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**Staged Appreciation: looking out and in for black swans.**

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## Staged Appreciation: looking out and in for black swans

### *Abstract*

Complexity, both environmental and social, is due to elements being interconnected and inter-related in unanticipated and unfamiliar ways. Environmental complexity demands that sense-making needs to consider what *could* happen rather than what *will* happen. Social complexity asks sense-making to take relationships (actual and achievable) into account in order to see opportunities for possible options and for re-configuration; what *can* happen rather than what *should* happen.

Staged Appreciation<sup>1</sup> addresses several important concepts that, when worked together, form an essential preparation for opening inquiry into complex problems. The aim of Staged Appreciation is to address complex problem understanding without prejudice and premature foreclosure. The stages formally support a journey to promote insight and inquiry, using a multi-perspective approach<sup>2</sup>, which tries to avoid advocacy; encouraging open thinking – making explicit the many assumptions and preferences that often remain hidden and unspoken.

In summary, Staged Appreciation helps to evolve C2 sense-making, planning, decision-making and action-taking:

<b>Extending from solely:</b>	<b>Evolving more towards:</b>
Objective analyses	Appreciative systems <sup>3</sup>
Single analytical viewpoint	Multiple subjective viewpoints
Common formal perspective	Contrasting changing perspectives
Probability (finite option set)	Possibility (open set of 'choose-ables')
Advocacy	Inquiry that exposes and deals with advocacy
Short-term view	Long-view (incl. broad history)
Fast dynamics (physical)	Long-wave slow dynamic (shaping)
Outcome-based metrics	Options-based measures

Primary topics: Sensemaking in complex endeavours, multi-perspective approach, 'black swan' syndrome, open-eyes/open-minds, complex adaptive systems, inquiring systems.

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<sup>1</sup> Staged Appreciation was developed and published in a previous paper produced for Swedish Emergency Management Agency by Professor Gillian Stamp of BIOS Foundation, Professor Gwyn Prins, of LSE and Lorraine Dodd: <http://knowledgetoday.org/wiki/index.php/ICCS07/95>

<sup>2</sup> A. Alston, L. Dodd, *Complex adaptive and 'inquiring' systems theory for contemporary military operations: a multi-perspective approach*, 14<sup>th</sup> ICCRTS, June 2009.

<sup>3</sup> Vickers, Geoffrey (1965) "The Art of Judgement", Harper and Row, London "Appreciation manifests itself in the exercise through time of mutually related judgements of reality and value. ...Such judgements disclose what can best be described as a set of readinesses to distinguish some aspects of the situation rather than others and to classify and value these in this way rather than in that. I will describe those readinesses as an appreciative system." p 67

### ***Background: Evolving C2 approaches through open inquiry***

In the ICCRTS 2005 plenary address in Copenhagen<sup>4</sup>, the Danish Chief of Defence Staff noted that Command and Control (C2) needed to be fundamentally re-thought because, as he said then, we have gone from:

*..starting with well-defined MEANS to find best WAYS to meet a desired END..*

(for which traditional C2 approaches are well suited) to a situation of:

*ill-defined ENDS such that we struggle to develop any coherent WAYS to make do with increasingly insufficient MEANS.*

So is there an evolutionary C2 approach that moves away from the need to define a desired end-state? Recently Chief Executive Officers (CEOs) of major companies and other strategic leaders have been using more open approaches to support their strategic thinking. An example of such an approach is Staged Appreciation.

The key is to make people's options for choice (i.e. WAYS) the main focus of analysis, rather than material or situational outcomes. So, with the focus on WAYS and not ENDS, the on-going situation and any associated C2 goals are defined in terms of how broad, narrow, extreme, moderate etc. is the set of the options being considered at any time by the relevant stakeholders. This is nothing particularly new. Military planners develop desirable and feasible courses of action and options for action as part of their planning. They often consider the extreme ranges of their response options, which may be necessary if the worst possible events begin to occur. These option-ranges are also used to define restraints or limits on actions (e.g. Rules Of Engagement). However, the same kinds of broad analyses on desirability and feasibility of options of the other parties in theatre is rarely carried out thoroughly and openly, despite the inclusion of activities such as 'red-teaming'. So the focus of Staged Appreciation is to extend the definition of *the on-going state of an operation* to be in terms of *stakeholders' freedoms for action*.

This important extension to sense-making has at its heart the issue of not "painting yourself into a corner". Seeing this for oneself is key to understanding how changing people's degrees of freedom for action can directly affect the ways in which different stakeholders and communities may be making sense of *their* world and also how they might (or might not) be able to perceive what's going on around them.

Staged Appreciation has been developed with Prof Gillian Stamp of Brunel Institute of Organisation and Social Studies (BIOSS) with initial contributions from Prof Gwyn Prins at London School of Economics as part of a collaborative study for the Swedish Military and Strategy Unit. It has been aided by learning from people who practise this kind of approach from leaders such as Air Marshall Brian Burridge as Joint Task Force Commander in Gulf War 2001/2 and also for example Julia Evans<sup>5</sup>, CEO National Federation of Builders: "*Experience taught me the art of the possible....with the only requirement being an open mind.*"

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<sup>4</sup> See [http://www.dodccrp.org/events/9th\\_ICCRTS/CD/plenary/1\\_0915\\_\\_KeynoteAddress\\_Hels%F8.pdf](http://www.dodccrp.org/events/9th_ICCRTS/CD/plenary/1_0915__KeynoteAddress_Hels%F8.pdf)

<sup>5</sup> See [www.wbs.ac.uk/downloads/nexus/summer2009](http://www.wbs.ac.uk/downloads/nexus/summer2009) "Building for the Future".

## ***Introduction: War among the people***

Operations have become: More open-ended and population focused according to Gen Sir David Richards' recent RUSI Land Warfare address in June 2009<sup>6</sup>:

*Self evidently, although not yet culturally internalised, there has been a radical change in the way wars are fought. Morally, and importantly legally, we cannot go back to operating as we might have done even ten years ago when it was still tanks, fast jets and fleet escorts that dominated the doctrine of our three services... Our people are used to operating in a complex combat, joint, interagency and multinational environment in which success is measured in terms of securing people's confidence instead of how many tanks, ships or aircraft are destroyed.*

Also Gen Sir Rupert Smith's "war among the people" is more fully defined in terms of needs for C2 analyses (see Smith 2005):

*The result is that we need to understand the people as the objective to the same degree as we do the terrain of some feature that we seek to take or hold. We need this understanding to choose the objectives that best serve our purpose and so that we can identify, isolate and destroy or neutralize the opponent who moves amongst the people. We need to understand the opponent as a separate group of people from those amongst whom he fights and this difference may be complex, occurring in time rather than space; for example is he your enemy when he is gathering his crops or attending the wedding of his daughter? We cannot assume the people are an inert mass. ....our analysis must serve to give us the understanding of how the particular groups of people are likely to behave, how they react under stress, who they are likely to look to for leadership and decision, and so on.*

So how do we analyse communities of people (including, of course, ourselves) so that we have some sort of social landscape in which 'steep-sided' regions might be indicative of strongly felt motivations to adopt extreme behaviours? What now for C2 analyses?

C2 analyses need to be concerned with where people perceive themselves to be (often in relation to other people) and where they might prefer to be (or not to be). This then helps to shed light on personal drive and motivations and how restrained or unrestrained they might be with regard to their options for choice.

C2 analyses need to consider how we might go about defining or describing different perceived positions and preferred positions in terms of perspectives as seen from different subjective and relative viewpoints.

It is useful to start by selecting a C2 decision option around which the C2 analysis can be initially framed and scoped (in terms of the initial set of stakeholders). For example, within the context of Counter-IED in Afghanistan, a proposed C2 decision option might be paying for IEDs to be handed-in. Staged Appreciation (described in detailed stages below) helps us to think about the situation in terms of the stakeholders<sup>7</sup> and to imagine a range of possible impacts of proposed C2 decision options on the stakeholders' perspectives, positions, options, freedoms for action, perceptions, etc. so that we might decide to change our ways as well as theirs.

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<sup>6</sup> See <http://www.rusi.org/landwarfare/presentations/>

<sup>7</sup> People or communities or institutions whose livelihoods or business may be 'at stake' or could be affected in some way as a consequence of your intended action.

Staged Appreciation is presented below as a sequence of six stages; however, the appreciation is in practice neither serial nor sequential. Taken together the six stages help to prepare the ground for sense-making and provide a conceptual language through which to gain a wider and more open appreciation of socially complex situations.

## ***Working through the stages of appreciation***

### **Stage 1: Where people are**

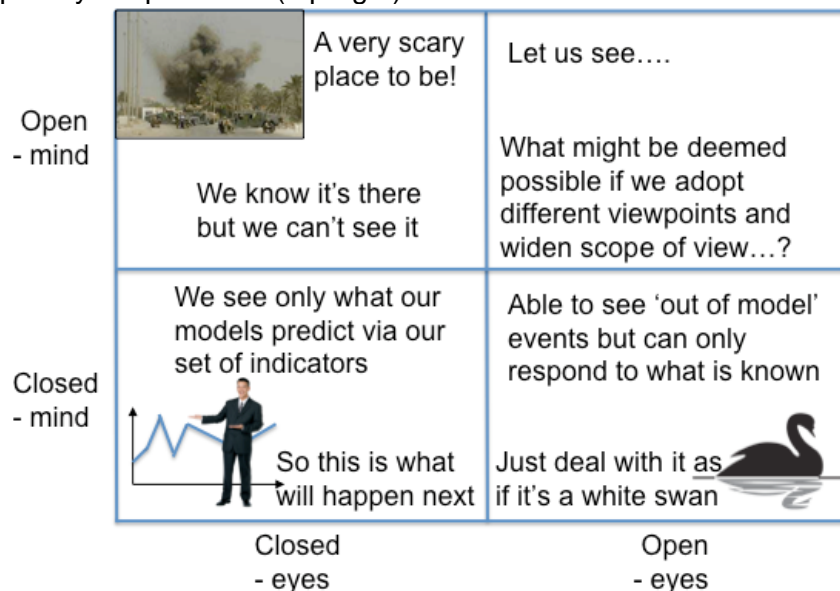
This stage aims to uncover and explore the links between where people are in terms of their freedoms for choice about future actions and where people are in terms of the way they perceive, interpret and rationalise what's happening around them. It prepares the ground for addressing what lies behind people's behaviours and any assumptions being made by those observing the behaviours. Effectively, this stage establishes an analytical vantage point from which we can begin to build a social landscape, within which people of varying character and circumstance can be positioned in relation to one another, and through which we can envisage trajectories.

Who needs to be included? Who can be excluded – for now at least? How and why might we group people into different stakeholder communities? It is useful here to consider researching historical or anthropological analyses. The scope should cover any people whose livelihoods or positions might be 'at stake' (i.e. the stakeholders) as a result of our intended courses of action or options. This then brings us to the next stage where we introduce an open-eyes/open-mind matrix so that we can discuss where people are in terms of their perceptual states as well as their relative positioning in terms of their material or physical states.

### **Stage 2: Sense-making**

The open-eyes/open-mind matrix has four states as shown in Figure 1:

- Closed-eyes/closed-mind (bottom-left);
- Closed-eyes/open-mind (top-left);
- Open-eyes/closed-mind (bottom-right);
- Open-eyes/open-mind (top-right).



**Figure 1: Open-Eyes / Open-Mind matrix**

Many of our analytical models tend to reside in the closed-eyes/closed-mind part of the matrix because they are built to find solutions (e.g. by optimizing) to bounded problems. These models are perfectly adequate in situations where problems can be bounded and metricated (for example, choosing the shortest path through a transport network). Representations of C2 as a process reside in the closed/closed part as they assume a bounded set of inputs (e.g. situation-state indicators) and outputs (e.g. courses of action) and for some types of decision situation they can adequately capture the C2 mechanics. Residing in this part of the matrix provides a feeling of comfort.

Black swans<sup>8</sup> reside in the open-eyes/closed-mind part of the matrix. Here we can see and perceive black swans but we can't conceive of them because our closed-minds will only accept swans that are white so we comfort ourselves by persuading ourselves that this must be a swan that has flown down a sooty chimney or has been dyed black. We metaphorically close our eyes to seeing the blackness of black swans and return to the comfort of the closed/closed part of the matrix.

An example of people working in the open-mind/closed-eyes part of the matrix is a bomb disposal officer who knows that biological/chemical devices are 'out there' but who has no way of distinguishing between them and normal explosive devices prior to disruption. This part of the matrix is a very uncomfortable place to be.

Metaphorical 'black swans' tend to exist as much due to our internal state of mind as due to the external state of the world. C2 analyses and models are often based on prediction of behaviours usually through closed-form simulations of outcomes of decision-making. It is natural, therefore, to concentrate more on ascertaining model prediction accuracy than looking for happenings that models can't predict (i.e. black swans). So the next stage asks as much about our state of mind as it does about events that might happen 'out there'.

### Stage 3: Belief and surprise

This stage helps to question our own beliefs and to ask what would cause surprise. Would it surprise us if people behaved in a particular way and, as importantly, also if they didn't? This stage supports reflection on why someone might find specific actions by other people surprising (or unsurprising). Then it opens up inquiry into whether or not we might need to readjust internal beliefs (i.e. models, assumptions and pre-conceived notions) or to re-think ways in which we are predicting outcomes; as we see ourselves as a part of the problem rather than as being apart from the problem.

This stage addresses possibility and plausibility as an extension to usual analysis that is limited to probability and expectation. It will draw attention to what remains unknown and

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<sup>8</sup> 'First, it is an outlier, as it lies outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility. Second, it carries an extreme impact. Third, in spite of its outlier status, human nature makes us concoct explanations for its occurrence after the fact, making it explainable and predictable.' N Taleb, *The Black Swan: The Impact of the Highly Improbable*, Penguin, 2008.

what might be unknowable<sup>9</sup> (e.g. any, as yet unseen or as yet unimaginable, extreme limits or consequences of others peoples' possible behaviours).

As GLS Shackle (See Shackle 1969) puts it "Surprise provides a means of knowing how strongly we doubted the possibility of a happening or an outcome of an act."

We support Stage 3 with an explanation of ***Shackle's belief function*** in order to:

- move from probability to possibility
  - open minds to 'free' likelihood;
  - open eyes to full potential extent of ranges of possibility.
- broaden field of view
  - increase scope and widen focus to be able to see:
    - emergence;
    - need for change in perspective;
    - need to refer to a higher-level interpretation.

Shackle's focus function (see stage 5) provides us with a further insight into surprise as it draws out the value-based reasons for having narrowed focus and attention onto those aspects and attributes of the situation that support the known, well-practiced and therefore naturally preferred, response actions. So we need to consider choice-making.

#### Stage 4: Choice-making

This stage supports thinking about the types of decision options being considered (as part of the repertoire of choices) due to any limited focus on the situation (e.g. looking for the more obvious indicators of behaviour due to what is being predicted). It will also help to broaden the planning scope of view and may help to create more innovative options.

The aim is to examine one's own options for choice and also the assumptions about other people's repertoires of choices – 'choose-ables' - according to being in each of the four open/closed states.

Considering and exploring future options that go beyond the well-practised, preferred set of options begins to open-up the options for sense-making, allowing room for possibility even of black swans. It uncovers assumptions that may be restricting choice-making and encourages people to use imagination and innovation.

Conversely, this stage helps to see how choices are shaped by the way that we make sense of situations. It makes the consequences of limited sense-making explicit. For example: what assumptions are we making about how people are making sense of *their* situation? How does this affect or determine options for action (our own and theirs)? How great is the influence of preference for particular outcomes or situations or choices on sense-making? This leads us to the next stage.

#### Stage 5: Preference and focus

This stage introduces and acknowledges our own and other people's preferences (hence their biases), by openly 'testing-out' assumptions about what might be being

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<sup>9</sup> These unknowables may however be imaginables.

deemed to be possible or impossible. This helps to expose any hidden subjective tendencies and prejudices and any assumptions that may be unnecessarily limiting the future options. It opens-up inquiry into options that are either being strongly advocated or excluded from the list, encouraging a more openly-reasoned appreciation of people's assumptions and leading eventually to a more robust and open list of choice options.

The reasons for excluding or including options is aided by using a check-list<sup>10</sup> such as:

- potential imaginable options (everything you can think of)
- performable options (that you know how to do)
- permitted options (within policy restraints)
- available options (other specialists on-hand or on-call)
- achievable options (e.g. within time constraints)
- obligated options (e.g. coordinated collective activities)
- required options (e.g. impending-threat mitigation)
- desired options (that people want to do)
- possible options (ones that are do-able )

Each time a potential option is deemed “*not possible*”, assumptions should be made explicit and checked for any of the following:

- Anyone's particular view about definite future conditions (here is where we re-explore beliefs and surprise and must work hard to keep minds open);
- Constraints due to accepted forms of organisations or agencies (these are usually structural limitations and should be brought back into the choose-able list as options to adapt organisational form or create new collaborations, etc);
- Ways forward that are excluded due to implicit assumptions made when deeming options to be impossible.

So there may also be institutional ‘unblocking’ options (for example, re-definition of responsibilities, authorities, roles, etc and re-structuring) that may need to be added to the list in order to create conditions for some future options to be deemed possible.

The acknowledgement of preferences helps to understand any limited focus on the situation. This will help with understanding why information campaigns, for example, are not receiving the attention we might have expected; as people are simply not attending to the messages. The aim of this stage is to try to imagine preferences of others. This stage allows us to begin to address different people's desired and undesired positions. Combining this with where they perceive themselves to be will give some understanding of their motivations to undertake different types (even extreme) of actions and behaviours. This then leads us to the more detailed stage of analysing different viewpoints and multiple perspectives.

#### Stage 6: Different Viewpoints and Multi-perspectives

This stage addresses the situation from different ‘stakeholder’ viewpoints. It builds a set of multiple perspectives and provides a ‘*landscape*’ language with which to discuss how

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<sup>10</sup> This check-list derives from work on regulation and coordination of human and machine behaviours. See Feltovitch P, Bradshaw J, Clancey W, Johnson M, (2007) *We regulate to coordinate: opportunities and challenges for joint human-machine activities*. [www.IHMC.org](http://www.IHMC.org)



any proposed actions may alter people's positions, perceptions, perspectives and the ways in which they could define themselves, their choices and their preferences.

This stage is analytically supported by using a multi-perspective approach (MPA), which uses a number of analytical concepts to analyse, and hence draw-out for discussion, the possible consequences of actions (see Alston 2009). For instance, if we consider a proposed counter-IED option of paying for IEDs to be handed-in then different stakeholders will see the 'system of interest' IED differently (see Table 1).

**Table 1: Different stakeholder views on IED as a system of interest**

<b>Stakeholder</b>	<b>What defines main interests of stakeholder in IED.</b>
Taliban fighter	IED as effective force element
Ammunition Technical Officer (ATO) Operator	IED as device to be 'made safe'
Local population	IED as personal threat or opportunity
Media reporter	IED as news-story element

The MPA provides a method for analysing and discussing the following, for each of the supposed stakeholders:

- Stakeholder Viewpoint and Multiple Viewpoints.
- Stakeholder Lines of Perspective and Measures.
- Stakeholder Positioning.
- Stakeholder Options for Action.

There are four main influences involved in the MPA reasoning:

- The desires of the stakeholder – those aspects of life that the stakeholder really cares about.
- The needs of any stakeholder – the things that are deemed necessary to sustain and maintain life.
- The information the stakeholder receives - noting that what the stakeholder observes and how it is interpreted is very dependent upon and influenced by their background.
- The repertoire of actions that the stakeholder has at his disposal - again is very dependent upon and influenced by their background and (the individual and institutional) context.

A Stakeholder's Perspective (fully described in Alston 2009) captures people's desires and needs in the form of a subjective value landscape within which the stakeholder's "Perceived and Desired Positions" can be visualised and discussed. Such reasoning about development and placement of desired/perceived positions will question assumptions being made about stakeholder priorities (Lines of Perspective) and their ways of sense-making.

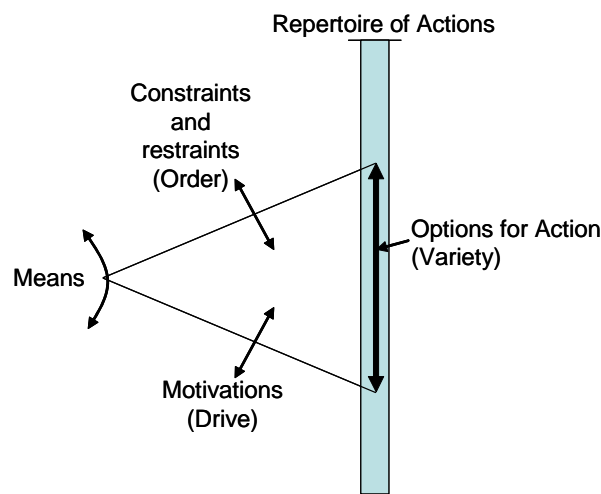
This leads us neatly back to Stage 1: where people are and so better equips us to iterate through the stages as the inquiry progresses and our insight develops. The aim is not to attempt to analyse and carry out a full appreciation of the entire area of operations. It is important therefore to use the context of a specific planning option or a proposed way forward to bound the number of people/communities that the analysis needs to take in to account as 'stakeholders'. Having worked through Stage 6 there should now be more understanding about how different stakeholders could describe their current positions – according to important lines of perspectives (e.g. socially, financially, professionally, etc) as they relate to the specific planned option.

#### Point for discussion: Options for Action

Options for Action could essentially be seen as a 'drop-down list' of choose-able options that any stakeholder might conceivably consider adopting or undertaking. It is a varying list of options that will be affected by the specific context and changes in motivations to adopt certain types of action. For instance, given a specific context such as intense media interest, some options may be 'greyed-out' if it is thought that some of the possible consequences would not look good if they were broadcast to the world's TV screens. Additionally, there will be many types of option, for example those involving exploitation of children, which would never make it onto the lists of stakeholders who are be publicly held to account for such acts.

This concept, shown in Figure 3, embodies the thinking of Clausewitz<sup>11</sup> having three main elements relating to order (imposed through constraints/restraints), drive (motivation to adopt action option) and resultant variety (options/actions that make it onto the choose-able list). The concept states that the range and types of actions or options available to any stakeholder is directly related to their means (i.e. constraints on availability of materials they have to do things with), moderated by the system of order (restraints that come from the governance rules or laws that the stakeholder has to abide by) – and - the stakeholder's drive (which can be simply thought of as the stakeholder's motivation; the more motivated the more likely the stakeholder is to undertake extreme action).

**Figure 3: Options for Action**



<sup>11</sup> <http://www.clausewitz.com/CWZHOME/Trinity/TrinityTeachingNote.htm>

## **Concluding remarks**

Staged Appreciation offers the potential for providing and developing cross-stakeholder insights. It opens up inquiry and encourages open discussion, especially when done in conjunction with other analysis techniques. It helps to expose unstated, hidden assumptions and prejudices and helps to support collaboration by uncovering dialectics and encouraging innovative actions and self-reflection.

The Multi-Perspective Approach provides a foundation for analysis that formally supports Staged Appreciation as a framework for inquiry into the nature and the formulation of messy or 'wicked' problems (see Rittel and Webber 1973). In general, Staged Appreciation and use of the MPA develops insight that can then be used formally to support the creation and development of possible options (often referred to as "clumsy solutions" – see Verweij and Thompson 2009). Development of the Staged Appreciation and extensions of MPA are part of an on-going programme of work within the Centre for Applied System Studies at Cranfield University as part of the Defence Academy of UK.

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