

THE INTELLECTUAL
EDGE
ALLIANCE





OVERVIEW

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“Wartime adaptation is founded on peacetime innovation and the form of learning culture that is established in military institutions. All wars are ultimately human endeavors...the two most important factors in determining victory or defeat are:

- 1) The soundness of the military strategy
- 2) The nimbleness with which it can adapt to unforeseen circumstances.”

– Maj Gen (Australia) Mick Ryan (retired)

The strength of our country is based on our diversity, democracy, creativity, innovation, and our commitment to being a world leader. We are not a monological society. We believe that in order to rapidly accelerate against our adversaries, we need to build on these strengths and collaborate meaningfully both within our borders and with our international allies and partners.

Our work with the military focuses on creating a vibrant and sustainable ecosystem that connects the branches within the Department of Defense and other government agencies with higher education institutions (faculty, researchers, and students), alternative sources of funding (financial sector, venture capital), large corporations and startups as well as community-based organizations.

We are committed to helping our military create, foster, and leverage these hybrid innovation relationships so that we can out-pace, out-think, out-partner, and out-compete our adversaries.

OVERVIEW: INNOVATRIUM APPROACH

DEMOCRATIZATION OF INNOVATION

“Our system is built on the idea that every organization has within it the ability to solve its own problems.”

– Jeff DeGraff, Professor, University of Michigan
and Founder of the Innovatrium



LEARNING BY DOING: SEE-ONE, DO-ONE, TEACH-ONE (SODOTO)

The Intellectual Edge Alliance’s mission is to democratize creativity and innovation, develop creative service members of the military who can build cohesive diverse teams that understand innovation frameworks to solve real-world challenges. Developing a creative military means developing the essential four components of the military:



**CREATIVE
MINDSET**



**CREATIVE
CULTURE**



**CREATIVE
CAPABILITY**



**CREATIVE
COMMUNITY**

We believe innovation and adaptability can indeed be taught. However, we also believe that it cannot be taught simply through books or in the classroom alone. It’s a craft that needs to be developed through practice, just like riding a bicycle or playing a guitar. The end result is the creation of an innovator’s mindset focused on speed, synchronization, and culture built on the fundamentals of the Innovation Genome and Innovation Code.

INNOVATION GENOME

Our approach centers on the Innovation Genome, a model that fosters successful organizational leadership and improves effectiveness. The model is grounded in more than 30 years of research and thought leadership from renowned professors at the University of Michigan. It is recognized by Financial Times as one of the 40 most important frameworks in the history of business.



PRACTICES

- Search and reapply best practices
- Collaborate with customers
- Focus on training, culture, and competency development
- Develop communities and networks
- Develop a strong cultural identity
- Elicit participation and feedback
- Mentor and coach
- Build cohesive teams
- Establish shared values
- Hire and train life-long learners
- Collaborate across boundaries

PRACTICES

- Improve processes
- Benchmark best in class
- Remove unnecessary steps
- Run simulations
- Mine and analyze information
- Integrate various systems
- Restructure to optimize efficiency
- Innovate along supply chain
- Develop contingency plan
- Utilize the right technology

PRACTICES

- Create unique solutions
- Develop entre(intra)preneurs
- Brainstorm novel solutions
- Forecast the future
- Establish a dedicated innovation fund
- Develop strategies to disrupt the status quo
- Enlist people who think differently
- Create a future oriented strategic unit
- Diversify experiments
- Build a virtual organization
- Utilize creativity methods

PRACTICES

- Eliminate unprofitable products and services
- Acquire another company
- Tie incentive and bonus to performance
- Build a strong brand/reputation
- Reward top performers publicly
- Reduce time from planning to taking action
- Outsource non-essential services
- Conduct competitive analysis
- Fast track project teams
- Develop key performance dashboard

COOPERATIVE SITUATION
BELIEFS

- Belief(value)-driven business model
- Purpose-focused market strategy

LIFESTYLE

- Work-life integration
- Identification and ideology

CLAN ORGANIZATION
COMMUNITY

- Communities of practice
- Culture development

KNOWLEDGE

- Organizational learning
- Search and reapply best practices

SAGE DOMINANT WORLDVIEW
CAPABILITY

- Apprenticeship/mentoring
- Continuing education

AFFILIATION

- Family and social activities
- Service-focused initiatives

UNIQUE SITUATION
BREAKTHROUGH

- Paradigm shift
- Disruptive innovation

DIFFERENTIATION

- Differentiation value proposition
- Radical approach

ADHOCRACY ORGANIZATION
INNOVATION

- Futuring and scenario planning
- Discovery-based diversified experiments

GROWTH

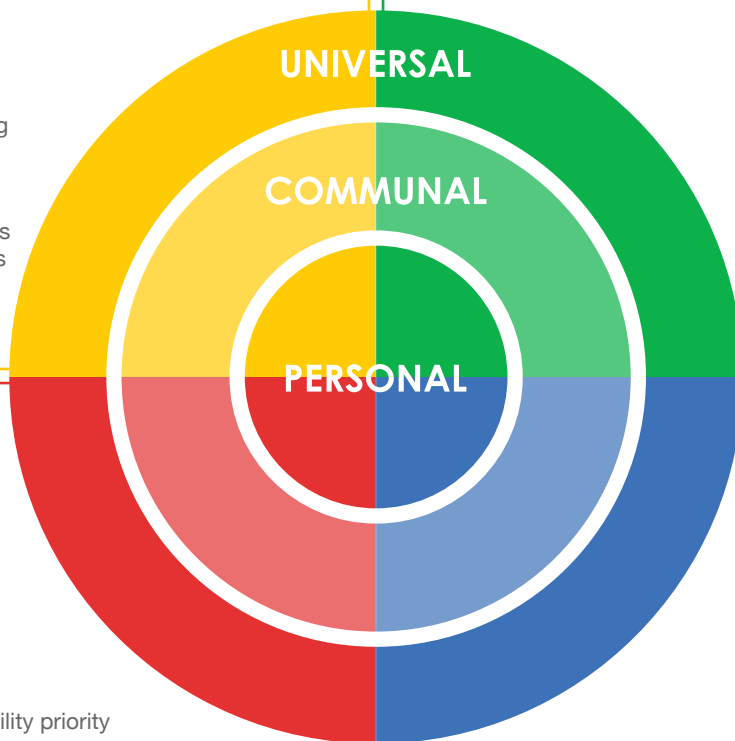
- New market speculation
- Greenhouse funds

ARTIST DOMINANT WORLDVIEW
CREATIVITY

- Artistic expression
- New vision

DISCOVERY

- Psychological development
- Exploration in new fields



PREDICTABLE SITUATION
SCALE

- Complex operations
- Economies of scale

RISK AVERSION

- Failure is not an option
- Security, safety, and stability priority

HIERARCHY ORGANIZATION
EFFICIENCY

- Lean manufacturing
- Supply chain innovation

QUALITY

- Continuous improvement
- End-to-end IT system

ENGINEER DOMINANT WORLDVIEW
SECURITY

- Safety first
- Emergency rainy day funds

PRODUCTIVITY

- Certification
- Promotion

CONTENTIOUS SITUATION
AGGRESSIVE

- Short time to market
- Fast follower

DEMANDING

- Combative strategy
- Winner takes all

MARKET ORGANIZATION
SPEED

- Mergers and acquisitions
- SWAT team

PROFIT

- Revenue insight processes
- Market adjacencies

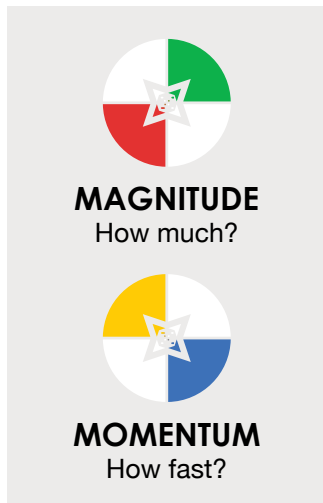
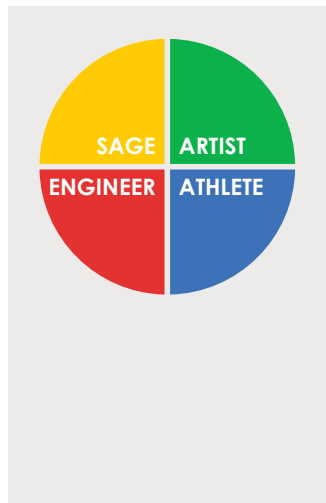
ATHLETE DOMINANT WORLDVIEW
VITALITY

- Physical health
- Energy and power

PROSPERITY

- Wealth accumulation
- Best in class

INNOVATION CODE



- Recognize what we seek in common
- Find the root cause of the challenge or opportunity
- Cultivate a shared vision and goals
- Establish ownership for the vision

- Brainstorm a wide array of good ideas
- Select the best ideas for achieving your shared vision
- Synthesize seemingly oppositional ideas into hybrid solutions
- Develop and implement these hybrid solutions in phases

INNOVATION PEDAGOGY

The foundation of a scalable and sustainable innovation ecosystem is talent identification, assessment, acquisition, and development. High tech and biotech companies know that the way you develop innovators is by having them innovate under the tutelage of a Master Innovator in an established community of practice.

We infuse all of our solutions with the principle of See-One, Do-One, Teach-One (SODOTO) to expedite the development of innovation skills and tradecraft.

The key is to temporarily step outside of an organization's bureaucracy to work on key challenges before stepping back in with breakthrough solutions. In organizations, innovators need to learn to run and manage real innovation projects in their specific environment and face specific challenges. They run experiments with our guidance and with some more training and coaching, they can teach and coach other innovators in training. This is how you retain knowledge and learning in an organization and create a sustainable growth engine resulting in a robust innovation ecosystem.



OVERVIEW: THE INTELLECTUAL EDGE ALLIANCE

CALL TO ACTION FOR THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF

“Innovation is more than a buzzword—it goes beyond just creative thinking and lofty expectations. It is evolutionary or revolutionary changes to existing processes, capabilities, and mindsets. To succeed, we must properly identify problems, empower decentralized solutions by individuals and teams, and infuse an ethos of innovation at all levels. Innovation depends on *both* creative individuals and supportive organizations to turn concepts into reality.”

– Charles Q. Brown, Jr.,
Chairman, Joint Chiefs of Staff



THE INTELLECTUAL EDGE ALLIANCE

The Intellectual Edge Alliance (IEA) is a consortium of top research universities and tech businesses working in coordination with the US Military, Allies, and Partners to develop and deliver innovation leadership education programs that are experiential, transformative, and purposeful. This includes programming from top to bottom with each level preparing the leader for the next level—from cadets to senior leaders.

The IEA ecosystem provides a pathway for the United States and Allied Defense Forces to develop elite innovation leaders and connects them with top US research university faculty and students, as well as US tech company entrepreneurs.

THE INTELLECTUAL EDGE ALLIANCE



BUILDING AN INNOVATION ECOSYSTEM

Innovation Mindset See-One, Do-One, Teach-One (SODOTO)

iGenome / Competing Values Framework

“People are at the heart of all military advantage in the twenty-first century. Because of this, we must build a more robust intellectual edge in our people and institutions.”
– Maj Gen Mick Ryan, “War Transformed”



STRATEGY

AGILITY

LEADERSHIP

COLLABORATION

RESILIENCY

LEADING
BEYOND

LEADING
OUT

LEADING
ACROSS

LEADING
WITH

LEADING
SELF

WHO: Senior leadership (colonel and above, SES, command chiefs)

WHAT: Envision, build, and reward a culture of adaptive leadership

HOW: Executive education model of seminars and consultancy

EXAMPLE: Advanced Senior Leader Development Seminar (ASLDS); Air Force Civilian Leadership Course (AFCLC)

WHO: High potential future leaders, strategically selected leverage points

WHAT: Invest in a core powerhouse of adaptive, courageous innovation leaders

HOW: Fellowship model requiring a 6-12 month masters-level deep dive

EXAMPLE: Chief of Staff of the Air Force Innovation Leadership Seminar (CHILS), Certified Professional Innovation Leader (CPIL) certificate

WHO: Exemplary mid-career officers, enlisted, and civilians

WHAT: Equip key personnel with the mindset, tools, and community needed to expedite collaboration across organizational silos

HOW: Coaching track built on the See-One, Do-One, Teach-One model

EXAMPLE: AIM-HI and Project Mercury cohorts followed by mentored team leadership, Innovation Coach certificate

WHO: Individuals/teams charged with creating change at the tactical and operational level

WHAT: Equip key personnel with the mindset, tools, and community needed to expedite collaboration

HOW: Practitioner track built on the See-One, Do-One, Teach-One model

EXAMPLE: AIM-HI and Project Mercury cohorts, Certified Professional Innovator (CPI) certificate

WHO: Unit personnel who are subject matter and mission experts

WHAT: Magnify the effectiveness and reach of individuals, equipping them with a common lexicon, effective change tools, and a supportive community

HOW: Cross-unit training events and/or modularized content

EXAMPLE: 2-3 day Project Mercury Innovator Workshop (PMiW); Project Gemini (modularized units); USAF Academy (USAF A) electives; Tech Training modules

INNOVATION TRAINING + DEVELOPMENT PROGRAMS

- Chief of Staff of the Air Force Innovation Leadership Seminar (CHILS)
- Project Mercury (PM)
- AIM-HI (Academia • Industry • Military • Hybrid • Innovations)
- Republic of Singapore Command and Staff College: Disruptive Intrapreneurship and Change Leadership (DICL) Course
- Train the Trainer
- General Education for Mastering Innovation and Navigating Ideation (GEMINI)
- Project Mercury Innovator Workshop (PMiW)
- Project Mercury-NATO
- NATO Open Innovation Conference & Expo (NOICE)
- United States Air Force Academy (USAFA)
- USAF Test Pilot School

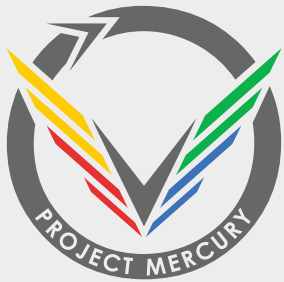


CHIEF OF STAFF OF THE AIR FORCE INNOVATION LEADERSHIP SEMINAR (CHILS)



The Chief of Staff of the Air Force Innovation Leadership Seminar (CHILS) is a direct response to Vice Chief General Allvin's request to find and develop innovation team leaders who can solve strategic operations problems rapidly. This program connects a select group of rising military leaders with elite industry and academic experts with the objective of learning how to lead in rapidly changing, complex, and ambiguous environments. This cadre of HPOs identify and work with challenging problem sets directly tied to USAF operational imperatives. Upon conclusion, graduates are able to practice the innovation mindset, quickly build and manage high performing teams that are capable of developing innovative solutions, eliciting buy-in and support to execute solutions, creating sustainable change in the Department of the Air Force, and broadening connections made to industry and academe to swiftly develop and augment innovative solutions and innovate outside of the military bureaucracy.

The pilot 5-month program with 12 participants concluded in May of 2023 upon which graduates were awarded a Certified Professional Innovation Leader certificate from the University of Michigan, College of Engineering. USAF graduates are also eligible for a Creative Problem Solving Special Experience Identifier (SEI).



PROJECT MERCURY (PM)



Project Mercury (PM) is a community-of-practice dedicated to creating a cadre of innovation leaders, ready to tackle complex problems and crisis situations with winning tools and mindset. Participants are selected from a range of ranks and responsibilities and placed in small, intentionally diverse teams. Teams identify challenging problem sets focused around a specific theme. They learn to thrive in complex environments through a hybrid experiential 12-week program that connects teams with our PhD-led curriculum and coaches, Project Mercury alumni mentors, and an esteemed array of industry advisors.

As of September, 2024, over 450 graduates have received a Certified Professional Innovator certificate from the University of Michigan, College of Engineering. USAF graduates are also eligible for a Creative Problem Solving Special Experience Identifier (SEI).



ACADEMIA • INDUSTRY • MILITARY
HYBRID INNOVATIONS

AIM-HI (ACADEMIA • INDUSTRY • MILITARY • HYBRID • INNOVATIONS)



AIM-HI's mission is to democratize creativity and innovation, geared towards developing creative service members of the military to build cohesive, diverse teams that understand innovation frameworks to solve real-world challenges. The AIM-HI 15-week program was inspired by Project Mercury and connects universities, startups, corporations from diverse industries, Joint Total Force Integration, and partner nations through rapid learning, experimentation, and execution of disruptive solutions.

AIM-HI is a hybrid program with three asynchronous weeks in residence at different locations. Cohort 6 kicked off at the Southwest Mission Acceleration Center in Phoenix, AZ, advanced initiatives and learned prototyping at Air University in Montgomery, AL, and concluded the program in Washington, DC in May, 2024.

Over the course of its six completed cohorts, more than 13 states and 15 Air National Guard Wings have been represented. AIM-HI has produced 34 innovation initiatives and 160 graduates who have received a professional certificate from the University of Michigan, College of Engineering. USAF graduates are eligible for a Creative Problem Solving Special Experience Identifier (SEI).



REPUBLIC OF SINGAPORE COMMAND AND STAFF COLLEGE: DISRUPTIVE INTRAPRENEURSHIP AND CHANGE LEADERSHIP (DICI) COURSE

A collaboration that began between the Republic of Singapore Air Force (RSAF) and the Innovatrium, the Certified Professional Innovator Program for the RSAF supported innovation cooperation between allied Air Forces and served as a global model of adopting and diffusing innovation best practices. After four successful cohorts and 175 graduates, in 2024 the program was expanded to include other services and allies and was integrated as part of the Singapore Command and Staff College curriculum. This transformation included a new title, the Disruptive Intrapreneurship and Change Leadership Course.



TRAIN THE TRAINER

Coaches come alongside PM, AIM-HI, or RSAF cohort teams as they navigate the intellectual and emotional challenges inherent in this sometimes disorienting process. Each coaching team meets weekly to discuss their own professional development and the progress of the cohort as a whole and is encouraged to experiment with tools and techniques. With the Innovatrium’s “Train the Trainer” curriculum, they study best practices for building innovation culture and practices within an organization. Coaches work extensively with an esteemed array of industry advisors who provide guidance, connections, and guard rails for innovative exploration and are certified as Coach, Senior Coach, or Master Coach based on the volume of Train the Trainer engagements led. By 2023, over 70 Coaches, 17 Senior Coaches, and 5 Master Coaches had been produced.





GENERAL EDUCATION FOR MASTERING INNOVATION AND NAVIGATING IDEATION (GEMINI)



This program introduces the fundamental innovation framework, methods, and tools to further strengthen the US and Allied Defense innovation ecosystem. Using modularized components of our robust curriculum, GEMINI provides flexible pathways to rapidly build courses unique to the needs of interested stakeholders. Students are taught how to develop the skills to lead, support, and engage in innovation projects using their unique frame of reference as a catalyst. The innovation framework, tools, and techniques are introduced so students can develop them more deeply throughout their career via conceptual and experiential (hands-on and directed) application of theories to practice. Resulting from this unique experience, students are able to combine personal and professional aspects of creativity and innovation, developing more complete, holistic, and adaptive military leaders for the future.



PROJECT MERCURY INNOVATOR WORKSHOP (PMIW)



Customizable Innovator Workshops are designed to magnify the efforts of the Department of the Air Force wings, deltas, and Headquarter staffs, leveraging Project Mercury graduates in the field, helping to build stronger teams and more effective innovation practices. They are a partnership between a hosting organization and our Project Mercury ecosystem which includes professional facilitators, Project Mercury graduates, and innovators-in-training. Workshops are designed to include and connect vertically through multiple levels of leadership as well as horizontally across partner units and even into the surrounding community. As of September, 2024, 30 workshops have been completed, ranging from Task Force 99 in Qatar, USAF Test Pilot School, Civil Air Patrol, AFWERX Fellows, and others including Wings and Deltas around the world.



PROJECT MERCURY-NATO

The Project Mercury-NATO program launched its first cohort in 2024 to organize diverse, multi-national teams around innovation projects and build competencies, culture, and communities of adaptive thinkers who are biased toward action. Led by the NATO Innovation Hub, this program provides, among other things, tools and common language to accelerate innovative work across allies and stovepipes while connecting a community of innovators with shared purpose. The program aligns with the NATO Innovation Hub's purpose to bring together "End Users, Providers, and Capability Designers." To prepare for the program, the Innovatrium developed NATO Innovation Coaches to lead the teams and prepare the alliance to create the innovative mindset at scale.



NATO OPEN INNOVATION CONFERENCE & EXPO (NOICE)

NOICE was the brainchild of the NATO team that graduated from Project Mercury Cohort 6. Bringing together 200 participants from across the globe, NOICE 2024, hosted by NATO Allied Command Transformation in Troija, Portugal, fostered accelerated collaborative relationships across the alliance. Senior leaders in NATO have committed to making this an annual event, and we are honored to play a significant role in facilitating this gathering.





UNITED STATES AIR FORCE ACADEMY (USAFA)

Beginning with USAFA Class of 2025, the Management Department will incorporate innovation lessons and methods of the Innovatrium into its Capstone Class, Management 400. Cadets from any department may apply for this course as one of the general electives at USAFA.



USAF TEST PILOT SCHOOL

The USAF Test Pilot School launched a blended methodology to build a more innovative mindset for the Summer 2024 class of test pilots and engineers. Innovatrium created a new program “The Prismatic Leader,” to be delivered as a week-long in-person program. The program focuses on the development of an agile, flexible, and adaptive mindset through self-discovery, the theory and practice of change and innovation, and the paradoxes inherent in masterful leadership.





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