A Case Study: 
Using Groupware to Build the 
Air Force Information Resource Management (IRM) Strategic Plan

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Abstract

The Deputy Assistant Secretary for Communications, Computer and Support Systems (SAF/AQK) requested Air Force Management Engineering Agency (AFMEA) assistance in developing a strategic plan for Air Force Information Resources Management (IRM). In the past, AFMEA had developed its own strategic plan but this was the first such request from a client. One of the primary reasons SAF/AQK approached AFMEA was the new Training and Innovation Center (TIC) we had under construction at the time. This new center provided the latest in groupware technology and the ability to enhance meeting productivity within the Air Force. Since the IRM Strategic Plan required consensus of three functional communities (communication/computer, information management, and acquisition), the client wanted over thirty people in the room in order to achieve buy-in, yet still wanted to keep the workshop under two weeks. Our new twenty-seat TIC offered the possibility of meeting these needs, but we were hesitant to start with a meeting of so many participants (basically two to a computer). However, since the vision, mission, goals and strategies developed by this plan had potential for a great impact on another of our Functional Process Improvement (or reengineering) efforts underway, we agreed to facilitate the plan’s development. We used several techniques to develop the strategic plan. This paper will cover in detail the environmental scan or Strengths-Weaknesses-Opportunities-Weaknesses (SWOT) analysis which formed the baseline for developing the IRM mission, vision, goals and strategies.

1. Background

When we agreed to develop the plan, the room was still in the idea formation stage. There was a tremendous effort by our computer and communication personnel to bring the TIC room on-line. In addition, our facilitation team required training on the electronic meeting software, as well as strategic planning. We obtained training from the software vendor, the Air Force Institute of Technology, and the Air Force Quality Institute in November and December. The room came on-line in early December, earlier than promised. We spent a day with the client in late December showing them the room and planning the meeting. Topical reading materials were mailed to all workshop participants for study prior to arriving at the workshop.

As a result of a great team effort from folks all over AFMEA, the maiden flight of our TIC was a success. The workshop lasted eight days. We rarely spent more than eight hours per day in the workshop and ended up with a draft strategic plan on which all workshop participants coordinated prior to their departure. Results from the end-of- workshop survey indicated all 34 attendees felt the workshop met its objective. Most felt the groupware helped the group work more efficiently (81%) and effectively (89%). Our team appreciated the fact that end-of-day results could be printed out easily and required little after workshop time (other than to prepare the coffee for the next day which was a high priority item).
2. SWOT Analysis Defined

The SWOT analysis is an environmental scan, or realistic examination of the agency’s environment. A strategic plan should provide a succinct analysis of the current environmental by identifying and examining all those factors that impact the mission, goals, products and services delivered by an agency or program.

Usually agencies make two types of changes, those that affect the relationship between them and their environment (measured in effectiveness) and those that alter their internal organizational structure or way of working (measured in efficiency). Day-to-day management tasks focus on improving the efficiency of the agency. However, the key to organizational survival is relating effectively to the environment (i.e., customers, contractors, public and legislators). Often agencies become so involved in their internal workings that they neglect those vital relationships outside of the agency. This can result in adverse publicity, a non-supportive customer base, and a dissatisfied public. The process in which the organization generates data on what capabilities it needs in each of the key processes to reach the future state (the vision) and to identify performance gaps. These gaps represent the critical issues the unit must address to be successful in its mission. The identified gaps are the bases for goal setting.

- Performing an environmental scan is important because it can:
- Help identify a solid definition of current levels of performance and current focus on essential mission elements;
- Shows the need to address the efficient management of personnel and other resources;
- Improve the use of effective monitoring indicators of both processes and outcomes; and
- Force leadership to examine change rather than reporting activity.

At the conclusion of the environmental analysis, participants should be able to answer three basic questions:
- Who are we?
- Where are we?
- Should we change?

They do this by evaluating influences which impact the organization.

2.1. Influences

Influences are any circumstance, condition, or group of individuals that have an effect on the condition or development of a strategic plan. These influences can be internal or external. Internal influences originate from within the organization, such as internal policies, the installed technology base, staffing resources, or organizational culture. External influences originate from outside the organization, such as legal requirements, industry trends, or demographic shifts.

During the SWOT analysis, strategic planners identify internal and external environmental influences (or factors) which affect the organization. They evaluate existing rules, regulations, policies, work processes, and major support systems. Those items which are extraneous to the mission of the program should be reviewed to assess their value and discard, if appropriate. The unit must know where it currently is before it can begin to build and implement the strategic plan.

2.2. Internal Influences

Strengths and weaknesses are internal factors which strategically affect an organization (see Figure 1). Organizations derive their strengths and weaknesses primarily from internal influences such as: structure, organizational culture, and resources.

![Figure 1. Internal influences](image)

- Personnel
  - Job training
  - Access for disabled
  - Customers
- On-going Initiatives
  - Major systems
  - Large acquisition efforts
- Information Technology Resources
  - Funding
  - Installed technology base
  - Facilities
- Culture
  - Way of doing business
  - "Unwritten" rules
- Organizational structure

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• Structure is often defined in terms of communication, authority, and work flow (aka chain of command). It is the formal arrangement of roles and relationships of people so that the work is directed toward meeting the goals and accomplishing the mission of the unit. It is usually described by an organizational chart.

• Culture is the collection of belief, expectations, and values shared by the corporation’s members and transmitted from one generation of employees to another. These norms (or rules of conduct) define acceptable behavior within a group of people and can affect the ability to shift strategic direction. A change in mission, objectives, strategies, or policies is not likely to be successful if it is in opposition to the accepted culture of the corporation. Change management techniques must be used to facilitate changes in strategic direction. Changing culture takes much time, effort, and persistence.

• Resources available within the organization are typically considered in terms of financial, physical, and human resources, as well as organizational systems and technological capabilities. Some common functional headings are marketing, finance, R&D, manufacturing/operations, human resources, and information systems. Care should be taken in estimating strengths, as overestimating them may lead planners to create unrealistic goals.

2.3. External Influences

Opportunities and threats are external influences. They are broad in scope, imposed from the outside, and uncontrollable by the agency. The external environment can be subdivided into the task environment and the societal environment (see Figure 2). The task environment includes those elements or groups that directly affect the unit and, in turn, are affected by it. These include stockholders, governments, suppliers, local communities, competitors, customers, creditors, labor unions, special interest groups, and trade associations (see Figure 3). The societal environment includes more general forces that do not directly touch on the short-run activities of the unit but that can, and often do, influence its long-run decisions (see Figure 4). These include political-legal, technological, sociocultural, and economic forces.

Opportunities are areas where an organization may expand to provide better service for customers and improve the quality of life for its members. New initiatives should address both the opportunities available and the risks involved. Threats are any external force that may hinder or prevent an organization from achieving its goals.

A SWOT analysis is relational. All four areas are related and should be considered collectively, not individually. For example, strengths may be used to overcome weaknesses, take advantage of opportunities, and neutralize threats while weaknesses may neutralize
3. Workshop Agenda

Attachment 1 contains the workshop agenda. The workshop accomplished the majority of their agenda items, some of them even on schedule. However, the agenda was meant merely as a guide to the group processes and variations to the schedule were taken in stride by the group. This paper focuses on one of the planning techniques used during the workshop, the analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOTs) as they relate to the IRM area. This tool is just one of many that provide strategic planners a baseline assessment prior to developing mission and vision statements.

3.1. Performing SWOT Analysis with Groupware

As Attachment 1 indicates, the SWOT analysis primarily used the Group Outliner and Categorizer tools. We initially intended to use the Group Outliner tool to brainstorm strengths, weaknesses, opportunities, and threats as a group. However, as the size of the outline grew, we ran into problems so we switched to the Categorizer tool to refine the SWOT lists. We divided the workshop members into four groups of approximately eight members each. We assigned each group one of the factors and instructed them to refine the lists by consolidating or deleting items (although we asked them to refrain from deleting any idea but encouraged them to merge it within a similar item). We set up four of the participant stations as leader stations and instructed each group on the key strokes needed to move, merge, and delete items. A positive outcome for this technique was by the end of the workshop, we had increased the number of GroupSystem technographers within the Air Force.

At times, we found that workshop members would confuse Opportunities with Strengths (or Threats with Weaknesses) during brainstorming. As a result, some subgroups identified items which belonged to another group. If this happened, one of the AFMEA facilitation team would take the item over to the subgroup working that area. During subsequent strategic planning workshops, we minimized this problem by emphasizing the difference between internal and external factors during the pre-activity briefing. In addition, we continually reinforce the definitions during the brainstorming session if we see workshop members offtrack (e.g., listing opportunities during a strengths session). Another lessons learned is primary use of the strengths, prevent opportunities, and stop initiatives. Opportunities may represent ways to use strengths to eliminate weaknesses and threats whereas threats may take advantage of specific weaknesses to neutralize strengths and stop initiatives.

Use any resources available to conduct a SWOT analysis. This can include future issues, customer complaints, critical incident reports, safety reports, professional literature, intern studies, or rotational assignee observations, training command curriculum, contracted organizational studies of own or other units, inspection results, Unit Self Assessment results (Malcolm Baldrige criteria), and exit interviews of key employees, contractors, or permanent change of station personnel. If possible, have customers of key processes validate the SWOT analysis by inviting them to review the assessment and prioritize the areas needing work.
Categorizer tool during the SWOT analysis for brainstorming purposes as it allows for an easier move into subgroup work.

Attachment 2 contains the final list of SWOTs developed by the workshop and published in VISTAS, the IRM Strategic Plan.

3.2. Lessons Learned

Several tricks and techniques were used during the workshop to help ensure workshop success. One useful tool was the use of signs to help the group enforce rules of engagement. There were several behaviors which group members felt would move the work off track. We constructed small signs which indicated such behaviors as “Beating a dead horse” or “Protecting a sacred cow.” When a group member felt that someone was breaking one of the rules, they would simply hold up their sign. If another group member agreed and also held up their sign, the offending member paid the “slush” fund a quarter. Many times, a workshop member would stand up, take out a dollar, put it into the slush fund, and proceed to give their point of view. However, all-in-all, this technique helped the group police itself on the rules of engagement and by the end of the workshop, there was quite a slush fund which the group used to celebrate the workshop’s end.

Another technique was the end-of-day wrap up sessions. During the final five minutes each day, we began a Categorizer session and asked group members to brainstorm any issues that the facilitation team could use to make the process easier. These varied from administrative details to another team member’s behavior. Since these sessions are anonymous, members were quite open with their feedback. We then began the next day (and every day) with a session which addressed every item entered in the previous day’s wrap up session. This activity allowed workshop members to air issues early on and avoided problems for the facilitators later.

The size of the workshop was at times unmanageable but the use of subgroups helped to move the group along. The group also came up with the idea of forming an “editing” team early in the process. This team consisted of the senior person from each functional area (two colonels and a GM-15 civilian). The editing team set up shop in a work station outside the room and began editing the material as it was developed in the workshop. They had some literary license but worked hard to not change content. Using this technique, by the end of the workshop, the main group had built the plan and the editing team had put it into a logical, readable format. The final output was a draft plan ready to be staffed at Pentagon level.

Figure 4. Societal Environment Factors
4. Conclusion

Recently, AFMEA was recognized for its strategic planning efforts by the International Benchmarking Corporation, one of only four benchmark organizations worldwide. Some of this recognition can be attributed to the use of groupware in our strategic planning sessions, both in-house and for our clients. Groupware enabled the AFMEA facilitation team to provide quality meeting support to meet customer objectives in building the IRM Strategic Plan. Without it, the study would have been much longer, requiring additional workshops and increasing travel costs to the Air Force and taxpayers. In addition, workshop participants were able to voice all ideas and/or concerns which allowed the meshing of thoughts from all the functional communities represented in the workshop. As a result of this consensus-building, the project leader staffed the strategic plan with little or no revision and published it in late 1995. We received the following client feedback from Mr Mosemann, SAF/AQK, concerning this first groupware session:

...we were looking for a facility which can provide groupware and facilitators ... AFMEA was the only organization in the Federal government which could meet our requirements... [and] allowed us to produce a high quality product within the target time frame.
# IRM Workshop Agenda

## Tools

<table>
<thead>
<tr>
<th>CA</th>
<th>GO</th>
<th>GW</th>
<th>VO</th>
<th>W</th>
</tr>
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<tbody>
<tr>
<td>Categorizer</td>
<td>Group Outliner</td>
<td>Group Writer</td>
<td>Vote</td>
<td>Microsoft Word</td>
</tr>
<tr>
<td>PP</td>
<td>SV</td>
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<tr>
<td>Powerpoint</td>
<td>Survey</td>
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## Time | Activity

### Thursday January 19, 1995

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Tool</th>
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<tbody>
<tr>
<td>8:00am</td>
<td>Welcome, Col Charles F. Dibrell, Jr., AFMEA/CC</td>
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<tr>
<td>8:05am</td>
<td>Welcome, Maj Glade, AFMEA/AEDC</td>
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<tr>
<td>8:10am</td>
<td>Administrative Details, Ms. Denise Shortt</td>
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<tr>
<td>8:25am</td>
<td>Speaker Introductions, Mr Bao Nguyen, SAF/AQKI</td>
<td>PP</td>
</tr>
<tr>
<td>8:40am</td>
<td>DoDD 8000.1 Briefing, Mr Don Oxley, OSD/C3I, Director, Functional Information Management</td>
<td>PP</td>
</tr>
<tr>
<td>9:05am</td>
<td>IRM Strat Plng: A DoD Perspective, Mr McClam, OSD/C3I, Special Assistant for IRM, Asst Secretary of Defense for C3I</td>
<td>PP</td>
</tr>
<tr>
<td>9:45am</td>
<td>Revolution in Military Affairs, Lt Col David Todd, AF/XOXP</td>
<td>PP</td>
</tr>
<tr>
<td>10:45am</td>
<td>Information Warfare, Col Kaplan, HQ USAF/SCXX</td>
<td>PP</td>
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<tr>
<td>11:25am</td>
<td>Air Force IRM Strategic Planning, Mr. Bao Nguyen, SAF/AQKI</td>
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</tr>
<tr>
<td>1:40pm</td>
<td>Introduce Workshop Members</td>
<td></td>
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<tr>
<td>2:25pm</td>
<td>AQ Mission Brief, Col (sel) Brylski, SAF/AQKC</td>
<td>PP</td>
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<tr>
<td>3:05pm</td>
<td>SC Mission Brief, Col Kaplan, HQ USAF/SCXX</td>
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<tr>
<td>3:50pm</td>
<td>IM Mission Brief, Col Almany, SAF/AAIX</td>
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<tr>
<td>4:35pm</td>
<td>Roadmap for Strat Plan Workshop</td>
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<tr>
<td>4:55pm</td>
<td>Introduce Briefcase</td>
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### Friday January 20, 1995

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<tbody>
<tr>
<td>8:00am</td>
<td>Review Issues of Prior Day*</td>
<td>CA</td>
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<tr>
<td>8:15am</td>
<td>Workshop Objectives, Mr Lloyd Mosemann, II, SAF/AQK</td>
<td>PP</td>
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<tr>
<td>8:45am</td>
<td>Rules of Engagement (ROEs)</td>
<td>CA</td>
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<tr>
<td>9:15am</td>
<td>Review AF Strategic Plan</td>
<td>W</td>
</tr>
<tr>
<td>9:30am</td>
<td>Customer Identification/Classification</td>
<td>CA</td>
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<tr>
<td>10:45am</td>
<td>SWOT Idea Generation</td>
<td>GO</td>
</tr>
<tr>
<td>1:00pm</td>
<td>Revise SWOT Lists</td>
<td>CA</td>
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<tr>
<td>2:30pm</td>
<td>Brief SWOT lists</td>
<td>CA</td>
</tr>
<tr>
<td>4:00pm</td>
<td>Wrap-up - Day Two</td>
<td>CA</td>
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### Saturday January 21, 1995

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<tr>
<td>10:15am</td>
<td>Rank/Order Strengths</td>
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<tr>
<td>11:00am</td>
<td>Rank/Order Weaknesses</td>
<td>VO</td>
</tr>
<tr>
<td>11:45am</td>
<td>Rank/Order Opportunities</td>
<td>VO</td>
</tr>
<tr>
<td>12:30pm</td>
<td>Rank/Order Threats</td>
<td>VO</td>
</tr>
<tr>
<td>1:15pm</td>
<td>Produce Document</td>
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*Both this activity (Review Issues from Previous Day) and the Wrap-Up activity were repeated each day during the workshop.*
Monday January 23, 1995
8:45am  IRM Group Definitions        EB
9:30am  IRM Mission Statement Overview PP
10:00am Develop IRM Mission Statement W
11:00am IRM Vision Statement Overview PP
11:30am Develop IRM Vision Statement W
2:15pm  Brainstorm Goals            CA
3:05pm  Review/Revise Goals         CA

Tuesday January 24, 1995
8:15am  Rank Order Goals            VO
9:00am  Brainstorm Strategies       GO
9:45am  Review/Revise Strategies    CA
1:30pm  Brief Strategies            CA

Wednesday January 25, 1995
8:15am  Brainstorm Performance Measures GO
9:45am  Review/Revise Performance Measures GO

Thursday January 26, 1995
8:15am  Determine Critical Success Factors VO
9:45am  Assess Risk of Not Attaining Vision CA
10:30am Assess Risk of Pursuing Strategies CA
1:00pm  Review Draft Strategic Plan  GW
3:00pm  Propose Lead OPRs            CA
3:45pm  Follow-on Operational Planning CA

Friday January 27, 1995
8:15am  Present Draft Strategic Plan W
9:00am  Follow-on Issues - Mr. Mosemann
9:45am  Distribute Signature Page
10:00am Distribute Draft Strategic Plan
10:30am Complete Survey SV
11:00am Adjourn Meeting
IRM SWOTs

For the Air Force to intelligently plan for the future of information resources management, it is important to know its strengths, weaknesses, opportunities, and threats.

Strengths

The Air Force’s greatest strength lies in its people and their dedication to the Air Force mission. This mission focus has enabled the Air Force to reorganize and downsize while continuing to accomplish its mission. Information resources management in the Air Force is strengthened by:

- Force is strengthened by:
  - Senior leaders who have long recognized information as a valuable resource and a force enhancement
  - Recognition of the need for timely, reliable, and sufficient information on demand
  - A workforce which consists of a group of highly skilled, experienced, and adaptable people
  - Policy that addresses the accessibility and retrieval of information
  - Existing technology which will provide solid information resources management solutions
  - There are plans and architectures which take advantage of this technology

Weaknesses

There are many problems impacting the success of Air Force information resources management, ranging from policy development to the way individuals implement these policies. Specific weaknesses include:

- Current Air Force information resources management program is poorly defined with conflicting policy and procedures
- Technology solutions implemented prior to process improvement analysis
- Current information resources management program does not measure how well it responds to customer needs
- Mission-related information requirements process needs improvement
- Benefits from sound investments in information technology needs to be articulated

Opportunities

A strong environment for change in the federal and private sectors, coupled with a renewed focus on managing information as a vital strategic resource presents opportunities to enhance accomplishment of the Air Force mission. The President, Congress, and the American people demand government services and associated processes be more responsive and less costly. These developments present the Air Force with opportunities for improvement:

- An entirely new battlespace in which to deny, exploit, corrupt, or destroy an enemy’s information and systems, while protecting ourselves against those actions; and to exploit our own information operations
- A current business environment that takes a holistic view of the system to redesign and improve the process before implementing a technical solution
Threats

Threats are factors that jeopardize the ability to achieve the Air Force information resources management mission and vision. Just as technology provides opportunities for better control and use of information, threats are countered through achievement of the information resources management goals and objectives presented in this plan. The following present the Air Force with threats:

- Cost savings and productivity gains achieved through advancements in information skills and technology
- Emerging technology used to achieve sound information resources management
- Infrastructure reduction through modernization
- Attack on Air Force information systems by an enemy or a malicious intruder
- Lack of understanding and acceptance of information resources management precepts by external agencies
- Conflicting policy generated by outside agencies hindering effective solutions
- Attempts to address information resources management improvements through a "quick-fix mentality" producing sub-optimum results