

MODELING PSYCHOLOGICAL MESSAGES AND THEIR PROPAGATION

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ABSTRACT

In the context of the stabilization phase of modern conflicts, actions of influence are essential and take precedence over combat actions. Among those actions, psychological operations (PSYOPS) are the most important for influencing info-targets by spreading a message that they must read, listen to and understand for them to adopt the desired behavior, which is made by the modification of their attitudes by acting on their perceptions. In this article, the author thoroughly analyzes the different parameters that describe psychological operations (info-targets, means of conveyance, expected behaviors and feelings and so on) as well as the way messages are propagated through social networks. This study is carried out in the context of the system CAPRICORN, whose goal is to assess psychological effects of combat actions, CIMIC actions and psychological actions of the coalition on the allied forces, the actors of the threat and the population, in the framework of the ongoing conflict in Afghanistan.

Keywords: Stabilization phase, PSYOPS operations, message propagation, social networks

1. INTRODUCTION

Nowadays modern conflict management is divided into three phases, the intervention, the stabilization and the normalization phases, (Faucher 2011), each of them being characterized by a main action (coercion for the intervention phase, security maintaining for the stabilization phase and aid for the normalization phase). During the stabilization phase, combat actions are relatively limited compared to actions of influence, e.g. actions of communication (Operational Communication), (N°297/DEF/CICDE 2007), psychological actions (PSYOPS), (N°069/DEF/CICDE 2008), and civil-military actions (CIMIC), (N°262/DEF/EMP.1 2005).

The CAPRICORN system is a simulation system that is used in the stabilization phase of the ongoing conflict in Afghanistan, (Bruzzone 2009). It takes as inputs different types of actions of the coalition force: PSYOPS actions, CIMIC actions and combat actions and it aims at assessing the psychological effects of those actions on the friendly forces, the actors of the threat and the population.

This article deals with CAPRICORN researches on PSYOPS management models.

2. WHAT ARE PSYCHOLOGICAL ACTIONS ?

Psychological actions aim at elaborating and spreading a message that must be read, listened to and understood by the *info-targets* in order to get the desired effect, that is, influencing the info-targets to get from them the desired behavior by the modification of their attitudes, by acting on their perceptions, (N°069/DEF/CICDE 2008).

A message must generate in the info-targets, reasoned thoughts, spontaneous feelings and emotions and/or reflex behaviors, depending on the means used to spread the messages.

When an analyst designs a psychological message, he must produce an efficient message that will reach the goal the analyst has in mind, e.g. the latter must get the expected effect on the info-targets.

The paper will then highlight the characteristics of a message that facilitate its understanding, the trust one can have in it and its spreading.

According to Clark, (Clark 2009), efficient messages have the following characteristics: they tap into people's anxieties, they are surprising, but coherent, they reflect the *zeitgeist*, they are simple and concrete and are difficult to disprove. According to Rosnow, (Rosnow 1991), credibility and ambiguity are also important factors.

DiFazo and Bordic, (DiFazo & Bordic 2007), also mention some mechanisms that urge receivers to spread a message: their uncertainty and anxiety, the importance of the message to their eyes, the fact that they believe in the message, their motivation.

Actually, it is possible to distinguish between two types of messages: *propaganda* and *rumor*, (Defencejournal 2000).

- Propaganda

According to the International Encyclopedia of Social Sciences, (Wiki propaganda 2011), «Propaganda is the relatively deliberate manipulation, by means of symbols (words, gestures, flags, images, monuments, music and so on) of other people's thoughts or actions, with respect to beliefs, values and behaviours which these people (reactors) regard as controversial». E.D. Martin says, «Propaganda offers ready-made opinions for the unthinking herd», (quoted in (Choukas 1965)).

- Rumor

In defining a rumor, one can say it is an information on news without verification, content-oriented, (Defencejournal 2000). "A Psychology of Rumor" was

published by Robert Knapp in 1944, (Knapp 1944), in which he reports on his analysis of over one thousand rumors during World War II that were printed in the Boston Herald's "Rumor Clinic" Column. He defines rumor as a proposition for belief of topical reference disseminated without official verification. *So formidably defined, rumor is but a special case of informal social communications, including myth, legend, and current humor. From myth and legend it is distinguished by its emphasis on the topical. Where humor is designed to provoke laughter, rumor begs for belief.*

Rumors tend to be distorted overtime. A rumor travels, it tends to grow shorter, more concise, more easily grasped and told. In successive versions, fewer words are used and fewer details are mentioned. The rumor sharpens, from a larger context to the selective perception, retention and reporting of a limited number of details are developed.

Different *means of conveyance* can be used for spreading out messages:

- audio, visual or audiovisual means,
- «means of opportunity».

When a message is spread out, it's important to be able to measure its impact on the info-targets by using *efficiency criteria*.

In the next paragraph, the author is going to detail the different parameters of psychological actions that have been mentioned in this paragraph.

3. PSYCHOLOGICAL ACTIONS PARAMETERS

3.1. Info-targets

The info-targets are the people to whom psychological messages are intended. They can be either opponents to the desired final state (opposing sources), indecisive or neutral people whose support the actor of the psychological activity is trying to gain, or local allies whose engagement he is trying to reinforce. Info-targets can be specific people or one or several groups of people.

The selection of the info-targets, according to the desired final effect and the defined goals is based on several criteria: demographic, geographical, ethnic, religious, behavioral, emotional sensitivity and so on, for all the people and, as far as insurgents are concerned, they can also be discriminated according to their origin, their affiliation or their motivation or a combination of these criteria, (Bruzzone 2011).

Info-targets can also be classified according to their mode of accessibility:

- *Intentional info-targets*: they are the targets towards whom the message is directed, either they are direct, that is, they receive the message from the means that are used to spread the message, either they are indirect and they get the message from direct info-targets or

other indirect info-targets who propagate the message.

- *Non-intentional info-targets*: the message may reach targets that the analyst who designed the psychological message had not thought of, that's why they are called non-intentional.

3.2. Means of conveyance for messages in the framework of a psychological action

3.2.1. Audio, visual and audio-visual means

They consist of printed media (leaflets, posters, magazines, newspapers ads), radio programs, TV programs, local telecommunication networks (messages are spread via texts or mobile phone calls), loudspeakers, internet, goodies (pens, satchels and so on) and face-to-face direct verbal communication.

It is necessary to must stress that some means of conveyance better fit either propaganda or rumors. For propaganda, printed media, radio programs, television programs, loudspeakers and goodies are preferentially used, while phone calls and texts (using local telecommunication networks) as well as the internet and direct verbal communication are better tools to disseminate rumors.

3.2.2. «Means of opportunity»

They convey more instinctive, more reflex, less intellectualized messages that are rather dependent of the info-targets' local customs. An outstretched hand, the symbolic or ritual impact of an action provoke opportunity behavioral stimuli.

They consist of non-verbal communication and other means of action that are called «parades», for example shows of power from the Forces by means of a parade of the military vehicles or airplanes.

- Non-verbal communication

Non-verbal communication, (non verbal communication 2011), that is, communication that is not expressed by means of words, includes: external appearance, rites, spacial relationship behavior, body movements (trunk, limbs, head), facial expressions, looks and visual contacts, para-verbal communication (voice tonality, silences and so on).

In the context of Afghanistan, non-verbal communication is essentially made through appearance and behavior.

* Appearance

For instance, an armed soldier will be regarded as aggressive by the population of a village. Another soldier who will wear sunglasses will be judged as intrusive. Certain type of clothes will also denote certain impressions that a soldier will like to provoke on the population.

* Behavior

Soldiers coming to the local market will be perceived as a symbolic gesture of sympathy and familiarity and will be appreciated as such. Likewise, if a male soldier

enters the part of a house for the women only, he will trigger a feeling of fear in the women and anger in the men.

It is necessary to distinguish between global actions where the behavior and the appearance of people are part of a non-verbal communication, for instance, soldiers on patrol in a village or around a mosque or a meal with a notable, and more punctual gestures or behaviors that are part of those global actions, for example, a handshake between a soldier and the notable or the way that soldier will give the salt to another person during the meal.

In the context of Afghanistan, the ways of behaving in many contexts depend on the culture and the customs of the Afghan people and sometimes largely differ from those of Western people, so an inappropriate gesture or way of behaving from a soldier can cause negative feelings in an Afghan person who will observe it.

For each global action of non-verbal communication, the author will list some local customs to be respected.

Among those ones, it is possible to distinguish between those:

- that will be regarded as neutral, if they are not respected, but positive if they are (for instance, hugging your interlocutor when greeting him).
- that will be regarded as negative, if they are not respected and neutral otherwise (for instance, shaking your interlocutor's hand with your right hand instead of the left one).

When a very strong negative feeling is triggered, it can be «eliminary», in the sense that even if the global non-verbal action of communication is supposed to generate positive feelings, those positive feelings will be erased by the eliminary mistake.

- The other means of action («parades»)

In a logic where the search of effects like appeasement, support, confusion, fear, means of opportunity defined by the context can be used. Those means function through the satisfaction of a need or the loss of satisfaction of this need by the info-target. It is referred to the needs expressed in the Maslow pyramid (physiological needs, need of safety, need of belonging, need of self-esteem, need of actualization), (Maslow 2011).

For instance, the Army, the Marine, a land force can obtain psychological effects by means of shows of strength, shows of presence, intimidation and so on. It must be stressed that in the context of the war in general and in Afghanistan in particular, the logic of the Maslow pyramid may not be respected. For example, a kamikaze soldier will satisfy his need of self-esteem and actualization without obviously satisfying his need of safety.

3.3. Efficiency criteria

When a psychological action is carried out, analysts must assess the efficiency criteria, which consist of two parameters:

- The *impact of the message* on the info-targets, that is, whether the message has effectively reached the info-targets or not,
- The *effect(s) of the message*. Has the message generated the desired effects, behaviors, feelings and so on ?

The **impact** of a message can be evaluated through several indicators:

- the *level of insecurity* (number of aggressive actions like IED (Improvised Explosive Devices), direct or indirect shot (rocket, mortar), assassinations directed towards specific people and so on).
- the *contact of the force with the population* (crowds to economic events, number of attenders to *shuras*, number of people attending the inauguration of a CIMIC project, number of people who initiate CIMIC projects, number of people from the population or key leaders who visit the FOB and so on).
- The *amount of information that is communicated* (number of phone calls to the Forces, number of relevant pieces of information given and so on).
- *Control of the Taliban over the population* (racket, curfew, number of night letters, number and intensity of spread rumors (pig fever for example), number of destroyed or damaged CIMIC projects and so on).

The **effects** of a message can be classified according to two typologies.

The first one concerns the type of effects that are looked for:

- *Effects on the perception*: they can be felt through questions that are asked or addressed at *shuras*, goods that are sold at a market and so on.
- *Effects on attitudes* (for instance, propensity to act that can be measured at a collective scale by the questions the locals may ask or on the contrary by the lack of interest they show concerning certain topics).
- *Effects on behaviors* (for example, people coming to the market).

The second typology for classifying the effects to be obtained depends on the info-targets they aim, as said in §3.1:

- *Effects for comforting allied people*: for instance, the friendly *malek* of a village will be

considered as a good governor and will be reelected, the population of a given valley will trust a given positive influencer and so on.

- *Effects for making new allied from neutral people:* the population of such or such village will actively participate in a CIMIC project despite the propaganda of the enemies, Afghan authorities will be perceived positively and trusted for the development of certain projects and so on.

or for putting apart neutral people from opponents (for example, the population understands actions that are bad for the local authorities and try to avoid them).

- *Effects for neutralizing the opponents,* that is, dividing them, dissuading them... (AAF no longer put IED on such road, don't carry out operations of more than 30 people on such an area and so on).

4. DISSEMINATION OF A MESSAGE

When it comes to studying the propagation of psychological messages, it is necessary to distinguish between messages conveying *propaganda* and messages conveying *rumors*.

- Messages conveying propaganda only have an effect on direct info-targets. The messages delivered to them are not propagated to other people.
- Messages conveying rumors, on the contrary, are largely propagated through word of mouth and the high-tech equivalents of word of mouth: phone calls, texts and the internet.

An approach for the dissemination of a message conveying rumors to info-targets is to divide the process in two phases:

- the *spreading of the information* conveyed by the message to direct info-targets as they are defined by the analysts,
- the *propagation of the message* by direct or indirect info-targets to indirect info-targets.

4.1. The first phase of the dissemination process

For this step, it is used the means of conveyance above mentioned in §3.2. In the context of CAPRICORN, the author is working on the region of Afghanistan where the French Forces are based, the province of Kapisa. In this province, not all the means of conveyance are available, nor used at this step of the process. Actually the Forces use printed supports (but not that much because only 30% of the population is literate in this area), radio programs, loudspeakers, goodies, mobile communication, face-to-face verbal communication, non-verbal communication and parades.

It's important to notice that certain means of conveyance require specific conditions for the info-targets to get the message: for example, for a printed message, the info-targets must read, for a radio

program, the info-target must have a radio. It is designated the potential info-targets by the expression «practically receptive info-targets».

It is used the adverb «practically», because this type of receptivity relies on logistic constraints. The receptivity of an info-target can be understood otherwise, if it is considered the way a message affects an info-target depending on their sensitivity (religious, ethnic) or their political opinion, their family status and so on.

Intentional info-targets are defined by the analysts. However, the means used for spreading messages define the physical scope of the message, that is, if a message is disseminated by means of the radio, for instance, the message will reach people of a determined area. Within the area where the message is reachable, it can indeed reach other people than the direct and intentional info-targets. Those people are the non-intentional info-targets above mentioned in §3.1.

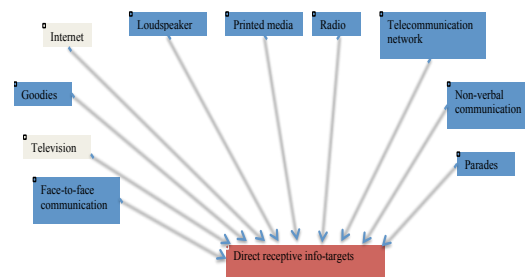


Figure 1: The first phase of the dissemination process (the means of conveyance in white are those that are not used in our system in this phase)

4.2. The second phase of the dissemination process: the propagation

It's a direct or an indirect info-target who propagates a message to an indirect info-target. A message is propagated by word of mouth, mobile phone, if both the sender and the receiver of the message have a mobile, e-mail, if both have an internet access.

The sender of a message propagates a message to people belonging to one or several networks he is part of.

It will be reviewed the type of networks that exist in Afghanistan in §5, some of them being specific to this country.

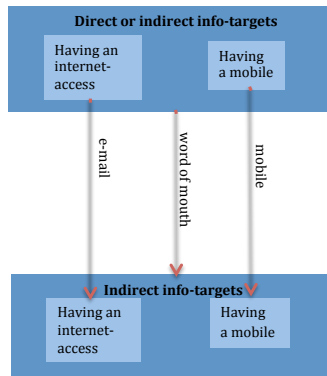


Figure 2: The second phase of the dissemination process: the propagation

5. TYPES OF SOCIAL NETWORKS

5.1. What is a social network ?

A social network is a network that links people. It is represented by means of vertex and edges. A vertex stands for an individual or a group of individuals. An edge represents a link that connects two vertex and can have different semantics. It can express a family link, a clannish link, an ethnic link, a political link, an economic link and so on.

5.2. The social networks in Afghanistan

In Afghanistan, there are two types of social networks, some are stable and others unstable.

5.2.1. Stable networks

- Ethno-linguistic groups

Afghanistan is an ethnic mosaic, (Program for culture 2011), (Tribalism 2011), where there are over 40 major ethnicities who speak over 50 separate languages or dialects. Its citizens naturally identify with those who speak their language and share their culture. Their loyalty is first to their local leaders and their tribe. Actually, ethnicity only plays one part in understanding Afghanistan and its people. It is organized according to many other factors the author will review in the following paragraphs. While the larger ethnic identities of Pashtuns, Uzbeks and Tadjiks and so on, do exist, and while they are important at a general level in understanding Afghan society, politics, economics and security, these categories are only general descriptions of how Afghans view themselves and one another. In some areas of the country, the Western notion of ethnicity has become so politicized that it has become rude to inquire immediately of an Afghan's ethnic identity (i.e. Tadjik, Pashtun, Uzbek).

In the province of Kapisa, the main ethnic groups are: Tadjik, Pashtun, Nuristani.

The Tadjiks tend to live in settled communities as opposed to a nomadic lifestyle.

The Pashtun are divided into tribes: the Pashai, the Safi, the Ghilzai, the Nuristani into the Kata and Ashtu Nuristani.

5.2.2. Unstable networks

- *Qawms*

Although it would seem likely or even obvious that ethnic loyalties should be a strong determining factor for mobilization and social organization on the ground of Afghanistan and, for example, Pashtun tribal loyalties are largely described in the literature and the media, ethno-linguistic groups are not that primordial in Afghanistan.

Olivier Roy, (Roy 2002), argues against assuming that all members of an ethnic group defined by its spoken language actually share a coherent identity with a "will to express themselves politically." Many others agree that loyalties are strongest within local communities, not at a national or ethnic level. Roy concedes that ethnic identities are important, but argues that "primordial" local identities take precedence. These local identities are usually called *qawms*.

A *qawm* is the term used to describe any segment of society bound by solidarity ties, whether it be an extended family, clan, occupational group or village. *Qawm* is based on kinship and patron-client relationships; before being an ethnic or tribal group, it is a solidarity group, which protects its members from the encroachments of the state and other *qawms*, but it is also the scene of internal competition between contenders for local supremacy, (Roy 1989).

Richard Tapper cites the flexibility of the *qawm*:

According to context and situation, *qawm* may involve a varying number of individuals, close kinsmen, a village, an ethnic group, a religious sect or a linguistic group. It is therefore a highly ambiguous and flexible concept allowing for strategic manipulations of identity, (Tapper 1988).

Afghans usually will identify themselves by their *qawm*. Roy states that when they identify themselves by the language they speak they do so "without any ethnic connotation", (Roy 1995), (Roy 2002).

The author is conducting researches in order to use the model of *qawm* described in (Geller 2007) to be used in CAPRICORN. This *qawm* model consists of ten actor types: politicians, religious leaders, commanders, businessmen, warriors, civilians, farmers, drug farmers, organized criminals and drug dealers. Geller assumes that some people can have several roles at the same time. There is a reciprocal dependence between the different actors. For instance, if a politician is in need of military protection, he approaches a commander. In return, a commander receives political appreciation by mere cooperation with a politician. Likewise, if a businessman wants to be awarded an official construction contract by the government, he relies on a politician's political connections. In return, the politician receives a monetary provision, for example bribes, and so on.

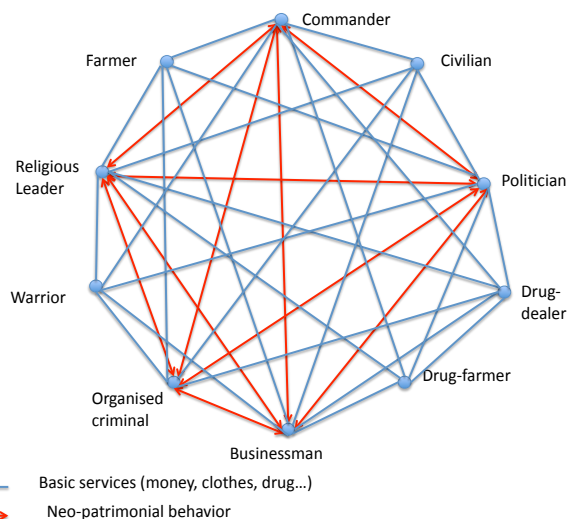


Figure 3: Structure of a *qawm* according to (Geller 2007)

- *Shuras*

Shura constitutes one of the *four cardinal principles* in the Islamic perspective on socio-political organization, (Sulaiman 2010). The other three are *justice, equality, and human dignity*.

What is the *shura* principle in Islam? It is essentially *parallel* to the democratic principle in Western political thought, having analogous aspects and about the same tendency or direction. It is predicated on *three basic precepts*. *First*, that all persons in any given society are equal in human and civil rights. *Second*, that public issues are best decided by majority view. And *third*, that the three other principles of *justice, equality and human dignity*, which constitute Islam's moral core, and from which all Islamic conceptions of human and civil rights derive, are best realized, in personal as well as public life, under *shura* governance.

Concretely, a *shura* is a meeting where the tribal elders come together to discuss and listen to what their senior members or representatives of the government are saying. In these days, the *shura* is usually attended by members of the ISAF-NATO forces and civilians from USAID. The members of a *shura* discuss common interest questions. The membership to a *shura* is not fixed, but varies from one meeting to another.

4 traditional *shuras* exist in Tagab valley: *Nazir mohamed, Safi, Population and Security*. In Kapisa, it is possible to find the *shuras Development and Pashai*.

- *Jirgas*

In Afghanistan, there is an official *shura* called *Loya Jirga* (Pashtu). Its role is to make the big decisions concerning the Afghan people, (Wardak 2010).

Apart from the *Loya Jirga*, there are two other official *shuras*. The House of the People or *Wolesi Jirga* is the lower house of the bicameral National Assembly of Afghanistan, alongside the House of Elders. The House of the People has the primary responsibility for making and ratifying laws and approving the actions of the president.

Mesherano Jirga or the House of Elders, is the upper house of the bicameral National Assembly of Afghanistan. This house forms more of an advisory role rather than a maker of law. Still, the house has some veto power.

- *Tanzims*

The *tanzim* of Afghanistan have a storied past, (Role of *tanzims* 2011). While one of the earliest was *Hezb-i Islami*, founded by Gulbuddin Hekmatyar in 1973 as an anti-communist resistance movement, most of the *tanzims* emerged as the result of the 1979 Soviet invasion and subsequent influx of foreign aid in response to the invasion. As such, they can be understood as post-revolutionary ethnic movements whose goal was the promotion of narrow sectarian interests, and not political parties with set ideologies and membership sets. It should be emphasized that Afghans today tend to mistrust political parties of all varieties as relics or reminders of the communist era and later the civil war. In other words, the *tanzims* of Afghanistan do not operate like Western or even African or other Asian parties, but are generally viewed by most Afghans as guardians of narrow ethnic interests and are often associated with extra-government militias.

The Main Seven *Tanzims* were founded by groups of mujahideen factions known as the «Peshawar Seven» that were responsible for the majority of guerilla activity and political activism in Afghanistan in the 1980s and 1990s. These seven groups were:

- * *Hezb-i Islami (Gulbuddin)*: Led by Gulbuddin Hekmatyar, and explicitly Pashtun-nationalist.

- * *Hezb-i Islami (Khalis)*: maulavi Younas Khali split this faction from Hekmatyar's party in 1979. This group also birthed prominent warlords like Abdul Haq, Jalaludin Haqanni, and Mullah Malang.

- * *Jamiat-i Islami (Islamic Society)*: Led by former President Berhanuddin Rabbani, it is primarily Tadjik. Most of the party's leadership, including Ahmed Shah Massoud, comes from the Naqshbandi School of Sufism.

- * *Itehad Islami (Islamic Unity)*: Led by Abdul Rasul Sayaf, this faction was funded primarily by Saudi wahhabists.

- * *Mahaz-i Milli Islam (National Islamic Front of Afghanistan)*: Led by Pir Sayed Ahmad Gilani of the Qadiri school of Sufism. Once centered in Nangarhar, it was known for being royalist and associated with western-based interests.

- * *Jabha-i Nijat Milli (Afghan National Liberation Front)*: Led by Sibgrtullah Mojadidi, who was the first post-communist President of Afghanistan, this group often acted as a mediator between the other six factions.

- * *Harakat-i Inqilab-i Islami (Islamic Revolutionary Forces)*: A party of mostly intellectuals originally led by Mohammad Nabi Mahammadi.

It is important to note that, while the Peshawar Seven were, obviously, based in Peshawar, they did not focus on or emphasize activity exclusively in RC-East.

In fact, they can be divided into three general groups, according to the effect they had on RC-East:

- *Minimal/Unknown effect* (Jabha-i Nijat Milli, Itihad Islami, Harakat-i Inqilab-i Islami)
- *Some effect, little visibility* (Mahaz-i Milli Islam, Hezb-i Islami (Khalis))
- *Major impact, high visibility* (Hezb-i Islami (Gulbuddin), Jamiat-i Islami).

- Temporary networks

Apart from constituted networks the boundaries of which can be unstable, but the content homogeneous according to certain criteria, there are networks that the author calls *temporary networks*, in the sense that they gather together people with no obvious common characteristics, but who are connected to each other because of their common attendance to an event. The author is alluding to events like markets, for example. Those networks of connected people during an event must not be neglected in the study of the dissemination of messages, because they do communicate during events and their role is important, because they actually allow information to be spread between constituted groups (stable or unstable), otherwise information would «stay» within the types of constituted networks the author just listed in the previous paragraphs.

These networks are not permanent. They vary according to the moments. The links they rely on are not systematically activated.

As far as their graphical representation is concerned, they have vertex that represent events. From those nodes go out, in a radial way, links towards participants to the considered event.

Such a network can be activated:

- *permanently during a determined period of time* (for example, a network representing a CIMIC project),
- *periodically* (for instance, a weekly market).

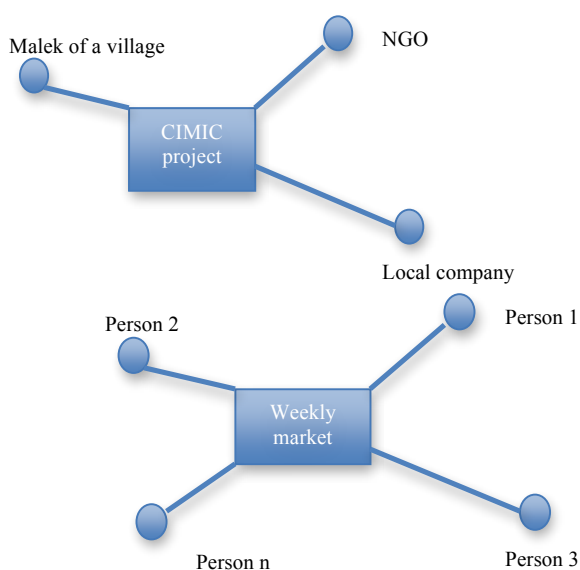


Figure 4: Examples of temporary networks

(network gathering the partners of a CIMIC economic project, network gathering the participants of a weekly market)

5.3. Characteristics of social networks that are relevant in the context of Afghan types of networks

5.3.1. Propagation of messages within a group and between groups

Within a constituted group (network), certain people, the *opinion leaders*, have a central position and the dissemination of information within the group largely relies on them, (Lazersfeld 1948), (Weimann 1982). Leaders have strong links with the members of the group. The links that are internal to a group are called *strong links*. The links that connect people belonging to different groups are called *weak links*.

The dissemination of a message within a group depends on the cultural characteristics of the group. The dissemination between groups depends on the cultural proximity of the groups.

Moreover, information that is related to the preservation of the group's interests are more likely to circulate within the group than between the groups, (Lin 1986).

5.3.2. Cultural factors influencing the sharing of information within a group

- People tend to share information with other people to whom they are strongly tied and that information reach more quickly the receivers than the information sent through weak links. This is due to the intensity of the relationships between strongly linked people and the frequency of their contacts.
- The density of the relational network of a country is strongly linked to the cohesion of the groups of that country, the strength of the family and friendly links, the depth and the duration of strong links between people belonging to the same group. This density is more important according to the mentality of the country – a community spirit versus individualism favors such a density, (Svenmarck & al. 2010).

5.3.3. Characteristics discriminating country cultures according to Hofstede

Hofstede has stated five dimensions allowing to describe the culture of a country in a general way, (Hofstede 1980), (Hofstede 2001):

- Power Distance

It indicates the extent to which a society accepts the fact that power in institutions and organizations is distributed unequally. It's reflected in the values of the less powerful members of society as well as in those of the most powerful ones. In particular, power distance controls the way resources and information are managed and shared. In high power distance cultures,

only few people control resources and information, whereas low power distance cultures have a more equal distribution of resources and information.

- **Uncertainty Avoidance**

It indicates to which extent a society feels threatened by uncertain and ambiguous situations and tries to avoid these situations by establishing more formal rules, not tolerating deviant ideas and behaviors, and believing in absolute truths and the attainment of expertise. Nevertheless, societies in which uncertainty avoidance is strong are also characterized by a high level of anxiety and aggressiveness.

- **Individualism vs. Collectivism:**

This dimension encompasses individualism and its opposite, collectivism. Individualism implies a loosely knit social framework in which people are supposed to take care of themselves and of their immediate families only, while collectivism is characterized by a tight social framework in which people distinguish between in-groups and out-groups; they expect their in-group (relatives, clan, organizations) to look after them and in exchange for that they feel they owe absolute loyalty to them.

- **Femininity vs. Masculinity**

Measurements in terms of this dimension expresses to which extent the dominant values in society are «masculine» - that is, assertiveness, the acquisition of money and things, and not caring for others, the quality of life or people. In other words, women tend to take care and to feed, while men need to achieve. These values were labeled «masculine» because within nearly all societies, men scored high in terms of the values' positive sense than of their negative sense – even though the society as a whole might veer toward the «feminine» pole. Interestingly, the more an entire society scores to the masculine side, the wider the gap between its «men's» and «women's» values.

- **Long Term Orientation**

Long term orientation stands for the fostering of virtues oriented towards future rewards, in particular perseverance and thrift. Its opposite pole, short term orientation, stands for the fostering of virtues related to the past and present, in particular, respect for tradition, preservation of «face» and fulfilling social obligations.

5.3.4. Influence of Hofstede's dimensions on the dissemination of messages within a group

The dimension that most influences the dissemination of a message is uncertainty avoidance.

The author would expect that uncertainty avoidance would urge people to seek more information through networks, but the reality is sometimes different. In countries where people look for certitude, it happens that, in some cases, the arrival of new information seems more threatening than the absence of information, but it's not the most frequent case.

According to (Khalile & Rohani 2009), information is more spread out in countries having:

- a low power distance,
- a higher uncertainty avoidance,

- a higher long term orientation,
- a higher institutional collectivism and a lower in-group collectivism.

Collectivism's role is then rather ambiguous.

5.3.5. Between-culture factor

In the same way as Hofstede's dimensions allow to evaluate the propensity of people having the same culture for disseminating messages within their group, when a message is sent from a person to another person belonging to another culture, it is possible to evaluate to which extent the cultures are closed to each other which influences the way the message will tend to be communicated from the first person to the another one, (van Vliet 2011). The comparison between cultures depends on the following parameters:

- Presence of previous conflicts in the cultures' history,
- Similarity of the values of the following characteristics in the cultures:
 - * habits,
 - * appearance,
 - * language,
 - * economic and social status,
 - * family size,
 - * political participation,
 - * collectivism.

5.4. Propagation of information within each type of networks in Afghanistan

5.4.1. Within constituted stable or unstable networks

If the message reaches the leader, the latter propagates the information to all the members of his network.

If the message reaches a member of the group, he communicates the information to the leader, who propagates it to all the members of his group.

5.4.2. Within a *qawm*

If the message reaches a member of the *qawm*, he propagates the information to all the people who are connected to him via a link modeling a neo-patrimonial behavior or a link representing the sharing of resources.

5.4.3. Within a temporary network

When a member receives a piece of information, it is accessed the event node to which this member is connected and it is propagated the information in a radial way to the other members of the network.

6. DYNAMICS OF MESSAGE PROPAGATION

6.1. General scheme

Contrary to most systems that use models of messages dissemination that are inspired from the epidemiological model of propagation, (Keeling & Rohani 2009), (Salter 2011), the author has defined in his system an original model as proposed in the present paragraph.

The author will explain progressively the following

message propagation scheme.

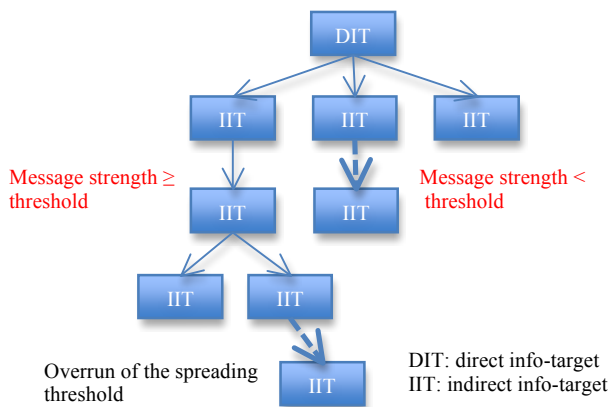


Figure 5: Message propagation model

6.2. Strength of a received message

The strength of a message received by the direct info-targets is defined by the analyst (a military) as the *importance of the message* for each group which the info-targets can belong to.

The importance is equal to:

- 1 for trivial information,
- 2 for a moderately important information,
- 3 for crucial information.

Initially, the strength of a message is equal to its importance/3 (the value is normalized between 0 and 1). For indirect info-targets, the strength of the received message is calculated functions of:

- the *strength of the message before the transmission*, i.e. the strength of the message when it was received by the present sender of this message,
- the info-target's *receptivity*,
- the sender's *credibility*,
- the *strength of the transmission*.

The info-target's receptivity is given by the analyst. An info-target's receptivity expresses the interest of the receiver concerning the content of the message. For example, if the message concerns the construction of a *kareze* in a rural part of the country, urban people will not feel very interested in the information and their receptivity will not be very high.

The sender's credibility depends on the concerned info-target. For instance, if the sender is a leader of a *shura* the receiver is part of, his credibility will be high to the eyes of the receiver.

The possible values of the receptivity and credibility factors are low, medium and high and they are respectively quantified 1, 2 and 3.

The strength of the transmission depends, among other things, on the strength of the connection between the sender and the receiver (if they are linked via several networks, the strongest link is chosen). It's evaluated 0 or 1.

The strength of a message can be computed as follows, using the abbreviations:

SMBT: strength of the message before transmission,
 RR: receiver's receptivity,
 SC: sender's credibility
 SMT: strength of the message transmission,
 SM: strength of the message when the receiver gets it.

$$SM = SMBT * RR/3 * SC/3 * SMT$$

This value is defined between 0 and 1.

6.3. Strength of a message transmission (SMT)

6.3.1. If the sender and the receiver belong to the same ethnic group

The strength of a message transmission depends on the Intra-Culture Factor (ICF) of the ethnic group, the strength of the link (LS) connecting the sender and the receiver, the product of the stability factors of, respectively, the sender's and the receiver's zone and the easiness of communication between those zones.

- If the means of conveyance is word of mouth:

$$SMT = ICF * LS/4 * \text{product of the stability factors of the zones} / 9 * \text{easiness of communication} / 3$$

- If the means of conveyance is telephone or e-mail:

$$SMT = ICF * LS/4 * \text{product of the stability factors of the zones} / 9$$

6.3.2. If the sender and the receiver belong to different ethnic groups

The strength of a message transmission depends on the Between Culture Factor (BCF) of the ethnic groups, the strength of the link (LS) connecting the sender and the receiver, the product of the stability factors of, respectively, the sender's and the receiver's zone and the easiness of communication between those zones.

The means of conveyance is always word of mouth, as only two very closed people (belonging to the same ethnic group) communicate via telephone or e-mail.

$$SMT = BCF * LS/4 * \text{product of the stability factors of the zones} / 9 * \text{easiness of communication} / 3$$

6.4. Computation of the moment M a message is received given the moment T of its dissemination to the direct info-targets

6.4.1. If the sender and the receiver belong to the same ethnic group

- If the means of conveyance is word of mouth:

$$M = T + \text{average number of days for a person to join the other by usual means of transportation}$$

- If the means of conveyance is mobile phone or e-mail:

$$M = T + 1$$

6.4.2. If the respective ethnic groups of the sender and the receiver of the message differ

The means of conveyance is word of mouth.

- If the sender and the receiver do not belong to a common temporary network:

$$M = T + \text{average number of days for a person to join the other by usual means of transportation}$$

- If the sender and the receiver belong to a common temporary network:

$$M = T + \text{the number of days between the diffusion of the message and the next opportunity of a new meeting gathering them}$$

6.5. Propensity to diffuse a message within an ethnic group: Intra-Culture Factor (ICF)

It depends on the value of the following characteristics in the ethnic group's culture: Collectivism, Power Distance, «Femininity», Uncertainty Avoidance, Long Term Orientation. Its value is defined between 0 and 1.

A characteristic reinforces the value of the ICF, if its value goes along with a more important dissemination of the information.

Each contribution is weighted according to the importance of the associated characteristics. Let a, b, c, d, e, be the respective weights associated to the different characteristics. According to the remarks of §5.3.4, it is possible to define:

Collectivism (C): Given the ambiguity of the collectivism factor, its contribution is always evaluated 0.5.

Power distance (PD): If it's low, its contribution is 1, 0 otherwise.

Femininity (F): If it's high, its contribution is 1, 0 otherwise.

Uncertainty avoidance (UA): If it's high, its contribution is evaluated 1, 0 otherwise.

Long term orientation (LTO): If it's high, its contribution is evaluated 1, 0 otherwise.

$$ICF = \frac{aC + bPD + cF + dUA + eLTO}{a+b+c+d+e}$$

6.6. Propensity to disseminate a message between ethnic groups: Between-Culture Factor (BCF)

It is defined between 0 and 1. It depends on:

- the existence of previous conflicts in the history of the ethnic groups,
- the similarity of the values of the following characteristics in the respective cultures of the ethnic groups:

- Habits,
- Appearance,
- Language,
- Economic and social status,
- Family size,
- Political participation,
- Collectivism.

Two values are possible for evaluating the existence of previous conflicts (PC) (0, if no conflicts, 1 otherwise). For the other characteristics, it is possible to evaluate the contribution (respectively H, A, L, ESS,

FS, PP, Col) to 1, if they have identical values in both ethnic groups and 0, otherwise.

$$BCF = \frac{a(1-PC)+bH+cA+dL+eESS+fFS+gPP+hCol}{a+b+c+d+e+f+g+h}$$

6.7. Value of the link strength between two people of a network (LS)

This value depends on the semantics of the link connecting the two people.

- If the network is family or ethnic group type: $LS = 4$
- If the network is a religious constituted network: $LS = 3$
- If the network is a constituted network of another type: $LS = 2$
- If the network is a temporary network: $LS = 1$
- If the network is a *qawm*: **Strength of the neo-patrimonial link = 3**

$$\text{Strength of the link «resources sharing»} = 1$$

6.8. Value of the stability factor related to a person of a network (SF)

That is the measure of the stability factor of the zone where the group the person belongs to is located.

Its value is:

- $SF = 3$, if the zone is in the stability state 2 ("Self-sustaining peace"), according to the classification found in (Driedzic 2008),
- $SF = 2$, if the zone is in the stability state 1 ("Assisted stability"),
- $SF = 1$, if the zone is in the stability state 0 ("Imposed stability").

6.9. Value of the factor «easiness of communication» between two people (EC)

This factor evaluates the easiness to communicate between two places (for instance, no mountains between the two places) where the people who communicate are located. The easiness of communication between regions depends on geographical factors, as well as political and economic factors.

- $EC = 3$, if the two regions can easily communicate,
- $EC = 2$, if the two regions can communicate rather easily,
- $EC = 1$, if the communication is difficult.

The area covered by our system is divided into regions. The matrix of «easiness of communication» is calculated between the regions taken two by two. The latter must be updated regularly.

6.10. Stopping of a message propagation: dissemination threshold

The message is no longer propagated to a potential receiver when the dissemination threshold is reached, that is, either:

- the strength of the message for this potential receiver becomes lower than a certain threshold to be determined or,
- the time passed since the diffusion of the initial message (to the direct info-targets) exceeds a certain threshold or,
- the total number of informed people exceeds a certain threshold (the information has lost its value of «news»).

7. FORMAT DEFINING A PSYOPS MESSAGE

When the user of CAPRICORN provides a psychological operation as an input for the system, he must specify the following parameters (the parameters must not be systematically instantiated, depending on the values of some of them):

- **Name:** it is specified the name given to the psychological operation.
- **Means of conveyance:** leaflet, magazine, newspaper, radio program, television program, text, phone call, loudspeaker, internet, goodies, direct verbal communication, appearance, behavior, parade.
- **Scenario:** For complex behaviors including several sub-behaviors that are related to customs to be respected, the analyst has to fill up a form where he will indicate for each sub-behavior if it conforms the customs or not. If the sub-behavior can be eliminatory, the consequence will be very negative on the effects of the initial complex behavior.
- **Content of the message:** It must be specified only if the message is printed.
- **Type of the content of the message:** propaganda or rumor.
- **Info-targets:** list of individuals or groups of individuals.
- **Info-targets' receptivity:** list <group, level of receptivity>
For each group, it is specified its level of receptivity.
- **Importance of the message:** list <group, importance of the message>
For each group, it is specified the importance of the message defined initially by the analysts.
This value is the strength of the message initially, when it is sent by the Allied Forces.
- **Expected effects:** tuples <group, feeling, high-average-low, target-group>, <group, behavior, more frequent-less frequent>, <group, need type, need, increased-decreased>
For each group, is specified:

* each feeling of the group towards a target-group, as well as the intensity of the feeling (high, average, low).

* each behavior adopted by the group and it is specified if it has become more frequent or less frequent.

* each need felt by the group, the type of need and the need itself, and it is specified if it has increased or decreased.

The need refers to the Maslow pyramid.

- **Efficiency criteria:**
<list of impacts, list of effects>
Both the impacts and the effects are specified.
- **Date:** precise date when the operation is to take place.
- **Geographical area:** village or list of villages, hamlet, MGRS zone.

8. CONCLUSION

In this article, the author has defined the parameters describing psychological messages and the way those parameters affect the dissemination of the messages through the social networks to which the direct and indirect info-targets belong. The simulation of the propagation of this type of messages is important because it allows the analysts to realize the impacts and the effects of the sent messages over the friendly forces, the actors of the threat and the population, because the system is able to figure out all the people reached by the messages as well as the feelings, needs or behaviors those messages have triggered in them, whereas the analysts had not thought of some of those people when designing the messages.

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