

Strategic Implementation Plan
for the
Maine School of Science and Mathematics

January 13-14, 2007

Facilitated by

Collaborative Decisions

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Introduction

- The **vision** describes what the participants jointly intend to achieve.
- The **matrix** of strategic opportunities shows what the prime constraint is, how it relates to subordinate constraints, where resources are needed and what classes of action are required to break the constraints.
- The **action plan** describes how to do it and measure progress.

This report can be used to understand where to go and how to get there. It can be used to identify priorities, constraints and responsible leaders. It can be used to promote and clarify intentions. You can use it to identify and break critical bottlenecks. You can also use it to spot systemic problems so that you can correct them.

What is the AMCat Process?

The AMCat models how the organization can efficiently use its resources to achieve its goals as quickly as possible. It combines goal setting with resource allocation and project planning. By providing a means to integrate these functions, a high-speed interface is built between creative thinking and productive action.

The AMCat software uses a modular approach that supports the process. Participants go through all of the steps that research tells us are necessary to create wise decisions and efficient, goal-directed activity. The steps include:

- Creating a vision that synthesizes the information available to the participants
- Brainstorming options to achieve the vision
- Identifying strategic objectives
- Establishing priorities
- Identifying constraints
- Establishing operational expectations
- Establishing milestones
- Organizing projects
- Identifying teams
- Measuring performance

The end result is focused organizational energy that takes groups from where they are to where they want to be as quickly as possible.

Strategic Vision

January 17, 2007

Vision for the Maine School of Science and Mathematics in 2030

The Maine School of Science and Mathematics provides a challenging education for highly motivated, high-achieving high school students. It serves as a center for educational excellence in teaching and learning. Residents of Maine who meet the admission standards may attend the school regardless of ability to pay. Non-resident students are welcome on a space-available basis. Our school helps realize every student's full potential.

We recruit and retain outstanding teachers who are passionate about their subjects and students learning. We require professional growth from all faculty members. We also support faculty research that integrates student participation. We seek and encourage innovative and creative teachers drawn from diverse backgrounds. Full-time faculty members are required to have an advanced degree in their subject matter and are encouraged to have a terminal degree.

Our size enables comprehensive academic and social support for students, faculty and staff. Our structure fosters mutually respectful, close, supportive relationships among all members of the MSSM community. Residential life prepares students for college. The residential experience encourages personal accountability, the development of skills in relationships and healthful living. We teach the skills of living with people of varied backgrounds.

We have strong parent and alumni associations that actively participate in and support the school's mission. We have a strong financial base and endowment program.

We provide secondary and collegiate level academics in all disciplines. Our science and math curriculum goes well beyond introductory-level college courses. We provide an optional associates degree program. We encourage students to conduct independent research and projects.

MSSM is a significant economic driver in a thriving community. We provide educational support to the local community. We offer innovative outreach programs to the state's science and mathematics teachers and students. We contribute to a research- and development-based economy in the state of Maine. We have links and connections with government, higher education, business and industry that encourage students to pursue careers in Maine.

Matrix of Strategic Priorities

PRIORITIES

Objectives are shown in order of priority. Objective 1, the highest priority, is shown as a red, diamond shaped bullet at the top of the matrix.

ACCOMPLISHMENT STAGE

The numbers 0-10 across the bottom show your stage of progress and the type of management attention needed to continue moving forward:

QUADRANTS

Objectives in the "IF" quadrant need research on their potential impact on achieving the overall vision.

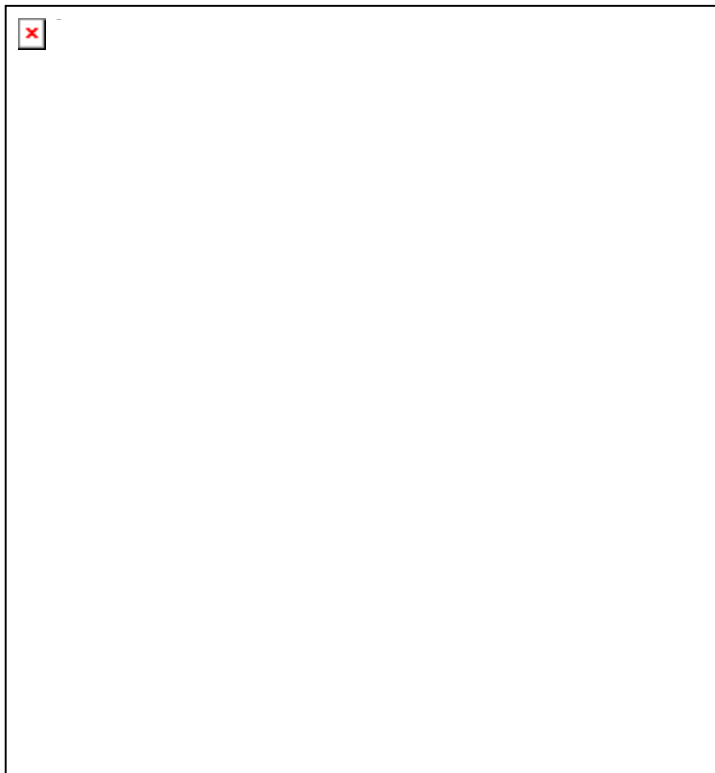
Process is the "WHAT" quadrant. Objectives in this quadrant need processes and resources that will support implementation.

Attention in the "HOW" quadrant is focused on discovering how to turn plans into results.

Objectives in the "WHY" quadrant need to pass a reward-vs-cost test. "Why should we continue putting resources into this?"

Matrix

Objectives



- 1 Increase and Diversify Funding to Achieve Stability**
- 2 Build Advocacy for MSSM**
- 3 Support Faculty as Valued Professionals**
- 4 Enhance Comprehensive Governance**
- 5 Broaden & Enhance Educational Programs**
- 6 Improve Facilities**

Action Agenda

OBJECTIVE I	Increase and Diversify Funding to Achieve Stability
Expected Results	•
Matrix Stage	• Currently at Stage 7; advance to Stage by
Lead	•
Team	•
Milestones	•

PROJECT

Pool of Initiatives

3. Get more money
4. engage the board very actively in fundraising
5. all board members contribute financially
6. all board members solicit funds from other sources
10. Find corporate sponsorship for every student to pay need-based difference
13. create a venture capital fund for students, faculty and alumni some portion of which goes directly to the school
15. establish a capital growth fund
36. develop a grant writing office or capability
52. borrow money to upgrade our existing Infrastructure
75. establish a mini-grant program so that students can get funding for their projects
77. create a scholarship for MSSM graduates
80. Create endowed scholarships for students to attend MSSM
95. reengage libra foundation
96. develop our relationship with northern Maine development corp.
108. create a database of potential funding sources
125. Invite distinguished alumni to give lectures at MSSM to engage alumni with the school
126. Create a robust alumni association

OBJECTIVE II	Build Advocacy for MSSM
Expected Results	•
Matrix Stage	• Currently at Stage 4; advance to Stage by
Lead	•
Team	•
Milestones	•

PROJECT

Pool of Initiatives

1. engage the enthusiastic support of the governor and legislature
2. engage the enthusiastic support of the Maine educational system
8. recruit students from our geographic catchment area including Halifax to Montreal
9. recruit tuition non-resident students
11. work cooperatively with LCS and local school districts
20. develop a marketing department
22. develop the best website in the state
37. develop a comprehensive external affairs department; including alumni, pr, marketing
38. build online interactive database for alumni
41. develop effective marketing program to recruit teachers and their families by promoting school and locale
46. develop network of hard contacts between legislators, parents and alumni
47. develop an MSSM lobbying effort
49. contact education commission of adjacent states and encourage students to come to MSSM
50. Take a leading role in the consortium of specialized schools of math, science and tech to establish best practices
59. establish relationships with all middle school gifted and talented guidance counselors
65. Achieve gender equity throughout the entire MSSM organization
69. write an authoritative history of the school
70. secure the enthusiastic endorsement of the ME school administrators assoc.
72. Develop formal recognition program for outstanding external contributors to the school community

73. develop a merit based scholarship competition published state wide to attract top-level students
74. educate the local community about the school
76. create an annual publication of faculty and student accomplishments both printed and online
78. develop annual pr brochure for MSSM
83. create outreach to E.L.L. programs in high schools with high immigrant populations
87. develop marketing display to put in malls, airports, etc.
97. provide outreach to high schools with faculty AND students
98. Offer online courses via video-conferencing to other state high schools
101. develop partnerships with websites that cater to middle school girls in science/math
102. Partner with groups such as AAUW & SWE in order to promote gender equity
105. Create MSSM speaker's bureau for outreach
110. Expand and Export the summer camp program to include outreach downstate in order to recruit students
116. offer a high school to nursing school track
117. offer field specific scholarships and opportunities
118. Create articulation program (7 year BS Physician program)
121. Partner with groups such as AAUW & SWE in order to recruit students
122. Promote MSSM by showing its alignment with economic development in the state of Maine
127. Enhance formal recognition program for outstanding internal contributors to the school community

OBJECTIVE III	Support Faculty as Valued Professionals
Expected Results	•
Matrix Stage	• Currently at Stage 4; advance to Stage by
Lead	•
Team	•
Milestones	•

PROJECT

Pool of Initiatives

- 18. develop a faculty exchange program
- 19. develop a sabbatical program
- 23. establish a professional development fund
- 24. expand benefits for faculty
- 27. hire permanent IT person
- 43. provide excellent faculty salaries
- 44. provide excellent working conditions
- 66. build a number of eager people to serve as dorm staff - train them well, pay and support them well
- 79. create endowed faculty chairs complete with stipends

OBJECTIVE IV	Enhance Comprehensive Governance
Expected Results	•
Matrix Stage	• Currently at Stage 8; advance to Stage by
Lead	•
Team	•
Milestones	•

PROJECT

Pool of Initiatives

- 62. bring our board up to full complement
- 63. create a pool of community leaders who can be recruited as future board members
- 64. achieve gender equity on the board of directors
- 67. refine policies and procedures for the school
- 68. make sure that we have policies and procedures for the school

OBJECTIVE V	Broaden & Enhance Educational Programs
Expected Results	•
Matrix Stage	• Currently at Stage 4; advance to Stage by
Lead	•
Team	•
Milestones	•

PROJECT

Pool of Initiatives

29. expand program for educating colleges about MSSM
30. Replace periodic college visits with single large college fair
32. Create regular residential life programs - speakers, etc.
33. develop intern programs for high school students with employers in ME
39. create and supervise feasibility study on creating an expanded humanities program
54. Invite distinguished alumni to give lectures at MSSM
55. create a student-based rescue squad in cooperation with local police, fire, etc.
56. Provide comprehensive summer program of paid internships and research options from 2-8 weeks in length
57. Identify and enter as many science & math competitions as possible and give academic credit for the work
61. with student involvement create programs to address drugs and sexuality problems.
84. develop E.L.L. academic and social support system
85. Enhance our ability to support mission-appropriate students with disabilities
86. Set up tutoring program where MSSM students help in local schools
88. Create program for students to take advantage of cultural awareness opportunities in Maine
89. Expand artistic cultural opportunities for MSSM students
90. do feasibility study about what it would take to become an associates degree granting school
91. expand relationships with other high schools and college around the country and world to promote exchange
99. create more study abroad opportunities

106. create an student/teacher exchange program between MSSM and other such schools around the country/world

109. offer teaching opportunities to faculty members on sabbatical from universities and colleges

112. Develop summer academic preparation program for selected incoming students

114. Align programmatic studies at MSSM with economic development in the state of Maine

123. Participate in the N.C.S.S.S.M.S.T. to build student relationships among schools

124. Explore the value of becoming an affiliate of the N.A.I.S.

OBJECTIVE VI	Improve Facilities
Expected Results	•
Matrix Stage	• Currently at Stage 2; advance to Stage by
Lead	•
Team	•
Milestones	•

PROJECT

Pool of Initiatives

- 14. obtain or build new facilities
- 16. create a capital growth plan
- 25. upgrade our technology
- 31. create full-fledged 24-hour health center
- 45. build excellent quality on-campus housing
- 58. explore alternative energy solutions on MSSM campus
- 93. build a library
- 120. create ongoing technology upgrade plan

Appendices

About the Matrix of Strategic Priorities

The Matrix of Strategic Priorities shows how the organization's resources are being matched to its priorities. It also shows the optimum path of achievement that will allow the organization to achieve its vision with maximum efficiency.

Advancing Strategic Objectives

Each objective on the matrix denotes a cluster of activities that are considered to be necessary for success. The organization's most important task is to advance the first objective, which is always the primary "constraint" to achieving the vision. Once the prime constraint has been broken, the organization can break succeeding constraints until the vision is achieved.

Allocating Resources

To make maximum progress, we recommend that the highest priority objective (prime constraint) have first call on the organization's resources. There may be specific initiatives in some of the subordinate objectives that are also critical to accomplishing the prime objective. If so, these have been identified during the AMCat process and are included in the Action Plan.

Stages of Accomplishment

In the AMCat process, accomplishment is measured according to progress through a series of stages. Each stage is defined by the type of action necessary to move the project forward. Thus AMCat users know exactly where each objective stands in the *process* of accomplishment. The stages help organizations identify the type of effort required to advance a project or objective. They also help identify areas of weakness in the organization's processes or capabilities.

The Language of Constraints

The objectives displayed on the matrix are best understood as a series of strategic "constraints" or "bottlenecks" - the current barriers to achieving the organization's long term vision. Effective organizations engage in an ongoing process of identifying, prioritizing and eliminating these constraints. To make maximum progress, the organization is advised to focus on advancing its prime constraint, then to identify and advance the next prime constraint, and to continue this process until the vision has been achieved. Allocating organizational resources to other objectives at the expense of working on the prime constraint will inevitably slow progress toward achieving the organization's vision.

Accomplishment Cycle

RESEARCH

Stage 0: Open

We are wondering what to do now. We are opening ourselves to new possibilities in connection with our vision. Act to: brainstorm, envision, transcend, dream about how things might be.

"Are we willing to consider this?" If No, you're at Stage 0; If Yes, you're at Stage 1

Stage 1: Explore

We are speculating about the potential of this Objective wondering if it will help us achieve our vision. We are imagining different possibilities. Act to: wonder, explore, hypothesize, ponder, reflect, sketch, thought experiment.

"Are we sure we'd like to seriously examine this?" If No, you're at Stage 1; If Yes, you're at Stage 2

Stage 2: Assess

We're figuring out if we are really going to pursue this. We are studying the consequence of pursuing this Objective and assessing its feasibility. Will it help us accomplish the vision? Is it possible to do? What are the pros and cons of this? What are the benefits and risks? How much time and money will it require? Act to: analyze, investigate, study, probe, define, estimate, research.

"Are we really going to pursue this?" If No, you're at Stage 2 or back to Stage 0; If Yes, you're at Stage 3

DEVELOP

Stage 3: Plan

We are laying out a step-by-step process for achieving this Objective. We are figuring out what has to be done to accomplish this Objective. We are designing a process. We are anticipating requirements: legal, material, human. We are estimating timing and sequencing events. Act to: formulate, devise, engineer, design, storyboard, outline.

"Do we know what to do to achieve this?" If No, you're at Stage 3; If Yes, you're at Stage 4

Stage 4: Resource

We are lining up the resources we need. We are gathering the means to turn the plan into reality. We are assembling the resources for carrying it out: approaching helpers, lining up materials, arranging finances, entering into contracts, etc.. Act to: gather, collect, acquire, solicit, search, find, interview, contract, finance.

"Do we have the money, time and other resources necessary to succeed?" If No, you're at Stage 4; If Yes, you're at Stage 5

IMPLEMENT

Stage 5: Structure

We are getting organized to implement this Objective. The resources are available. Schedules are in place. Everyone understands what is expected. Act to: delegate, assign, schedule, finalize, double check, order, organize, authorize, charter.

"Are we ready to start this today, with all the details worked out?" If No, you're at Stage 5; If Yes, you're at Stage 6

Stage 6: Measure

We've begun implementing, but we are still learning how best to measure our performance/progress. As yet we don't have enough feedback to judge whether or not we are making progress. Act to: measure, calibrate, sort, quantify, forecast, anticipate, internalize, characterize.

"Are we systematically measuring our performance/progress?" If No, you're at Stage 6; If Yes, you're at Stage 7

Stage 7: Implement

The evidence shows that we are making real progress. We may even have achieved identifiable success, but there is no clear certainty that it is durable or repeatable. Act to: do, manifest, demonstrate, breakthrough, perform, prototype, pilot, fulfill.

"Are we clearly progressing?" If No, you're at Stage 7, (you may need to review/re-visit previous Stages); If Yes, you're at Stage 8

PRODUCE

Stage 8: Formalize

We are learning how to consistently get and control the results we want. Act to: document, regulate, standardize, edit, verify, capture best practices, internalize, understand, clarify.

"Have we defined our processes so that we can consistently repeat our success and teach others to duplicate it?" If No, you're at Stage 9; If Yes, you're at Stage 9

Stage 9: Refine

We are continuously improving our processes and products. Our focus is on sustaining high quality and high throughput. Act to: improve, upgrade, re-engineer, enrich, revise, expand, adjust.

"Are we consistently improving?" If No, you're at Stage 9; If Yes, you may be at Stage 10

Stage 10: Complete

We've achieved enough of what we wanted. We're ready to celebrate our success and re-direct our efforts. It's time to declare victory, alter expectations or re-focus our attention on a new Objective or a new Vision. Act to: applaud, finalize, conclude, hand-off, divest, consolidate, close, celebrate, "open" to new things.

"Are we ready to move onward to something else?" If No, you're at Stage 10; If Yes, Repeat the Cycle

Eliminated Options with Number of Votes

6 Votes

- 7. explore the feasibility of a voucher system
- 53. assign a host-family to every MSSM student and their family
- 113. develop summer program to explore career options in health sciences

5 Votes

- 12. Have faculty members jointly appointed with the University of Maine
- 34. become a partner in curriculum development for all schools in Maine
- 42. issue invitation to state education community to have orientation at MSSM conducted by students
- 48. create published journal so that every graduating senior publishes a document or scientific report
- 103. contact foundation of retired businesswomen
- 119. establish relationship with NASA

4 Votes

- 92. build a faculty-student center
- 94. build alumni center

3 Votes

- 28. create well-publicized summer camp or program to recruit young women (Chewonki)
- 60. expand summer camp program to year-round 2 week programs (create competitive acceptance model)
- 71. create and publicize a comprehensive student teaching program
- 81. provide laptops and PDAs to all students and faculty
- 82. increase our diversity by outreach to E.L.L. programs in Maine communities
- 107. study the summer population that comes to the coast of Maine for potential fundraising targets

2 Votes

- 17. create a tv network with the opportunity for sponsorship to link together all educational institutions within Maine
- 21. create an extension of the virtual high school online
- 35. appoint a senior faculty member to coordinate all curriculum & development
- 40. create study on humanities satellite program
- 51. build an innovative outdoor education curriculum based on outward bound's hurricane island school
- 100. develop blimps
- 104. create lecture series from MTI grant recipients

1 Vote

- 26. online contact with every 7th and 8th grader in ME
- 115. ally with an institution of higher learning in Boston like MIT to provide outreach of underserved elementary schoolers

0 Votes

- 111. take the summer camps on the road

Attendee List

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Facilitators

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