Outcomes Workshop Summary

The participants in Mission Measurement’s portion of the IMSA retreat...

- Discussed trends in the social impact space around outcomes and measurement
- Wrote headlines to articulate IMSA’s success 5-7 years from now
- Completed team “Success Equations” to prioritize IMSA’s outcomes
- Collaboratively discussed prioritization of IMSA’s outcomes
Through the Success Equation Exercise, IMSA Began to Prioritize its Highest Priority Outcomes

*IMSA is a recognized global leader and catalyst in transforming STEM education.*

**Impact**

**Students**
- Increase STEM Persistence *(see next slide)*

**STEM Ecosystem**
- Disseminate Leading STEM Best Practices
- Develop STEM Educator Proficiency *(within and outside IMSA)*

**Social Outcomes**
- Increase Community Engagement

**Operational Outcomes**
- Increase STEM Innovation
- Strengthen IMSA’s Organizational Capacity
- Increase IMSA’s Brand Presence and Awareness
- Build IMSA’s Networks*

* IMSA is seeking to increase its stakeholder diversity and engagement. Networks include but are not limited to technology firms, potential funders, alumni, government agencies, universities, museums, other STEM schools.
Laddering STEM Outcomes Up to Persistence

Increasing STEM Persistence is the “top” outcome in a ladder of STEM outcomes that IMSA is producing through its programming.

This outcome is particularly focused on underrepresented populations.

These outcomes will be defined differently for residential and non-residential STEM students and alumni.

This outcome refers to enabling students to have the knowledge and skills to observe and assess the validity of scientific and mathematical statements encountered in day-to-day life e.g. the media.
IMSA Should Consider Additional Questions About These Outcomes

Outcomes Refinement and Validation

- Do these outcomes accurately reflect the primary outcomes IMSA is seeking to achieve in the next 5-7 years? Are there any outcomes that are not high priority, or outcomes that may yet be missing?
- Based on its programs, strategies, and activities, can IMSA credibly claim a contribution to each of these outcomes?
- How can student perspectives help to further refine and validate these outcomes?
- What is the STEM ecosystem and how can IMSA learn from and contribute to others in that ecosystem? What differentiates IMSA vis-à-vis others in the STEM ecosystem (the “IMSA way”)?

Outcomes Activation

- How can IMSA baseline its current efforts toward its priority outcomes to think about what has worked and not worked well in the past?
- How will IMSA then come up with innovative/disruptive strategies for achieving these priority outcomes?
- How can IMSA tailor its approaches to best achieve these outcomes for students of different backgrounds (e.g., international students, underrepresented populations)?
- How can IMSA enfranchise the entire IMSA organization to contribute to the achievement of the priority outcomes (e.g., getting IMSA faculty to go beyond the confines of their own classrooms)?
- Using the STEM Persistence pyramid/ladder, what does success looks like at each outcome level?
Recommended Next Steps: Consider a Three-Phased Approach

1. Develop Outcomes Framework
   - Refine IMSA’s high priority outcomes
   - Develop and validate an Outcomes Framework to articulate IMSA’s high priority outcomes
   - Align each current activity, strategy or program to its highest priority outcome (exclude any that are not strongly aligned to an outcome)

2. Conduct Measurement Needs Assessment
   - Determine the evidence that would be compelling for demonstrating success for each outcome by determining stakeholders’ data needs and assessing what is currently available
   - Prioritize 1-2 indicators per outcome based on stakeholder needs and organizational capacity – do not collect unnecessary data to the extent possible

3. Develop Measurement Plan
   - Develop and communicate a focused measurement plan to stakeholders – consider rolling out components of the plan over time
   - Determine if certain elements of the plan will require additional resources
   - Plan stakeholder meetings to review and use data to communicate impact and make strategic decisions
With Further Refinement and Validation, IMSA Can Develop an Outcomes Framework to Drive its Strategic Plan

An Outcomes Framework is a visual representation of high priority outcomes that an organization is seeking to achieve.

Once the Outcomes Framework is developed, indicators should be aligned to each outcome in the Framework, and every program should be assigned to a primary outcome.

The Outcomes Framework serves as the basis for strategic planning, program alignment, measurement, and communication of results.
IMSA May Consider These Key Elements When Developing a Focused Measurement Plan

<table>
<thead>
<tr>
<th>Element</th>
<th>Key Question</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder Groups</td>
<td>Who are the stakeholder groups that have a vested interest in IMSA’s results?</td>
<td>board, staff, legislators, influencers, media, potential partners</td>
</tr>
<tr>
<td>Need for Data</td>
<td>What does each stakeholder group need data to do for them?</td>
<td>strategic decision-making, communications</td>
</tr>
<tr>
<td>Type of Data</td>
<td>What type of data does each stakeholder require in order to do this?</td>
<td>anecdotes, quantitative data, qualitative data</td>
</tr>
<tr>
<td>Frequency of Data</td>
<td>How often does data need to be provided to stakeholders?</td>
<td>quarterly, semi-annually, annually</td>
</tr>
<tr>
<td>Data Collection Method</td>
<td>How does IMSA already collect data? How will IMSA collect any new data?</td>
<td>reporting template, grant report</td>
</tr>
<tr>
<td>Format of Data</td>
<td>What reporting formats will resonate most with each stakeholder?</td>
<td>narrative reports, dashboards, briefs</td>
</tr>
<tr>
<td>Method of Sharing</td>
<td>How should reports be provided to stakeholders?</td>
<td>social media, email, meeting</td>
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</table>
Appendix: Success Equation Synthesis

- Headlines
- Outcomes
- Outcome Indicators
IMSA Headlines

IMSA Transforms STEM Education
- IMSA leads world symposium on STEM advances in teaching and learning
- IMSA leads world in STEM educational programs
- Learning lab leads transformation of STEM education across the globe
- President sign bills – nationally-funded STEAM schools
- IMSA’s global impact on STEM teaching and learning
- IMSA named global model for producing top STEM talent
- IMSA changes our world
- Innovative approaches at IMSA drives changes in STEM education
- IMSA ignites innovative paradigm shift in STEM education

IMSA Expansion and Recognition
- IMSA hits #1 on global STEM academy list
- IMSA partners with Microsoft on STEM teaching and learning
- New resident hall opens at IMSA-I
- IMSA expands STEM education internationally
- IMSA opens first international campus
- IMSA selected by UN as world’s first Millennium Development Goals school
- IMSA becomes financially independent
- IMSA increase new business investments nationwide
- IMSA recognized by President for contributes to building STEM workforce; IL now leader in STEM education
- IMSA becomes household word in the state of IL

IMSA Student and Alumni Recognition
- Illinois high school students pilot programming sleep-deprivation study
- IMSA trained bio-chemist named as NYT science and society columnist
- IMSA grad wins fields medal
- Nobel laureates this year are all IMSA graduates
- How to Grow a Nobel Prize in a Cornfield
- IMSA’s diverse and innovative STEM leaders take on the world
- IMSA program leads in producing creative STEM students
- IMSA, a worldwide pipeline for student success
- IMSA leads IL to top of charts for producing STEM leaders & entrepreneurs

Key Themes
Innovation
Transformation
Leadership
Growth
Awareness
International
Partnership
Recognition
Entrepreneurship
Diversity
### Success Equation Synthesis – Outcomes (A, B, C, D)

<table>
<thead>
<tr>
<th>Students &amp; Alumni (Residential + Non-Residential)</th>
<th>Organization</th>
<th>STEM Ecosystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produce diverse learners who excel in STEM</td>
<td>Strengthen IMSA Structure</td>
<td>Increase STEM educator proficiency</td>
</tr>
<tr>
<td>Strengthen student interest and persistence in STEM</td>
<td>Increase diversity of IMSA stakeholders</td>
<td>Improve educators’ teaching methodology</td>
</tr>
<tr>
<td>Strengthen student mindset</td>
<td>Strengthen stakeholder engagement</td>
<td>Innovate and test STEM programs</td>
</tr>
<tr>
<td>Enroll students with demonstrated academic potential</td>
<td>Increase brand presence</td>
<td>Promote successful STEM programs</td>
</tr>
<tr>
<td>Students engage in rigorous inquiry-based curricula across all disciplines</td>
<td>Build brand awareness and adoption</td>
<td>IMSA is go-to STEM education model</td>
</tr>
<tr>
<td>Students persist in STEM education and careers</td>
<td>IMSA synonymous with STEM</td>
<td>Produce world-leading STEM education programs and practices</td>
</tr>
<tr>
<td>Improve STEM access and interest</td>
<td>IMSA as a common name in all Illinois households</td>
<td>Test and promote innovative STEM learning models</td>
</tr>
<tr>
<td>IMSA graduates students who attain eminence in their fields</td>
<td>IMSA defined product/essence</td>
<td>Change the way STEM is taught on a global scale</td>
</tr>
<tr>
<td></td>
<td>Training and Success</td>
<td>Develop innovative STEM resources for good</td>
</tr>
<tr>
<td></td>
<td>Expand reach</td>
<td>Increase STEM workforce in Illinois</td>
</tr>
<tr>
<td></td>
<td>Recruitment of under-represented populations</td>
<td>Increase global STEM talent for good</td>
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<tr>
<td></td>
<td>Retention of under-represented populations</td>
<td></td>
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<tr>
<td></td>
<td>Fund our internal and external programs</td>
<td></td>
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<tr>
<td></td>
<td>Build international networks</td>
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</tbody>
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* Compiled from Success Equation worksheets filled out by Jan 8 Retreat participants; not necessarily indicative of a comprehensive enumeration of all outcomes applicable to IMSA and provided for reference only*
## Success Equation Synthesis – Outcome Indicators

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Indicators Suggested by Workshop Participants</th>
</tr>
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<tbody>
<tr>
<td><strong>Operational Outcomes</strong></td>
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</table>
| Strengthen IMSA’s Organizational Capacity    | • % of staff with advising/independent relationships with students  
• % of staff involved in under-represented population groups  
• # of CPS middle schools that send students to IMSA  
• # of qualified applicants / Staff involvement in recruiting  
• % of funding from donors and program income                                                                                                                                  |
| Increase IMSA’s Brand Presence and Awareness | • Media mentions  
• Event attendance  
• Presence on high school lists                                                                                                                                                                                                                 |
| Build IMSA’s Networks                        | • # of legislators who have relationships with IMSA  
• Alumni and parent participation  
• Diversity of networks / Engagement of networks                                                                                                                                                                                                  |
| Increase STEM Persistence                    | • % of underrepresented students who graduate, succeed in top science classes, go on to STEM majors  
• % of completers majoring in STEM / # of students earning STEM degrees & terminal STEM degrees  
• % of completers working in STEM                                                                                                                                                                                                                |
| Increase STEM Civic Engagement               |                                                                                                                                                                                                                                               |
| Increase STEM Innovation                     | • Student awards/recognition/achievement (e.g. research recognized through publication/presentation)  
• Alumni awards/recognition/achievement (e.g. patents, business startups)  
• % change in STEM entrepreneurs / % change in STEM research  
• # of students conducting more than one SIR                                                                                                                                             |
| Learn and Disseminate Leading STEM Best Practices | • # of publications / Quality of publications / # of conference presentations / # of research studies  
• # of curriculum elements centered on underrepresented population-related subject matter  
• # of new/revised programs and activities/year  
• Adoption of IMSA programming / IMSA sought out for help                                                                                                                                 |
| Develop STEM Educator Proficiency            | • Changes in educator methods / Classroom environment  
• # of educators served / % change in educator participation  
• # of IMSA-trained educators entering workforce                                                                                                                                                                                                  |

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