identify the needs of the Afghan people and contribute to a 'Hearts and Minds' strategy (González, 2018).

However, in practice it instrumentalised the population translating interviews with the Afghan population into a database for profiling and military intelligence (Zehfuss, 2012). Gender based practices justified on emancipatory grounds broke the complexities of Afghan political allegiance down to women to be saved by counterinsurgents and men to be policed building in tension and racialised hierarchy in embattled communities (Khalili, 2010).

The lack of expertise and resources meant that there was inconsistency in implementation of counterinsurgency and counterterrorism strategies with 'stabilization operations' prioritised over confidence building, population engagement or building long-lasting local security architecture or infrastructure development (Abbas, 2015). The more holistic approaches were still assigned to military commanders that the US believed could become effective both at warfighting but nation building population engagement and reconstruction efforts despite a lack of previous training or experience. While these components were emphasised to a greater degree than before the prevailing understanding was that when facing resistance kinetic confrontation was still the ultimate way to defeat the growing Taliban insurgency (Gventer, Jones and Smith, 2014).

C-IED Establishing the JIEDDO

Responding to the rise of insurgency and IED use across Afghanistan and Iraq various elements of the US military and coalition forces implemented fragmented and often competing C-IED initiatives that had little impact on casualty rates or the way that the IED was shaping the battlefield (Wilson, 2008). To centralise C-IED strategy the US Department of Defense (DoD) established the Joint Improvised Explosive Device Defeat Organization (JIEDDO) to lead and coordinate actions in support of combatant commanders' and their respective joint task forces' efforts to defeat IEDs (Department of Defense Directive 2000.19E, 2006). This new organisation was tasked to "Defeat the IED as a weapon of strategic influence" (Department of Defense Directive 2000.19E, 2006). The poorly defined remit is symptomatic of the

colossal effort that was recognised by the US and the incoherence of counterinsurgency implementation in this period. JIEDDO formed three prongs of strategy to defeat the IED: Defeat the Device, Attack the Network, and Train the Force. These three strategic focuses directed counter IED efforts.

"Defeat the Device"

Focused on the development and implementation of countermeasures through technology, tactics, and procedures to limit the high casualty rates. Notable initiatives include heavy investment and procurement of MRAP (Mine Resistant, Ambush Protected) Vehicles (JIEDDO, 2007). These armoured light infantry vehicles improved protection for mounted infantry from victim activated IEDs, the main killer of counterinsurgent forces in Afghanistan, however their delivery in meaningful numbers took time. The rapid deployment of Counter Radio-Controlled IED Electronic Warfare (CREW) and various electronic Jammers built a comprehensive capability to disrupt IEDs triggered by electronic means (JIEDDO, 2009). These devices were limited to vehicles in the early stage of deployment providing little protection to dismounted troops.

Mine-rollers and procedures for clearing routes in advance of counterinsurgent forces were also implemented. Rhino counter-IR devices were developed based on an innovation from US troops who hung heating elements in front of their vehicles to prematurely detonate IEDs that picked up on heat signatures (JIEDDO, 2009). Persistent surveillance systems, such as GBOSS enabled counterinsurgents awareness of the terrain and intelligence collection on IED emplacement, networks, and areas of concern (JIEDDO, 2009). JIEDDO due to its large budget and remit proved effective at rapidly deploying certain measures such as MRAP vehicles. This improved protection for troops but often confined them to their vehicles when on patrol limiting population engagement.

"Attack the Network"

The JIEDDO centralised intelligence led operations to inform local counterinsurgent commanders on targeting IED networks and insurgent patterns. This effort was largely led by the Counter-IED Operations Integration Center (COIC) which became fully operation in 2007 (JIEDDO, 2007). This centre supported attacks against IED networks by collecting and analysing available intelligence and operations data for use in tactical operations. Combined Explosives Exploitations Cells (CEXC) are another example of a program in JIEDDO's Attack the Network line of operation (JIEDDO, 2007). They consisted of small mobile teams that used policing and forensic techniques to investigate IED attacks to provide actionable intelligence to support C-IED efforts (JIEDDO, 2009). In its early stages and suffering from a lack of local knowledge it is difficult to assess the effectiveness of this more aggressive strategy. As part of this the JIEDDO contributed significant funding to the Human Terrain System and other coercive population centric initiatives. UAVs became used increasingly to provide intelligence as part of the C-IED effort (Farell et al, 2013). This adoption of military drones contributed to the growing shift towards surveillance and targeted killing.

"Train the Force"

JIEDDO's Joint Center of Excellence (JCOE) was largely responsible for providing training and ensuring awareness of latest IED developments for units before deployment. Implementation of training and procedures across US and ISAF troops faces several issues. There was a heavy reliance on contractors and the ANSF was not able to integrate C-IED technology and training to the same degree as the better organised ISAF forces (Nolin, 2011). The JIEDDO aimed to match the rapid real time innovation of IED techniques, yet it took 4-12 months to develop an initiative and 12-24 months to deploy it (JIEDDO, 2007). The efforts of the JIEDDO became central to counterinsurgency strategy from 2006. The JIEDDO was at the heart of the response to IED use and so forms a crucial component of the interaction between insurgent and counterinsurgent forces. With an unprecedented budget and little

oversight in its first few years the JIEDDO was able to rapidly develop its research and design and implementation of C-IED technology, tactics, and procedures (Martin et al., 2013).

JIEDDO Early Impact

JIEDDO became an organisation of more than 19,000 staff with nearly $21 billion to spend, yet it did not produce significant results with the rate at which IEDs were detected before explosion remaining at around 50% (Cary and Youssef, 2011). Between 2006 and 2009 the JIEDDO emphasised a rapid implementation of new technologies to counter the threat of emplaced roadside IEDs with acquisition and deployment of new measures taking between 12-24 months (JIEDOO, 2007). The development and deployment of Mine-Resistant Ambush Protected Vehicles (MRAP) as well as electronic jammers and new procedures drew focus to reduce casualties. The procurement of better armoured vehicles and electronic countermeasures appear to have protected troops in the short term but forced the Taliban to innovate how it deployed the IED. Once IED variation had caught up with these new technologies, for instance by increasing the explosive power of devices to counter new armoured vehicles, the effectiveness of the IED remained the same (Trebbi et al, 2020).

Many of the countermeasures that the JIEDDO implemented were focused on IED types commonly deployed in Iraq such as Explosively Formed Penetrators (EFPs) which were devastating to vehicles in Iraq (JIEDDO, 2007). This focus on Iraq was baked into the JIEDDO's inception as it was the extreme levels of IED violence in Iraq that prompted focus on the IED. However, these forms of IED were not deployed in Afghanistan (Committee on Foreign Relations, 2010). In Afghanistan double stacked repurposed mines and pressure cookers full of fertiliser were more commonly used producing different impacts on the armoured vehicles (Committee on Foreign Relations, 2010). IED attacks in Afghanistan took on distinct designs and tactics whereas the early implementation of JIEDDO countermeasures did not consider these contextual variations. The efforts were largely focused on

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operational improvement tied closer to conventional military strategy than the adaptation towards counterinsurgency. As such JIEDDO focusing on the 'war fighter' looked to improve military engagements with the IED. This focus on operational aspects and investment in high-tech solutions did not holistically approach the problem and early C-IED efforts failed to focus on the human role in adapting the IED (Weiss et al., 2011).

Insurgent Strategy

By 2006, the Taliban had built its presence in Afghanistan to a full insurgency with an increase of insurgent-initiated attacks by 400 percent since 2002 and fatalities from attacks by more than 800 percent (Jones, 2008). Their growing strength led them to stage offensives from rural areas and enter heavily populated central Helmand and areas surrounding Kandahar city (Farrell et al., 2013). The ebb and flow of IED attacks followed the Taliban's traditional fighting seasons with an increase in violence in the summer months (ISAF, 2006b). The role of havens in Pakistan were crucial allowing the Taliban to transport IED precursors as well as providing a sanctuary to rotate, rest and train their fighters (Dorronsoro, 2009).

The Taliban's seasonal offensive in late 2005 and 2006, focused on population centres and mass infantry assaults on heavily fortified positions (Meyerle and Malkasian, 2009). After taking heavy casualties and failing to make any breakthrough, many Mahaz dispersed their forces and focused on smaller guerrilla operations (Meyerle and Malkasian, 2009). With ambushes and guerrilla attacks as well as high-profile suicide IED attacks in cities, the Taliban developed a sliding scale of asymmetric to more conventional tactics to be employed depending on the local situation (Johnson, 2013). Following this tactical change, the Taliban began gaining control of many rural areas and frustrated COIN forces in urban areas of the country particularly in the south and east from 2006 (Ardolino, 2011). Offensives in the North were staged to relieve pressure on the Taliban in the South. A recognition that the Taliban had to shift to asymmetric strategies appears to have been

endorsed by the Taliban's leadership after learning of the experience of local Mahaz engagements with ISAF and US forces.

Following this throughout 2007 and 2008 there was a significant rise in the quantity and sophistication of IED and suicide IED attacks (Meyerle and Malkasian, 2009). The shift towards these asymmetric strategies was able to impose an extended battlespace, stretching counterinsurgent forces (JIEDDO, 2007). IED attacks deny counterinsurgent forces manoeuvrability and are often used to fix them in place making them vulnerable to small arms fire, ambushes, or sniper fire (Nolin, 2011).

The Taliban's strategy is largely around gaining momentum and avoiding large engagements with western forces in this period as it establishes its insurgency and attempts to use its IED attacks to undermine the Afghan government. It was described as 'Strategic Chaos' at a hearing before the Subcommittee on the Middle East and South Asia of the Committee on Foreign Affairs on the 2nd of April 2008. Often viewed as inept and poorly organised the Taliban's organisational structure by 2006 was resilient: centralised through hierarchical leadership to be efficient, but flexible and diverse enough to rely on Mahaz in local contexts (Dorronsoro, 2009). Ultimately, the use of the IED served several strategic purposes in this time, victim activated IEDs denied the enemy mobility, IEDs particularly suicide attacks undermined the claim that the ISAF and ANSF could provide security to the Afghan people. All IED designs and tactics psychologically damaged the counterinsurgent forces as well as forcing them into harsher measures against a suspect population.

IED Variation

IED Variations by the Taliban in response to the strategic shifts in 2006 appear to have been across four areas of focus. Capacity building, diversifying design, incorporating suicide bombing and emplacement.

In response to the JIEDDO efforts and a new emphasis on counterinsurgency operations the Taliban focused on building their own capabilities to produce and deploy IEDs on a growing scale. From 2005

to 2006, the number of suicide attacks rose from 27 to 139; remotely detonated IED attacks more than doubled from 783 to 1,677 (Jones, 2008). The focus of Taliban efforts was on the South and East which had far higher reported IED attacks (ISAF, 2006a).

In terms of design most IEDs in Afghanistan were either victim-operated pressure plates or command wire IEDS, based on the adaptation of conventional munitions this was changed to calcium ammonium nitrate (CAN) fertiliser, produced in Pakistan when stocks ran short (Revill, 2016). In response to the deployment of rollers to detonate IEDs in front of counterinsurgent vehicles the Taliban separated the pressure plate and the explosive component of the device so that when activated by the roller the target vehicle was directly above the IED (JIEDDO Report, 2007). The incorporation of weight net explosives and higher amounts of fertiliser created more powerful IEDs to counter MRAP vehicles (Farell et al, 2013). The better armoured vehicles led the Taliban to created bigger IEDs (Parkinson, 2015). In response to the use of electronic jammers the Taliban deployed increasingly varied communications protocols and frequencies for triggering IEDs this overcame the early JIEDDO systems which had to be rapidly innovated (Pesci, 2012).

Until 2007, most IEDs were made with repurposed conventional munitions. According to the Afghan Ministry of Interior, by 2008 this production method accounted for just 38% of all IEDs, which shrank further to 20% by 2009. (Giustozzi, 2019). There are many factors that influence this change with US led measures to control explosive precursors and the flow of conventional arms. However, there was also a growth in the use of easily available fertiliser sourced from Pakistan for IEDs. Electronic triggering appears to have been reduced in response to C-IED efforts with an increasing focus on devices that are difficult to detect and often contain few metal components (Nolin, 2011). Through necessity or design the Taliban was able to build a growing capability to craft and deploy devices on a large scale. As better protection for

counterinsurgents came into place a simple increase in the quantity of devices appears to have offset any progress by the JIEDDO.

One distinct variation is the growing use of suicide attacks. Rarely used in Afghanistan before 2004, the number of suicide bombings climbed steadily (JIEDDO, 2007). The incorporation of suicide bombing into the Taliban's repertoire of violence was controversial amongst its leadership. Pushed for by network leader Mullah Dadullah, as well as already growing in the Haqqani Network it was adopted but with a focus on military targets rather than indiscriminate violence (Guistozzi, 2019). This was a controversial tactical adaptation that resulted in much debate across the movement. The presence of debate suggests that the leadership in Quetta was actively engaged in ethical and strategic considerations over the specific forms of violence even in this early period. Once adapted the first few generations of suicide bombers were ineffective, often killing themselves with little damage to their targets because of casual recruiting and lack of training (Farrell et al, 2013).

IED Transmission

A theory widely accepted across the JIEDDO and among analysts at the time was the so called 'Iraq Effect'. This theory suggested that the rise in IED violence in Afghanistan and the adoption of suicide attacks was driven by experienced insurgents from Iraq transmitting their knowledge of device design and tactics. This appears to have been the case for certain tactics and IED designs, particularly suicide bombing, with Taliban commander Maulvi Mohammad Haqqani, claiming that 'Arab and Iraqi mujahedin began visiting us, transferring the latest IED technology and suicide-bomber tactics they had learned in the Iraqi resistance during combat with US forces.' (Johnson, 2013). However, it is important to note that both IED designs, and their tactical use remained distinct from the insurgency in Iraq. There is evidence that much of the knowledge was passed on from experience of previous generations who facilitated the transfer of both recipes and tacit knowledge applied in the Kashmiri conflict and the insurgency against the USSR (Revill, 2016). Further, the Taliban itself highlighted that it

was drawing on regional expertise with Taliban commanders in Helmand suggesting that foreign advisers (Arabs, Pakistani, Central Asians and Iranian) were the source of tactical innovation (Giustozzi, 2019). It appears that the process was indeed inspired by many foreign sources but is a more complex and layered process of transmission that the 'Iraq Effect' suggests.

The broad strategic shift towards asymmetric strategy was endorsed by the Taliban's leadership in Quetta. One indicator of their direct involvement is that when IED specialist were killed they were replaced within a few weeks by new insurgents sent by the Taliban's central leadership (Farell et al, 2013). This both suggests a degree of central management and a scarcity of available expertise locally across Afghanistan.

Many of the strategic and tactical variations evolved in distinct networks or through local experiences of engagement. For instance, at the local level IED attacks were coordinated and carried out by small teams with a clear hierarchical cell structure, with a leader, emplacers, financer, bomb-maker, and trigger man (Farell et al, 2013). It is likely that much of the tactical and design variation was developed and transmitted across the Taliban from the localised experiences of these small units. A vast network of these small tactical teams can implement new tactics and IED designs in days and weeks tailored to their own areas of operations compared to the months that it took the JIEDDO and counterinsurgent forces to respond to these variations.

2009 Blunting the Surge
Counter Insurgency Strategy/ Doctrine
2009 represents a shift in US led strategy driven by the newly elected Barack Obama. Building on the implementation of FM-3-24 and convinced by recent successes in Iraq Obama turns greater resources and manpower to Afghanistan to implement a 'surge'. The mantra of the 'surge' is "Clear, Build, Hold, Transfer" (Fair, 2010). The US looks to conduct overwhelming COIN operations to wrestle control of the South and East from the Taliban before the planned drawdown and transition

(Dorronsoro, 2009). A series of counterinsurgency offensives followed with a total surge of 33,000 troops between 2009 and 2011 (DoD, 2012). As a result, the ISAF reached its peak strength of 131,000 in December 2010 (Barry, 2011). Accompanying this there was a change in the plan for building up Afghan forces with a rapid expansion to a large force of 260,000 troops desired rather than the previous expectations of a force between 50,000 and 80,000 strong (Bird and Marshall, 2011). Coinciding with the 'Surge' Obama replaced Gen. David McKiernan with Gen. Stanley McChrystal. McChrystal was viewed as fresh leadership with the expertise to implement the population centric COIN operations across the 'Hearts and Minds' doctrine and regain control of an incoherent and neglected counterinsurgency effort. To support this new strategy the US called on NATO members to supply more non-military support in Afghanistan. NATO stated a focus on the provincial reconstruction teams, civilian engagement, and a commitment of 5,000 new troops to train the Afghan security forces after a two-day summit in April (NATO, 2009).

According to Eikenberry (2013) the surge rested on three assumptions: the goal of protecting the population was well defined, attainable and would prove decisive, higher levels of financial and military assistance would markedly increase the Afghan government's capacity and legitimacy, and that US strategy was consistent with the political-military approach preferred by Afghan President Hamid Karzai. However, the implementation of the doctrine varied and failed to land a decisive blow against the illusive Taliban. Failure to convince or coerce the Afghan population undermined the COIN doctrine and the frailty and corruption of the Afghan government and security forces became clear (Eikenberry, 2013).

In 2009, the US commander in Afghanistan, General Stanley McChrystal, focused on 'population-centric' COIN as a key principle of the surge. The belief among the counterinsurgents was that clearing territory of insurgents and securing it would create the conditions for linear progress on security, establishing 'ink spots' of centralised

government control (Ucko, 2013). Yet many of the governance structures imposed after counterinsurgent operations were fragile or led by government officials that were not trusted by the local population, who often viewed the government in Kabul as predatory and abusive (Ucko, 2013). From 2010 to early 2013 as the surge failed to deliver tangible results, McChrystal's successors, Generals David Petraeus, and John Allen, implemented a more aggressive approach to COIN, focusing operations on the enemy more than the population (Lushenko and Hardy, 2015). The increasingly enemy centric focus with a high quantity of COIN raids and increasing use of drone strikes is symptomatic of frustrations at the inability to decisively engage and defeat the Taliban. From 2011 the US implemented a drawdown that saw most US combat troops leave Afghanistan by 2014. Throughout this period the US came to rely increasingly on surveillance, special forces, and drone strikes as a core part of its counterinsurgency and counterterrorism effort (Page and Williams, 2021). This strategy contradicts heavily with population centric and population engagement heavy strategies. The unprecedented use of targeted killing through UAVs under the Obama administration provided a method of counterinsurgency in which the counterinsurgent is not at risk but aggressively pursues an enemy centric approach.

Practice/operations

For the first time since the beginning of the war, strategic and operational practices were aligned with the surge representing a nationwide plan with a coherent operational doctrine of counterinsurgency (Farell et al, 2013). Further, the troops that had been brought in as part of the surge had significant counterinsurgency experience across previous tours in Afghanistan and Iraq (Farell et al, 2013). A major focus was placed on Taliban strongholds in Helmand and Kandahar. Alongside the new counterinsurgency operations, the US began the biggest targeted killing offensive in history with drone strikes authorised by CIA teams on an unprecedented scale (Meilinger, 2017).

Drone strikes placed the Taliban under huge pressure however, they also disrupted the implementation of governance and eroded local

populations opposition to insurgents contradicting population centric counterinsurgency goals (Page and Williams, 2021). Lyall (2014) argues that even successful air operations served to create openings for the Taliban to display their ability to soak up losses and retain an ability to respond quickly with their own violence.

The surge had some impact forcing the Taliban back across a variety of provinces in Afghanistan. The ISAF had significant tactical success in the South with a significant reduction in violence across Helmand in 2011 (Cordesman and Burke, 2012). COIN operations were able to reduce the Taliban's offensive capabilities putting them on the defensive in rural areas and former havens (DoD, 2012).

However, the gains of the surge were modest compared to its cost and with the commitment to begin a drawdown by 2011 it became clear that the Taliban was not going to be eradicated. Further, the IED remained the Taliban's most potent weapon as the JIEDDO failed to defeat it "as a weapon of strategic influence" (Department of Defense Directive 2000.19E, 2006).

C-IED

From 2009, JIEDDO continued its three-pronged approach to enhance counter-IED capabilities, efforts came under stress as IED attacks dramatically escalated in response to the US led surge (JIEDDO, 2009). For the first time more funding was allocated to efforts in Afghanistan than in Iraq to support the increase in COIN operations (JIEDDO, 2009). New armoured vehicles for ISAF forces became widely deployed just before the surge initially limiting the effectiveness of Taliban IEDs (Guistozzi, 2019). The number of casualties from IED attacks increased 39 percent to almost 6,200 casualties in 2009 from approximately 3,800 casualties in 2008 (JIEDDO, 2009).[1] In 2010 Hamid Karzai banned the import of ammonium nitrate fertiliser in a presidential decree aimed to stop the flow of the key IED precursor from Pakistan (Cullison and Trofimov, 2010). There is some suggestion that by 2012 the surge and C-

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[1] JIEDDO calculate IED statistics by financial year.

IED effort had gained this success putting pressure on the Taliban's IED networks and reducing ISAF casualties from IED attacks (DoD, 2012).

While IED explosions declined by nine percent between 2010 and 2012 the decline levelled off in 2012 as the Taliban rebuilt its IED capability (DoD, 2012). Importantly IED attacks continued to follow seasonal patterns of violence from 2009 to 2010 while steadily increasing in their effectiveness (JIEDDO, 2010). It is important to note that while ISAF casualties declined due to the efforts of the JIEDDO ANSF casualties remained consistent and, in some cases, steadily increased as they began to take the lead in the fighting (JIEDDO, 2010). There may be a multitude of reasons for higher ANSF casualties however, the C-IED capabilities available to ISAF forces were not being adequately transmitted to Afghan forces. This may have also led to a strategic choice to engage Afghan forces more often than the better trained and armed ISAF forces.

Importantly, the analysis of Trebbi et al (2020) displayed in figure 1 below suggests that there is little evidence for the overall success of C-IED initiatives. The study of de-classified IED data from 2006-2014 suggests that IEDs remained just as likely to explode rather than be disarmed in 2014 as they were in 2006 (Trebbi et al, 2020). Similarly, conditional on detonation, IEDs at the end of the ISAF occupation were just as damaging as at the beginning. There were no net changes in casualty rates among coalition troops and a slight but steady increase in ANSF casualties across the timeframe (Trebbi et al, 2020). It is possible that without JIEDDO efforts IEDs would have substantially increased in their effectiveness however maintaining their effectiveness comparable to when the IEDs were identified as the biggest threat to success in Afghanistan can hardly be framed as success.
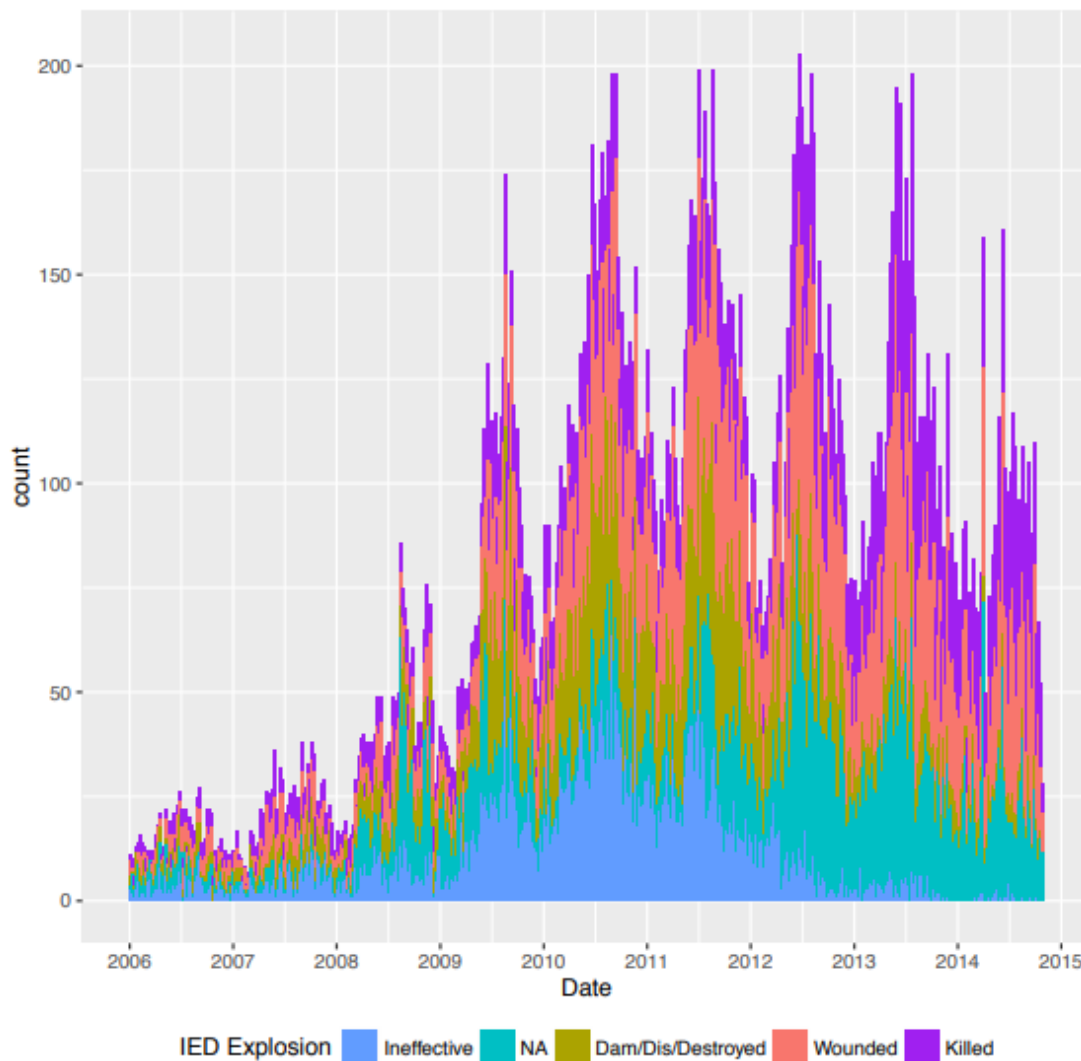
Figure 1. Source: Trebbi et al, 2020 A-7.

According to AOAV (2017) following the surge there was a significant decrease in IED incidents between 2011-2015, deaths and injuries per year dropping by 41%. However, at the same time the lethality per IED incident increase rose by 175% from 8 per incident in 2011, to 22 in 2015. (AOAV, 2017). It is unclear if the decline in IED attacks can be attributed to C-IED success. It is likely that the drawdown of ISAF troops and the ending of major counterinsurgency operations after the surge is a major factor in the decline in overall numbers of attacks. The increased lethality of attacks may be due to the gulf in IED expertise with less well trained and equipped ANSF taking the lead. JIEDDO emphasised a high-technology approach to C-IED efforts. This limited coalition casualties

in the well-equipped well-trained units but failed to counter the strategic influence of a device which can be altered in real time to circumvent these C-IED initiatives. Despite huge investment and the deployment of several effective measures it seems that the ability of insurgents to evolve their use of the IED at a faster rate than the JIDDEO was able to implement its three-pronged strategy led to its continued relevance and sustained impact on the battlefield.

Insurgent Strategy

The mass deployment of counterinsurgency operations and an increased drone and air war had a profound impact on Taliban strategy. The Taliban was forced to move further towards asymmetric tactics. Abdul Qayum Zakir took over the Quetta Military Commission in 2009, he aimed to improve the efficiency of the movement and ordered an emulation of the asymmetric tactics advanced by the Peshawar Shura Commission (Guistozzi, 2019). The Taliban found that relying on cells of 4-5 men to carry out attacks with IEDs and more mobile guerrilla tactics reduced their own casualties (Guistozzi, 2019). In response to the surge the Taliban's IED campaign reached unprecedented levels. Despite the increase of troops and resources throughout 2009 and 2010 by the US from June 2009 to March 2010 the lethality rate of Taliban IEDs increased from 14% to 18.9% (Giustozzi, 2019: 152). In answer to the increase of resources and high intensity COIN operations the Taliban increased its own operational tempo achieving its peak capability of violence in 2010 (DoD, 2012). During this time efforts to centralise the Taliban were also gathering pace as by 2011 the insurgency was structured as 20 main networks that interacted through the central node of the leadership in Quetta (Farrell et al, 2013).

Two strategic functions of the Taliban's IED use evolve during this time. First, the use of large quantities of IEDs as a further development of strategy from 2006 functions to deny ground to coalition forces and disrupt 'population centric COIN' (Barker, 2011). Second, IEDs become increasingly used in assassinations, High Profile Attacks, and complicated operations to degrade ANSF capabilities, coerce and de-

legitimise the Afghan government and undermine any notion of the surge providing more security to Afghans (DoD, 2012). The Haqqani network retained a remarkable capability to stage complex attacks suggesting high levels of resources and access to foreign support (Lurie, 2020). These attacks often focused on soft targets to intimidate the Afghan government and damage their credibility by proving that the Afghan people could not be kept safe by the counterinsurgents (Lurie, 2020). As a result, across 2010-12 as high-profile suicide attacks in Kabul on a larger scale than before became a key response of the Taliban to ISAF counterinsurgency operations (Giustozzi, 2019: 146).

IEDs were consistently used to blunt counterinsurgent operations with higher levels of IED violence observed in areas of increased operations particularly in the South and East (JIEDDO, 2009). The IED often confined troops meant to be engaged in population centric 'Hearts and Minds' work to their armoured vehicles and slowed them when dismounted (Shell, 2017). This effectively created a wedge of fear between the counterinsurgent and the population preventing a 'hearts and minds' approach based on engagement and forcing the more coercive path of this strategy.

IED Variation

In response to the surge and increased counterinsurgency effort from 2009, the Taliban developed a variety of design and tactical variations in their use of IEDs. C-IED efforts to tighten controls over calcium ammonium nitrate, including the prohibition on the import, production, transportation, use, sale, and storage of fertiliser in Pakistan, led to variation in IED design (Revill, 2016). There was an increase in adapted conventional munitions and explosives sources from abroad with explosives from Iran and Pakistan (Parks, 2009) Further, an increase in the use of potassium chlorate in IEDs— provided a substitute to homemade calcium ammonium nitrate devices. The ability of the Taliban to retain its capacity for mass IED campaigns despite C-IED efforts to control precursor materials is reflective of the prominence of the Haqqani network. The Haqqani network provided the Taliban with

alternative IED materials through their better funded and connected networks (DoD Report, 2012). ISAF sources claim that by 2010 the Taliban had an industrial process for IEDs that had survived the attempts to asphyxiate precursor materials (Giustozzi, 2019).

Tactically, there was an increase in the use of multiple IEDs used as secondary explosions to kill and maim responders to initial IED attacks increasing the lethality of an attack (Nolin, 2011). This variation slows and complicates the response to any IED attack through fear even if there is no secondary device deployed. Tactical innovations for emplacement followed such as the use of multiple IEDs and using small IED teams for rapid emplacement after clearing operations (Giustozzi, 2019). The Taliban also began to deploy children to place IEDs aware that the ISAF's rules of engagement meant that they could not engage (Farell et al., 2013).

The Haqqani network led the growing importance of High-Profile Attacks and assassinations as the most capable network able to strike targets within Kabul. This significant tactical variation emanated from the Haqqani network with the adoption of Fedayeen operations. As previously highlighted, initial suicide attacks by the Taliban were poorly organised and most often only resulted in the death of the attacker. However, by 2010, most suicide attacks were carried out with fedayeen tactics, this meant that a suicide bomber was much better trained to wait until the most opportune moment to detonate their IED and supported by a team of insurgents with small arms fire and clearly stated strategic or symbolic targets (Giustozzi, 2019). Further, suicide bombers were supported by intelligence gathered through a network of informers that had shockingly good penetration into the Afghan government (Giustozzi, 2019). The evolution of suicide bombing use away from poorly organised attacks towards fedayeen attacks supported and coordinated by teams and intelligence marks a significant evolution of Taliban tactics and strategic priorities. This was accompanied by a flow of high-quality explosives from Pakistan that were mostly used in suicide and VBIED attacks suggesting the prominence of the Haqqani networks variation

and control over these resources (DoD Report, 2012). The Haqqani network focused its attacks within Kabul, this degraded the Afghan governments capabilities and undermined any perception that it was winning the war. This strategic focus appears in the data as 70% of suicide attacks in Afghanistan 2010-2020 took place in populated areas (AOAV, 2020).

IED Transmission

There are explicit directions from the Taliban's leadership to embrace asymmetric strategy and much more centralised efforts to further improve IED capacity than between 2006-2009. Many of the innovations appear to be driven by uncompromising actors at the local level and powerful components such as the Haqqani network and the Peshawar Shura. In response, it seems that the leadership from Quetta took steps to centralise the Taliban and retain a hold on the strategic direction of the movement this can be seen in efforts such as coordinating precursor materials, organising training camps, and engaging in often fractious ethical debate about tactics like suicide bombing (Guistozzi, 2019). The origin of particularly controversial variations such as the use of children to emplace IEDs are difficult to track with the Taliban's leadership in Quetta often distancing itself from any attacks that had poor propaganda optics.

The Taliban circumvented issues with supply and capacity through connections with foreign actors who were sources of transmitting new IED designs and tactics. Fedayeen tactics suggest some form of 'Iraq Effect' however Taliban sources suggest that this transmission of new repertoires of violence came from a variety of foreign advisors (Giustozzi, 2019). The diffusion of shifting IED techniques appear to have come from a variety of sources top down through the hierarchy, from local innovations spreading throughout the Taliban's networks and from foreign advisors.

2014 Eyes on Kabul
Counter Insurgency Strategy/ Doctrine

The end of ISAF operations and withdrawal of most NATO troops concluded on the 28th of December 2014 (NATO, 2021). NATO led a shift towards a smaller remit and mission with operation Resolute Support on the 1st of January 2015 (NATO, 2021). Operation Resolute Support was focused on the 'build' stage of the previously outlined "Clear, Hold, Build Transfer" strategy and was meant to only last a further two years (Ali, 2021). There was little concrete work done to conceptualise the end goal of this operation and the full transfer to Afghan civilian authorities. New Afghan President Ashraf Ghani signed a bilateral security agreement with the US and advocated for the continued presence of their troops (McNally and Bucala, 2015). As a result, Afghan security forces and the government in Kabul were propped up by the ongoing presence of coalition troops as well as the contractors and funding that they brought. From this moment onwards, the ANSF became the core counterinsurgent force backed up by a small number of US and German troops who took on more combat roles than intended due to the growing strength of the Taliban. The air war and targeted killing campaign continued to be central.

The Afghan counterinsurgent forces consisted primarily of the Army and the Police. The Afghan National Army, which was poorly equipped, often badly motivated, under resourced and suffering from constant leadership changes (Mason, 2015). The Afghan National Police was largely a paramilitary organisation lacking in professionalism and capacity. Afghan forces were highly reliant on the support of international contractors and US forces to sustain their effort. ANSF became confined to urban areas and key checkpoints across the country with limited offensives making territorial gains (DoD, 2018a). The strategy from Kabul never addressed the growing influence of the Taliban across Afghanistan instead aiming to hold on to their centres of control in the face of Taliban offensives.

The shrinking US political will ultimately led to the decision to negotiate with the Taliban who had grown in the following years and seemed impossible to dislodge. The opening of negotiations with the Taliban is a crucial point in the war as the choice to exclude the Afghan government from these negotiations contributed to the Taliban's political success undermining the partnership between counterinsurgent actors (Jensen, 2021). This isolated the government in Kabul and fed the Taliban's belief that their success was inevitable.

Practice/operations

With the ANSF in the lead the casualties began to mount. Between 2001 and February of 2014 14,000 ANSF are estimated to have been killed in the conflict. After the withdrawal of ISAF with Afghan forces overtly taking the lead 45,000 ANSF were killed in the following six years (Gollob and O'Hanlon, 2020). The ANSF suffered from a lack of coherent strategy and command and control frailties due to the constant changing of its commanders by the new president Ghani (DoD, 2017). Ghani focused on retaining control of territory through checkpoints and outposts across the country as well as defending regional capitals (Jensen, 2021). This strategy allowed him to appeal politically, suggesting that he was holding ground. However, in this operational environment the ANSF had lost the strategic initiative and were struggling to build their capacity to stage their own offensives or disrupt the Taliban's implementation of governance in contested areas (McNally and Bucala, 2015). In many cases the ANSF were unwilling to patrol outside the confines of their bases (McNally and Bucala, 2015). This displays the effectiveness of the Taliban in restricting the counterinsurgents movement and dominating contested areas with the IED a core method in achieving this. The struggling forces were effectively cut off from the population in contested areas and unable to engage in a more holistic way to enhance security and build legitimacy with the population.

The continued reliance on drone strikes undermined any attempts at building the legitimacy of the Afghan government or positive perceptions

of the US role in the conflict. Increasingly the heavy use of drone strikes began to be associated with the weakness of a government in Kabul which could not stop these attacks and with a distant and uncaring foreign enemy willing to execute Afghans from a distance (Page and Williams, 2021). Alongside this distancing of the war by the US there was a creeping privatisation of counterinsurgency with the lower presence of coalition troops plugged by mercenaries and contractors (Moesgaard and Heiselberg, 2011). The US approach from 2014 reduced the extent of Afghan government losses but was not able to re-establish the initiative for the counterinsurgents (Schroden, 2021).

C-IED

The shift to operation Resolute Support is viewed as important moments as the number of US casualties from IEDs rapidly declines (DoD, 2015a). Although often framed as the success of C-IED efforts the reality is that risk to US forces waned as it was traded for Afghan forces. For the JIEDDO "Train the force" efforts became central as they replaced US manpower with host nation security forces (Shell,2017). The JIEDDO was reshaped into the JIDA a smaller agency with a smaller budget reflective of the drawdown in troops and resources. Since 2016, the organisation has lost its centrality as US strategy moved towards a supporting rather than leading counterinsurgency effort in Afghanistan (Serbu, 2016). Efforts to build the capacity of the Afghan security forces faced a multitude of issues and C-IED capability suffered as a result.

The C-IED effort had not become more effective but the way that data was presented changed. There are difficulties quantitively assessing this change as the Afghan forces had poor data collection capabilities compared to the JIEDDO, ISAF and US DoD. Afghan units often did not report an IED attack unless it caused a casualty (DoD, 2017). This data skews the lethality rate of IED attacks and suggests that overall numbers had come down. It is instead likely that the Taliban recovered from the pressure of the surge well and rebuilt its capability to deploy IEDs en masse.

The JIEDDO's high-technology approach also proved to be a weakness in the transition to Afghan led counterinsurgency as effective methods were impossible to deploy with these poorly funded and organised units. This gave the Taliban an edge as US led strategy shifted towards a supporting role. What is perceivable is that counterinsurgency operations with the ANSF in the lead were not able to make any significant gains and that the Taliban was able to cement its position in rural areas and regain the offensive initiative with the IED remaining at the centre of its strategy.

Insurgent Strategy

The death of Mullah Omar in 2013 sparked a period of internal division and power struggle within the Taliban's various networks and leadership council. The Taliban's strategy continued to be aimed towards its central goal of returning to power in Kabul. Its united military effort to this end faltered with the withdrawal of ISAF and the election of Ashraf Ghani representing a possibility to negotiate a settlement (Guistozzi, 2019). This compounded the infighting caused by a succession crisis which disrupted the insurgency. From 2014 the Taliban had more options to pursue leading to a variety of escalations and de-escalations in violence consistent with the fluctuating nature of a conflict with possibilities of alignment between actors' interests (Duyvesteyn, 2021). Akhtar Mansur became Taliban leader in July 2015 but was killed by a US drone strike in May 2016 (Notezai, 2016). Hibatullah Akhundzada assumed control and focused on balancing the competing factions within the Taliban. As a result, by late 2016 the Taliban had survived its leadership crises and returned to a war footing (Guistozzi, 2019).

The withdrawal of most coalition forces and the redefined remit of Resolute Support allowed the Taliban to escalate its violence against the Afghan government and security forces as the asymmetry of the conflict lessened. The Taliban waged a rural insurgency controlling one third of the country and contesting vast swathes of territory during these years (Fair, 2018). The Taliban leveraged its position in rural areas to build its capability to strike cities and strategic points of control emphasised by

Ghani and the US (Fair, 2018). Taliban attack patterns changed in 2014 more high-profile attacks in district capitals and attacking Afghan government checkpoints with massed, coordinated assaults (McNally and Bucala, 2015). There was a higher emphasis on assassinations, high-profile attacks, and attacks against ANSF with the influential role of the Haqqani Network retained (DoD, 2016b). The Taliban also began deliberately targeting C-IED specialists in the Afghan forces triggering IEDs to detonate while being disarmed (Craig, 2014). The use of high-profile attacks with suicide bombings in cities continued particularly during the negotiations with the US as the Taliban attempted to demonstrate its strength and further de-legitimise the Afghan government (DoD, 2019). The conflict became a war of attrition for territorial control in which the Taliban was able to build its parallel governance structures and degrade the capabilities of the Afghan government (Schroden., 2021).

IED Variation

Victim activated IEDs remained the central IED design and tactic performing the same function for the insurgency as before denying manoeuvrability and claims of security in contested areas (UNAMA, 2016). These IEDs were now in competition with Afghan forces, a vastly less capable counterinsurgent and counter-IED force.
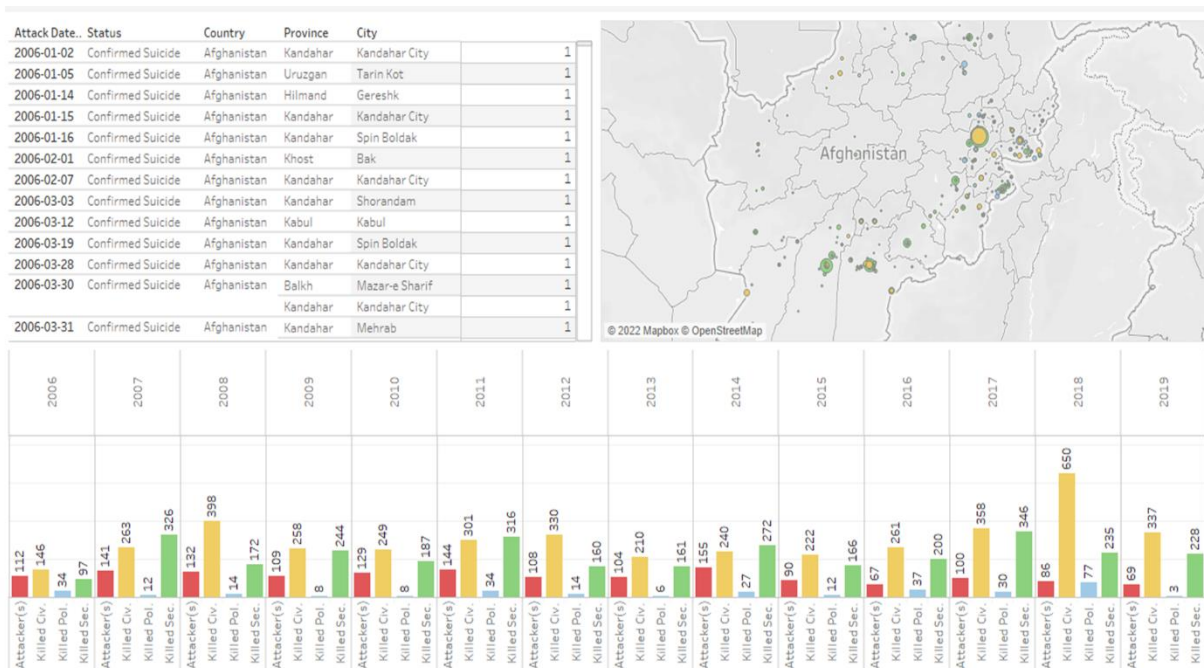

Figure 2. Source: CPOST Suicide Attack Database 2022.

From January 1 to November 16, 2015, there were 28 HPAs in Kabul, a 27 percent increase compared to the same time in 2014 (DoD, 2015a). While IEDs were not involved in all HPA's instances of complicated suicide attacks dominated the new tactic which was part of a growing focus over the following years. In 2016 UNAMA highlights a growing trend of targeting soft targets such as police stations and civilian areas such as marketplaces with suicide attacks (UNAMA, 2016). The data from the Chicago Project on Security and Threats Suicide Attack Database displayed above suggests a focus on urban areas particularly Kabul (CPOST, 2022). By 2017 Kabul was facing the highest ever numbers of suicide bombings and other IED attacks within the capital (UNAMA, 2017). It is important to note that this rise in suicide attacks also corresponds to the growing presence of Islamic State Khorasan Province across Afghanistan, as many attacks were unattributed it is difficult to definitively claim the cause of this rise. However, elements of the Taliban, particularly the Haqqani Network are thought to have been a major source of this operational shift that predates the presence of the Islamic State (Schroden, 2021).

The use of powerful VBIEDs grew as part of a focus on High-Profile attacks. On May 30, 2017, a VBIED in a tanker truck ripped through the embassy quarter of Kabul, usually the safest part of the city, killing more than 150 people and injuring 400 (Gossman, 2018). This deadly attack was symptomatic of a rise in complex and high casualty attacks within the capital and across the cities of Afghanistan. The attack was never claimed by any group, but the Haqqani Network and the Afghan Taliban were prime suspects (Arnold, 2017). This rise in complicated attacks within cities corresponds with the Taliban beginning to effectively contest most rural areas across Afghanistan in the years following 2014. The focus on these attacks in cities was part of the strategy to leverage the position in rural areas to apply pressure to Kabul and district capitals as the stability and security in these areas was the core focus of Ghani's efforts to build security across urban centres and key checkpoints.

IED Transmission

The Taliban went through two attempts at centralisation first led by the Peshawar Shura and later the Quetta Shura, both attempts had limited success (Guistozzi, 2019). As a result, the transmission of variations in tactics was rarely dominated by a central authority although the Quetta Shura always held influence. Huge effort was put in place to allow the networks of the Taliban to operate in a horizontal and semi-autonomous way but with dedicated support structures and rules from the Quetta Shura (Guistozzi, 2019).

The role of the Haqqani network had grown increasingly and its influence is imprinted on the types of operations the Taliban conducted. The growing emphasis of Haqqani modus operandi with complex high-profile attacks and suicide bombings in Kabul and other cities becoming a core tactic. These methods continued to be influenced by foreign sources as they had been previously. The Haqqani Networks growing influence on the Taliban brought more aggressive strategies to the forefront of their IED violence (Lurie, 2020).

Taliban IED Selection 2006-2021

The selection of IED types appears driven by environmental factors and to meet the needs and priorities of Taliban networks. From 2006, the expansion of the Taliban's IED capabilities created a network of local IED cells able to select variations in design and tactics through a localised trial-and-error process. There is some evidence that the central leadership endorsed the move towards asymmetric tactics and had wholeheartedly abandoned its previous position that IEDs were Un-Islamic. The debate over the use of suicide bombing suggests the involvement of the leadership in Quetta in the strategic and tactical adoption of IED use during this period. However, the diffusion and selection of differing IED designs and tactics seems to have been driven by local actors, in particular powerful networks like Haqqani and Mullah Dadullah as well as environmental pressures rather than emanating from the central leadership. The Peshawar Shura, a Taliban network active largely in the south of Afghanistan was also significant in pushing

the selection of more aggressive uses of the IED (Guistozzi, 2019). Despite the attempts of the Quetta Shura to hold ultimate authority the selection of which IED designs and tactics to use was a highly localised phenomenon with powerful networks able to enforce their preference. With the central leadership growing into a facilitation and logistical support role for their semi-autonomous networks.

The choice to employ a quantitative escalation of the IED campaign in response to the surge is the core variation that the Taliban chose to employ after 2009. It suggests that the Taliban was operating on the understanding that higher numbers of IEDs in each attack and across the insurgency would counteract the JIEDDO's efforts and the material superiority that the surge aimed to achieve its goals with. This escalation appears to have been facilitated at least in part through the central leadership.

The Haqqani's systematic use of suicide bombing was not selected by the Quetta Shura to be used across the movement. There was significant ethical debate about the deaths of civilians in these operations, the unease and tension meant that the Taliban's leadership allowed it to function but did not attempt to coordinate or support the use of suicide bombing themselves (Giustozzi, 2019). This represents an interesting division in the movement in terms of the innovation of IED design and tactics. The Haqqani network deployed the most complex and controversial forms of attacks that were tolerated by the leadership who did not seek to emulate this across the board. This may have been an issue of capacity or political and ethical unease with the extreme tactics used by Haqqani. Nonetheless the Taliban movement increasingly relied on the Haqqani Networks capabilities (Weinbaum and Babbar, 2016).

Tactical adaptation was highly controversial within the Taliban often causing rifts between the major players (Guistozzi, 2019). By the end of 2014 the Taliban formed a Coordination Commission to improve interoperability between the different networks and Shura's as well as helping to navigate any conflicts between the different elements of the Taliban (Guistozzi, 2019). From 2015 the Quetta Shura grew in influence

able to influence the operations of the Peshawar Shura and the Haqqani Network in ways it was previously unable to. Despite many political fractures and debates militarily the Taliban was a much more unified movement aiding its fight against the Afghan government.

Discussion

The case studies above set out three significant changes in counterinsurgent strategy and the shifting Taliban variation of strategy, IED design and tactics between 2006 and 2021. These three turning points in counterinsurgent strategy pull attention. The 2006 shift towards counterinsurgency and implementing a coordinated C-IED effort. The 2009 surge aimed at implementing a counterinsurgency strategy through an increase in manpower and resources and the ultimate transition to Afghan led counterinsurgency from 2014 culminating in negotiations and the complete withdrawal of US forces in 2021. These three strategic shifts are important moments to focus on in a much more complicated story. What is clear is that the implementation of these strategies was inconsistent and the end goals of each phase poorly defined. Counterinsurgents became actors in a time sensitive cycle to establish stability with little understanding of how this was going to be achieved against an enemy with impressive regenerative capacity and a singular goal. In response to these changes in counterinsurgent strategy Afghanistan has seen significant evolutions in the Taliban's use of the IED.

The JIEDDO represented a novel counterinsurgent strategy and an unprecedented investment to limit the effectiveness of a singular method of violence. Despite the sustained effort the IED was never denied its place as a weapon of "strategic influence". The JIEDDO's implementation of high-tech countermeasures and a vast array of tactics, techniques and procedures cost huge sums of money and took great organisational adaptation to be implemented in a short timeframe. However, localised, and fast variations in insurgent IED use were able to maintain the effectiveness of the IED at similar levels across the conflict.

When analysing this case through the theoretical lens set out by Veilleux-Lepage (2020) several variations are important to focus on:

Variation	Design	Tactical	Strategic
	Less metal components	Suicide Bombing	Deployment of small IED cells.
	Separation of pressure plate and explosive charge.	Fedayeen Tactics	Quantitative escalation of IED use in response to the surge.
	Larger explosive content to damage improved vehicles	Secondary explosives	Use of IED to deny manoeuvrability on the battlefield.
	Change of precursors from fertiliser to calcium ammonium nitrate and military explosives sourced from abroad	Use of children to emplace IEDs	Facilitation of precursors, logistical support, and expertise from Quetta
		Use of powerful VBIEDs	Increase in high-profile attacks in district centres and Kabul.
			Targeting the Afghan government and security forces.
			Targeting Civilians.

Figure 3. Operationalisation of key IED variations elaborated by the author.

These variations emanated from several places either through specific networks, at the local level, through foreign sources or coordinated by the leadership from Quetta. Importantly these variations in the design,

tactics, and strategic use of the IED were responses to various structural and agency led factors. The increasing coordination and capability led from Quetta alongside the adaption of new tactics from foreign advisors, local experience, and the operationally capable Haqqani Network appear to have led the strategic and tactical application in response to each strategy. The framework through which the Taliban adapted their forms of violence is therefore highly complex not relying on purely hierarchical or bottom-up transfer of knowledge but facilitating a more horizontal structure at the operational level (Ruttig, 2021).

This narrow study suggests that most of these variations evolved in interaction with changing counterinsurgent strategies and C-IED efforts. Importantly Guistozzi's (2019) interviews with members of the Taliban suggests that the development of counterinsurgent strategy and lessons learned by contact with ISAF forces were the referent object in the evolution of their own violence.

This study suggests that in Afghanistan the asymmetric nature of the conflict engendered a trial-and-error process through which the Taliban was able to adapt its IED violence to counteract C-IED efforts. The sustained influence of the IED on the battlefield despite the major investment by counterinsurgents suggests that the Taliban was able to hold an advantage in this evolutionary process.

The organisational flexibility inherent in the Taliban may have been due to environmental factors rather than by design, as the leadership struggled to always exert influence over its various networks. This slightly amorphous structure gave them a long-term strategic edge over counterinsurgent forces with fast decision making and local autonomy over IED variation. The Haqqani Network which grew in prominence between 2006 and 2014 is an interesting part of the equation, it had always adhered to a more centralised system of command and control (Guistozzi, 2019). The Haqqani network also carried out controversial IED variations and had explicit relationships with foreign advisors and terror organisations through which it maintained a higher capability for complex IED attacks than the rest of the Taliban (Lurie, 2020). This adds

some nuance to the discussion about the organisational structures of the Taliban as the Haqqani network isolated could be viewed as the most aggressive and effective component of the movement which pursued more radical IED variation while operating with a different organisational structure and often autonomously from the Quetta leadership. Similarly, the Peshawar Shura was a strong proponent of centralisation and professionalisation of the insurgency, as a result the areas held by the Peshawar Military Commission led the insurgency while the Quetta Shura recovered from internal fractures, leadership changes and the loss of many of its commanders to US targeted kill and capture missions (Franco and Guistozzi, 2016).

The strategic and tactical competition between the counterinsurgent forces and the Taliban was one of adaption as all wars are. In a review of lessons learned in 2012 the US Joint and Coalition Operational Analysis highlighted that across Afghanistan and other conflicts "a failure to recognize, acknowledge, and accurately define the operational environment led to a mismatch between forces, capabilities, missions, and goals" (U.S. Joint Chiefs of Staff, 2012: 3). This issue persisted in Afghanistan across all three shifts in strategic direction. In opposition, the Taliban's structure allowed a level of flexibility in its innovation of violence that the US and Afghan government could not keep up with. This allowed shorter decision loops on the selection of some IED designs and tactics as well as the relative autonomy of various networks allowing a greater deal of IED variation across Afghanistan with successful variations replicated either through coordination or pure necessity. While the Taliban made painful efforts to centralise coordination from Quetta and kept a singular strategic goal in mind across the war the US switched between 13 commanders and a variety of strategic aims. This incoherence hampered any progress and gave the initiative to the Taliban.

In this trial-and-error environment while both sides attempted to gain an edge in the conflict through adaptation the selection of which forms of IED to continue to use and which to abandon is a crucial factor. Some

more aggressive strategies such as the high-profile attacks, suicide bombing, fedayeen tactics and more indiscriminate attacks in urban centres were largely facilitated by and advocated for by the Haqqani Network. These tactics became more prevalent in response to the US led surge and then became directed increasingly at the Afghan government. The selection of these more aggressive uses of the IED caused friction within the movement but appear to have been accepted as one of the few ways for the Taliban to project its strength in Kabul and other urban areas.

The quantitative escalation of the IED campaign and the move towards mass production of IEDs appears to have been coordinated and supported, at least in part, by the leadership in Quetta. The changes in design and materials for IED use were also facilitated through Taliban networks foreign links. Many of these variations appear to have been selected out of necessity forced by changing counterinsurgent strategies, particularly C-IED efforts to limit precursor materials.

Ultimately, this research suggests that counterinsurgent strategy, violence and C-IED efforts were influential in the evolution of the Taliban's use of the IED. Other factors must be considered with more radical elements of the Taliban such as the Haqqani Network pushing more aggressive tactics and a growing focus on civilian targets. Shaped by the pressures of counterinsurgent operations and other environmental factors the Taliban went through a period of adaption to improve its capacity to stage mass IED campaigns and retain their effectiveness as counterinsurgents developed countermeasures. The Taliban proved to be remarkably effective at this using the IED as a cornerstone to leverage asymmetric strategies against a materially superior adversary. The evolution of the IED featured significant variations in design, tactics, and strategy. These variations were driven by a mix of learning lessons from local engagements, tactical adaptions within specific Taliban networks and from foreign advisors. This process was expedited by the Taliban's structure as a poly-centric movement of networks who displayed resilience, able to retain their insurgency and

levels of IED violence, despite a variety of internal fractures within the movement. The coordinated support from Quetta appears to have facilitated the continuation of the IED campaign and supported semi-autonomous networks who were able to adapt in their local circumstances. The Taliban was able to build its capacity to survive counterinsurgent pressure and retain an ability to contest political control of Afghanistan. The continued effectiveness of the IED from 2006-2021 was one of the largest threats to successful counterinsurgent operations. The IED as a weapon has proved to be an incredibly effective and mouldable form of violence. In the hands of the Taliban its use was diversified to the extent that the unprecedented effort of the JIEDDO was unable to decisively limit its impact as the insurgencies most effective weapon.

Conclusion

This thesis investigated the evolution of IED use by the Taliban in response to three distinct turning points in counterinsurgency strategy in Afghanistan between 2006-2021. The thesis aimed to identify the contextual factors that shaped the variation, transmission and selection of design, tactical, and strategic innovation that followed in these time periods. In doing so, identifying the specific role of counterinsurgent strategy in shaping this evolution and the facilitating role of the Taliban's organisational structure was key.

This is significant as the evolution of methods of violence during the conflict has rarely been focused on. The IED as a method of insurgent violence forms an important part of this picture. The IED remained the most effective weapon deployed by the insurgency from the Taliban's resurgence to their victory in 2021. The Taliban's success may be attributed to a wide and complex layering of factors however, the evolution of the IED as a core method of insurgent violence requires attention. Further understanding the process of evolution that retained the IEDs effectiveness for the Taliban is important for policymakers and academics.

In doing so, this thesis employed a longitudinal cast study design of Afghanistan between 2006 and 2021. Afghanistan is an ideal case study to assess the evolution of the IED. It is the country where the US focused its initial war on terror, and which has seen the withdrawal of US led forces and the returning of the Taliban to government. Afghanistan allows mapping the iterative interaction of state and non-state violent competition drawing on how state led violence has forced non-state violence to evolve into a successful insurgency with the IED as its most lethal weapon.

The findings have shown that the differing COIN strategies deployed in Afghanistan between 2006 and 2021 influenced the Taliban's evolution of IED use across variations in design, tactics, and strategy. The evolution of the Taliban's methods of IED use appear to have been transmitted from a variety of sources with the shift to asymmetric strategies being forced by necessity at the local level by engagement with superior counterinsurgent forces, the central leadership of the Taliban attempted to coordinate aspects of the violence to varying degrees of success as the insurgency fluctuated. It appears that the organisational structure of the Taliban as a polycentric organisation of networks facilitated local autonomy and the flexible transmission of IED variations. This advantageous organisational structure was not by design but by necessity as the Taliban was unable to enforce centralised control. Nonetheless this led to shorter decision loops and an ability to innovate violence at a pace that retained the effectiveness of the IED despite concerted C-IED efforts through unprecedented measures by the JIEDDO.

This research on the evolution of methods of violence in non-state actors contributes to wider academic debates on structure vs agency as well as the organisational structures and strategic thinking of violent groups. The flexible innovation of violence by the Taliban and their ultimate success has deep implications for counterinsurgency approaches and understandings of the resilience of certain methods of violence in asymmetric conflicts

This is by no means an exhaustive study and the data environment in Afghanistan between 2006-2021 presents a limitation. Data in this period is opaque, fraught with various metrics and data is often presented to support actors' strategies presenting a limitation to the data led aspects of this research. Further, a lack of language skills and primary data gathering limits this research. Future research focusing on disaggregation and collecting primary data would bring better clarity to the academic understanding of the evolution of violence across the insurgency. More specific research through this evolutionary approach on individual elements of the Taliban such as the more radical and capable Haqqani network would be an important avenue for future work. Further, this evolutionary approach can also be scaled up to look at the influence of the Taliban's success on the methods of violence used by other groups particularly in South Asia where the Taliban's success has reverberated in sympathetic groups.

Ultimately this thesis has advanced claims about the mechanisms through which the Taliban's use of the IED evolved in response to three turning points in counterinsurgency strategy between 2006 and 2021. The findings suggest violent competition between the insurgent and the counterinsurgent initiates a trial-and-error process of innovation. In this process the Taliban varied their use of the IED across design, tactics, and strategy adopting new methods of violence across the three time periods. The Taliban's often-amorphous networked organisational structure facilitated a shorter decision loop and the transmission of IED tactics and designs at a rate that outpaced counterinsurgents. This sustained the IED as a weapon with great variety in its strategic and tactical use allowing the Taliban to deny counterinsurgents manoeuvrability, cripple their attempts to engage with the local population and stage complex high profile attacks undermining the legitimacy of the Afghan government and their military capabilities.

Appendix A. List of Reports and Databases.

US Department of Defense Reports

Department of Defense (2021). *Enhancing Security and Stability in Afghanistan: Report to Congress April 23, 2021*. Available at: https://www.defense.gov/News/Publications/Search/Afghanistan/ [Accessed 10th January 2022]

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Department of Defense (2019). *Enhancing Security and Stability in Afghanistan-June 2019: Report to Congress July 12, 2019*. Available at: https://www.defense.gov/News/Publications/Search/Afghanistan/ [Accessed 10th January 2022]

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Department of Defense (2012). Progress Toward Security and Stability in Afghanistan- December 2012: Report to Congress December 3, 2012. Available at: https://www.defense.gov/News/Publications/Search/Afghanistan/ [Accessed 22nd November 2021]

NATO International Security Assistance Force Reports and Data

ISAF (2006a). *Report to the Security Council on the operations of the International Security Assistance Force*. United Nations Security Council. Available at: https://www.securitycouncilreport.org/un_documents_type/isaf-reports/page/1 [Accessed 15th January 2022]

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