

Scenario Design

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The world of Modelling & Simulation remains an enigma to most, especially considering the level of technicality applied to the various sciences supporting its proliferation. Nowhere but this field does one see a confluence of algorithms, software programming, information systems, C4ISR and of late - web-based design. What is not fair however is to pigeonhole M&S professionals into laboratory clinicians because the activities are much broader than one realizes. Despite its technical connotations, M&S is also about people and processes within the context of organisational structures. It is based on these variables that M&S is also defined by issues addressing planning, operational application and satisfying those ‘what if?’ questions in analysis.

All of the advanced technologies in this field are for naught if the insights to better staff processes and command decisions are not attained or far worse, not pursued. To do this, I need to initiate you into the world of scenario development in relation to supporting an exercise or mission rehearsal. One of the misnomers in scenarios involves what we call ‘training objectives.’ Training objectives are preconceived constructs addressing the degree of preparation and practice necessary to execute the mission in real life. The problem with training objectives per se is that they exist at the macro level and cannot influence events without precursor activities or ‘building blocks’ to achieve that end.

These activities or ‘building blocks’ are what I call ‘themes.’ What is significant about themes is the fact that one of them can on occasion apply to one or more training objectives. Take for instance activities found in Crisis Response Operations or CRO.¹ Attaching security to an NGO food delivery stabilizes a humanitarian situation plus it keeps belligerent elements intent on robbery or pilferage in check. As a solitary event, this is for many staffs very manageable – reality however dictates otherwise. A competent military staff must not only prioritize but also matrix the energies of its forces in the right proportion based on situational awareness. That is why I disdain efforts by some who feel that ‘noise’ is essential in keeping the staffs fully occupied in training and education environments. For those that have served in theatre, initial reports supporting real-life themes or training objectives are complex enough without the negative training variable of ‘noise’ to sort through.

¹ The context used is from AJP 3.4, Non-Article V Crisis Response Operations.

Little, D. (2006) Scenario Design. In *Integration of Modelling and Simulation* (pp. 7-1 – 7-8). Educational Notes RTO-EN-MSG-043, Paper 7. Neuilly-sur-Seine, France: RTO. Available from: <http://www.rto.nato.int/abstracts.asp>.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 01 SEP 2006		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Scenario Design				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) SBattle Command, Simulation & Experimentation Directorate (BCSE) HQDA, DCS G-3/5/7 400 Army Pentagon Washington, D.C., 20310 USA				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES See also ADM001943., The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 24	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

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This brings us to a more central issue involving training scenarios. How sure are we of training objectives if there is no historical data to draw upon? What if this was indeed the very first time a higher Headquarters or HQ conducted such a mission. I use the historical case of NATO's ISAF mission in Afghanistan² as an example where the 'building blocks' upon which training objectives are built cannot be fully ascertained beforehand. Even with routine missions where established precedent exists, it is entirely conceivable to train for things that actually do not occur. Assumptions upon which a scenario is built are very dangerous because influences counter to NATO's mission will not be satisfied with a status quo that did not work before. That is why it is far better to look instead at the 'end-state' of what the Commander envisions. If this at least appears credible on the surface, I will share an insight concerning scenario development you may not have noticed before.

Figure 1³ shows the conventional perception of how scenarios are normally designed. Notice the linear progression where hostilities escalate along the left side depicting a tangential 'alert-deploy-employ.' This is a carryover from Article V where tensions would have escalated and notice of cross-border movement would have alerted the reserves forward as well as initiating cross-oceanic deployment. The reason why this affects scenario development the way it does is due to NATO's historical position on the deployment of forces. Simply put, the deployment of forces outside of Article V as far as NATO is concerned involves obtaining a mandate from the UN. The debate that concerns us as scenario designers is how far along the conflagration has advanced chronologically by the time we collectively as NATO receive the order to go. Our arrival might be as late as mid-way along the 'bell curve' depicted in Figure 1.

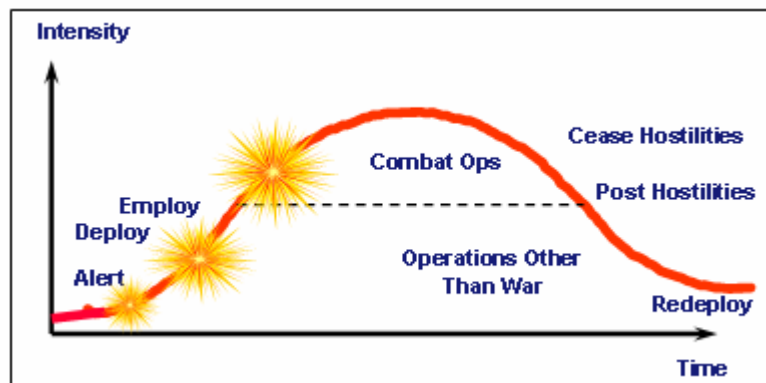


Figure 1: Conventional Perception of Scenarios.

Another problem with Figure 1 is that on the whole it falls short of reality. It is not black and white, hot and cold, combat or non-combat. The missions that NATO will encounter requires a scenario that inherits all of the anomalies of culture, religion, ethnicity, economic polarization and the stain of calamity that violence inflicted upon a given populace. The challenge for the scenario designer is the determination of boundaries that disallow staffs from deviating from meeting training objectives save the one that absorbs and transfixes the energy of the staff. Since the 1990s, all missions have been different; quite unlike the conventional 'training-to-standard' paradigm shown above. The 'waterline' depicted mid-way on the bell curve separating combat operations and *operations other than war* (now called Crisis Response Operations or CRO) does not

² All references to ISAF are from Regional Headquarters Allied Forces North Europe's (AFNORTH) initial draft, May 2003. The author's intent is historical context for the purposes of this lecture.

³ Used in previous command briefings at the U.S. Warrior Preparation Center, Germany.

take into account insurgencies or organised criminal activities: where violence inflicted by such irregular or indigent forces happen regardless of the political status between nation-states and armies.

What is the scenario designer to do? After looking at the end-state and assumptions, the step I recommend is to analyze the conditions under which forces enter a country as well as how they leave. To explain how this construct for scenario design works, I created a very simple line (Figure 2) called ‘The Band of Political Economy.’⁴ From left to right, one sees the progression from violence to the other extreme called ‘Investment:’ whether Foreign Direct Investment (FDI), donor assistance or domestic. While ‘stabilization’ appears self-explanatory, I consider the term ‘property rights’ as synonymous with the ‘rule of law.’ Unfortunately the term ‘rule of law’ is found in NATO literature but lacks true codification. ‘Property rights’ along the ‘Band of Political Economy’ connotes representational government, a balancing of ownership and access to ownership despite minority status in a given region. Further, stabilization advances rightward to property rights when an alternate means to address discrepancies surpasses violence and internicide through an established legal system.

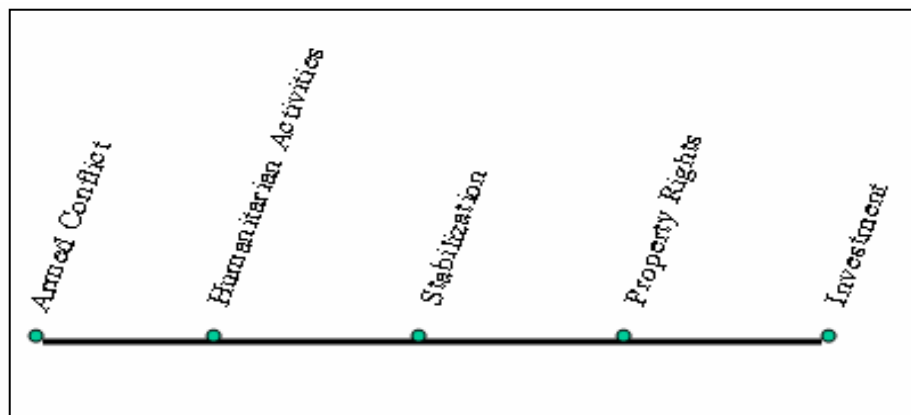


Figure 2: The Band of Political Economy.

At any time, a country undergoing such restructuring can become stuck leftwards of ‘Investment;’ where the momentum of international goodwill and donor assistance loses traction thus sliding or regressing leftwards towards a resurging violence that connotes another abyss of armed conflict and ethnic animosity. When international actors, i.e., military/security experts, humanitarian workers, governmental agencies (international, regional or local), economists and businesspersons make dismissive assumptions of one another, the collective mishandling fosters resentment from the people. As a result, the calamitous effects of inefficiencies among professionals undermine collective goodwill, leaving no other outlet for the people except dissent and the search for a convenient scapegoat in the other ethnic group. Based on our continued presence in the Balkans and now Asia, military staffs do not truly understand all of the indicators when this leftward slide occurs.

⁴ Little, 2002. *Foreign Direct Investment and its Transformation Effects*, Northwestern University, Kellogg Graduate School of Management, Evanston, Illinois and the Wissenschaftliche Hochschule für Unternehmensführung, Otto Beisheim Graduate School of Business, Vallendar, Germany.

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That is why I designed ‘The Scenario Design Continuum’⁵ (Figure 3). There is a deployment stage, a pre-combat stage and a parallax between combat and peacekeeping. The reason for the separation of the deployment and the pre-combat stages is to account for possible anomalies such as being invited in directly versus forcible entry from a neighbouring country; thus separating the Balkan scenarios from a full-scale military operation on the scale of DESERT STORM. Another distinction is the difference between pre-combat and combat activities, highlighting disparities in the UN Mandate between Chapters 6 and 7 as witnessed in Srebrenica or Rwanda.

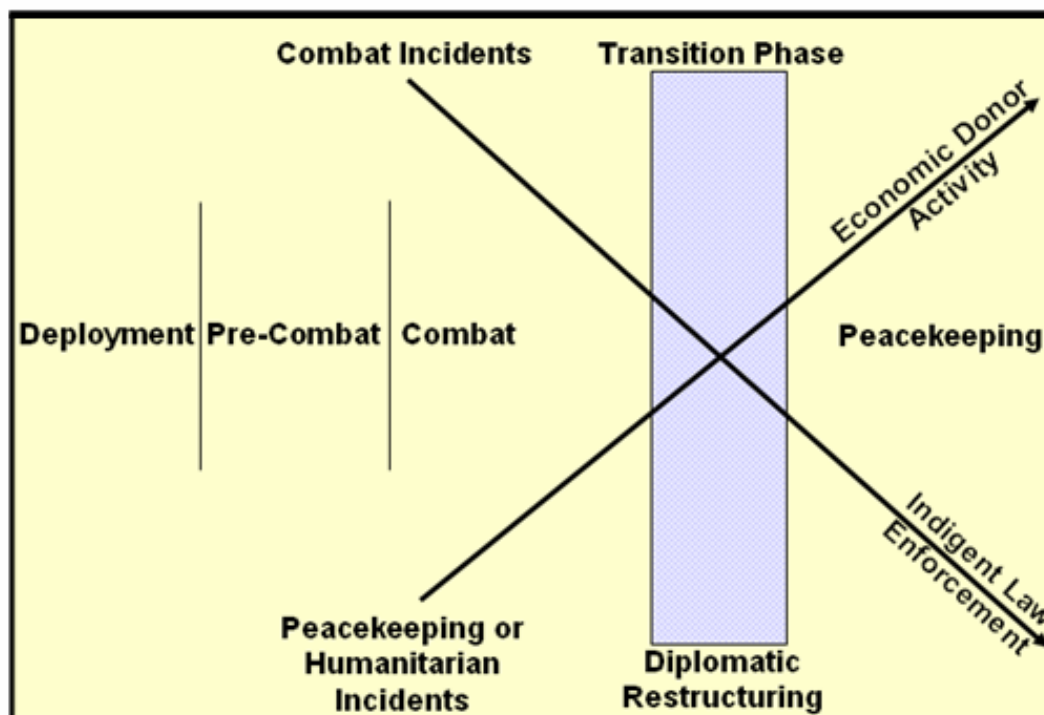


Figure 3: The Scenario Design Continuum.

More interesting is the parallax between combat and humanitarian activities; offering the scenario designer more insight into the theatre than the linear relationship of Figure 1. In creating ‘The Scenario Design Continuum,’ I borrowed from the explanatory variables of economics to create this general rule: ‘the greater the military presence to counteract violence, the greater the chance for humanitarian and rebuilding efforts to proliferate.’ There are corollaries that explain some of the exceptions which I will explain later. In the middle of the parallax, one finds a transition phase connoting diplomatic restructuring due to: deposing a belligerent powerbase; is deposed outright, a ceasefire is brokered or monitored elections transitioning power from one party to the other. ‘Diplomatic Restructuring’ is a prism that only applies when the single remedy available involves nation-state to nation-state relations. The parallax also follows the rules I mentioned previously in the ‘Band of Political Economy,’ meaning that the breakdown of order pulls everything leftward if remedy is not sustained.

⁵ Little, 2005. *Can NATO Train for Peace?*, University of Cambridge, Centre of International Studies, Cambridge, UK.

Let us go back for a moment and pretend you were tasked with designing the scenario for ISAF's mission in Afghanistan. As this was the first time NATO deployed forces outside of the European continent, we have the benefit of hindsight to look at the lessons learned from this mission. My intent is to place you in the position of the scenario developer faced with no precedent to draw from. Figure 4 contains a list of inject themes from the ISAF mission.

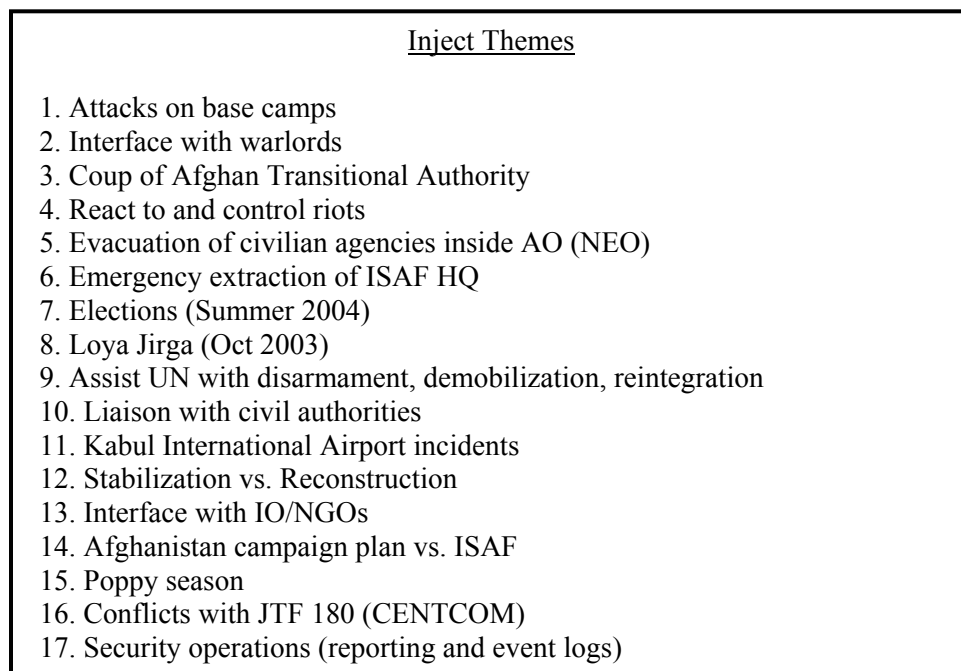


Figure 4: Inject Themes from ISAF⁶.

Now that you possess all the tools, the technique is to pick inject themes that make chronological sense and plot them on the 'Scenario Design Continuum.' The only difference between themes and inject themes is that scripting and role playing is necessary to add a layer of realism unattainable through computer-based technology or that the training objectives themselves can only be achieved through interpersonal interaction. Look at what you've plotted and see if 'clusters' are possible. The last step is to take the unclaimed themes and either 'cluster' them or place as a solitary event – of which some are indeed solitary in nature. Figure 5 is what I have plotted. No doubt many of you will argue that one theme or another belongs in a different place. The point is that the Exercise Director will make these adjustments, your job as scenario designer is to grasp the flow as well as potential 'holes.' Scenario designers that do neither will do so 'on-the-spot' writing in a complete vacuum: an arduous and unappreciated undertaking for a single person that stumbled into this blindly.

⁶ All references to ISAF are from Regional Headquarters Allied Forces North Europe's (AFNORTH) initial draft, May 2003. The author's intent is historical context for the purposes of this lecture.

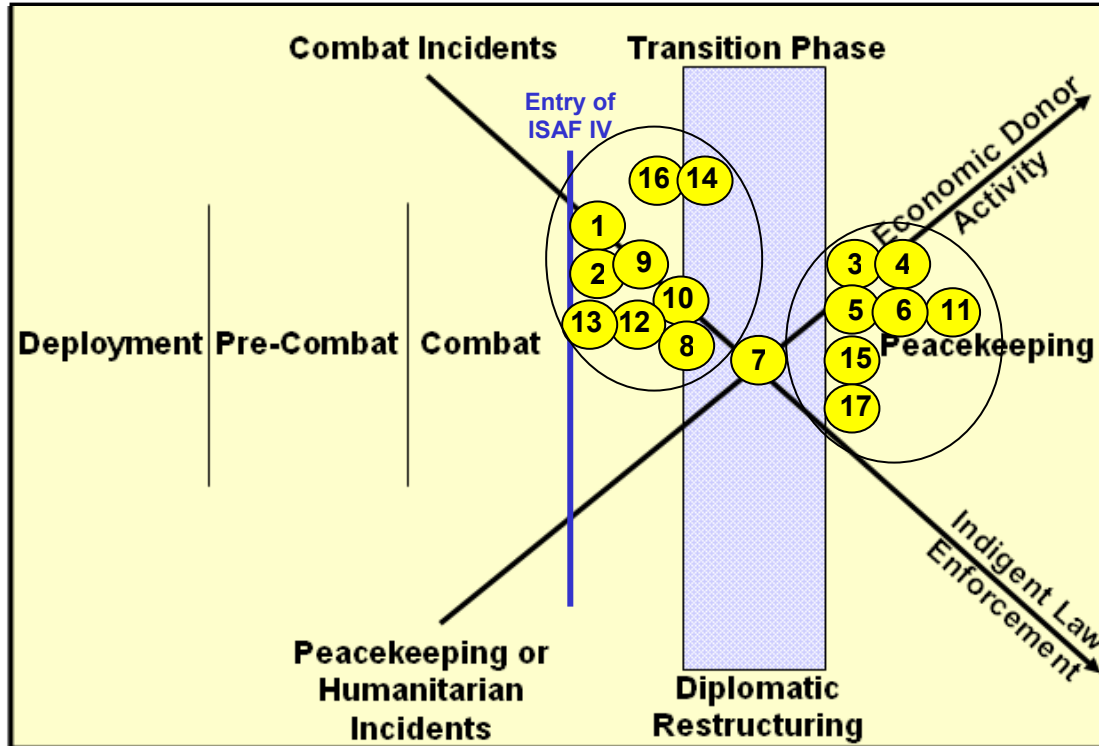


Figure 5: The Scenario Design Continuum Based on an ISAF Example.

So long as anyone from the exercising or rehearsing unit is acting in an ‘honest broker’ capacity, the unit’s assumptions, processes and decision-making will be duly tested. From here you can take ISAF or any other order for that matter and write the Phases over different places on Figure 5. Unless you saw this you would not understand my justification for how I know the best units from the not-so-good ones. Good units will attempt to expand their capability as opposed to units that are too intrinsic in focus. NATO after all projects exercises years out. Units that are too intrinsic in their focus before a deployment will have a rough time on the ground – the enemy and the unforeseen circumstances have their own place in the ‘Scenario Design Continuum’ as well.

I mentioned earlier that there are corollaries to the law governing the Scenario Design Continuum (Figure 6): ‘the greater the military presence to counteract violence, the greater the chance for humanitarian and rebuilding efforts to proliferate.’ These corollaries exist because there are variables unknown to the unit when they drafted their assumptions prior to going in. One example is the current war in Iraq. At the time of this writing, the Iraqi constitution was not finished hence the situation is still in the shaded area of ‘Diplomatic Restructuring.’ When the assumptions were made prior its beginning, the supply of violence by foreign fighters was not foreseen, otherwise ‘Indigent Law Enforcement’ and ‘Economic Donor Activity’ would have pulled it squarely in the area defined as ‘Peacekeeping’ to the right. Again borrowing from economics, a pure ‘Peacekeeping’ mission on the right side of the parallax entails a stable mix of incorruptible law enforcement and stable donor assistance pulling equally, thus dictating the means of a successful ‘exit strategy.’

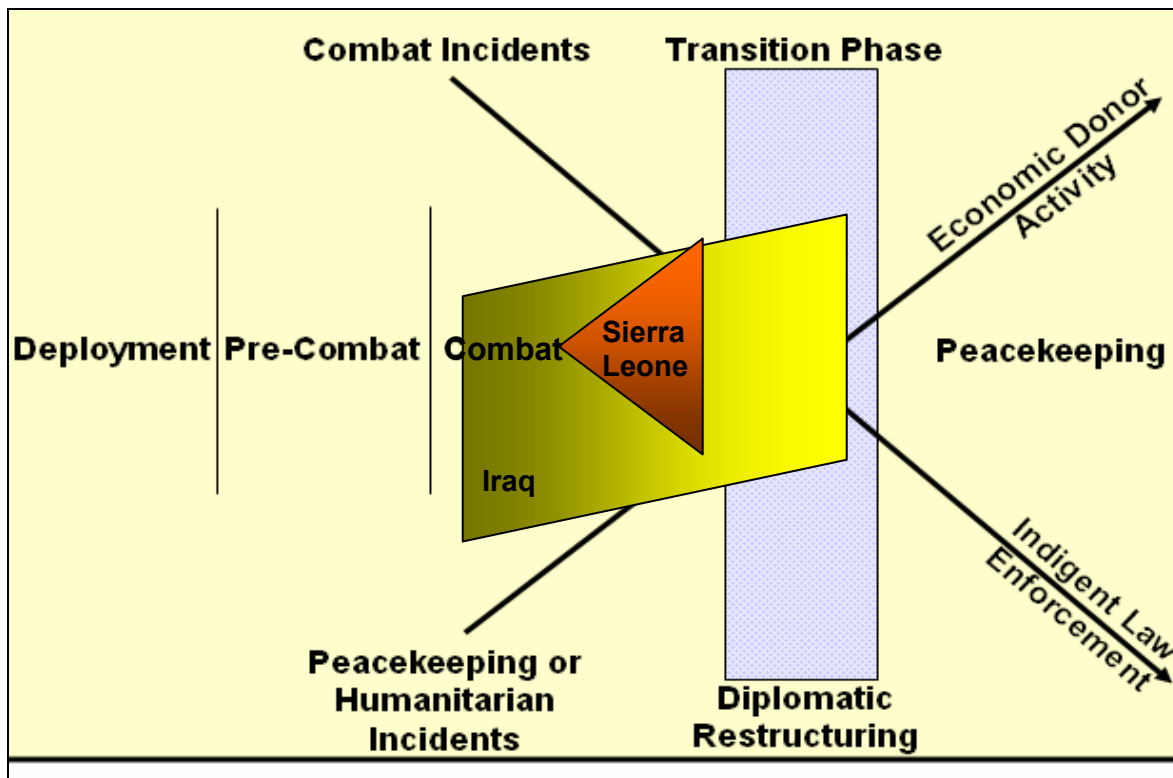


Figure 6: Corollaries to the Scenario Design Continuum.

Another example is Sierra Leone which was more sporting event than political struggle. Originating from decades of patronage and corruption, the lucrative diamond trade went underground (See Stewart and Fitzgerald, pps. 115-117)⁷ – plunging by 1989 to just \$2 million from the \$150 million yielded in 1970. Illicit diamonds not political power motivated both parties in the conflict. Government soldiers that were poor and uneducated saw the ‘civil war’ as a vehicle for status and self-fulfilment, hoping some day to attain the higher ranks that could enjoy the feudal spoils of self-enrichment outright. Realizing that their presence in resource-rich areas depended on conflict, many government soldiers sold munitions to the rebels they were supposedly fighting. Compound this with the skimming of aid that took place by the civil service, it is no wonder why forces go into so many places and somehow do not leave as easily. The military and humanitarian communities were bled for the well-intentioned assistance they provided. I can use the ‘Scenario Design Continuum’ to define other military missions as well such as Rwanda and Kosovo. Luckily, the scenario designer is given much greater leeway where training matters are concerned.

Until now, you learned that training objectives and themes are the ‘building blocks’ of a military training event such as an exercise or mission rehearsal. I have also told you that ‘noise’ to keep the staff occupied is futile when the training objectives are hard enough as is. We also touched on the fact that Article V as we knew it 20 years ago is passé but some of the trappings remain in how we approach training. Since the 1990s, the missions were well outside of our comfort level and since 9-11 NATO has even transcended continents from the two that initially conceived it. In order to embrace what is not known, one must appreciate that actors

⁷ STEWART, F., and FITZGERALD, V., 2001. War and Underdevelopment - Volume I: The Economic and Social Consequences of Conflict. Oxford: Oxford University Press.

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along the ‘Band of Political Economy’ do not coordinate fully throughout its length, not fully grasping the exact timing when things regress again towards violence.

Most importantly, I have empowered you to take the assumptions or themes and plot them along the ‘Scenario Design Continuum.’ You will understand how the training event is constructed four significant ways. First you will be able to determine the chronology of events using your own judgement. Next, you will be able to determine the events that are stand-alone and which will be clustered together. Given the relationship between violence and rebuilding, you will be able to gauge what your headquarters is preparing for and what areas they are not. Finally, you will be able to take the crude plotting of themes in order to understand the relationship between your training event and the exit strategy: one where indigent law enforcement and economic donor activity grow synchronously, thus allowing the peacekeeping role of your headquarters to diminish towards obsolescence.

There is one final detail we have not fully explored but is equally important and fortunately less complex. Many NATO leaders will task subordinates to script events that address the theme’s human interpersonal dynamics. How do you know after a week-long scripting session how these events will play individually or collectively as a whole during a training event? Many times, scripting is too operations-centric to be viable. By looking at the scripted injects by section, would it look closer to a ‘circus tent’ like Figure 7 or a ‘flagpole’? Reporting can originate from mechanics, cooks or chaplains reporting to their respective functional headquarters. It can also be someone calling the wrong number. If a local civilian was told to call ‘CIMIC,’ would anyone throughout the staff direct the caller to Civil-Military Operations or dismiss the caller because no ‘Mister Simic’ works in the HQ? This is not ‘noise’ but an incontrovertible rule: *A civilian calling anywhere in your headquarters spoke to your headquarters.*

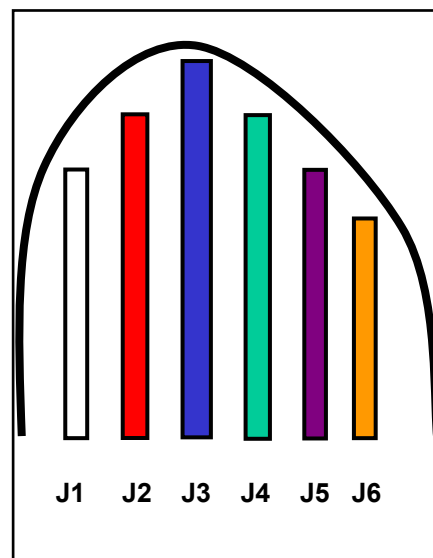


Figure 7: Assessing Scenario Scripting for an Exercise or Mission Rehearsal.

In closing, we need to remind ourselves what the purpose of scenario design is for in the first place. If a fire or a bomb threat can evacuate a headquarters, the passage of information should be equally rapid and effective. So long as every incident is tied to reach a training objective, your job will be much easier. If not there is always time to do it right when your General spots the scenario design flaws.



Scenario Development

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Learning Objectives



Develop scenario requirements to support an exercise/training event.

- Review training objectives for the exercise.
- Identify missions/events that must occur during the exercise.
- Formulate a plan to bridge training limitations in the scenario.



Reasons for Having a Scenario



Replicate reality - Training is too artificial under all conditions; greater reality enhances training applications.

Control - Control of events allows training to be directed, safe and thorough.

Capture/Record, practice and transmit experiences.

Expand beyond personal experience.

Identify difficulties and solutions.



The Scenario Development Lifecycle



Categorize -Type of problem and its scale

Scale - Number, type & disposition of participants

Frame - Conditions at the site/location

Placing training objectives and supporting themes on an exercise time line

Specify observation & measures

Reassess scenario

After exercise match objectives to measured results

Receive Feedback During After-Action Review

Refine scenario before next cycle

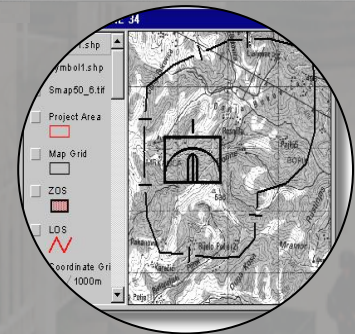


Two Methods of Selecting Training Objectives



What You Know is the Established Norm

- A train-to-standard process



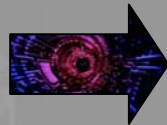


Two Methods of Selecting Training Objectives



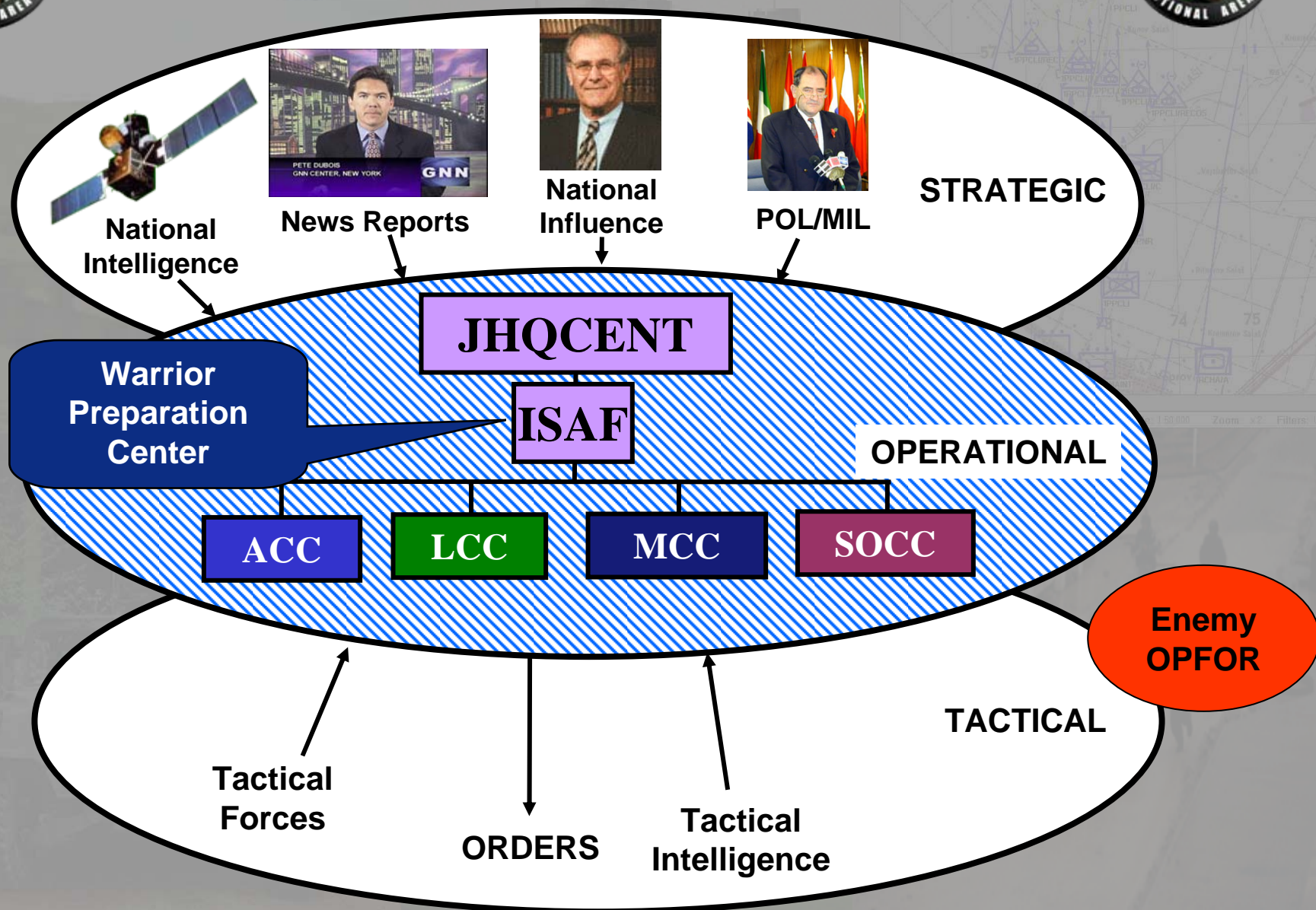
You Don't Know What You Don't Know:

- A discovery process
- Situation types known; specific skills not known
- Requires: knowledge, recording/processing, 2nd step



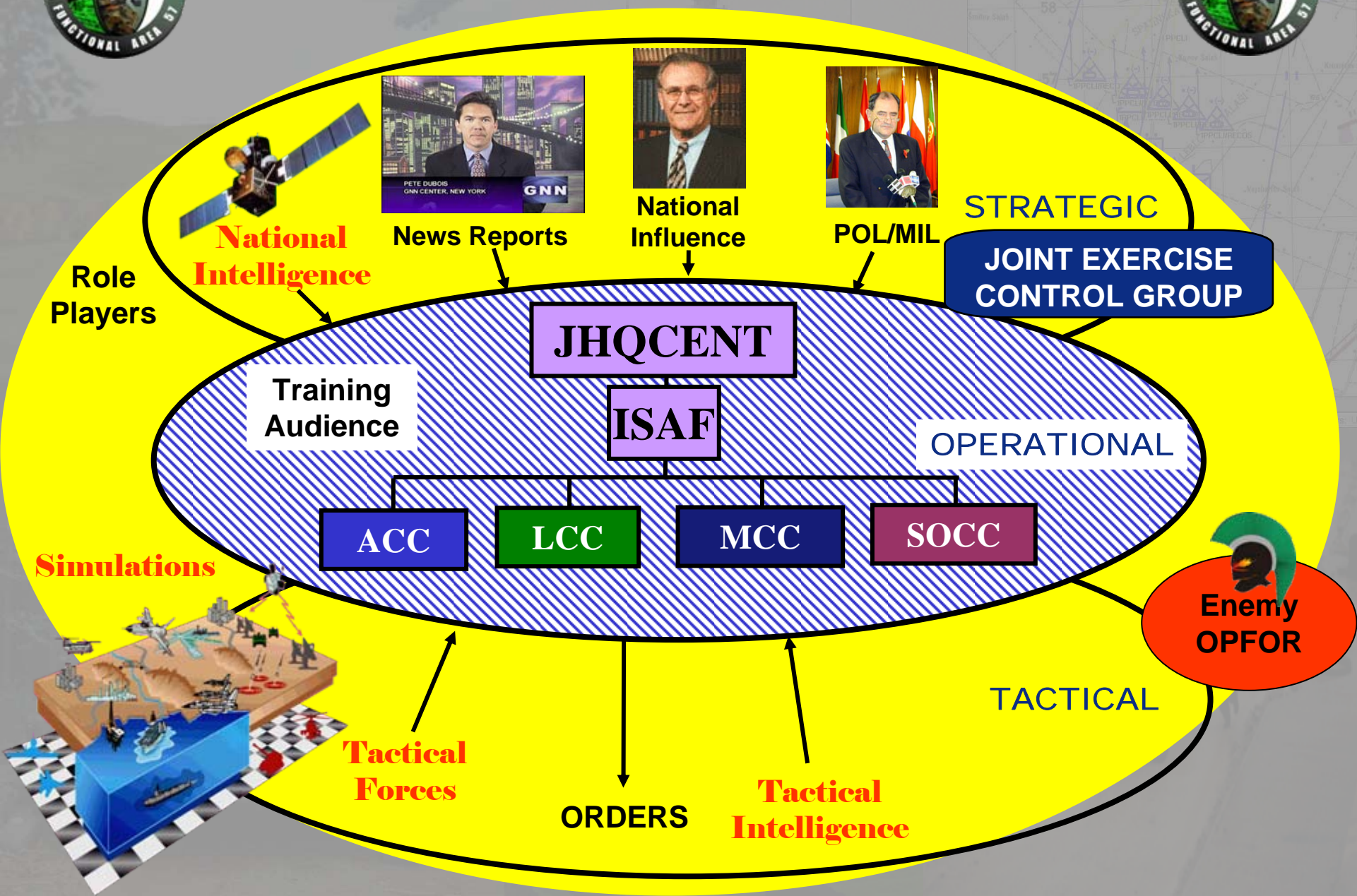


The Real World (Theater)





The Training Environment (Theater)





ISAF MRE CORE INJECT THEMES



- *Attacks on base camps*
- *Interface with warlords*
- *Coup of Afghan Transitional Authority*
- *React to and control riots*
- *Evacuation of civilian agencies inside AO (NEO)*
- *Emergency extraction of ISAF HQ*
- *Elections (summer 2004)*
- *Loya Jirga (oct 2003)*
- *Assist UN with disarmament, demobilization, reintegration*
- *Liaison with civil authorities*



ISAF MRE CORE INJECT THEMES



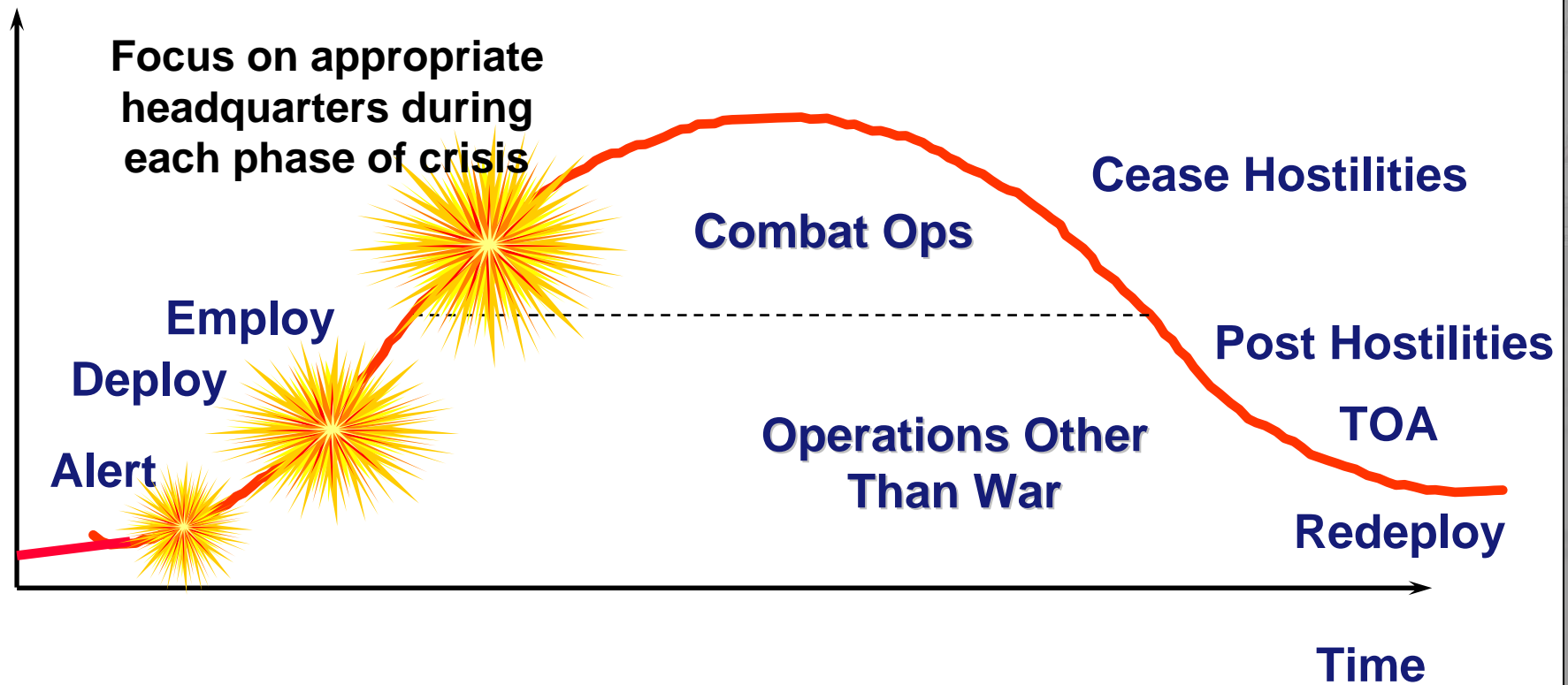
- *Kabul International Airport incidents*
- *Stabilization vs. Reconstruction*
- *Interface with IO/NGOs*
- *Afghanistan campaign plan vs. ISAF*
- *Poppy season*
- *Conflicts with JTF 180 (CENTCOM)*
- *Security operations (reporting and event logs)*



Crisis Continuum

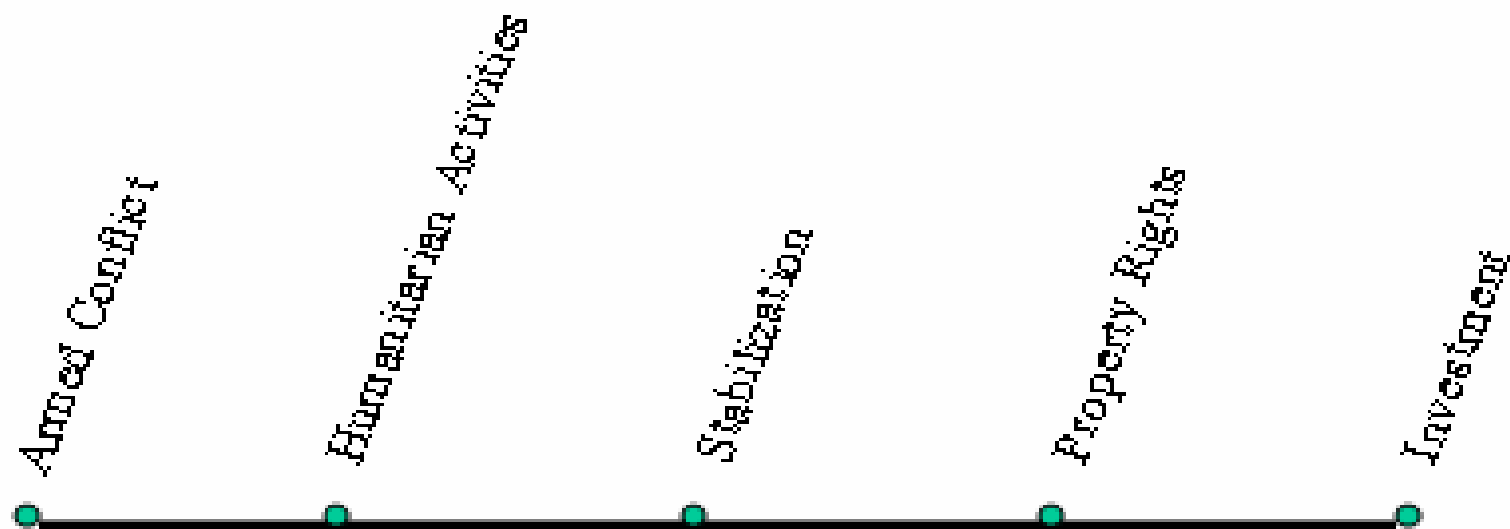


Intensity





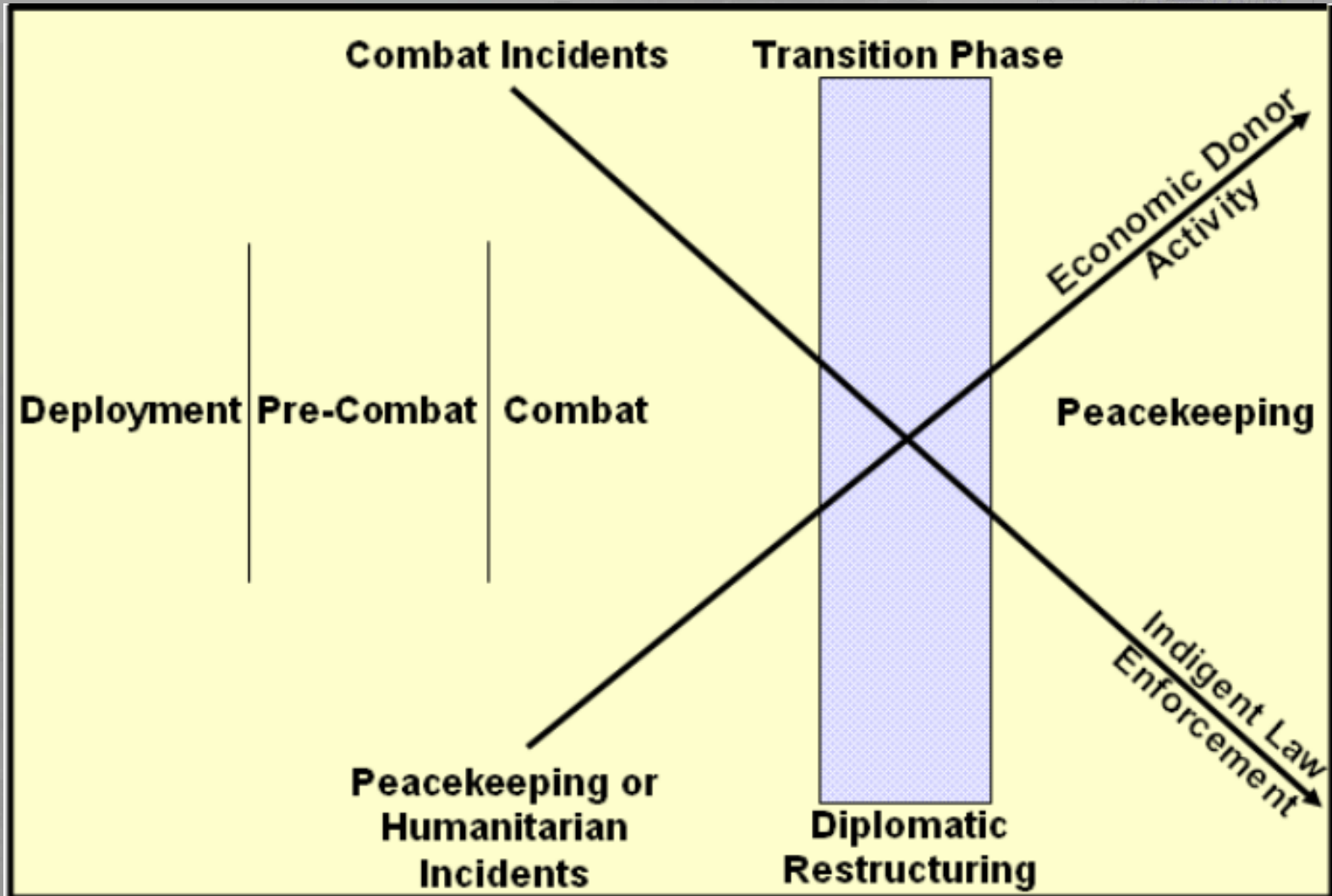
The 'Band of Political Economy'



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The Scenario Design Continuum





The Scenario Design Continuum

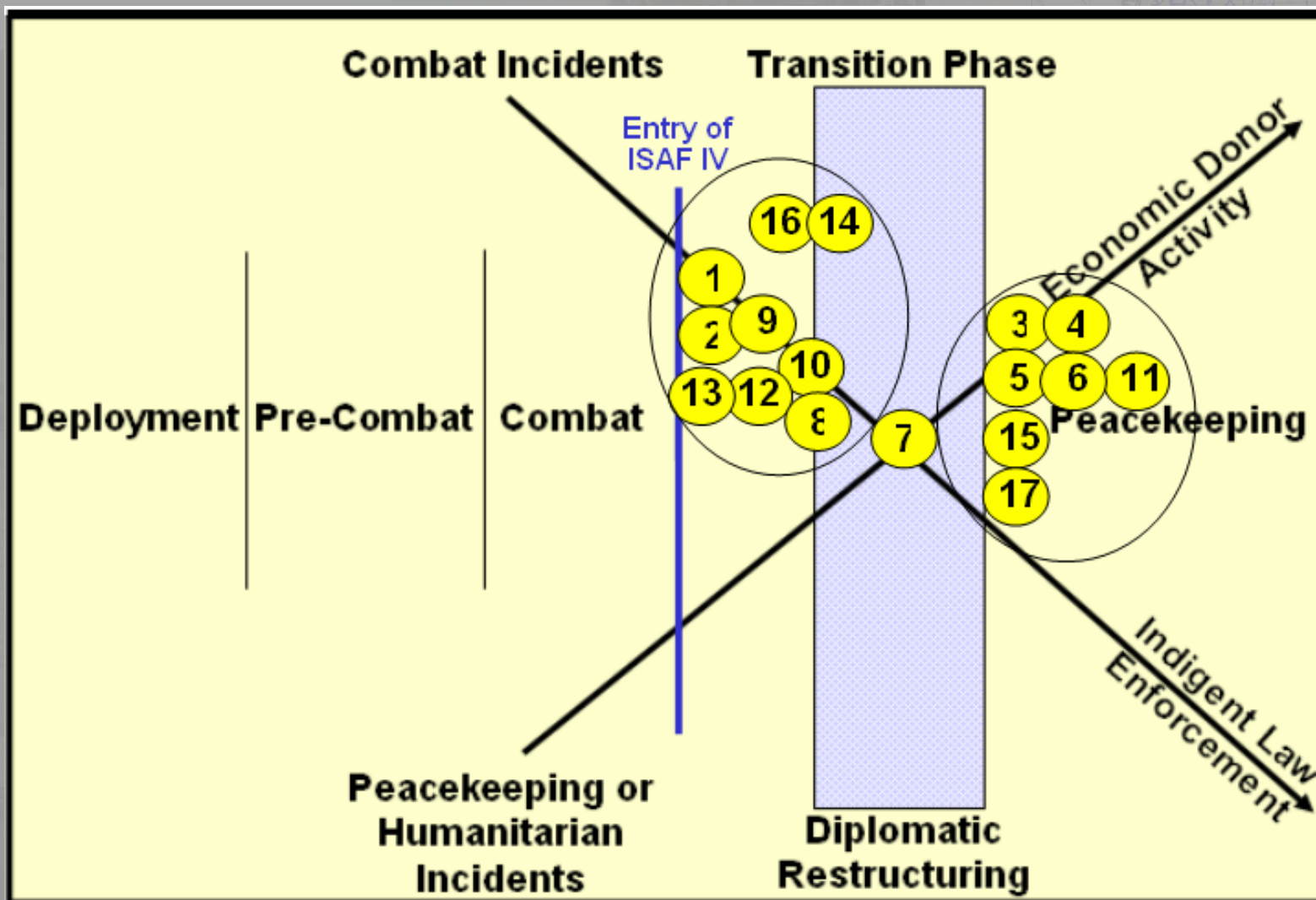


Inject Themes

1. Attacks on base camps
2. Interface with warlords
3. Coup of Afghan Transitional Authority
4. React to and control riots
5. Evacuation of civilian agencies inside AO (NEO)
6. Emergency extraction of ISAF HQ
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13. Interface with IO/NGOs
14. Afghanistan campaign plan vs. ISAF
15. Poppy season
16. Conflicts with JTF 180 (CENTCOM)
17. Security operations (reporting and event logs)



The Scenario Design Continuum





Writing the Scenario



Little's Laws of Scenario Writing:

- Never do it too close to HQ (their boss will find a better use for their time; checking e-mail takes hours)
- Build in turmoil – A civilian calling anywhere in your HQ 'spoke to your HQ.'
- 'How come the only message that passes efficiently through a HQ is a fire evacuation or bomb threat?'
- The most significant reporting originates in the most unlikely of places, use chaplains, lawyers, budget officers
- Every incident is tied to reach a training objective
- There is always time to do it right when your General spots the exercise design flaws

