



Decision Making Constructs in a Distributed Environment (DCODE)

Robert A. Fleming

RED-INC

619-429-7554

bobfleming@gmail.com

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Overall Objectives and this year's Objectives

Overall Objectives: the development of a decision support tool for reducing the problems involved with **the storing, sharing and integration of subjective information assessments.**

Use the quantification and sharing of these subjective assessments to **improve the quality of group decision making** and to significantly reduce the time devoted to **conflict resolution and team consensus building.**

This year's objectives are:

- (1) the **transition** of the DCODE to the user community
- (2) continued **research** to demonstrate the efficacy of DCODE
- (3) improved **documentation** and publication of the DCODE tool.



Research Questions Addressed


- (1) How can **knowledge elicitation techniques** be designed that capture the major subjective information assessments needed for each decision-relevant information item

...but does not place an unacceptable **cognitive/time burden** on the user?
- (2) Research indicates that a minimum set of 3 – 6 essential assessments might be required for each item. How do we configure a **simplified user interface** that can score, display and quantify all these required subjective assessments?
- (3) In a group decision making environment, how can these individual information assessments be quickly shared/transferred among participants to **minimize the time the group devotes to conflict resolution and the building of a consensus.**



Technical Approach

**Follow this DCODE process for all
decision relevant information:**

- 
- A vertical black arrow pointing downwards, positioned to the left of the list items.
- Abstract
 - Encapsulate
 - Assess
 - Integrate
 - Share
 - Decide



DCODE Information Abstraction and Encapsulation

Mission: Rescue hostages from Islandia
Decision Options: Marines; SEALs; Army
Factors: Speed (ETA), Covertness, Risk, etc

Situation Assessment:
Is Carlos still in Columbia?

CINCPAC email

To: LTCJohnson@cinpac.mil
From: steve.thomas@noaa.gov
Subject: Islandia tides and currents

Hello LTC Johnson

I have been looking at detailed marine charts of Islandia's reef system. Based on this analysis I would say that only one small section of the reef (coordinate G17) is passable, and then **only at PEAK high tide**. This will next occur at 1700 10/14. The word of caution is that the soundings are over 25 years old and may have changed (either for the better or the worse) regarding ease of crossing.

V/R
Steve Thomas

Homeland Security email

To: joseph.donovan@dea.gov
From: william.kays@omb.gov
Subject: Re: acct. activity

Mr. Donovan

Fred Barnes in Finance Tracking informs me within the last 10 days, \$27K was deposited in the referenced account (10/7) and \$25K was withdrawn on 10/9. This is unusual activity for this account

V/R
Bill Kays

Best ETA for
SEALS is 1900
hrs, 10/14

☐ P ☐ ☐ ☐

Nov-21-05 11:33AM G...

Fleming

ETA

Information is
Abstracted,
Encapsulated
but **NOT**
Assessed!

Unusual \$ activity
in Carlos'
checking
account 10/7, 10/9

☐ P ☐ ☐ ☐

Dec-19-05 9:03AM GM...

Fleming

Money Activity

DCODE Information Assessment



Which option is impacted?
How is it impacted?
How important is this item?
Quality of the information?
Timely?
Credible source?
Well documented?



EWall Information Card

Information Object (IOB)

This DCODE coding
tells me that this
information ...

- **Negatively impacts the viability of the using the SEALS option.**
- **Is considered of high importance.**
- **There is some issue with the quality of this information.**

DCODE Information Assessment (cont.)

Unusual \$ activity
in Carlos'
checking account,
10/7, 10/9

0

in Columbia

Money Activity

Every time Carlos has
left Columbia, there
have been large deposits
and withdrawals in his
account

Unusual \$ activity
in Carlos'
checking
account 10/7, 10/9

0

in Columbia

Dec-18-03 9:05AM DM...

Fleming

Money Activity

This DCODE coding
tells me that this
information ...

- **Very Negatively impacts the likelihood Carlos is in Columbia.**
- **Is considered of high importance.**
- **There is no question about the quality of the information.**



Activating the DCODE Assessment Template

Red	Red	Red
Yellow	Yellow	Yellow
Grey	Grey	Grey
Light Green	Light Green	Light Green
Dark Green	Dark Green	Dark Green

Best ETA for
SEALS is 1900
hrs, 10/14

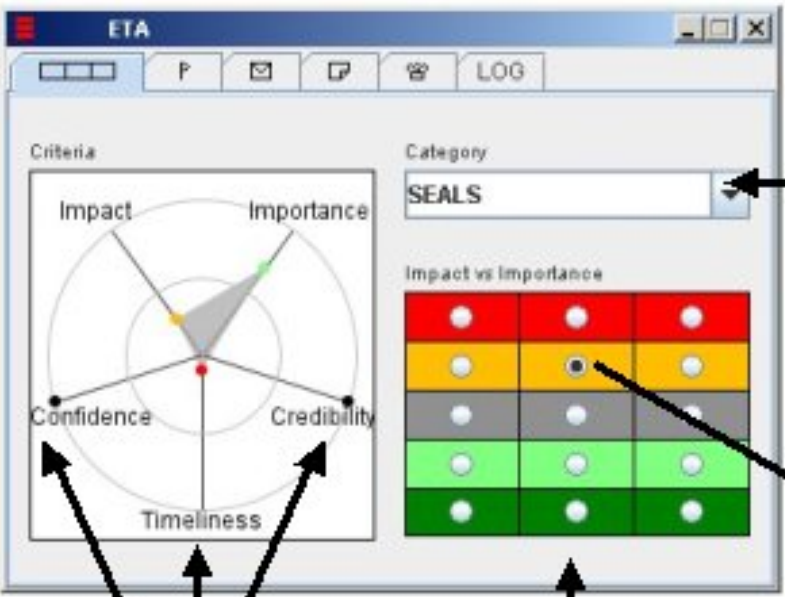
Clipboard P Crown Mail 0

Nov-28-05 10:45AM G...

Fleming

ETA

The Assessment Template



The screenshot shows the 'ETA' software interface. On the left is a radar chart with five axes: Impact, Importance, Confidence, Credibility, and Timeliness. A grey shaded area is plotted on the chart. On the right is a 'Category' dropdown menu set to 'SEALS' and an 'Impact vs Importance' table with a 5x3 grid of colored cells (red, yellow, grey, green, dark green) and white dots.

Impact	Importance	Confidence
Red	Red	Red
Yellow	Yellow	Yellow
Grey	Grey	Grey
Green	Green	Green
Dark Green	Dark Green	Dark Green

Information Quality

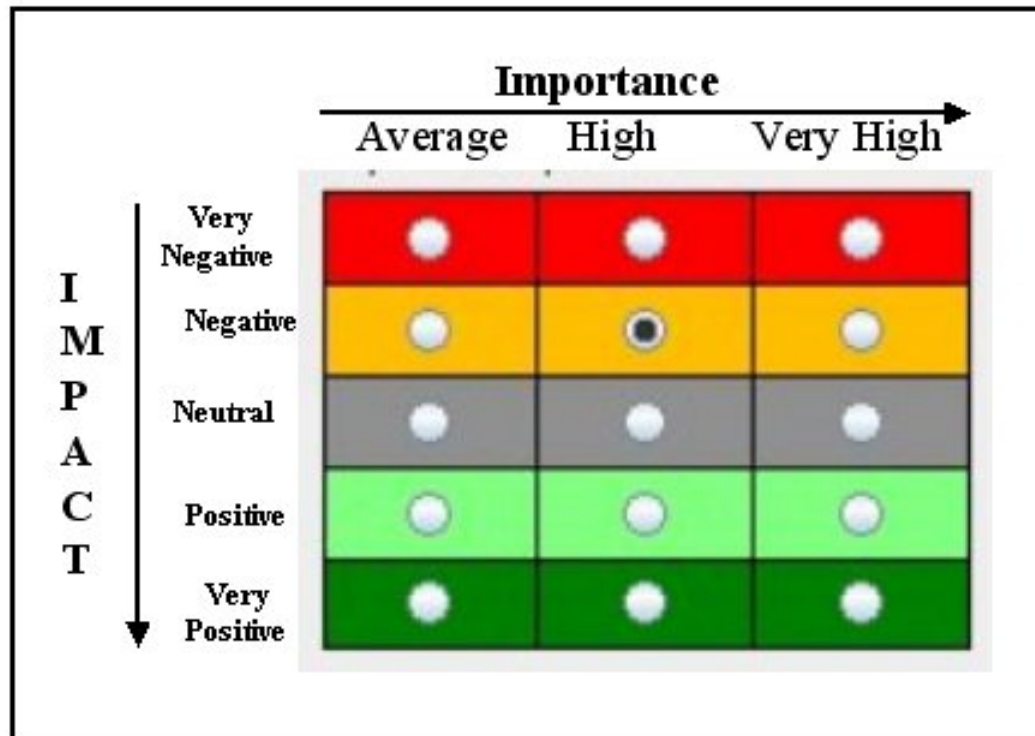
Information Importance & Impact

Drop-down menu for option selection

Best ETA for SEALS is 1900 hrs, 10/14

Nov-21-05 11:40AM 0...
Fleming
ETA

Scoring Impact and Importance



Item is of “High” importance (2 boxes) and has a “Negative” impact (yellow) on this option.

IMPORTANT (# boxes filled):

AVERAGE (1)



HIGH (2)



VERY HIGH (3)



IMPACT: (color)

Very
Positive



Positive



Negative

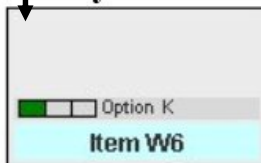


Very
Negative



Average Importance

Very Positive



High Importance

Very Positive



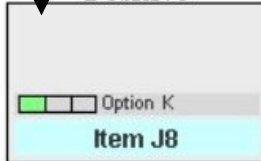
Very High Importance

Very Positive



Average Importance

Positive



High Importance

Positive



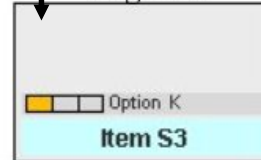
Very High Importance

Positive



Average Importance

Negative



High Importance

Negative



Very High Importance

Negative



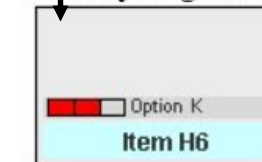
Average Importance

Very Negative



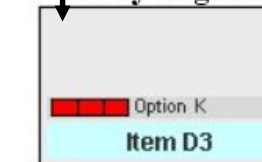
High Importance

Very Negative



Very High Importance

Very Negative





Sample DCODE Assessments

Selecting a House

22 min.

📄 P 🏆 0

🟢🟢 Concord Blvd
Nov-28-05 11:29AM G...
Fleming

Commute time

47 min.

📄 P 🏆 0

🟡🟡 Adams St.
Nov-28-05 11:29AM G...
Fleming

Commute Time

Parking Lot

📄 P 🏆 0

🟡🟡 Concord Blvd
Nov-28-05 11:32AM G...
Fleming

View

Shoreline

📄 P 🏆 0

🟢🟢 Adams St.
Nov-28-05 11:32AM G...
Fleming

View

Selecting a Car

9.7 mpg

📄 P 🏆 0

🔴🟡 Hummer
Nov-28-05 11:24AM G...
Fleming

Gas Mileage

28.1 MPG

📄 P 🏆 0

🟢🟡 Civic
Nov-28-05 11:27AM G...
Fleming

Gas Mileage

Selecting a College

📄 P 🏆 0

🟢🟢 Wisconsin
Nov-28-05 11:33AM G...
Fleming

Parties

📄 P 🏆 0

🔴🔴 Utah
Nov-28-05 11:40AM G...
Fleming

Parties

Single Option: Buy stock "A"?

87

📄 P 🏆 0

🟢🟢

Dec-1-05 10:39AM GM...
Fleming

P/E ratio

7.9%

📄 P 🏆 0

🟡🟡

Dec-1-05 10:39AM GM...
Fleming

5-yr avg. return

"Hold"

📄 P 🏆 0

🟢🟢

Dec-1-05 10:39AM GM...
Fleming

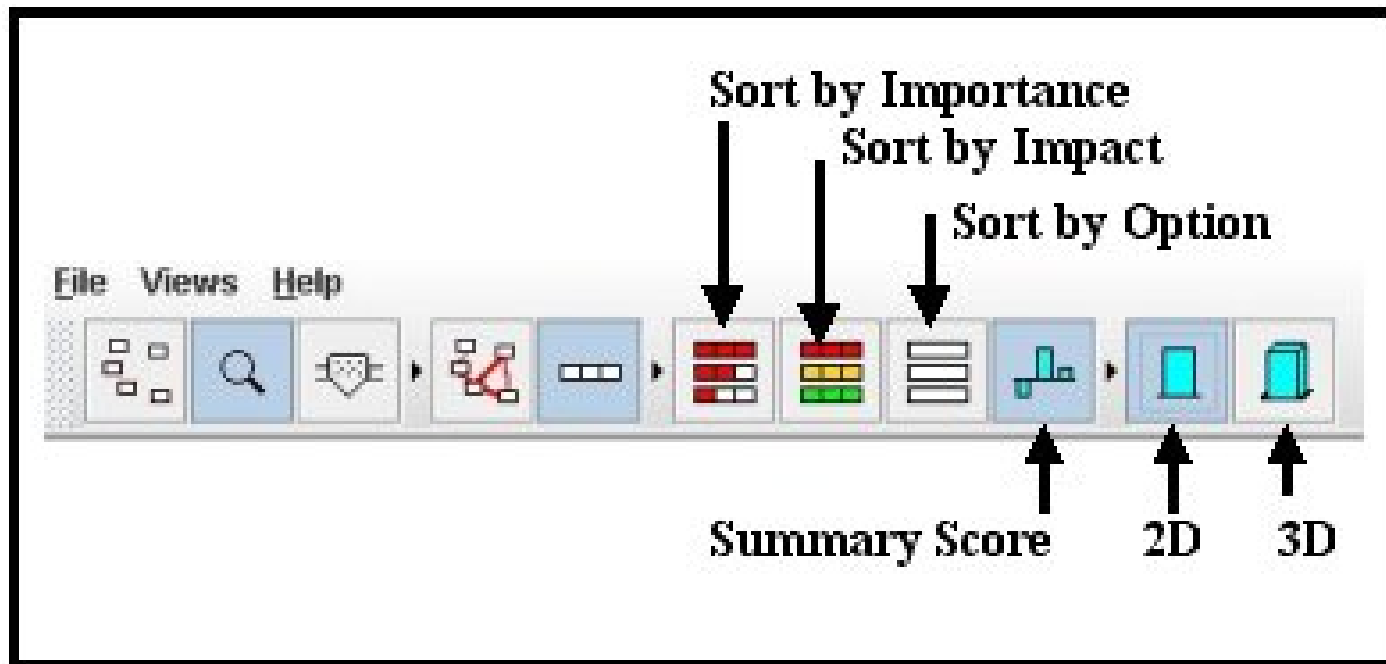
Broker rating



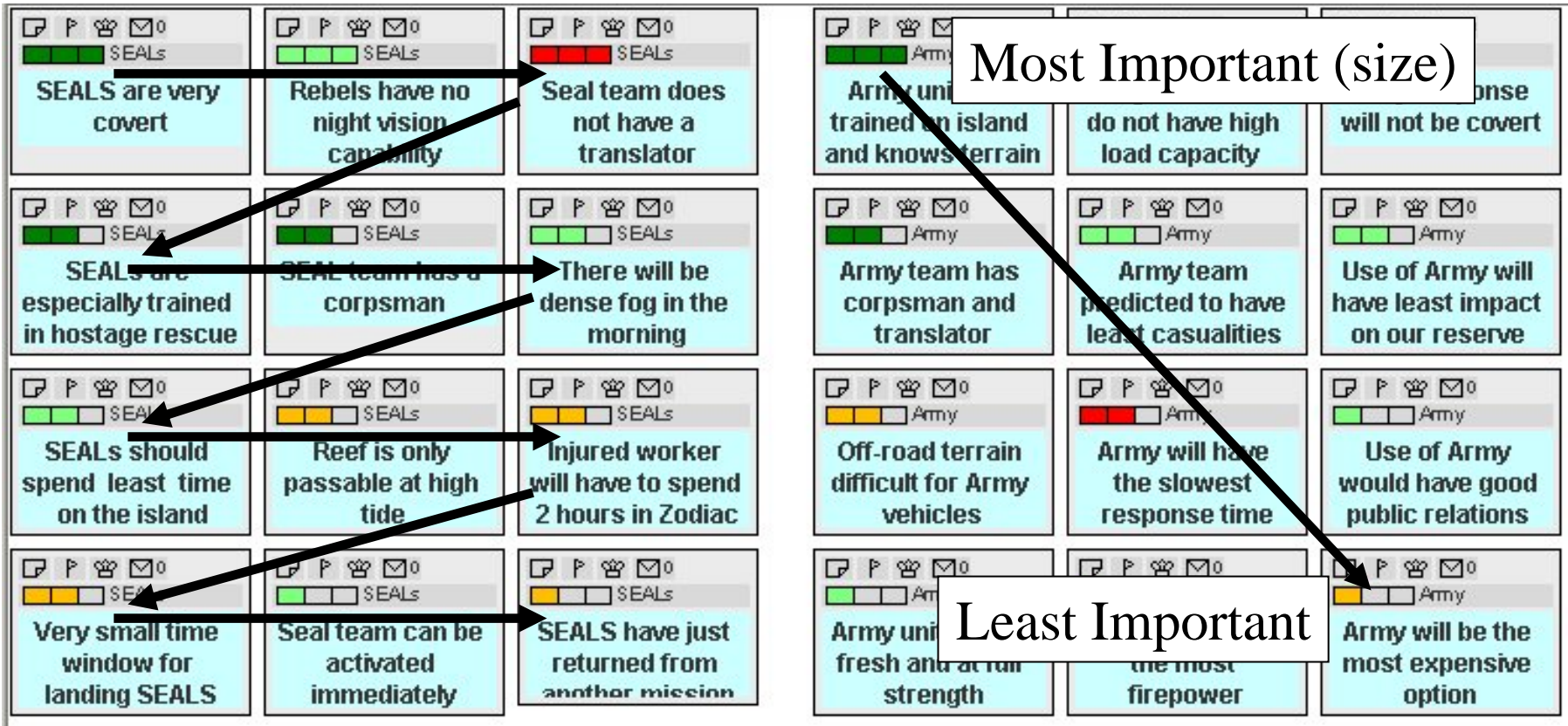
Which is the BEST option, SEALs or Army?

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs Rebels have no night vision capability	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs SEALs have just returned from another mission	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Bridges on roads do not have high load capacity	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army will be the most expensive option
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs SEALs are very covert	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs There will be dense fog in the morning	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army will have the most firepower	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Off-road terrain difficult for Army vehicles
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs Seal team can be activated immediately	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs Very small time window for landing SEALs	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Use of Army will have least impact on our reserve	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army team predicted to have least casualties
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs Seal team does not have a translator	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs Injured worker will have to spend 2 hours in Zodiac	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army team has corpsman and translator	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army unit has trained on island and knows terrain
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs SEALs are especially trained in hostage rescue	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs SEAL team has a corpsman	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army unit is very fresh and at full strength	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army response will not be covert
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs SEALs should spend least time on the island	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALs Reef is only passable at high tide	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army will have the slowest response time	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Use of Army would have good public relations

Integration of IOBs



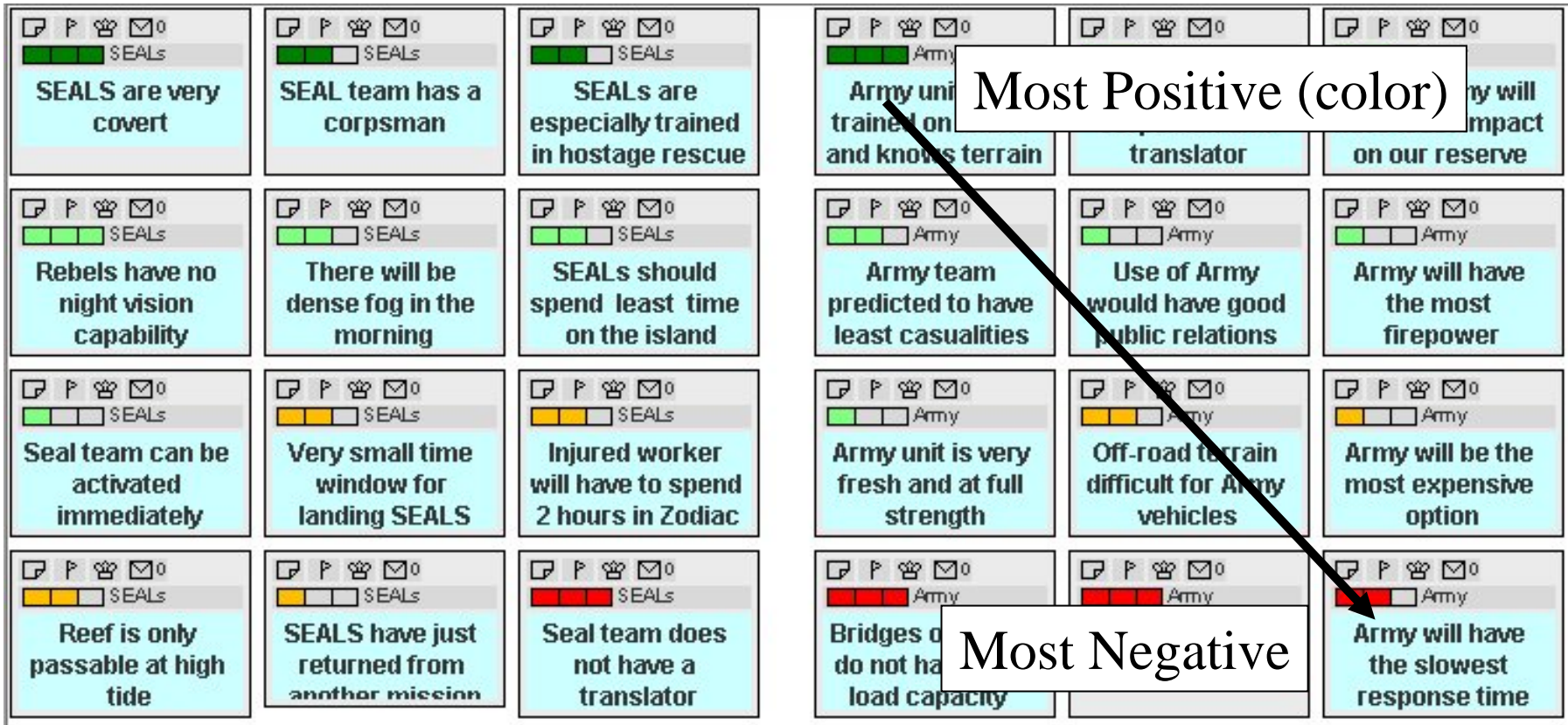
Sorted by Importance: Very High – High -- Average





Sorted by Impact:

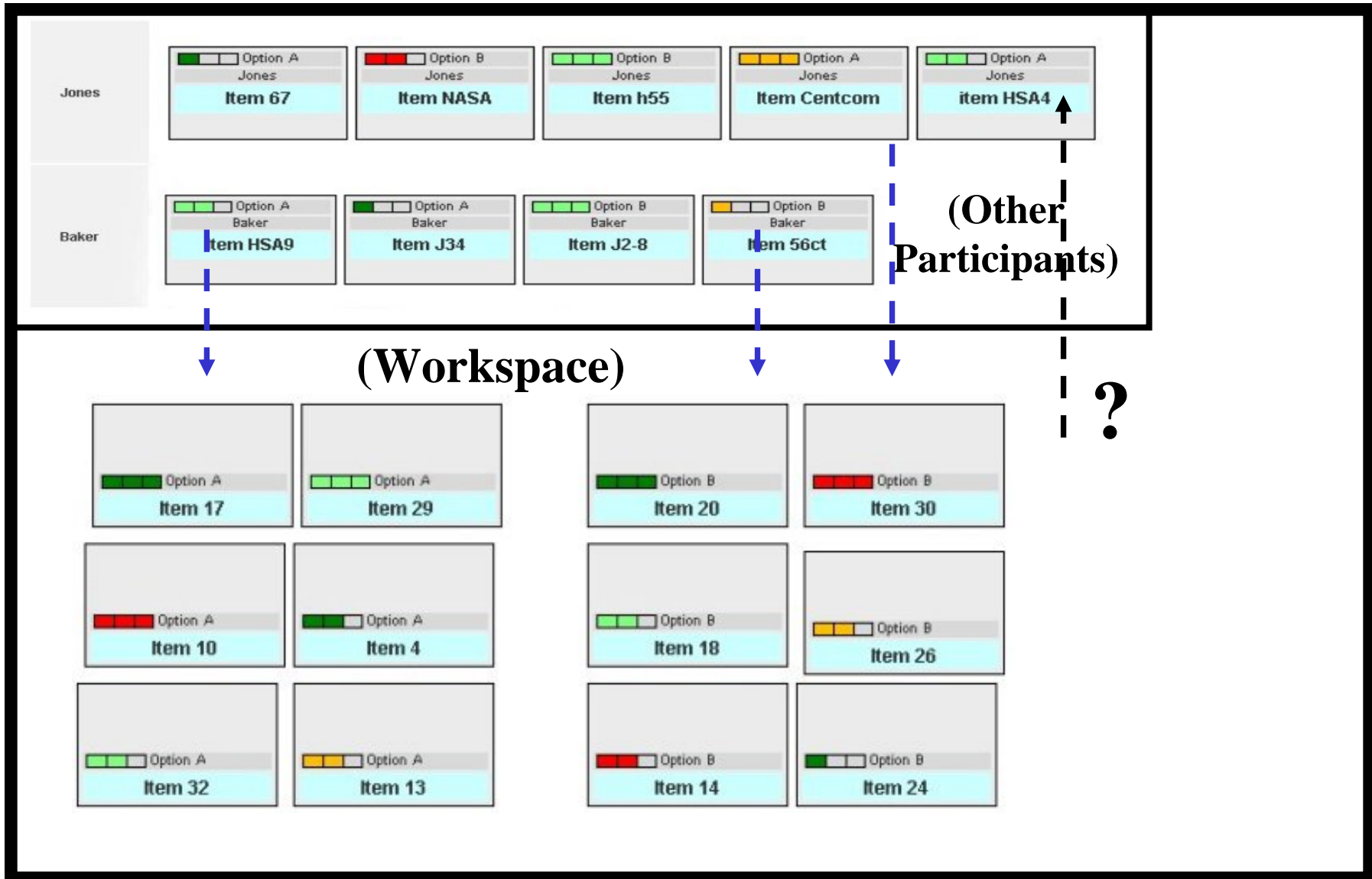
Very Positive, Positive, Negative, Very Negative





DCODE Sharing

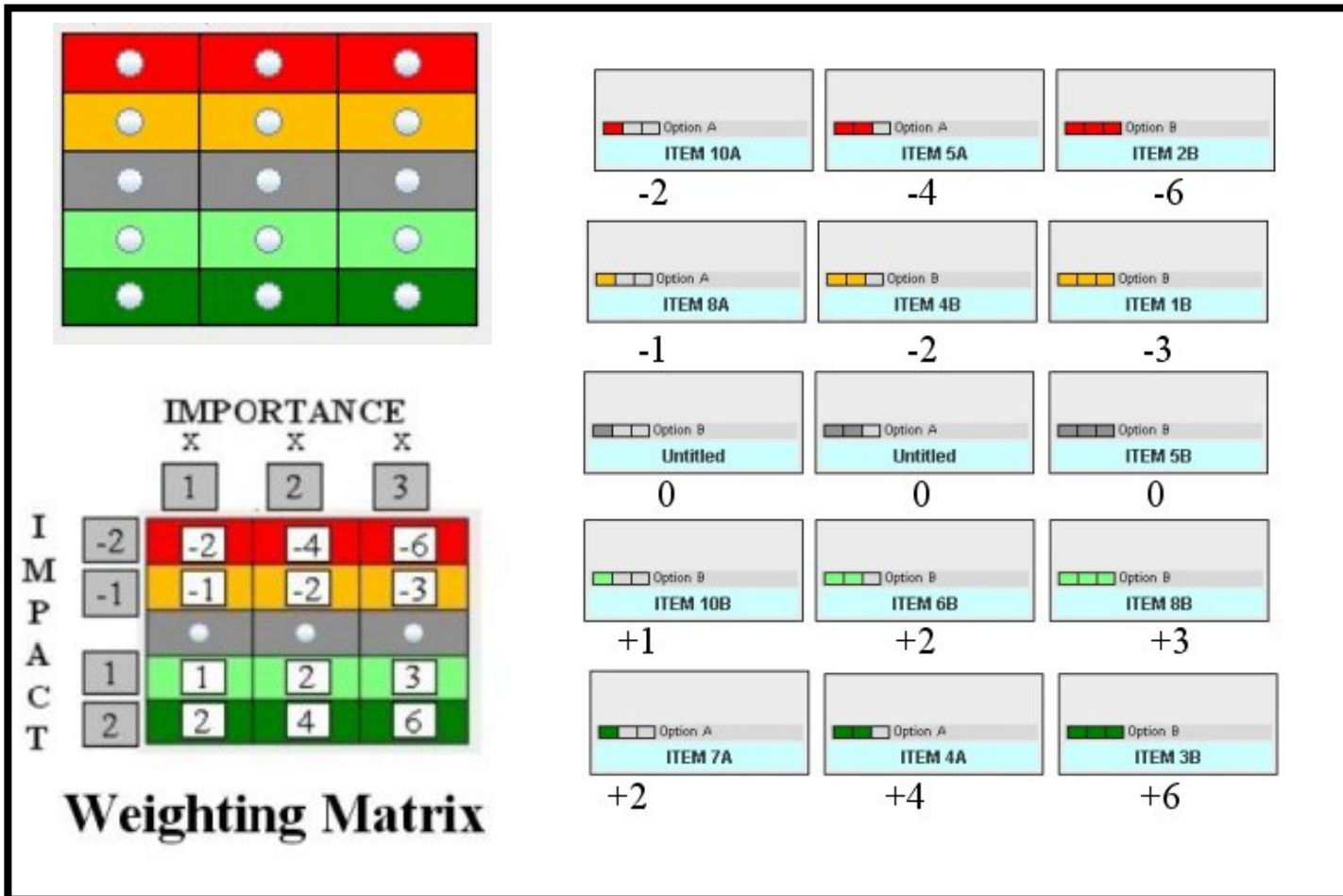
Research & Engineering
Development, Inc. (RED-Inc)



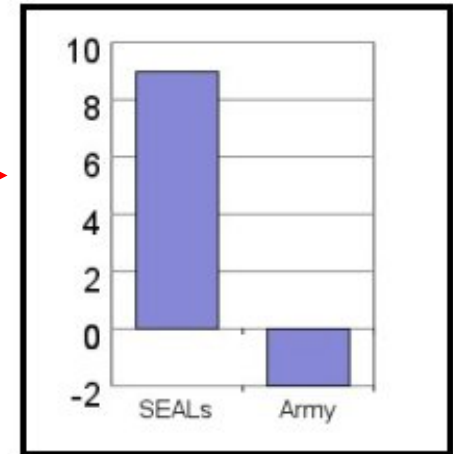
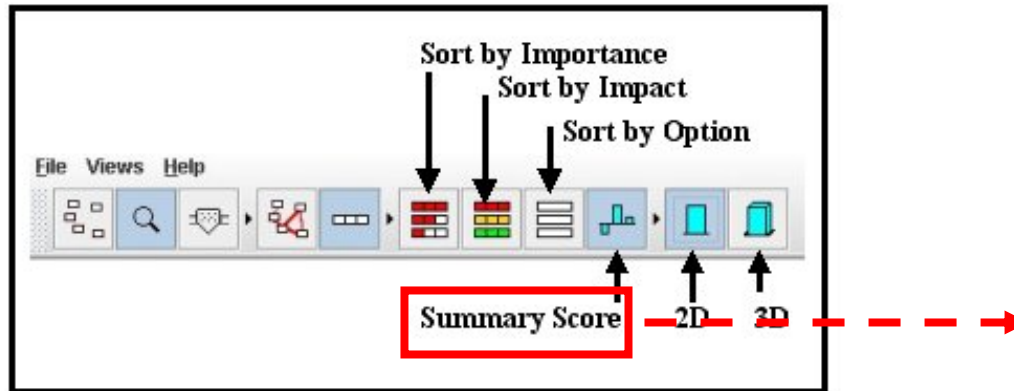
Smith's Display (EWall workspace + Exchange view)

Making Decisions with DCODE

The Weighting/Scoring matrix



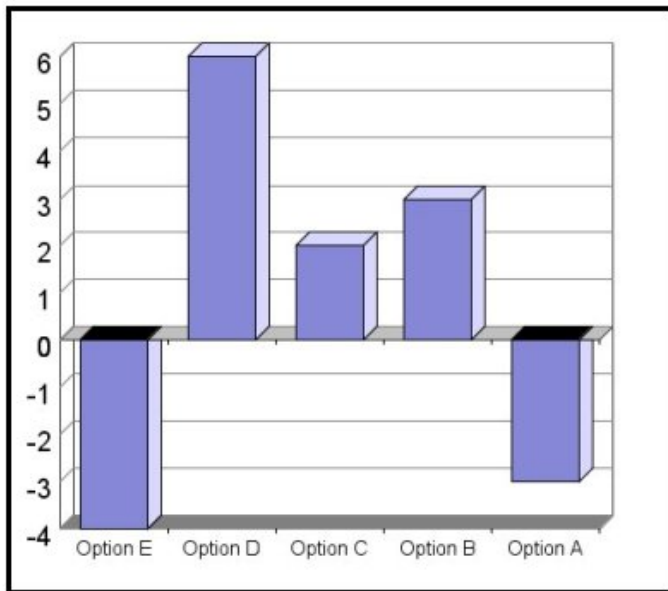
Summary Score Bar Chart



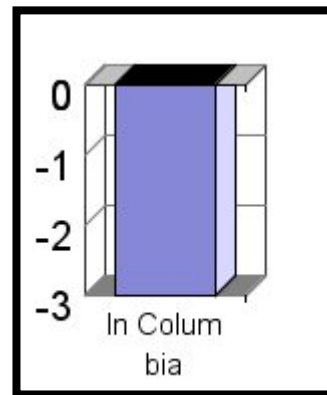
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS SEALs are very covert	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS SEAL team has a corpsman	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS SEALs are especially trained in hostage rescue	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army unit has trained on island and knows terrain	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army team has corpsman and translator	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Use of Army will have least impact on our reserve
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS Rebels have no night vision capability	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS There will be dense fog in the morning	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS SEALs should spend least time on the island	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army team predicted to have least casualties	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Use of Army would have good public relations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army will have the most firepower
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS Seal team can be activated immediately	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS Very small time window for landing SEALs	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS Injured worker will have to spend 2 hours in Zodiac	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army unit is very fresh and at full strength	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Off-road terrain difficult for Army vehicles	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army will be the most expensive option
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS Reef is only passable at high tide	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS SEALs have just returned from another mission	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 SEALS Seal team does not have a translator	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Bridges on roads do not have high load capacity	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army response will not be covert	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 Army Army will have the slowest response time

Algebraic sum of all IOBs for each option.

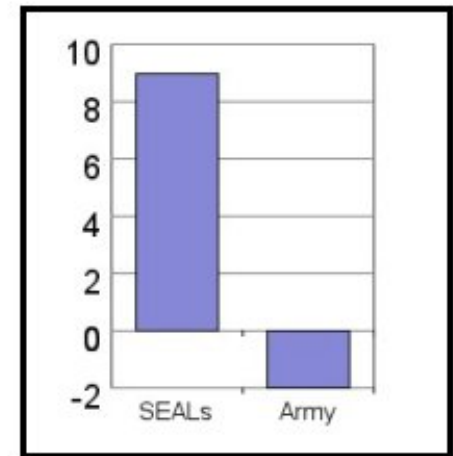
Sample DCODE Summary Results



Multiple Options



Single Option
(Yes-NO, Act-Don't Act)



Two Options



Short AVI on DCODE use
(2 min 40 sec)

DCODE Process

Best ETA for
SEALS is 1900
hrs, 10/14

Nov-21-05 11:33AM G...
Fleming

ETA

- Abstract
- Encapsulate

Best ETA for
SEALS is 1900
hrs, 10/14

Nov-21-05 11:43AM G...
Fleming

ETA

- Assess
- Option
- Importance
- Impact
- Quality

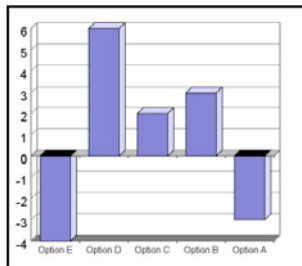
- Option
- Importance
- Impact

<p>Army unit has trained on island and knows terrain</p>	<p>Bridges on roads do not have high load capacity</p>	<p>Army response will not be covert</p>
<p>Army team has corpsman and translator</p>	<p>Army team predicted to have least casualties</p>	<p>Use of Army will have least impact on our reserve</p>
<p>Off-road terrain difficult for Army vehicles</p>	<p>Army will have the slowest response time</p>	<p>Use of Army would have good public relations</p>
<p>Army unit is very fresh and at full strength</p>	<p>Army will have the most firepower</p>	<p>Army will be the most expensive option</p>

- Integrate/Sort

<p>Option A Jones Item 67</p>	<p>Option B Jones Item NASA</p>	<p>Option B Jones Item h55</p>	<p>Option A Jones Item Centcom</p>	<p>Option A Jones Item HSA4</p>
<p>Option A Baker Item HSA9</p>	<p>Option A Baker Item J34</p>	<p>Option B Baker Item J2-B</p>	<p>Option B Baker Item 50ct</p>	

- Share



- Decide



Experiments (Planned/Completed)

NEED YOUR HELP!



Research Question:

Does the use of the DCODE Assessment bar improve decision making quality?

Decision Task: Rank order three candidate cities (A, B and C) in terms of preference as a location for a new store.

12 information items about each city.



2-Group Design

Text vs. DCODE Bar

Text Group

Very High Importance Very Positive Impact Option A Item 17	Very High Importance Positive Impact Option A Item 29
Very High Importance Very Negative Impact Option A Item 10	High Importance Very Positive Impact Option A Item 4
High Importance Positive Impact Option A Item 32	High Importance Negative Impact Option A Item 13
High Importance Negative Impact Option A Item 9	High Importance Negative Impact Option A Item 16
Average Importance Very Positive Impact Option A Item 25	Average Importance Positive Impact Option A Item 1
Average Importance Positive Impact Option A Item 7	Average Importance Negative Impact Option A Item 11

Functionally
equivalent

DCODE Group

Option A Item 17	Option A Item 29
Option A Item 10	Option A Item 4
Option A Item 32	Option A Item 13
Option A Item 9	Option A Item 16
Option A Item 25	Option A Item 1
Option A Item 7	Option A Item 11



Text Group

Instructions **Sorted by Impact**

Very High Importance Very Positive Impact	High Importance Very Positive Impact	Very High Importance Very Positive Impact	Average Importance Very Positive Impact	Very High Importance Very Positive Impact	High Importance Very Positive Impact
<input type="checkbox"/> Option A	<input type="checkbox"/> Option A	<input type="checkbox"/> Option B	<input type="checkbox"/> Option B	<input type="checkbox"/> Option C	<input type="checkbox"/> Option C

Very High Importance Very Positive Impact <input type="checkbox"/> Option A Item 17	Very High Importance Positive Impact <input type="checkbox"/> Option A Item 29	Very High Importance Very Positive Impact <input type="checkbox"/> Option B Item 20	Very High Importance Very Negative Impact <input type="checkbox"/> Option B Item 30	Very High Importance Very Positive Impact <input type="checkbox"/> Option C Item 28	Very High Importance Positive Impact <input type="checkbox"/> Option C Item 19
Very High Importance Very Negative Impact <input type="checkbox"/> Option A Item 10	High Importance Very Positive Impact <input type="checkbox"/> Option A Item 4	High Importance Positive Impact <input type="checkbox"/> Option B Item 18	High Importance Negative Impact <input type="checkbox"/> Option B Item 26	Very High Importance Positive Impact <input type="checkbox"/> Option C Item 15	High Importance Very Positive Impact <input type="checkbox"/> Option C Item 27
High Importance Positive Impact <input type="checkbox"/> Option A Item 32	High Importance Negative Impact <input type="checkbox"/> Option A Item 13	High Importance Very Negative Impact <input type="checkbox"/> Option B Item 14	Average Importance Very Positive Impact <input type="checkbox"/> Option B Item 24	High Importance Negative Impact <input type="checkbox"/> Option C Item 12	High Importance Very Negative Impact <input type="checkbox"/> Option C Item 23
High Importance Negative Impact <input type="checkbox"/> Option A Item 9	High Importance Negative Impact <input type="checkbox"/> Option A Item 16	Average Importance Positive Impact <input type="checkbox"/> Option B Item 3	Average Importance Positive Impact <input type="checkbox"/> Option B Item 36	Average Importance Negative Impact <input type="checkbox"/> Option C Item 8	Average Importance Negative Impact <input type="checkbox"/> Option C Item 22
Average Importance Very Positive Impact <input type="checkbox"/> Option A Item 25	Average Importance Positive Impact <input type="checkbox"/> Option A Item 1	Average Importance Positive Impact <input type="checkbox"/> Option B Item 6	Average Importance Positive Impact <input type="checkbox"/> Option B Item 34	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21
Average Importance Positive Impact <input type="checkbox"/> Option A Item 7	Average Importance Negative Impact <input type="checkbox"/> Option A Item 11	Average Importance Negative Impact <input type="checkbox"/> Option B Item 2	Average Importance Very Negative Impact <input type="checkbox"/> Option B Item 35	Average Importance Negative Impact <input type="checkbox"/> Option C Item 31	Average Importance Negative Impact <input type="checkbox"/> Option C Item 33

Sorted by Importance

Sorted by Importance



DCODE Group

Instructions (includes explanation of DCODE scoring)

Scoring Sheet

-Write your choice as Best option on the “100” line.

-Write your choice as Worst option on the “0” line.

-Circle the number that best represents where you would assign the remaining option.

100 _____
90 _____
80 _____
70 _____
60 _____
50 _____
40 _____
30 _____
20 _____
10 _____
0 _____

Male
 Female

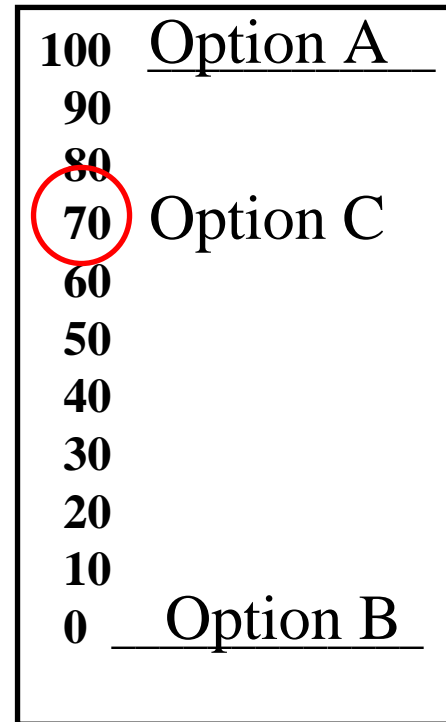
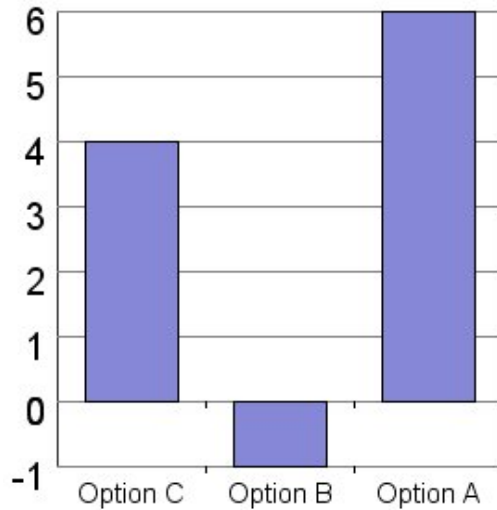
Which did you think helped the most in making your decision?

- Sorting by Importance
 Sorting by Impact
 Both Equal

How would you assess your confidence in the assigned ratings?

___ Very High
___ High
___ Above Average
___ Average
___ Below Average
___ Low
___ Very Low

“Correct” Response



Option A = +6

Option B = -1

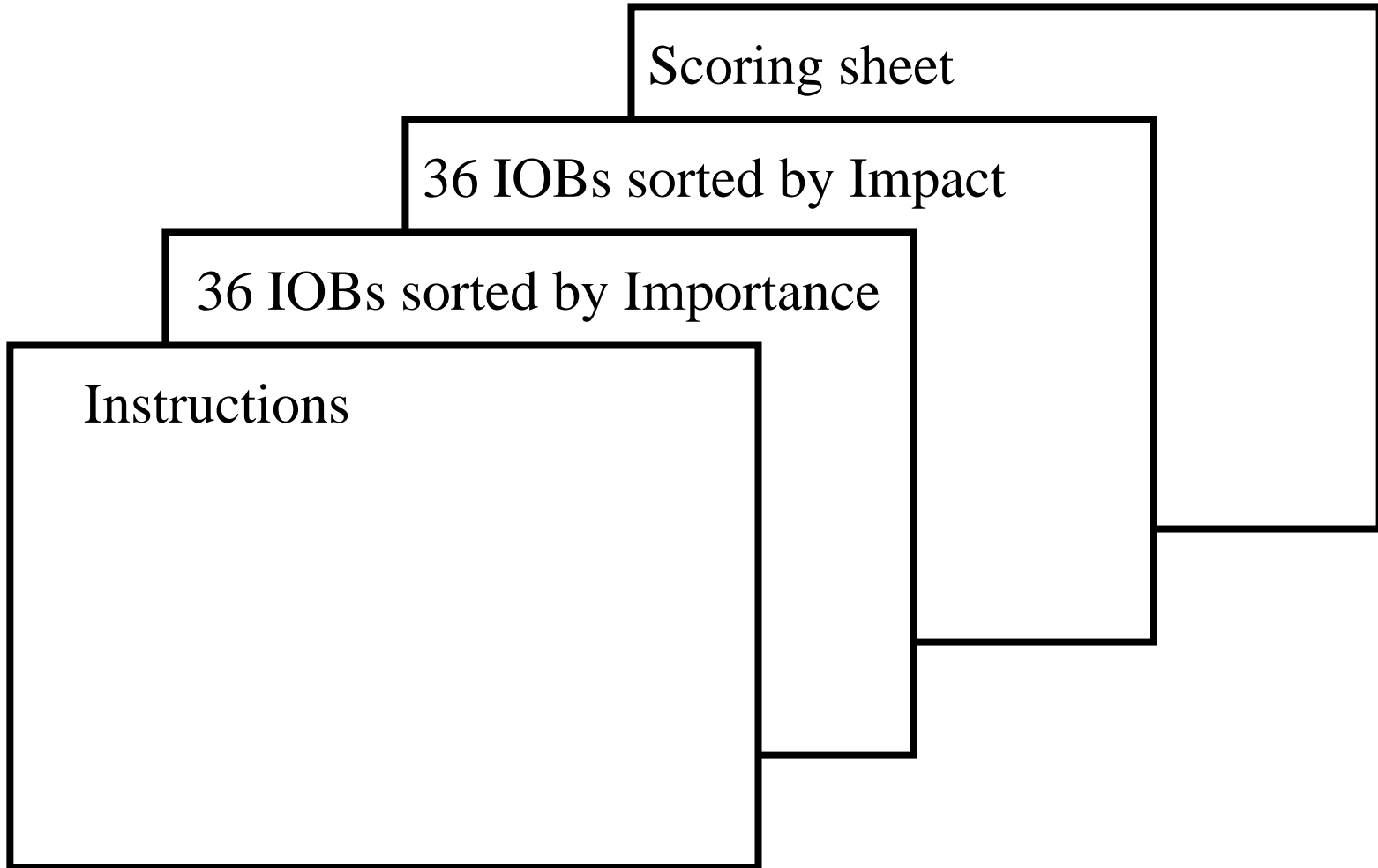
Option C = +4

Distance from Worst to Best = 7

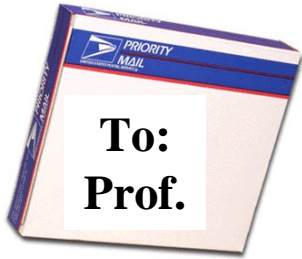
Option C is 5/7 of the way = 71%



Subject gets 4-sheet booklet:



Request to you...



I send you DCODE
test material



Faculty
member



Classroom
testing (20 min.)



You collect responses, send
back in enclosed mailer



Technology Demonstrations Planned

In Progress:

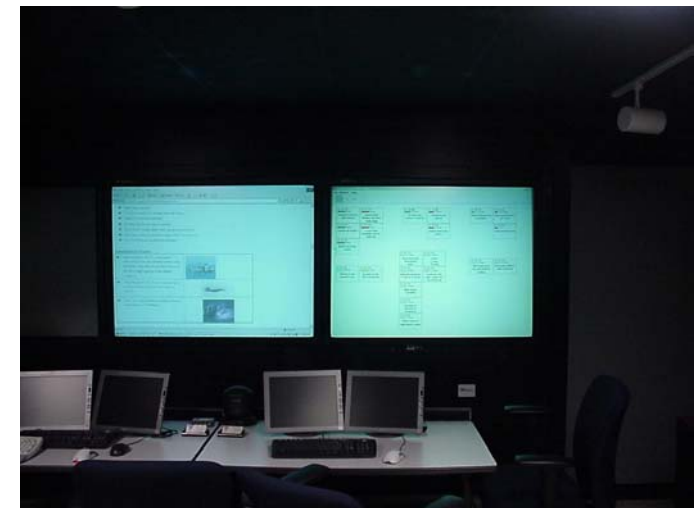
- **Human Systems Performance Assessment Capabilities (HSPAC)**

Possible:

- **Composable FORCEnet**
- **Trident Warrior**
- **Expeditionary Strike Group 1 (ESG-1)**

The Human Systems Performance Assessment Capability (HSPAC)

- **The Human Systems Performance Assessment Capability (HSPAC), is a Navy infrastructure that will allow individual and system-level human performance to be assessed and certified.**
- **The Usability and Engineering Research Lab and the Composeable FORCEnet Human Systems Integration (CFnHSI) Lab in Point Loma, Calif., will be a key part of this distributed capability.**
- **HSPAC will enhance fleet readiness and operational effectiveness at the lowest total ownership cost by providing personnel, expertise, equipment, connectivity, tools, models, environments and alliances necessary to measure, analyze, assess and certify Sailor performance in warfighter systems across all life-cycle phases.**





Composable FORCEnet (CFn)

A major goal of Composable FORCEnet is to provide mechanisms to transform information into knowledge in a manner that directly supports decision making at all levels of command in a Joint and combined warfighting environment.

Grand CFn Challenges

- **Technical Challenges**
 - Reality of “Open Systems”
 - Multi-level Security and Information pedigree and trust issues
 - Network Access, Bandwidth, Latencies, QOS
 - Computing Infrastructure
 - Situation Awareness / Decision Support (Cognition) Development, and Application of Modeling and Simulation

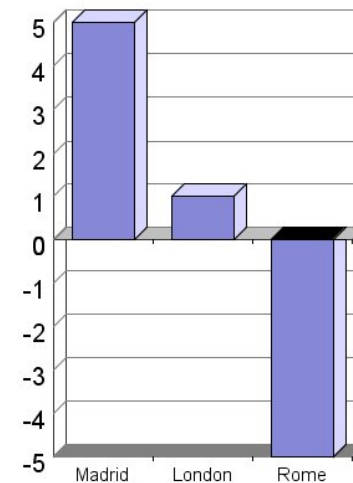
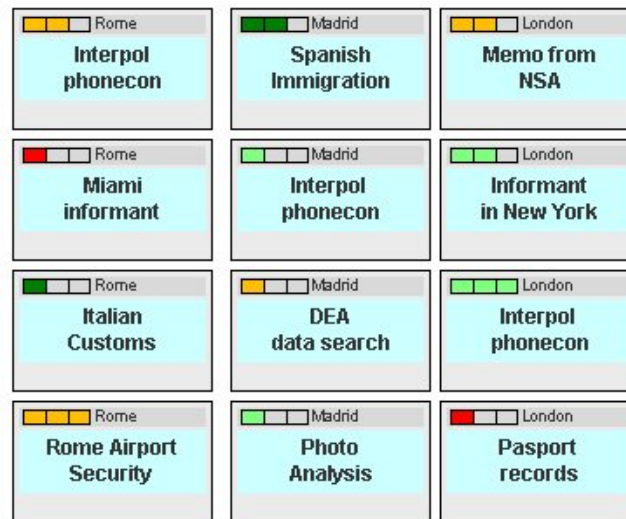


Technology Demonstrations Planned (Intelligence Community)

“Is Carlos still in Columbia?”
(situation assessment)



“Where is Carlos?”
(option selection)

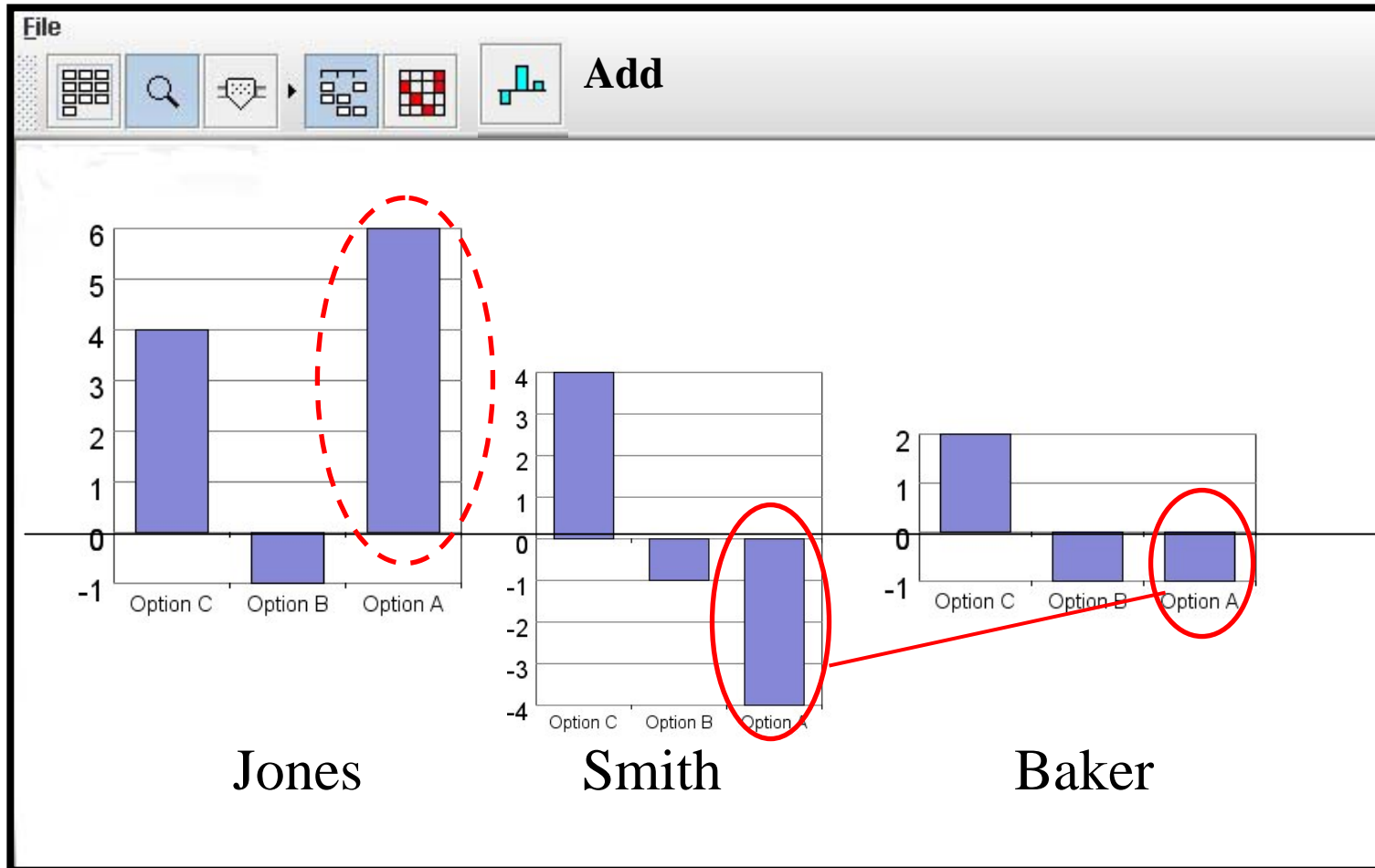




Expected Final Products

- Shrink wrapped, robust version of EWall/DCODE software
- Detailed User's Manual (PDF format)
 - Supporting AVI's
- Research results demonstrating the efficacy of DCODE as a decision support tool.
- Briefs/support/transitions to candidate user community

#1 Priority DCODE Software Enhancement



Option to Select (in **Exchange View**) Summary Score display for all participants

Reaching Consensus:

Where are the critical differences?

12 items for
Option A

	Jones	Smith	Baker
Secondary			

**Here are the critical assessment differences:
focuses group discussion on the two main items
creating conflict and preventing consensus.**

These feature is not yet available



Planned Publications

**“Quantification of subjective information assessments in C2
decision option selection”**

**Cowen, M and Fleming, R. Paper accepted at Command
and Control Research and Technology Symposium, San
Diego, June 14-17, 2006.**



**Research & Engineering
Development, Inc. (RED-Inc)**



Project Presentation

- Focus of project presentations is the technical exchange of ideas in collaboration and knowledge management.
- At a minimum, the following topics should be addressed in the presentation:
 1. Project Title / Research Team Members
 2. Overall Objectives and this year's Objectives
 3. Research Questions Addressed
 4. Technical Approach
 5. Experiments (Planned/Completed) and Results (if available)
 6. Technology Demonstrations Planned
 7. Expected Final Products/where to be used
 8. Identify Recent or Planned Publications
- Presentation Time: 30 minute brief, 10 minute Q&A