Full Spectrum COIN Modelling

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ABSTRACT

This paper discusses two approaches to model counterinsurgency. It deals with COIN's complexity by addressing its full spectrum. The model can be used as a decision support tool for planning operations on both the operational and tactical level. COIN is a complex endeavour because of its mix of difficult and dangerous military fighting missions, military support activities, and various civilian reconstruction and development aid activities. A model of this complex whole may elucidate its internal structures, and so help research and planning. It is foreseen that a complete and reliable model would, itself, be complex.

In order not to get lost in COIN's maze, a two-step approach is followed: first build a simple model, test it, learn, then build a second, more complex model. The first approach uses literature and doctrine to compile a list of about 50 main factors (insurgents, the legitimate government, the military, the local population, their main activities and interactions between them), distributed over three areas: security, governance/rule of law, and economic and social development. Between these factors, about 100 links have been defined, which together make up the model. The model is divided into two symmetric halves, one representing the government to be supported, the other representing the insurgency to be repressed. The links form a dense web of internal relations, which is also seen in the 480 indirect causal loops found in the model.

This model was implemented in MARVEL (Method to Analyse Relations between Variables using Enriched Loops). It captures a sense of the dynamics, mutual influence, and complexity of the actors and activities that make up COIN. After the development of the first approach into a COIN model, its limits were uncovered and the discussion of its results led to the development of a second approach. This approach consists of a more generic model which shows the interactions in the full spectrum of COIN Operations. The civilian and non-fighting military activities relevant in COIN are now given their proper due, as are the relevant organisations involved in them, the different time scales, and their various interrelations. This approach is still work in progress, and more research is needed to work out the model into more detail and build a proper social sciences basis for it.

The relation between the two COIN modelling approaches as presented and an *implicit thought construct* that describes state and nation building is discussed. It is suggested that this implicit thought structure is also used in the Dutch Comprehensive Approach and other reference documents. Here, too, much more work is needed. The paper ends with discussion items and suggestions for fruitful directions for further work.

SECTION 1: INTRODUCTION

BACKGROUND

Counterinsurgency operations (COIN) are nowadays the daily activity of many military establishments. There are few signs that this situation is about to change. Despite some forewarnings, the Western militaries found themselves ill-prepared for waging COIN in Afghanistan when the need arose somewhere in 2002. There has been a fast and steep learning curve, so that now a large amount of literature on the subject is available, both research work and doctrine. Recently military doctrine has made great leaps forward; think of FM3-24, a good introduction to COIN, also for those who do not use it as a military 'how-to-do-it' guide. Some of the well-known think tanks have never really forgotten about COIN, and are therefore in a position to learn lessons from their own archives.

It seems that the capability to engage in COIN has to be learned all over again, time after time, maybe because of a certain tendency of military establishments to regard COIN as "small wars," the waging of which is not the true vocation of civilised armies. Think, for instance, of the old handbooks for fighting colonial wars, an embarrassing but relevant predecessor of present-day COIN. These sources have only recently been referred to.

One observation that is often made in the relevant literature is about the inherent complex nature of COIN. COIN is described as a mix of military and civilian activities, both of which may at some time fall into the ambit of the interventionist power exercising COIN. There is the interaction of the intervening armed force with the host government and its own armed forces, foreign civilian organisations like NGOs and International Organisations, the local population and, of course, with the insurgent. It is generally accepted that armed confrontations with the insurgents are necessary, but not sufficient for winning.

The interplay between the many possible activities makes COIN difficult to plan for. Questions are: what to do first, how to account for the influence that military activities have on the performance of civilian ones and the other way around, how to achieve synergy while avoiding destroying with one hand what you have built up with the other? Worse still, every insurgency seems to differ from the former ones. Insurgents also learn from earlier experience, and new tactics are easily spread around the world through the various contacts between insurgent groups.

Research into the mutual influences of activities in COIN needs to proceed beyond the anecdotal towards analysis based on an assessment of regular events. For research purposes it seems to be worthwhile to draw up a mapping of COIN that is generic, to be filled in with details for each individual case. In short, both planning and research are in need of a systematic approach of what makes up COIN.

To satisfy this requirement, it would be worthwhile to have a systematic overview of the relevant military and civilian activities, their mutual influences, the effects that they have with regard to their direct goals and, ultimately, on the success of the legitimate government. Another word for 'systematic overview' is 'model'.

GOAL PAPER

The aim of this paper is to draw up this model. The model is to have a twofold function: it is meant to help along research into this very difficult type of military operation, and it is intended to serve as a tool for supporting the COIN planning effort. Modelling COIN is work in progress. This paper does not present the final model. It does show our current way of thinking, it provides some background to it (how have we come here?) and suggests a way forward. The paper ends with a number of questions intended to provoke discussion about the COIN modelling endeavour.

CONTENT DESCRIPTION

In Section 2 the modelling of a COIN operation in general is contextualised, describing how to build a COIN model using an aim, area and method. Section 3 elaborates on the first approach that has been undertaken to build a COIN model. Its factors and a brief introduction of the MARVEL tool that was used for this purpose are the main subjects here. In Section 4 the second approach is explained, as the discussions and limits of the first approach led to alternative way of building a COIN model. The paper is rounded up with a number of conclusions in Section 5 and a discussion in Section 6, based on the work that still needs to

be performed to generate all the elements needed for input for modelling in the second approach.

SECTION 2: MODELLING COIN

The subject of COIN is inherently problematic since it has at least a large civilian component, and is (subsequently) partly outside of the purview of the military practitioner. COIN is a (partly) military operation meant to defeat an insurgency and, at the same time, help a legitimate government. These are the two main intermediate goals of COIN. Its final goal is to convince a local population that its government is legitimate and effective so that a repeat of the insurgency is unlikely. The practitioner of COIN (the interventionist) must, thus, conduct a military campaign in order to defeat an opponent, but at the same time help a government become effective and gain legitimacy, and develop activities that convince a population. The right timing and mixing of the actions that pursue these disparate goals is of the highest importance for achieving success. The appropriate action correctly aimed at the right goal but at the wrong time or not supported with actions aimed at the other goals, may very well fail.

WHAT TO MODEL?

There are three sides to making a model of COIN (presumably to making other models as well). These are:

1. Aim: what is the aim of the model, i.e., for what purpose and how are we going to use it?

2. Area: which part of the world should the model be a description of?

3. Method: how are we going to make the model?

The first question when modelling COIN that had to be answered was: what do we aim to do with it? Is it, for instance, our intention to use the model for optimising the military activities of the intervening force? Do we wish to look for the best mix of military and civilian activities? Is it only 'our own' actions that we want to take into account? If not, whose activities to include?

The second question may be answered when the first has been tackled. When the research ambitions are higher, a larger part of 'the world' will have to be included. In the case of a narrowed-down COIN model aim (militarily defeating the insurgent), the relevant model area is correspondingly smaller. Modelling military effectiveness is a well-understood task when it comes to confrontations between conventional armies. It would, presumably, not be too difficult to stretch the scope of a conventional conflict to include an unconventional one. But in the case of a more ambitious COIN model that also includes civilian activities, we encounter problems. These issues fall normally outside the scope of Military Operations Research, but they have been the terrain of economists, sociologists and anthropologists for decades. A proper model of COIN must contain these elements. Unfortunately, COIN usually

takes place in societies about which we do not know very much. Trying to reliably represent societies that are foreign to our own in so many ways as we find (for instance) in Afghanistan is thus made even more difficult.

As a consequence of this, we must be very careful about what to include in the COIN model and what to leave out. Those elements and relations in the 'target society' that are simply too difficult to model may not make it to the model, implying that a gap would be left that should be, somehow, filled. The third question is about the techniques that we may use to make the model, the outlines of which would be established by the answers provided to the first two questions. In some cases it may be possible to directly designate the relevant factors from a quick review of the subject area and proceed to link these factors into a coherent whole. When it is the intention to take more dimensions into account and when complexity is apparent in the types of actors involved, the areas that must be covered, time scales, different types of reciprocal relationships and the like, a different approach is called for.

In this paper two approaches to the COIN modelling issue are suggested and, partly, tried out. The first approach takes on COIN from a narrow, almost solely military, point of view. Its guiding question is: how must an interventionist shape and mix its military fighting activities in order to be successful? This question provides a lead for answering the next question. The model must cover the military part of an insurgency, and the direct side-effects that success (or failure) has. The primary focus of the model will be the military actions of the interventionist, added to which a number of mainly military actions by local forces which belong either to the local government or to the insurgents are also depicted. For this relatively simple model, the recipe just outlined was indeed followed: the subject area chosen, relevant factors deducted, tied together in a coherent model. For this first model we have used the MARVEL tool, to which we will devote a brief introduction. This first model has been tried out in a particular case study. The results of this will be discussed.

The second approach has grown out of our findings from the model built in the first approach. In this second model it is our intention to be more ambitious. The leading question is now: What should a 'Full Spectrum COIN' include, and how should the various elements of this FSCOIN relate to each other? FSCOIN is aimed to encompass non-fighting military missions and civilian activities. The area that we need to picture must be correspondingly larger, to include the governance, judicial, economic, and social areas that we were so happy we could ignore in the first approach. The method used for building the model is still a matter of contention. The tool used for implementing the first model may not be sufficiently sophisticated for this approach. There are now different societal domains at issue, but also a much larger host of actors, actions, interactions, more time scales. An intermediate analysis step has been found to be required that deals with matters like "which relations are relevant" and "how to structure these?"

SECTION 3: THE FIRST APPROACH

WHAT TO USE THE MODEL FOR?

As stated above, the first approach to modelling COIN has as its leading question, how the interventionist should shape, size and mix its military fighting activities. This model must

also take the effects of these actions on each other, and on the generic goals of COIN into account. These are: defeating the opponent and helping the government.

REQUIRED MODEL PROPERTIES

This model of COIN must show, in simplified but systematic manner, which are the main actors in a specific area, what their relevant activities are, how the actors interact with each other through these activities and what influence they may have on each other. The model should cover the relevant areas of a society (depending on the aim of the model), it should indicate the characteristics of interactions between the actors, and indicate the relevant variables for these elements. The model should provide for allow users to gain an insight into the possible and plausible consequences of actions that are planned.

The society in which an insurgency is taking place is distinguished into three different levels. The first one is the 'safety and security' level, most relevant for military activities. The second level is ‘governance and rule of law,’ which is concerned with the basic functions of a state apparatus. Successes in the first layer (defeating insurgents, restoring law and order) are conditions for progress in this second layer. Finally there is a third layer, which includes all other functions of a state. This is considered the long-term layer, and it builds on successes achieved in the first two layers. Military activities take place in the first layer, so that the main elements of the first approach model are found here. Side effects of military successes are mentioned in the model, and from there a direct link to the intended outcome, stability, is laid.

FACTORS FOR THE COIN MODEL, FIRST APPROACH

The first approach COIN model is constructed from the following elements: actors, activities and interactions, and outcomes. In an insurgency, there are four main parties: the local population (which may be largely undecided), the legitimate (local) government (and its military and civil service), the insurgent (including, again, its military and civilian branches), and the interventionist. The directly relevant surroundings are: foreign countries that support the legitimate government or the insurgents, international public opinion, and national public opinion. Both insurgents and the legitimate (local) government try to win as large a share of the local population for their cause, be it by military or with civilian (or both) means. The interventionist tries to bolster up the legitimate (local) government. It may do this by helping it to suppress the insurgency (for instance, with military aid or by military operations) or/and by trying to win the local population for the cause of the legitimate government.

The intermediate goals are: military and civilian successes. Civilian success has been identified as enlarged legitimacy of the government. Military successes have been distinguished into: Quality of COIN operations, and Power of Insurgents. Based on these goals, a number of actions have been defined that would increase legitimate Government’s system while shrinking the insurgent's one. Because military and civilian activities are inextricably entwined, no effort has been made to make separate civilian and military rows. In the table below the three levels are specified with a description of a selection of the variables used in the model.

Level	Variable
1. Safety and security	Quality of intervention army and police
	Size of intervention army and police
	Quality of local security forces
	Distribution of local security forces
	Level of coherence between operations of army, police and local security forces
	Level of security population in government administered area
	Foreign support for government
	Closeness of bonding between government and population
	Territorial control government
	Level of surveillance country borders
	Level of organization insurgents
	Existence of undisturbed territorial bases insurgents
	Existence of undisturbed territorial bases abroad
	Popular support for insurgents
	Foreign support for insurgents
	Access of insurgents to population
	Level of terror by insurgents
2. Governance and Rule of Law	Level of rule of law
	Level of functioning institutions
	Distribution of local government
	Commitment of local leaders
	Availability communication channels government
3. Social and Economic Development	Level of delivery vital and social services
	Level of delivery of vital and social services to population by insurgents
	Financial resources government
	Availability finances insurgents
	Communications by government
	Propaganda by insurgents
	Legitimacy government

It will be apparent that the first level (military successes) figures most heavily in this list, and that the other two levels are less prominently represented. That is, first, because in the narrow 'military approach' safety and security are the underpinning factors of all other successes, and second, because COIN at some point imperceptibly shifts shape and becomes development, a different aspect of intergovernmental relations that lies outside the scope of this paper (and of COIN proper). However, some of the relevant factors in these levels are also mentioned, insofar as they seem to be more relevant to the direct COIN effort. The variables mentioned are based on the ones used in the model worked out in the MARVEL tool and can be completed with other variables that one may deem necessary from their own perspective.

USING THE MARVEL TOOL FOR BUILDING THE FIRST APPROACH MODEL

The main factors enumerated above have been plotted into a model using the MARVEL tool. The tool shows the effects of the interactions between the factors as dynamic model behaviour: time graphs indicating how particular aspects of COIN operations may change

over time and influence each other. MARVEL is based on the standard Causal Loop Diagram technique to which it adds several features. These additional features allow studying how a complex system will respond to changes in selected aspects of that system.

Originally, MARVEL was designed as a method for evaluating policy interventions. It aims to provide both a first insight into the policy intervention problem structure (the COIN operation) and the effects proper of the policy intervention, without the need of too much data. It is meant to be used for problems where limited quantitative data are available and for which limited outcome accuracy is accepted. Therefore results should always be interpreted as trends, not as exact outcomes.

The tool is used by first identifying the relevant aspects (called variables) in the problem area, and the causal relations between those variables. The causal relations are presented as arrows that have the following properties:

- They go from one variable to another.
- The direction of the arrow denotes the direction of an influence.
- There may be a positive and a negative influence. In the first case an increase in the sending variable causes an increase in the receiving variable. In the second case, the opposite is true.
- The arrow has a speed: from very slow to very fast.
- The arrow has strength: from very weak to very strong.

When building a model from factors and influences one adds to each causal relation a speed and strength: some relations have a faster effect than others, and some have a more apparent (stronger) effect than others. When several variables of the problem area are found and connected by causal relations, often so-called feedback loops emerge. This is a cyclic relation between the variables, meaning that an arrow emanating from one variable comes back to that variable through a number of further arrows and variables.

The "+" and "–" sign are common to any Causal Loop Diagram, but this method also discerns the "c" or complex sign. This is relevant for those cases where the sign will be somewhere between a normal "+" and " " sign, depending on the state of the variable at the arrow's start or end. Two particular types of variables that allow for gauging the impact of changes (for instance in policy) are the control variables, and the goal parameter. The first variable is called a 'control variable' as its change is actively controlled by introducing a policy change. The second type owes its name to a selection of the variables from the model representing the problem aspects to be improved by using the control variables.

FROM FACTORS TO MODEL

Using the MARVEL tool, the factors for the COIN model have been brought together in a model that exists of 49 factors (more than shown in the list above), 105 links between them, and 480 feedback loops. In the model, turning certain levers result in certain direct and

indirect effects on the desired end state, stability. Because of the feedback loops, both direct and indirect effects are taken into account.

Government
Population
Insurgents

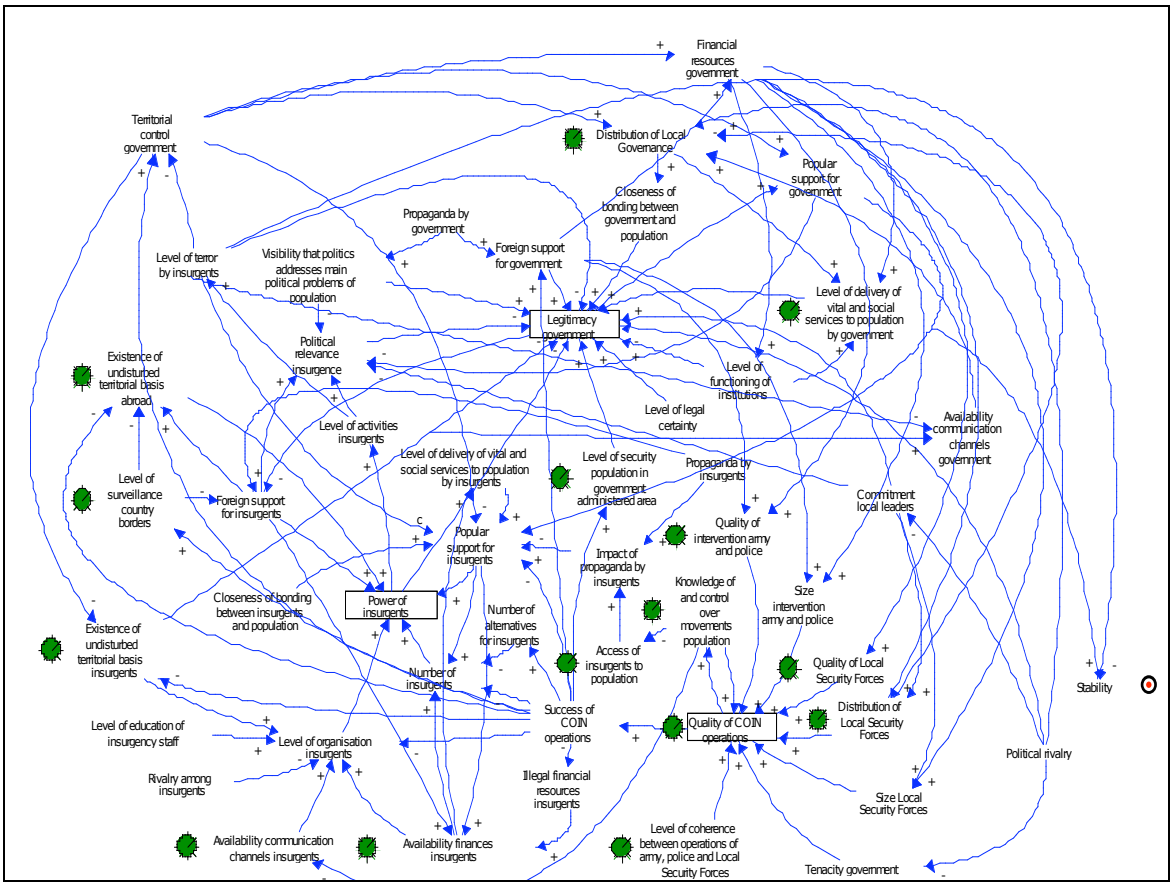

Figure 1: A representation of COIN model in the first approach.

The model was developed bottom-up. It started by drawing up a list of relevant factors, after which progressively the links between these factors were put into the model, named and provided with a strength and speed. We started with a very simple model to which we kept adding the relevant factors until we found that we had included the most important of them. The number of 49 factors and 105 links seemed 'about right', whereas the 480 feedback loops are a result of the factors and links mapping configuration. Adding just a few factors and links enormously increases the number of feedback loops.

Two types of dynamics became apparent when building the COIN model. One may be described as 'model dynamics.' This points at the first, intended dynamic that is visible when using the model. The feedback loops describe the indirect effects that COIN actions and interactions may have on each other. The number of steps that make up a feedback loop and the strength and speed of each of the connections make for a stronger or weaker loop. The growing model posed the ongoing question of the links between the factors. When to stop adding more links, when would the number of feedback loops start to cause a modelling dynamic that would be impossible to verify?

A second dynamic that we saw may be called a 'modelling dynamics,' i.e., the activity of building the model engenders its own suggestions about, for instance, the basic symmetry between supporting the legitimate government and fighting the insurgent which became gradually visible in the model, just as was expected from reading of the literature. Another symmetry that appeared was the one between military and civilian measures.

LIMITS OF THE MODEL

One other feature that sprang from using this model was that the interaction of measures that were moderately effective usually resulted in high effectiveness outcomes in the long run. This outcome directly contradicted the real-life experience that usually the effectiveness of measures diminishes in the long term, in the case of COIN for instance because an opponent finds ways to work around the measure. One could say that the system described by the underlying model adapts to external stimuli in order to return to a stable situation. The COIN model outcomes must be therefore used as a working model of trends, not as a hard prediction of reality. The longer the term, the more this is the case.

WHAT THE FIRST COIN MODEL LEAVES OUT

Usually, when an intervention starts, the local situation is in a flux and changing. The legitimacy of the local government is undermined and there is an alternative centre of governmental power that for some reason is felt not to be an acceptable alternative to the government. Often, trying to bolster up an incumbent government includes a great deal of corrective and supporting action, because the government is not heeding the needs of its population in an effective manner. If it would, there would presumably not have been an insurgency in the first place. The support that an insurgency has from the local population may be difficult to gauge, especially when dealing with alien (political) cultures. Still, the effort must be undertaken, if only to find out how far the government has alienated itself from its population. Based on such an assessment, the interventionist would decide on its main focus of activities.

LEARNING LESSONS ABOUT MODELLING COIN

One particular modelling dynamic was the emergence of the idea of a 'hidden thought construct' behind the COIN model. This came into being during discussions of the role and position of the local population in the COIN model. The gulf visible between recent Dutch military prescriptions for COIN ('aimed at the local population') and the reality of nature and goal of the main activities involved in the first approach COIN model (supporting a government and fighting an insurgent) prompted a rethink of the essence of COIN. A closer inspection of the COIN model showed that many activities are indirectly aimed at the local population, but that their reactions are only implicitly taken into account. This distinction between COIN as a mainly military fighting activity and COIN as aimed at underlying civilian concerns was a major reason for us to further develop the concept of a COIN model.

It was decided that the three-layer order already apparent in this first approach model was to be further developed.

SECTION 4: THE SECOND APPROACH

INTRODUCTION

The limits of the first approach model of COIN as discussed above have led to an effort to make a new COIN model. The basic questions, again, are:

1. Aim: what is the aim of the model, i.e., for what purpose and how are we going to use it?

2. Area: which part of the world should the model be a description of?

3. Method: how are we going to make the model?

AIM OF THE SECOND APPROACH COIN MODEL

The first question must be answered by taking the shortcomings of the first model into account. The goal of COIN is not just to crush the insurgent. Instead, the local population must be convinced that it belongs in the state that we support and that its concerns are best heeded by its legitimate government. For this to happen, COIN is aimed at helping a local government defeat the insurgents and win (deserve) the endorsement of its population. A COIN strategy must, in the final instance, be population-centric.

Consequently, we not only want to map the interventionist's military fighting activities but a wider range of activities that also involve the other relevant actors. Activities also include Security Sector Reform [SSR] which has non-fighting military activities (one of the most important of which is: providing education and training for the local police and for local armed forces) and civilian activities (institution building, training of civil servants). Further, COIN is also a civilian activity that contains major roles for diplomacy, institution-building outside SSR, development aid and military support (f.i.). These civilian and military activities should be integrated and coordinated in a way that brings out the relative merits of each of the parties involved. One thinks of easier access to the local population by competent local police forces that must be properly trained and of the longer endurance that often characterizes civilian efforts like development aid.

WHAT TO MODEL?

The question, what are the relevant areas of society that have to be mapped, is rephrased as: what are the main concerns of the local population? It is assumed that, in order to convince a population that its interests for the long term are best served by being part of the legitimate

government system, a number of concerns must be addressed. These concerns are partly interdependent, and there is an implicit assumption about time sequence in the ordering of the series. We suggest the following series:

1. Safety and security.

2. Governance and rule of law.

3. Social and economic development, including:

    - Education.
    - Health care.
    - Economic development.
    - Social work.

A COIN operation must operate on all three layers of the *implicit thought construct*, it must be aimed at helping develop governmental credibility and effectiveness in all areas, and disrupt the insurgent's achievements in the same areas. Military operations must start at the top: the effectiveness of the legitimate government's military operations must be improved and the opponent must be defeated. Building on military successes, the governance apparatus must be expanded (in territorial and effectiveness), and the apparatus of the opponent must be diminished. Services (education and health care) must be provided to replace such endeavours by the insurgent party. The legitimate economy must be built up, as must the insurgent's economy disrupted. Finally, the population must be convinced so that it feels that its concerns are adequately, safely and honestly dealt with by the legitimate government. In this phase, the members of the insurgency should be lured back into the legitimate government's orbit, so that the insurgency withers away from within.

The series of three layers shown above may be interpreted as the *implicit thought construct* behind the second approach COIN model. Its underlying assumption is that security is the single most important factor that underpins all other government achievements. The other way around, a lack of security (which could also be read to include the presence of the requisite necessities of life) would undermine any measures or activities on the other areas.

One particular problem that arose in using the first approach model was the time frames issue. The question is: how fast are developments in the various areas of society? In an answer to this question it is assumed that in the first layer (security) successes may be obtained relatively quickly, whereas layer two (building up governance) and layer three (social and economic development) take (much) more time. Developing an economy is a medium term activity, and 'social peace' is the ultimate long-term goal. The three domains are not completely separated in time. For instance, providing rule of law might take even longer than enabling the agricultural economy to function, and bringing security to all corners of a country could well take longer than 'just' defeating an insurgency. Possibly one distinction between the layers would be the plausible duration of foreign help (intervention) in them: military help is normally of relatively short duration whereas development aid lasts longer.

The *implicit thought construct* is the basis for the Comprehensive Approach, 3D-approach and Full Spectrum COIN, which all contain (with minor variations) the three same layers. The construct contains the basic functions of the liberal 19th century state: provide for

external and internal security, governance and the judiciary function, and enable economic prosperity. But it also has elements of the welfare state that has since grown up in the Western world (and, to a lesser extent, elsewhere): education, healthcare, social development, welfare, and human rights. While it is often difficult enough to transplant these Western elements in international development aid, this becomes very hard under the stress of an armed insurgence. Interventionists find, time and again, that the local government will simply not turn into a responsible, Western-style democratically chosen, law-abiding body. Local economies that could benefit from Western types of mindsets will continue to lag behind optimistic prognoses, and well-intended but not locally 'owned' aid efforts will go to waste.

The relevant variables in the layers Full Spectrum COIN have not all been identified nor yet quantified. All three layers have their proper scientific tradition, with their own terminology and possibilities of describing relations between actors and activities in mathematical models. Safety and security belong to the Operations Research ambit; governance and rule of law would be part of the political and legal sciences; health care and education have their own establishments; economy may be the most fully quantified area; and social peace belongs to the area of sociology and anthropology, both not very deeply quantified scientific areas.

Relationships between these areas are, to the best of our knowledge, currently not the domain of any particular science. The ambition to bring all of these scientific traditions into a single model is too high for the moment. Here, the areas of COIN and development touch each other. This results in uncertainty, because both areas are complex endeavours, and their interrelation makes for more complexity.

HOW TO DO IT?

In this new model, the same three 'layers' of COIN effort (safety/security, governance and rule of law, economic and social development) are used, and largely the same factors as used in earlier variant (Figure 2). After all, it is the mapping of these factors into a model that concerns us, not necessarily enhancing the list of factors. But these factors are now to be grouped in a more structured way. This would hopefully allow us to overcome the limits of the bottom-up model. Before building the model, the question must be asked: how to include the factors in the three layers? A first element of the model shows the main actors and the direction of their interactions.

The main actors are:

- Local population.
- Local government.
- Insurgent.
- Interventionist: civilian and military branches.
- International support for local government.
- International support for insurgent.

The most important interactions are from local government and from insurgent to the local population. Both parties try to gain the support of it, be it by force, conviction, support, etc. In the long run, the party that successfully woes the local population wins. Then there is

the matter of foreign support, both for the local government and for the insurgent. The insurgent may draw inspiration, money, instruction, weapons, or a safe retreat for resting and regrouping from abroad, be it a country or an international organisation. The same applies to the local government.

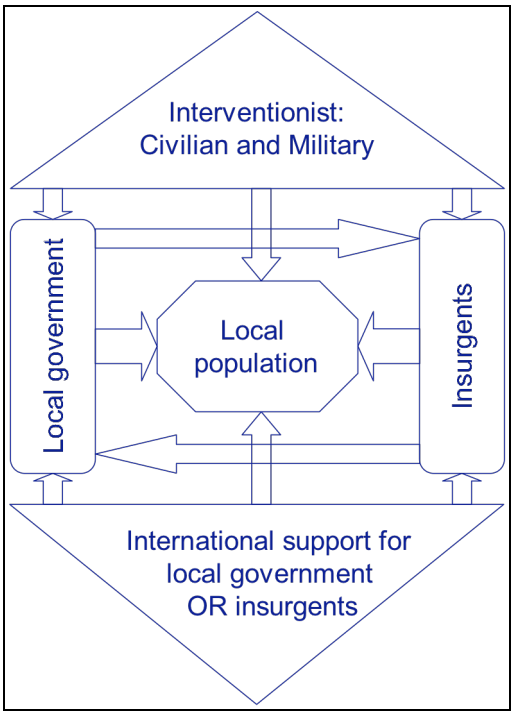

Figure 2: A representation of COIN model in the second approach.

The interventionist force is a specific instance of foreign support for a local government. Its aim is to help the government by undertaking activities for it (or instead of it, for instance when the government is not able to undertake these activities by itself), helping it undertake activities, and/or indirectly helping it (for instance by training its military and civil servants and by helping set up institutions). In the first instance, activities would be aimed at the local population (for instance, direct aid for constructing infrastructure) or at the insurgent (finding and fighting the insurgent's forces). In the second instance, the interventionist could provide logistic or intelligence support to military or civilian operations by the local government. In the third instance, it would train people and set up institutions.

Here, again, the time frame of the activities is a thing that matters. Military operations by interventionists usually (historically) do not last more than a few years. The reason for this is of a local political nature: when no vital political interests are at stake, most nations find it difficult to explain to their own populations why armies need to be deployed in endless and costly missions abroad. If it is foreseen that an insurgency may last longer than a few years, it makes sense for an interventionist to plan ahead and concentrate on providing support for military education, training and institution building.

The second (governance, rule of law) layer is a difficult one, because it is directly concerned with the political actions of a local ruling elite. When they feel that fighting corruption is not in their best interest, the chances of success in this layer are small, which would endanger the success of the entire intervention. The third layer is relatively straightforward, since it mainly concerns economic development. This would be interesting

to any political elite under virtually all circumstances. It is thus a societal area where support is most easily depoliticized.

We see that in the three layers of COIN activities, different host-nation organisations are relevant and (often) also different interventionist's organisations. The actions that the interventionist's organisations undertake (directly aimed at the local population or the insurgents, supporting the relevant host nation organisation, indirectly helping by training personnel of these organizations or otherwise helping them institutionally) aimed at their respective area of activities are meant to bring in results. These are the direct output of the work of these organisations. The second approach COIN model must contain the main actors, their interrelations, main activities, effects and side effects. It must also show the three main areas (also found in the implicit thought construct), and the time frames proper to the areas, activities, and actors.

SECTION 5: CONCLUSIONS

RESULTS

The main results from this paper are the following three:

1. The basic structure of the first approach COIN model is useful for planning purposes and may be further developed.

2. The second approach COIN model has a much broader scope. It is intended to make up for shortcomings in the first approach model. The more systematic structuring should lead to a more convincing and more easily validated model.

3. A number of basic dimensions must be worked into any viable COIN model. These concern the complementarities between:

    - Civilian and military activities.
    - Government and insurgent.
    - Support and access to either government forces or insurgents, both nationally and internationally.

And the differences between the security, governance and social/economy domains must be taken into account, together with consequences for relevant actors, actions, and time frames.

SECTION 6: DISCUSSION

WORK IN PROGRESS

A combination of both concepts described in the 'how to do it' of the second approach model (main actors and their mutual influences; and actions of these actors distributed over the three

layers of Full Spectrum COIN) would show a systematic overview of the various activities that the relevant interventionist's organisations may undertake, their proper area, aim and direct effect.

The various effects are also relevant for the work (and effectiveness) of other organisations: for instance, enhanced road security brought about by diligently patrolling the highways of a nation suffering from an insurgency will enable 'Freedom of Movement' which underpins both governance (government agency personnel is now able to travel to far-off provinces and start providing services to the population) and economy (traders are now able to start long-distance trade relationships). In it, we see that the main line of reasoning is: An organisation performs activities that have an effect in its own sphere and an effect on other organisations' activities, and the complete set of these effects (direct, support, indirect; in own sphere and on other organisations' activities) is the compound effect of intervention.

The *implicit thought construct* should provide background for the various links in this model. It is, at this moment, not sufficiently mature to do so. It deserves much further research and serious discussion in the Operations Research community. For the moment, to have available even a rough approximation of the relevant elements of the model and, even more important, of their reaction to COIN activities would be desirable. This remains to be discussed.

FURTHER WORK

As a first effort, the relevant elements of the second approach model must be listed, after which they may be fitted with attributes like main area of effect, speed, weight, direction of effect, side effects, time dimensions. Since the outlines and properties of this model are not clear yet, it is impossible to know whether it too may be implemented in a tool like MARVEL. It must be kept in mind that many of these links (between organisational output and effects, and in between effects of different kinds) are very difficult to express quantitatively. Further, there is a huge task in validating any model thus built, because it will have to be adapted to a local and time-bound situation every time we use it. This suggests that the outcomes of the model will always have to be used with proper caution, and must never be treated as prediction or even for optimisation of effort. Results will be well-grounded guesses and thus starting points for further discussions. But even that would be very valuable.

The final remaining questions for further research would be, what does 'synergy' between military and civilian activities actually mean? How does success in one area feed into success in another one? The answer to these questions partly lies in the implicit thought construct, which is yet to be fully developed.

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