



# A PRELIMINARY ANALYSIS OF HIGH-STAKES DECISION-MAKING FOR CRISIS LEADERSHIP

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# BRIEFING: A Preliminary Analysis of High-Stakes Decision-Making for Crisis Leadership

ABSTRACT: High-stakes decision-making represents a critical component of crisis leadership. This study examined the decision-making processes practiced by global, national, and local crisis leaders to identify common decision-making process traits and propose a useful model to guide crisis leaders' high-stakes decision-making. Crises have distinct factors: they are time sensitive, pose significant risks, and require consequential decisions. A sample group of fifteen national and international expert crisis leaders from national security, law enforcement, and government sectors was selected for participation in this study. Seven popular decision-making models were deconstructed into individual process traits and turned in a survey. The experts were asked to identify process traits from the survey that they felt best reflected their approach to decision-making. The results were analyzed and a new model assembled based on their expertise. These findings identified a pattern of practice across the spectrum of crisis leaders and demonstrate the potential usefulness of a new decision-making model that captures the decision-making process traits of expert crisis leaders. The new model was compared to the currently used twenty-five year old Naturalistic Model, as well as other popular decision-making models in table-top crisis scenarios. **This research provides inexperienced crisis leaders a decision-making model drawn from the experiences of national and global crisis decision-making experts.**


"Disruptive situations that require urgency, involve novel decisions and immediate and decisive action" (Pauchant and Douville, 1993)


# Factors that influence or interfere:

## Internal and External Factors

Extreme Insecurity and Vulnerability
High Cost, including loss of life, potential armed conflict, and victims
Greater Unknowns and Evolving Outcomes
Stakeholders
Enemies
Media and Transparency
Politics and Bias

*"Unique contextual factors put added pressure and stress on the leader."*


# Extreme Insecurity:

When a crisis leader makes a poor decision, there are multiple ramifications from the loss of lives to losing their job.

*"Crisis leaders from a small town often mimic the decisions made by larger surrounding cities, assuming the spotlight would be on the city leaders."*



# Vulnerability:

International crisis and the leader believes the power is in the hands of others the decision-maker will focus on domestic issues.

When a leader feels vulnerable they give in to those with power and agree with decisions to appease others.



# High Cost: Threat of War, Loss of Life

The mere fact that **war** is possible adds a layer of complexity unknown to non-crisis.

When decision-making is happening on a global level, the threat of war by one party is often the cause of the crisis.



# High cost: Victim Management

The most volatile of all crisis.

The success or failure of a crisis event depends heavily on the victims' perspectives.

Children * Family * Culture



# High cost: Decision May Increase Victim Number

*President Truman bombed Hiroshima and Nagasaki to save a half million American soldiers.*



# High cost: Destruction of Land and Property

*Examples of other costs associated with crisis decisions-making are destruction of land and property on a grand scale.*

# Greater unknowns and evolving outcomes:

The impact limited resources and security have on populations during a crisis have rarely been determined at the onset when decision-making was required.

*Costs cannot be delineated*

*Victim count may continue to increase*

*Threats may continue to rise*

The crisis decision maker must continually adapt, having confidence that they are making the best decision in that moment.



# Stakeholders:

Crisis complications involve concessions to stakeholders a crisis leader must make to secure the best possible outcome.

The communities and governments affected by the crisis decision are examples of invested stakeholders.

***Those with control over the resources have control over the decisions being considered.***



# Enemies:

Knowing who is the enemy and how they operate guides and strengthens decision processes.

An option or outcome may work for one type of enemy but not another.

The terrorist enemy has created a sense of extreme insecurity for civilians and soldiers.




# Media:

**Most of us experience disasters through mass media.**

Gaps in knowledge about the crisis.

If decisions are shared with the public the media will use it to benefit their cause.

The media will also not hesitate to point out every flaw in the decisions made by crisis leaders.

# Transparency :

Determining how much information the decision-maker shares with the public must be decided quickly and decisively. The ramification of sharing too much or not enough is a factor that weighs heavily on the crisis leader.


Potential for Mass Chaos, Looting, and Mayhem


THE ARIZONA REPUBLIC

U.S. BLOCKADES CUBA, TELLS RUSS 'LAY OFF'

Will Sink Ships That Won't Halt

President's Cuba Stand Far-Reaching

Southeast Gears To War Pace

President Acts

Island's A-Missile Build-Up Cited


DAILY SKETCH

TUESDAY, OCTOBER 23, 1962

CUBA

SENSATIONAL MOVE BY KENNEDY

BLOCKADE!

Ultimatum to Kruschev 'Move those missiles'


FINAL

DAILY NEWS

NEW YORK'S PICTURE NEWSPAPER

5¢

WE BLOCKADE CUBA ARMS

Red Ships Face Search or Sinking

# Transparency :

One method to maintain or keep power for the crisis leader is to not share all of the potential outcomes or options during the decision-making process.

Guarantee the preferred outcome.

Remove transparency and negotiate behind closed doors.

When the decision-making option is transparent, the crisis leader may lose the flexibility to negotiate or to reconsider alternative options.


# Politics:

There is an innate fear that if too much is shared, it will be used against them.

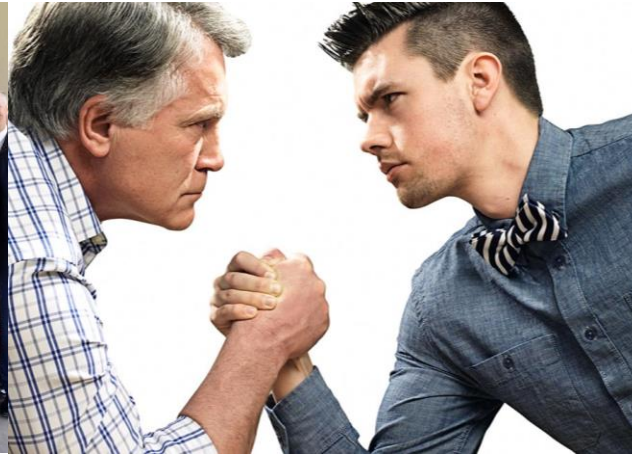
Dispersal of power.

Continuous bargaining game.

Distrust and hostility.

Time is an enemy in crisis decision-making, the more time spent deliberating, the greater the opportunity for trust diminished, and fear or hostility take over.





# Bias:

Shaping the options and outcomes.

A member's opinion may have more weight than others.

Acceptance of new information only when it supports their opinion and ignore non-supporting information.

Participants may be fed biased information to control outcomes.

Bias related to a host of human attributes - age, gender, education, marital status, occupation, and ethnicity- were found to be predictors of how people weigh in on particular issues.

# Decision-making Models

- Direct the decision-making process and guide options for choosing a course of action.
- Developed by examining how experts made decisions in varying situations.

**Decision-making Models For This Study:**

- Naturalistic Decision-making Model (NDM)
- Political Model (PM)
- Rational Model (RM)
- Nominal Group Model (NGT)
- The Black Model (BM)
- The Delphi Model (DT)
- Multi-Attribute Utility Analysis Model (MAUA)

*Models are not necessarily linear and are not always a series of steps one must follow to answer a question. They may be more conceptual, providing a framework for a way of thinking.*

# Decision-making Models

Determining the model to be used…

- Who will make the decisions?
- How will members contribute?
- When must the decision be made?
- How is the team formed to start the process

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# Decision-making Models For This Study

**The models were chosen based on:**

- Their frequency reported in current literature.
- Diversity of models.
- Connection with crisis decision-making.
- Allowed for group discussion or silent voting.
- Gave weight to options or outcomes.
- Allowed for distance voting to ensure diverse representation in the selection process.

Decision-making Models For This Study:

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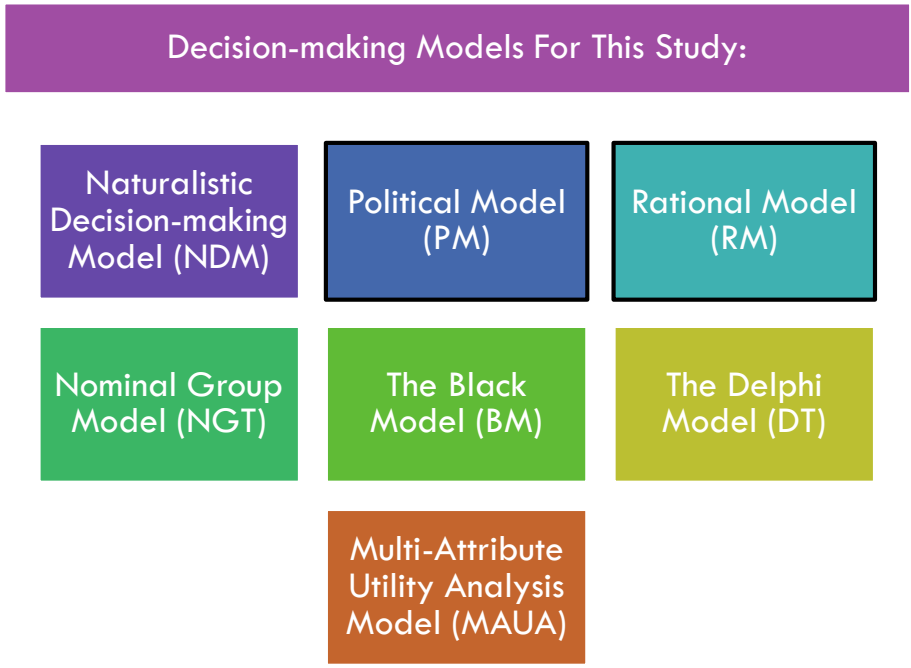
# Decision-making Models: Rational, and Intuitive

Rational models are used most frequently in strategic decision-making.

Rational decision models are based on assumptions as well as facts.

- Rational Model
- Political Model

These two models were chosen because of their association with high stakes decision-making.



# Decision-making Models: Rational, and Intuitive

Intuitive models draw on intuition and experience.

- Nominal Group
- Delphi

The two models were chosen because they are frequently used and closely resemble the methodology used in this study.

Decision-making Models For This Study:

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# Decision-making Models: Rational, and Intuitive

Combinations of the rational and intuitive approaches.

The NDM has been used in crises when time was limited, all options could not be considered, and the expert had to make the decision based on intuition and expertise. The MAUA was the predecessor of the NDM model.

Decision-making Models For This Study:

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This model was developed using site responders on the ground acting and reacting, rather than managerial decision-makers.

# Decision-making Models: Process Traits

**Process Traits** are defined in this study as

"*traits that relate to the different decision-making models as defined by their authors*"

The **Process Traits** were gleaned from the authors that defined the models or by researchers that use or research the models.

# Decision-making Models: Naturalistic Decision-making Model

- Closely mimics a high-stakes decision-making.
- Uses experience and instinct to make effective decisions without analyzing alternatives and is used in real world environments where time is critical.
- Development of the NDM model for decision-making included observation of decision-makers such as firefighters, emergency room personnel, and urban foreground commanders, as they handled non-routine events.

| Naturalistic Decision-making Model Process Traits |
| --- |
| Undefined goals |
| Needed information is missing |
| Conditions continue to change |
| Time Constraints |
| High stress environment |
| Multiple people involved |
| Organizational goals exists |
| Decision makers are experienced |

# Decision-making Models: Political Model

- A personalized bargaining process.
- The needs and desires of the members outweigh rationality.
- Is seen as a battle, and the goals are defined by self-interest, not for the good of the department or the organization as a whole.
- Power struggle is acknowledged and considered.
- Emphasis on the roles conflict and struggle play in the process.
- Includes disagreement about the ends or at least the ordering of outcomes.

<u>Political Model Process Traits</u>

Needs of the members outweigh rationality

Goals defined by self interest

Decision-making is seen as a battle

Power and influence weigh heavily on outcome

Focus on more than one issue at a time

Power is decentralized

Incrementalist approach

Structure of organization influences outcome

# Decision-making Models: Rational Model

The Rational Model (RM) is based on the consensus belief that humans are rational creatures, and they enter into the decision with known objectives.

Herbert Simon believed the efficiency of each outcome must be known, thus giving decision-making a quantitative approach to the art of choosing.

<u>Rational Model Process Traits</u>

Quantitative Approach

Known objectives
All options are assigned a number based on value

Assumes objective data

Formal process of analysis
No time constraints
Unlimited resources to evaluate each choice
Requires complete knowledge of information about alternatives

# Decision-making Models: Multi-Attribute Utility Analysis Model

Multi-Attribute Utility Analysis Model (MAUA) can be used in everyday decisions. This is a tool that will help make decisions that have more than one favorable response/choice/answer. When the attributes are defined, and the criteria that will be used to measure them is identified the results are plotted

MAUA was chosen as a sample model because it was a predecessor to the Naturalistic Decision Model.

MAUA Model Process Traits

Useful for everyday decisions
More than one response/choice/option

Results are plotted
Each option weighed and considered
Outcome decision based on plot
Time-consuming

Useful for everyday decisions
More than one response/choice/option

# Decision-making Models: Nominal Group Model

- A structured orderly procedure set out to obtain qualitative data from an expert target group.
- The members write down their response, then read their statements aloud, without discussion, and the responses are recorded.
- After recording there is a conversation, potential debate, and a silent vote.
- This model removes bias while making a high-stakes decision.
- Some unfortunate attributes of the model include the lack of communication and conflict.

<u>NGT Model Process Traits</u>

Structured, sitting around a table

Writing phase, all the options on paper

Oral phase, sharing options without discussion

Discussion of the recorded ideas to clarify/evaluate

Conversation & debate

Silent independent voting by individuals

Rank ordering or rating procedure results

The "group decision" is the pooled outcome of individual votes

# Decision-making Models: Delphi Model

- A method used for the elicitation of opinions of others and involves the assistance of a questionnaire.
- Questionnaires are sent out, returned. Adjustments are made and sent to only members that returned the first one.
- Allows for distance and is anonymous.

Delphi Model Process Traits

No face to face meetings

Decisions made by group without contact

Vote is anonymous

Internet needed

Sequential questionnaires

Multiple rounds

Time-consuming

The responses are shared with group prior to next round

# Decision-making Models: Black Model

- The oldest model in this sample group and was chosen due to its simplicity and because it was the only option that allowed voting members to abstain.
- This model is not as well-known as the others; however it was deemed valuable in this study due to the option to abstain and the ability to dampen the effects of bias.
- 2nd and 3rd choices are valued.

<u>Black Model Process Traits</u>

Weighted Responses

Member has the option to abstain

Preferred answer or answers

Public choice theory, use of economic tools to analyze

Point system

Weighted Responses

Member has the option to abstain

Preferred answer or answers

# Methodology

Consensus models harness insights from appropriate experts to synthesize information and enable decisions or conclusions to be made with higher degrees of confidence.

Consensus models are structured, systematic, and involve panels of experts as a method to make decisions.

- The study design draws on two consensus models, **Delphi**, and **Nominal Group**.
- The **Delphi Model** involves the use of a questionnaire and the **Nominal Group Model** is a structured orderly procedure set out to obtain qualitative data from an expert target group
- Survey data were collected and loaded into Qualtrics and SPSS using the descriptive statistics of Frequency and Percentage, the Choice Elimination Theoretical Framework, and Principal Component Analysis (PCA)/Pearson Correlation.

# Crisis Experts

**Sample Size:** N=20, 75% response rate

**Countries:** USA, United Kingdom, Turkey, Iran, South Africa

**Instrument:** Process Trait Survey

**Analysis:** Frequency and Correlation (PCA)

*Twenty individuals were identified as a purposive, selected sample through professional affiliations in the global intelligence, government, emergency response, and law enforcement communities.*

# Decision-making Models Deconstructed

**Decision-making Models for this study:**

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- The Black Model (BM)

| NDM | PM | RM | MAUA | NGT | DT | BM |
|---|---|---|---|---|---|---|
| Undefined goals | Needs of the members outweigh rationality | Quantitative Approach | Useful for everyday decisions | Structured, sitting around a table | No face to face meetings | Weighted Responses |
| Needed information is missing | Goals defined by self interest | Known objectives | More than one response/choice/option | Writing phase, all the options on paper | Decisions made by group without contact | Member has the option to abstain |
| Conditions continue to change | Decision-making is seen as a battle | All options are assigned a number based on value | Results are plotted | Oral phase, sharing options without discussion | Vote is anonymous | Preferred answer or answers |
| Time Constraints | Power and influence weigh heavily on outcome | Assumes objective data | Each option weighed and considered | Discussion of the recorded ideas to clarify/evaluate | Internet needed | Public choice theory, use of economic tools to analyze |
| High stress environment | Focus on more than one issue at a time | Formal process of analysis | Outcome decision based on plot | Conversation & debate | Sequential questionnaires | Point system |
| Multiple people involved | Power is decentralized | No time constraints | Time-consuming | Silent independent voting by individuals | Multiple rounds | |
| Organizational goals exists | Incrementalist approach | Unlimited resources to evaluate each choice | | Rank ordering or rating procedure results | Time-consuming | |
| Decision makers are experienced | Structure of organization influences outcome | Requires complete knowledge of information about alternatives | | The "group decision" is the pooled outcome of individual votes | The responses are shared with group prior to next round | |

# Models into a Questionnaire

**Decision-making Models for this study:**

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## CRISIS DECISION-MAKING TRAITS

(Y - yes, I use in my decision making. N - no, I do not use in my decision making, or U - Undecided, I do not know if I use this trait)

- Y N U All options are assigned a number based on value
- Y N U Assumes objective data
- Y N U Conditions continue to change
- Y N U Conversation & debate
- Y N U Decision makers are experienced
- Y N U Decision-making is seen as a battle
- Y N U Decisions made by group without contact
- Y N U Discussion of the recorded ideas to clarify/evaluate
- Y N U Each option weighed and considered
- Y N U Focus on more than one issue at a time
- Y N U Formal process of analysis
- Y N U Goals defined by self interest
- Y N U High stress environment
- Y N U Incrementalist approach, identifies weakness, not new ideas
- Y N U Internet needed
- Y N U Known objectives
- Y N U Member has the option to abstain
- Y N U More than one response/choice/option
- Y N U Multiple rounds
- Y N U Multiple people involved
- Y N U Needed information is missing
- Y N U Needs of the members outweigh rationality
- Y N U No face to face meetings
- Y N U No time constraints
- Y N U Oral phase, sharing options without discussion
- Y N U Organizational goals exists
- Y N U Outcome decision based on plot
- Y N U Point system
- Y N U Power and influence weigh heavily on outcome
- Y N U Power is decentralized
- Y N U Preferred answer or answers
- Y N U Public choice theory, use of economic tools to analyze
- Y N U Quantitative Approach
- Y N U Rank ordering or rating procedure results
- Y N U Requires complete knowledge of information about alternatives
- Y N U Results are plotted
- Y N U Sequential questionnaires
- Y N U Silent independent voting by individuals
- Y N U Structure of organization influences outcome
- Y N U Structured, sitting around a table
- Y N U The "group decision" is the pooled outcome of individual votes
- Y N U The responses are shared with group prior to next round
- Y N U Time Constraints
- Y N U Time-consuming
- Y N U Undefined goals
- Y N U Unlimited resources to evaluate each choice
- Y N U Useful for everyday decisions
- Y N U Vote is anonymous
- Y N U Weighted Responses
- Y N U Writing phase, all the options on paper

# Frequencies & the Framework

Hypothesis: high-stakes decision-making process traits are not adequately captured by current decision-making models.

*Group Decision - Making Models Traits*

| NDM | PM | RM | MAUA | NGT | DT | BM |
|---|---|---|---|---|---|---|
| Undefined goals | Needs of the members outweigh rationality | Quantitative Approach | Useful for everyday decisions | Structured, sitting around a table | No face to face meetings | Weighted Responses |
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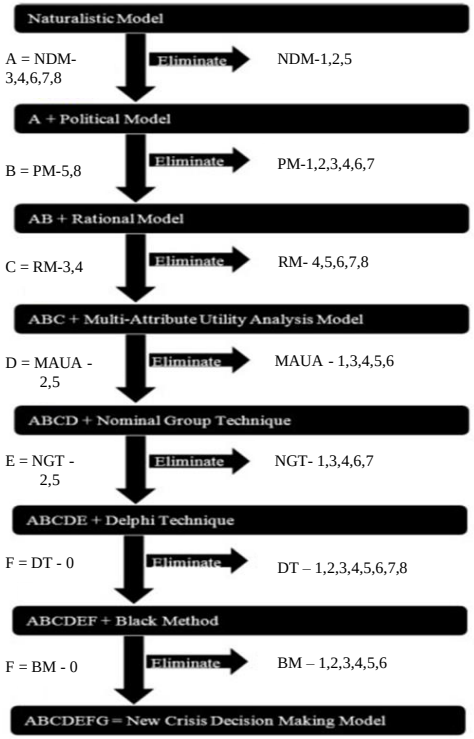
**A) Group Process Traits**

*Top Shared Traits and Associated Models*

| Trait | # yes | % | Model |
|---|---|---|---|
| Multiple people involved | 15 | 100% | NDM |
| Conditions continue to change | 15 | 100% | NDM |
| Assumes objective data | 13 | 87% | RM |
| More than one response/choice/option | 13 | 87% | MAUA |
| Organizational goals exists | 13 | 87% | NDM |
| Rank ordering or rating procedure results | 13 | 87% | NGT |
| Structure of organization influences outcome | 13 | 87% | PM |
| Time constraints | 13 | 87% | NDM |
| All options are assigned a number based on value | 12 | 80% | RM |
| Conversation & debate | 12 | 80% | NGT |
| Decision makers are experienced | 12 | 80% | NDM |
| Focus on more than one issue at a time | 12 | 80% | PM |
| Outcome decision based on plot | 12 | 80% | MAUA |

*Note.* 80%-100% Crisis Leaders Use These Traits

B) >80 % Shared Process traits




C) Choice Elimination Framework

# Frequencies & the Framework

Hypothesis: high-stakes decision-making process traits are not adequately captured by current decision-making models.

*Group Decision - Making Models Traits With Associated Question*

| | NDM | PM | RM | MAUA | NGT | DT | BM |
|---|---|---|---|---|---|---|---|
| 1 | (45) | (22) | (33) | (47) | (40) | (23) | (49) |
| 2 | (21) | (12) | (16) | (18) | (50) | (7) | (17) |
| 3 | (3) | (6) | (1) | (36) | (25) | (48) | (31) |
| 4 | (43) | (29) | (2) | (9) | (8) | (15) | (32) |
| 5 | (13) | (10) | (11) | (27) | (4) | (37) | (28) |
| 6 | (20) | (30) | (24) | (44) | (38) | (19) | |
| 7 | (26) | (14) | (46) | | (34) | (44) | |
| 8 | (5) | (39) | 35) | | (41) | (42) | |

*Note.* The (#) represents the survey identifier number

A) Group Process Traits from slide 5

*Top Shared Traits and Associated Models*

| Trait | # yes | % | Model |
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| Decision makers are experienced | 12 | 80% | NDM |
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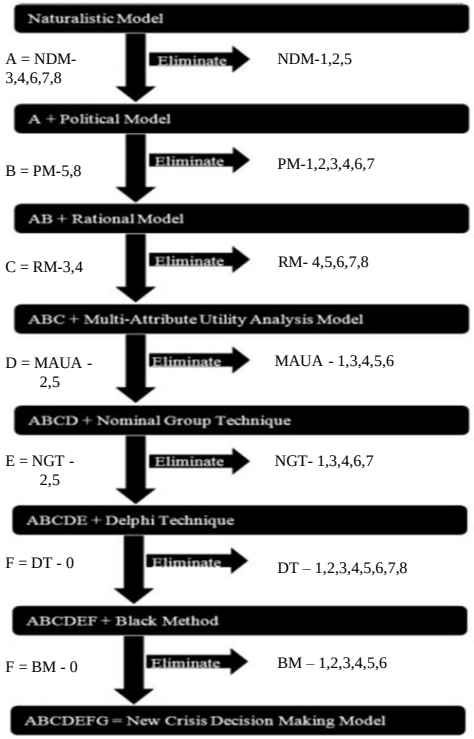
B) >80 % Shared Process traits




C) Choice Elimination Framework

# Correlations/Shared Processes

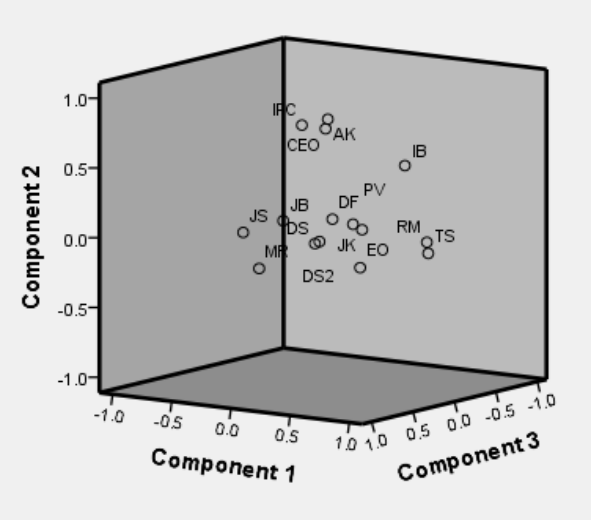
Table 6

*PCA/Pearson Correlation*

| | JS | TS | DS | RM | EO | AK | IPC | CEO | PV | JB | DS2 | JK | MR | IB | DF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JS | 1 | 0.076 | 0.427 | 0.116 | 0.264 | 0.076 | -0.04 | 0.041 | 0.045 | 0.182 | 0.101 | 0.284 | 0.58 | -0.04 | 0.008 |
| TS | 0.076 | 1 | 0.284 | 0.644 | 0.446 | 0.097 | -0.06 | 0.122 | 0.33 | 0.074 | 0.264 | 0.544 | 0.183 | 0.327 | 0.328 |
| DS | 0.427 | 0.284 | 1 | 0.4 | 0.408 | 0.07 | 0.069 | 0.086 | 0.391 | 0.346 | 0.049 | 0.267 | 0.391 | 0.291 | 0.266 |
| RM | 0.116 | 0.644 | 0.4 | 1 | 0.475 | 0.119 | 0.006 | 0.124 | 0.294 | 0.248 | 0.085 | 0.501 | 0.172 | 0.509 | 0.211 |
| EO | 0.264 | 0.446 | 0.408 | 0.475 | 1 | 0.148 | -0.13 | -0.01 | 0.22 | 0.309 | -0.06 | 0.355 | 0.45 | 0.238 | 0.287 |
| AK | 0.076 | 0.097 | 0.07 | 0.119 | 0.148 | 1 | 0.459 | 0.459 | 0.159 | 0.245 | 0.02 | 0.203 | -0.06 | 0.504 | 0.24 |
| IPC | -0.04 | -0.06 | 0.069 | 0.006 | -0.13 | 0.459 | 1 | 0.379 | 0.141 | 0.051 | 0.003 | -0.05 | -0.17 | 0.206 | 0.227 |
| CEO | 0.041 | 0.122 | 0.086 | 0.124 | -0.01 | 0.459 | 0.379 | 1 | 0.253 | 0.253 | -0.09 | 0.229 | -0.01 | 0.418 | 0.231 |
| PV | 0.045 | 0.33 | 0.391 | 0.294 | 0.22 | 0.159 | 0.141 | 0.253 | 1 | 0.287 | 0.211 | 0.269 | 0.126 | 0.359 | 0.501 |
| JB | 0.182 | 0.074 | 0.346 | 0.248 | 0.309 | 0.245 | 0.051 | 0.253 | 0.287 | 1 | 0.041 | 0.313 | 0.381 | 0.175 | 0.41 |
| DS2 | 0.101 | 0.264 | 0.049 | 0.085 | -0.06 | 0.02 | 0.003 | -0.09 | 0.211 | 0.041 | 1 | 0.129 | 0.188 | 0.053 | 0.232 |
| JK | 0.284 | 0.544 | 0.267 | 0.501 | 0.355 | 0.203 | -0.05 | 0.229 | 0.269 | 0.313 | 0.129 | 1 | 0.425 | 0.261 | 0.292 |
| MR | 0.58 | 0.183 | 0.391 | 0.172 | 0.45 | -0.06 | -0.17 | -0.01 | 0.126 | 0.381 | 0.188 | 0.425 | 1 | -0.04 | 0.146 |
| IB | -0.04 | 0.327 | 0.291 | 0.509 | 0.238 | 0.504 | 0.206 | 0.418 | 0.359 | 0.175 | 0.053 | 0.261 | -0.04 | 1 | 0.225 |
| DF | 0.008 | 0.328 | 0.266 | 0.211 | 0.287 | 0.24 | 0.227 | 0.231 | 0.501 | 0.41 | 0.232 | 0.292 | 0.146 | 0.225 | 1 |

*Note.* Determinant = .003, *gray areas represent r >0.3*

**PCA Correlation**




**Component Plot**

# Correlations/Shared Processes

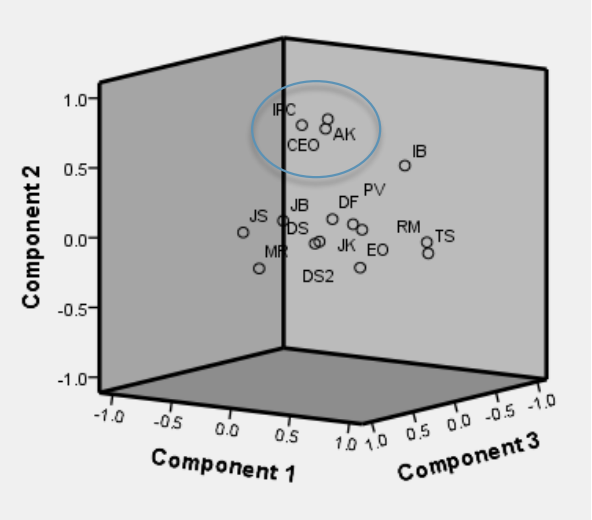
Table 6

*PCA/Pearson Correlation*

| | JS | TS | DS | RM | EO | AK | IPC | CEO | PV | JB | DS2 | JK | MR | IB | DF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JS | 1 | 0.076 | 0.427 | 0.116 | 0.264 | 0.076 | -0.04 | 0.041 | 0.045 | 0.182 | 0.101 | 0.284 | 0.58 | -0.04 | 0.008 |
| TS | 0.076 | 1 | 0.284 | 0.644 | 0.446 | 0.097 | -0.06 | 0.122 | 0.33 | 0.074 | 0.264 | 0.544 | 0.183 | 0.327 | 0.328 |
| DS | 0.427 | 0.284 | 1 | 0.4 | 0.408 | 0.07 | 0.069 | 0.086 | 0.391 | 0.346 | 0.049 | 0.267 | 0.391 | 0.291 | 0.266 |
| RM | 0.116 | 0.644 | 0.4 | 1 | 0.475 | 0.119 | 0.006 | 0.124 | 0.294 | 0.248 | 0.085 | 0.501 | 0.172 | 0.509 | 0.211 |
| EO | 0.264 | 0.446 | 0.408 | 0.475 | 1 | 0.148 | -0.13 | -0.01 | 0.22 | 0.309 | -0.06 | 0.355 | 0.45 | 0.238 | 0.287 |
| AK | 0.076 | 0.097 | 0.07 | 0.119 | 0.148 | 1 | 0.459 | 0.459 | 0.159 | 0.245 | 0.02 | 0.203 | -0.06 | 0.504 | 0.24 |
| IPC | -0.04 | -0.06 | 0.069 | 0.006 | -0.13 | 0.459 | 1 | 0.379 | 0.141 | 0.051 | 0.003 | -0.05 | -0.17 | 0.206 | 0.227 |
| CEO | 0.041 | 0.122 | 0.086 | 0.124 | -0.01 | 0.459 | 0.379 | 1 | 0.253 | 0.253 | -0.09 | 0.229 | -0.01 | 0.418 | 0.231 |
| PV | 0.045 | 0.33 | 0.391 | 0.294 | 0.22 | 0.159 | 0.141 | 0.253 | 1 | 0.287 | 0.211 | 0.269 | 0.126 | 0.359 | 0.501 |
| JB | 0.182 | 0.074 | 0.346 | 0.248 | 0.309 | 0.245 | 0.051 | 0.253 | 0.287 | 1 | 0.041 | 0.313 | 0.381 | 0.175 | 0.41 |
| DS2 | 0.101 | 0.264 | 0.049 | 0.085 | -0.06 | 0.02 | 0.003 | -0.09 | 0.211 | 0.041 | 1 | 0.129 | 0.188 | 0.053 | 0.232 |
| JK | 0.284 | 0.544 | 0.267 | 0.501 | 0.355 | 0.203 | -0.05 | 0.229 | 0.269 | 0.313 | 0.129 | 1 | 0.425 | 0.261 | 0.292 |
| MR | 0.58 | 0.183 | 0.391 | 0.172 | 0.45 | -0.06 | -0.17 | -0.01 | 0.126 | 0.381 | 0.188 | 0.425 | 1 | -0.04 | 0.146 |
| IB | -0.04 | 0.327 | 0.291 | 0.509 | 0.238 | 0.504 | 0.206 | 0.418 | 0.359 | 0.175 | 0.053 | 0.261 | -0.04 | 1 | 0.225 |
| DF | 0.008 | 0.328 | 0.266 | 0.211 | 0.287 | 0.24 | 0.227 | 0.231 | 0.501 | 0.41 | 0.232 | 0.292 | 0.146 | 0.225 | 1 |

*Note.* Determinant = .003, *gray areas represent r >0.3*

**PCA Correlation**




**Component Plot**

# Correlations/Shared Processes

Table 6

*PCA/Pearson Correlation*

| | JS | TS | DS | RM | EO | AK | IPC | CEO | PV | JB | DS2 | JK | MR | IB | DF |
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| TS | 0.076 | 1 | 0.284 | 0.644 | 0.446 | 0.097 | -0.06 | 0.122 | 0.33 | 0.074 | 0.264 | 0.544 | 0.183 | 0.327 | 0.328 |
| DS | 0.427 | 0.284 | 1 | 0.4 | 0.408 | 0.07 | 0.069 | 0.086 | 0.391 | 0.346 | 0.049 | 0.267 | 0.391 | 0.291 | 0.266 |
| RM | 0.116 | 0.644 | 0.4 | 1 | 0.475 | 0.119 | 0.006 | 0.124 | 0.294 | 0.248 | 0.085 | 0.501 | 0.172 | 0.509 | 0.211 |
| EO | 0.264 | 0.446 | 0.408 | 0.475 | 1 | 0.148 | -0.13 | -0.01 | 0.22 | 0.309 | -0.06 | 0.355 | 0.45 | 0.238 | 0.287 |
| AK | 0.076 | 0.097 | 0.07 | 0.119 | 0.148 | 1 | 0.459 | 0.459 | 0.159 | 0.245 | 0.02 | 0.203 | -0.06 | 0.504 | 0.24 |
| IPC | -0.04 | -0.06 | 0.069 | 0.006 | -0.13 | 0.459 | 1 | 0.379 | 0.141 | 0.051 | 0.003 | -0.05 | -0.17 | 0.206 | 0.227 |
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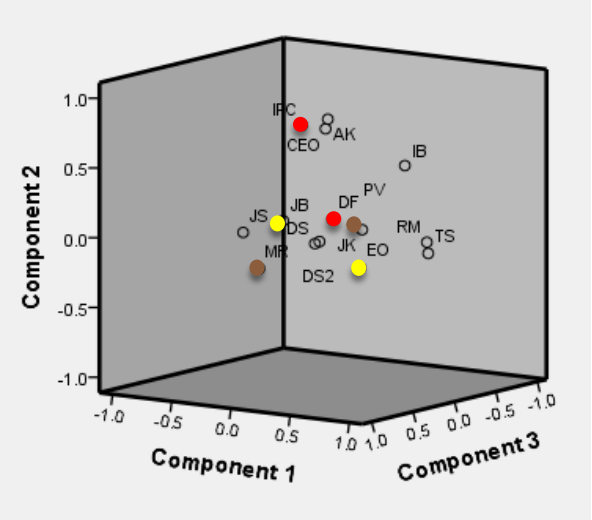
| PV | 0.045 | 0.33 | 0.391 | 0.294 | 0.22 | 0.159 | 0.141 | 0.253 | 1 | 0.287 | 0.211 | 0.269 | 0.126 | 0.359 | 0.501 |
| JB | 0.182 | 0.074 | 0.346 | 0.248 | 0.309 | 0.245 | 0.051 | 0.253 | 0.287 | 1 | 0.041 | 0.313 | 0.381 | 0.175 | 0.41 |
| DS2 | 0.101 | 0.264 | 0.049 | 0.085 | -0.06 | 0.02 | 0.003 | -0.09 | 0.211 | 0.041 | 1 | 0.129 | 0.188 | 0.053 | 0.232 |
| JK | 0.284 | 0.544 | 0.267 | 0.501 | 0.355 | 0.203 | -0.05 | 0.229 | 0.269 | 0.313 | 0.129 | 1 | 0.425 | 0.261 | 0.292 |
| MR | 0.58 | 0.183 | 0.391 | 0.172 | 0.45 | -0.06 | -0.17 | -0.01 | 0.126 | 0.381 | 0.188 | 0.425 | 1 | -0.04 | 0.146 |
| IB | -0.04 | 0.327 | 0.291 | 0.509 | 0.238 | 0.504 | 0.206 | 0.418 | 0.359 | 0.175 | 0.053 | 0.261 | -0.04 | 1 | 0.225 |
| DF | 0.008 | 0.328 | 0.266 | 0.211 | 0.287 | 0.24 | 0.227 | 0.231 | 0.501 | 0.41 | 0.232 | 0.292 | 0.146 | 0.225 | 1 |

*Note.* Determinant = .003, *gray areas represent r >0.3*

**PCA Correlation**

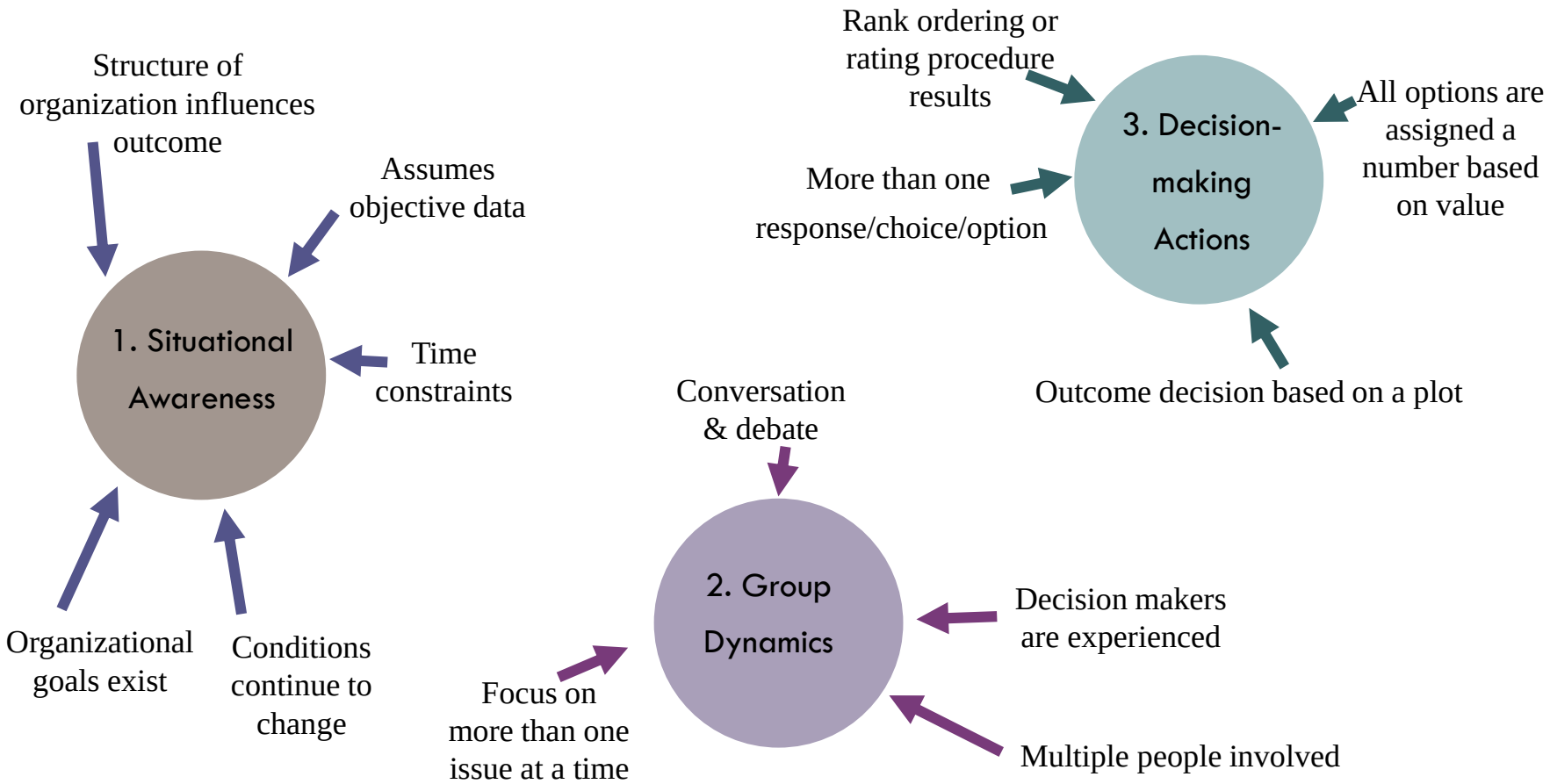



**Component Plot**

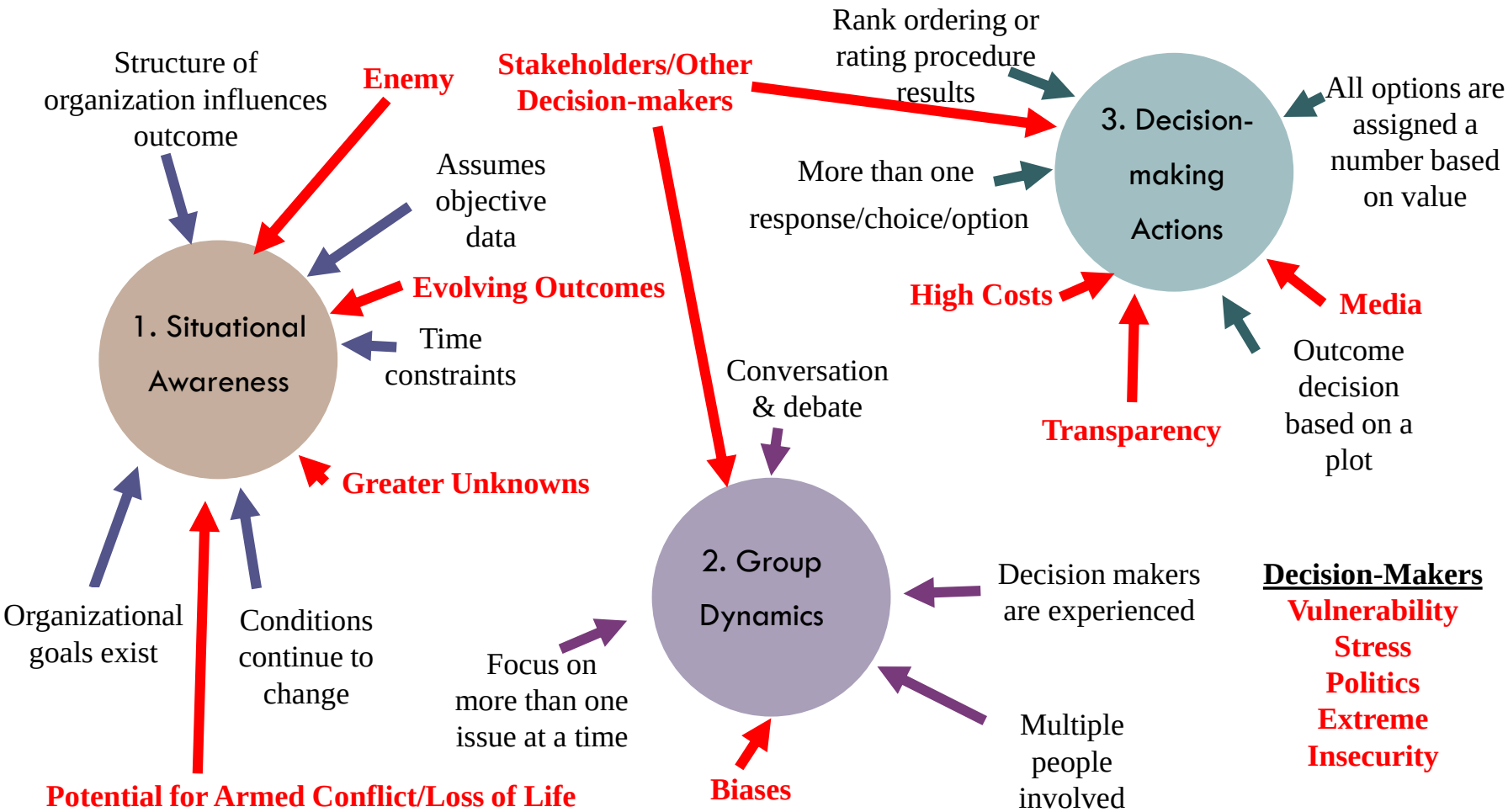
# New Crisis Decision-Making Model

| Situational Awareness: | Group Dynamics: | Decision-Making Actions: |
| --- | --- | --- |
| Assumes objective data | Conversation & debate | All options are assigned a number based on value |
| Conditions continue to change | Decision makers are experienced | More than one response/choice/option |
| Organizational goals exist | Focus on more than one issue at a time | Outcome decision based on a plot |
| Structure of organization influences outcome | Multiple people involved | Rank ordering or rating procedure results |
| Time constraints | | |

# New Crisis Decision-Making Model



# New Crisis Decision-Making Model

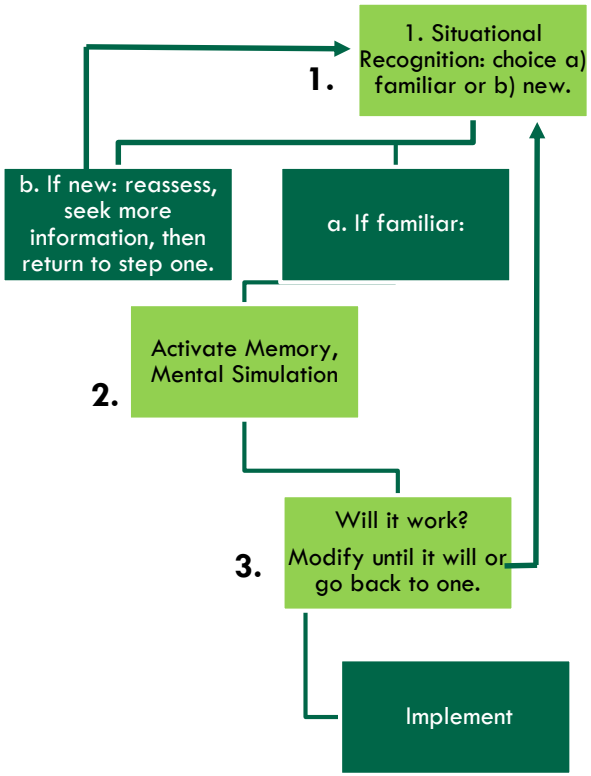


# The Naturalistic Decision-Making Model Traits in Red

| Situational Awareness: | Group Dynamics: | Decision-Making Actions: |
| --- | --- | --- |
| Assumes objective data | Conversation & debate | All options are assigned a number based on value |
| Conditions continue to change | Decision makers are experienced | More than one response/choice/option |
| Organizational goals exist | Focus on more than one issue at a time | Outcome decision based on a plot |
| Structure of organization influences outcome | Multiple people involved | Rank ordering or rating procedure results |
| Time constraints | | |

# Naturalistic Decision-Making Model

| | |
|---|---|
| Conditions continue to change | 100.00% |
| Multiple people involved | 100.00% |
| Decision makers are experienced | 90.00% |
| Organizational goals exists | 80.00% |
| Time constraints | 80.00% |
| Needed information is missing | 50.00% |
| High stress environment | 40.00% |
| Undefined goals | 20.00% |




NDM Categories: 1. Recognize the environment, 2. Develop a course of action, 3. Strategize

Klein, G. & Klinger, D. (1991). Naturalistic decision making. *Human Systems IAC Gateway, 11(3)*, 16-19.

# The *NEW* Crisis Decision-Making Model in Use

*When President Kennedy threatened the Soviet Union during the Cuban missile crisis, "remove your missiles or else." He shared only part of the information with the American public thus gaining support for his decision and allowing the public to increase his "power," by making the coercive threat stronger, thus leading to only two outcomes, comply or go to war. President Kennedy opted not to share with the public that the outcome included a third option, removal of US missiles from Turkey.*

<u>Situational Awareness:</u>

1. Assumes objective data
2. Conditions continue to change
3. Organizational goals exist
4. Structure of organization influences outcome
5. Time constraints

<u>Group Dynamics:</u>

1. Conversation & debate
2. Decision makers are experienced
3. Focus on more than one issue at a time
4. Multiple people involved

<u>Decision-Making Actions:</u>

1. All options are assigned a number based on value
2. More than one response/choice/option
3. Outcome decision based on a plot
4. Rank ordering or rating procedure results

Extreme insecurity and vulnerability; high cost, including loss of life, potential armed conflict, and victims; greater unknowns and evolving outcomes; stakeholders, enemies, media and transparency; politics, and bias.

# The *NEW* Crisis Decision-Making Model in Use

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<u>Decision-Making Actions:</u>

1. **More than one response/choice/option**
2. All options are assigned a number based on value
3. Rank ordering or rating procedure results
4. Outcome decision based on a plot

If Khrushchev does not remove the missiles:

1. Invade Cuba
2. Invade Russia
3. Renegotiate
4. Send select troops to find the missiles
5. Nothing
6. Do A & B

# The *NEW* Crisis Decision-Making Model in Use

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<u>Decision-Making Actions:</u>

1. More than one response/choice/option
2. **All options are assigned a number based on value**
3. Rank ordering or rating procedure results
4. Outcome decision based on a plot

If Khrushchev does not remove the missiles: (**DM-Decision-maker**)

| | DM 1 | DM 2 | DM 3 | DM 4 | DM 5 |
|---|---|---|---|---|---|
| 1. Invade Cuba | 1 | 0 | 1 | 2 | 2 |
| 2. Invade Russia | 1 | 0 | 2 | 1 | 2 |
| 3. Renegotiate | 3 | 1 | 2 | 0 | 2 |
| 4. Send select troops to find the missiles | 2 | 0 | 3 | 0 | 3 |
| 5. Nothing | 0 | 0 | 0 | 0 | 1 |
| 6. Do A & B | 1 | 0 | 2 | 2 | 3 |

Numbers represent choices by Decision-makers (DMs).

# The *NEW* Crisis Decision-Making Model in Use

*When President Kennedy threatened the Soviet Union during the Cuban missile crisis, "remove your missiles or else." He shared only part of the information with the American public thus gaining support for his decision and allowing the public to increase his "power," by making the coercive threat stronger, thus leading to only two outcomes, comply or go to war. President Kennedy opted not to share with the public that the outcome included a third option, removal of US missiles from Turkey.*

<u>Decision-Making Actions:</u>

1. More than one response/choice/option
2. All options are assigned a number based on value
3. **Rank ordering or rating procedure results**
4. Outcome decision based on a plot

If Khrushchev does not remove the missiles:

| | 1st Choice | 2nd Choice | 3rd Choice | No |
|---|---|---|---|---|
| 1. Invade Cuba | 2 | 2 | 0 | 1 |
| 2. Invade Russia | 2 | 1 | 1 | 1 |
| 3. Renegotiate | 1 | 1 | 1 | 2 |
| 4. Send select troops to find the missiles | 0 | 1 | 1 | 3 |
| 5. Nothing | 1 | 0 | 0 | 4 |
| 6. Do A & B | 1 | 2 | 1 | 1 |

# The *NEW* Crisis Decision-Making Model in Use

*When President Kennedy threatened the Soviet Union during the Cuban missile crisis, "remove your missiles or else." He shared only part of the information with the American public thus gaining support for his decision and allowing the public to increase his "power," by making the coercive threat stronger, thus leading to only two outcomes, comply or go to war. President Kennedy opted not to share with the public that the outcome included a third option, removal of US missiles from Turkey.*

<u>Decision-Making Actions:</u>

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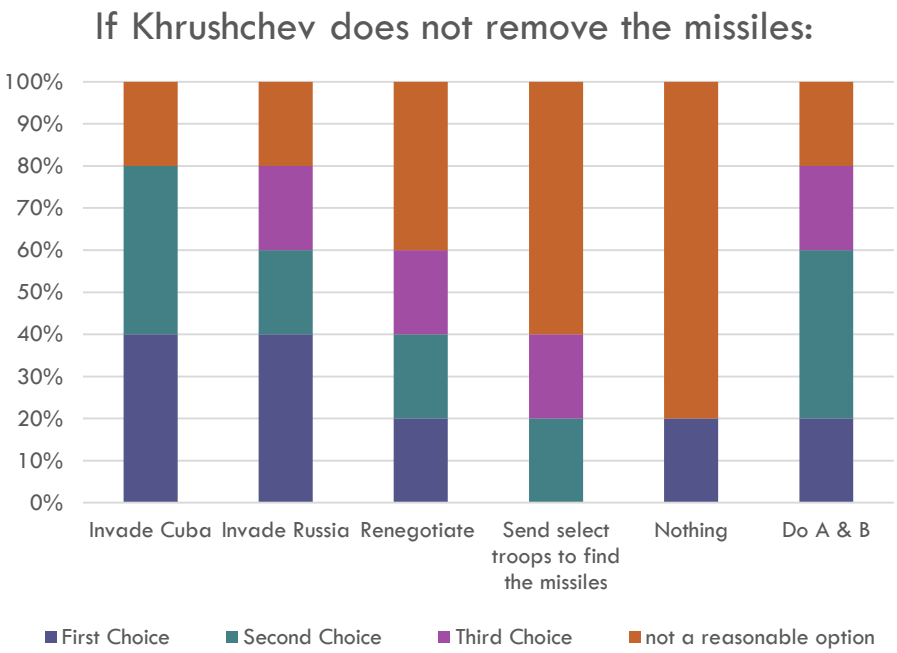
4. **Outcome decision based on a plot**



# Conclusion

- We can move from risk to resiliency in crisis management by using a decision-making model developed for crisis leaders for the novel or experienced crisis leader.

# Contact

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