APPLICATION OF MCAT FOR MFC STRATEGIC PLANNING

The following steps outline how to use the MCAT. The remainder of the section gives further details for each step.

**Step 1:** Fill out country data worksheet.

**Step 2:** Transfer data to MFC scorecard.

**Step 3:** Set weights for CAAs on MFC scorecard.

**Step 4:** Color MFC scorecard.

**Step 5:** Set flags for type of analysis and rank MFC scorecard for analysis.

Note that steps displayed below in boxes denote computer steps.

**STEP 1: Fill Out the Country Data worksheet**

- Open the MCAT workbook.
- Go to "country data worksheet."
- Enter the country name over "Country 1." "Return" will replace all appropriate areas with the country name.
- Enter country compatibility values into appropriate rows/columns. **Do not** input data into overall column.
Country data worksheet. The worksheet body contains the information to be entered on the scorecard at the intersection of the CAAs (columns) and the CMs (rows). The user fills out this portion of the worksheet using primarily subjective assessments of each country based on analytical research of its capabilities and their associated compatibility with U.S. ground forces. (Figure B.2 in the previous appendix illustrates the four levels of compatibility used for evaluation.)

Compatibility measures. The user evaluates each CAA using three CMs. These CMs, drawn from a review of recent multiorce operation after-action-reports and studies and current Army doctrine and regulations, represent the critical measures affecting the compatibility between two forces.\(^1\) While compatibility problems are often attributed to equipment or technology differences between nations, MCAT takes into account the more complicated and realistic view that compatibility is based on a variety of factors. The compatibility measures used in the MCAT are doctrine, technology, and operational readiness/training.

- **Doctrine.** How do they fight? Does their doctrine cover the full treatment of strategic, operational, and tactical issues? Does it cover Joint and Combined operations? Does it emphasize offense, defense, or both? What type of operations does it cover?
- **Technology.** What do they fight with? What is their modernization level?
- **Operational readiness/training.** What are their forces capable of? What types of missions are they trained to conduct? What do recent evaluations/exercises demonstrate about the readiness of their forces?

Capability assessment areas. The 2000 RAND study on MFC issues categorized the compatibility issues identified in each of the four operations analyzed into three specific areas: C4I, logistics and deployability, and doctrine, procedures, and employment.\(^2\) To enhance the evaluation, we further divided them into nine compatibil-

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\(^1\)Publications reviewed include FM 100-5, FM 100-8, Paulin, Marshall, and Maurer.

\(^2\)Zanini and Taw.
ity assessment areas derived from both the above-mentioned study and Army doctrine on multinational operations. The following sets of questions for each of the nine CAAs are designed to guide the user in the capability assessment.

1. Maneuver

- **Doctrine.** How do they fight? Is their doctrine Soviet-based or U.S.-based? Primarily defensive or offensive oriented? What is the size of their basic maneuver force? Do they plan for combined arms operations, joint operations, combined operations?

- **Technology.** What is the modernization level of their maneuver equipment? What is the mobility of their formations? What type of communications equipment do their maneuver formations have?

- **OR/Training.** What is the effectiveness of their formations? What is their assessed maneuver capability? Do they have training for operating in special environments (airborne, air-assault, urban, NBC)?

2. Fires

- **Doctrine.** What is their doctrine on allocation of firepower? Who controls their firepower assets? What are their fire control measures?

- **Technology.** What type of targeting/firepower equipment do they have?

- **OR/Training.** What is their capability for long-range/massed fires? What is their capability to integrate and synchronize fires?

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3FM 100-5, FM 100-8.

4The list of questions was drawn from analysis of FM 100-5 and FM 100-8 and most likely does not include all relevant ones. However, including additional questions may unnecessarily complicate the analysis. There are multitudes of questions pertaining to each CAA, and delineation of every relevant one would be overwhelming and unproductive. To complete a general, relative assessment of compatibility across nations with the MCAT, a basic subjective assessment of a nation’s capability is required.
3. Air Defense

- **Doctrine.** What are their priorities for air defense? Who controls their AD assets? What are their fire control measures?

- **Technology.** What are their weapons systems types and capabilities? What type of communications equipment do they have? Do they have theater missile defense capability?

- **OR/training.** What are their AD capabilities? Can they integrate their fires into the theater control and reporting center (CRC)?

4. Mobility/Survivability/Force Protection

- **Doctrine.** Does it cover the use of mobility/countermobility measures? Do they plan for force protection?

- **Technology.** What type of engineer equipment do they have? What assets do they maintain for force protection? What type of NBC equipment do they have?

- **OR/training.** What type of mobility/countermobility capabilities do they have? Can they provide survivability measures for their own forces, particularly NBC?

5. Logistics

- **Doctrine.** Do they have a push or a pull logistics doctrine? Do they plan for RSO&I operations? What classes of supply can they provide, and what are the priority and stockage levels? What types of services do they plan on providing? What are their maintenance standards? How long do they plan on sustaining initial forces? What are their plans for follow-on sustainment of forces?

- **Technology.** What is their modernization level for equipment? What is their logistics mobility capability? What type of system (manual/ADP) do they utilize to track their logistics?

- **OR/training.** What size of a deployed force can they sustain, with what classes of supply and services and for how long? What level of maintenance do they achieve?
6. Deployability

- **Doctrine.** Does their doctrine cover strategic deployment of forces? Do they plan for RSO&I activities?

- **Technology.** What modes of transport do they maintain (land, air, sea, rail)? What technology do they utilize for planning deployment (manual/ADP)?

- **OR/training.** What type of deployment can they conduct? What size force can they self-deploy, to what distance, and at what speed?

7. Command and Control

- **Doctrine.** Do they have large staffs with the technical means to support planning (command estimate process) for both current and future operations? Do they maintain battle staffs? Can they process, reproduce, and rapidly disseminate operational plans? What is the decisionmaking authority of the subordinate commanders and staffs (decentralized or centralized decisionmaking processes)? Do they have a flexible command structure giving commanders the freedom to execute the mission with minimal guidance? What is their reporting system? What graphics and control measures do they utilize to control the battlefield?

- **Technology.** Do they have the communications, computers and intelligence means to support the commanders’ decisionmaking process? Do they have the ability to use space-based systems for reconnaissance, surveillance, navigation, and positioning to facilitate battle command?

- **OR/training.** What is the assessment of their C2 structure from current exercises and operations?

8. Communications

- **Doctrine.** What type of orders format and dissemination methods do they utilize? Do they plan for communications capabilities for home station, en-route, and in-theater operations? Can they operate using English, or do they plan for liaisons and translators?
• Technology. What types of signal support systems are available to the commanders at different levels? Are their systems digital or analog? Do they allow for digital-to-analog interfaces? Do they have secure communications capabilities and can they tie into U.S. systems (STUs, SINCGARS, SATCOM)? Do they have access to space-based systems?

• OR/training. What is the assessed level of their communications capabilities? Are their communications systems reliable and can they establish commo channels in a timely manner? What is their level of “U.S. military English” proficiency (officers, NCOs, enlisted)? Do they have liaisons with good English language skills and understanding of U.S. doctrine and procedures? What are their translation capabilities?

9. Intelligence

• Doctrine. What type of collection capabilities/assets do they possess (HUMINT, SIGINT, IMINT, ELINT), and how do they utilize them in support of political and military objectives?

• Technology. What is the sophistication of their collection assets? What technical means do they have to produce and disseminate intelligence? Can they link into the U.S. intelligence system (i.e., SATCOM)?

• OR/training. What is their capability (sophistication and focus) for processing intelligence (collection, production, and dissemination)?

The remaining four steps describe how to transfer country data to the scorecard and configure it for analysis. Figure C.1 demonstrates the correct data-entry points for both weights and flags.

STEP 2: Transfer data to scorecard

• Select “MFC scorecard” worksheet from MCAT workbook. Data from country data worksheet automatically transfer to the scorecard.
STEP 3: Set CAA weights on MFC scorecard

- Set weights for CAAs on scorecard, typing the numbers in the correct columns.

STEP 4: Color scorecard

The user should beware that the coloring in MCAT is not done automatically on a scorecard, owing to software limitations. Changes made to weights and country values require the colors to be reset. To remove color, repeat the first two steps and select “Uncolor Scorecard.”

- Go to Microsoft Excel toolbar menus.
- Select “SC Tools” and select “Color Scorecard.”

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STEP 5: Set flags for type of analysis and rank MFC scorecard

To rank the countries, place the same number in the flag column of all of the options you want ranked together, and place a different, lower number in the remaining rows. For example, to rank by overall category, place a 1 in the overall category for each country and a 0 in all other rows. It is possible to rank all similar categories hierarchically on the same card.

- Set flags for type of analysis, typing the number in the appropriate flag column.
- Go to Microsoft Excel toolbar menus.
- Select “SC Tools.”
- Select “Rank.”
- Select “By Effectiveness” (do not select “By Cost” or “By Cost Effectiveness”).

SAMPLE MCAT WORKSHEET AND SCORECARD

In the following example, we apply the MCAT process to three countries, providing specific capability/compatibility analysis for Country 1 and sample scores for Countries 2 and 3. Figure C.2 provides an example of a completed country data worksheet.

Country 1 Assessment

1. Maneuver

- **Doctrine.** Doctrine covers full spectrum of combined arms, joint, and combined operations. Country 1 has traditionally emphasized defensive operations, although the latest national military strategy emphasizes offensive, power-projection missions. Its ground forces are centered around the brigade-sized maneuver unit, and they follow U.S. doctrine.

  *Score: 3*

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6These functions are a DynaRank option not adapted to MCAT analysis.
### Figure C.2—Sample Excel Spreadsheet

- **Technology.** Country 1’s maneuver equipment is comparable with U.S. standards for hardware. However, it has not completed recent “software” upgrades in communications and targeting.

  **Score: 2**

- **OR/training.** Maneuver forces are capable of conducting fast-paced operations in different terrain. However, Country 1’s forces are not suited for operating in a WMD environment—they lack adequate NBC equipment and protection and decontamination capabilities.

  **Score: 2**

2. **Fires**

- **Doctrine.** Plans for wide use of long-range massed fires, both organic and joint, to support both offensive and defensive operations. Maneuver-unit (brigade) commander has control over tactical firepower assets.

  **Score: 3**
Technology. A recent ATACMS acquisition program will significantly increase Country 1’s technological capability to fight deep. It uses both self-propelled and towed artillery compatible with U.S. standards. Country 1’s artillery units have effective fire control centers. However, due to lack of upgrades in software, these units are limited in their real-time targeting capabilities.

Score: 2

OR/training. Country 1 is effective in controlling fires for the close battle. Its ability to coordinate joint fires remains less than adequate, and organic deep assets have yet to be integrated.

Score: 2

3. Air Defense

Doctrine. Country 1’s doctrine develops a comprehensive set of fire control measures, compatible with U.S. standards.

Score: 3

Technology. No deployable theater missile defense (TMD) system. Country 1 possesses organic air defense (AD) assets, requiring laser-target designators. Identification friend or foe (IFF) based primarily on visual recognition.

Score: 2

OR/training. Limited IFF capability hampers Country 1’s training and operational readiness.

Score: 2

4. Mobility/Survivability/Force Protection

Doctrine. Doctrine covers full spectrum of mobility/countermobility, but force protection is less developed.

Score: 2
• **Technology.** Substantial and modern engineering equipment with high mobility. Inadequate NBC protection and decontamination equipment, as well as lack of TMD, weakens survivability.
  
  *Score: 2*

• **OR/training.** Fully capable of conducting engineer activities across the battlefield. However, lack of adequate force protection and NBC training severely decreases Country 1’s readiness in this area.
  
  *Score: 2*

5. Logistics

• **Doctrine.** “Pull” logistics doctrine is a legacy from this country’s traditionally defensive orientation. Recent reforms in doctrine place increased emphasis on a “push” and joint approach. Country 1 can provide the full range of supply classes and required services to sustain its force for regional operations. Doctrine sets high maintenance standards.
  
  *Score: 2*

• **Technology.** Despite recent acquisitions and equipment upgrades to enhance deployability, Country 1 continues to suffer from low mobility of its logistics assets. It has not fully developed a capability to support rapid offensive operations or strategic deployments and continues to rely primarily on manual tracking system for logistics.
  
  *Score: 1*

• **OR/training.** Limited capabilities to support strategic deployment. The logistics units of Country 1 have not reconfigured fully to provide both robust and economical organic support to the combat forces and sound higher-echelon support to reinforce, replenish, and resupply the organic capability. Cutbacks in defense spending have led to a decrease in overall maintenance standards, and low stockage levels of repair parts.
  
  *Score: 1*
6. Deployability

- **Doctrine.** Country 1 began to develop doctrine on strategic deployments in 1995. Current doctrine calls for rapid force projection and the ability to conduct protracted operations abroad.
  
  *Score: 2*

- **Technology.** It has pursued a vigorous program to reorganize and equip its forces to meet doctrinal requirements for force projection. Recent acquisition programs have given Country 1 the technological capability to rapidly self-deploy a brigade-size force in support of strategic operations anywhere in the world.
  
  *Score: 2*

- **OR/training.** While Country 1 is doctrinally and technologically prepared to self-deploy for operations abroad, its forces require significant training and self-deployment functions such as strategic lift planning and RSO&I. The limited ability to provide critical supply functions hampers Country 1’s ability to sustain forces deployed outside of the region.
  
  *Score: 1*

7. Command and Control

- **Doctrine.** Battle command doctrine is well-developed—it emphasizes flexibility of command and is based on decentralized command structure with decisionmaking authority delegated to subordinate commanders and staffs. Staffs from the tactical to the strategic levels conduct operations planning based on the command estimate process.
  
  *Score: 3*

- **Technology.** Commanders and staffs have relatively modern C4I assets to control the battle (gather information, receive guidance, process and disseminate operational plans).
  
  *Score: 2*
• **OR/training.** Country 1’s command and control system has been successfully tested in multinational and joint operations, but concerns have been voiced over its ability to withstand exposure to high-intensity conflict.

  *Score: 2*

8. **Communications**

• **Doctrine.** Orders formats are based on U.S. doctrine. While most personnel are not fluent in English, Country 1’s doctrine calls for the extensive use of well-trained liaisons to interface with U.S. forces.

  *Score: 2*

• **Technology.** Military architecture for C4ISR includes reconnaissance satellites and battlespace command and control systems for ground forces (the joint aspect is not as well developed). Communications systems are digital and compatible with U.S. systems. While Country 1 has secure communications capabilities, it has only a limited ability for secure communications with U.S. networks.

  *Score: 2*

• **OR/training.** Country 1 employs a substantial number of liaisons, who are fluent in “U.S. military English” and knowledgeable on U.S. doctrine. Its communication system is fully functional for battlefield operations—reliable and quickly deployable. However, modifications are required for full interoperability with the United States.

  *Score: 2*

9. **Intelligence**

• **Doctrine.** Plan to use full range of intelligence capabilities in both joint and combined operations. Well-defined procedures for collection, analysis, and dissemination (e.g., IPB).

  *Score: 3*
• **Technology.** Broad and sophisticated array of intelligence collection and analysis (HUMINT, SIGINT, ELINT). Country 1’s intelligence sharing network is compatible with the United States; it relies on platforms similar to ASAS Warlord workstations.

  *Score: 3*

• **OR/training.** Based on recent exercise analysis, Country 1’s armed forces are capable of conducting the full range of intelligence operations at the combined arms level. Joint intelligence sharing has only recently been established as a priority, and is therefore lacking.

  *Score: 2*

**Sample MCAT Scorecard Analysis**

Figures C.3 and C.4 present the final results of an MCAT analysis. Figure C.3 demonstrates the data as submitted onto the worksheet. From this view, specific weaknesses in CAAs or CMs for a single country become obvious. Note that Country 2 has a critical weakness in deployability compatibility. Country 1, while strong in doctrine, requires some long-term fixes in the operational readiness and training realms.

Manipulation of the MCAT flags creates the MFC scorecard demonstrated in Figure C.4. By listing the countries hierarchically in terms of compatibility, this scorecard presents the data in a form conducive to cross-country comparisons both in overall compatibility and across the compatibility measures of doctrine, technology, and operational readiness and training. Note that the “Compatibility Score” column on the far right of the scorecard shows the average score, while the remaining columns allow for comparison in individual CAAs.
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<th>COUNTRY</th>
<th>CM</th>
<th>BATTLEFIELD FUNCTIONS</th>
<th>CSS</th>
<th>C4I</th>
<th>Wt or Min</th>
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<td>Air Defense</td>
<td>Mob/Surv</td>
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Figure C.3—Completed MFC Scorecard
## Color Black Cells

- **High Color Value**
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- **Low Color Value**
  - 0

### Figure C.4—MFC Scorecard Demonstrating Ranking by CMs and Overall Compatibility

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### Table: BATTLEFIELD FUNCTIONS, CSS, C4I

- **Maneuver**: 1
- **Fire Support**: 1
- **Air Defense**: 1
- **Mob/Surv**: 1
- **Logistics**: 1
- **Deployability**: 1
- **C2**: 1
- **Commo**: 1
- **Intel**: 1