EXPLORING UNKNOWN UNKNOWNS IN INTELLIGENCE ANALYSIS

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Abstract

Intelligence analysts are confronted always with gaps in the intelligence cycle that limit their understanding, explanation and prediction of phenomena that are outside their subjective and bounded rationality knowledge horizon. When they reach the inflection point in intelligence analysis, they are either inclined to make guesses or estimates that are based on their experiences and cognitive biases. Going far ahead the inflection point, there is the highest level of uncertainty that goes far beyond our capability to understand, explain and predict the phenomena. The highest level of uncertainty can be traced back to concepts such as Thucydides' tyche or Rumsfeld's unknown unknowns. How can we approach and assess this level of uncertainty? Our position paper argues that this level of uncertainty represents the knowledge/ignorance imbalance in our brains. In order to explore the unknown unknowns, we need to determine this imbalance by approaching the processes and mechanisms that generate ignorance in the Leibnizian and Xenopolian manner. This line of inquiry is convergent with the exploration concept that means "action at a distance". Exploration establishes the (mediating) link between intelligence and immediate action on a tight timeline. Historically, in the Roman Empire, exploratores operated at a geographically and temporally distance to detect, check, monitor, prevent, and react in case of unknown unknowns. "Back to the future", intelligence analysts have to be like exploratores and to look at all the possible indications far ahead their immediate knowledge horizon.

Keywords: *cognitive biases*, *exploration; intelligence analysts, knowledge/ ignorance imbalance; unknown unknowns*.

Introduction

One of the main problems in intelligence analysis is that of knowledge gaps that limit our understanding, explanation and prediction of the potential

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phenomena. Knowledge gaps may arise from our human knowledge limitations or ignorance. These limitations may be determined by our cognitive biases that are embedded in our experiences in the work that direct our observations, decisions and actions. There are four types of errors stated from the ancient times by Roger Bacon that may impede our knowledge: submission to faulty and unworthy authority, influence of custom, popular prejudice and concealment of our own ignorance accompanied by an ostentatious display of our knowledge (INCOSE-LA, 2008). Thus, as humans we may be subject to these types of errors and consequently we are surrounded by our own ignorance.

Due to the increasing complexity of our world, intelligence analysts are confronted more and more with knowledge gaps in the intelligence cycle. Moreover, they are always under external constraints of time, resources and bureaucratic requirements and internally by their own knowledge/ignorance imbalance regarding the unknown phenomena. Intelligence analysts have to respond to growing complexity of data and uncertainty by using their brains connected nowadays with technology in order to prepare the intelligence products. However, technological tools are only mediating processes in their work and hence, they need to approach the phenomena in different ways to formulate the problems and find answers.

Our position paper proposes a different approach that may provide a proper response to the highest level of uncertainty that goes far beyond our capability as intelligence analysts to understand, explain and predict the phenomena involved in intelligence analysis. The highest level of uncertainty can be traced back to concepts such as Thucydides' *tyche* or Donald Rumsfeld's unknown unknowns category of events. This category is defined as a class of ignorance alongside intelligence errors, biases, blind spots, that occur in intelligence analysis.

In order to approach this class of ignorance, namely unknown unknowns, we propose the concept of exploration (*exploration)* as used by Austin and Rankov (1995), as the intervening variable between intelligence analysis and action at operational level. Hence, in the first part of the paper we trace historically the concept of exploration in light of unknown unknowns events. We argue that exploration is a mediating process in the intelligence cycle and it should be included into it in order to manage the classes of ignorance. Finally, we provide few examples from the private intelligence sector, where office investigators are confronted with unknown unknowns in their activity.

Intelligence analysis – exploration – action

Since the ancient times, exploration was a basic human instinct for searching and discovery of knowledge about the world. In "Report on The Exploration" delivered to Moses, we find out about the conditions into an unknown land. Explorers in the Spanish Empire, Elizabethan England, Dutch Empire, and Venice Republic were sent to distant places to discover knowledge about the lands, inhabitants, climatic conditions, trade and so on. They brought home relevant knowledge in the form of maps and records that were used by a small secret segment of people to control and dominate the world in specific periods of time.

Also, private companies such as British East India Company and Dutch East India Company sent explorers to better understand the trade routes and the traders in their operation fields. Exploring unknown lands and the populations was a prerequisite for understanding other cultures and assessing their capabilities.

The Roman Empire was the first that developed exploration units that operated at a distance to detect, check, monitor, prevent, and react in case of unknown unknowns. In the Roman Empire, exploration was only used for field operation units specially trained. Their mission was to investigate in the immediate vicinity the tactical items of intelligence that would affect the implementation of the strategic plan. Moreover, they were used to collect topologically intelligence about the route that may be taken by the army, provide security throughout army movements, search for clues in the enemy camp, check the evidences of hostile activity, prevent the surprises, deep screen within which intelligence could be gathered, continuous monitoring the clues. Exploration is thus the mediating link between intelligence and action, providing operational time and, by constant monitoring the situations, it brings inputs in the intelligence agency's responses.

Theoretically, one of the definitions of exploration is action at a distance. Being a concept from physics, proposed firstly by Leibniz, action at a distance is a means of communication between separated objects that are not locally placed (Hesse, 1955). This type of action is intangible. It can only be grasped by retrodiction that is an operation in the past in order to infer the "most probable cause". Because our knowledge is incomplete, we establish by retrodiction a plausible explanation of the cause of events. Xenopol's approach was exactly in the sense proposed by Leibniz and suggested the retrodiction operation in establishing the "genesis of a phenomenon" (Xenopol, 1906; 1997; Veyne, 1984). His approach is based on a fundamental distinction between repetitive and successive phenomena that comprise different logics.

Our interest is successive phenomena that are fallen in the unknown unknowns category and which require a dynamic logic of clues and evidences and a different probabilistic reasoning.

The distinction made is important in understanding the exploration process, because we are not looking for repetitive phenomena, but for unknown unknowns, that are comprised in successive events. The process of exploration does not start from known unknowns, but from unknown unknowns events in the past and future. Thus, our way of operation as analysts should start by determining our ignorance in relation the phenomena explored. Setting the limits of human knowledge is fundamental in the exploration process. This may be done by establishing constraints on our own judgments regarding a potential situation.

Because the main problem in intelligence is anticipation of future events in a finite time, intelligence analysts are always under pressure and constrained by internal and external factors. Exploration looks far beyond our knowledge horizon are for identifying weak signals or clues that can be monitored constantly. Exploration is based thus on a dynamic logic of clues and evidence followed by assigned probabilistic values on the conjectures proposed regarding the future events and error values on our own judgments vis-à-vis those events (see for example, Kyburg, 1979). Hence, this provides a way to assess the highest level of uncertainty and to admit our own ignorance, by regarding our own judgments errors. The probability values assigned constrain the conjectures proposed within certain intervals. This should be transformed into a probabilistic model that regards the past and future events. Past events should be explored by retrodiction that cover the knowledge gaps and the future events should be assessed by present and future conjectures proposed that are assigned within a certain probability interval.

Intelligence analysis does not have to, the author's knowledge, an approach based on retrodiction operation and does not have a logic based on searching and monitoring clues, gathering and checking evidences. The exploration approach would cover this fundamental gap in the intelligence cycle and it would improve the intelligence fusion process and anticipation. The intelligence fusion process is a stock of knowledge at a time interval and in this process; exploration would keep the constant flow of intelligence updated with all possible indications regarding the threats and risks.

Despite the fact that historically, exploration was used only for field operations, today it is practiced by office investigators that are working in the private intelligence industry. Thus, exploration should be viewed as a practice and a process that has its own purpose, namely to reduce the knowledge/ignorance imbalance in the intelligence analysis.

Exploring unknown unknowns

In intelligence analysis we are not dealing with what we know, but with unknown unknowns, in order to anticipate the intentions, interests and capabilities of enemies or other threats (i.e. African swine fever virus, criminal organized networks, terrorism so on).

The category of unknown unknowns was officially used by Donald H. Rumsfeld in relation with Iraqi weapons of mass destruction in 2002 and it means that we don't know what we don't know (Rumsfeld, 2011). Historically, it can be traced back to the Greek concept of tyche that means a cause of events not governed by laws of nature (Borchert, 2006: 125-130). It can be seen at Xenopol (1906; 1997) in the concept of hazard or elsewhere as chance. Tyche was included in the probability theory by Billingsley (1965:5) that stated that tyche is a point drawn out of space. This point has to be anticipated at a given point in time by the intelligence analysts.

This category is not approached in intelligence analysis properly and this needs further attention. It requires looking at our own ignorance and it involves broad search activity into unknown. We have to look at what we and others don't look; we have to search for clues that are hidden and to anticipate the interests and intentions by exploring the unexplored threats and risks.

We have to state that this category of unknown unknowns is naturally and socially restricted to a small segment of intelligence analysts that understand the `secret world` and have the capability to detect the possible indications and estimate probabilistically the uncertainties.

Unknown unknowns require intelligence analysts that are able to understand and explain the social mechanisms behind phenomena. Not all the analysts have the capability to understand these mechanisms, as not all the scientists in the time of Elizabethan England understood the works of Francis Bacon, Robert Hooke, for example.

Xenopol's approach is best suited here for providing an historical explanation by retrodiction. His approach allows to discover the most probable events in the history and to establish the succession series for anticipating unknown unknowns.

Intelligence analysts as future explorers?

As a work environment based on routine activities, as such within an intelligence agency, it is hard to induce a mental map transformation to intelligence analysts that were trained in a particular way to look at the things, but there are among them analysts that understand the limits and the problems involved in intelligence analysis. Due to the fact that, intelligence

organizations and the analysts that work on daily basis learn extremely hard when they encounter errors in the intelligence process or more serious, intelligence failures, there is a slow process in the transformation of the mental map towards addressing unknown unknowns. There is a possibility to approach the process from the beginning, when new intelligence students are trained and specialized, but this involves an intelligence program in unknown unknowns that is suited for a selected team of analysts that are learning from their ignorance.

Exploring unknown unknowns in the private intelligence realm

In the private intelligence sector, office investigations are everyday encountered with known unknowns and unknown unknowns. The process of investigation is a particular case of exploration. The last category of unknown unknowns is when they have no knowledge at all about the case and throughout the investigation process they discover something that they never encountered before. This will change their mental map by adding a new item of knowledge and reducing the ignorance. However, continuously searching for clues and linking dots between items bring another piece of knowledge and so on. Thus, the process of acquiring new knowledge is from the fountain of our ignorance towards what is outside, in the unexplored world. We can only become better prepared if we constantly monitor the security environment and define the probability parameters and the probability of our judgment errors.

In the private intelligence sector there are also intelligence failures, but the impact is only on a small segment of persons that is responsible for a case or cases. However, the impact of a private intelligence failure affects the reputation of those involved, of the firms, employees, partners and the competitors that may win potential clients. Thus, there is no space for errors. Some of the investigation cases may imply assessing uncertainties at micro (employee, entrepreneur), mezzo (department) or macro (company) level. At micro level, the exploration process is cantered for example on determining the interests that a businessman wants to protect, his potential intentions regarding the strategy and his capabilities. In doing so, we have to search into unknown all the possible items. At the macro level, a case may imply a potential acquisition on the market by a foreign investor and this requires due diligence processes for determining the history, connections of the shareholders and the firms, properties, incomes and other hidden things. In this case, the intelligence report should assess and estimate the risks and uncertainties involved.

Conclusion and perspectives

In this paper we argued for the inclusion of the exploration process into the intelligence cycle in order to approach and assess the highest level of uncertainty that is unknown unknowns. Exploration process is a mediating variable between intelligence analysis and action at operational level that add value to the intelligence cycle. Firstly, by exploration we address our own ignorance regarding what we don't know we don't know in the world. In intelligence analysis, from Sherman Kent to now, we were taught that "Intelligence is Knowledge, Knowledge is Power", but we try to see different and to put it differently as "Ignorance is Power". This means that the process of knowledge starts from what we don't know we don't know, namely our ignorance. Consequently, those who acknowledge their ignorance and step into the unknown unknowns may accumulate power. Furthermore, as historically we saw the biggest intelligence failures (i.e., Pearl Harbor, 9/11) as unknown unknowns, we have to become more aware of our ignorance and to address it.

The exploration process involves a mental map transformation that is very hard to induce into an intelligence agency, because of the routine activities. There are almost no mechanisms for learning within an agency and my ignorance is pushing me to affirm that the intelligence analysts do not know how to learn, except of experience. Learning how to learn is not approached in a theoretical manner and this generates vulnerabilities on long term. Moreover, learning based on experience and unlearning based on a theoretical approach may generate unknown unknowns. This is because of the cognitive biases and blind spots rooted in routine activities.

Thereby, any intelligence process has limits and this may be covered by exploration process in order to reduce the knowledge/ignorance imbalance. An exploration process may complement the intelligence cycle by looking for unknown unknowns, setting the limits of human judgments and finding the error judgments, monitoring clues and gathering evidences, exploring them in depth and breath, providing an enhanced screen of intelligence stock and delivery in operational time that connects the strategic, tactical and operational fields.

Of course, as any concept, exploration has its own limits that are part of the incomplete intelligence system. Some analysts are stating that we cannot anticipate the unknown unknowns and we can only make guesses or approximate the uncertainty in the security environments. Our perspective is that we conceal our ignorance and we are not addressing it in a proper way. Addressing it means to explore the unknown unknowns, to generate actionable intelligence.

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