The RIS Propellor

Proposal for a radical modern intelligence production cycle

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1 Introduction

In designing and setting up the open source intelligence branch for the Dutch Defence Intelligence and Security Service, it was noted that the intelligence cycle needed to be adapted to adequately

describe an intelligence production process and hence the design foundations of an intelligence production service.

Since existing intelligence cycles were too simple and inadequate, a completely new intelligence cycle was composed that reflects current practices in intelligence production. The new RIS Propellor Intelligence Cyclewas used as a model to design and arrange the OSINT branch.

We describe shortcomings in the existing intelligence cycle, identify three major flaws and present a radically different design that incorporates changes in the current information landscape and that can be used as a model to design and setup an intelligence production process.

2 Current intelligence cycles

The intelligence cycle is traditionally presented as the cornerstone of intelligence production. There are however so many variations of 'the' intelligence cycle that it almost looks like that every organization has its own version.

Intelligence cycles differ greatly in amongst others:

a. The number of steps. Anywhere between four and seven ;

b. Definitions. Definitions of the steps are different. For some, requirement is a separate step, for some it is part of direction.

c. The format. Whereas most intelligence cycles are presented in a circle, some use multiple overlapping circles, or, division halfway the circle

There is a tendency to criticize the cycle itself as not realistic or an over simplified model. Instead of criticising the intelligence cycle it may be a good idea to look at the intelligence services that use the cycle. May be the reason for so many cycle variations is that all intelligence services work (very) differently. In the end, one may say there is no such thing as a 'wrong' intelligence cycle, it is a mere reflection of the wide variety of business models that intelligence services use.

For example, the FBI uses a cycle of 6 steps starting with requirements, but does not mention the customers [3]. Their circle and descriptions look much like the one presented by the FAS [7]. The CIA has no need for any requirements what so ever, they start with planning immediately, apparently not interested in the original requirement [4]. The US Department of Justice is even more interesting, they start the cycle of intelligence production with collecting, not planning and certainly no requirement analysis let alone the customer[2]. The US Air Force cycle ends with feedback and evaluation, but since there is no customer in the cycle, one really wonders where that feedback actually goes to? [5]

Intelligence.gov starts with planning too, but requirements analysis is part of that: "The process begins with identifying the issues in which policy makers are interested" which is rather remarkable since it should be the customer who identifies the issues, not the provider [1].

3 Shortcomings and flaws

Most intelligence cycles suffer from the same shortcomings and the same omissions:

a. The customer ;

b. Requirement analysis ;

c. Intermediate feedback ;

d. No analysis ;

e. No indexing ;

f. No incorporation of current developments in the global information landscape.

Although all intelligence production is ultimately aimed at serving the customer, almost none of the existing intelligence cycles explicitly mentions the customer. Without a customer, no intelligence work makes any sense. it could be argued that the customer is left out because intelligence needs to be completely independent, but that seems like a simple excuse. At the end of the day, it is the customer who decides what intelligence needs to do.

Analysis, whatever that is, is usually just a single step in the intelligence cycle. This is not really adequate, since analysis is done in almost every step in the cycle. It is therefore time to change the term analysis in something else and put it in its proper place.

All intelligence production is based on a thorough and in-depth analysis of the information requirements.

The assumption in a traditional intelligence cycle is, that nothing significant will happen between the first step and the last step. There are no major (inter)national developments that may influence the original requirement, there is no intermediate feedback what so ever to the customer who has no chance to change the initial information requirement. The world has come to a standstill.

Some essential steps in intelligence production are missing from the intelligence cycle, amongst others, indexing, monitoring, presenting.

Lastly, since the information revolution, i.e. fast data communication networks, cheap communication devices in a variety of designs (desktops, mobile), the rise of the Internet, the global

information landscape has changed dramatically [6]. These developments are completely ignored in the intelligence cycle.

Some of these developments in the global information landscape are:

a. Sources:

Selecting the right sources for research has increasingly became very difficult indeed due to amongst others the following characteristics:

(i) Communication circle. In the previous century, raw data and information was almost exclusively available only via more or less professional information producers[1]. Information was consumed by users who typically did not have direct access to the data. Due to the information revolution however, consumers of information have now also become producers of information. The monopoly of intelligence services on information sources is gone. Therefore, an intelligence service cannot afford simply using the obvious open sources for the products, since their customers can do the same. Source analysis in a intelligence cycle has become critical.

(ii) Since consumers of information have also become producers of information, the amount of data has grown substantially. Big data, The Internet of Things, the Cloud are a consequence. The modern phone is used to record events, Facebook/Reddit is used to report about it, Twitter is used to announce it, Flickr/Instagram to quickly publish pictures, Youtube to publish video's, Periscope to live broadcast video recordings by phone. And the general public loves to publish.

(iii) Communication patterns. So many cheap data communication equipment, so much apps and software lead to an unmanageable increase in data formats and communication means that by pass the traditional means of communication such as TV news, books, journals and radio. Finding people or events demands in-depth knowledge of social media, of forums, of discussion groups. Researchers unknown with IRC, Listserv, Usenet and the Deep Web, may miss important information about and by people.

As a result, there is an almost endless variety and number of sources out there. SIGINT is no longer interesting, satellite communication is insignificant these days. IMINT is something anybody can do with modern drones. Books are outdated. Other communication channels have taken over, new kinds and types of sources pop up almost every day, many of those require technical skills to make use of them. Many if not most of the possible relevant sources are completely unknown to intelligence analysts. Finding and using sources is today a task for specialists.

[1] Such as radio/TV, press, newspapers, commercial information providers (ProQuest, Lexis-Nexis a.o.), intelligence services, etc.

b. Information overflow. Sometimes called information explosion or document explosion, is a phenomenon that all are familiar with. The above however adds to this phenomenon to a point where there is no more storage space available for all that data, where researchers get hopelessly lost on the Internet, where the use of scientific libraries is a thing of the past. There is so much information out there, finding the pearls is almost impossible. Researchers get lost, wasting time and money.

c. Information turnover time. Now that there are so many cheap communication channels and communication equipment such as mobile phones, tablets and other mobile devices, the rate with which information is published has increased dramatically, yet most traditional information providers are lagging behind dramatically. Newspapers still assume a 24 hour cycle of news, either in the morning or in the evening, nothing in between. Radio news bulletins are often just once an hour and only cover the most popular items. TV News channels mostly only cover popular items. It is not uncommon to be fully informed about some environmental disaster via modern communication channels and hear that news as if it just happened on the nine o'clock news 20 hours or so later. The information turnover time is much faster than it just to be.

d. Quality. Now that consumers have become producers of information, there is no more quality control of information. A peer to peer system does not exist in free Internet information, nor is there something like an editorial board, a series editor, or anything like that. The amount of crap data is thus enormous.

4 An intelligence production model

The new intelligence cycle is based on a simple intelligence production model that is important to understand (see figure 1 on page 5).

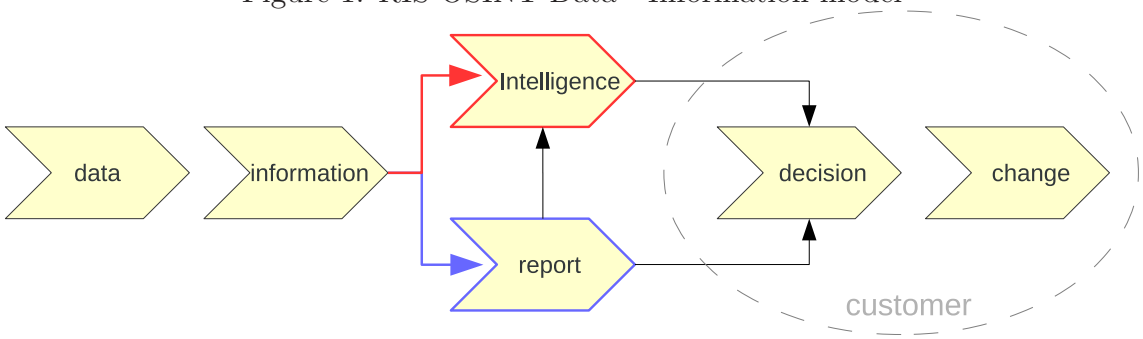
The process starts with data. Data is the raw bits and bytes with which intelligence production starts. Data is unvalidated, unstructured, duplicate, chaos. Data needs to be processed to produce information that is at minimum structured, translated, de-duplicated, ordered, decrypted, signed[2], (maybe) summarized, and validated for usefulness and reliability. Information needs to be analysed to produce intelligence or some intelligence product. Intelligence should lead to some kind of a decision or at the very least influence a decision which in turn should lead to some change.

Two things are important. The first is that intelligence must lead to decision and change. Without change, intelligence does not make any sense.

Secondly, intelligence is the product of what is called 'analysis'. Intelligence is therefore created, never acquired. Any intelligence product sent by agency A to B is a true intelligence product

[2]Which is adding meta data, source descriptions etc. for later retrieval and evidence

Figure 1: RIS OSINT Data - Information model



for agency A, but for agency B the product is information since B has not (yet) analysed the product.

There is also a distinction between information and intelligence. Since an attempt to define the two will lead to biblical discussions, characteristics are used to make a more or less clear distinction between the two.

a. Information can be characterized in terms of: monitoring, finding, selecting, acquiring, reviewing, cataloguing, reporting, disseminating, informing ;

b. Intelligence can be characterized in terms of comparing, understanding, interpreting, explaining, predicting, denying, confirming.

5 A newer intelligence cycle : the RIS OSINT Roller Coaster

An earlier attempt to create a new intelligence cycle resulted in the *RIS Roller Coaster* (see figure 2 on page 7), so called because the practitioners work often resembles a Roller Coaster: sometimes fast, worrying and even dangerous, sometimes slow, calm and safe. The Roller Coaster was first presented and explained at the DNI conference back in 2007[3].

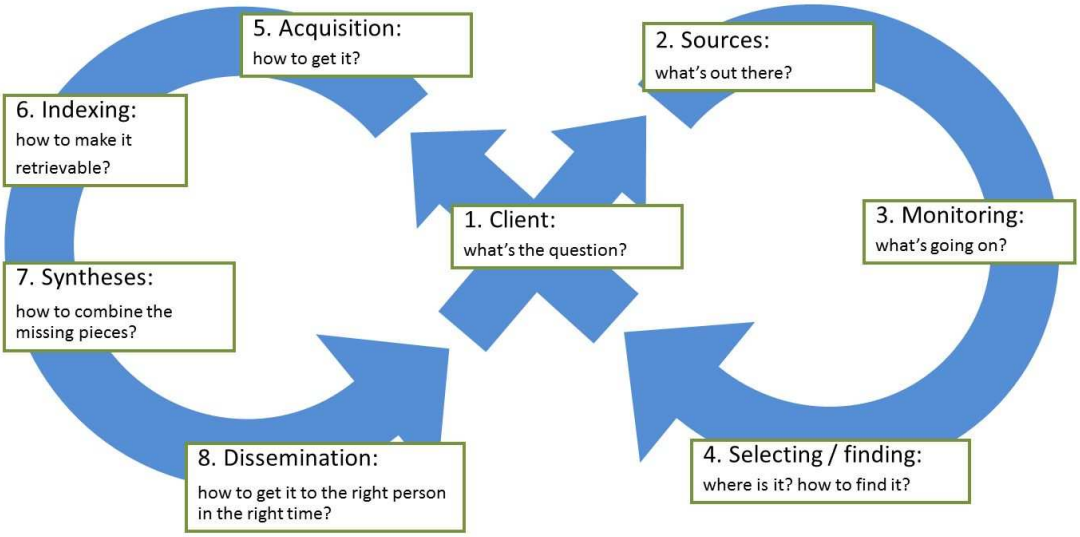
Putting the customer as a pivotal point in the middle of operations was already a great improvement to get feedback and maintain a relationship. Also, recognizing that 'analysis' is not just one single step but is done in almost every step was important. Hence, the Syntheses phase was introduced instead.

But there were still some shortcomings, for instance, the Monitoring phase should be after the customer has given approval to the requirement analysis, not before. An important step, Collection Planning, was not there, and requirement analysis, although in the Roller Coaster,

[3]Director of National Intelligence OSINT conference, 16-17 July 2007, Washington D.C., organised by the ADDNI/OS Eliot Jardines

deserves an extra phase. Also, in practice, there is more feedback with the customer then the Roller Coaster suggests.

Figure 2: RIS OSINT Roller Coaster



6 A newest intelligence cycle : the RIS Propellor Intelligence Cycle

The new RIS Propellor Intelligence Cycle- see figure 3 on page 8 - was developed in 2012 and first presented at the CIISS 2013 conference[4] as well as at OSIRA 2014[5].

The Cycle aims to solve a few of the problems and issues raised before. The Cycle is composed from three interconnected cycles with the customer in the middle:

a. A preparation circle

   This cycle aims to get as much clarity about the research assignment or requirement as possible to make sure the end product meets the needs of the customer. The preparation cycle produces a plan of action which will be evaluated with the customer.

b. A reporting circle

   This circle consists of five steps were the actual searching and acquiring is done. Information is collated, processed, indexed etc. to produce an information report. The report is evaluated with the customer.

[4]The Past, Present and Future of Intelligence / Centre for Intelligence and International Security Studies. - Gregynog Hall, Wales (UK), 23-25 May 2013

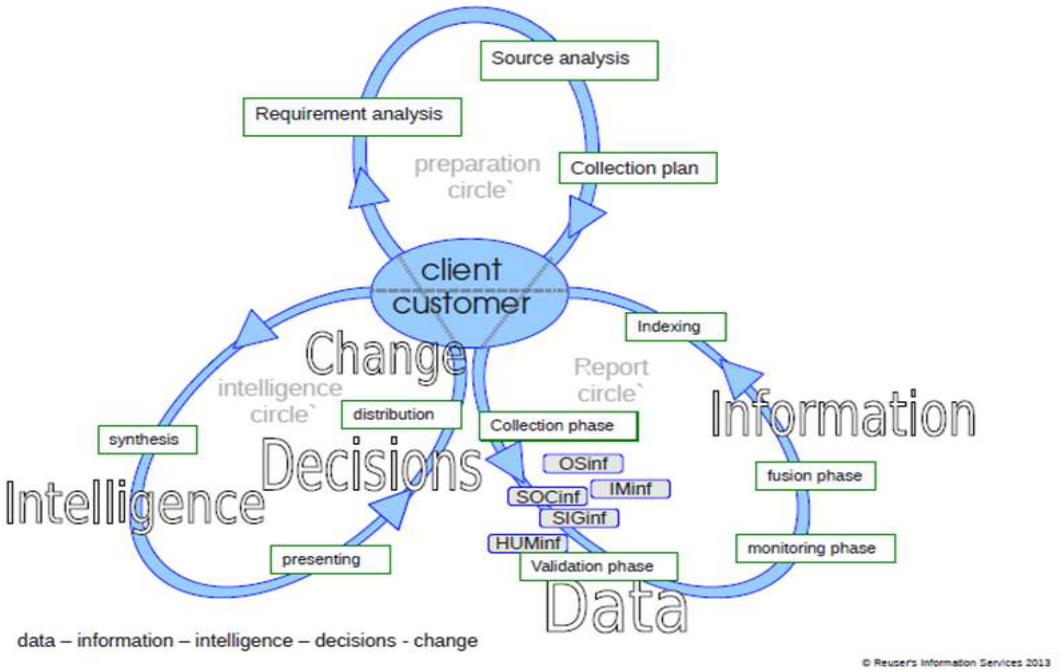
[5]Inaugural OSIRA conference, 7-8 May 2014, Royal United Services Institute, London, UK.

c. An intelligence production cycle

   This circle takes the information report and does the actual 'intelligence analysis' bit, produces an intelligence report and distributes amongst those concerned.

Since the customer is the pivot point and the one for whom all intelligence is eventually produced, the customer will be in the middle of the new cycle. All subcycles start and end with the customer. The customer is now available for regular feedback and reflection.

Figure 3: RIS Propellor Intelligence Cycle



6.1 Preparation cycle

The preparation cycle holds three activities: requirement analysis, source analysis and collection planning.

The first phase requirement analysis is essential to produce a relevant intelligence report. Breaking down the original requirement into logical steps, identifying subquestions, identifying assumptions, identifying and solving variables to prevent misunderstanding with the customer, applying qualifiers to limit and clarify the research process etc., all help in de-constructing of the main problem into subproblems. The result of this process is a set of pre-questions that need to be solved (to deal with assumptions and bias), and a set of answerable questions that are defined in such a way that there can be no misunderstanding as to what exactly needs to be done. Requirement analysis is essential in intelligence production.

When there is enough clarity about the tasking, the next phase is about source analysis: which sources to use, establishing reliability and validity of each indivual source, making sure the source selection is balanced and representative. As argued before, open sources are too complex to be taken lightly. A separate source analysis step is essential. Knowing what sources to use will also help reducing information overflow. Selection of a relevant, representative and balanced set of sources greatly helps reducing information overflow, since all the researcher needs to do is to work his way down the sources list. In addition, getting lost in sources is not a problem anymore.

This will lead to the next logical step, which is to create a collection plan and a plan of action. This plan lists which sources will be researched in what way (queries, questions) and when. The collection plan will list, following step one and two, the expected answers from each source and the maximum number of results. The plan will also indicate when to STOP searching. This step is an important one in time management and resource management. The plan helps fighting information overflow because all that needs to be done is to research the sources instead of being overwhelmed by millions of search results from a general purpose Internet search engine. The plan helps in time management because searching a predefined set of sources can be planned. The plan also helps in resource management, because staff can now easily be assigned to specific tasks in the plan.

Another important point is accountability. Working according to the plan and maintaining a progress journal listing activities, searches, queries, results and dates, will help the researcher in being accountable. It will help in continuing the research 'after the weekend' without loss of time or doing things again. It will also help another researcher to continue the research if the original researcher is not available. A collection plan and progress journal are fundamental instruments in intelligence research, thus, step three in the new cycle.

6.2 Feedback

The product of the preparation cycle is a plan of action that comprises requirement analysis, source analysis and collection planning. It is now time to go back to the customer for verification and approval. The customer can judge if the original requirement is interpreted correctly and if the problem deconstruction is correct. The customer has the option to amend the plan a little (or a lot), propose solutions, propose different sources, give tips and share ideas. This customer feedback is invaluable for the entire process and has the additional advantage of development of a trust relation. Time has passed since the initial requirement, maybe new developments have changed the requirement. The customer now has a chance to adjust. This feedback step solves the problem of information turnover time.

If amendments need to be made to either of the first three steps, the Preparation Cycle is run again, until all involved are happy. In the latter case, the Report Cycle will start.

6.3 Report cycle

The report cycle starts with the collection phase of open source data. The collection phase involves the actual searching for data (or information) and working through the collection plan. This phase also involves the acquisition of the data. This seemingly straightforward phase may have it's own issues, especially with government intelligence services where acquisition of information often is a very bureaucratic process, or technical solutions are needed to download and process different information formats, decrypt information, de-duplicate, de-archive, etc.

There cannot be an OSINT unit that works independently. They are all, or at least should, be part of a team. At the end of the day, the analyst is merely interested in 'good' information, the acquisition channel is less relevant. Therefore, all other acquisition means and sources should be listed here, wether covert, overt or whatever. Since this phase is concerned with the information phase of the process, HUMINT is here called HUMINF, SIGINT is called SIGINF and so forth. It is also assumed that each service has a (classified) Book of Sources (an enterprise Domesday Book?), each organization should have an extensive list of sources available, how to get access, restrictions, limitations, practical use, etc. The Collection Phase would be ideal to utilize such a book.

Since the Internet contains so much nonsense information, a validation phase is needed to make reasonably clear that information is reliable, correct, what we needed, and from the correct source. Each e-mail, each website, each document, should be subjected to the company's validation regime. That regime should be widely agreed, doable, and within reason, simple to apply for all concerned. Validation is vital in today's world and therefor is an extra phase.

Since the world changes so fast, and since the process of producing an intelligence product can be so slow, it may be a good idea to start a monitoring phase at this stage to keep track of developments and make sure that during the process no current relevant developments are missed. If necessary, assuming the interest of the customer is very clear, the researcher may choose to adapt the requirement here or go for extra feedback from the customer. This will also help handling the problem of information turnover time.

Information from all these different sources needs to be processed to remove duplicates, to reformat, to assign meta data, to discriminate between the relevant and irrelevant, to update the progress journals, add keywords and arrange the information in some meaningful way. The fusion phase is intended for that. This phase produces an information report summarizing the findings in a completely objective way without any interpretation whatsoever.

Obviously, data and information need to be stored in such a way that it can be found back again. Normally, most intelligence services simply dump the information on some network without any indexing at all. At best, some information retrieval programme is used, but these are often poorly configured and do certainly not comply with what users need since they are designed and configured by IT personnel, who typically never involve the customer in their projects. The

result is a huge collection of private libraries: on paper, digitally and in the personal memories of researchers. A decent indexing process of information is however still such an important phase that it deserves it's own step in the cycle.

6.4 Feedback

The end product of the report cycle is a report with search results, plan of action, initial findings and an objective summary. The report is not analysed in the traditional way. There is no interpretation, explanation, predicting, judgement, just the 'facts'. The report is presented to the customer who can now decide on a couple of things. Either the customer is happy with the information report as it is and does for now not need any further services, or, the customer is less happy with the information report and the report circle will be done again, or, the customer is very happy and requires analysis of the information to produce an intelligence report.

The big advantage here is time. By presenting a report and getting intermediate feedback, the customer does not have to wait until the very end of the cycle to get results. This solves the problem of information turnover time.

6.5 Intelligence cycle

The intelligence cycle consists of three phases: synthesis phase, presenting phase, distribution phase.

Since in reality 'analysis' is done at about every step and every phase, using that term as a label for a phase is inappropriate. The term synthesis is proposed as the new term. Synthesis involves all the activities that will produce an intelligence report from an information report: interpreting, understanding, explaining, predicting, summarizing, labeling, judging, etc., in short, all those activities formerly called intelligence analysis. The end product of this phase is an intelligence report[6].

The next step is an often underestimated one: presenting. No matter how good an intelligence product is, if the message is not communicated in the proper way, all effort was useless. So many great intelligence products were destroyed because the briefer was unable to get the message through, or, destroyed because the author couldn't express the thoughts properly in a report or something. A report is too big so that the customer does not read it (properly), poorly written so that the customer mis interpretes the text, poorly presented on unclear slides, poorly presented by a speaker, etc. Also integrity comes into play here. Services either deliberately write vague reports to minimize the risk of 'errors', or on the other side, services write their exact truth which a customer refuses because it is not what the customer wanted to read.

[6]Which can be a textual report, a presentation, a mindmap, a telephone call, a tele-conference, anything

Finally, the product needs to be distributed. This distribution phase is another often underestimated step. Whereas the ultimate goal of any intelligence product should be to have the product mass distributed amongst all concerned (within reason), quit often services have very strict tables and rules of who get to see which (part of) a report. In addition, intelligence services have a strong tendency to over classify their products so no matter how fantastic an intelligence product is, no one gets a chance to actually read it.

7 Drawbacks of the RIS Intelligence cycle

a. The RIS OSINT Intelligence Cycle is still a fairly linear process ;

b. Some steps are a little questionable. Presenting may be considered the same as Distribution, and both could be followed immediately by the customer ;

c. The cycle does not reflect what the customer has already done themselves, it assumes a strict distinction between customer and support.

8 Discussion

Have read a few discussions on the drawbacks and limitations of the intelligence cycle and the many variations of it, a few things are worth noting:

a. After all these years working for an intelligence service and maintaining many international contacts, it is clear that many intelligence professionals know about a intelligence cycle, but no one actually uses it on the practitioners level, nor discusses it ;

b. Most discussions on the validity of the intelligence cycle focus on the shortcomings of the intelligence cycle. Maybe that should be turned around. Maybe there is nothing wrong with any (variation) of the intelligence cycles, maybe the intelligence services themselves are wrong. Maybe they all work differently hence need another cycle, or maybe, worse, intelligence services simply have no idea what they are doing or how they actually work ;

c. The intelligence cycle is not typical for just intelligence work. Many other professions work according to a scheme like an intelligence cycle, such as journalists, investigators, law enforcement researchers, historians, librarians, market researchers etc., anyone who does research and/or publishes.

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