



Charting New Directions

Maryland  
Department of Labor, Licensing and Regulation  
Governor's Workforce Investment Board  
Aerospace Industry Summit 2006

# Aerospace Industry Initiative



## Post-Summit Report & Plan of Action

Robert L. Ehrlich, Jr., Governor

Michael S. Steele, Lt. Governor

James D. Fielder, Jr., PhD., Secretary of DLLR

Robert Seurkamp, Executive Director, GWIB



July 2006

Dear Aerospace Summit Attendees,

Over the past several months, the Aerospace Implementation Committee has been working diligently since the Aerospace Summit of January 26, 2006. We remain committed to addressing the workforce issues of our industry. To that end, we present you with the Post-Summit Report and a Plan of Action all bound into one. We believe that you will find that your valuable time at the Summit was well spent and your contributions are at work in advancing our industry.

Since the end of the Aerospace Summit of January 26, 2006, the Steering Committee has been working at evaluating and acting upon the recommendations of the 241 Summit attendees. Over the course of the next following months, the Steering Committee assumed its new role as an implementation committee and began the task of putting together a viable Post Summit Report.

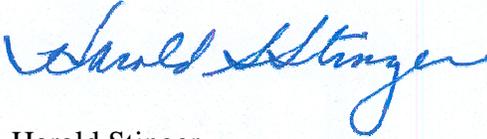
The product before you is quite different than originally envisioned. We have taken a new and innovative approach to the process of creating a living document. Several options were studied, but the most conclusive and useful to our industry seemed to be two documents that complement each other. While the Post-Summit Report summarizes the recommendations of the Summit, the Plan of Action indicates what industry recommendations are going to be initially addressed.

Two of the major issues addressed by the Aerospace Initiative Implementation Committee were that some of the recommendations overlapped across the other categories, and thus created a dilemma on how to specifically approach them; and second, was the overall number of recommendations. The general consensus was that all of the recommendations would be ultimately addressed however those of a more immediate concern and benefit to the industry would draw our initial attention.

On June 26, 2006, the committee and a good number of you met at the Greenbelt offices of Computer Sciences Corporation to revisit, refine, and reaffirm the first round of initiatives important to the Aerospace industry. Four initiative teams were assembled at that time, and have been meeting to strategize and launch the initiatives. It is highly possible that by the time this document reaches your hands, you might be aware of and, perhaps, involved with their work. We highly encourage you to join an initiative team and continue your necessary contributions to our important efforts.

We hope you find this publication informative of what we have accomplished to date as well as our future plans. The Aerospace Industry Initiative is alive, vibrant, and working for you and your industry. We look forward to both your comments and continuing participation. Please feel free to contact us directly or Rafael Cuebas, Aerospace Industry Initiative Coordinator, GWIB Center for Industry Initiatives, at [rcuebas@gwib.state.md.us](mailto:rcuebas@gwib.state.md.us) . We will keep you posted on our progress.

Sincerely,

A handwritten signature in blue ink that reads "Harold Stinger". The signature is fluid and cursive, with the first name being more prominent.

Harold Stinger  
Chairman,  
Aerospace Initiative  
Implementation Committee

A handwritten signature in blue ink that reads "Anoop Mehta". The signature is cursive and somewhat stylized, with the first name being the most legible part.

Anoop Mehta  
Vice-Chairman,  
Aerospace Initiative  
Implementation Committee

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## 1. Acknowledgements

The success of the Governor's Aerospace Workforce Summit is due to the work and dedication of a number of individuals. First and foremost, we'd like to express our gratitude to Governor Robert Ehrlich, Jr., and the Maryland Department of Labor, Licensing, and Regulation; without whom the Aerospace Summit would not have been possible.

We would especially like to recognize the Governor's Workforce Investment Board (GWIB) Aerospace Steering Committee for making this initiative a success.

The Maryland Subcabinet, composed of senior executives for each of GWIB's partner agencies, are coordinating programs in their departments to address the critical skills shortages in the Aerospace industry. Their efforts will significantly impact the supply side of the workforce equation. Special thanks to Kathy Oliver, Assistant Superintendent of the Maryland State Department of Education, for her leadership. Subcabinet members include representation from:

*Maryland Department of Labor, Licensing, and Regulation*

*Maryland Department of Business and Economic Development*

*Maryland State Department of Education*

*Maryland Higher Education Commission*

In addition, we would like to recognize those organizations that helped plan and organize this Summit. Private sector support for this initiative was overwhelming; with substantial hours spent researching and compiling data, publishing the Summit participant's materials, including the Aerospace Industry Monograph, and organizing and preparing for all aspects of conducting the Aerospace Industry Summit.

### **Aerospace Workforce Initiative Funding and Contributions from:**

*Johns Hopkins Applied Physics Laboratory*

*Lockheed Martin*

*Northrop Grumman Corporation*

*Stinger Ghaffarian Technologies, Inc.*

*Science Systems and Applications, Inc.*

Additionally, the Maryland Department of Labor, Licensing and Regulation and the Governor's Workforce Investment Board again acknowledges and greatly appreciates the *U.S. Department of Labor, Employment and Training Administration* for its support of the State of Maryland's Industry Initiatives.

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## **2. Introduction**

### **2.1 GWIB Overview**

The GWIB is a division of the Department of Labor, Licensing and Regulation (DLLR), and is composed of a number of the Governor's Cabinet Secretaries and top level business and education leaders, responsible for recommending strategies and policies in support of a coordinated demand-driven workforce development system. GWIB brings together and focuses various workforce development partners and stakeholders on a single outcome; a properly prepared workforce that will meet the current and future demands of Maryland employers. The GWIB is the state's chief policy-making body on workforce development as mandated by the Federal Workforce Investment Act (WIA) of 1998. The scope and role of GWIB was further defined and expanded by Executive Order 01.2004.60 in 2004.

### **2.2 GWIB Vision**

A Maryland where every person maximizes his or her career potential and employers have access to the human resources they need to be successful.

### **2.3 GWIB Mission**

Governor Ehrlich has charged the DLLR's GWIB with the responsibility for establishing and guiding a nationally recognized workforce development system that is aligned with the economic and educational goals of Maryland and that will result in a qualified workforce available to employers across the state.

### **2.4 GWIB Strategic Plan Statement**

To formulate an effective workforce policy for Maryland based on business demand for workers. Maryland currently has unemployed workers and, at the same time, important businesses struggling to recruit employees. In between the workers and the businesses lies a skill gap. The board is committed to identifying this skill gap and creating opportunities for training workers in current demand by Maryland businesses. In the long term, the GWIB will align the public workforce development system with Maryland business demands to ensure that new worker supply matches demand.

The GWIB worked collaboratively over 1 year with several representatives from State agencies and businesses to use North American Industry Classified System (NAICS) codes to define the first 13 targeted industries for employment development based on the following criteria: 1) high population; 2) high growth or growth potential; and 3) criticality to Maryland's economic development. State agency representatives involved in this process came from the DLLR's Division of Labor Market Analysis and Information and the GWIB, the Maryland Department of Business and Economic Development the Local Workforce Investment Boards the Maryland Higher Education Commission the Maryland State Department of Education and the Maryland Association of Community Colleges.

## **2.5 GWIB Center for Industry Initiatives**

The U.S. Department of Labor recognizes the GWIB industry initiative approach to workforce development as a national model worthy of replication. GWIB had worked with the healthcare industry to develop this approach, resulting in meaningful and sustainable results. As a result of the successful healthcare coordinated approach, GWIB has received a grant from the U.S. DOL to establish the GWIB Center for Industry Initiatives. The GWIB Center for Industry Initiatives and its staff is responsible for guiding and monitoring the industry-led, demand-driven industry initiative process for Maryland's targeted industries. In addition to Aerospace, current industry initiatives underway are in the areas of bioscience, hospitality, tourism and healthcare. Other targeted industries include business services, communications, building/construction, education as a business, finance/insurance, information technology, manufacturing, retail, transportation and warehousing.

The 5-phase, demand-driven process involves engaging leaders of specific industries to become part of industry steering committees. In these committees, key industry representatives from across the state in collaboration with partners from government and education follow a unique, demand-driven approach. The partners will document their industry's needs and identify the critical issues and initiatives to help the industry attract, train and retain a viable workforce for the next 10 years.

The five phases of the industry initiative process:

1. Organizing and developing steering committees.
2. Gathering industry data to establish an industry profile and monograph.
3. Engaging industry, government and education stakeholders.
4. Solidifying and implementing the industry's plan of action.
5. Sustaining partnerships.

## **3. The Aerospace Workforce Initiative**

### **3.1 Background**

Shortly after Governor Robert L. Ehrlich was elected to office, he created a new GWIB within the DLLR, which was business-led and included the full participation of the state secretaries from agencies including: Transportation, Housing, DBED, MSDE for K-12 Education, and MHEC. GWIB members also include high-level leaders from Maryland's 13 top industry clusters to strategically determine how to attract and retain qualified employees. The GWIB is chaired by Gino J. Gemignani, Jr., Senior V.P. of the Whiting-Turner Contracting Company.

The Aerospace Summit was the third phase in a five-step industry initiative process to encourage Aerospace employers, academia, and state and local government to join forces for the long-term advancement of the industry in the State of Maryland.

### **3.2 The Work of the Aerospace Steering Committee**

The GWIB Aerospace Steering Committee was formed over two years ago, and is predominantly composed of aerospace industry leaders in Maryland as well as representatives from higher education and K-12 educational institutions, industry associations and government, state agencies and local Workforce Investment Areas. The full steering committee meets monthly, following the process established by the healthcare industry. The Aerospace Industry Leader on the GWIB is James F. Pitts, Corporate Vice President and President, Electronics Systems, Northrop Grumman Corporation. The Chair of the Aerospace Steering Committee is Harold Stinger, President and Chief Executive Officer (CEO) of Stinger Ghaffarian Technologies, Inc. (SGT), and the Vice-Chair is Anoop N. Mehta, Vice President and Chief Financial Officer (CFO) of Science Systems and Applications, Inc. (SSAI).

The Steering Committee's primary purpose is to describe the current and projected aerospace employment picture in Maryland. Secondly, the Committee seeks to collect data from the governmental, non-profit and commercial subsectors to identify the main barriers and strengths for sustaining the human resources needed by the aerospace industry. The committee is charged with developing solutions local companies can implement in partnership with state or Federal government. Aerospace leaders such as NASA Goddard Space Flight Center, Naval Air Systems Command, Northrop Grumman Corporation, Lockheed Martin, Honeywell, and Johns Hopkins University Applied Physics Lab, have helped to sustain the Committee's progress with visible participation, endorsement, and data. Several outcomes are sought through this process: (1) recommendations that support the private industry's employment interests; (2) an accurate human resource map for the future to better enable a pipeline of talent while managing impending retirements in our workforce and (3) provide solutions to attract, hire, and retain relatively scarce technical and managerial talent in engineering and science disciplines.

In order to support and recommend possible strategies for the industry's critical workforce issues, the Steering Committee exercised several methods to obtain current and relevant data including the review of local and national reports. In addition, several focus groups have been conducted with a range of subject matter experts in education and industry. The three Human Resource (HR) focus groups, facilitated by staff from the Aerospace Industries Association and composed of HR strategic planners, have met twice at Northrop Grumman Corporation's headquarters and once at the PAX River NAVAIR facility. Two additional focus groups facilitated by staff from the Maryland Higher Education Commission, NASA, and GWIB, took place with the Deans of engineering departments at leading universities and colleges in Maryland, along with education program managers at large aerospace companies. Finally, the results of an in-depth survey, protected by a non-disclosure agreement between GWIB staff and local companies and developed by the Maryland Attorney General's office, have been compiled.

Most high-profile aerospace companies have provided data on the composition of their workforce, competencies which are difficult to fill, expected retirement rates, the time it takes to secure necessary clearances, and other critical workforce issues. The Aerospace Industry monograph introduced at the Summit provided the most complete base of shared information and provided reviews and recommendations for consideration by Summit participants. The preliminary post-summit plan of action has been identified and will be implemented by champions and workgroups following the summit.

**4. Summit Overview**

On January 26, 2006, leaders from Industry, Government, and Academia convened the first GWIB Aerospace Industry Summit at the Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. The event comprised an entire day of dialogue and working sessions which culminated in a series of preliminary recommendations that will be further pursued by the steering committee.

The day's events began with a call to order by the Summit Emcee, Mr. Don McErlean, President and CEO of the Center for Strategic Analysis, and was followed by welcoming remarks by James D. Fielder, Jr., Ph.D., Maryland DLLR Secretary, James F. Pitts, Corporate Vice President and President, Electronic Systems, Northrop Grumman Corporation; GWIB Aerospace Industry Leader, and Robert Seurkamp, Executive Director, Governor's Workforce Investment Board.



*Summit Leadership Panel and Steering Committee Members, (l-r) Robert Seurkamp, Anoop Mehta, Dr. Freeman Hrabowski, Aris Melissaratos, Sen. Barbara Mikulski, Dr. James Fielder, Dr. Nancy Grasmick, Harold Stinger, Emily Stover-DeRocco, Jerry Wellman, Angela Diaz, Congressman Steny Hoyer, Art Taguding, and Dr. Donald McErlean*

**4.1 Summit Agenda**

The Agenda for the Summit was as follows:

**Johns Hopkins University Applied Physics Laboratory, Kossiakoff Center**

- 7:00 AM Registration and Continental Breakfast.....North Dining Room
- 8:00 AM Emcee Call to Order.....Auditorium
  - Donald P. McErlean, Ph.D.**  
 President and CEO  
 Center for Strategic Analysis
  - Welcome and Opening Remarks  
**James D. Fielder, Jr., Ph.D.**  
 Secretary, Department of Labor, Licensing, & Regulation, State of Maryland
  - James F. Pitts**  
 Corporate Vice President and President, Electronic Systems, Northrop Grumman Corporation; GWIB Aerospace Industry Leader
  - Robert Seurkamp**  
 Executive Director, Governor's Workforce Investment Board

- 8:30 AM Highlights of the Summit.....Auditorium  
**Harold S. Stinger**  
 Chair, Aerospace Steering Committee
- 8:40 AM Leadership Forum.....Auditorium  
The Challenge and Commitment to Action  
**Emily Stover DeRocco**, Forum Moderator  
 Assistant Secretary, U.S. Department of Labor  
**Angela Phillips Diaz**, Acting Associate Administrator for Education  
 National Aeronautics and Space Administration  
**Nancy Grasmick, Ph.D.**, State Superintendent of Schools  
 Maryland State Department of Education  
**Steny H. Hoyer**, Congressman  
 5<sup>th</sup> Congressional District, Maryland  
**Freeman A. Hrabowski III, Ph.D.**, President  
 University of Maryland Baltimore County  
**Aris Melissaratos**, Secretary  
 Department of Business and Economic Development, State of Maryland  
**Barbara A. Mikulski**  
 U. S. Senator, State of Maryland  
**Jerry Wellman**, Vice President  
 Honeywell Technology Solutions Inc.
- 9:50 AM Break.....North Dining Room
- 10:10 AM Overview of Aerospace Steering Committee Research and Proposed Strategies,  
 Introduction to Strategy Sessions.....Auditorium  
**Halima Aquino**, Industry Initiative Coordinator  
 Governor's Workforce Investment Board
- 10:20 AM Review of Aerospace Steering Committee Proposed Strategies.....Auditorium  
Pipeline Development: K-12 and Higher Education  
**Judy Hendrickson**, Director of Academic Affairs  
 Maryland Higher Education Commission  
Workforce Development: Recruitment, Training, and Retention  
**Orlando Figueroa**, Director of Applied Engineering and Technology  
 NASA Goddard Space Flight Center  
Industry Collaboration: Development and Best Practices  
**Bruce Mahone**, Assistant Vice President. Technical Operations  
 Aerospace Industries Association  
Security Clearances: Access and Availability  
**Jerry Wellman**, Vice President  
 Honeywell Technology Solutions Inc.

11:00 AM Strategy Sessions

Pipeline Development Part I: K-12 Education (Blue).....Rooms 1 & 2  
Industry and Education Coordination/Partnerships

**Katharine Oliver**, Session Facilitator  
Assistant State Superintendent  
Division of Career and Technology Education  
at the Maryland State Department of Education

**Frank Ireton, Ph.D.**, Session Monitor  
Program Manager  
Science Systems and Applications, Inc.

**Bonnie McClain**, Session Monitor  
Education Specialist, National Aeronautics and Space Administration

Pipeline Development Part II: Higher Education (White).....Rooms 3 & 4  
Industry and Education Coordination/Partnerships

**Judy Hendrickson**, Session Co-Facilitator  
Director of Academic Affairs  
Maryland Higher Education Commission

**William Fourney, Ph. D.**, Session Co-Facilitator  
Director of Graduate Studies  
Department of Aerospace Engineering  
University of Maryland, College Park

**Michael B. Becraft**, Session Monitor  
Assistant to the Provost, St. Mary's College of Maryland

Workforce Development: Recruitment, Training & Retention (Green)...Rooms 5 & 6

**Cindy Zook**, Session Facilitator  
President, Zook and Associates  
**Michael Blackwell**, Session Monitor  
Director, Space and Mission Operations  
Honeywell Technology Solutions Inc.

Industry Collaboration: Development and Best Practices (Yellow).....Rooms 7 & 8

**Bruce Mahone**, Session Facilitator  
Assistant Vice President, Technical Operations  
Aerospace Industries Association  
**Karen Gentle**, Session Monitor  
Six Sigma Plus Master Black Belt  
Honeywell Technology Solutions Inc.

Security Clearances: Access and Availability (Red).....Closed Foyer

**Alan Dunham**, Session Facilitator  
Senior Analyst  
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**Gloria Berthold**, Session Monitor  
President, TargetGov at Marketing Outsource Associates, Inc.

12:30PM Luncheon Program.....South Dining Room

Remarks

**Gino Gemignani**

Chair, Governor's Workforce Investment Board

Introduction of Keynote Speaker

**Art Taguding**, Director, Center for Industry Initiatives

Governor's Workforce Development Board

Keynote Speaker

Shaping the Future of Maryland's Aerospace Workforce

**Norman R. Augustine**

Retired Chairman and Chief Executive Officer, Lockheed Martin Corporation

Charge of Responsibility for Afternoon Strategy Sessions

**Harold S. Stinger**

Chair

Aerospace Steering Committee

**Anoop N. Mehta, CPA**

Vice Chair

Aerospace Steering Committee

1:45 PM Strategy Sessions – Continued

Pipeline Development Part I: K-12 Education (Blue).....Rooms 1 & 2

Industry and Education Coordination/Partnerships

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Education Specialist, National Aeronautics and Space Administration

Pipeline Development Part II: Higher Education (White).....Rooms 3 & 4

Industry and Education Coordination/Partnerships

**Judy Hendrickson**, Session Co-Facilitator

Director of Academic Affairs

Maryland Higher Education Commission

**William Fourney, Ph. D.**, Session Co-Facilitator

Director of Graduate Studies

Department of Aerospace Engineering

University of Maryland, College Park

**Michael B. Becraft**, Session Monitor

Assistant to the Provost, St. Mary's College of Maryland

Workforce Development: Recruitment, Training & Retention (Green)....Rooms 5 & 6

**Cindy Zook**, Session Facilitator

President, Zook and Associates

**Michael Blackwell**, Session Monitor

Director, Space and Mission Operations

Honeywell Technology Solutions Inc.

Industry Collaboration: Development and Best Practices (Yellow).....Rooms 7 & 8

**Bruce Mahone**, Session Facilitator  
 Assistant Vice President, Technical Operations  
 Aerospace Industries Association  
**Karen Gentle**, Session Monitor  
 Six Sigma Plus Master Black Belt  
 Honeywell Technology Solutions Inc.

Security Clearances: Access and Availability (Red).....Closed Foyer

**Alan Dunham**, Session Facilitator  
 Senior Analyst  
 Northrop Grumman Corporation  
**Gloria Berthold**, Session Monitor  
 President, TargetGov at Marketing Outsource Associates, Inc.

4:00 PM Presentation of Sessions' Strategy Action Plans.....Auditorium

**Harry T. Solomon**, Presenter  
 Program Director, SGT, Inc.  
 Session Facilitators, Presenters

4:45 PM Response and Next Steps .....Auditorium

**Harold S. Stinger**  
 Chair, Aerospace Steering Committee

5:00-6:00 Networking Reception.....South Dining Room

**4.2 Leadership Forum—The Challenge and Commitment to Action**



*Maryland State Schools Superintendent, Dr. Nancy Grasmick looks on as Senator Barbara Mikulski reiterates her unwavering support for the Maryland aerospace industry and her dedication to the employees of Maryland during the Leadership Forum.*

Harold Stinger, Aerospace Steering Committee Chairman reviewed the day's agenda and highlights of the Summit. Following the overview by Mr. Stinger, a Leadership forum was convened. The Leadership Forum was moderated by Emily Stover DeRocco, Assistant Secretary of the U.S. DOL, Employment, and Training Administration. Leadership Forum panel members included Angela Phillips Diaz, Acting Associate Administrator for Education, National Aeronautics and Space Administration; Nancy Grasmick, Ph.D., State Superintendent of Schools, Maryland State Department of Education; Steny H. Hoyer, Congressman, 5th Congressional District, Maryland; Freeman A. Hrabowski III, Ph.D., President, University of Maryland Baltimore County; Aris Melissaratos, Secretary, Department of Business and

Economic Development, State of Maryland; Barbara A. Mikulski, U.S. Senator, MD and Jerry Wellman, Vice President, Honeywell Technology Solutions Inc.

Each of the leadership Forum members commended the Summit participants for their commitment to the GWIB efforts, and presented their own unique perspective on the issues facing the industry and the workforce and citizens of Maryland. It was clear that each Forum participant had an understanding of the larger issues at hand, particularly with respect to Maryland's residents as students, employees and constituents. Each presented an insightful discussion of their position on the various challenges in the state, and pledged their continued support to the GWIB effort.

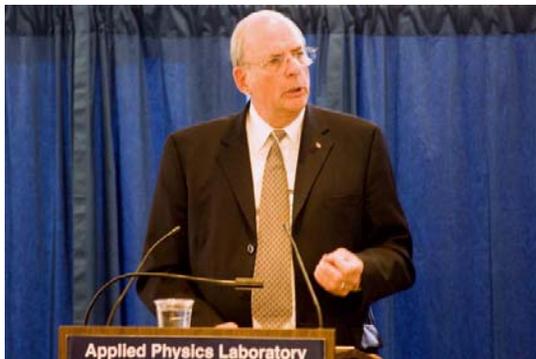


*Dr. Freeman Hrabowski makes an emphatic point during the leadership forum, encouraging educators and employers alike to aggressively embrace and promote diversity as a cornerstone for success.*

### 4.3 Review of Recommendations

Halima Aquino, Industry Initiative Coordinator for the GWIB, presented an overview of the Aerospace Industry Steering Committee Research to date, and the proposed strategies for addressing these issues. The strategies were presented in summary form.

- Pipeline Development: K-12 and Higher Education issues and concerns were presented by Judy Hendrickson, Director of Academic Affairs, Maryland Higher Education Commission
- Workforce Development: Recruitment, Training, and Retention issues and concerns were presented by Orlando Figueroa, Director of Applied Engineering and Technology, NASA Goddard Space Flight Center



*Keynote Speaker, Norman Augustine, addressed attendees during the luncheon session, with a powerful emphasis on the need to bring the level of science, mathematics, and technical skills of students and U.S. workers up to par with the rest of the world's leading industrialized nations.*

- Industry Collaboration: Development and Best Practices issues and concerns were presented by Bruce Mahone, Assistant Vice President, Technical Operations, Aerospace Industries Association
- Security Clearances: Access and Availability issues and concerns were presented by Jerry Wellman, Vice President, Honeywell Technology Solutions Inc.

Aside from the working sessions that ensued in the late morning and afternoon sessions, the Summit attendees were addressed during the lunch break by the GWIB Chairman, Mr. Gino Gemignani, and Mr. Art Taguding, Director, GWIB Center for Industry Initiatives. Mr. Taguding introduced the Keynote Speaker of the Summit, Mr. Norman R. Augustine, Retired

Chairman and CEO of Lockheed Martin. Mr. Augustine provided the summit participants with his perspective on the issues facing the industry, and reiterated his well known work regarding the challenges of the United States remaining competitive in the global technical arena.

Following the luncheon session, the breakout sessions reconvened for several hours to work the issues before providing summary recommendations to the Summit participants. The day was completed with a review of the recommendations by the chair of each breakout session, and a summary of next steps by Steering Committee Chair, Harold Stinger.

#### 4.4 Strategy Recommendations

Each Strategy Session facilitator was charged with developing a recommended range of top initiatives determined by the session participants. After the initiative was explored, and wherever possible, potential initiative champions were recommended to assist with the implementation. Sections 4.5 through 4.9 detail the recommended initiatives along with agreed-upon ideas for implementation of each action. In the case of the Pipeline Development topic, the groups were broken into two separate sessions; one for K-12 and one for Higher Education.



*Educators, industry representatives, and government officials alike dug in and tackled a number of significant and challenging issues during the morning and afternoon working sessions.*

There was extensive discussion in each session regarding Industry Champions for these issues, and it was decided that the issues would be further discussed in post-Summit sessions, and Champions would be determined in upcoming months. Likewise, schedules for the initiation and completion of each of these efforts were also discussed here, but will be further refined and presented to the Steering Committee in the coming months.

#### 4.5 Pipeline Development: K-12

The session on Pipeline Development Part I: K-12 Education, Industry and Education Coordination/Partnerships, was facilitated by Katharine Oliver, Assistant State Superintendent, Division of Career and Technology Education, of the Maryland State Department of Education. The session was monitored by Frank Ireton, Ph.D., Program Manager, Science Systems and Applications, Inc., and Bonnie McClain, Education Specialist, National Aeronautics and Space Administration.

The K-12 work session addressed a number of issues that have been part of an ongoing dialogue within the Steering Committee membership for over a year. A major issue addressed by K-12 educators was a thorough understanding of what is expected by higher education entities with regard to preparation of students for entry. In particular, the lack of interest or ability of the majority of K-12 students in the sciences and mathematics has been a major topic, not only with the Steering Committee, but has also been noted now for several years by educators and industry leaders nationwide. Development of both teachers awareness and students' understanding for potential careers in the early stages of their educational development was also a focus.

Recommendations relative to Pipeline Development Part I: K-12 Education are:

**1. Grow more STEM teachers with industry relevant skills.**

Key Results / Success Measures:

- a. A highly qualified STEM teacher in every STEM classroom.
- b. Salary for STEM teachers competitive with industry.
- c. More certified teacher graduates in STEM areas.

**2. Reinvigorate curriculum and instruction to improve math, science, and technological literacy outcomes for students.**

Key Results / Success Measures:

- a. Enhanced innovation in design, new technologies, more U.S. patents, countering the energy crisis.
- b. More STEM courses successfully taken. More graduates, particularly women and minorities, in engineering & technical sciences.
- c. More graduates workplace and/or college ready.

**3. Expand high school internship opportunities and educational programs sponsored by aerospace companies.**

Key Results / Success Measures:

- a. Utilize MD Space Business Roundtable companies as pilot.
- b. Utilize Project Lead the Way as pilot & FIRST Robotics Schools.
- c. Collect/measure current industry, governmental practices, and programs.

**4. Create a STEM Center of Excellence that nurtures students to enter and remain in the aerospace pipeline & Professional Development.**

Key Results / Success Measures:

- a. Physical facilities for the Center and satellite Centers.
- b. Needs assessment to staff facilities.
- c. Metrics indicate increased student participation in the aerospace pipeline.

#### **4.6 Pipeline Development: Higher Education**

The session on Pipeline Development Part II: Higher Education, Industry and Education Coordination/Partnerships was co-facilitated by Judy Hendrickson, Director of Academic Affairs, Maryland Higher Education Commission and William Fourney, Ph. D., Director of Graduate Studies, Department of Aerospace Engineering, University of Maryland, College Park. The session was monitored by Michael B. Becraft, Assistant to the Provost, St. Mary's College of Maryland.

The Higher Education work session also addressed similar issues noted by the K-12 and the Industry members of the Steering Committee. Higher education representatives desired graduating high school graduates who are better prepared academically, and have a better understanding of their own aptitudes and potential interests. Industry representatives in this working session noted that they want the higher educational institutions to have a more up-to-date understanding of the needs of industry. It was felt that a more accurate understanding of industry and workplace requirements would lead to the development of more appropriate and more practical coursework. Major issues addressed here were the concerns of the academic institutions needing a more thorough understanding of what is expected by industry with regard to preparation of college students for entry into the workforce. A lack of understanding of current industry needs was major topic of discussion. The development of faculty and students' understanding of practical career requirements was emphasized in this session.

Recommendations relative to Pipeline Development Part II: Higher Education are:

**1. Create experiential learning opportunities for students and educators.**

Key Results / Success Measures:

- a. Number of internship opportunities created.
- b. Number of participating institutions.
- c. Increased hiring and retention rates.
- d. Employer, faculty and student satisfaction and value of experience.

**2. Develop Communities of Collaborative Learning**

Key Results / Success Measures:

- a. Increased STEM retention rates.
- b. Increase graduation rates and increased rates of advanced degrees in STEM.
- c. Increase STEM workforce pool.

**3. Improve the transition from secondary to postsecondary education**

Key Results / Success Measures:

- a. Establish documented articulation among high schools, community colleges, and four-year institutions.
- b. Develop advertising tool listing competencies required in higher education.
- c. Evaluate articulation results in a two to three year timeframe.

#### 4.7 Workforce Development: Recruitment, Training, and Retention

The session on Workforce Development: Recruitment, Training & Retention, was facilitated by Cindy Zook, President, Zook and Associates and was monitored by Michael Blackwell, Director, Space and Mission Operations, Honeywell Technology Solutions, Inc.

This working session focused on many of the issues associated with attracting workers to the State of Maryland, either from the education institutions or from employers outside the state. Issues such as housing costs, transportation, school systems, and quality of life in the state were key topics. Discussions included providing incentives to attracting and retaining students in the aerospace workforce, how to better interact with the Department of Defense (DoD) regarding the recruitment of exiting military personnel, and how to provide continuing vocational/education assistance and incentives to develop and maintain a highly skilled workforce, among others. Industry also had particular concerns about the number of graduates from higher education institutions that, while technically qualified, cannot be hired to work on many federal contracts (much of the work in the aerospace industry is on federally funded programs) due to the fact that they are not U.S. Citizens or Legal Permanent Residents.

Recommendations relative to Workforce Development: Recruitment, Training & Retention are:

**1. Create a centralized portal and robust, collaborative community of practice for the aerospace industry to attract and retain aerospace talent to Maryland**

Key Results / Success Measures:

- a. A robust portal - with high levels of participation by stakeholders.
- b. Effective governing board.
- c. Increased retention in Maryland.
- d. Develop a blueprint to implement the transfer of knowledge from experienced employees to entry level.

Key Results / Success Measures:

- a. Targeted changes to retention and turnover rates.
- b. Capture Knowledge/Lessons Learned.
- c. Participation by companies and employees.

**2. Create college tuition scholarship/grant programs for technical and managerial skills enhancement- tied to a commitment to remain in the Maryland aerospace industry for a specified period.**

Key Results / Success Measures:

- a. Number participating in program (e.g., complete degree requirement).
- b. Sixty-five percent (65%) complete program requirement (e.g., remain in industry in Maryland 1 yr per 1 yr tuition).
- c. Thirty-five percent (35%) stay in industry in Maryland for 10 yrs.

## **4.8 Industry Collaboration: Development of Best Practices**

The session on Industry Collaboration: Development and Best Practices was chaired by Bruce Mahone, Assistant Vice President, Technical Operations, Aerospace Industries Association. The session was monitored by Karen Gentle, Six Sigma Plus Master Black Belt, Honeywell Technology Solutions Inc.

During this working session, a significant amount of discussion was dedicated to the need for more industry collaboration, which was acknowledged as a significant challenge in a competitive environment. In particular, a collective approach to promoting the industry within the state, and well as to the public and educational institutions was identified as a high priority. The concept of a state-level aerospace industry association chartered to represent the industry across the state and at the federal level was well received by the participants. It was also felt that an organization such as this would provide viable, independent representation that could work with and between industry participants, federal, state and local government offices, employment organizations and educational institutions to promote and work on behalf of the aerospace industry within the state.

Recommendations relative to Industry Collaboration: Development and Best Practices are:

### **1. Develop a Maryland Aerospace Organization**

#### Key Results / Success Measures:

- a. There is an active membership.
- b. Key initiatives are undertaken by industry, academia, and government.

### **2. Advertise and Promote the Presence of Aerospace in Maryland**

#### Key Results / Success Measures:

- a. Measurable increase in pipeline.
- b. Validate top priority audience segments.
- c. Create “buzz” about aerospace in Maryland.

### **3. Increase Aerospace Internships and Scholarships**

#### Key Results / Success Measures:

- a. Determine level of math and science majors and increase by 5% each year.
- b. Determine various funding (current) levels for scholarships/internships and increase by 10% each year.
- c. Determine level of women/minority math and science graduations and increase by 10% each year.

## 4.9 Security Clearances: Access and Availability

The session on Security Clearances: Access and Availability was facilitated by Alan Dunham, Senior Analyst, Northrop Grumman Corporation, as was monitored by Gloria Berthold, President, TargetGov at Marketing Outsource Associates, Inc.

While one of the smaller working sessions, this group nonetheless had a significant amount of discussion regarding the significant security clearance issue within the industry. As noted in earlier sections of this report, the availability of cleared or “clearable” personnel remains a significant challenge to the industry. The Maryland aerospace industry in particular, receives the majority of funding from the federal government. Many of these federal programs require classified access or Secret-level or higher security clearances. Problems abound for employers, regularly vying for a limited number of cleared candidates, and often employing “clearance-pending” personnel in non-sensitive positions until clearances are approved. The increase in the number of basic background checks for even non-classified federal contractor employees has added to the significant backlog of ongoing investigations. Cleared personnel are highly sought and valuable commodity due to this backlog. The group focused on ways of improving the situation, suggesting a variety of ways to identify and attract cleared personnel, pre-qualifying potential employees (even while still students) for cleared positions, educating potential employees on requirements for clearances that would help expedite the process, including citizenship requirements, and enlisting state agencies to assist with pre-qualifying potential candidates.

The recommendations developed relative to on Security Clearances: Access and Availability are:

### 1. Increase Resources for the Clearing Process

#### Key Results / Success Measures:

- a. Eliminate the backlog.
- b. Establish means of measuring the monthly backlog.

### 2. Educate and Increase Pool of Potential Candidates

#### Key Results / Success Measures:

- a. Creation of pre-clearing program.
- b. Develop pool of people who want to become vetted candidates.
- c. Matriculate into industry.

### 3. State/Industry Partnerships

#### Key Results / Success Measures:

- a. Provide Secured Workspace.
- b. Dedicated DBED Staffing for Cleared Industry.
- c. Secured Acquisition and Information Portal.

## 5. Next Steps

In the first few months following the Summit, the Steering Committee was reconstituted into a new role; that of providing oversight for the various Initiative Teams, as the Aerospace Steering Committee Initiative Implementation Committee. The Implementation Committee held sessions to identify team chairs for each of the initiative areas. These teams then identified the most significant and feasible near term issues, and assign champions to lead the team in its action plan. These implementation teams will report monthly to the Implementation Committee on progress, and solicit assistance where required. The Implementation Committee will report regularly to the GWIB on industry progress and provide briefings to the Maryland Cabinet as necessary.

A charter was developed by the Steering Committee Chair and GWIB Staff for the Implementation Committee. This Charter is shown in Figure 5-1.

***Governor's Workforce Investment Board (GWIB)***  
***Aerospace Implementation Committee Responsibilities:***

- Membership should be composed of a diverse and comprehensive range of representation from the invested stakeholders from industry, government and education in Maryland to address the Aerospace industry workforce needs. Representatives from each of the workforce strategy subcommittees will serve on the Implementation Committee.
- Review and establish the initiatives that identify and address the top workforce priorities and issues for Aerospace in Maryland
- Identify and define the necessary work and activity important to the industry initiative's mission in addressing the current and future workforce issues for Aerospace in Maryland.
- Guide the industry initiative sub-committee leaders and members in its priorities, activity, and appropriate work.
- Identify and solicit other possible committee members who would effectively contribute to the Implementation Committee or subcommittees.
- Define and guide the role and activity of the Aerospace Steering Committee members who have served the industry initiative.
- Work with the Governor's Workforce Investment Board, its staff and the GWIB Industry Leader in identifying the Aerospace industry current and projected workforce issues and solutions in Maryland.
- Provide the Governor's Workforce Investment Board, the Subcabinet and other groups, as needed, with updates on activity and work.
- Should secure and provide the resources (human, fiscal, logistical) needed for the work of the Aerospace Industry Initiative.
- Should identify and secure relationships and partnerships with other local, state, regional or national organizations that would support mutually beneficial goals and outcomes.
- Meet monthly throughout the year to advance its work with Aerospace Industry Initiative. Additional meetings and interactions will be arranged as needed.

*APRIL 24, 2006*

**Figure 5-1. Aerospace Implementation Team Charter**

The implementation Teams will develop a plan of action based on the recommended range of initiatives identified for each workforce issue that was prioritized at the Summit. The teams will be responsible for meeting regularly to develop its plan of action. A liaison from the Aerospace Implementation Leadership Committee will provide guidance to the implementation Team leaders and members. The Leadership Committee will be responsible for directing the various teams and prioritize their work and activities to progress toward the desired outcomes for the Maryland Aerospace Industry.

## **5.1 Post-Summit Forum**

On June 26, 2006, the Aerospace Implementation Committee convened a forum at Computer Sciences Corporation (CSC) in Lanham, MD to act upon the recommendations from the Aerospace Summit and affirm the initiatives that will be pursued in response to the workforce needs of the industry. The forum was attended by 43 participants, representing the aerospace industry, academia, and government. Harold Stinger, Chairman of the Aerospace Implementation Committee welcomed the participants and encouraged their strong engagement in the forum.

Anoop Mehta, Vice-Chairman, presented a short overview of what would happen during the short hour and a half that they would be together. He indicated that there will be four working-lunch break-out sessions consistent with their indicated choice of participation. At the conclusion, the groups would re-assemble as one audience and spokespersons for each group would report back the findings.

Prior to break-out and as a refresher, Harry Solomon re-visited the recommendations from the Summit and answered any significant questions from the audience.

Harold Stinger then charged the participants in four groups to affirm and prioritize the future actions to be driven by the Initiative Teams.

It should be noted that during the January Summit, the K-12 and Higher Education groups were intentionally separated in order to focus on their particular issues. The outcomes of the two groups' discussions were that there were a number of significant, overlapping issues. As a result, for the purpose of moving forward with the implementation of the Summit recommendations, these two groups have been combined into one organization, addressing the full range of K-16 education. Much of the higher education group's issues were related primarily to the undergraduate programs. In the event that future discussion items arise that pertain to graduate or post graduate students or programs, this group (or a subgroup) will also address these.

The groups reported back with two or three recommendations each, indicating that these choices are the ones that represent the most current and pressing needs of the industry. The groups also ensured the Leadership Team that the remaining Summit recommendations that came out of the Summit will not be discarded, but will be archived and will be addressed at a later time. The issues identified here were those that the June 26, 2006 session participants have identified as the most immediately actionable. The following is a summary of actions presented by each of the Initiative Teams and delivered to the Implementation Leadership Team for final edit and review.

## **6. Plan of Action**

This Plan of Action (Plan) is the framework to drive initiatives that will better position Maryland's workforce in response to the demands of the Aerospace Industry. The Plan embodies the common vision and guiding principles of the 2006 Aerospace Summit and proposes to be the vehicle to create a workforce that is not only educated, but possesses the skills-set required to meet the industry's demand at all levels of employment.

### **6.1 Initiative Team: Pipeline Development**

Education is the key to success and now more so than ever since we live in a world that revolves around technology and is continually striving for the competitive edge. The educational awareness in Science, Technology, Engineering, and Mathematics (STEM) are quite evident in every facet of our lives. To promote and nurture students' talents in these particular areas is to prepare students with an educational blueprint for success. It is clear and can never be overstated that the partnership of academia and industry is necessary, if not pivotal, in order to produce and meet the workforce demands of the industry now and in the future.

Therefore, the actions of the Pipeline Development Initiative Team are to:

- Grow more STEM educators who have an understanding and knowledge of the aerospace industry.
- Reinvigorate curriculum and instruction to improve STEM literacy outcomes for students.
- Create STEM experiential learning opportunities (i.e., internships) for students and educators.

### **6.2 Initiative Team: Workforce Development – Recruitment and Training**

In the process of developing a meaningful and effective workforce which meets the demands of the aerospace industry as a whole, it is essential that the skill- set of the workforce at least meets the core requirements of the industry. And that training, of new and different types, is made readily available to take the workforce and launch it beyond the core. Realistically speaking, the aerospace industry needs and requires a workforce that is work ready at all levels of employment. Although, maintaining a trained work ready Maryland workforce is essential, attracting suitable and talented candidates from other states to work and live in Maryland is as equally important. Therefore, a centralized location of information sharing should be available where suitable and prospective candidates can obtain valuable resources regarding scholarships, internships, work-study programs, and aerospace opportunities both in general and specific form. Creativity in the process of attaining these goals is paramount to the welfare of the industry. In a best case scenario, this is a win-win situation for both Maryland's workforce and the industry at large.

Therefore, the actions of the Workforce Development Initiative Team are:

- Information – Create a portal that would house all types of aerospace information and be the catalyst for driving messages to industry, education, and other audiences. This will be a central information resource with information on events, opportunities for internships, scholarships, teacher info and much more.
- Education – To capture and unify knowledge transfer such as tuition, scholarships, and grant programs so that it becomes a central repository of information for industry, academia, and government that could be accessible throughout the state.

### **6.3 Initiative Team: Industry Collaboration – Development and Best Practices**

An organization to represent Maryland's vital aerospace industry is essential for the continued health and future expansion of this important field. Not only are there well known institutions such as Goddard Space Flight Center, Johns Hopkins University's Applied Physics Laboratory and Space Telescope Science Institute, Naval Air Systems Command at Patuxent River and NOAA, there are numerous employers that provide challenging, highly rewarded employment for thousands of Marylanders.

At the present time there is no statewide organization to represent the industry to either elected officials of Maryland State Government or the people of Maryland, especially youth and the educators who will prepare them for employment in this industry. One major consequence is that young people are not prepared for work in this dynamic, growing industry. Another major consequence is that the political sphere is neither ready to assist where needed nor to benefit from developments in aerospace. Other states, especially California, Texas, Ohio and Florida are already working to strengthen their existing aerospace industry. Some states, for example New Mexico with its plans to develop space tourism, are seeking to become key future players.

We already have the beginnings of such an organization in our state. Two sections of the American Institute of Aeronautics and Astronautics, the Baltimore Section and the National Capital Section, are active in multiple ways. Politically both sections support Congressional Visits Day, an effort where members come to Washington, DC and present topics of interest to members of Congress and their staffs. They are also active in various educational activities ranging from National Engineers Week to helping with student projects to public lectures. A nationwide volunteer organization, the National Space Society, supports public education activities with two chapters in Maryland. Other organizations that support the aerospace industry include the Maryland Space Business Roundtable, the Maryland Aviation Museum and the Maryland Space Grant Consortium. Major corporations such as Lockheed Martin, Boeing and Northrop Grumman support various educational efforts. The objective of Aerospace Industry Initiative of the Governor's Workforce Investment Board is to bring these various groups together into a unified organization with the directed purpose of strengthening the workforce and educational programs that support aerospace.

Therefore, the actions of the Industry Collaboration Initiative Team are:

- By bringing these various groups together we will strengthen the field and address workforce problems. For example, many have observed that young people lose interest in science and technology generally during their high school years. Some have also

noted that the preparation students receive in academia does not well meet the needs of industry. Our sector of the Governor's Workforce Investment Board has noted these lacks and is developing a plan to address them through educational efforts aimed at the young. Still another factor confronting the industry is the problem of housing and, related to that, the cost of living faced by younger, entry level workers. A single, strong voice to advance common positions will provide unified support to these issues.

- We have taken the first steps towards bringing the various parts of Maryland's aerospace efforts together. The next step we must take is to organize the representatives from the various sectors to work together to solve our problems and advocate further actions that must be taken by responsible political officials. We will begin by inviting people from the sectors already identified to attend meetings organized by this committee. This will be our initial focus and statement of purpose for the next year.

#### **6.4 Initiative Team: Security Clearances: Access and Availability**

This is a matter of great urgency and concern that needs to be addressed by the industry. It seems that a great deal of backlog exists in this process and no real solutions are in place to remove the barriers. While many applicants wait for the results of their background investigations, the aerospace industry as a whole suffers. This is a real issue that deprives the industry from employees that possess the critical skills that are much in demand. Can processes be devised to pre-clear or qualify applicants and thus possibly shorten the process? Or, can education of the process be another solution?

Therefore, the actions of the Security Clearances Initiative Team are to:

- Educate and increase the pool of potential candidates that are eligible for security clearances by developing and delivering two distinct programs addressing two specific candidate pools. Each program will define the elements that will facilitate the candidates' ability to obtain/maintain a security clearance and will highlight the actions and steps they can take to keep themselves eligible at each stage of their studies/careers.
- The two target groups are (a) those students entering hard science/engineering higher education programs, and (b) those students graduating from science/engineering programs and incumbent workers in other states.

#### **6.5 Structure and Order**

An organizational chart showing the present structure of this phase of the Aerospace Industry Initiative was adopted. A copy of the Charter under which the obligations and responsibilities of the Implementation Committee are enumerated, was also adopted by the forum participants.

#### **6.6 Monitoring**

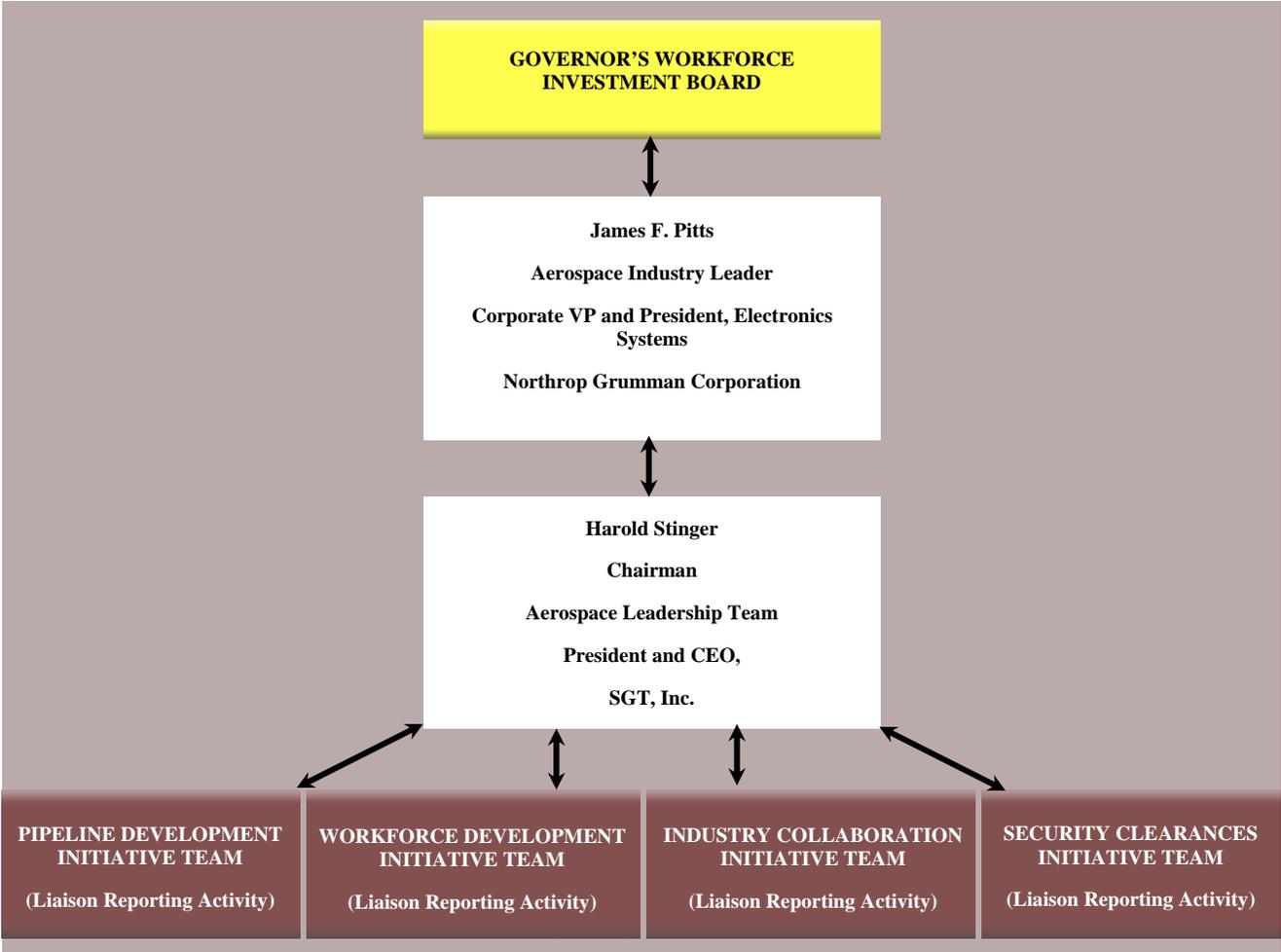
Under the direction of the Aerospace Leadership Implementation Team, the Initiative Teams will pursue the necessary activities and strategies to support the successful progress of their recommendations. The Initiative Teams will report their work to the Leadership Team as they work towards the solutions to the industry's current and projected workforce needs.

**6.6.1 Dynamics of Continuity and Immediate Source of Support**

The Leadership Team, realizing that as a body, at times, could not be readily available to the Initiative Teams to render immediate professional support, created the position of Initiative Team Liaison. This position, at least one per Initiative Team, is a regularly attending member of the Leadership Team's meetings. This organization is shown as Figure 6-1.

He/she:

- Provides the Team Leader and members with guidance and support on matters of the overall scope of the Aerospace Industry Initiative.
- Provides the Team Leader and members with a sense of continuity and connectivity with the Leadership Team.
- Serves as a guiding consultant of resource and clarification to the Team Leader and members with regards to specific activities.
- Serves as a representative on behalf of the Initiative Team to the Leadership Team in communicating progress, concerns, and requests.



**Figure 6-1. The Aerospace Leadership Implementation Team**

## **6.7 What is Happening Now**

Under the direction of the Aerospace Leadership Implementation Team, the Initiative Teams are pursuing the necessary activities and strategies to support the successful progress of their recommendations. These Initiative Teams will continue to regularly report on the status of their work to the Leadership Team and receive necessary guidance and support as they work towards defining the solutions to the industry's current and projected workforce needs. The Leadership Team will also proactively coordinate with the Aerospace Industry Leader to ensure he is apprised at all times of the status of the Initiative Teams efforts, enlist support where necessary, and to ensure the Industry Leader is fully prepared for planned or ad hoc briefings to the GWIB or other State Government officials.

The first official briefing to the GWIB has been planned for September 2006, and preparations are underway with the Aerospace Industry Leader to support this, and to plan for support to all future briefings and presentations.

## Appendix A. Summit Participants

### **Mark Abel**

Director of New Business  
Computer Sciences Corporation

### **Sandy Adorney**

Human Resources Specialist  
SGT, Inc.

### **Mark Allen**

PAAC Resource Analyst  
SGT, Inc.

### **Will Anderson**

Project Director, Teen Web  
Maryland Business Roundtable for  
Education

### **Anne Anikis**

Assistant Director  
Maryland Space Grant Consortium

### **Bernard Antkowiak**

Assistant Secretary, Division of  
Workforce Development  
Department of Labor, Licensing &  
Regulation, State of Maryland

### **Halima Aquino**

Industry Initiative Coordinator  
Governor's Workforce Investment  
Board

### **Norman Augustine**

Retired Chairman and CEO  
Lockheed Martin Corporation

### **Om Bahethi**

President  
Science Systems & Applications,  
Inc.

### **Ravi Bahethi**

President  
Terranet, Inc.

### **Ed Ball**

Curriculum Coordinator  
Montgomery County Public Schools

### **Christine Barrow**

Coordinator, STEM Collegian  
Center  
Prince George's Community College

### **Adam Bateler**

Marketing Strategist  
Department of Business and  
Economic Development, State of  
Maryland

### **Linda Baumgart**

Director, Human Resources  
SGT, Inc.

### **Jenny Beatty**

Senior Manager  
FIRST

### **Michael Becraft**

Assistant to the Provost  
St. Mary's College of Maryland

### **Donna Belt**

Director of Outreach  
NSA

### **Kathleen Beres**

Sr. Director NASA Marketing  
Orbital Sciences Corporation

### **Gloria Berthold**

President  
TargetGov at Marketing Outsource  
Associates, Inc.

### **Allan Bjerkaas**

Associate Dean, Engineering and  
Applied Science, EPP  
Whiting School of Engineering,  
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