

# Product Support at the Skunk Works

1943



2018

## Seventy-Five Years of Sustaining Innovation



1943-2018



SKUNK  
WORKS®

ON THE PATH TO

75



YEARS OF  
INNOVATION

<https://www.youtube.com/watch?v=7Ub0UbhDGDE>

**“The Skunk Works is a concentration of a few good people solving problems far in advance – and at a fraction of the cost – of other groups in the aircraft industry by applying the simplest, most straightforward methods possible to develop and produce new projects. All it is really is the application of common sense to some pretty tough problems.”**





# SKUNK WORKS OPERATING RULES

- 1 THE SKUNK WORKS MANAGER MUST BE DELEGATED PRACTICALLY COMPLETE CONTROL OF HIS PROGRAM IN ALL ASPECTS. HE SHOULD REPORT TO A DIVISION PRESIDENT OR HIGHER.
- 2 STRONG BUT SMALL PROJECT OFFICES MUST BE PROVIDED BOTH BY THE MILITARY AND INDUSTRY.
- 3 THE NUMBER OF PEOPLE HAVING ANY CONNECTION WITH THE PROJECT MUST BE RESTRICTED IN AN ALMOST VICIOUS MANNER. USE A SMALL NUMBER OF GOOD PEOPLE (10% TO 25% COMPARED TO THE SO-CALLED NORMAL SYSTEMS).
- 4 A VERY SIMPLE DRAWING AND DRAWING RELEASE SYSTEM WITH GREAT FLEXIBILITY FOR MAKING CHANGES MUST BE PROVIDED.
- 5 THERE MUST BE A MINIMUM NUMBER OF REPORTS REQUIRED, BUT IMPORTANT WORK MUST BE RECORDED THOROUGHLY.
- 6 THERE MUST BE A MONTHLY COST REVIEW COVERING NOT ONLY WHAT HAS BEEN SPENT AND COMMITTED BUT ALSO PROJECTED COSTS TO THE CONCLUSION OF THE PROGRAM. DON'T HAVE THE BOOKS NINETY DAYS LATE AND DON'T SURPRISE THE CUSTOMER WITH SUDDEN OVERRUNS.
- 7 THE CONTRACTOR MUST BE DELEGATED AND MUST ASSUME MORE THAN NORMAL RESPONSIBILITY TO GET GOOD VENDOR BIDS FOR SUBCONTRACT WORK ON THE PROJECT. COMMERCIAL BID PROCEDURES ARE VERY OFTEN BETTER THAN MILITARY ONES. 17950
- 8 THE INSPECTION SYSTEM CURRENTLY USED BY ADP SHOULD BE USED. PUSH MORE BASIC INSPECTION BACK TO THE VENDOR — DON'T PAY FOR PIECES THAT DON'T WORK! DON'T DUPLICATE SO MUCH INSPECTION.
- 9 THE CONTRACTOR MUST BE DELEGATED THE AUTHORITY TO TEST HIS FINAL PRODUCT IN FLIGHT. HE CAN AND MUST TEST IT IN THE INITIAL STAGES. IF HE DOESN'T HE RAPIDLY LOSES HIS COMPETENCY TO DESIGN OTHER VEHICLES.
- 10 THE SPECIFICATIONS APPLYING TO THE PROJECT MUST BE AGREED TO IN ADVANCE OF CONTRACTING. BE SURE THERE IS MUTUAL UNDERSTANDING IN THIS FIELD BEFORE PROCEEDING; OTHERWISE IT TAKES A MAMMOTH CONTRACTING DEPARTMENT TO UNSCRAMBLE THE MESS THAT NORMALLY DEVELOPS.
- 11 FUNDING A PROGRAM MUST BE TIMELY SO THAT THE CONTRACTOR DOESN'T HAVE TO KEEP RUNNING TO THE BANK TO SUPPORT GOVERNMENT PROJECTS.
- 12 THERE MUST BE MUTUAL TRUST BETWEEN THE MILITARY PROJECT ORGANIZATION AND THE CONTRACTOR, WITH VERY CLOSE COOPERATION AND LIAISON ON A DAY TO DAY BASIS. THIS CUTS DOWN MISUNDERSTANDINGS AND CORRESPONDENCE TO AN ABSOLUTE MINIMUM.
- 13 ACCESS BY OUTSIDERS TO THE PROJECT AND ITS PERSONNEL MUST BE STRICTLY CONTROLLED BY APPROPRIATE SECURITY MEASURES.
- 14 BECAUSE ONLY A FEW PEOPLE WILL BE USED IN ENGINEERING AND MOST OTHER AREAS, WAYS MUST BE PROVIDED TO REWARD GOOD PERFORMANCE BY PAY NOT BASED ON THE NUMBER OF PERSONNEL SUPERVISED.

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- 1 One Strong, Knowledgeable Leader**
- 2 Minimal Program Office Size**
- 3 Minimal Staffing**
- 4 Simple Paperwork**
- 5 Record Important Work**
- 6 Never Surprise the Customer**
- 7 Manage Your Team**
- 8. Know What You Are To Provide**
- 9. Lead Your Test Program**
- 10. Minimize Specifications**
- 11. Fund The Program Right**
- 12. Establish Trust With Your Customer**
- 13. Minimal Access By Outsiders**
- 14. Reward Performance**



**Skunk Works Program Manager Must Be Delegated  
Practically Complete Control Of His Program In All Aspects.  
He Should Report To A Division President or Higher.**

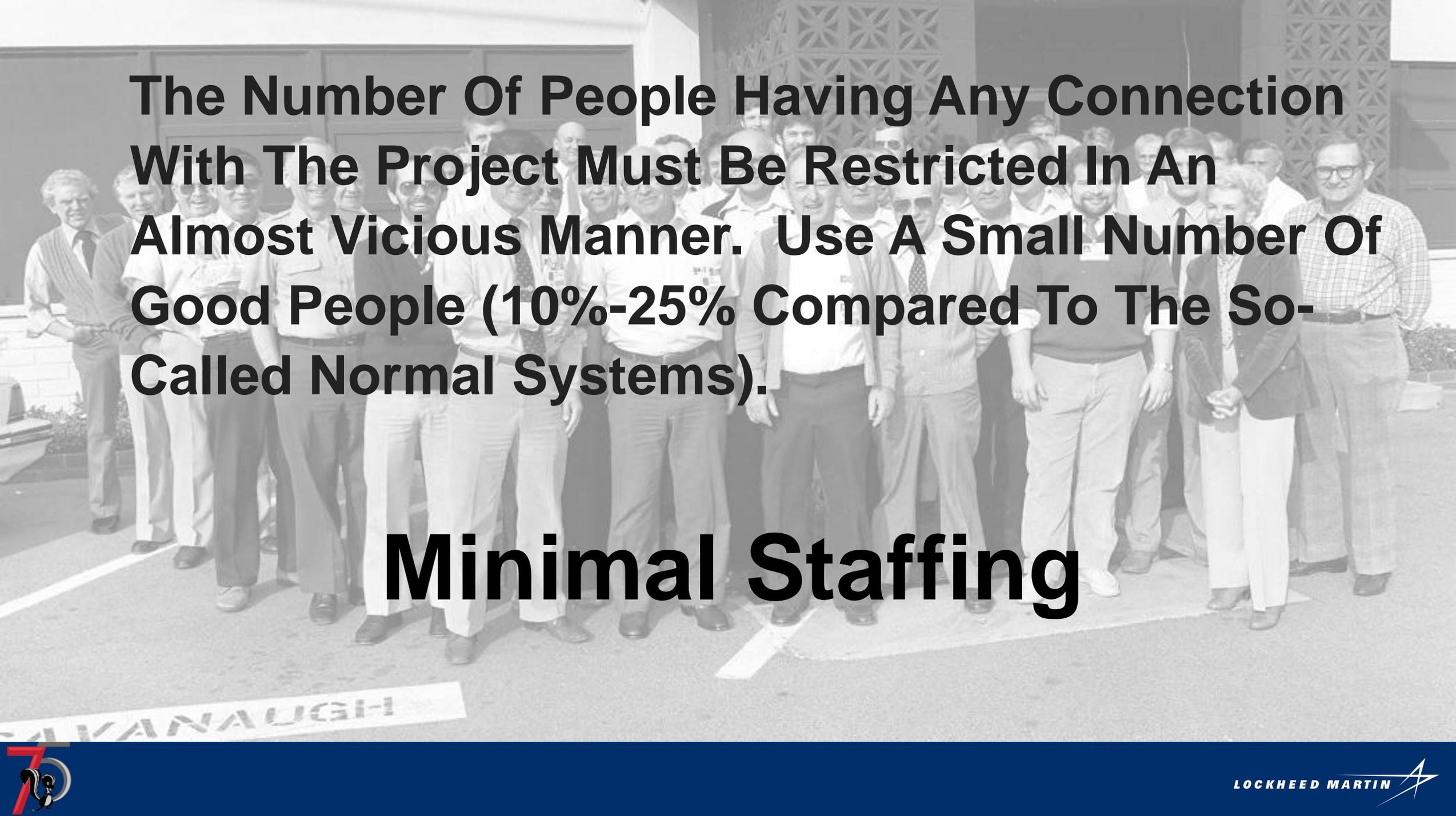
**One Strong, Knowledgeable  
Leader**



**Strong But Small Project Offices Must Be Provided By Both  
The Military And Industry**

**Minimal Program Office Size**



A large group of people, mostly men in business attire, are standing in front of a building entrance. The image is in grayscale. The text is overlaid on the image.

**The Number Of People Having Any Connection With The Project Must Be Restricted In An Almost Vicious Manner. Use A Small Number Of Good People (10%-25% Compared To The So-Called Normal Systems).**

**Minimal Staffing**



**A Very Simple Drawing And Drawing Release System With  
Great Flexibility For Making Changes Must Be Provided**

**Simple Paperwork**





**There Must Be A Minimum Number Of Reports  
Required, But Important Work Must Be Recorded  
Thoroughly**

**Record Important Work**



**The Contractor Must Be Delegated And Must Assume More Than Normal Responsibility To Get Good Vendor Bids For Subcontract On The Project. Commercial Bid Procedures Are Often Better Than Military Ones**

**Manage Your Team**



**The Contractor Must Be Delegated The Authority To Test His Final Product In Flight. He Can And Must Test It In The Initial Stages. If He Doesn't, He Rapidly Loses His Competency To Design Other Vehicles.**

**Lead Your Test Program**



**The Specifications Applying To The Hardware, Including Rationale For Each Point, Must Be Agreed Upon Well In Advance Of Contracting**

**Minimize Specifications**



**Funding A Program Must Be Timely So That The Contractor  
Doesn't Have To Keep Running To The Bank To Support  
Government Projects**

**Fund The Program Right**



**There Must Be Mutual Trust Between The Military Project Organization And The Contractor, And There Must Be Very Close Cooperation And Liaison On A Day-To-Day Basis. This Cuts Down Misunderstanding And Correspondence To An Absolute Minimum**

**Establish Trust With Your Customer**



# A Parting Thought

Kelly Johnson Had Three Simple Management Principles Supporting A Single Fundamental Belief:

***Don't Build An Airplane You Don't Believe In.***

His Principles:

- It's More Important To Listen Than To Talk
- A Timely Wrong Decision Is Better Than No Decision
- Don't Halfheartedly Wound Problems—Kill Them Dead.

# Questions?



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