Wolfram Birkmayer, PhD

Citizenship: German
Based in: Hirschaid, Deutschland
Mobile: +49 (0)15111239643
E-Mail wsb@birkmayeraerospace.com
Linkedin: www.linkedin.com/in/wolfram-birkmayer

BIRKMAYER AEROSPACE

Product Development & Engineering - stabilized, transformed, scaled

Experienced Interim Executive for Product Development & Engineering

Interim executive with extensive international leadership experience in engineering, systems development, and project management. Specialized in agile transformations, change management, crisis resolution, and building high-performance teams. A strategic thinker with deep technical expertise and strong communication skills. Combines leadership excellence with engineering depth and change competence – even in highly regulated industries.

Languages:

German: Native

English: Native

French: Fluent

Tools:

Siemens Polarion ALM/PLM,
Teamcenter Computer Aided Reliability Assessment (CARA),
Item Toolkit,
APIS IQ-FMEA,
Microsoft Office,
Outlook,
MS Project,
Oracle Primavera Cloud

Project and Development Management Expertise

- Management of complex technical and organizational challenges
- Development and implementation of agile methods (Scrum, Kanban)
- Change management, process optimization, and post-merger integration
- Systematic coaching of technical and managerial staff
- Industrialization
- Scaling of serial production

Leadership Skills

- Many years of experience leading multinational, multidisciplinary teams (up to 60 employees)
- Intercultural management and confident communication at executive level
- Establishment and leadership of transnational engineering departments with budget responsibility up to €15 million
- Talent development, coaching, and sustainable employee advancement

Methodological Expertise

- Agile methods: Scrum, Kanban
- Process analysis and optimization: APQP, PPAP, FMEA, Ishikawa, 8D, PDCA cycle
- Lean management: SQCDP, Go-look-see, value stream mapping
- Structured problem-solving methods
- Innovation management and patent development
- Systems and safety engineering according to aviation standards (ARP 4761A, ARP 4754B)
- Reliability engineering and dependability analysis
- Certification and validation of complex technical systems
- Model-based systems engineering (MBSE)
- Application lifecycle management (ALM)

Soft Skills & Personal Strengths

- Holistic thinking: strategic overview with the ability to analyze technical details in depth when necessary
- Strong analytical and conceptual skills
- Solution-oriented mindset and quick grasp of complex issues
- Team player with conflict resolution skills and intercultural understanding
- Confident presence, excellent communication skills, and empathy in international business environments
- High capacity for innovation and promotion of creativity within teams

Technical Expertise

- Electric drive systems and control engineering
- Electronics (power and signal processing)
- Communication and network technology (including high-voltage and protection systems)
- Remote sensing

Selected Professional Achievements

🇩🇪 Siemens/Rolls-Royce-Electrical (Safety Manager, 8/2016 – 1/2025)

- Led the development and certification of hybrid-electric aircraft propulsion systems
- Built and developed new engineering capabilities in safety, reliability, and application lifecycle management (ALM) tools
- Introduced innovative solutions, resulting in 13 patent applications
- Improved efficiency: reduced processing time for safety requirements by 75%
- Achieved successful validation and certification of complex technical solutions

🇫🇷 Airbus (Head of Transversal Engineering, 9/2004 – 7/2016)

- Successfully certified and introduced the world's first EWIS system for the Airbus A350
- Cut development time by 50%; reduced cost by $500k and weight by 700 kg per aircraft
- Led restructuring and efficiency improvements: reduced headcount by 25%, resulting in €50 million in savings
- Managed international teams based on lean principles with clear targets and measurable outcomes

🇫🇷 Airbus (Head of A330/A340 Final Assembly Line Improvement, 12/2003 – 8/2004)

- Improved on-time delivery from 25% to 100%
- Significantly reduced complaints and damages (up to 75%)

🇫🇷 Airbus (Senior Manager Organizational Development, 06/2001 – 11/2003)

- Led organizational realignment during Airbus merger integration
- Restructured and optimized interfaces between engineering, sales, HR, and finance

🇩🇪 Astrium (Head of Propulsion Electronics, 10/1996 – 12/2000)

- Turned around loss-making projects into profit generators (30% excess revenue)
- Resolved quality issues and improved product readiness before delivery
- Managed integration during Astrium merger

Education

Ph.D. in Electrical Engineering, Cornell University, Ithaca, NY, USA (1987)

- Focus: Control systems; development of a novel measurement system

M.Eng. in Electrical Engineering, Cornell University, Ithaca, NY, USA (1982)

- Focus: Control systems

B.Sc. in Electrical Engineering, Utah State University, Logan, UT, USA (1981)

- Graduated Cum laude

Availability

- Starting immediately

Wolfram Birkmayer, PhD

Date of Birth: 22.09.1960
Citizenship: Deutsch
Based in: Hirschaid, Germany
Mobile: +49 (0)15111239643
E-Mail: wsb@birkmayeraerospace.com
Linkedin: www.linkedin.com/in/wolfram-birkmayer

BIRKMAYER AEROSPACE

Product Development & Engineering
- stabilized, transformed, scaled

Competences

Interim Management, Product- & Engineering Excellence, Safety Engineering, Systems Engineering, Transformation Leadership, Change Management, Innovation Management, Agile Methods (Scrum, Kanban), Lean Engineering, Process Optimization, Aerospace Engineering, Avionics, Electrical Systems, Safety Critical Systems, ARP 4761A, ARP 4754B, EWIS, HIRF, EMC

Tools

Polarion ALM, Teamcenter, Computer Aided Reliability Assessment (CARA), Primavera P6 / Oracle Primavera Cloud, Item Toolkit, APIS IQ-FMEA

Training & Leadership Development

Leadership Progression (Rolls-Royce – Level B People Leader), Leading at Rolls-Royce, The Great Strategy Debate, Attracting Future Talent, Finding Your Purpose, Networks that Work, Empowering Others, Performance Enablement Conversations, Bring People Along, Peer Coaching Group

Professional Experience

02/2025 – present **Founder & Interim Executive, Birkmayer Aerospace,** Hirschaid, Germany

- Founded own consultancy focused on interim executive mandates in aerospace and technology industries
- Prepared strategic positioning, offering portfolio, and market outreach
- Available for mandates in product development & engineering, safety, systems engineering, stabilization, transformation and scaling leadership

8/2016 – 1/2025 **Safety Manager Commuter Aircraft Program, Siemens/Rolls-Royce-Electrical, Erlangen, Germany**

Safety engineering for the development, certification, and industrialization of hybrid-electric propulsion systems and aviation products using Agile methods (Scrum, Kanban):

- Led international safety team (4 staff) within a multidisciplinary project team (50 staff)
- Developed safety plan and conducted comprehensive safety analyses (FHA, IHA, (P)SSA, CCA, FMECA) according to ARP 4761A and ARP 4754B
- Derived safety requirements and translated them into system architecture and design requirements
- Performed risk assessments and managed scheduling and resources for the safety work package
- Acted as primary safety interface for internal and external stakeholders (authorities, partners, customers)
- Achieved successful validation and certification of complex technical solutions
- Introduced innovative technical solutions – 4 granted patents and 13 patent applications
- Delivered agile, hands-on technical support for fail-safe systems with graceful degradation
- Established new capabilities in Safety, Reliability, and Application Lifecycle Management (ALM) tools
- Increased efficiency: 75% reduction in safety requirement processing time

Languages:

German: Native

English: Native

French: Fluent

9/2004 – 7/2016 **Head of Transverse Engineering, Airbus, 31700 Blagnac/Colomiers, France**

Led a multi-site, multinational department (56 staff) with an annual subcontracting budget of €15M:

- Technical responsibility for system architecture and optimization of electrical platforms (avionics, electrical systems) for Airbus A350
- Accountable for integration of safety-critical environmental hazard protection systems (lightning, HIRF, EMC, vibration, climate) for the entire aircraft
- Successfully introduced and certified the world's first EWIS (Airbus A350)
- Reduced development time by 50%; saved $500,000 and 700 kg per aircraft
- Restructured department: reduced staff by 24%, achieving €50M in savings
- Introduced and led: functional architecture, model-based systems engineering (MBSE), requirements engineering, validation & verification
- Built in-house capabilities for environmental hazard protection and for engineering and procurement of system suppliers aligned with Airbus' strategy for complete system procurement
- Enabled governance and supplier management of system suppliers leveraging their latest technology know-how
- Applied Lean methods: SQCDP, go-look-see, value stream mapping, practical problem solving

12/2003 – 8/2004 **Head of A330/A340 Final Assembly Line Improvement, Airbus, 31700 Blagnac, France**

Led international improvement taskforce (30 staff) using Ishikawa & PDCA methodology

- Served as focal point for internal and external stakeholders
- Increased on-time delivery from 25% to 100% within 10 months
- Reduced production defects and quality-related claims by up to 75%
- Delivered measurable performance improvements aligned with corporate goals

06/2001 – 11/2003 **Senior Manager Organization Development, Airbus, 31700 Blagnac, France**

Led transformation team (30 staff) during Airbus merger integration

- Strategically realigned and reorganized engineering structures to enable scalable growth
- Aligned interfaces between program and sales organizations to improve delivery performance
- Optimized HR and finance collaboration for cross-functional efficiency
- Published the first Airbus Code of Conduct – aligning all corporate functions with governance principles

01/2001 – 05/2001 **Head of Production Technology, Airbus, 21129 Hamburg, Germany**

Led multidisciplinary team (60 staff) to recover industrialization delays of the A340-600 program

- Secured on-time readiness for first flight and aligned delivery with program milestones

10/1996 – 12/2000 **Head of Propulsion Electronics, Astrium (now Airbus Defence & Space), 82024 Taufkirchen, Germany**

Managed full product lifecycle: proposal, development, qualification, delivery, and in-service support

- Turned loss-making product lines into profitable programs (30% excess revenue)
- Improved quality through PDCA and FMEA prior to delivery
- Led propulsion electronics during Astrium merger integration

09/1986 – 09/1996 **Project Manager & System Engineer - Optoelectronics Systems, Deutsche Aerospace, MBB/ERNO (now Airbus Defence & Space), 82024 Taufkirchen, Germany**

- Led high-precision optical attitude control sensor development for satellite applications
- Managed end-to-end development of optoelectronic systems with high innovation risk (e.g. LIDAR pollutant detection, optical beamforming network for phased-array antennas)
- Led international consortium proposing German antenna subsystem in a multinational military satellite program
- Full responsibility from concept and proposal to delivery in cooperation with European partners

01/1979 – 09/1986 **Research Assistant & System Developer, USA / Germany / Puerto Rico**

Affiliations:

- Arecibo Observatory, Cornell University, Puerto Rico
- Space Plasma Physics Group, Cornell University, Ithaca, USA
- Max-Planck-Institute for extraterrestrial Physics, Garching
- Center for Atmospheric and Space Sciences, Utah State University, Logan, USA

Focus areas:

- Development of electronic systems for ground, rocket, and satellite-based experiments
- Chirped incoherent scatter radar systems for ionospheric research
- Frequency analyzer systems for space missions
- Microcontroller hardware and software for scientific satellite payloads (e.g. ROSAT)

Education

6/1982 – 9/1986 **Doctor of Philosophy Electrical Engineering, Cornell University, Ithaca, NY, U.S.A.**

- Focus: Control systems, radar signal processing, ionospheric plasma diagnostics
- Dissertation: Chirped Incoherent Scatter Radar Plasma Line Measurements

9/1981 – 6/1982 **Master of Engineering in Electrical Engineering, Cornell University, Ithaca, NY, U.S.A.**

- Focus : Control Systems

9/1978 – 6/1981 **Bachelor of Science in Electrical Engineering, Utah State University, Logan, UT, U.S.A.**

- Graduated Cum laude

9/1977 – 6/1978 **American High School Diploma, American Community School, London, United Kingdom**

9/1975 – 6/1977 **Parsippany Hills High School, Parsippany, New Jersey, U.S.A.**

- Licensed amateur radio operator

9/1971 – 7/1975 **Christoph Scheiner Gymnasium, Ingolstadt, Deutschland**

Project Overview		
08/2016 – 10/2019	Company: Siemens	
Company Description: Today Siemens is a conglomerate with the focus on Automation und Digitalization. At the time of this project the divisions Mobility und Energy were still part of the core business.		
Industry: Multiple	Turnover: 76 B EUR	Employees: 350.000
Location: Berlin and Munich	Internet: www.siemens.com	
Project Title: Competence Development for Safety Critical Systems		
Role / Hierarchy: Project Manager		
Area of Responsibility:	Turnover: 25 Mio. EUR	Staff: 70
Clients Initial Situation: A leading industrial group developing hybrid-electric propulsion needed to progress from concept to certifiable product under stringent aviation safety requirements, with a team inexperienced in safety-critical systems. All development activities shall be integrated into the Application Lifecycle Management (ALM) System Polarion.		
Tasks: • Build Safety Culture • Define Strategic Roadmap • Integrate Safety Process into the ALM-System		
Implemented Measures: • Strategic Roadmap developed to build key competences including those for system safety • The Safety-Function is organized centrally with the System Architecture team • The Safety-Process in integrated into the ALM-System • An open and strong network has been built between the safety experts and the development teams to foster the safety culture. This safety culture is built on a clear explanation of the safety requirements and open discussion of the proposals from the development teams • A catalogue with key design requirements for safety is established in coordination with the development teams		
Achievements: The lead time to define the key safety requirements was reduced by 75%, substantially de-risking certification and accelerating the market entry of this groundbreaking technology.		
Extraordinary Challenges:		

Project Overview		
02/2013– 03/2014	Company: Airbus	
Company Description: Manufacturer of air- and spacecraft		
Industry: Aviation	Turnover: 70 B EUR	Employees: 100.000
Location: Blagnac, France	Internet: www.airbus.com	
Project Title: Industrialization of a new electrical technology for aircraft as Head of Transversal Engineering		
Role / Hierarchy: Head of department		
Area of Responsibility:	Turnover: 250 Mio. EUR	Staff: 56
Clients Initial Situation: During the production of the first A350 aircraft models it became obvious that clear industrialization guidelines were missing for the novel, safety critical so-called « Electrical Structure Network ». In addition, the test costs were too high for the network.		
Tasks: • Define clear guidelines that enable a robust and cost-effective realization.		
Implemented Measures: As Head of Transversal Engineering, I work with the production and structure development teams at the • definition and • implementation of the missing standards. In this way it was possible to find solutions in a complex cross-functional environment.		
Achievements: With the new guidelines the aircraft weight could be reduced by 700 kg and the unit cost was reduced by 500.000 USD.		
Extraordinary Challenges:		

Project Overview		
09/2004 – 10/2005	Company: Airbus	
Company Description: Manufacturer of air- and spacecraft		
Industry: Aviation	Turnover: 70 B EUR	Employees: 100.000
Location: Blagnac, France	Internet: www.airbus.com	
Project Title: Aircraft Systems Procurement Reorientation		
Role / Hierarchy: Project Manager		
Area of Responsibility:	Turnover: 8 B EUR	Staff: 10

Clients Initial Situation:

The client had experience in the procurement of aircraft systems equipment (for flight control, landing gear, electrical system, …) The equipment manufacturers were involved late in the development phase when the equipment specification had been defined. At this time, it was too late to consider solutions with new technologies that had an impact on aircraft design. To be able to consider advantageously the most modern technologies, which had been tested by suppliers in the full system context it was decided to no longer procure systems equipment on their own, but for complete systems with aligned technologies. To align the aircraft design optimally to the new technologies, the system suppliers were incorporated early in a „Joint Development Phase“ or in „Early Supplier Involvement“. It was not clear how to proceed with system suppliers. It was not clear how to identify capable system suppliers that contribute constructively in a „Joint Development Phase“ or in „Early Supplier Involvement“.

Tasks:

- Define the technical part of the procurement of complete systems
  - Define the System Specification that is adequate for the Joint Development Phase or Early Supplier Involvement.
  - Define method how to identify system suppliers that have the required system competences
  - Define method how to evaluate the development capability of suppliers for systems and equipment

Implemented Measures:

- Define the guideline for the system specifications (Top Level System Requirement Document and High-Level System Requirement Document)
- Define guideline to identify system suppliers with adequate system competences
- Define training for system developers on how to work with system suppliers (Airbus Award)
- Support system suppliers during the „Joint Development Phase“ or „Early Supplier Involvement “

Achievements:

- For the A350 all aircraft systems were procured with „System contracts“ (except for System standard parts)

Extraordinary Challenges:

Project Overview		
12/2003 – 10/2004	Company: Airbus	
Company Description: Manufacturer of air- and spacecraft		
Industry: Aviation	Turnover: 70 B EUR	Employees: 100.000
Location: Blagnac, France	Internet: www.airbus.com	
Project Title: Aircraft Delivery Performance Improvement		
Role / Hierarchy: Project Manager		
Area of Responsibility:	Turnover: 16 B EUR	Staff: 30

Clients Initial Situation:
At the production rate of 64 A330/A340 aircraft per year the on-time delivery was already for an extended period at 25%. The company-wide continuous improvement program (CIP) did not bring the expected improvement. The root-case was not clear. The following year the production rate shall be scaled to 74 aircraft per year.

Tasks:

- Improve the on-time-delivery from 25% to 100%
- Identify causes, define measures and drive implementation
- Support the head of the final assembly line and represent him in relevant boards (Airbus wide)
- Overcome organizational and intercultural hurdles in an international environment

Implemented Measures:

- Identification of the most significant causes for the significant delays in the final assembly process
  - Erroneous mounting points for the buyer furnished equipment
  - Damages to the aircraft structure, floor panels, cabin furnishing
  - High level of equipment claims with no-fault-found
- Identification and implementation of improvement measures
  - Multiple correction of the mounting point installation tool
  - Correction of quality issues in a supplying plant
  - Introduction of protective measures for cabin installation and furnishing; improved transportation means
  - Tailored support during equipment installation, improved allocation of equipment protective devices

Achievements:

- 100% on-time-delivery achieved after 10 months with parallel production rate scaling from 64->74 aircraft/year
- Reduction of production related quality issues and claims by up to 75%

Extraordinary Challenges:

Project Overview		
06/2001 – 12/2001	Company: Airbus	
Company Description: Manufacturer of air- and spacecraft		
Industry: Aviation	Turnover: 70 B EUR	Employees: 100.000
Location: Blagnac, France	Internet: www.airbus.com	
Project Title: Strategic Reorientation of the Engineering Organization und Post Merger Integration of the Finance, HR, Program- and Sales organizations		
Role / Hierarchy: Project Manager		
Area of Responsibility:	Turnover:	Staff: 30

Clients Initial Situation:

The Engineering organization with the national Engineering Integration Centers for the relevant aircraft contribution wing, forward fuselage, center-wing box, rear fuselage, cabin systems, propulsion, shall be organized more effectively, for new developments. The current Engineering-organization is capable to manage and design aircraft modifications of the exiting aircraft types, however, the organization cannot be scaled for rapid growth with new aircraft developments that run in parallel.

Post Merger Integration the HR and Finance organizations still work differently in the national organizations. A harmonized process shall be established.

The way-of-working between the Program and Sales organizations was very inefficient and led to delays.

Tasks:

- Define new engineering organization with a strategically new orientation with several new aircraft development programs running in parallel.
- Define internationally harmonized processes for the HR and Finance organizations
- Provide proposal for more efficient organization for Programs and Sales.

Implemented Measures:

As senior manager for organizational development within the executive HR organization I

- strategically designed a new engineering structure by engaging the most senior engineering stakeholders
- designed harmonized HR and Finance processes by engaging the most senior HR and Finance stakeholders und the heads of the international Expert groups
- analyzed the current Program and Sales organizations and the existing cooperation between organizations.
- redefined the interfaces between the program and sales organizations and steered the cross-functional way-of-working.

Achievements:

- Enabled scalable growth for the development of two additional aircraft types (A400M, A350) in the following 10 years.
- Established internationally harmonized processes for the HR and finance organizations.
- Defined and efficient and cross-functional way of working between Program and Sales organization without an organization change.

Extraordinary Challenges:

Project Overview		
5/2002 – 12/2002	Company: Airbus	
Company Description: Manufacturer of air- and spacecraft		
Industry: Aviation	Turnover: 70 B EUR	Employees: 100.000
Location: Blagnac, France	Internet: www.airbus.com	
Project Title: Airbus Code of Conduct		
Role / Hierarchy: Project Manager		
Area of Responsibility:	Turnover:	Staff: 30

Clients Initial Situation:
The Governance-Model for Airbus Commercial Aircraft was missing and one that could be applied on group level. For the first version of the Code of Conduct only a few text chapters were available, however, the concept for the complete document was missing.

Tasks:
Build governance model and the first version of the Airbus Code of Conduct by engaging the most senior stakeholders from all corporate functions.

Implemented Measures:
As senior manager for organizational development within the executive HR organization I initialized and lead the definition of the first group-wide Code of Conduct in close cooperation with all corporate functions.

Achievements:

- First issue of Airbus Code of Conduct
- established Governance-Modell, that was adopted group-wide.

Extraordinary Challenges:

Project Overview		
01/2001 – 05/2001	Company: Airbus	
Company Description: Manufacturer of air- and spacecraft		
Industry: Aviation	Turnover: 70 B EUR	Employees: 100.000
Location: Blagnac, France	Internet: www.airbus.com	
Project Title: Recovery of Industrialization delay as head of production technology		
Role / Hierarchy: Project Manager		
Area of Responsibility:	Turnover: 250 Mio. EUR	Employees: 60
Clients Initial Situation: The industrialization of the first A340-600 aircraft (MSN 376) in Toulouse was excessively delayed. It was considered impossible to meet the handover milestone to the test pilots in 5 months.		
Tasks: • Ensure On-time handover of the first A340-600 (MSN 376) to the test pilots.		
Implemented Measures: I work cross-functionally and across borders with the program, engineering and production teams to overcome communication issues and to simplify the way of working between teams.		
Achievements: Handover of first A340-600 aircraft (MSN 376) in Toulouse to test pilots achieved ahead of schedule.		
Extraordinary Challenges:		

Project Overview		
06/1999 – 05/2000	Company: Astrium (today Airbus Defence & Space)	
Company Description: Astrium is a manufacturer of spacecraft, satellites and launchers and offers military and civil satellite services such as navigation, earth observation and communication.		
Industry: Space	Turnover: 5 B EUR	Employees: 15.000
Location: Paris	Internet: www.airbus.com	
Project Title: Propulsion Electronics Astrium Merger Integration as Project Manager		
Role / Hierarchy: Head of Department		
Area of Responsibility:	Turnover: 4 Mio. EUR	Staff: 16
Clients Initial Situation: Astrium had been created as a fusion of several space companies including the German DaimlerChrysler Aerospace AG (DASA), the French Aérospatiale-Matra the Spanish CASA. There were several organizations with the design and manufacture capabilities for propulsion electronics.		
Tasks: Merge the organizations for propulsion electronics		
Implemented Measures: • Evaluation of the capabilities of the different organizations • Definition of a proposal for the merged organization.		
Achievements: • My team was selected for the target organization.		
Extraordinary Challenges:		

Project Overview		
10/1996 – 02/2000	Company: Astrium (today Airbus Defence & Space)	
Company Description: Astrium is a manufacturer of spacecraft, satellites and launchers and offers military and civil satellite services such as navigation, earth observation and communication.		
Industry: Space	Turnover: 5 B EUR	Employees: 15.000
Location: Paris	Internet: www.airbus.com	
Project Title: Turnaround of products with deficit		
Role / Hierarchy: Head of department		
Area of Responsibility:	Turnover: 2,5 Mio. EUR	Staff: 16
Clients Initial Situation: • The internal costs for the propulsion electronics for chemical thrusters is higher that the internal cost target		
Tasks: • Meet cost target		
Implemented Measures: • Bundling of the internal contracts for individual satellites for the complete contract scope for all 5 satellites • Adaptation of all propulsion electronics to a standards unit which covers all satellite specifications		
Achievements: • For the propulsion electronics for chemical thrusters, I achieved an excess revenue 30%		
Extraordinary Challenges:		

Project Overview		
10/1996 – 06/1997	Company: Astrium (today Airbus Defence & Space)	
Company Description: Astrium is a manufacturer of spacecraft, satellites and launchers and offers military and civil satellite services such as navigation, earth observation and communication.		
Industry: Space	Turnover: 5 B EUR	Employees: 15.000
Location: Paris	Internet: www.airbus.com	
Project Title: Delivery of Power Modules with Corrected Design Error		
Role / Hierarchy: Project Manager		
Area of Responsibility:	Turnover:	Staff: 16
Clients Initial Situation: I took over the product responsibility in the production phase of power converter modules (128) for the satellite attitude control system of a constellation satellite for communications. The modules still needed to be delivered to Global Star. Noone was aware of the design error.		
Tasks: Delivery of the power converter module (128) for the attitude and control system of the Global Star constellation satellites.		
Implemented Measures: • Regular coordination meetings with the module responsible • Based on the test report results I recognized a systematic design error • I instructed a design analysis and subsequent correction of the manufactured and acceptance tested products • Delivery following repair •		
Achievements: • The repaired power converter modules operated reliably in space		
Extraordinary Challenges:		