

# Let US design our future by thinking in time

by J R

## Preface

by John Arquilla

A curious paradox has bedeviled the long history of armed conflict. The search for a capability to win decisive battles has led to imitative arms races, resulting in the combatants' acquisition of the same weapon types and the application of similar tactics. This has led to bloody, long-lasting stalemates when fighting is between opponents of roughly equal size – as in World War I and Korea – a far cry from the goal of decisive battle. And when there has been a significant disparity in power, the smaller combatant has often chosen to resort to irregular warfare, stretching out the length of the conflict and wearing down the will of the stronger party – as can be seen from the Boer War to Vietnam and, most recently, in Afghanistan. Here, too, the quest for swift, clear-cut victory has quite often been thwarted.

Small nations today, contemplating their own defenses against the potential for aggression by greater powers, should take a lesson from the many successes of irregulars who have worn down and eventually defeated invaders. And even when outright victory isn't possible, as has sometimes been the case, irregular tactics can inflict huge costs on the aggressor, as the Finns did against the Red Army in the Winter War of 1939-

40 with their highly innovative *motti* concept of operations.

Interestingly, there are also some important examples of decisive victories achieved in conflicts between equal opposing forces. Napoleon's very minimalist logistical system allowed his forces to move farther and faster than his opponents, enabling many striking victories. A century later, the integration of tank and plane, coordinated by radio, allowed a period of remarkable successes for the German *Blitzkrieg*. The ultimate, decisive defeat of the aggressors in both these cases had little to do with their concepts of operations. Napoleon fell because he invaded Spain and later Russia when both were actually allied with him. Hitler, too, was in alliance with the Russians when he chose to invade. His later decision to declare war on the United States when he did not have to was yet another gross blunder.

Both the successes of irregulars against larger opponents and those times when decisive battle victories have been won in conflicts between great powers reflect the importance of *strategic design*. What we mean by this is the effort to align tools (weapons) with practices (organizational forms and military doctrine). J R's insightful article draws attention to this vision of design, which is much

more than about “products” – it is about whole *systems*. His thinking merits serious attention. In Sweden and across the range of nations, from small to mid-range powers. And even among those who consider themselves to be “great.”

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## Resumé

I denna artikel framförs hur Sverige med stöd av design som metod och exempel från historien, specifikt den norska motståndsrörelsen, Milorg, under andra världskriget skapade ett uthålligt dilemma för motståndaren. Genom att inte isolera eller deducera ned fienden till ett enskilt problem utan istället att se på det hela genom ett komplext filter med flera sammanlänkade delar som alla utgör ytor för anfall eller försvar kan Sverige skapa en strategisk design som med tydlig signalering till motståndaren och omvärlden avskräcker denne från att korsa den röda linjen och anfälla Sverige. Nuvarande konflikter som Ryssland är inblandade i tenderar att förlängas i tid och gå upp och ner i intensitet, det finns således en risk att försvarsplaneringens nuvarande fokus riktas mot ett snabbt konventionellt avslut när den rådande uppfattningen bör vara långsiktig nedbrytning. Det mest aktuella exemplet blir händelseutvecklingen i Afghanistan och hur Talibanerna skapade förutsättningar för ett maktövertagande. Sverige bör se och lära av hur Norge och SOE arbetade och byggde upp de ingående delarna i Milorg. Till skillnad från Norge under andra världskriget har Sverige fortfarande möjligheten att vara proaktiv och inte hamna i ett reaktivt agerande. Lösningen är att anamma en strategisk design som utgår från helheten och är dynamisk genom att den tillåter förändringar i både inre och yttre faktorer. Ett designcenter där konventionella och okonventionella metoder blandas med innovation och nytänk som ledstjärnor. Att ta hänsyn till och sammanlänka strategi, doktrin, teknologi och organisation är det allomfattande svaret på dilemmat Sverige ställs inför.

SEEKING TO SERVE prudence-in-the-small, we sympathize with those whose duty it is to seek it, the decision-makers.<sup>1</sup> A quote from Neustadt and May to address my sympathy and empathy with the decision-makers of future Swedish defense strategy, however, you are not the first or neither the last to bear the burden of deciding for a future Swedish defense strategy, as we will learn, there are plenty of examples to learn from.

In an earlier published article, I wrote about three new additional approaches to the Swedish defense strategy, *learn from the loser, connect the connected, shortcut the bureaucracy*,<sup>2</sup> to help with future strategy

and doctrine for the Swedish Armed Forces. This article will suggest a comprehensive approach to adopt new ways of thinking for success – strategic design. I aim to provide an additional solution to the current re-establishment of our conventional defense – a Swedish future warfare center that aims to bring doctrinal, organizational, technological, and strategic change by using design. The challenge is: should Sweden prepare to deter its adversaries by a build-up of its conventional forces and mimic our allies, or should Sweden instead find an alternative defense approach via the means of strategic design?

Arguably, as long as Sweden does not join the North Atlantic Treaty Organization (NATO), it should pursue a strategy less dependent on conventional warfare, because it cannot count upon the massive forces that come with “collective security” in which an attack on one NATO member is considered an attack on all. Instead, by employing strategic design, Sweden could provide such a dilemma for our adversary that they (the adversary) become deterred from changing the status quo. By pursuing a conventional defense strategy, focusing on action and counter-action by conventional arms, given its smaller size, population and forces, Sweden will lose the war of attrition.

Design, defined by Nelson and Stolterman as, “the ability to imagine that-which-does-not-yet-exist, to make it appear in concrete form as a new, purposeful addition to the real world.”<sup>3</sup> As a complement to Nelson and Stolterman’s definition, Simon exemplifies design as, “conceiving of objects, of processes, of ideas for accomplishing goals, and showing how these objects, processes, or ideas can be realized.”<sup>4</sup> To better understand why design is such a powerful tool, let us reiterate maneuver warfare in its core, *blitzkrieg*, is still the foundation of the Swedish doctrinal warfighting approach. Arquilla highlights the essence of the phenomena design, by stating, “the armored operational design that Guderian and Rommel did so much to pioneer before and during World War II remains the centerpieces of most advanced military thought today.”<sup>5</sup>

In this article, strategic design adheres to Arquilla’s definition of what it must incorporate: “strategic design must incorporate and align technological, organizational, doctrinal and social elements.”<sup>6</sup> Strategic design is at the core of this robust methodology. The challenge is: can Sweden better align

its national defense resources by employing strategic design?

This article continues with a brief section of thinking of problems as wicked instead of taking the more common, tame approach to problems. A wicked problem is something that cannot be exhaustively formulated. Every formulation is a statement of a solution, and there is no true or false.<sup>7</sup> After that, an elaboration of design, design thinking, and design for warfare follows. Finally, the article highlights the strengths of strategic design, exemplified by Milorg; the Norwegian resistance movement during WWII,<sup>8</sup> and the novel, *The Moon is Down*, by John Steinbeck. Both examples define an ideal solution to contemporary warfighting, which is the combination of conventional and unconventional methods of warfare.

## Tame problems or wicked problems

When searching for a way of solving the future challenges that Sweden faces, it is not viable to reduce it down to a single problem. It is beneficial to look at the challenge in the form of a wicked problem, sometimes referred to as a system analysis approach. Why? Because Sweden’s current challenges are more than one. One way forward is to rebuild the conventional military strength if you adhere and believe that wars are still being fought with attrition or the aim of the enemy’s total annihilation. The re-establishment of traditional forces is logical and makes sense to decision-makers on all levels, perhaps because we tend to search for a solution in the context of tame problems. In their book, *The Design Way*, by Harold G. Nelson and Erik Stolterman, the authors show the difference between tame problems and wicked problems. The authors argue that “the dominant trigger for initiating change in

human affairs is, today, primarily based on the existence of a clear and immediate understanding of a particular problem or a set of questions.”<sup>9</sup> This means that many of us are from the early school years trained and educated in finding the quickest and most efficient solution to a problem. Nelson and Stolterman borrow some of their arguments from Horst Rittel’s research when they compare and contrast the differences between tame and wicked problems.

On the other hand, a wicked problem cannot be exhaustively formulated. Every formulation is a statement of a solution, and there is no true or false.<sup>10</sup> Reducing everything down to a single problem makes the situation appear more feasible and logically easier to solve, a tame problem. That is why many of us tend to turn to the tame problem approach of finding a solution.

An example from history will show us the problem and its first logical solution. In 2001, on September 11, the US got attacked by terrorists, and almost 3 000 people lost their lives.<sup>11</sup> The logical solution to the problem was a typical US one, the war of attrition. The author Russell F. Weigley in his book *The American Way of War*, already predicted the response in his conclusion, “and if war comes, Americans will almost certainly fight to annihilate the enemy.”<sup>12</sup> The tame problem became the terrorist, and the logical solution to take them away. Weigley proved to be right: the response from the US was immediate. During a speech to the world on 01-10-11, president George W. Bush called for the world to join the US war against terrorism,

The attack took place on American soil, but it was an attack on the heart and soul of the civilized world. And the world has come together to fight a new and different war, the first, and we hope the only one, of the 21st century. A war against all

those who seek to export terror, and a war against those governments that support or shelter them.<sup>13</sup>

Executed under the banner of, The Global War on Terror, the U.S. and its allies are still entangled in Afghanistan, Iraq, and Syria under the overseas contingency umbrella.<sup>14</sup> This assumes, then, that the logical solution of attrition warfare, or killing every terrorist or to invade those nations harboring or sponsoring terrorists, would lead to lower risk or the disappearance of terrorist attacks as the ultimate solution. A quick Googling of numbers gives us contradictory facts. The world has not experienced fewer lives lost to terrorist attacks; instead, it has experienced more. Figure 1 presents the finding to support the argument; terrorist attacks and subsequently lives lost to these attacks have increased by far after 9/11, not decreased. The war on terror has actually become terror’s war on the world.

The numbers portray another reality. The logical solution to the problem with terrorism has failed. The world now experiences more deaths as a consequence of acts of terrorism than ever. Perhaps the comparison falters. It does not account for the internal mechanisms that left the serving president with few alternatives. Clausewitz would possibly conclude that the “passion of the people” deemed actions to be taken, and fast retaliation was probably inevitable.<sup>15</sup>

Nevertheless, it serves as an example of failed strategic design, or rather the lack of creation of it and instead of the over-reliance upon military attrition. This earlier argument helps to prove as an example of how working on finding logical solutions to tame problems is not a viable path forward. The former Army officer, now a Ph.D. lecturer, A. J Echevarria, elaborates on the US lack of strategic victories in his book, *Toward An*

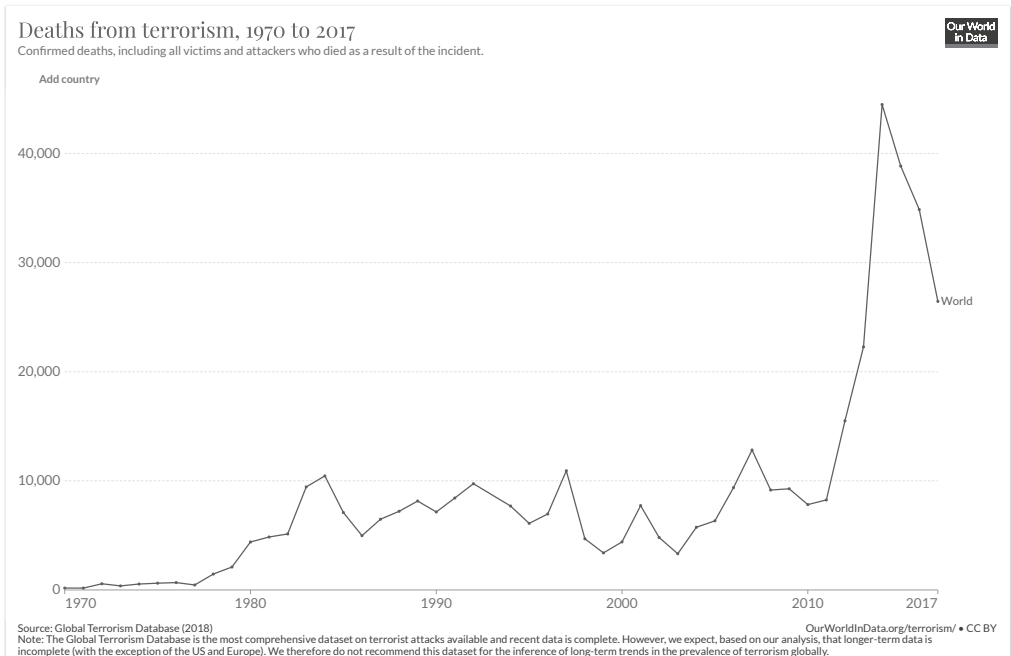


Figure 1 Deaths from Terrorism 1970–2017<sup>16</sup>

*American Way of War.* Echevarria highlights the lack of strategy when he states, “their concepts rarely extended beyond the wining of battles and campaigns to the gritty work of turning military victory into strategic success, and hence was more a way of battle than an actual way of war.”<sup>17</sup> Therefore it is of great importance that Sweden turns to and seeks out other options when framing the challenges it faces.

If not, the risk of focusing on the decisive battle is apparent, and we can learn from contemporary examples that single decisive battles seldom occur. The risk for Sweden then is evident, and it is about putting old wine in a new bottle, disregarding all the other factors that contribute to the surroundings and its coexistence. As an officer, one should believe that intervention towards the Taliban regime and the hunt for Usama Bin-Laden, to crush Al-Qaeda

was necessary. The invasion of Iraq had a less solid foundation in logic or evidence. The point is that there are more alternatives than attrition warfare, and the lack of an overall strategy is apparent since Western society still has troops in Afghanistan, and the outcome in Iraq has been to see the “democracy” implanted there more aligned with Iranian zealotry than liberal Western values.

A wicked problem is a problem with no apparent solution or a system of challenges that all need attention. Horst Rittel formulated the wicked problems approach in the 1960s. According to Buchanan, “Rittel sought an alternative to the linear step by step model.”<sup>18</sup> An example of a wicked problem is insufficient information, and the commanders frequently need data to build and base sound decision-making. When working to solve wicked problems or comprehensive challenges, communication is at the core.

Information and data are the new currency and the driver for decision-making and are foundational for leaders to act. However, simultaneously, the lack of data will be at the doorstep for every commander, and the risk of waiting for the "right" information is apparent. For all our advanced sensing and communications technologies, Clausewitz's "fog" is still with us. Many examples exemplify when a leader hesitates to take a decision or make a wrong one due to a lack of information. Recent studies can be done on the COVID-19 pandemic and different choices from world leaders. One of them is former President Donald Trump's late decision to close-down the US borders towards potentially infectious travelers.<sup>19</sup>

The researcher and author A. Bousquet writes in his book *The Scientific Way of Warfare* that we have moved from a cybernetic approach to warfare to a chaoplexity perspective. His word chaoplexity stems from chaos and complexity.<sup>20</sup> He uses the word and time-era to describe how information [data] remains the central concept of warfare and is connected in networks and not only on single computers. In this era, the essential scientific ideas include information, non-linearity, positive feedback, self-organization, and emergence.<sup>21</sup> Assuming Bousquet's theories are correct, swarming and decentralization will be the dominant form of warfare executed by armed forces. As per Arquilla and Ronfeldt's definition, "it is deliberately structured, coordinated, strategic way to strike from all directions."<sup>22</sup> Bousquet finds support for his arguments in Arquilla and Ronfeldt's, *Cyberwar is Coming*.

In the same article, Arquilla and Ronfeldt argue that "sea changes are occurring in how information is collected, stored, processed, communicated and presented, and in how organizations design to take advantage of increased information."<sup>23</sup> All the above in-

clude arguments that reinforce our perception that problems cannot be addressed as single entities or reduced to a logical solution. Theories of swarming are no longer theories. Drone swarms, for example, were part of the Beijing Olympic games' opening ceremony.<sup>24</sup> Iran's "Great Prophet" naval exercises feature swarm attacks on mock-up versions of American aircraft carriers.<sup>25</sup> Therefore challenges that a country is or will be facing need to be observed and framed as wicked ones.

A wicked problem requires innovative ideas and a design approach. According to Richard Buchanan, wicked problems are strongly connected to design thinking.<sup>26</sup> Tim Brown defines design thinking as "a methodology that imbues the full spectrum of innovation activities with a human-centered design ethos."<sup>27</sup> The need to change the Swedish military thinking process from problem-oriented towards the acceptance of wicked problems will open up new ways of working to solve current challenges. The military process for planning future actions or operations reduces many of the difficulties to overarching categories such as command and control, tactics, attack or defense, etc.<sup>28</sup> The enemy becomes a single problem to make it logically feasible. Above all, planners can present a solution to the commander that adheres to the forces' situation.

## The Design Approach

Design is a method that looks to the human in interaction with problem-solving or the quest for a better future.<sup>29</sup> It is per se human-centric. Tim Brown, an acknowledged professor on the subject, mentions Edison and creating the light bulb as a core example of design thinking.<sup>30</sup> According to Brown, Edison created the light bulb, and he also designed the infrastructure around

it to enable light in people's homes. Brown defines design thinking as "a methodology that imbues the full spectrum of innovation activities with a human-centered design ethos."<sup>31</sup> He further stresses the importance of direct observations of what people want and need in their lives.<sup>32</sup> When hearing about design, it is easy to be distracted and start thinking about products and creating cars or the equivalent, but that is not what design is in this context.

Design as a word has for long existed in the industrial world. However, in the later part of the last century, it started to become an approach of solving wicked problems or the approach to create for a different future. Elting E. Morrison, in his classic work, *Men, Machines, and Modern Times*, brings forward what has become the reason we should adopt design. As he states, "change has always been a constant in human affairs; today, indeed, it is one of the determining characteristics of our civilization."<sup>33</sup> Nelson and Stolterman iterate the importance of acknowledging change. They refer to this as the intentional change in an unpredictable world.<sup>34</sup> Brown further reinforces this new application of design by stating, "its objectives are no longer physical products; they are new sorts of processes, services, IT-powered interactions, entertainments, and ways of communicating and collaborating—exactly the kinds of human-centered activities in which design thinking can make decisive difference."

The military theorists Arquilla and Roberts introduce the term design of warfare in their book with the same name. Interestingly Arquilla and Roberts, like Brown, stress that design is more than the product or, as they say, "we mean not only the design of weaponry."<sup>35</sup> Arquilla and Roberts argue that designing for warfare is one central pillar of strategic design, as a part of a

country's grand strategy.<sup>36</sup> In comparison, Brown focuses on design thinking; Nelson and Stolterman, on the contrary, stress design as the driver of intentional change.<sup>37</sup> Arquilla and Roberts break it down further by introducing design as conceptual warfare factors, technological, doctrinal, structural, and informational.<sup>38</sup>

Suppose now we familiarize ourselves with Brown's conceptual idea of design thinking as the constant and iterative process of inspiration, ideation, and implementation. In that case, we can then apply that to the warfighting factors introduced by Arquilla and Roberts.<sup>39</sup> This means Brown's cognitive framework will help us further dig down on the more conceptual warfighting factors given to us by Arquilla and Roberts. Using the design, a strategist can place herself in the adversary's shoes and shape or search for the ideal future, creating a proactive approach rather than a reactive one. For further analysis, Arquilla and Roberts also look to internal and external factors, which could help drive or explain a sudden change. Preceding those internal and external mechanisms can also help a designer move to an ideal environment. An example of an external factor that brought change upon Sweden's defense planning and budget spending is the Russian annexation of Crimea in 2014. In Nelson and Stoltermans's words, an unintentional change in external factors brought internal discussion of readiness, conventional strength, and geographical importance to the Swedish defense discussion.<sup>40</sup>

Why should design be considered as an approach to finding a more comprehensive defense solution and creating a deterrent effect towards its adversaries? Design, as a concept, looks to solutions as a system, not a singled-out problem, as mentioned before and exemplified by the wicked problem. Fortunately for Sweden, the world is

full of excellent and poor examples of different design strategies, demonstrated later in the article. Nelson and Stolterman highlight the core difference between design and tame problems, design "is an alternative to the default mode of being or becoming reductionist and simplistic."<sup>41</sup>

If Sweden is seriously considering a system of fighting off an adversary for more than a week, as the former supreme commander, General Sverker Göransson hinted,<sup>42</sup> a solution cannot be dependent on one or two mechanized brigades. The deterrent effect of those two brigades is none, and one only needs to look at the examples of Crimea. The Ukrainian armed forces are far vaster in numbers and resources than the Swedish armed forces, and it did not deter Russia from changing the status quo. The initial Ukrainian design seems to have preferred the conventional warfare option, but as we now know Ukraine shifted to prolonged war-

fare and mixing conventional and irregular warfare options. Besides, Ukraine also made approaches to become a closer partner with NATO. This was a strategic attempt to gain additional deterrence.

As earlier mentioned, when facing nations that focus on numbers and attrition, other means need to be developed. In Russia's annexation of Crimea, Russia also gave an example of their new design concept and outperformed the standardized conventional one. Little green men became the benchmark of the new approach. Russia show-cased a holistic approach to achieve its ends, and it faced challenges, but the lack of a coherent response from NATO was initially apparent. Figure 2 highlights the differences in armed forces strength and material between Russia and Ukraine, both graphics and numbers. The Gerasimov Doctrine made a mockery of Ukrainian strategic preparations.



Figure 2 A  
Comparison  
of Russian  
and Ukrainian  
Forces 2014<sup>43</sup>



The force ratio in Crimea encompasses more personnel and equipment than Sweden has at its hands. According to the CIA world factbook, Ukraine spends 3 percent of its GDP, while Sweden only spends 1.1 percent of its GDP on defense and security issues.<sup>44</sup> The Ukrainian deterrence failed when Russia challenged it. The potential to punish or compel Russia from changing the status quo was non-existing. Despite the fact that the US, UK, and later France all guaranteed Ukraine's territorial integrity in the Budapest Memorandum, which induced Kiev to give up the nuclear weapons it inherited when the USSR broke up.<sup>45</sup> These illustrations prove that technological products in themselves are not enough to deter an adversary. It will be the intentional use of the technology that will bring the desired effect or, as Dr. Arquilla puts it, "aligning emerging technologies with effective concepts of operations."<sup>46</sup> The deliberate use (ways) of weaponry and forces to secure the ends, expressed in doctrine, and a country's combined efforts get shown in its strategy (ends).

Sweden should not be intimidated by those earlier mentioned events because there are solutions to the wicked problems. The answers will challenge both conventional strategy and the current organization. Most important, it will provide a more valid solution and create a deterrent effect. Therefore, Sweden must search for a design that allows both a conventional and an unconventional approach. I am not proclaiming that Sweden should abandon all its conventional forces, not at all. Even conventional forces can learn to operate in unconventional ways, as needed. So maybe the blended force envisioned can be united by a new doctrinal approach. I genuinely acknowledge the conventional forces and the Blitzkrieg doctrine enabled in WWII. There is still much to learn from how the wolfpacks, the U-boats employed

during both the world wars, in both conventional and unconventional ways.<sup>47</sup> Countries need their armed forces to assure territorial integrity and as a first response to any intrusion. However, as we will learn further on in the article, wars are seldom over after the first battle, and surprisingly, the one that design for long-term dedication will finally prevail. To reiterate Dr. Arquilla's words, "design mattered here, too [WWII] – largely in terms of identifying the correct organizational structure and empowering it by the adoption of a well-aligned concept of operations."<sup>48</sup>

## **DOTS – Doctrinal, Organizational, Technological and Strategic Design Successes**

Arquilla gives a thorough analysis of why the axis lost World War II (WWII) in his book *Why the Axis Lost*<sup>49</sup> This is an insightful read and detailed examination of some of the core reasons why the axis lost. However, it is perhaps more interesting for Sweden to examine Norway's strategic design of a resistance movement during WWII. A small nation perspective, with support from both the UK, the US, and neutral Sweden. Norway's strategic plan enabled a coherent response to the invading force and helped diminish Germans' nuclear development by establishing a resistance movement.<sup>50</sup>

On April 9, 1940, Operation Weserübung got initiated. Several Norwegian ports and airfields were taken by surprise by German forces.<sup>51</sup> Operation Weserübung is interesting from several perspectives. To mention one, it was a joint operation, incorporating Navy, Army and Air Force.<sup>52</sup> King Haakon VII and the Norwegian government escaped to London, where they stayed until the end of the war.<sup>53</sup> Coastal defenders in the Oslo

fjord manage to do some resistance and sink the cruiser *Bliicher* and delayed the conquest of the capital by half a day, according to R D Hooker and C. Coglianesi in their thesis on Origins of Joint warfare.<sup>54</sup> The conventional battles were over within days, except in and around Narvik.<sup>55</sup> From London, the organization of the resistance movement – Milorg started. A strategic shock initially paralyzed the Norwegian armed forces, and they failed to provide any larger organize counter-attack.<sup>56</sup> Under General Ruge's leadership and with training, material, and logistical support from the British Special Operations Executive, the resistance grew, numbering 32 000 personnel by the end of the war.<sup>57</sup> Some factors that contributed to the successful resistance were coherence at the political level.

One of Milorgs' significant tasks was information gathering, which contributed to the successful commando raid towards the heavy water facility in Rjukan.<sup>58</sup> In addition to Milorg, another intelligence organization got established, XO, with the sole purpose of intelligence gathering.<sup>59</sup> What is less written and analyzed are the Sepals bases, stretching along the Swedish Norwegian border.<sup>60</sup> Several bases got established along the border, and four of them were located in Sweden. These bases, who often were no more than huts, usually had 12 Norwegian special forces insides them, equipped by the Office of Strategic Services via diplomatic mail to Sweden. One of the more notable mission successes attributed to Sepals bases is weather reporting that enabled the air and mini-submarine attacks on the German battleship *Tirpitz*.<sup>61</sup>

The conventional battle of Norway ended quickly. Beforehand, key leadership got transferred to safe locations abroad, enabling command and control throughout the war and kept patriotism up, which indicates

that the motivational spirit never broke.<sup>62</sup> Arguably, the Norwegian resistance could use its terrain knowledge and local connections with the population to advance towards its adversary.<sup>63</sup> The Norwegian resistance design made Hitler keep seventeen divisions within Norway, divisions that were then hindered from taking part in other places of the war, where they were most likely needed.<sup>64</sup> The design called for the protection of the leadership, never acknowledging the German-appointed leadership.<sup>65</sup> The overall aim was the liberation of Norway, the strategy – resistance utilized by allied support. The means was the collection of information to execute sabotage missions and prevent further Nazification.<sup>66</sup> According to an analysis made by Kim M Johnson, "allied aircraft flew 717 successful sorties out of 1241 dropping 208 agents, 9662 containers and 2762 packages with arms, munitions, explosives, radio equipment, uniforms, medicine, and the like."<sup>67</sup>

It helps us understand the technological structures behind the design of the resistance. The organization of the Sepals bases and the Milorg resistance also highlights another of the design warfare factors mentioned by Arquilla and Roberts – organization. This consisted of small, dispersed teams with decentralized command relationships far behind enemy lines, sometimes even in neutral countries. The Norwegian resistance organization utilizes an excellent example for further examination when Sweden starts to design its long-time defense strategy. It comprises all of the warfighting factors that Arquilla and Roberts mention.

The organizational, strategical, technological, and finally doctrinal design lessons to learn are arguably several in this brief historical overview of the Norwegian resistance during WWII. As we learn, intelligence and information were at the essence

of the resistance functionality and provided successful considerations towards commanders' decision-making. The design also provided dispersed units with decentralized command and control. However, General Ruge executed leadership from Norway under the direction of the strategic level in the UK. Organizing for resupply and insertion by air, land and sea made it possible to insert special operations teams, weapons and explosives. Thoughts and solutions were innovative in their core; even the diplomatic post became a delivery method, as we have learned. The greater lesson learned with this historical example is that the Norwegian response was reactive, while Sweden now can be proactive.

## A Thought for Design Inspiration – A Fictional Ideal

The local troops, all twelve of them, had been away, too, on this Sunday morning, for Mr Corell, the popular store-keeper, had donated lunch, targets, cartridges, and prizes for a shooting-competition to take place six miles back in the hills, in a lovely glade Mr Corell owned. The local troops, big, loose-hung boys, heard the planes in the distance saw the parachutes, and they came back to town at double-quick step. When they arrived, the invader had flanked the road with machine guns. The loose-hung soldiers, having very little experience in war and none at all in defeat, opened fire with their rifles. The machine guns clattered for a moment and six of the soldiers became dead riddled bundles and three half-dead riddled bundles, and three of the soldiers escaped into the hills with their rifles.<sup>68</sup>

The above passage will serve as an example of how an enemy could launch the attack upon his adversary, when least expected, and where defenses are limited or

non-existing. The attacker has thoroughly planned the move, and at least one spy is in place. Yes, this is fiction, but how far from reality is the novel? John Steinbeck, The Nobel Prize<sup>69</sup> recipient, wrote the book during the Second World War (WWII). Steinbeck, during the war, an employee of both the Office of Coordinator of Information (COI) and the Office of Strategic Services (OSS). Both precursors to the CIA and headed by Colonel William J. "Wild Bill" Donovan. Donovan, a Congressional Medal of Honor recipient from the First World War (WWI).<sup>70</sup> Wild-Bill is the only American to have received the nation's four highest rewards, the Medal of Honor, the Distinguished Service Cross, the Distinguished Service Medal, and the National Security Medal.<sup>71</sup>

Donovan, often regarded, according to SOCOM, as the "impetus behind the creation of a military psychological warfare capability, which included both psychological and unconventional warfare."<sup>72</sup> His first stage within the psychological warfare strategy (which later became known as special operations) is "intelligence penetration." Propaganda is the arrow of initial penetration. Thus, *The Moon Is Down* by John Steinbeck. The next phase of would-be special operations in the form of sabotage and subversion, followed by commando raids, guerilla actions, and behind-the-lines resistance movements.<sup>73</sup> The latter is described by Steinbeck in the same book,

There are no peaceful people. When will you learn it? There are no friendly people. Can't you understand that? We have invaded this country – you, by what they call treachery, prepared for us...

Defeat is a momentary thing. A defeat doesn't last. We were defeated and now we attack. Defeat means nothing. Can't you understand that?<sup>74</sup>

What then can fiction teach us? First, we must acknowledge that the novel is foremost the tip of the arrow. Borrowing Donovan's analogy, it is propaganda, written during WWII to instigate hope and nurture resistance. However, it is also an example of what types of challenges a superior, in both numbers and material, attacker face when forcing themselves upon another nation. A fiction's purpose is first and foremost to bring inspiration and creativity. However, according to several sources spread throughout Europe during WWII, this fiction helped keep morale and instigate hope in occupied parts of Europe.<sup>75</sup>

## Considerations

Sweden should not commit the same mistakes as the US, pursuing a conventional attrition-based warfare machine. Sweden neither has the ambition, financial power, or the human resources to achieve that strategy.<sup>76</sup> Sweden should instead look to designing a process that springboards from both a conventional and unconventional approach. Acknowledging that contemporary conflicts are not won or lost in a decisive battle, instead, they move up and down in intensity. At the moment, both budget and political will to change are present, the internal factors align. The external circumstances, such as Russia's greater ambition, the UK is leaving the EU, and the fluctuations in US leadership, forcing Sweden to work on its strategic design to pursue a long-term proactive solution.

The US has spent billions of dollars investing in new aircraft carriers that are already obsolete.<sup>77</sup> The range of the fighter jets on those carriers is too short compared to the Chinese carrier destroyer missiles, DF-21D<sup>78</sup> and DF-26.<sup>79</sup> If and when challenged, the U.S. will have to start taking its carriers out

of harm's way, and subsequently, the US will not reach its adversary with its current conventional weapons.<sup>80</sup> An example highlighted by the former staff director of the senate armed services committee, Christian Brose, in his book *Kill Chain*. Yes, the US has both hyper-gliders and nuclear weapons, but so does China. Sweden, contrary to them both, has the opportunity to pursue a different military strategy.

A final comment on design, some time ago, I had an email exchange with a good friend. He is part of the University of Arts, Crafts, and Design board in Stockholm, Sweden.<sup>81</sup> We discussed back and forth the essence of design. Thus, he is more focused on graphic design, and the armed forces should focus on strategic design. However, he commented, and here is a quote from that email exchange, "graphic design and armed forces!?!... I cannot foresee how that would work. The armed forces foundation for problem-solving is empirical and, generical and scientific. Art, on the other hand, is the opposite, on the other hand, if you can crack the code to design for the defense forces, you will have plenty to gain because the enemy does not give a shit about empirical thoughts." He is right, and our adversary does not adhere to rule-based warfare anymore, so why should we not look for a broader solution that will imply long-time costs for them and subsequently deter them from changing the status quo.

I recommend that Sweden keeps up with and stays at the forefront of constant external changes and aligns its defense efforts better by creating a future warfare strategic design center to design for better use of budget, personnel, thinking, and leading Sweden's future defense. By thinking in time and learning from how the successful resistance in Norway worked during WWII, Sweden can move forward into a combined conventional

and unconventional warfare methods strategy. As we have learned in this article, the strategic design comes with a promise of a brighter, more proactive future; however, it demands knowledge to prosper – thus the design center.

The author is major.

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