Introducing Intelligence Engineering: Operating Beyond the Conventional

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Introduction: Advancing IE #1

- IE framework (aka. the ‘Bridgehead Methodology’) = relevant for:
  1. risk analysis & assessment to
  2. risk management & for
  3. helping facilitate resilience.

- Done for much-needed sophisticated:
  - (a) ‘context appreciation’ (analysis + assessment - G/J2 work) + then
  - (b) improved ‘solution-fashioning’ (engineering + building/synthesis - G/J3 tasks)
Introduction: Advancing IE #2

• Aim = For better understanding & then addressing complex uncertainty experienced now & that anticipated in future - e.g. in battlespaces.

• Both *a priori* (before) & *post facto* (after) concerns & considerations feature.

• Strong focus on positioning:
  - e.g. better getting ‘ahead of’ event & development ‘curves’ as they unfold, at times rapidly.

Introduction: Advancing IE #3

- **Value:** IE boasts many operational & strategic ways, means, & ends.

- **IE encompasses:**
  1. intelligence-associated collection/gathering & analysis/assessment (estimate) work; to
  2. the further operationalised implementation of plans & intents generated by commanders & other high-level leaders & policy-to decision-makers.
Introduction: Advancing IE #4

• Several ‘edges’ benefit from their ‘extra sharpening’ to gain advantage:
  
  - e.g. competition over adversaries + rivals.

• IE offers several tools, toolboxes & toolsets - e.g. harnesses SoS.

• IE also guides which = best to select & apply (whatever context)

• Demonstrates added value + USPs IE overall brings to multiple defence & security enterprises.
Introduction: Advancing IE #5

- IE ‘toolbox’ consists of:
  - 5x ‘toolsets’ offering ‘tools’
  - Each ‘toolset’ = a bite-sized IE process ‘step’
  - In turn, each ‘step’ = progressed linearly in a ‘building’ manner.
  - Overall IE process = arranged as a (semi-)structured analytical framework for risk.
A comprehensive, structured analytical framework for helping address & better manage UNCERTAINTY

(1) Choose focus:
Theme(s)/Issue(s)/Problem(s)/Hazard(s)/Risk(s)/Threat(s)

(2) Select which ‘System of Systems Dynamics’ (SoSD) to use:
STEEP(L) [B.I.]/PESTLE [EUROPOL]/PMESII [NATO]/DIME [USMIL.]/HSCB [USMIL.]

(3) Each ‘system’ in SoSD has following variables/attributes:
   (i) internal influences/factors;
   (ii) rationale;
   (iii) types & forms;
   (iv) conditions & terms;
   (v) trends (inc. SWOT);
   (vi) functions;
   (vii) external influences/factors;
   +
   (viii) effects & outcomes

(4) In turn, each ‘system variable/attribute’ has following ‘levels’:
   (i) Ideological
   (ii) Theoretical
   (iii) Strategic
   (iv) Policy
   (v) Operational
   (vi) Tactical
   (vii) Individual (as ‘professional’)
   +
   (viii) Personal
   (high-low; macro-micro ranging)

(5) Identify A+B+C = ‘Signifier Node’:

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

<table>
<thead>
<tr>
<th>(B) ‘forces/factors of change’</th>
<th>(B1) Events</th>
<th>(B2) Patterns</th>
<th>(B3) Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SOC areas, etc.)</td>
<td>- e.g. what activity?</td>
<td>- e.g. how?</td>
<td>- e.g. why?</td>
</tr>
</tbody>
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<tr>
<th>(C) ‘possible change over time’</th>
<th>(C1) Events</th>
<th>(C2) Patterns</th>
<th>(C3) Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. environment, PESTLE/PMESII [SoSD] indicators, SWOT, etc.)</td>
<td>- e.g. what? when?</td>
<td>- e.g. how?</td>
<td>- e.g. why?</td>
</tr>
</tbody>
</table>

Aim = capture:
(i) the players; (ii) their relationships; (iii) their drivers (means, motives & opportunities).

FUSION!
Combine all outputs from STEP 4 to extract + ID

Meeting STARC criteria
Specific Clear Relevant Accurate

Each of factors included in STEPS 2-4 can be listed/mapped via grids/matrices for transparency, traceability & accountability

Conclusions #1

- IE effectively captures & then addresses the complexity of ‘multi-everything’ nature of op. environments:
  - e.g. for ‘M4IS2: multiagency, multinational, multidisciplinary, multidomain information sharing & sense making’

- Ranges across & involves: ‘eight entities [of] commerce, academic, government, civil society, media, law enforcement, military & non-government/non-profit.’ (Segell, 2012)

- Business + enterprise relevance >>> increasingly self-evident.

Source: Figure 3.2 in E.V. Larson, et al., Assessing Irregular Warfare: A framework for Intelligence Analysis (RAND, 2008), p.25
Conclusions #2

• Helps find + fill ‘gaps’ / ‘missing dimensions’ & ‘join/connect-the-dots’ in + across all domains of activity.

• IE tools + frameworks = help us move from:

(i) merely exploiting KNOWN-KNOWNs (‘what we know we know’) >>>

(ii) exploring KNOWN-UNKNOWNs (‘what we know we do not know’) >>>

(iii) exposing UNKNOWN-KNOWNs (‘what we do not know we know’) +

(iv) discovering (potential) UNKNOWN-UNKNOWNs (‘what we do not know we do not know’) domains.

Cross Domain Synergy: Campaign planners can understand the complex environment by considering each domain and its effects on others.66

Source: PRISM, 6, no. 3 (2016), p.16.
Conclusions #3

• This **INT + knowledge work** = useful for:
  
  - operational-to-strategic early warning;
  
  - over-the-horizon insights;
  
  - better keeping ‘ahead of curve of events + developments’;
  
  - distinguishing (weak-strong) ‘signals’ from (overall/background) ‘noise’;
  
  - maintaining ‘edge’ + ‘initiative’;
  
  - better filtering, targeting, prioritisation, etc.

• **So What?** IE added value & USPs =

  1. **Intelligence optimisation** tasks & then
  
  2. best **event + development transformation**.
Further Insights


Also available from online retailers, e.g. Amazon.