

**BY ORDER OF THE COMMANDER
AIR FORCE RESEARCH LABORATORY**

**AIR FORCE RESEARCH LABORATORY
INSTRUCTION 90-104 VOLUME 3**



18 JULY 2014

Special Management

**AIR FORCE RESEARCH LABORATORY
INNOVATIVE SOLUTIONS FOR NEAR-
TERM NEEDS**

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RELEASABILITY: There are no releasability restrictions on this publication.

OPR: AFRL/RXS (Mr. Kirt S. Moser)

Certified by: AFRL/RX
(Dr. Alok Das)

Supersedes: AFRLI 90-104 Vol 3,
26 March 2010

Pages: 9

This instruction implements Air Force Policy Directive (AFPD) 61-1, *Management of Science and Technology*, and Air Force Materiel Command Instruction (AFMCI) 90-104, *Implementing AFSO21 Initiatives*, for the Air Force Research Laboratory (AFRL). It applies to all AFRL personnel. It establishes policies, procedures, and responsibilities for planning and conducting AFRL operations in accordance with Air Force Smart Operations for the 21st Century. This publication may be supplemented at any level, but all direct supplements must be routed to the OPR of this publication for coordination prior to certification and approval. Requests for waivers must be submitted to the OPR for consideration and approval. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW AFMAN 33-363, *Management of Records*, and disposed of IAW the Air Force Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the office of primary responsibility (OPR), using the AF IMT 847, *Recommendation for Change of Publication*; route AF IMT 847s through the appropriate chain of command.

SUMMARY OF CHANGES

Both changes from previous version are administrative in nature: 1) retired the use of the anachronism, "CP3," and replaced it with variants of the term, "Center for Rapid Innovation;" and, 2) Updated the OPR.

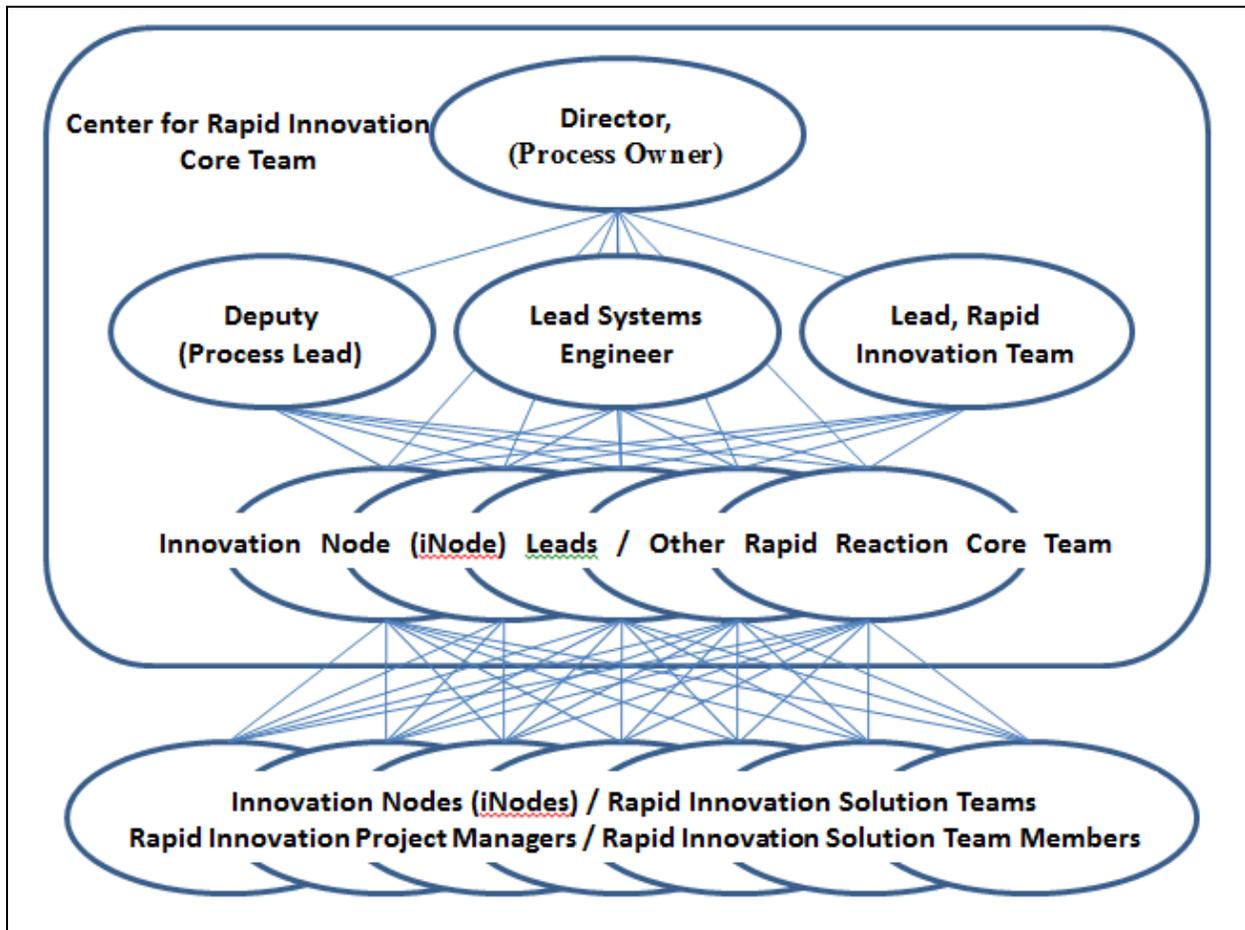
1. Introduction. Innovative solutions for urgent needs address select near-term warfighter needs through the rapid infusion, integration, and innovation of science and technology (S&T)-based solutions: capitalizing on the extensive breadth and depth of expertise accessible to AFRL. This instruction describes the responsibilities and procedures applicable to the management and sustainment of AFRL's process for creating Innovative Solutions for Urgent Near-Term Needs, also known as "AFRL's Rapid Innovation Process." The Rapid Innovation Process is designed to tightly integrate AFRL S&T knowledge with operator knowledge to deliver solutions to the warfighter in 12 months or less. The solutions may utilize individual- or focused-applications (in which case the process is usually executed at the technology directorates [TDs] and the 711th Human Performance Wing [711 HPW]/organizational level) or cross- and multi-discipline technology solutions (executed at the enterprise level by AFRL's Center for Rapid Innovation, or CRI). People and organizations performing activities in response to urgent requests for external customer consultation or prototype solutions will also use this Rapid Innovation Process. The Rapid Innovation Process encompasses technology demonstrations and corporate efforts for consulting and prototyping to meet near-term user needs. Rapid Innovation requires a framework that tolerates risk taking and innovative, unconventional (out-of-the-box) thinking, yet focuses on delivering viable solutions. To provide these attributes, the Rapid Innovation process requires the cultural, institutional, and business support systems needed to rapidly deliver innovative capability to the Air Force and other AFRL customers and stakeholders.

2. "Innovative Solutions to Urgent Near-Term Needs" Roles and Responsibilities. Management and execution of this core process and its activities occurs at several levels and depends on the nature of the Rapid Innovation activity. Overall, AFRL's Rapid Innovation process is owned and governed by the Director of AFRL's Center for Rapid Innovation (CRI). The CRI Director is also responsible for certifying and maintaining this process and instruction, measuring the quality of its implementation, and ensuring compliance with the process. During the conduct of an individual Rapid Innovation activity, responsibilities for management and execution will vary depending on whether the activity is a corporate-level effort (managed by CRI) or is limited to a single TD or wing. CRI is supported by a flexible organizational network of people and teams detailed or matrixed from the various technology directorates and organizations as illustrated in Figure 1. CRI is an organizational network, based on a relatively stable core team of AFRL leads and a dynamic set of Innovation-Nodes (iNodes), advisors, project managers, and solution teams. If bargaining unit employees are matrixed to perform in the CRI organizational network, supervisors should consult with their human resource/personnel office to ensure appropriate compliance with their labor agreement policies and guidance.

2.1. Process Management: Rapid Innovation Process Owner. This is a corporate-level position, designated as both AFRL's Senior Scientist for Design Innovation, and as the Director of AFRL's Center for Rapid Innovation. The process owner is responsible for 1) establishing and coordinating the CRI and its organizational network, 2) certifying, monitoring, and governing this Rapid Innovation Process health and metrics, 3) reporting Rapid Innovation projects to AFRL Senior Leadership, 4) advocating for enablers for innovation, such as streamlined business practices, and 5) fostering innovation within the AFRL workforce. The Process Owner/Director of CRI is directly accountable to AFRL/CC for the execution of these responsibilities.

2.2. Process Management: Deputy Director, AFRL's Center for Rapid Innovation and Rapid Innovation Process Lead. This is a corporate-level position appointed by, and accountable to, the Director of AFRL's CRI to support, 1) establishing and coordinating the CRI organizational network, 2) designing, monitoring, and overseeing the Rapid Innovation Process health and metrics, 3) providing progress reports regarding CRI activities to AFRL Senior Leadership, 4) advocating for enablers for innovation, such as streamlined business practices, and 5) fostering innovation within the AFRL workforce. The Process Lead is the principal coordination point and OPR for maintenance and control of this instruction.

Figure 1. AFRL Center for Rapid Innovation: Organizational Network



2.3. Corporate-Wide Project Oversight: CRI Team Lead. This is a corporate-level position appointed by the process owner to support 1) project management leadership across the CRI organizational network, 2) collaboration with warfighters on defining urgent problems and Rapid Innovation efforts, 3) initiating, planning, executing, and transitioning Rapid Innovation projects, and 4) coordinating timely performance feedback to TDs/wing supervisors and organizations of record for TD/wing personnel matrixed to support CRI enterprise level activities.

2.4. Corporate-Wide Project Oversight: CRI Lead Systems Engineer. This is a corporate-level position appointed by the CRI director to support 1) technical leadership across the CRI organizational network, 2) collaboration with warfighters on defining urgent problems and

Rapid Innovation efforts, and 3) initiating, planning, executing, and transitioning Rapid Innovation projects.

2.5. Corporate-Wide Project Oversight: Rapid Innovation Core Team. A team of designated personnel, matrixed from the various TDs and the 711 HPW, comprise the Rapid Innovation Core Team. Rapid Innovation Team members are typically technical personnel but non-technical (functional) personnel may be designated as needed. This team, made up of people of various ranks/grades, supports CRI directly (full-time or part-time) and taps into its network of experts to support the quick-look study to identify potential solutions to requests from users. They provide oversight and monitoring of CRI enterprise-level activities. They also manage funds from the CRI set-aside, as directed by AFRL/CC in consultation with the AFRL Corporate Board to support the execution of enterprise-level solution efforts, initiate contracting actions, if needed, and to resolve contractual, funding, or organizational issues related to enterprise-level Rapid Innovation activities. The team will provide regular reporting of project status to corporate leadership and customers.

2.6. AFRL/CRI Innovation Nodes (iNodes). iNodes are small, flexible organizations (government or non-government) that provide the home bases for Solution Teams and act as partners to the Rapid Innovation Team. iNodes may be made up of AFRL people, industry partners, academia, or a mix. As home bases, iNodes will assemble teams from a network of experts and supply those teams with the infrastructure and enablers that allow them to accomplish their jobs quickly and effectively. Once their task is complete, the teams will be absorbed back into the organizations from which they originated. If AFRL has some existing relationships with organizations and consortia, iNodes may be formed by adapting/adopting these associations. Such partnerships provide organizational flexibility and the required access to diverse and multi-disciplinary teams. iNodes are established by the CRI Director and are dissolved by the same as needed, based on the type, magnitude, and volume of problems expressed by the warfighter.

2.7. Rapid Innovation Project Managers. Program managers with demonstrated experience and training, matrixed from an appropriate TD/wing, that manage an enterprise-level, TD/wing-level, Rapid Innovation effort, make up the Rapid Innovation Project Managers. Rapid Innovation Project Managers serve as the leaders of their respective Solution Teams, working to respond to a particular problem, need, or request. The Rapid Innovation Project Manager is responsible for providing oversight, performance management, resource advocacy, and customer communications/coordination during the solution effort. Rapid Innovation Project Managers are responsible to work within the program management policies and policies of their TD of record, or with the approval of their TD Director, using the streamlined or waived policies and practices established by the CRI for such Corporate Rapid Innovation projects. The project manager also coordinates and synthesizes internal and related external activities necessary to support demonstration of the solution.

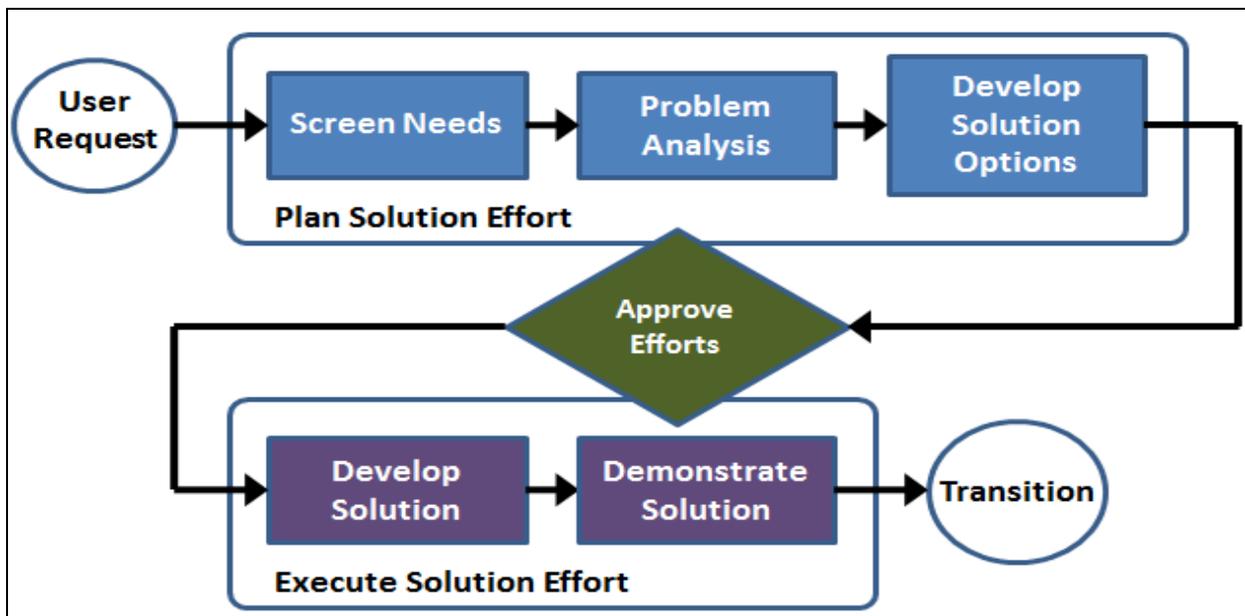
2.8. Rapid Innovation Solution Teams. Solution teams are groups of people of various ranks/grades, disciplines, organizational affiliations (government and/or non-government) assembled to respond to a particular problem, need, or request. Solution Teams are led by a Rapid Innovation Project Manager and members are typically detailed to the team, maintaining their organizational home of record. Solution Teams are typically short-term temporary groups (addressing a particular problem, need, or request) although permanent

Solution Teams may be created in areas where recurring rapid response (or consultation) is needed.

2.9. Technology Directorate Responsibilities: The TDs/wing involved in any CRI project provides personnel to support solution planning and execution with labor hours funded from the TD/wing. The TD/wing will 1) continue normal administrative support functions for people matrixed to the solution teams (e.g., CCS, promotions, travel, timecards, etc.), 2) provide access to any facilities or relevant technologies needed to support solution efforts, and 3) for those efforts conducted solely by a TD/wing, provide oversight, performance management, resource advocacy, and customer communications/coordination during the solution effort. The director, AFRL/CRI and Rapid Innovation core team will provide timely feedback (performance appraisal inputs, awards and decoration recommendations, etc.) to the TD/wing supervisor and organization of record for TD/wing personnel who are matrixed support to CRI enterprise level activities.

3. The Rapid Innovation Process Description. The Rapid Innovation Process applies AFRL expertise and other resources to provide rapid technology solutions to users' problems. The process flow is shown in Figure 2. In response to a request from users, AFRL conducts a quick-look study to identify potential rapid- reaction solutions that can be executed. A plan to develop and demonstrate these solutions is approved by the appropriate authority, depending on scope and level of effort. Once approved, a solution team is empowered with authority and resources to develop the solution and a transition plan, should the solution prove successful and meet the users' needs. All required documentation for these efforts will be conducted by the managing organization of record in accordance with established standards and policies. The documentation will be reviewed and progress of the effort will be reported through the normal project management processes in place within AFRL. The Rapid Innovation Process is suitable for execution at all levels of AFRL, including CRI's corporate-level projects, TD/wing-level projects, or even division/branch/section-level projects.

Figure 2. Rapid Innovation Process Flow



4. Rapid Innovation Process Elements. Rapid Innovation projects have three primary phases. The scope and extent of each phase depends on the nature of the urgent need, particularly whether it requires broad coordination and/or multi-disciplinary expertise. These are illustrated in [Figure 2](#) and are discussed below. For the sake of clarity, the discussion focuses on corporate-level rapid innovation activities commissioned by AFRL/CC and executed by CRI; but is generally applicable at lower levels (TDs, Divisions, Branches, or Sections) with and commensurate mapping of the cited customer, type of problem, and approval levels to those levels, as described in section 6.

4.1. Plan Solution Effort (Step 1). The process initiates when a customer (such as MAJCOMS, Combatant Commands (COCOMS), or other user organizations) communicates an urgent problem. Typically, it is expected that qualified urgent needs be nominated at the 2-star (or equivalent) level in communication with AFRL/CC. These requests are rapidly screened by the AFRL Commander and his selected team to determine if they are appropriate for an CRI Rapid Innovation activity, or should be referred to other AFRL S&T processes, based on the scope and nature of the work. Qualified CRI Rapid Innovation projects are characterized by short duration (less than 1 year), focus on operational needs, and involve innovative solutions rather than long-term technology investment or off-the-shelf systems. If deemed suitable for an CRI project, AFRL/CC commissions a Rapid Innovation team to engage users to understand their needs and root causes. An approving authority may choose to commission standing teams to accommodate recurring requests such as technical or medical consultation. By reframing the problems in more general terms, the team can develop more effective and innovative solutions that are compatible with the users' tactics, training, doctrine, limitations and standards. Initial solution concepts or consultation approaches are developed and the appropriate team skills are identified. Candidate solution/consultation teams are identified from across the Laboratory (Lab), other government agencies, industry, and academia. Solution/consultation plan options are then formulated and characterized in terms of risk, schedule, resources required, and transition.

4.2. Approval (Step 2). Candidate solution/consultation efforts are presented to the appropriate authority for approval. Depending on the level of effort (such as funding, cross-organizational involvement, etc.), this authority may be at the branch, division, directorate, or Lab level. In the case of corporate efforts, approval is required by the AFRL Corporate Board or the AFRL Commander.

4.3. Execute Solution Effort (Step 3). Once a solution/consultation effort is approved, the requisite team is assembled to develop and demonstrate the solution for the user or provide the needed expert advice/guidance. Solutions will typically require rapid prototyping in very fast iterations and "agile" systems methodologies. Knowledgeable users will be sought and invited to work as co-equal members of the solution team to ensure that the customer's needs pervade the solution. Relevant representatives from program offices may also be sought and invited to work on the solution team to ensure that any product can be transitioned to acquisition. Some solutions will transition directly to the user, while others will require development or sustainment programs as follow-on activities executed by the user or other organizations.

5. Categories of Rapid Innovation Efforts. There are two main categories of efforts to which rapid innovation processes best applies: efforts responding to urgent requests for consultation and efforts responding to urgent requests for solutions. The consultation efforts apply the

knowledge, expertise, and analysis capability of the AFRL workforce to rapidly provide a data product needed to solve a problem (such as failure analysis or medical analysis). The solution efforts apply mature and nearly mature technology to rapidly develop and deliver innovative field-testable prototypes (such as hardware or software) in response an urgent problem.

6. Levels of Rapid Innovation Efforts. Rapid Innovation activities are performed across the Lab (AFRL), from the individual directorate/organizational level to the multi-directorate level (or enterprise level).

6.1. Enterprise-level Rapid Innovation Efforts. Enterprise efforts are limited to the highest priority urgent needs from senior leadership and are corporate-wide efforts that require a cross-directorate breadth of technology and expertise. Such efforts are assigned to AFRL's Center for Rapid Innovation. The CRI and its dynamic network-based ability were established to capitalize on the breadth and depth of AFRL's expertise and to tap into the national knowledge base.

6.1.1. Enterprise Project Approval. Candidate solution efforts are presented to AFRL/CC or the AFRL Corporate Board for approval. Presentations to the Corporate Board will be at the quarterly AFRL Corporate Board meeting or at any weekly AFRL staff meeting. Notification and scheduling of the presentation will be coordinated with the AFRL Front Office Group and arrangement will consider the classification level of the solution presentation. A read-ahead package will be provided to the members of the AFRL Corporate Board 1 week prior to the presentation.

6.1.2. Enterprise Project Funding. Funding for enterprise-level efforts will be administered by headquarters. These funds will be allocated as a set-aside in the yearly budget request for headquarters activities in accordance with AFRL Instruction 65-6, *Financial Management Budget Guidance and Procedures*. Once a project is approved by the AFRL Corporate Board, funds shall be released from headquarters to the project manager in accordance with the approved plan. Funding for enterprise level efforts shall be provided from the Program Elements whose descriptive summaries are consistent with the technical content of the solution effort. Funding for non-enterprise level efforts will be provided from the appropriate TD/wing or organizational funding mechanisms.

6.2. Directorate/Organizational Level Rapid Innovation Efforts. The directorate/organizational level efforts are to meet urgent needs that can be primarily addressed using the resources of one particular AFRL directorate or organization. Approval, funding, and execution, for directorate/organization specific efforts are done at the appropriate directorate/organizational level in accordance with appropriate directorate/organizational guidance. Results and impacts of directorate/organizational Rapid Innovation efforts should be provided as needed to the AFRL Rapid Innovation Process Owner for incorporation into overall process health and metrics reporting.

6.2.1. Directorate/Organizational Project Approval. Approval for directorate/organizational efforts is done at the appropriate directorate/organizational level in accordance with appropriate directorate/organizational guidance.

6.2.2. Directorate/Organizational Project Funding. Funding for directorate/organizational efforts is done at the appropriate directorate/organizational

level in accordance with appropriate directorate/organizational guidance and funding mechanisms.

7. Innovation Enablers. Innovation is enabled by cultural, technical, and operational elements within AFRL. Some of these include a culture of innovation in the workforce, streamlined business practices for acquisition, project management, reporting, and simplified personnel sourcing/matrixing. The identification, development, advocacy, and implementation of these enablers are a responsibility of the Director and Deputy Director of AFRL's Center for Rapid Innovation Rapid Innovation with support from the Rapid Innovation Core Team. This activity involves monitoring progress of ongoing AFRL Rapid Innovation activities, exploring alternative processes in industry in government, and experimenting with tools, procedures, organizations, and workforce development that could improve AFRL's innovation effectiveness.

THOMAS J. MASIELLO, Major General, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 61-1, Management of Science and Technology, 7 Apr 93

AFMCI 90-104, Implementing AFSO21 Initiatives, for the Air Force Research Laboratory (AFRL), 29 Sep 08

AFMAN 33-363, Management of Records, 1 Mar 08

Prescribed Forms

None

Adopted Forms

None

Abbreviations and Acronyms

AFMC—Air Force Materiel Command

AFRL—Air Force Research Laboratory

COCOMS—Combatant Commands

CP3—Core Process 3

CRI—Center for Rapid Innovation

HPW—Human Performance Wing

iNodes—Innovation Nodes

OPR—Office of Primary Responsibility

S&T—Science & Technology

TD—Technical Directorate