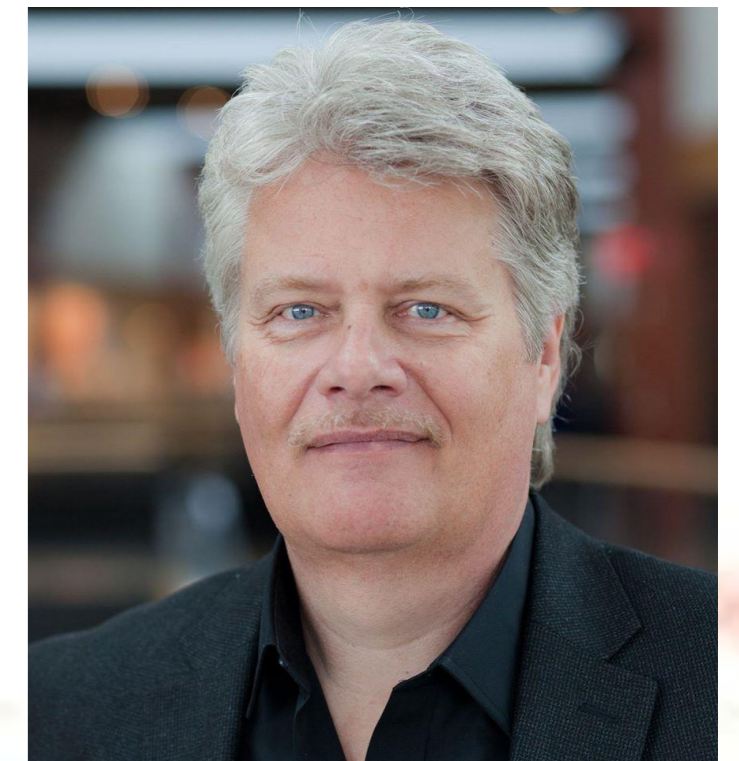


# The Skunk Works Approach Rapid Innovation Using CAD Tools

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# Quick bio ...



Mechanical Engineer

Semi-Pro Guitarist

Private consultant since 1991

Cadalyst Magazine contributing editor

25-year AU speaker

9 time SU speaker

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**What's the fastest, best way to prepare software for rollout to my users?**



# Key steps for CAD success ...

- Research must be done
- Software must be configured
- Hardware must be optimized
- New methods must be put in place
- Training must be delivered
- Low cost, low risk, on time rollout
- The boss has to be happy ...



# How can your research best benefit others?



**“Research is what I’m doing when I don’t know what I’m doing.”**

**Wernher von Braun**

**But what if you don’t have a NASA budget?**



**You've got to move fast and look like you know exactly what you're doing even when you don't.**



**You must find a way to get your management pumped up, contain costs and train everyone or you'll never survive. But how?**



**Skunk Works/Pilot Projects**  
**Prove new work methods and tools using**  
**rapid innovation and pilot project testing.**



# Enter the Skunk Works / Proving Ground concept





**An environment that rewards outside the box thinking that delivers tangible results.**



**A place where high performance research can be conducted rapidly with the most skilled personnel, minimal bureaucracy, and rapid delivery of results to client.**

# The CAD proving ground



**Why should software be any different?**

# The CAD proving ground

- Investigate new software tools
- Using real hardware/network scenarios
- With specially qualified users
- Debugging and fixing as you go
- Creating training plans for the masses
- Building the better software tool ...



# Find your test pilot users



**Based on these attributes**

# Who is a test pilot user?

- They're willing to test new features
- They realize new features will crash
- They're calm under pressure
- They can communicate what's wrong
- They are project motivated
- They thrive on learning ...





**A few test pilots working closely with you will speed testing, reduce frustration and limit the number of users you have to deal with.**



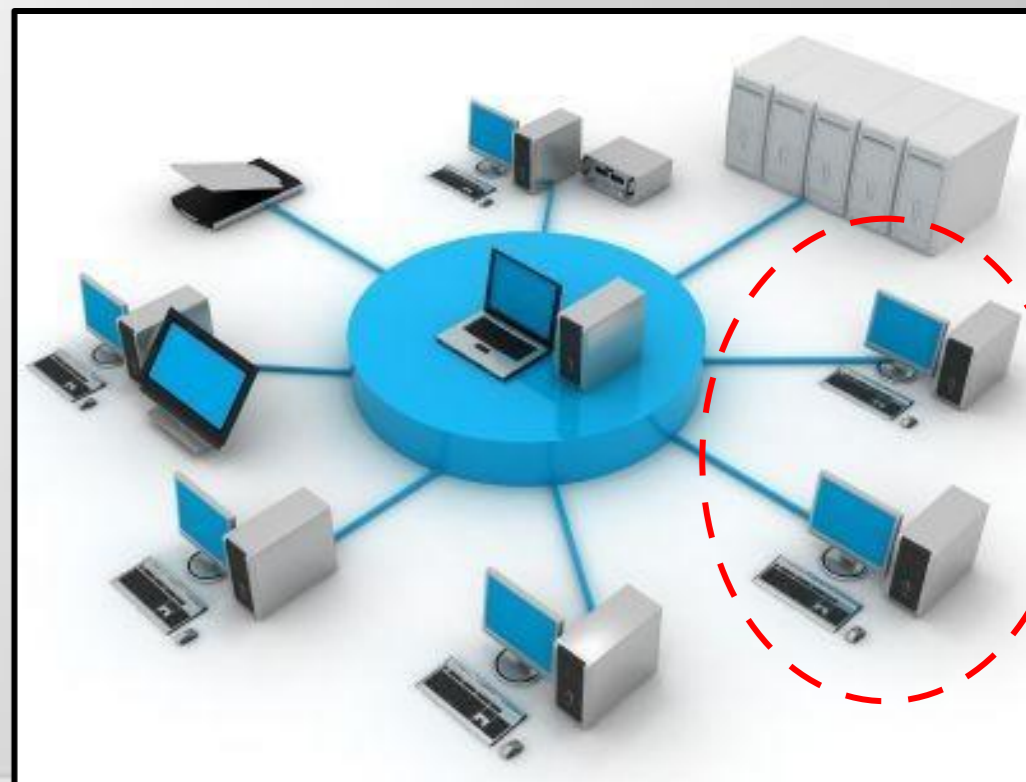
# The proving ground environment



**How should it be setup?**

# A proving ground is ...

- A subset of your total CAD ecosystem
- That emulates real usage scenarios
- Walled off from other production users
- With full – even priority - support ...



# To setup the proving ground you need ...

- Software licenses and deployment kits
- All required folders and network permissions
- Standard content for software usage
- Project filing standards
- EDM/PDM integration
- Flight manuals for test pilots ...



# When to setup the proving ground ...

- After you've investigated new software
- Prior to test pilot involvement
- Key reasons:
  - To test EVERYTHING
  - To gauge WAN/cloud performance
  - To best support test pilots
- Do sweat the details now ...





**Everything you validate in the proving ground is one less thing that'll blow up later. Don't skip steps – don't make assumptions.**

# Assign your test pilots



**Based on their skill set**

# Match pilot to test flight ...

- Revit users test new Revit tools
- Inventor users test new Inventor tools
- AutoCAD users test improved AutoCAD features
- Note: You need several test pilots ...



# Support and interview your pilots



**They'll tell you what's wrong and right**



# Test pilot debriefing ...

- After they do a test flight ask them:
  - What worked?
  - What didn't?
  - What could be better?
  - What would you change?
- Do this immediately after test flight ...



# Debug the debriefing ...

- Your tasks now are:
  - Document what worked
  - Fix what didn't work
  - Make pilot requested changes
  - Think about teaching strategies
- Setup another test flight ...



# Use a punch list mentality ...

- Perform a test flight
- Perform a debug
- Repeat
- When the pilot is happy you're done
- Software can now move to production ...





**Not only will you get things right you'll actually know when you're done by monitoring your debrief and debug punch lists over time.**

# Iterate and improve



**The never ending proving ground**

# After your software rolls out ...

- Think about your next research project
- Plan for another round of test flights
- Keep the proving ground going ...



# Training and standards benefits



**How to pay for the proving ground**

# The benefits of the proving ground ...

- Standards are proven in testing
- Training concepts can be identified
- Lesson plans can be created
- Test pilots become product experts
- Errors are minimized
- How much time/money will this save ...







**Nothing cuts costs like error reduction and  
nothing cuts software rollout errors like a proving  
ground approach!**

**Use positive peer pressure**



**to cement methodologies/change**



**How would things change  
If everybody thought like a test pilot?**



**What if it were cooler**

**To be a test pilot rather than going rogue with  
new software?**



**Stick with the proving ground concept until everyone sees the value and arguments over standards will start to go away.**

**Advertise your results to management!  
Show them the value of your approach!**



**How else will they know how valuable you are?**

**What were the steps again?**



**Any last thoughts?**

# The steps ...

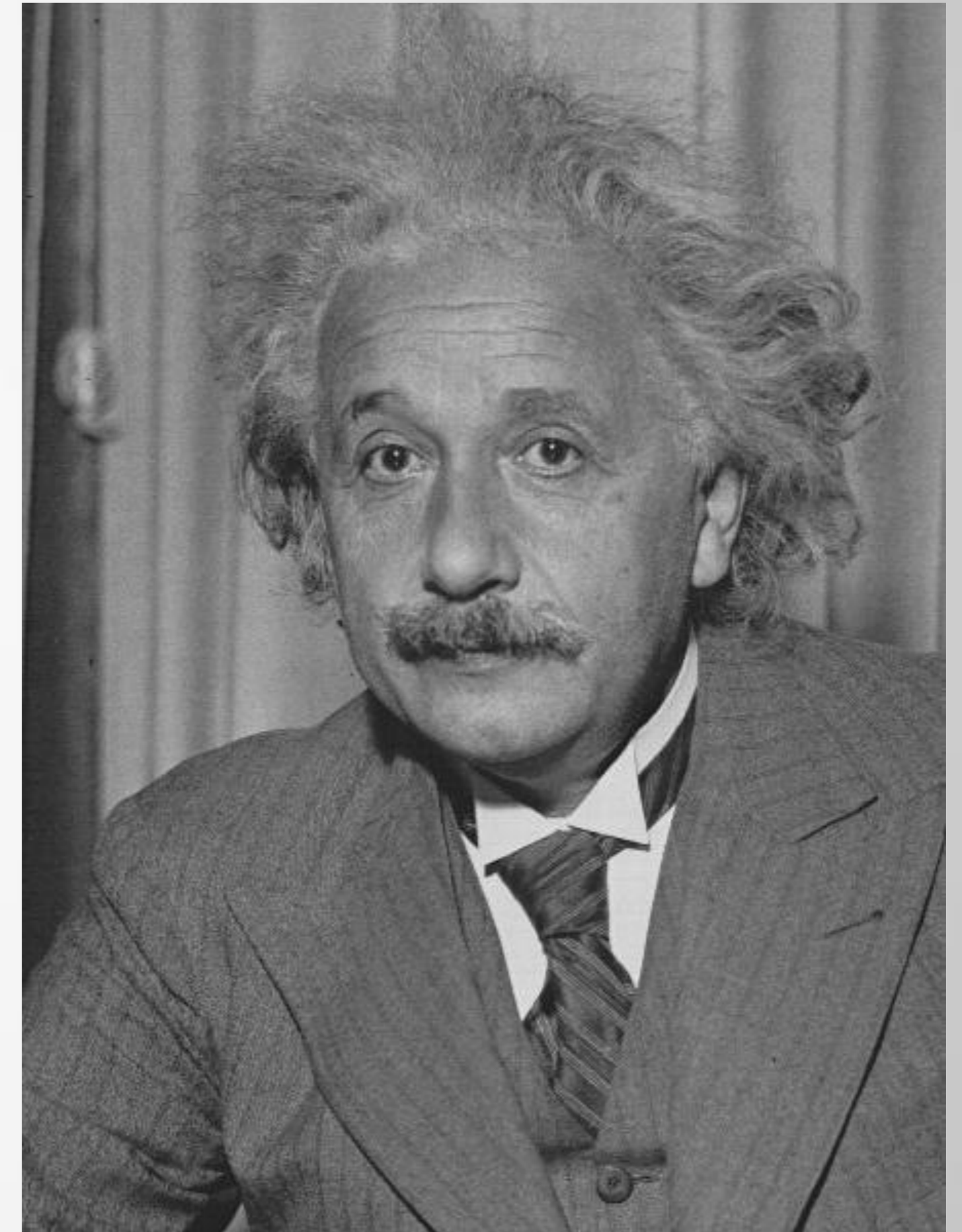
- Innovate rapidly in the Skunk Works
- Build a proving ground ecosystem
- Identify your test pilots
- Perform test projects in the proving ground
- Debrief test pilots
- Thoroughly debug new software
- Adopt results as standards ...





# A few closing thoughts ...

- A proving ground approach is a shift:
  - In methodology
  - In psychology
  - In personnel motivation
- It takes time to setup properly
- It pays for itself quickly
- Your company will benefit from it
- As will your career ...



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