‘Making it STARC’!

Proposed future ways forward for contemporary military & special operations intelligence & knowledge work

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• Outline a proposed interconnected analytical framework + series of concepts >>> furthering conduct of contemp. mil. & SO INT & knowledge work in globalised circumstances + future.

• Build on ‘System of Systems Analysis’ (SoSA) approaches >>> a joined-up comprehensive systems-based approach = advanced.

• Better capture enterprise-relevant System of System Dynamics (SoSD)

• Greater contextualisation potential = offered.
Introduction #2

• Help subsequent ‘System of Systems Engineering’ (SoSE) efforts - i.e. ‘mission accomplishment’ thru transforming devs.

• Close eye = maintained on:

  ➡ sustained delivery of intelligence reqs of ‘3Rs’ =
  ‘getting the **right intelligence/information**, to the **right**
  **person/people**, at the **right time**’ +

  ➡ Continuing to **simultaneously meet + consistently maintain over time**, all of highly-pressing customer/end-
  user intelligence delivery criteria of ‘**STARC**’ =
  ‘**Specificity, Timeliness, Accuracy, Relevance and Clarity**’

• Especially pressing reqs during contemporary
  ‘Big Data’/‘Cyber’ age.
Introduction #3

- Conclusions = designed to offer suggestions >>> potential viable utility in mil. & SO INT & knowledge work - however precisely configured/calibrated/scaled (spatially/temporally).

- Esp. while strive to navigate demands gen. by negotiating conduct of several multi-functional operations (MFOs) ranging from ‘war’ to ‘peace’ - covering full-spectrum of diverse concerns, e.g.:
  - crisis management, peacekeeping and humanitarian operations, cyber, counter-insurgency (COIN), counter-terrorism (CT), counter-proliferation, + the countering of transnational organised crimes, etc.

- + as all above MFOs = occurring in both physical (sea, air, land, space) + virtual (cyber) domains (5x) during overall era of globalised strategic risk (GSR), unfolding in ‘complex co-existence plurality’ (CCP) environments.

- Ultimately, a constant feedback process of ‘context appreciation’ + ‘solution fashioning’ emerges as important.
Where we are today #1

- Currently use/rely on SoSA approaches, breaking-down ‘problems’ in op. spaces into readily graspable dimensions of, e.g.:
  - ‘PMESII’ (‘Political, Military, Economic, Social, Informational and Infrastructural’), e.g. used by NATO;
  - ‘PESTLE’ (Political, Economic, Sociological/Social, Technological/Technology, Legal/Legislative, Environmental), e.g. used by EUROPOL;
  - ‘DIME’ (Diplomatic, Information, Military, Economic);
  - ‘HSCB’ (Human, Social, Cultural, Behavioural), e.g. as both used by US Military;
  - ‘STEPP(L)’ (Social, Technology, Economic, Environmental, Political, [Legal]), e.g. as used in commercial/business intelligence contexts, etc.
Where we are today #2

Depiction of System of Systems Analysis (SoSA) - figure IV-2 from US Joint Chiefs of Staff, J-P 3.0 (Aug. 2011), p.IV-5 (my additions)

The Interconnected Operational Environment

- (inc. intelligence dimensions)
- (inc. resources, supply and technology factors)
- (inc. commercial/industry issues)
- (inc. policies and strategies, government ministries/agencies, etc.)

A systems perspective facilitates operational design and joint operation planning by providing the joint force commander (JFC) and staff with a common frame of reference for collaboration with interorganizational and multinational partners to determine and coordinate actions that are beyond the JFC’s command authority.

Legend:
- COG center of gravity
- Decisive Point
- COG Node
- Node
- Link

Figure IV-2. The Interconnected Operational Environment
Where we are today #3

5x domains of activity:

1. Space
2. Cyber(space)
3. Air
4. Land
5. Sea

Where we are today #4

• However there = **readily discernible limits** - e.g.:

• As Ben Connable of RAND argued (2012):

  • ‘while SoSA **tries to explain in very basic and mechanistic terms** how to reify and deconstruct a complex system [(here read, e.g., the spatial socio-cultural context)], **it does not explain how to reconstruct that system in a way that accurately conveys interrelated complexity.’
Also, Keith Patrick Dear, a British RAF Squadron Leader, observed:

‘The desire for clarity and simplicity is also manifested in an over-reliance on abstract modelling of insurgent groups, primarily Social Network Analysis (SNA)… It does not show the more complex reality, but rather a simplistic and incomplete abstraction.’

He reveals: one ‘system’ - in this e.g., the ‘social’ = over-emphasised above, + some times at the expense of, others that simultaneously exist.

Result(s): The ‘big(ger) picture’ becomes or = more neglected >>> detrimental / counter-productive effects.
Where to go next? #1

• SoSA approaches *alone* = not adequate

• Many different approaches = instead proposed.

• Most viable = Build on SoSA approaches + *better harness* SoSE approaches >>> better cover SoSD.
  - e.g. Use *‘target-centric’ intelligence analysis* approach - cf. Robert M. Clark
  - Work on *(i) marking target carefully; (ii) watching background; (iii) taking clean + clear shots’ basis.*

• Propose use an *interconnected, joined-up ‘systemic’ model*, helpful for subsequent SoSE + synthesis efforts.

• Namely, advance a *‘SoSA+SoSE’ (SoSD) approach*
Where to go next? #2

• That last **SoSD model** inc. covering **8x systemic attributes or variables:**

  1. internal influences/factors;
  2. rationale;
  3. types and forms;
  4. conditions and terms;
  5. trends;
  6. functions;
  7. external influences/factors; +
  8. effects and outcomes.

Where to go next? #3

• + inc. covering 8x levels of (inter-)activity/implementation:
  1. Ideological
  2. Theoretical
  3. Strategic
  4. Policy
  5. Operational
  6. Tactical
  7. Individual (as ‘professional’)
  8. Personal

• ‘Reach’ concepts >>> ‘under-reaching’ + ‘over-reaching’

• Need realise ‘optimised reach balance(s)’ in overall enterprises

• (cf. A.D.M. Svendsen (2012), Understanding the Globalization of Intelligence, e.g. p.12, etc. + A.D.M. Svendsen (2012), The Professionalization of Intelligence Cooperation.)
Where to go next? #4

- + inc. covering dimensions, e.g. given in this figure.

**Context appreciation**

- Captures ‘M4IS2: multiagency, multinational, multidisciplinary, multidomain information sharing and sense making’, which ranges across ‘eight entities [of] commerce, academic, government, civil society, media, law enforcement, military and non-government/non-profit.’ (Segell, 2012) + shows importance of (+ doing) RESINT + COLINT.
### Overall ‘Situational Awareness’ Evaluation (SoSA/G-J2)

**CONTEXT APPRECIATION - Observe + Orient**

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<td>Infrastructural (inc. environment[all])</td>
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This matrix is designed to provide an analytic framework with **core - even checkbox - criteria or variables to consider** into which evaluators can record as holistically as possible - e.g., through mapping - what they observe from, e.g., a selected case/issue/problem, etc.

This approach enables the **comprehensive capturing** of - if not all - at least several different aspects of an event/episode, issue, etc., in its **varying key dimensions**.
### System attributes/variables > e.g. inc. captures + covers...? >

**SoSA units (e.g. PMESII):**

- **Internal influences / factors**
  - 'Who?' / 'Which?'
- **Rationale**
  - 'Why?'
- **Types + Forms**
  - 'What?'
- **Conditions + Terms**
  - 'When?'
- **Trends (+ dynamics/flows)**
  - 'Where?'
- **Functions**
  - 'How?'
- **External influences / factors**
  - 'Who?' / 'Which?'
- **Effects + Outcomes**
  - 'What?' / 'S.W.O.T.'

<table>
<thead>
<tr>
<th>System attributes/variables &gt; e.g. inc. captures + covers...? &gt;</th>
<th>Internal influences / factors &gt; e.g. inc. captures + covers...? &gt;</th>
<th>Rationale &gt; e.g. inc. captures + covers...? &gt;</th>
<th>Types + Forms &gt; e.g. inc. captures + covers...? &gt;</th>
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<th>Functions &gt; e.g. inc. captures + covers...? &gt;</th>
<th>External influences / factors &gt; e.g. inc. captures + covers...? &gt;</th>
<th>Effects + Outcomes &gt; e.g. inc. captures + covers...? &gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Political</strong> (inc. law/legislation)</td>
<td>Sharia law / alternative hierarchies</td>
<td>Unrep. elsewhere/ power-play</td>
<td>Strong leadership</td>
<td>Fill governance vacuum</td>
<td>Exploiting Iraq/Syria weaknesses</td>
<td>Ruthless / kill off opposition</td>
<td>Sympathisers</td>
<td>Imposing regime</td>
</tr>
<tr>
<td><strong>Military</strong></td>
<td>Tight, well-disciplined C2</td>
<td>Got weapons / tactics</td>
<td>e.g. Heavy +automatic weaponry</td>
<td>Succeed vs. weaker/disorg. oppo</td>
<td>Good at capturing; less so at holding?</td>
<td>Agile / flexible / fast-lightfoot</td>
<td>Ex-military personnel</td>
<td>Competent committed adversary</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>Profitable/employed</td>
<td>Make profit - e.g. oil</td>
<td>Steady supply funding</td>
<td>Exploit existing/new markets</td>
<td>Exploiting oil-refineries</td>
<td>Able to sell, e.g. oil</td>
<td>Resp to consumer demands</td>
<td>Self-sustaining /autarky?</td>
</tr>
<tr>
<td><strong>Social</strong> (inc. sociological + cultural)</td>
<td>Camarad-erie/purpose</td>
<td>Romance</td>
<td>Bonding/ band-bros/ marriage</td>
<td>Links/ties - e.g. friends/ passions</td>
<td>Native + Foreign fighters</td>
<td>Quasi-religious/smashing activities</td>
<td>'Call of the wild'/ share adventurism</td>
<td>Soft + not just hard factors</td>
</tr>
<tr>
<td><strong>Informational/Intelligence</strong> (inc. technological)</td>
<td>Good / soc media / BYOD</td>
<td>Able to influence</td>
<td>Social media/ propaganda</td>
<td>INFO/PSYOPS = work</td>
<td>Use internet - e.g. Twitter</td>
<td>Access to electronic devices</td>
<td>Acquiescence support thru intimidation</td>
<td>Shifting frames of reference</td>
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<tr>
<td><strong>Infrastructural</strong> (inc. environment[all])</td>
<td>Good networks/comms</td>
<td>Can seize/ control/trade/nego</td>
<td>Training camps/ bases</td>
<td>Using what is there - e.g. roads...</td>
<td>Urban/settled/travelable areas</td>
<td>Travel on roads / oil refinery use</td>
<td>Unwitting (?) private service prov</td>
<td>Too depend on what have already?</td>
</tr>
</tbody>
</table>

**Overall ‘Situational Awareness’ Evaluation (SoSA/G-J2)**

**CONTEXT APPRECIATION - Observe + Orient**

- **Military**
  - Tight, well-disciplined C2
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  - Strong leadership
  - Fill governance vacuum
  - Exploiting Iraq/Syria weaknesses
  - Ruthless / kill off opposition
- **External influences / factors**
  - 'Who?' / 'Which?'
- **Effects + Outcomes**
  - 'What?' / 'S.W.O.T.'

**Trends (+ dynamics/flows)**
- Exploiting Iraq/Syria weaknesses
- Ruthless / kill off opposition

**Functions**
- Able to sell, e.g. oil
- Resp to consumer demands

**External influences / factors**
- ‘Who?’ / ‘Which?’
- ‘S.W.O.T.’

**System attributes/variables**
- e.g. inc. captures + covers...?
How to put it all together? #2

Overall ‘Mission Accomplishment’ Guide (SoSE/G-J3)

SOLUTION FASHIONING - Decide + Act

<table>
<thead>
<tr>
<th>SoSA units (e.g. PMESII) &gt; ‘Levels’ (of interactivity/implementation/engineering)</th>
<th>Political (inc. law/legislation)</th>
<th>Military</th>
<th>Economic</th>
<th>Social (inc. sociological + cultural)</th>
<th>Informational/Intelligence (inc. technological)</th>
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<td><strong>Ideological</strong> (e.g. Ideas/Why realise?)</td>
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<td><strong>Theoretical</strong> (e.g. Aspirations/Why do?)</td>
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**Deliverable work** filling/completing this matrix (+ the one given on prev. slide) can be **done 'live'** - e.g. in a real battlespace/operational context (‘pre-flight’ style); or equally can be **done more 'off-line' + in the abstract** - e.g. during a simulation/training/exercise in the classroom.

Overall, these **matrices form useful analytical frameworks + educational teaching tools**, also helping to advance **standards + best practices** in approaches towards situation evaluations + subsequent transformation.

Also suggests **where ‘to draw the line’ in relation to issues**, e.g. privacy, etc.
**How to put it all together? #3**

**Fusion grid = mapping System Attributes/Variables + Levels**
for each specified SoS unit of analysis* - e.g. using PMESII model: Political; Military; Economic; Social; Informational/Intelligence; Infrastructural (*show which is selected for focus)

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This third chart (table) for mapping allows for ‘triangulation’ to be undertaken, e.g. with the results from the other two previous charts, during overall ‘fusion’ activities.

Privacy buffer
How to put it all together? #4

**OVERVIEW SNAPSHOT SUMMARY**
At a minimum for context consider + fuse:

<table>
<thead>
<tr>
<th>(A) ‘Key Actors’ - e.g. who?</th>
<th>(A1) Events - e.g. what? when? where?</th>
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<tbody>
<tr>
<td>(e.g. OC groups, individuals, other ‘targets’, etc.)</td>
<td>(A2) Patterns - e.g. how?</td>
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<td>(A3) Drivers - e.g. why?</td>
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</tbody>
</table>

<table>
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<tr>
<th>(B) ‘forces/factors of change’ - e.g. what activity?</th>
<th>(B1) Events - e.g. what? when? where?</th>
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<td>(e.g. SOC areas, etc.)</td>
<td>(B2) Patterns - e.g. how?</td>
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<td>(B3) Drivers - e.g. why?</td>
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</tbody>
</table>

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<tr>
<th>(C) ‘possible change over time’ - e.g. when? / where?</th>
<th>(C1) Events - e.g. what? when? where?</th>
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</thead>
<tbody>
<tr>
<td>(e.g. environment, PESTLE/PMESII [SoSD] indicators, SWOT, etc.)</td>
<td>(C2) Patterns - e.g. how?</td>
</tr>
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Aim = capture: (i) the **players**; (ii) their **relationships**; (iii) their **drivers** (e.g. their **means**, **motives** & **opportunities**).
How to put it all together? #5

Generation of 'Signifer Node(s)' for positioning on triage-related/colour-coded 'indicator board(s)' = for context appreciation + situation awareness generation >>> help for making where next + response decisions
Conclusions #1

• Arguably ‘SoSA+SoSE’ = SoSD approach advanced here >>> better:
  
  (i) captures ‘intelligence dynamics’ (e.g. information flows, cybernetic ‘feedback-loop’, networked dimensions, etc.) found in military & special operations knowledge work; +

  (ii) joins up the many different ‘systems’ involved + encountered during MFOs in overall GSR and CCP environments.

  (iii) ‘fills the/any gaps’ + offers greater contextualisation of (e.g.) socio-cultural knowledge-related full-spectrum-ranging issues, problems, hazards, risks + threats.
Conclusions #2

• Integrated/joined-up/comprehensive ‘SoSA+SoSE’ (SoSD) approach =
  • Helps meet ‘mission accomplishment’ ends, e.g., transform developments + better keep ‘ahead curve of events’.
  • Can be readily overlaid with other (perhaps more familiar) approaches - e.g. OODA Loop, etc.
  • Helps ensure: sustained delivery of ‘3Rs’ + meet ‘STARC’ reqs.
  • Encourages greater ‘thinking outside of the box’ in military & special operations intelligence & knowledge work enterprises.
  • Assists in/with both collection + analysis in overall enterprises - e.g. better refines IS[TA]R platforms focus, tasking + targeting, etc.

Key Takeaway:

1. Basic SoSA units of (e.g.) PMESII (etc.) = good starting place
2. ‘situational awareness’
3. ‘mission accomplishment’/meeting/achieving ‘goals’
4. Constant feedback loop process (1-2-3-1...)

ANALYTICAL FRAMEWORKS

CONTEXT

APPRECIATION

ORIENT

DECIDE

SOLUTION

FASHIONING
Conclusions #3

• Generally, grander strategic/architectural/shaping approaches = esp. pressing during:

  (i) our contemporary ‘Big Data’/‘Cyber’ age +

  (ii) when experiencing much ‘sensory’ (e.g. IS[TA]R-platform) + other conditions of ‘information/data overload’ +

  (iii) as do more ‘Collective Intelligence’ (COLINT) while scrutinised more by more involved public +

  (iv) while continually subjected to, e.g., ‘Snowden-related’ allegations (or so-called ‘revelations’) + assoc. mis-/distrust; +

  (v) as related challenging ‘legalisation’/‘legalism’ trends extend >>> ‘Smart-Law’ to instead needing advancement = better weighing Soft/Hard Law dimensions.
Call for Action & Partners (researchers + sponsors)!

- Introducing: ‘The Intelligence-domain System of Systems Dynamics Reference Content (SoSD)’ research project

- The innovative partnership between Global University Alliance and the Copenhagen Institute for Futures Studies focuses on System of Systems Dynamics (SoSD).

- SoSD Research Goal:
  - Involving a standardisation process, the project will create future intelligence-related enterprise relevant standards + ‘best practices’ + leading practice guides/guidelines.
  - These standards = relate to SoSD use + dev. in + during intelligence-related operations, cases, etc., spanning the law enforcement and military/defence and security sectors.
Questions?

Further reading:
