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PACOM JIOC – Business Process Model

by

Gordon Schacher, Richard Kimmel, Douglas MacKinnon

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Daniel Oliver
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This report was prepared by:

Gordon Schacher
Professor Emeritus

Richard Kimmel
Research Associate

Douglas MacKinnon
Research Associate Professor

Reviewed by:

Released by:

Dan Boger, Chairman
Information Sciences Department

Karl Van Bibber
Vice President and Dean of Research

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1.0 INTRODUCTION

The Joint Intelligence Operations Centers (JIOC) are “the primary intelligence organizations providing support to joint forces at the operational and tactical levels. The JIOC integrates the capabilities of DNI Service, combat support agency, and combatant command intelligence assets to coordinate intelligence planning, collection management, analysis, and support” (Joint Pub 2-0).

The JIOC Information Technology (IT) Enterprise for 2010-2015 Initial Capabilities Document (ICD) envisions a network-centric, all-source ISR capability that enables data discovery, collaboration, and shared services among Combatant Commands (COCOMs), Military Services, Combat Support Agencies (CSA), the Intelligence Community (IC), and Multinational (MN) partners. The JIOC IT Enterprise will support COCOMs throughout the Range of Military Operations (ROMO) from the tactical to strategic levels. Thus, JIOC Enterprise IT requirements are specifically focused on enabling JIOCs to support COCOMs and their subordinates.

The JIOC objective is to direct and provide 24/7 intelligence support to theater forces and national customers. This includes:

- All source political/military intelligence
- Theater situational awareness
- Support to counterterrorism operations
- Targeting support
- Management of theater collection sensors and collection requirements
- Significant support is also provided to intelligence campaign planning, targeting, and theater engagement requirements.

The Under Secretary of Defense for Intelligence (USD(I)) established a governance structure to address COCOM JIOC information sharing needs. It oversees the design, implementation, sustainment, and future improvement of the JIOC information sharing enterprise to support the COCOMs as outlined in the April 2006 JIOC Execute Order. The JIOC information sharing enterprise includes the combination of technology, policies, capabilities, processes, and data standards needed to provide interoperable, net-centric intelligence, surveillance, and reconnaissance (ISR) capabilities for joint and coalition forces.

USD(I) and the Director, Enterprise Integration & Info Sharing (Joint Staff J262) tasked the Naval Postgraduate School (NPS) to research JIOC enterprise operations and construct a baseline Business Process Model (BPM) to document the JIOC organization structure, activities, and information flow. The model is intended to support JIOC investment strategy decision making. The Pacific Command (PACOM) was selected for this analysis because of its stable and productive JIOC structure with key attributes that include:

- Continuous collaboration between J2, J3, J5, Components, and Allies for
 - Planning
 - Analysis
 - Operations

- Intelligence operations generate a proactive vice crisis response environment
- Intelligence focus is support for operations
- Flexible and agile – quick to respond

1.1 PROJECT OBJECTIVE

Understanding current JIOC interoperability issues that affect the conduct of joint operations - technical and process – is critical for the successful planning and eventual transition to the next generation JIOC enterprise. The purpose of the JIOC BPM study is to provide an operational-level analysis/assessment that will be used as a baseline in support of subsequent JIOC Governance Board enterprise planning, organization improvement, and investment strategy decisions.

The development phase of this project included the following:

- Work with PACOM JIOC personnel to determine their current structure and practices
- Develop a JIOC baseline Business Process Model (BPM) based on PACOM practices of
 - organization structure
 - operational activities
 - information flow
- Develop and document JIOC baseline architectures via
 - DODAF OV-5 operational activity structure
 - Organization swim-lane activity architecture
 - DODAF OV-6c operations threads

PACOM interviews and the references listed in Appendix B were the primary sources of information for this project.

Phases of the project are intended to support the JIOC Information Sharing Enterprise Board efforts to:

- Oversee the design, implementation, sustainment and future improvement of the JIOC information sharing enterprise
- Implement an open JIOC governance process that drives national-to-tactical intelligence sharing and interoperability capabilities
- Support the DIA Architecture Working Group and the PACOM architecture effort

NPS past support to Joint Staff J2 for JSBA interoperability studies will be extended to:

- Provide support and develop a means to assess JIOC implementation progress
- Support JIOC architecture team development efforts
- Compare implementation with the JIOC CONOPS
- Compare implementation across COCOMs
- Identify capability gaps that impede reaching FOC

1.2 PACOM JIOC IMPLEMENTATION OVERVIEW

PACOM JIOC achieved initial operational capability (IOC) on 1 January 2006. The organization consists of two principal entities: Directorate for Operations (DO) and Directorate for Strategies & Resources (DS). DO processes are the primary focus of this effort.

The DO contains:

- Operations Division
- Four Geographic Divisions (Geo-Div)
 - China
 - Northeast Asia
 - South Asia
 - Southeast Asia
- CT Coordination Cell
- J2X (HUMINT)

The Operations Division is responsible for the JIOC Watch, for maintaining the COP infrastructure, and for the Red COP

The Geo-Divisions are the primary organizational elements and provide the following for their Areas-of-Responsibility (AOR):

- Focused analysis
- Analytic planning
- Tactical and strategic situation awareness
- Targeting support
- AT /FP / CT analysis
- Tactical and operational intelligence support
- Collection and production requirements
- Emerging issues alerting

Each Geo-Division has a 24/7 operational intelligence watch stander. The JIOC Watch provides oversight for the 24-hr operational analysis required for real-time support for the Pacific war fighters. Watch personnel monitor critical intelligence focused primarily on theater geo-political and operational military activities and provide support, as required, to the PACOM Joint Operations Center (JOC).

Organizational elements (non-administrative) are located at both Pearl Harbor (Makalapa) and Camp H.M. Smith, HI. In addition a small contingent of JIOC personnel are strategically positioned in theater to provide direct support for JIOC operations, and a CONUS reserve element provides surge capabilities.

PACOM JIOC utilizes Intellipedia, which is the intelligence community (IC) initiative for collaboration using wiki technology. Wikis', such as Intellipedia and Wikipedia on the Internet, allow users to start, edit, add to or change information at any time. The primary online information interface to the command is the PACOM JIOC Intellipedia Portal on both SIPRNET

and JWICS. The PACOM theater intelligence community is encouraged to collaborate with the JIOC through Intellipedia.

1.3 PACOM JIOC END STATE

As discussed in the PACOM JIOC CONOP, at full operational capability (FOC), intelligence is always available and interwoven into all other aspects of PACOM operations and plans. This requires an agile and flexible workforce that can easily shift priorities as world events dictate. This also requires a dedicated element with an eye towards the future to ensure that PACOM JIOC priorities, needs, and interest are articulated and represented. The Business Process Model (BPM) produced under this study provides the baseline needed to help promote key improvements in both process and technical capabilities. Emphasis will be continually placed on integration of intelligence, operations, and plans to increase speed, power, and combat effectiveness of PACOM operations.

2.0 BUSINESS PROCESS MODEL (BPM) FUNDAMENTALS

2.1 GENERAL BPM DESCRIPTION

Business processes models focus on the performance of defined business activities. The components of the model are:

- Activities that are performed (here military operations activities)
 - Products that are produced by the activities (here information is the product)
 - People that perform the activities
 - Systems that are used to perform the activities
 - Procedures that are followed to perform the activities (here CONOPS, TTP, SOP)

Activities are the foundation of the model. The other four components shown are support for performing the activities and activity outputs. *The basic purpose for constructing a BPM is to have a useful and simple means for describing the overall process and for determining its quality, either qualitatively or quantitatively.*

A BPM allows one to connect overall business performance with individual activity capabilities. For example, consider collection of information in support of ship transit and port entry. Simplistically, the sequence of collection activities could be as follows. (This sequence is mentioned again in Section 2.4.)

Operation – force protection for ship transit and port entry

Supporting Collection Activities:

determine collection requirement >
request collection >
validate request >
approve collection >
task collection >
collect

The BPM architecture shows how these activities are connected. Through it one can determine the contribution any one of the supporting activities make to the operation.

Several methods can be used to build a BPM, all of which rely on some form of architecture. An architecture is a visualization of the activities and their connections, the connections being information exchanged by the activities. The particular architecture form used for the PACOM JIOC study is described in Section 2.3.

2.2 JIOC MODEL ASSUMPTIONS

As noted in Section 1, the purpose of this project is to describe JIOC intelligence activities. Acquiring intelligence information, analysis, assessment, and dissemination, and planning for carrying out those activities were the primary concentrations. Thus, this modeling effort focused on the components of the Operations Directorate (DO), not the Strategy Directorate (DS).

The bulk of JIOC analysis activities are carried out in the four geographic divisions highlighted in Section 1.2. Although these divisions have differences in their organization structure, they perform the same activities. Because the same activities across each Geo-Division (Geo-Div) are conducted, the model does not treat each division separately but rather incorporates a generic Geo-Div swim lane. If there were differences in Geo-Div performance, and one wished to examine how their structure contributed to the differences, they would have to be considered separately.

PACOM components and its coalition partners are organizations outside of the JIOC boundaries but collaborate with JIOC personnel across the organization in many activities. There are differences in component and coalition activities, but enough similarity that their representation was treated as the same during in this model. As with the geographic divisions, if the model needed to account for differences in components and/or coalition partner performance, component/coalition command and analysis activities would be included independently.

PACOM activities are managed by the J-codes, J2, J3, J4, J5, and J6. This project is mainly concerned with J2 and J3 activities and they are included separately in the model. Coordination activities across the J-codes are lumped together and with the activities of the Joint Council of Colonels Board (JCCB).

PACOM interacts with many national-level organizations and agencies. These are lumped together into two swim-lanes in the model, one for command/oversight activities and one for analysis activities. Where needed, activities are ascribed to the organization that performs them.

2.3 JIOC BPM ARCHITECTURE DESCRIPTION

Three (3) depictions of the business processes are represented in this study – DODAF OV5, Swim Lane diagrams, and operational sequence diagrams (OV6c). The OV5 and Swim Lane depictions are shown in detail for the PACOM JIOC in Section 4. In addition, the OV6c's are included in Section 5 below.

First Depiction: The first depiction is a DODAF OV5. The OV5 defines the basic activity structure on which the BPM is built. It is built on five principal ISR and operations Activity Categories:

- Guidance, Focus, and Tasking
- Collection
- Operations
- Watch / COP
- Analysis, Assessment, and Distribution

Within each principal Activity Category is a set of Activity Types (see the OV5 in Section 4), and within each are the activities that are carried out by the JIOC and other organizations with which they collaborate.

E.g., Category – Operations
 Type – Targeting
 Activity – Target Validation

This specific structure is not the only one that could be used; activities could have been arranged in a different structure. This structure is used because it is simple, easily understood, and efficiently captures the full set of JIOC activities.

Second Depiction: The second architecture depiction is the swim-lane diagram. It contains:

- Processes (activities) that are executed
- Activities sequence
- Information produced and exchanged by the activities
- Organizations that perform the activities

In the swim-lane diagram each lane is an organization. The activities it performs are denoted by labeled boxes in its lane. The label identifies the activity by the action it takes, and also denotes the information it produces. Arrows between the activity boxes show the operations sequence. The JIOC diagrams and a complete description of the graphic presentation are given in Section 4. The complete model is shown in Appendix A.

The following are the performing organizations (swim-lanes) used in this architecture.

National / Agencies
 Intelligence Agency Analysis
PACOM Commander
 PACOM J2
 PACOM J3
 Joint Operations Center (JOC)
JCCB / J-Codes
JCMB and JCWG
Senior Intelligence Analyst (SIA)
 Red Team
Operations Directorate
 Counter-Terrorism Coordination Cell
 Operations Division
 Requirements Management
 Targeting
 GCCS, KM, (and includes RSC)
JIOC Watch
Geographic Division
 Operations
 Ad-Hoc Team
 Counter-Terrorism Specialists
 Collection Manager
 Analysis
J2X
Component / Coalition Command
 Component / Coalition Plans and Analysis

The ordering of the swim lanes in the architecture diagram is close to, but not exactly the same, as the above order. Order changes were done for graphical convenience (so the diagram would be less complicated).

Third Depiction: The first two depictions show what is done and the activities that are performed. This depiction shows how these activities are executed to accomplish a purpose. The diagram is referred to as the DODAF OV6c. An OV6c diagram shows the sequence of activities and the organizations that perform the activities on a simple chart (see Section 5). They typically represent an operational thread, a sequence of activities that are performed to accomplish a particular operation. A sequence of collection activities that spanned the determination of the requirement through collection execution was shown in Section 2.

There could be a following sequence for exploiting the collected information. Alternately, one could combine collection and exploitation into a single OV6c which might be entitled “collection information”. And this would be a portion of the more complete Intelligence Preparation of the Battle-space (IPB). An OV6c can contain as much or as little of a complete operation as is needed.

OV6c diagrams are derived from the swim-lane diagram. They select the particular sequence of activities that make up an operation from the complete activities set contained in the swim-lane diagram. They are particularly useful for designing tests to determine operational capabilities.

2.4 BPM ARCHITECTURE EMPLOYMENT

A BPM architecture is of little use in itself. It is produced for a purpose. Primarily it is used to understand a process, which is normally followed by development of means for process improvement. The following lists uses for the JIOC architecture to meet JS J2 and DIA needs.

2.4.1 Baseline for Understanding and Comparing Organizations

The JIOC is a relatively new intelligence operations construct that is being implemented across the DoD. Because of mission differences and other factors, implementation is not equal across all commands. The PACOM JIOC architecture can be used as a baseline for understanding implementation, comparing, and uncovering differences.

It is to be expected that there will be differences in JIOC effectiveness at different commands. Possible reasons for differences are not discussed here. A means is needed to identify and correlate both implementation and effectiveness differences at the activity level. The BPM architecture enables doing that and also provides a ready means for visualizing the results.

2.4.2 CONOPS, SOP, and TTP

A common process architecture use is to aid in CONOPS, SOP, and TTP development. One can use the sequence of activities and their implementation to determine if concepts and procedures are in conformance with actual performance. As an example, in PACOM, the Joint Collection Working Group is attended by all J-Codes. This is a specific concept for collection management that may or may not be in current CONOPS.

Comparisons go in both directions. One can use the architecture to determine if a particular organization's JIOC implementation is in conformance with established CONOPS.

Comparisons or development can also be done at the procedures level. OV6c diagrams along with the systems used give direct links between SOP and TTP and procedures at the operational and tactical levels.

2.4.3 Experiment/Test Development

We address here operational capabilities testing, not system capabilities tests. Testing operational capabilities requires that a sequence of operational activities be executed. One has to ensure that the activities executed will produce results that address the question being asked. There are a number of question types that can be addressed. E.g., does use of a particular system improve operations, are personnel sufficiently trained, are the procedures effective, etc.? In all cases, an operational activity, or sequence of activities, has to be executed. The BPM architecture, including an appropriate OV6c, is used to identify the appropriate activities.

2.4.4 Understanding Gaps

Deficiencies in operational capabilities have reasons. These reasons are expressed as gaps. Gaps come in many flavors: systems, personnel, procedures, etc. Identifying cause and effect is not easy; doing so is aided by using process architectures. The architecture provides a direct correlation between an operational activity, or sequence of activities, and the identified operational capabilities gap.

In addition, using the architecture in experiment/test development provides an efficient means for designing tests to determine whether proposed gap solutions could produce the desired results.

This report does not present capability gaps, which are often classified. However, several unclassified challenges or barriers to PACOM JIOC operation identified during this study are discussed in Section 6.

2.4.5 JCIDS

JCIDS is the methodology used by DoD for making and proposing procurement decisions. A step in the process is to validate a requirement and also to demonstrate that the solution proposed

has potential for success. Using a BPM architecture to illustrate how a system would support an activity and address a particular shortfall is an efficient means for providing validation of the procurement proposal.

2.4.6 Status Visualization

There are many types of status:

Systems

- Capabilities provided
- Efficiency of use
- Support for operational activities
- Interoperability

Personnel

- Numbers sufficiency
- Capability
- Training adequacy

Processes

- Does it work, provide the required output
- Efficiency
- Conformance with organization structure

All of the above contribute, ultimately, to the operational capability. Of primary interest is:

How well can a military operation and/or activity be executed?

Making the connection between operational capability and the status cues noted above and making cause-and-effect connections is not easy. But, doing so is central to all of the above discussions of BPM use.

The architecture does not develop status results. It provides an aid to determining how to develop those results. It also provides a means for providing status information in an easy to access manner, with easy visualization. Figure 2.1 illustrates how this can be done.

Figure 2.1 illustrates the depiction of a sequence of activities for a particular operation type through the access of the information. Any depiction that allows easy access to the desired information can be used. The same status information archive would be accessed regardless of the depiction used.

One could utilize:

- Special depiction as shown in Figure 2.1
- Full or portion of the OV5
- OV6c for the operation sequence
- Full swim-lane diagram or portions as shown in Section 4

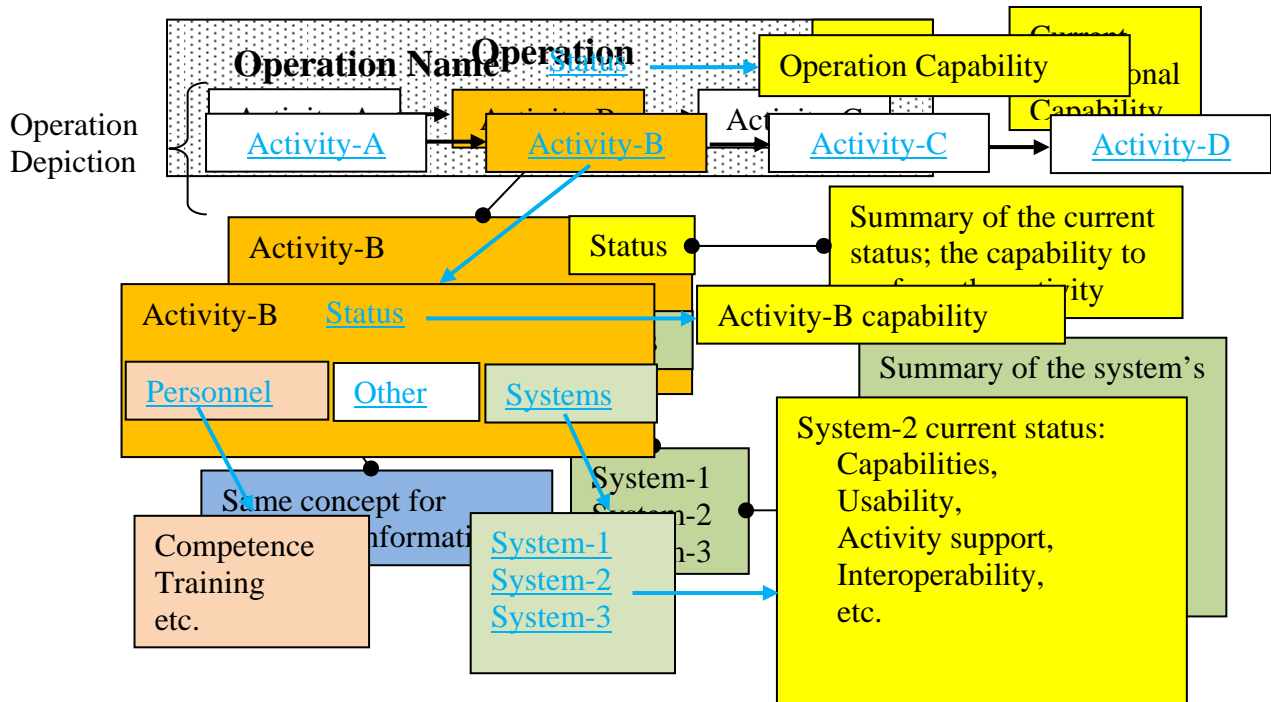


Figure 2.1 Architecture Visualization Access to Status Information

Figure Key:

- Operation Depiction: any depiction that includes a box for each activity needed
- Status: links to current capabilities information from the archive
- Blue Underlined Text and Blue Arrows: links to underlying information
- Orange Activity-B Box: intermediate links to next level of information
- Systems Links: links to information for each of the systems supporting the activity
- Yellow Boxes: displayed information from the archive

Status information would be contained in a database and is accessed by links in the architecture boxes. Changing the information in the database automatically updates the status information that is accessed. This full construct can be implemented in the NPS FIRE knowledge management system.

2.4.7 Simulation

A simulation is an executable model that is based directly on the architecture. It is created by setting up a means to time step through a sequence of activities. Development of a simulation requires establishing parameters for the activity blocks and a rule set for how activity performance depends on the parameters. Simulation results are produced by time stepping through the activities to determine overall operation's performance. The work is in providing parameters and rules that realistically represent operations and activity performance. The number of rules and parameters can become very large. This topic is not addressed further in this report.

3.0 PACOM JIOC IMPLEMENTATION

PACOM JIOC is an organization that focuses on multiple missions from supporting current military and NGO operations to maintaining archived intelligence information. This requires a great deal of flexibility in both current work and how the work is executed. The workforce is empowered and performs on the underlying premise that everyone can make decisions and that those decisions may impact the entire organization. The staff understands who needs the knowledge and information created and they are empowered to share that knowledge or information to whoever needs it within applicable security guidelines.

PACOM has a definite goal and an effective strategy for JIOC implementation. Their philosophy is best summed up by the statement of the Deputy J2: "...the JIOC doesn't produce intelligence products; it produces products for operations..." In accordance with the EXORD, the PACOM JIOC significantly integrated the activities of J2, J3, J4, J5, and J6.

Many PACOM intelligence and operations activities are accomplished through collaboration vice traditional stovepipes. Personnel have been re-distributed to implement this collaborative environment. The following is not a complete organization description. What is provided are a few brief narrative descriptions of integration strategies and how they are executed. Descriptions are provided for:

- Collection Planning
- Geographic Division Operations
- The Watch
- Intelligence Support Requests
- Intelligence Focus Development

3.1 COLLECTION PLANNING

Collection planning is integrated within the Geographic Divisions (Geo-Div) rather than being managed by a separate organization. The components of the process are:

- Geo-Div Collection Managers (and their Component and Coalition counterparts)
- Collection Hub
- Joint Collection Working Group and Joint Collection Management Board

Within each Geo-Div, analysts and imbedded collection managers collaborate to establish current collection needs (also collaboration with Component and Coalition analysts).

The Collection Hub belongs to the Operations Division, but sits in one of the Geo-Divisions. It is responsible for developing the collection plan. Collection Managers confer continually with the Collection Hub. The collection plan is being built continually during this three-way collaboration, analyst, manager, Hub, rather than a build/submit process.

During the collection plan building process the Components and Coalition partners are also building their local plans. These plans are available to PACOM planners and are a continual part of the collaborative process.

The Joint Collection Working Group (JCWG) meets once a week to assemble the official week's collection plan. This is a fully integrated board, including members from all of the J-codes, the Components and Australia. Board membership is such that analytic collection requirements, operations needs, command priorities, and resource availability are all represented. Formal plan approval upon JCWG completion is by the Joint Collection Management Board (JCMB).

During all phases of the planning process, and after approval, all components of the collection process have complete visibility into its state and can provide input.

3.2 GEOGRAPHIC DIVISION OPERATIONS

The Operations Directorate contains the Operations Division, four Geographic Divisions, the Counter-Terrorism Coordination Cell, and J2X (which is HUMINT and not discussed here). Operations Division "owns" personnel who are assigned to work in the Geographic Divisions, such as Collection Managers, Targeteers, and Image Analysts. Their work is fully integrated into the Geo-Divisions.

The CT Coordination Cell remains an organization that works directly for the Operations Division. However, its duties are only to coordinate CT across PACOM. CT analysts have been integrated into the Geo-Divisions and do their work there. POLMIL and CT are integrated activities in the Geographic Divisions.

Each Geo-Div has its own full complement of intelligence specialists that work on division AOR assessments. This includes intelligence-type specialists, threat specialists, POLMIL, and image analysts. Each division also has agency imbeds who participate in analysis and assessment.

The important aspect of Geo-Div organization is that each has the full complement of planners and analysts needed for their operations. They don't rely on external stovepipe organizations to carry out their activities. They can collaborate both horizontally at any time over any issue. Intelligence requests can go directly to analysts or through hierarchical channels. Analysts can, and do, generate intelligence requirements and propagate them throughout the organization. Analysts and the watch are in 24/7 communication and can act on any established issue or alert the organization to emerging issues.

3.3 THE WATCH

There are two principal watch organizations, the Joint Operations Center (JOC) and the JIOC Watch. The JOC maintains and provides the COP and the JIOC Watch provides the Red COP (often referred to as the Common Intelligence Picture, the CIP). The Operations Division owns the JIOC watch and provides an intelligence representative on the JOC floor.

Each Geo-Division has a watch stander on the JIOC Watch floor. They maintain the Red COP for their Division's AOR. Watch standers are in 24/7 contact with their Division analysts. Emerging operations issues and emerging intelligence concerns are addressed immediately, and can be communicated directly to the JOC.

JOC, JIOC Watch, and Geo-Division analysts are collaborating continually. Intelligence concerns can be passed immediately to operations, and operations needs communicated to intelligence to be addressed. Real-time intelligence and operations are integrated rather than J2 and J3 operating as connected stovepipes.

3.4 INTELLIGENCE SUPPORT REQUESTS

There are both formal and informal paths for requesting intelligence support. The "Guidance and Intelligence Focus" and "Analysis and Assessment Tasking" pages of the BPM both show formal paths. (See Section 4) Guidance and tasking come down from the Commander and J2, through the Senior Intelligence Analyst (SIA).

The "Analysis and Assessment Tasking" page and page 1 of "Analysis and Assessment" show informal processes. They are labeled Ad-Hoc Requests. These requests can come from anywhere in the organization. They are often communicated directly to the analyst, in which case they can be worked immediately. When they are received by the analyst they are also vetted and approved by the Geo-Division Operations. Broad generation of intelligence support requests provide an effective means for integrating operations needs into intelligence processes.

Analysts also generate Ad-Hoc requests from information they uncover, which represents approximately 80% of emerging/ad-hoc analysis requests.

The JIOC Watch is in 24/7 contact with analysts, as noted in the former sub-section. Emerging operational issues can be communicated and applicable intelligence information obtained and acted on in real-time. This link provides continuous collaboration between intelligence and operations.

3.5 INTELLIGENCE FOCUS DEVELOPMENT

The principal means for providing guidance for intelligence operations is the command structure, national command, Joint Chiefs, and PACOM Commander. The national intelligence community also generates requests. These requirements are turned into intelligence Focus Areas by J2, in collaboration with the other J-codes. This is a standard process, but with more collaboration outside of J2.

Focus Area recommendations are made throughout the organization, by each Geo-Div, by the watches, by the SIA, and by other J-Codes. The Morning Intelligence Briefing (MIB) is an important component of this process. This information is prepared for the J2 and there is broad participation across the command. This provides an opportunity for broad input to focusing intelligence operations. In addition, Intelligence focus is also provided by events. Blue operations, political circumstances in the AOR, natural events can all generate episodic or extended focus of information acquisition and analysis.

4.0 PACOM JIOC ACTIVITIES STRUCTURE AND BPM

This section presents the PACOM JIOC operational activities and their organization. The activities are organized into five Categories:

- Guidance, Requirements, and Direction
- Collection
- Operations and Information Sharing
- Watch/COP
- Analysis, Assessment, and Distribution

Figure 4.1 is the OV5 that incorporates this structure.

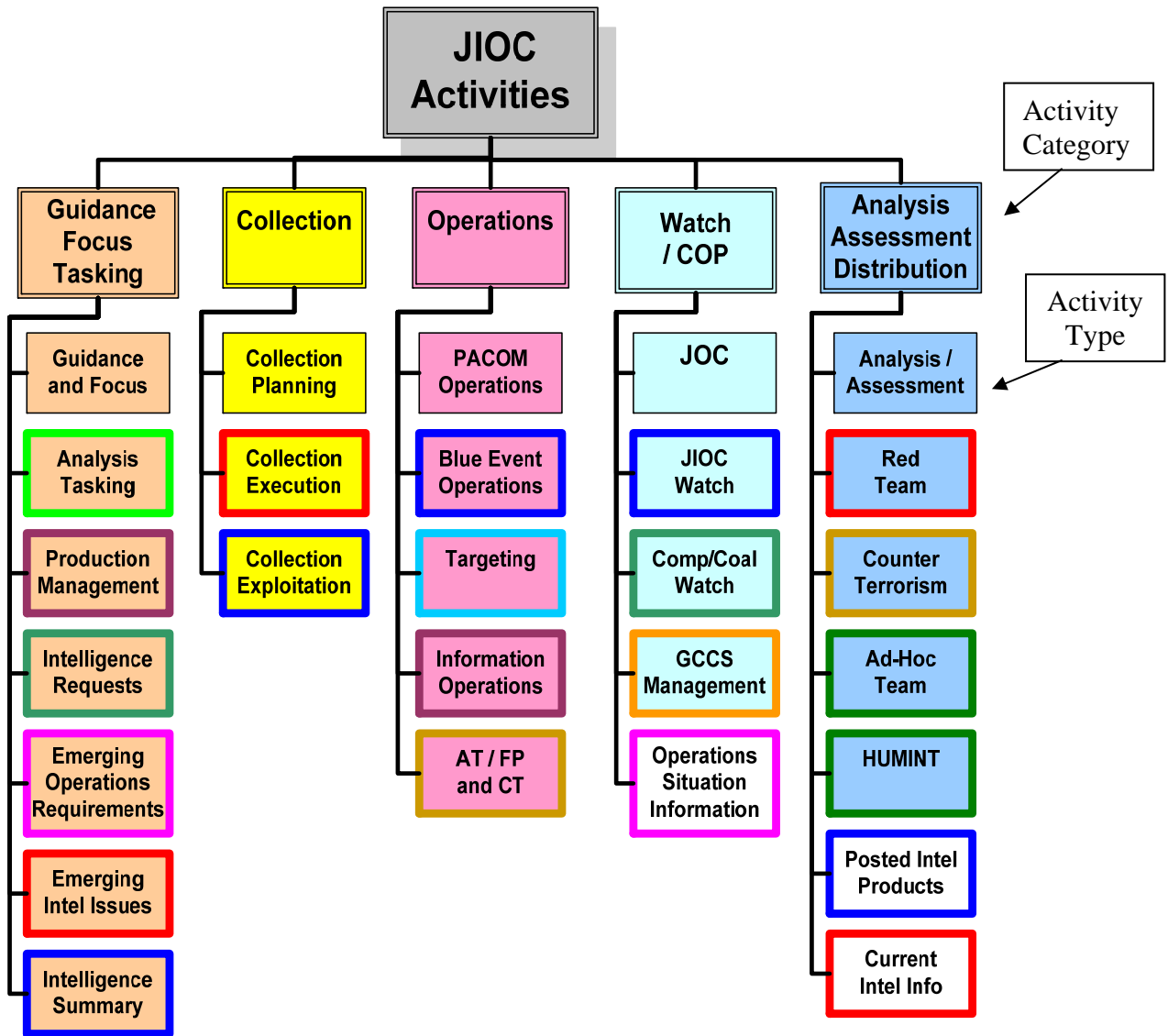


Figure 4.1 PACOM JIOC OV-5 Activity Structure.

The color code shown in the OV5 above is used in the swim-lane diagrams. The body color indicates the Activity Category and the outline color the Activity Type. The three boxes that are not colored are not Activity Types; they are types of information that are produced and used by activities.

Section 4.1 describes the swim-lane representation of the JIOC BPM. Section 4.2 contains a set of swim-lane diagrams for each of the above activity types.

4.1 SWIM-LANE DIAGRAMS DESCRIPTION

Swim-lane diagrams contain:

- Operational activities
- Organizations that perform them
- Information exchanged

With over 300 activities, each with one or more information exchanges, these diagrams become complex. Specific symbols and conventions are used to make them easier to follow. The conventions are shown in Figure 4.2.

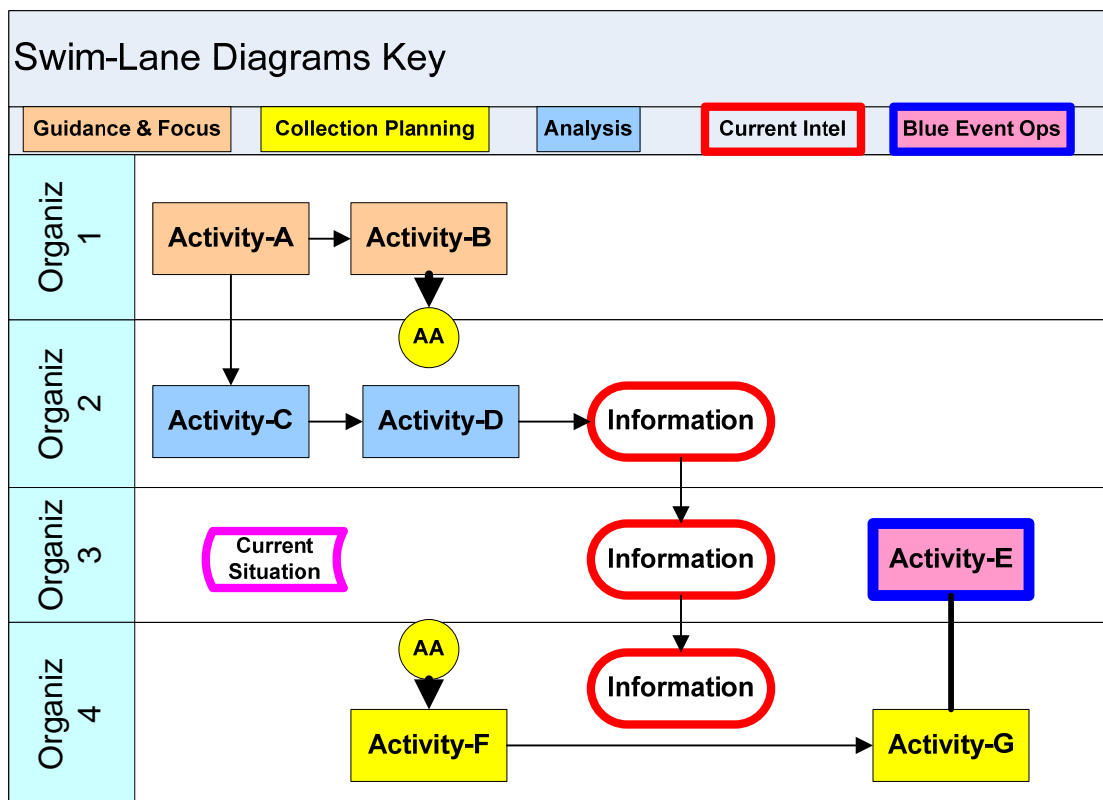
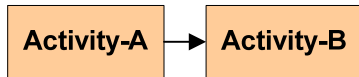


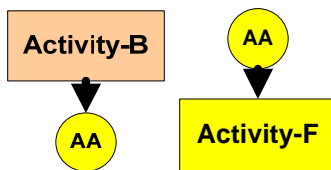
Figure 4.2 Swim-Lane Diagrams Symbols and Conventions

Swim-lane diagrams show the sequence of activities, but not the time when they occur. Time is only roughly left to right. E.g., even though Activities B, D, and F are at approximately the same place along the horizontal, there is no implication that they occur at the same time. Only the sequence is important. Activity D could be hours after Activity-E, but it must occur after Activity-C.



Operational Activity Blocks

- A box contains text that identifies the activity.
- The color coded boxes at the upper boundary of the diagram show that this is a Guidance and Focus activity.
- The header on a lane shows the organization that performs the activity, so A and B are both performed by Organization-1.
- The arrow shows that information that is produced by Activity-A is passed to on to Activities B and C for its use.
- The information that is passed is indicated by the title of the activity.



Information Throw and Catch (small circle)

Throw and catch are used in place of arrows because the complete diagram is too messy with only lines for information exchanges. They are little used in the smaller diagrams.

- Activity-B sends its output information to Activity-F.
- The information would be guidance for collection (color code identifies F as a collection activity).
- There can be more than one throw for a catch, and catches for a throw.
- The letter codes in the throw-catch have some logic, but are used only for identification.
- The color for the throw-catch indicates the principal activity-type involved.

Information

Information exchange

The function is different than the throw-catch circles.

- Throw-catch circles denote direct information exchange between two activities.
- Rounded rectangles denote information sent to an organization. It may be used by any activity, at any location, in the swim lane. There is no sequence associated with it. E.g., in Figure 4.2, the information can be used by either Activity F or G.
- In Figure 4.2 the information is sent to organizations 2, 3, and 4 for their use.
- Figure 4.2 shows that an analysis/assessment activity produces current intelligence information that is sent to the three organizations. It can be used for other assessment activities, for Blue event operations, or for collection planning.

Available or Archived Information

This is information that is available from current reports or an information archive.

- It may be used by any activity, at any location, in the swim lane.
- The text in the block indicates the information type, but not necessarily the source.

The full PACOM JIOC swim-lane diagram is presented in Appendix A. This section includes segments of the completed model, one for each of the activity types. The complete diagram and the segments are also on electronic media. Microsoft Visio is required to read the diagrams.

An electronic version can be obtained by contacting:

Richard Kimmel
Naval Postgraduate School
rakimmel@nps.edu
619.524.9571

Reading the Swim-Lane Diagrams

The Microsoft Visio diagrams have been pasted into Microsoft Word for this report. The diagrams in Section 4.2 can be easily read as-is from the printed version. The print version of large complete BPM diagram in the Appendix cannot be read from the printed page. However it can be opened in Visio from an electronic version of the report for reading or printing. If you have Visio on your computer:

Click on the diagram in the report.

This will open the document in Visio

You can then file the document or manipulate it as need.

4.2 ACTIVITY SWIM-LANE DIAGRAMS

Following are swim-lane diagrams for JIOC activity types. Some diagrams are too large to be contained on one page and the number of pages; the number of pages used is indicated in parentheses. The diagrams are as follows:

Activity Category

- Activity Type
 - General contents of diagram

Not all Activity Types have their own diagram. E.g., Intelligence Requests, Emerging Operations Requirements, Emerging Intelligence Issues, and Intelligence Summary are all contained within the other Activity Type diagrams. Immediately below is a list of the diagrams and contents, followed by the diagrams.

Guidance, Focus, Tasking

- Guidance and Focus
 - Command Requirements
 - Intelligence Summary
 - Recommendations from Emerging Requirements and Issues
- Analysis and Assessment Tasking

- Production Management

Collection

- Collection Planning
- Collection Execution and Exploitation

Operations

- Operations
 - PACOM Operations
 - Blue Event Operations
 - Spot Reports and Alerts
- Targeting and Information Operations
- Anti-Terrorism, Force Protection, and Counter Terrorism

Watch / COP

- Watch / COP (3)
 - COP Management
 - Track Management
 - Operations Situation Awareness
 - Emerging Events, Spot Reports, and Alerts
 - Event Coordination
- GCCS Management

Analysis, Assessment, Distribution

- Analysis and Assessment (3)
 - Information Access, Correlation, and Fusion
 - Operational Impact Assessment
 - Produce Assessments
 - Produce Special Request, Event, RFI, PR Products
- Red Team
- Ad-Hoc Team
- HUMINT
- Distribution (2)
 - Collection Exploitation
 - Force Protection and Counter Terrorism Alerts
 - I&W and Spot Reports
 - Critical Issues
 - Assessment Results
 - Intelligence Products
 - Foreign Disclosure
 - PR and RFI

The swim-lane diagrams follow in the sequence listed above. Figures 4.3 – 4.23 illustrate JIOC BPM swim-lane depictions for each activity type identified during this PACOM study.

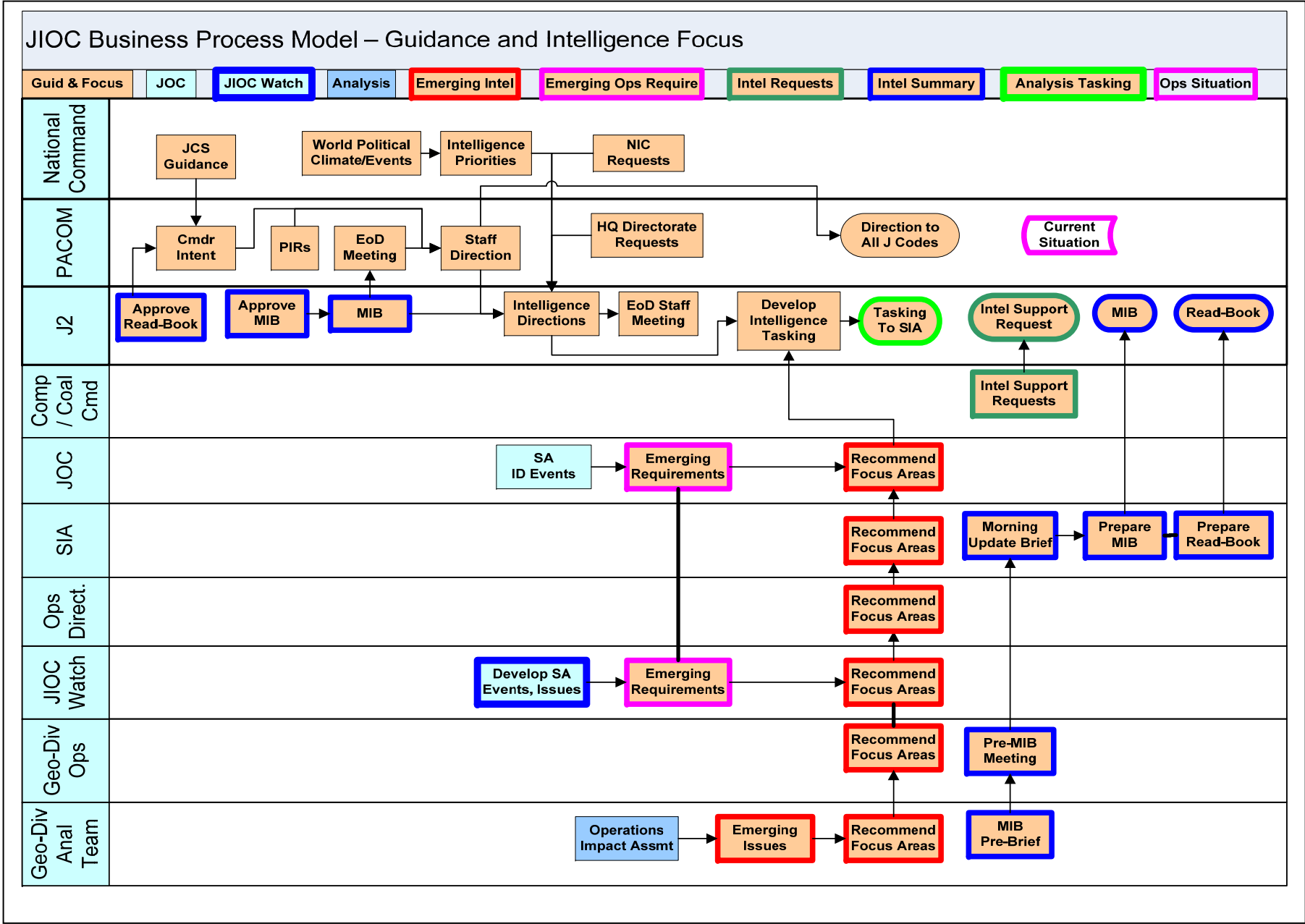


Figure 4.3 Guidance and Intelligence Focus

JIOC Business Process Model – Analysis and Assessment Tasking

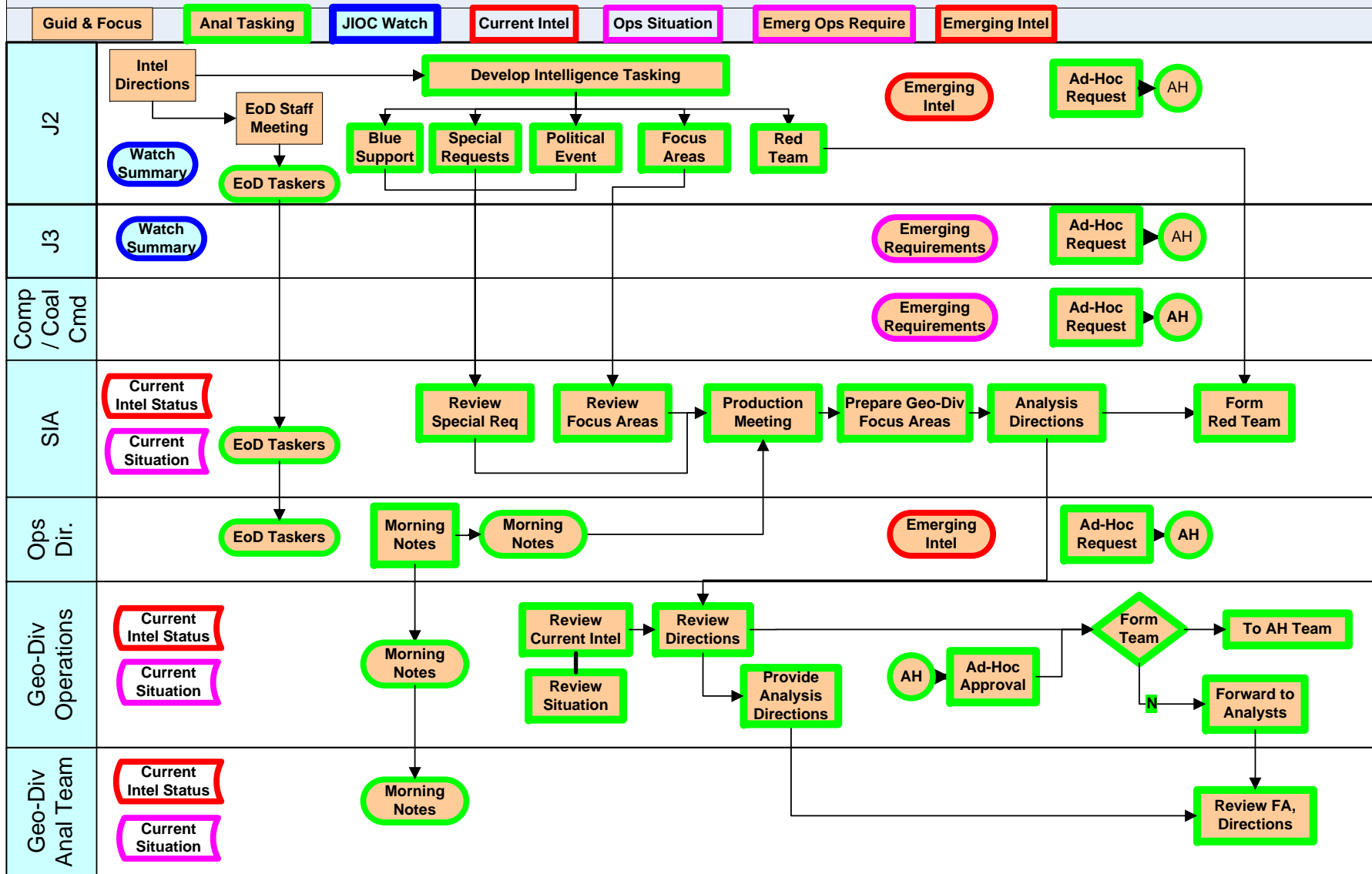


Figure 4.4 Analysis and Assessment Focus

JIOC Business Process Model – Production Management

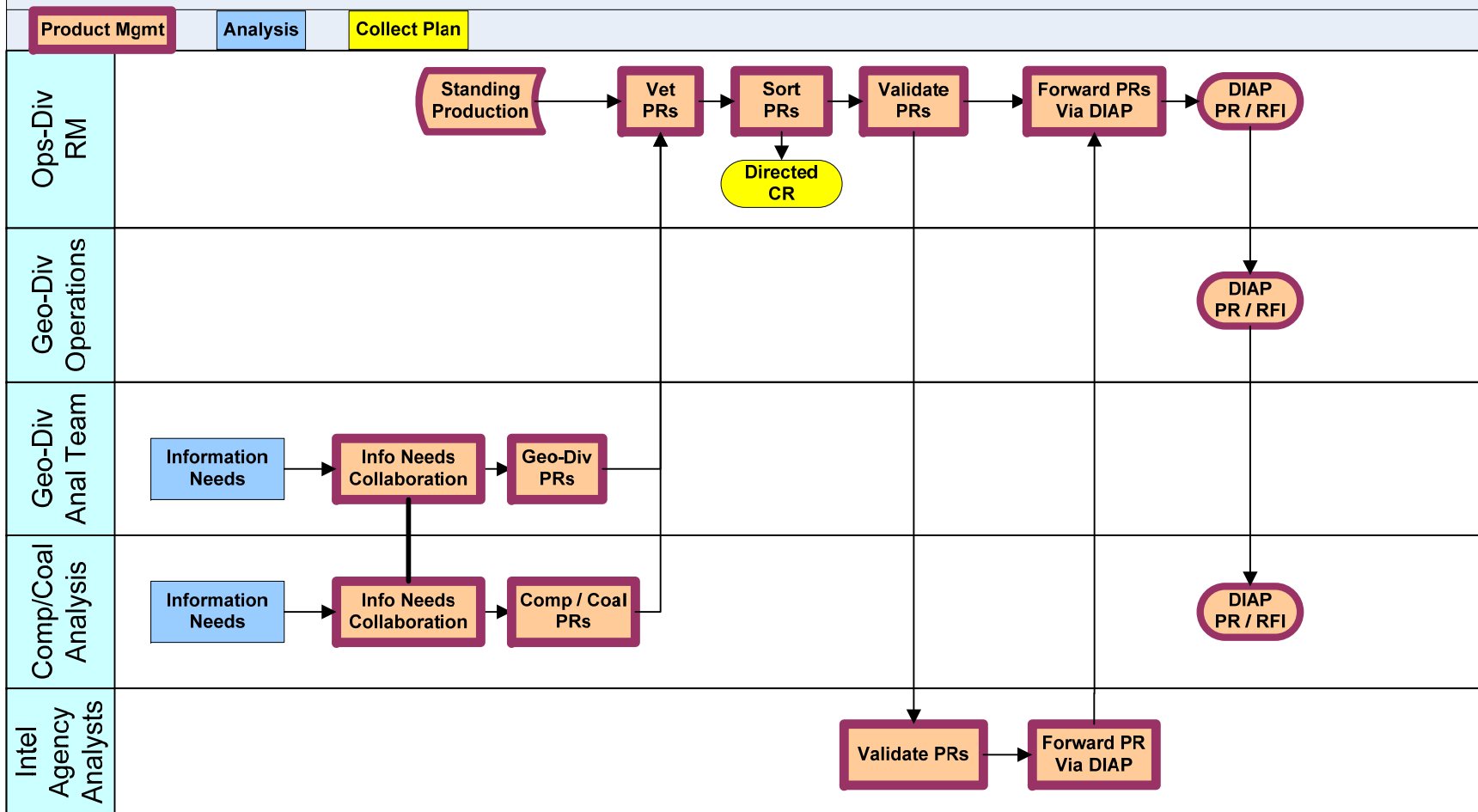


Figure 4.5 Production Management

JIOC Business Process Model - Collection Planning

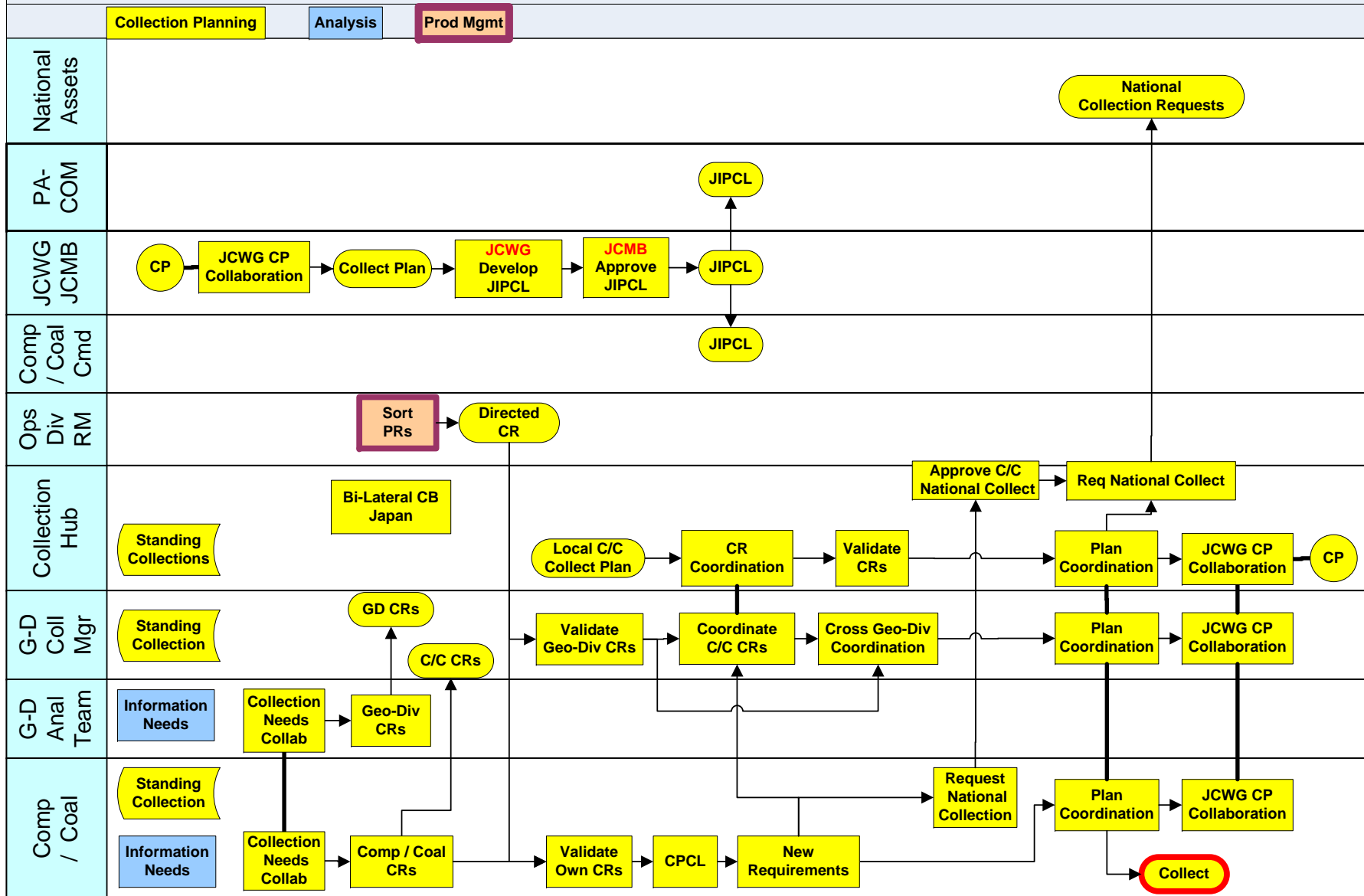


Figure 4.6 Collection Planning

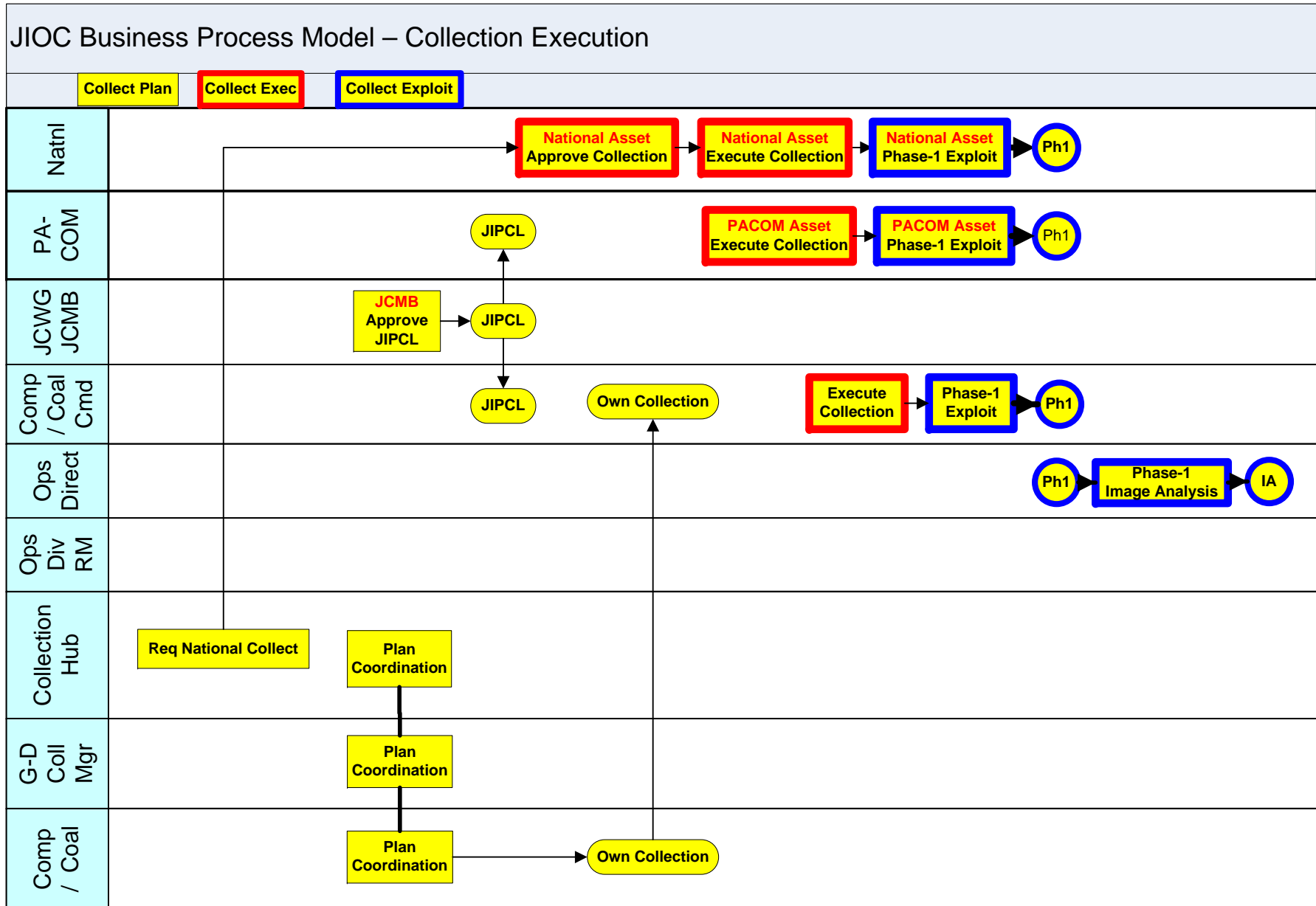


Figure 4.7 Collection Execution

PACOM JIOC Business Process Model - Operations

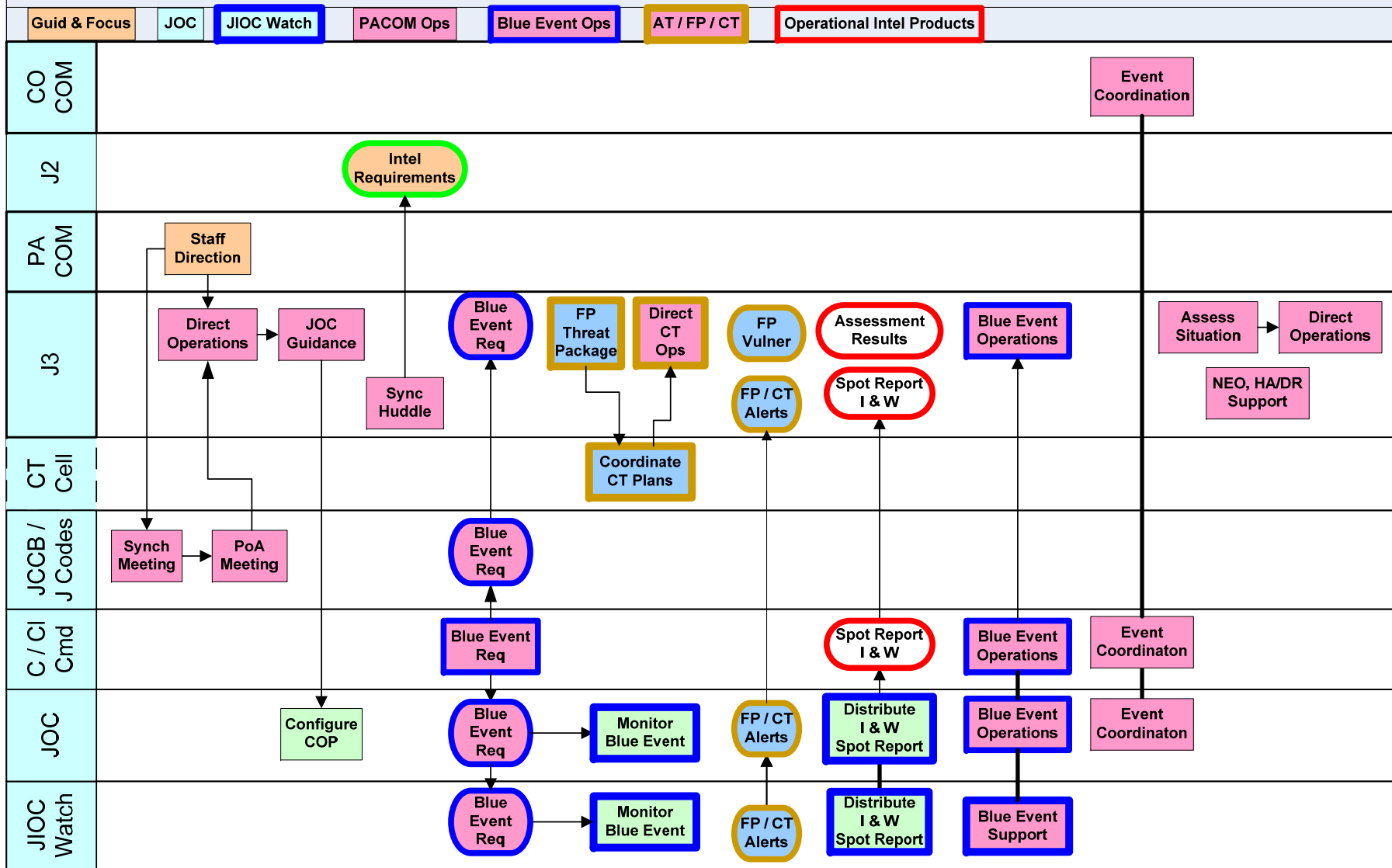


Figure 4.8 Operations

PACOM JIOC Business Process Model – Targeting and Information Operations

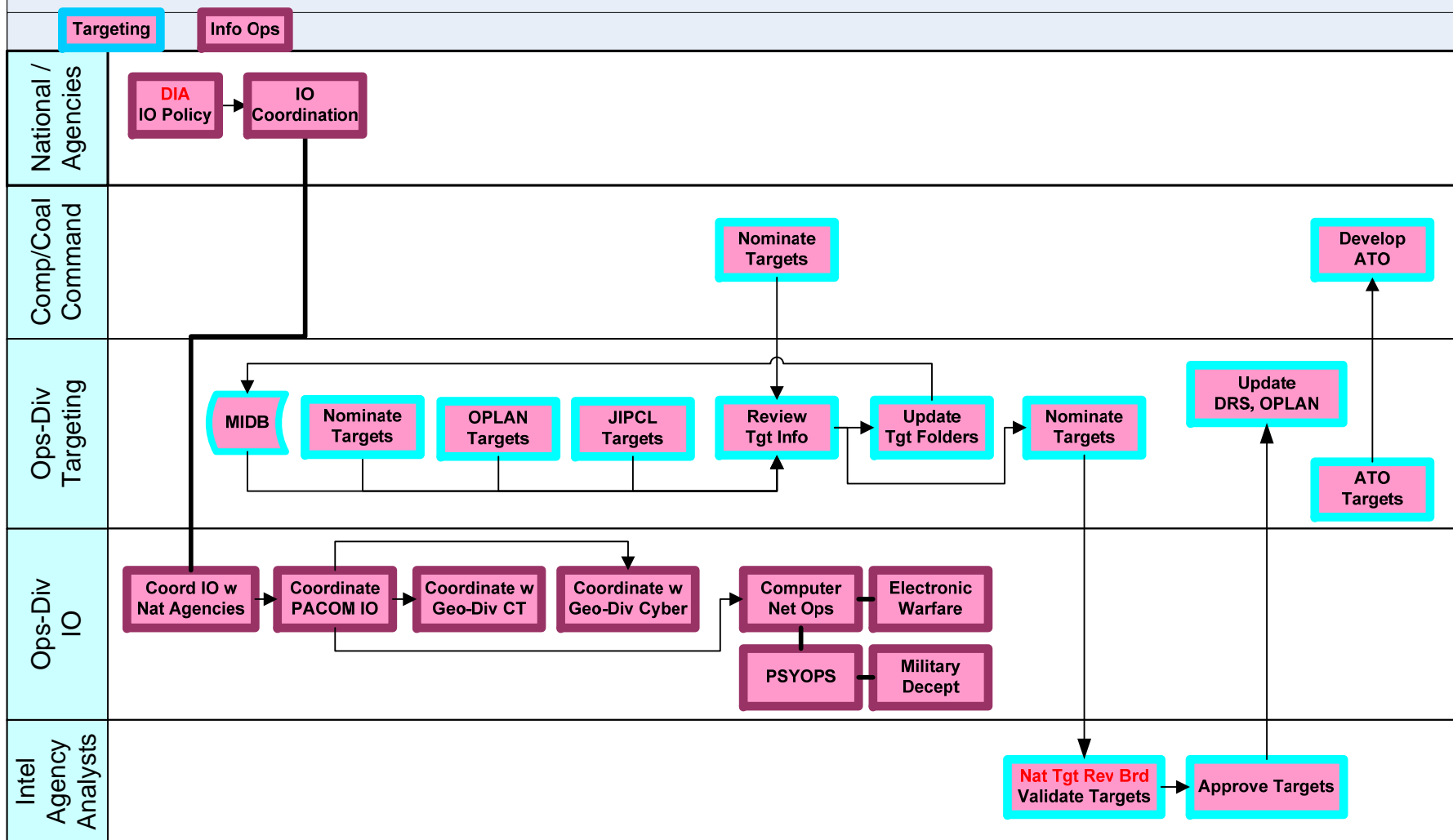


Figure 4.9 Targeting and Information Operations

JIOC Business Process Model – Anti-Terrorism, Force Protection, and Counter Terrorism

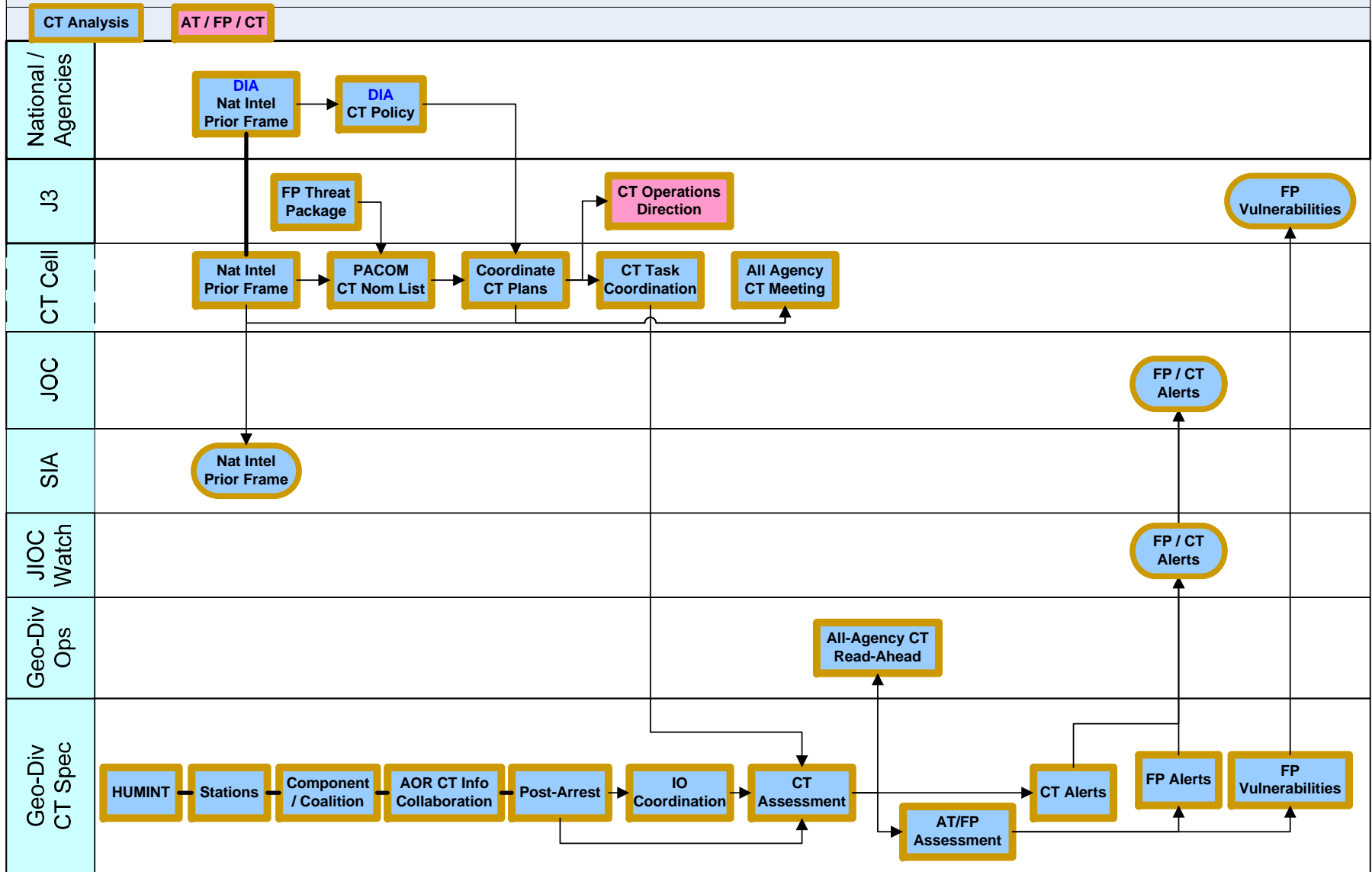


Figure 4.10 Anti-Terrorism, Force Protection, Counter Terrorism

JIOC Business Process Model – Watch / COP (1)

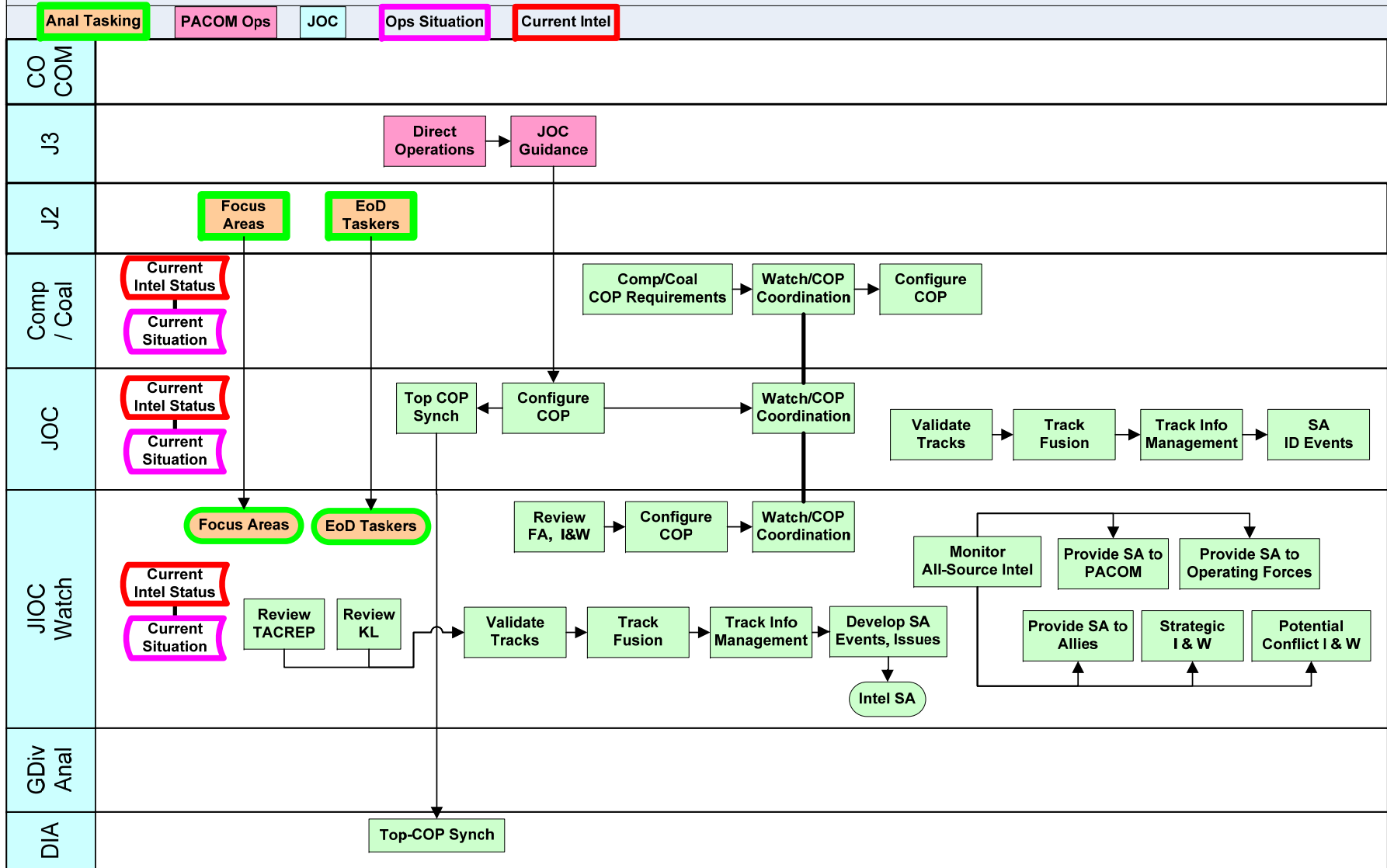


Figure 4.11 Watch/COP

JIOC Business Process Model – Watch / COP (2)

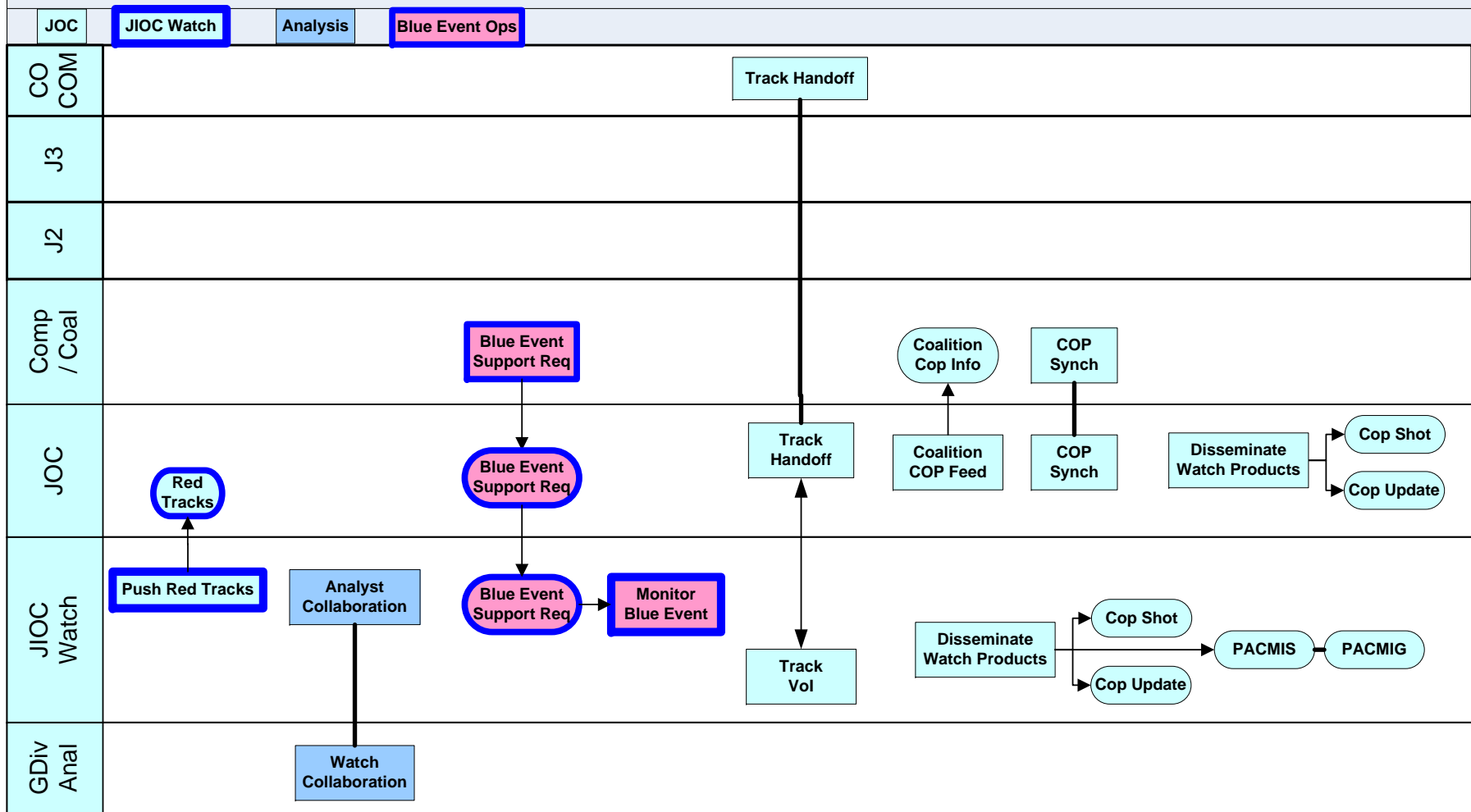


Figure 4.12 Watch/COP (2)

JIOC Business Process Model – Watch / COP (3)

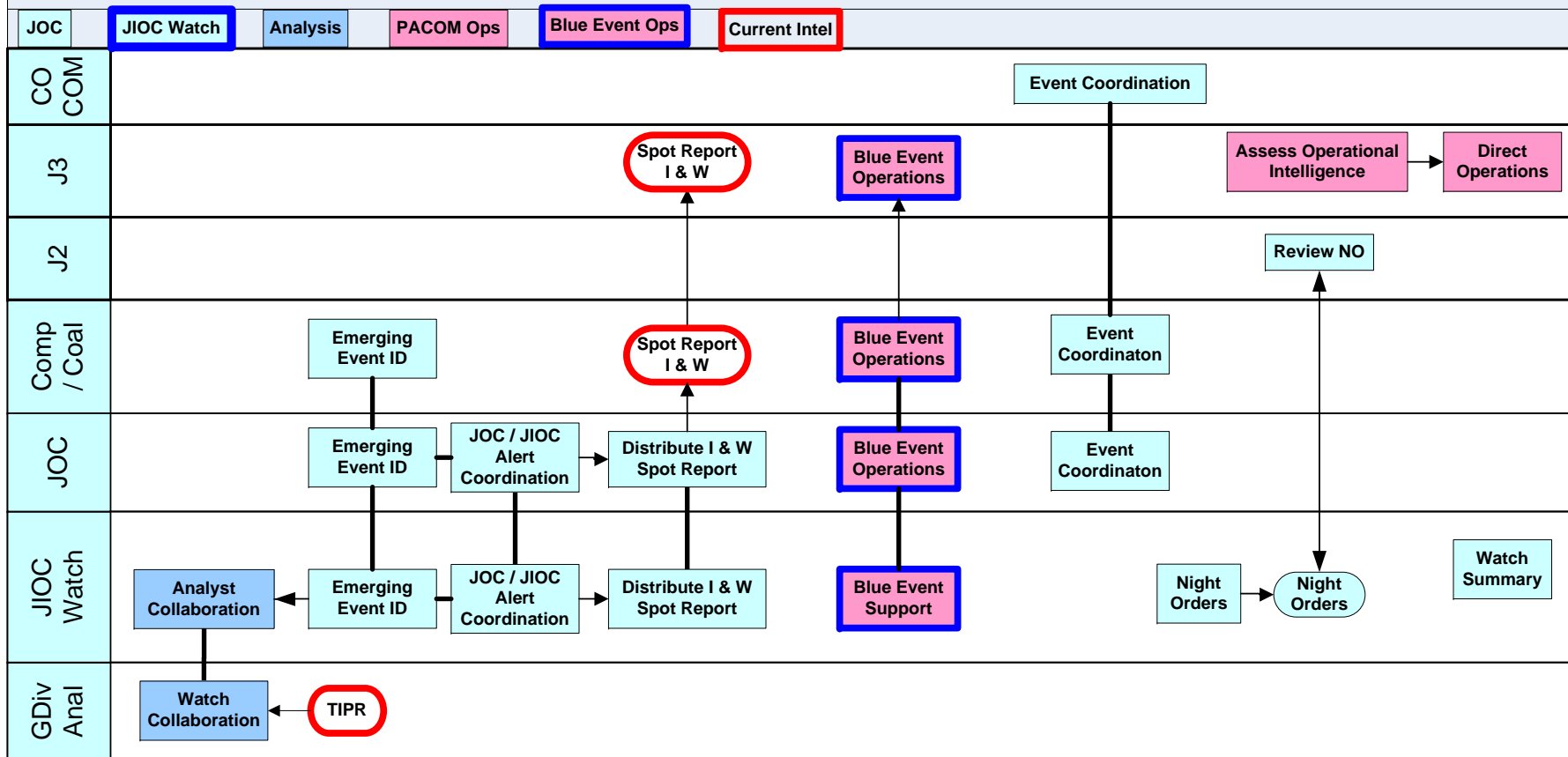


Figure 4.13 Watch/COP (3)

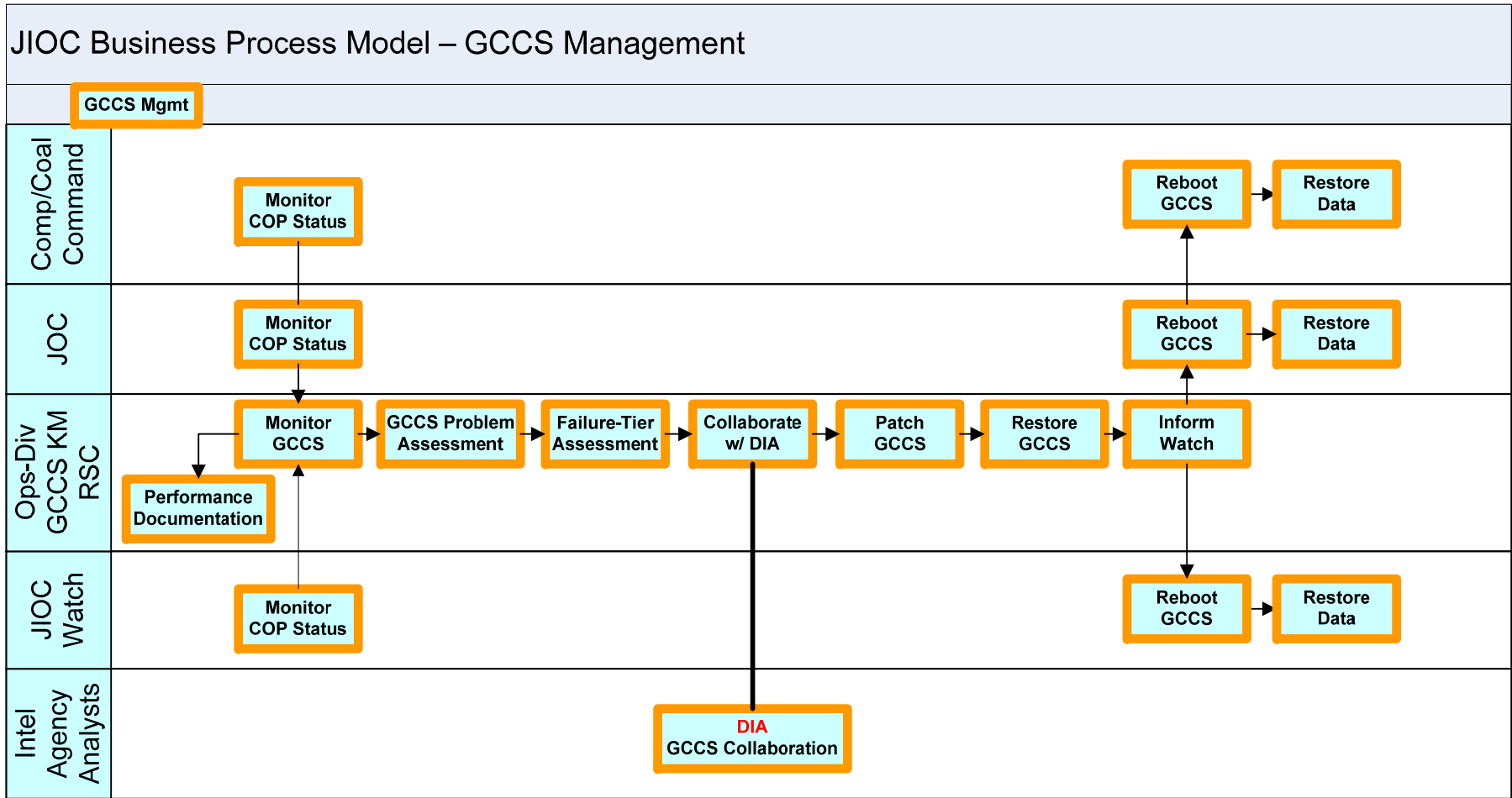


Figure 4.14 GCCS Management

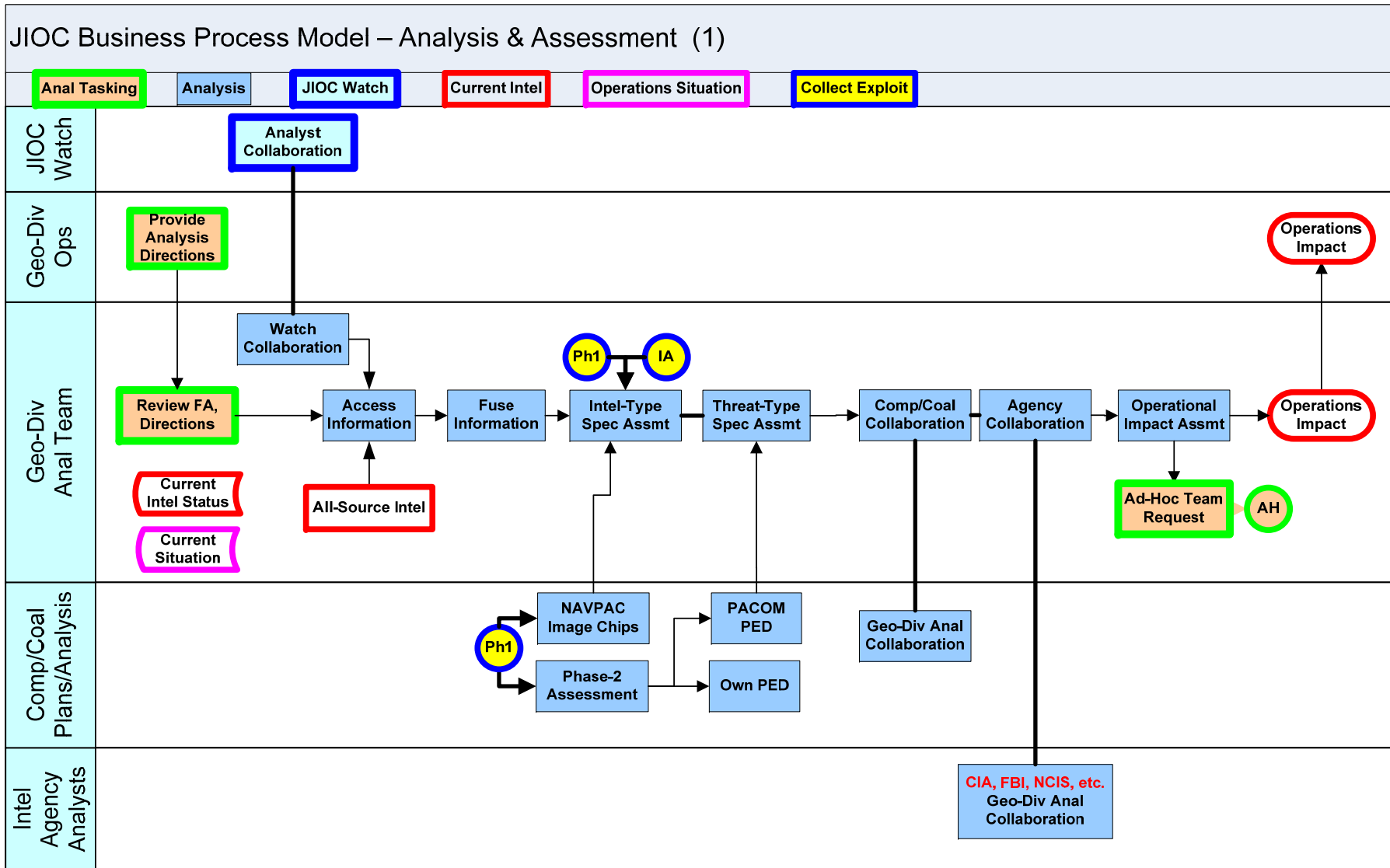


Figure 4.15 Analysis and Assessment

JIOC Business Process Model – Analysis & Assessment (2)

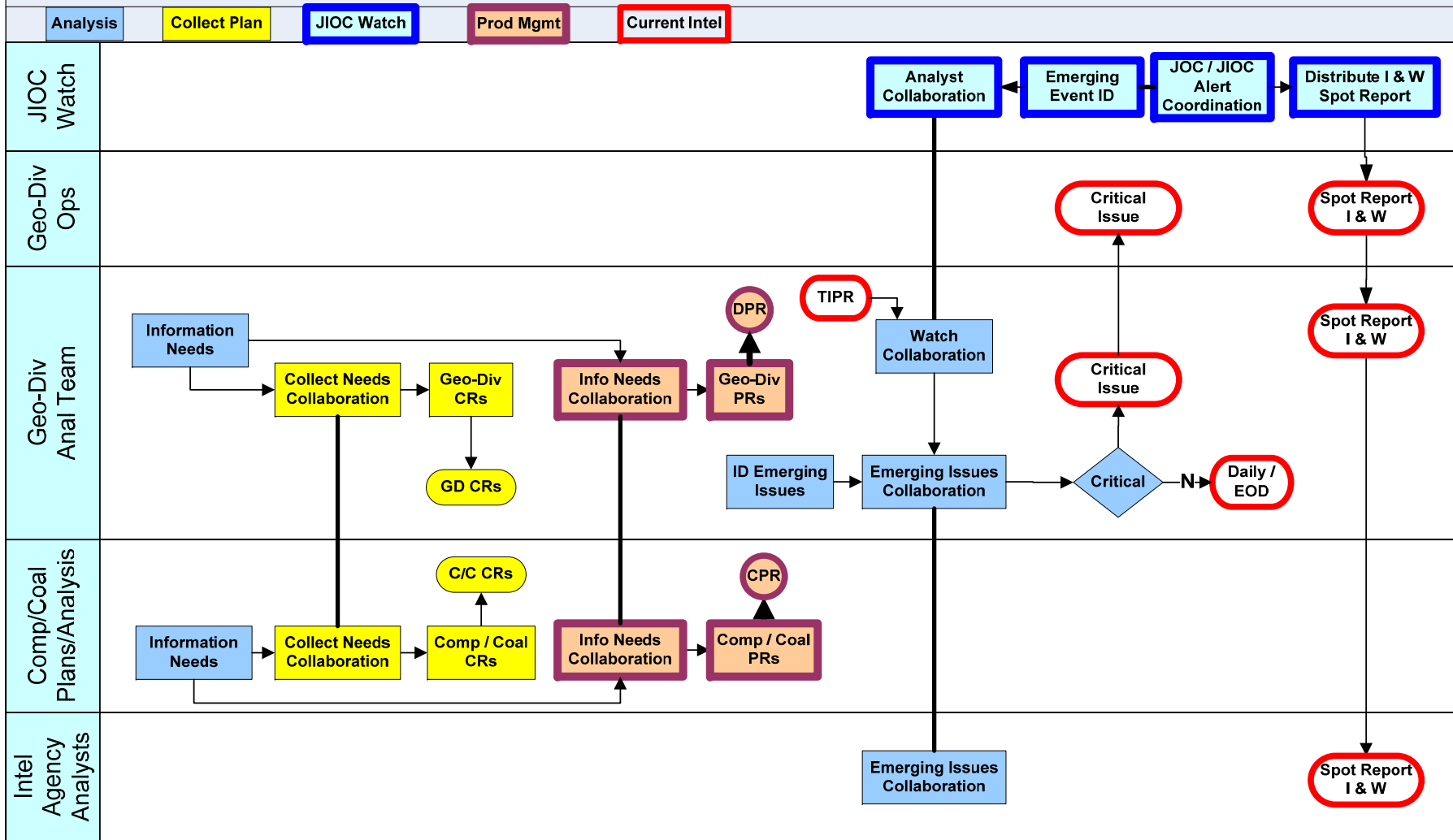


Figure 4.16 Analysis and Assessment (2)

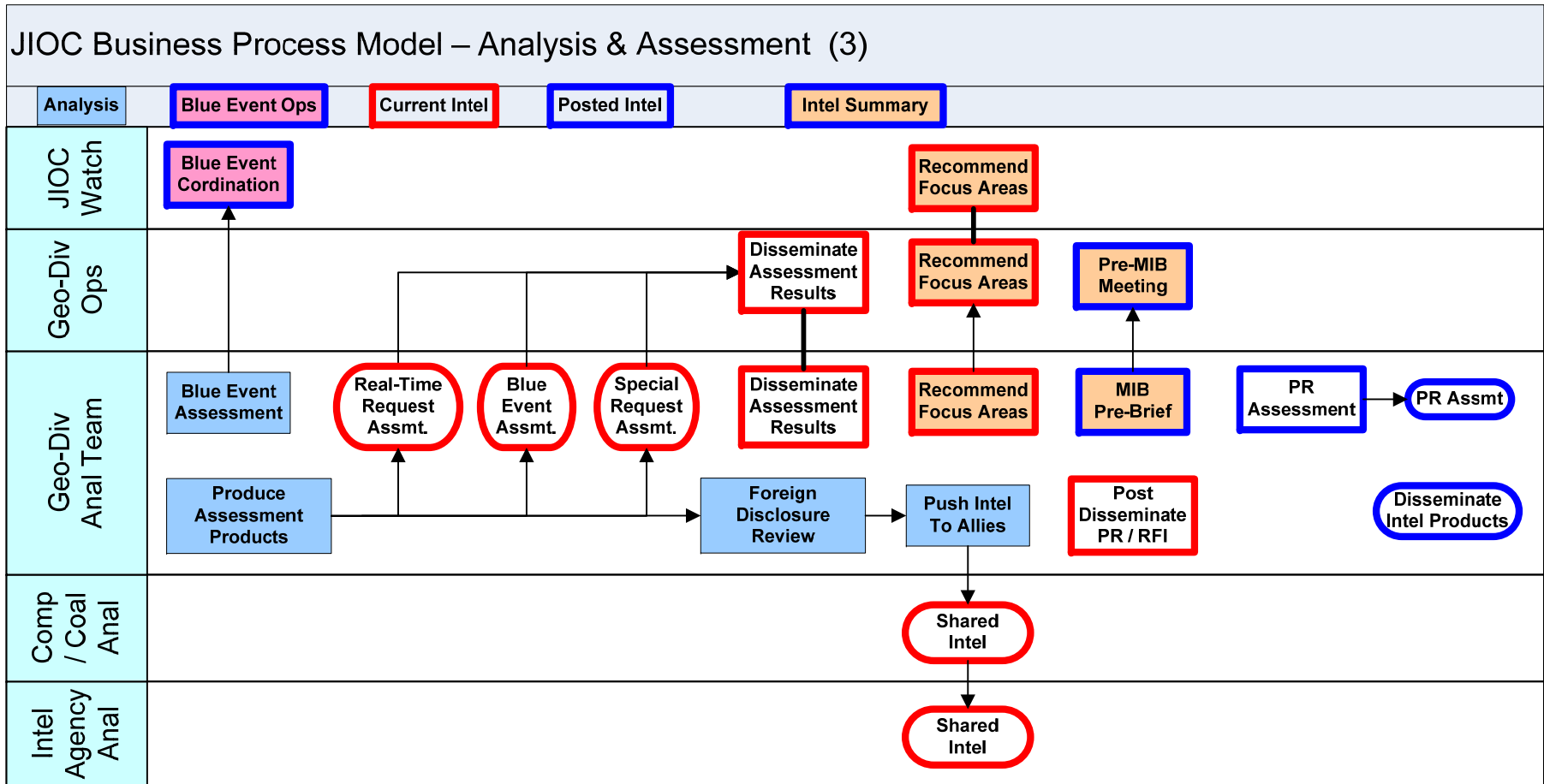


Figure 4.17 Analysis and Assessment (3)

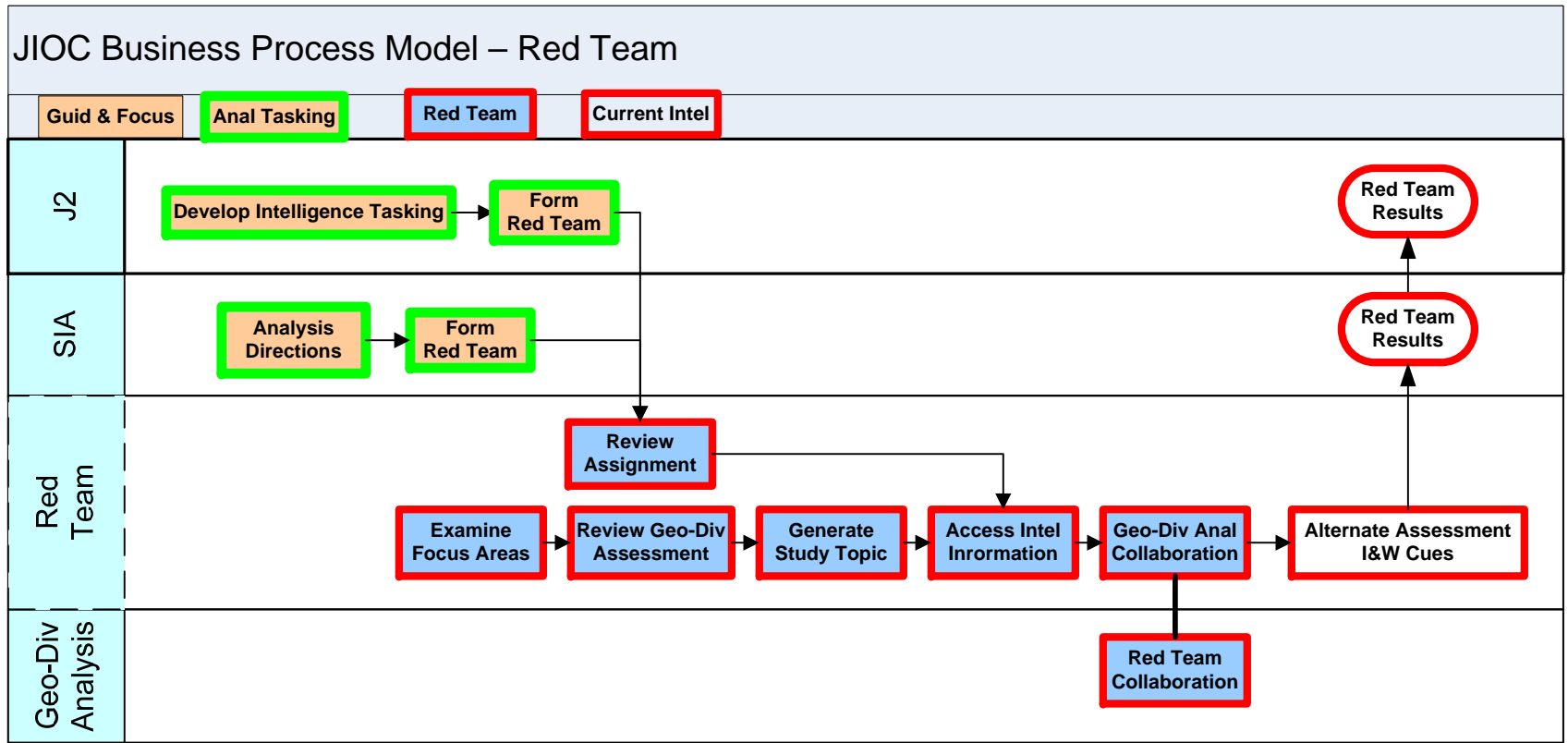


Figure 4.18 Red Team

JIOC Business Process Model – Ad-Hoc Team

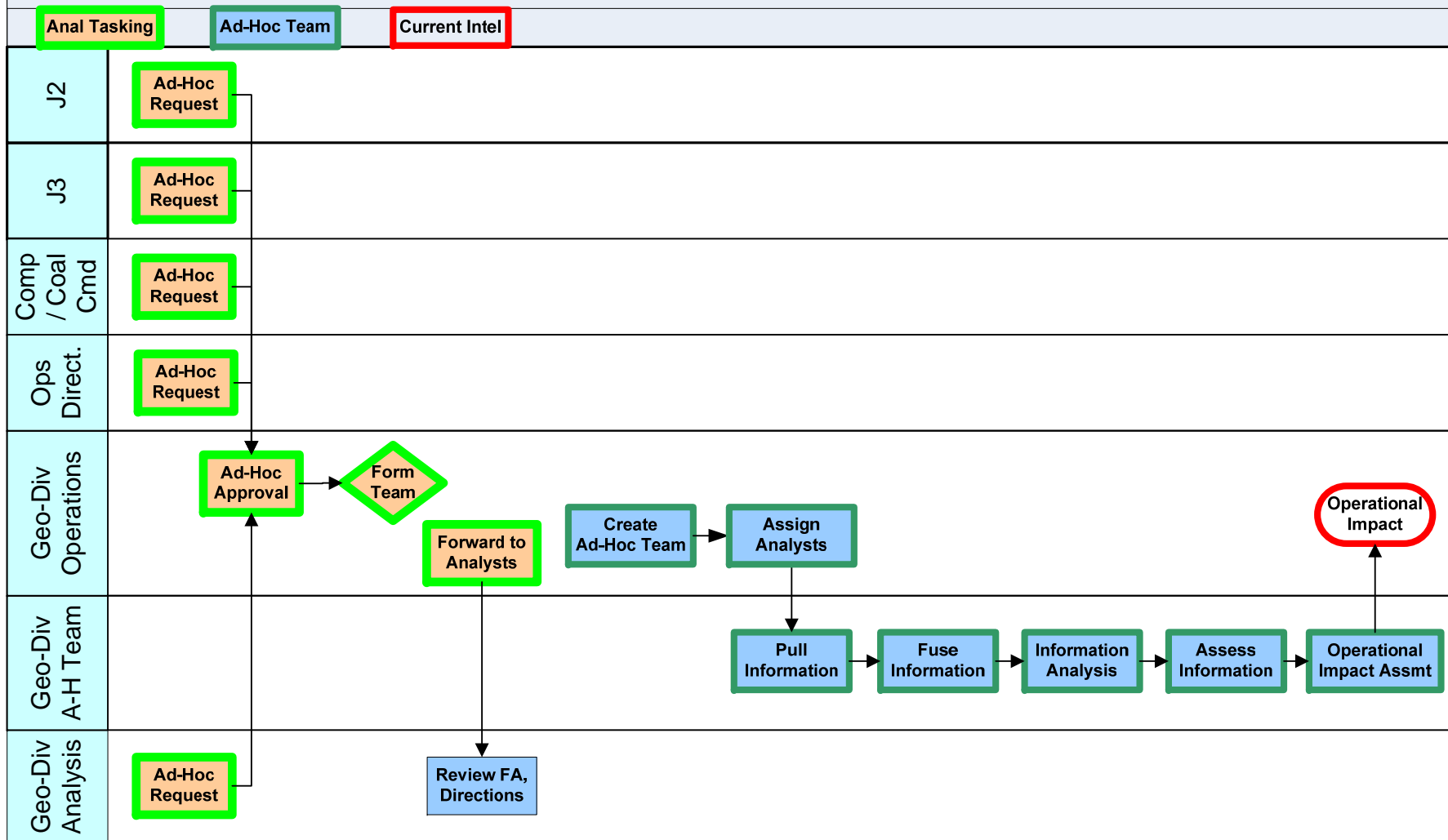


Figure 4.19 Ad-hoc Team

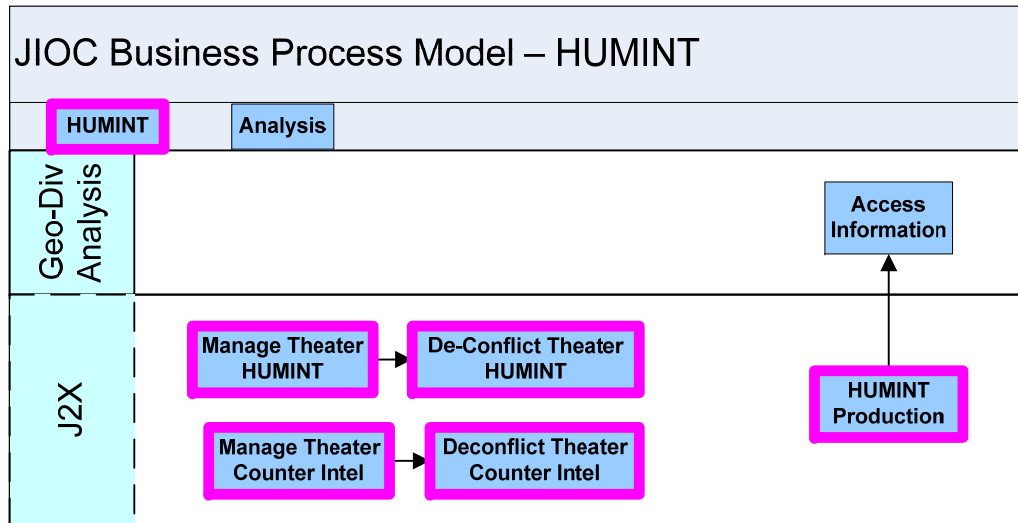


Figure 4.20 HUMINT

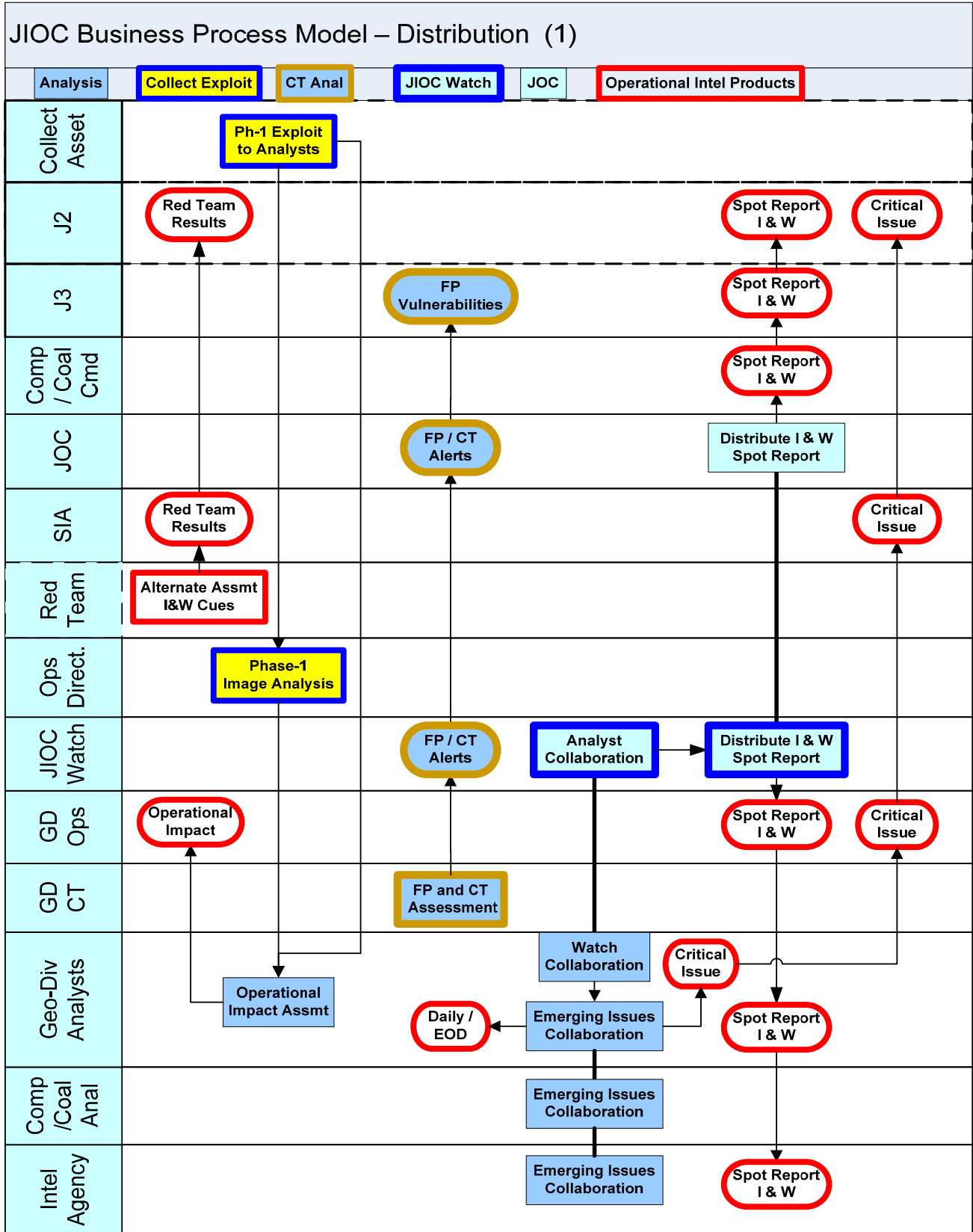


Figure 4.21 Distribution

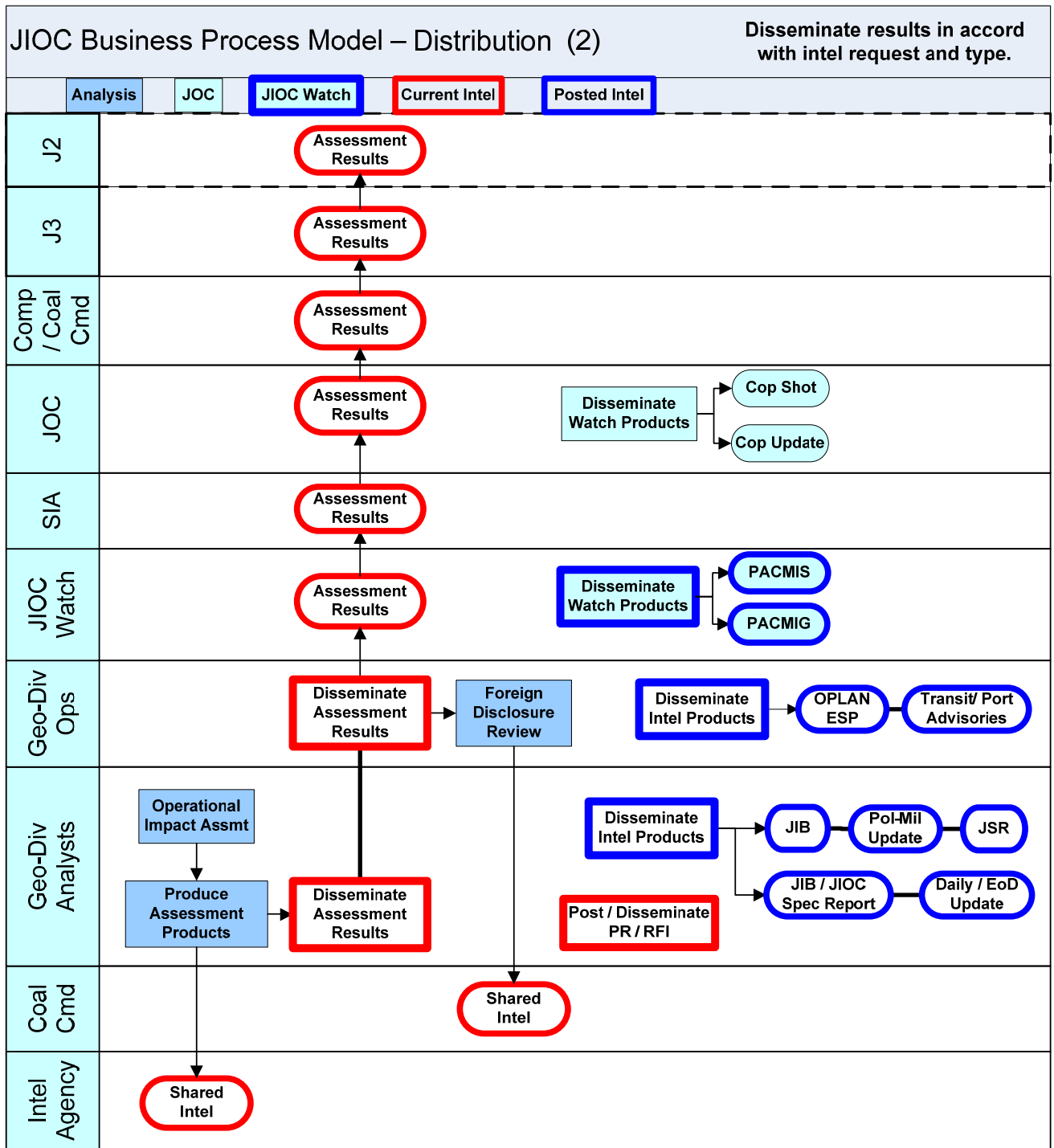


Figure 4.22 Distribution (2)

5.0 OPERATION THREAD DIAGRAMS

Diagrams that show the sequence of activities, operations threads, are named OV6c in DODAF. As was noted in Section 2, these diagrams are useful tools when designing tests and determining operations capabilities. We present here two examples of such diagrams. They have been derived from the JIOC BPM swim-lane diagram.

5.1 OV6c DIAGRAM DESCRIPTION

The diagrams follow the DODAF specified format. Figure 5.1 shows the diagram format.

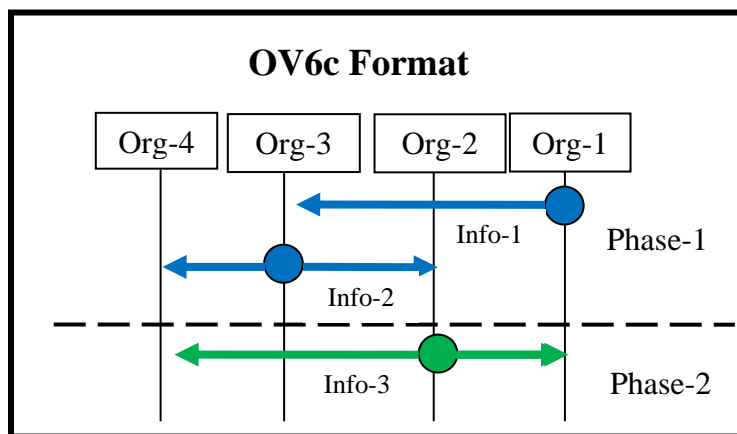


Figure 5.1 OV6c operations sequence diagram format

Figure 5.1 shows four organizations that perform activities for this operation. The dashed line and colors are merely a convenience that can be used to indicate phases of the operation (this is not standard). The sequence of activities in the operation is:

- Organization-1 sends Information-1 to Organization-3

- Organization-3 performs their activity and sends Information-2 to Organizations-2 and 4

- Organization-2 performs their activity and sends Information-3 to Organizations-1 and 4

The specific activities are not specified, only the information exchanges. It is implied that the activity was taking whatever information came in, processing it and adding information, and producing the new information product.

The following OV6c diagrams are for illustration. They have not been produced to satisfy a particular analysis purpose or need. Once JS J2 or DIA have specified specific project needs, OV6c that fulfill the requirement will be developed.

5.2 SHIP TRANSIT EVENT

Figure 5.2 is the OV6c for a ship transit event. PACFLT alerts PACOM to the upcoming event. This alert goes to operations and the J2. The J2 and J3 direct their organizations to support the event. The dotted arrow indicates that the appropriate Geographic Division analyst is being simultaneously alerted by their counterpart in PACFLT.

The vertical ordering implies that the information exchange events occur in the vertical sequence. This is only partially true. Some of the events occur in parallel, such as J2 and J3 notifying their organizations. The only absolute sequencing in the diagram is that an organization has to receive the information before it can perform its activity.

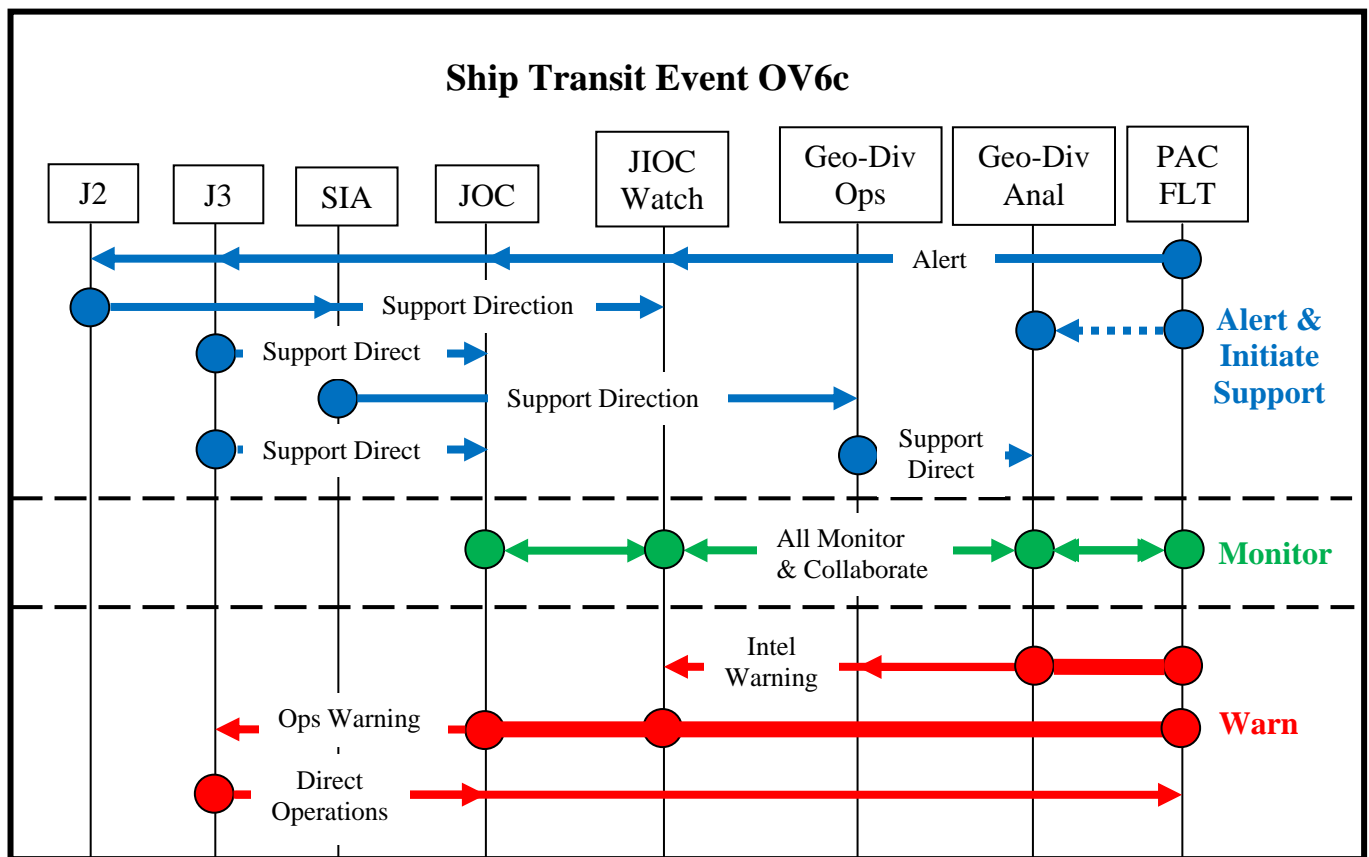


Figure 5.2 Ship Transit Event OV6c

The bi-directional arrows in the Monitor phase indicate that all of the organizations are monitoring the situation, both operational and intelligence situations, and collaborating about the event. It is not shown but implied that both the PACFLT Watch and analysts are collaborating with their counterparts at PACOM.

5.3 COLLECTION OV6c

Collection includes the following broad components:

- Collection Planning
- Collection Tasking
- Collection Execution
- Collection Exploitation
- Products Dissemination

The OV6c diagram shown here includes the first, fourth, and fifth components of collection. Displaying Collection Tasking and Collection Execution would require that the executing organizations (PACOM and Component/Coalition) assets be displayed separately on the diagram. This is not done for diagram simplification. However, the choice of what to include in an OV6c is arbitrary. The choice of what to include in a particular diagram depends on its use, how much of a particular process is to be examined.

Phase-1 Image Analysis by the Operations Directorate is not shown in the diagram.

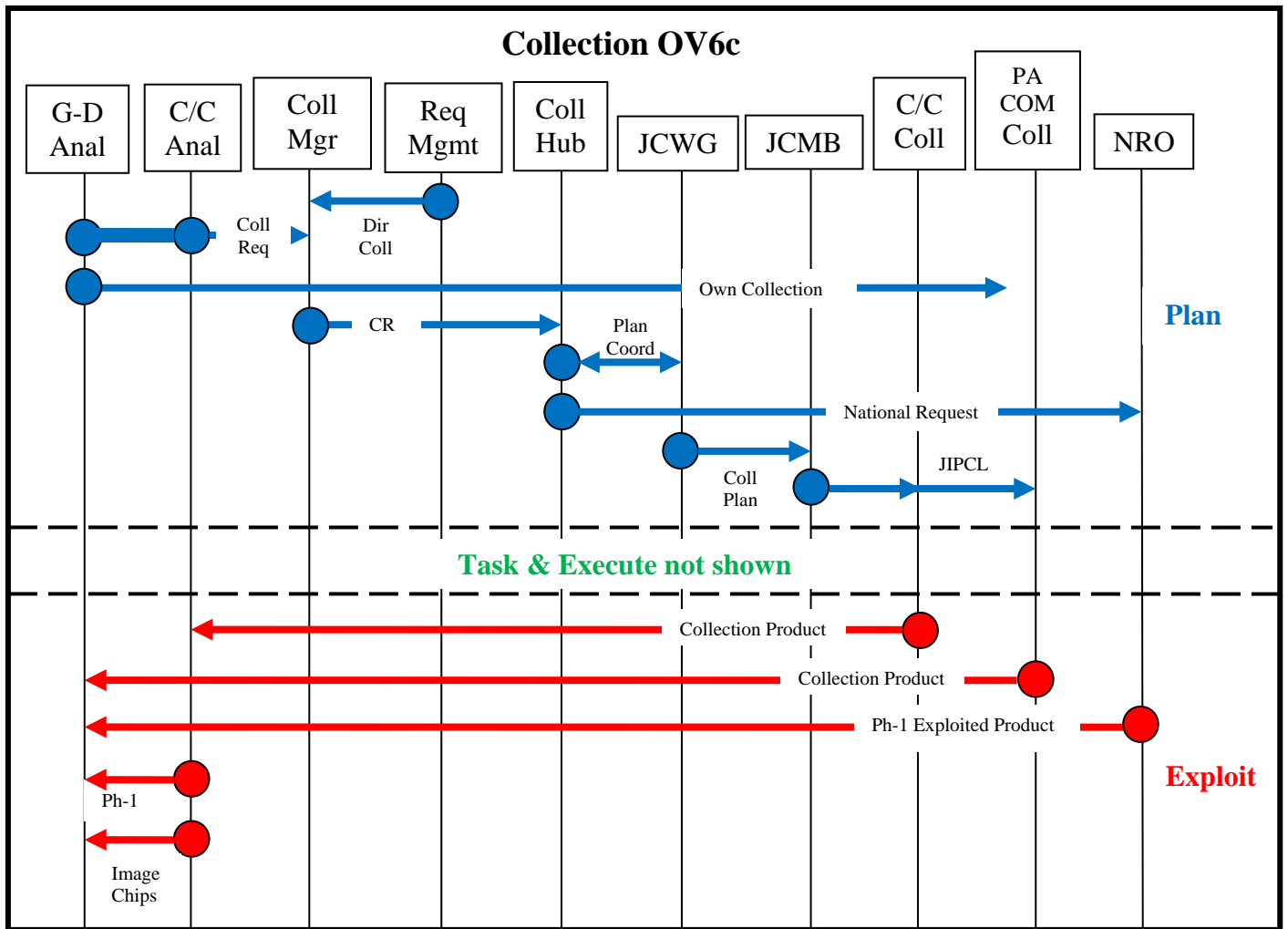


Figure 5.3 Collection OV6c

6.0 JIOC INTEGRATION CHALLENGES/ISSUES

Several organizational issues and/or challenges were identified during this study that probably reduce JIOC efficiency. They were noted by various PACOM JIOC personnel during the interview process. They are listed here without explanation and are loosely arranged in topical areas to make them easier to examine. There is no prioritization; their order in this report has no meaning.

These are not official gaps or shortfalls but rather a list of on-the-job concerns and/or barriers emphasized by the intelligence professionals. They are areas identified and discussed by PACOM JIOC staff which impacts their ability to most efficiently conduct their functional responsibilities. It should be noted that the concerns noted are not show-stoppers but rather expressions of needs that would enable the overall JIOC functional responsibilities to be even better met.

Training

There is one pervasive training issue that is worth noting separately. Intelligence personnel under the JIOC structure can have responsibilities that they did not have under standard organizations. For example, Counter Terrorism (CT) analysts are now distributed into the Geo-Divisions. This has possible consequences:

- ✓ Their responsibilities have been merged with political-military (POL-MIL) analysis.
- ✓ Existing POL-MIL analysts may have no experience with some CT techniques, e.g., collaboration with local law enforcement.
- ✓ CT analysts may have little experience with political analysis.

Regardless of the particular circumstances, personnel duties have changed and their past training and experience may not have prepared them for their new duties. Implementing the new structure has training consequences.

Intelligence training needs to be modified to take the new responsibilities into account.

This applies to new personnel and also for possible need for updated training. One also has to expect that personnel will take some time to perform their new responsibilities at full capacity.

Personnel

- ✓ There is a universal concern with insufficient personnel, both military and civilian
- ✓ Military personnel expertise: “junior folks sent to us (analysis), need more experience
- ✓ Improved training needed for responsibilities under the JIOC structure
- ✓ Not enough resources to maintain the target reassessment schedule: functional assessments, including CDE, cannot be maintained
- ✓ Contingency surge is an issue with current manpower structure

Collection Resources

- ✓ Finite collection resources that are tasked elsewhere
- ✓ Lack of coverage due to political dealings (penetration)
- ✓ lack of resources (due to war effort)
- ✓ Gap in: over flight, sharing, resources
- ✓ Limited national resources and their fragility
- ✓ Length of time (i.e. sometimes up to 2 months) to get approval for a collection plan is unacceptable
- ✓ Lack of redundancy
- ✓ Limited national resources" - tough to balance Korea/China focus
- ✓ Can (and do) surge flexibly for collection gaps, but can't sustain forever (e.g. MASINT short fall)
- ✓ No persistent ISR, fragility and limitation of resources

Information Sharing

- ✓ Receiving CIA/DIA products
- ✓ Partner sharing of CT data
- ✓ NOFORN interoperability for the watch
- ✓ SIPR/JWICS divide, have to fat-finger in information
- ✓ No Crosswalk 4-eye
- ✓ SIPSr to their DSN
- ✓ Ops to Ops for ISR
- ✓ SIPR to DSN (Aussie like SIPR) interoperability.... (policy issues)
- ✓ Crosswalk needs to be a 4-eye product
- ✓ Coalition SIPR level availability limitations (policy issues)
- ✓ DIA to NMCI SIPR Integration
- ✓ CT information sharing issues
 - Agreements for sharing Secret information
 - Credibility of received information, validation
 - Standards for info sharing with coalition
 - Cross-COCOM collaboration
 - Sharing on Secret Domain
 - Transnational Issue Seam; Issues/collaboration across COCOMS

Analysis

- ✓ Short-term requirements are driving out long-term analysis
- ✓ There is central management of tool sets and procedures but not of who does what
- ✓ Better synchronization of effort is needed
- ✓ Lack of longitudinal studies

CT Cell / Geo-Division CT Responsibilities

- ✓ CT expertise and contacts could be lost with CT analysis being in the Geo-Divisions, CT is a law enforcement type activity which is specialized. A division may have no CT expertise.
- ✓ CT training needs to be expanded to cover Division personnel.
- ✓ JIOC needs vision for CT. Need CT expertise across each geographic division

GCCS Monitoring

- ✓ System administrator monitors GCCS. JICO/JDNO (Joint Data Network Ops) monitor data flows. Watch standers don't have JICO so there is an information gap.
- ✓ Lack of data fusion ability via JDNO
- ✓ JIOC Needs JICO's and JDNO's to ensure open/healthy channel.

IO

- ✓ Need I&W Capabilities
- ✓ Cyber expertise is needed in each geographic division
- ✓ Need clearer delineation of organization responsibilities with the new CYBERCOM
- ✓ Dedicated chat for IO is needed

JIOC Strategy

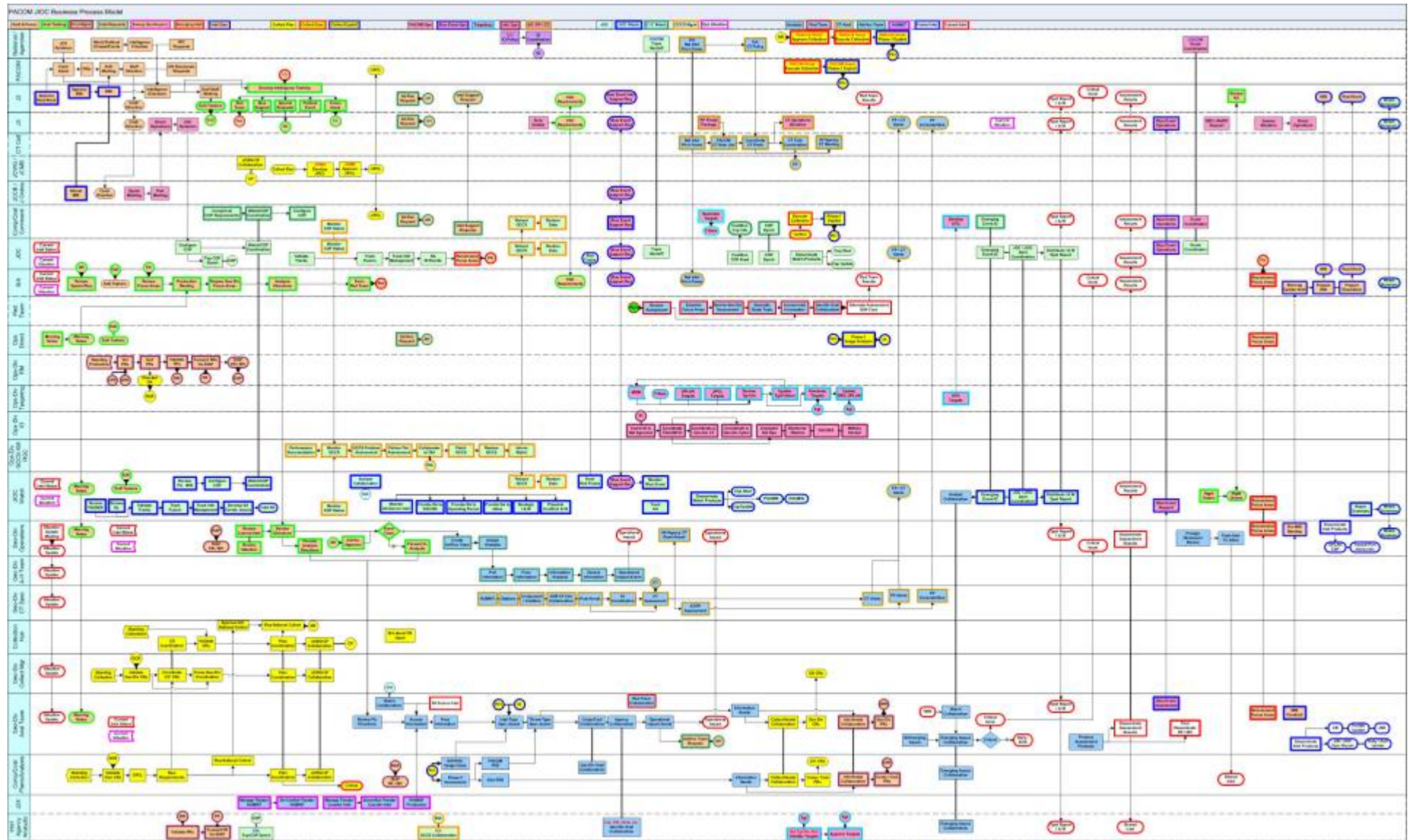
- ✓ Need better J3/J5 Integration
- ✓ Need more attention to long-term JIOC strategy. JIOC is currently looking at near term issues
- ✓ Need better synchronization between MIB brief and SWO priorities

Production Requirements (RFIs)

- ✓ Lack of availability of needed information in a central location
- ✓ Insufficient knowledge of tools
- ✓ Only 1/3 of the information produced is getting posted
- ✓ Holes in the production chain

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APPENDIX A: JIOC BPM MODEL



APPENDIX B: REFERENCES

1. United States Pacific Command, “USPACOM Strategy – Partnership, Readiness, And Presence”, April 2009.
2. Joint Intelligence Operations Center (JIOC) Executive Order, April 2006
3. Akers, Tyler, JFQ Issue 47, “Taking Joint Intelligence Operations to the Next Level”, 4th Quarter 2007.
4. Glunz, Matt COL, USPACOM JIOC DO, “Pacific Command Intelligence Overview”, Feb 2009.
5. Defense Intelligence Agency, “Intelligence, Surveillance, and Reconnaissance Program of Record Study,” June 2008
6. JIOC Information Sharing Enterprise Governance Structure – Terms of Reference, June 2009
7. Initial Capabilities Document (ICD) for Joint Intelligence Operations Center (JIOC) Information Technology (IT) Enterprise, May 2009
8. United States Pacific Command, “PACOM JIOC CONOP (S)”, August 2006
9. United States Pacific Command JIOC Intellipedia SIPRNET Portal
10. Staff Interviews

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7400 Defense Pentagon
Washington, DC 20301
5. Defense Intelligence Agency 4
Attn. DIAC, Mr. Tony Barker, DSM (C4ISR)
200 MacDill Blvd
Washington, DC 20340
6. United States Pacific Command 1
Mr. Tom MacNamara
Deputy Director for Intelligence (J2)
Camp H.M. Smith, HI 96861
7. United States Pacific Command 4
Mr. Mark Anglin
J2/JIOC Strategies Directorate (DS)
Camp H.M. Smith, HI 96861
8. Dr. Doug MacKinnon 1
Information Sciences Department
Naval Postgraduate School
1411 Cunningham Road, Glasgow West, Rm 3008
Monterey, CA 93943
9. Dr. Gordon Schacher 1
Information Sciences Department
Naval Postgraduate School
777 Dyer Rd., Rm 103C
Monterey, CA 93943
10. Dr. Shelley Gallup 1
Information Sciences Department
Naval Postgraduate School
777 Dyer Rd., Rm 103A
Monterey, CA 93943

11. Mr. Richard Kimmel
Information Sciences Department
Naval Postgraduate School
777 Dyer Rd., Rm 100D
Monterey, CA 93943

1