

Hurdles to the Adoption of New Methods: Perspective of a guy who (at least for now) still works for a Vendor

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SO WHAT? WHO CARES?

- **Adoption takes time**
- **Technology needs to work better, predictably and reliably, at an acceptable cost**
- **Play nice with others**
- **Try to know if you're solving an existing problem or a new problem**
- **The future is unpredictable**

QUESTIONS THAT CARL SUGGESTED

- Why is transmission x-ray (CT + TRX) the primary mode of inspecting checked baggage and hold items at the check point?
- Why is XRD not more widely deployed in the United States?
- What happened to NQR?
- What is wrong with XBS AIT?
- How does testing (e.g., cert, CRT, qualification) impact technology?
- How to address marketing (ie, positioning) by vendors?
- How can technologies be evaluated in a life cycle to determine if they have value?
- What happens when detection requirement specs?
- What makes it work?
- How is the deployment of new technologies?
- Is there a procurement strategies affect which technologies are chosen?
- Are life-cycle costs a factor?
- How should new technologies be fused with extant technologies?

Answers might be found at
<http://www.wikileaks.com>

ADAM SMITH'S OCTANT

→ Academia

- Educate Students
- Publish Research
- Drive knowledge frontier

→ Vendors

- Make Improvements
- Sell Products
- Drive technological frontier

→ Customers

- Use
- Buy
- Avoid all frontiers

To Understand the Future, Study the Past

CASE HISTORIES

→ Mouse

- Early adoption in 1984
- Full adoption in 1995
- Introduced in 1963

→ Tablet

- Early adoption in 2007
- Full adoption in 2010
- Introduced in 1984

→ Internet

- Early adoption in 1979
- Broad adoption in 1995
- Introduced in 1969

→ Fax Machine

- Invented in 1843

→ Internal Combustion Engine

- Broad adoption in 1913
- Invented in 1870

→ Phonograph

- Invented in 1877
- Mass wax cylinders in 1880s
- Improved to platters in 1910s
- Broad adoption in 1940s
- Cassettes/8-Tracs/CDs in 1960s
- Digital “MP3” invented in 1970s
- Broad adoption in late 1990s

→ Velcro

- Invented in 1941

MORE CASE HISTORIES

→ Doorknob

- 1878

→ Magnetic

- 1600 (C)
- 1040 (C)

→ Timezone

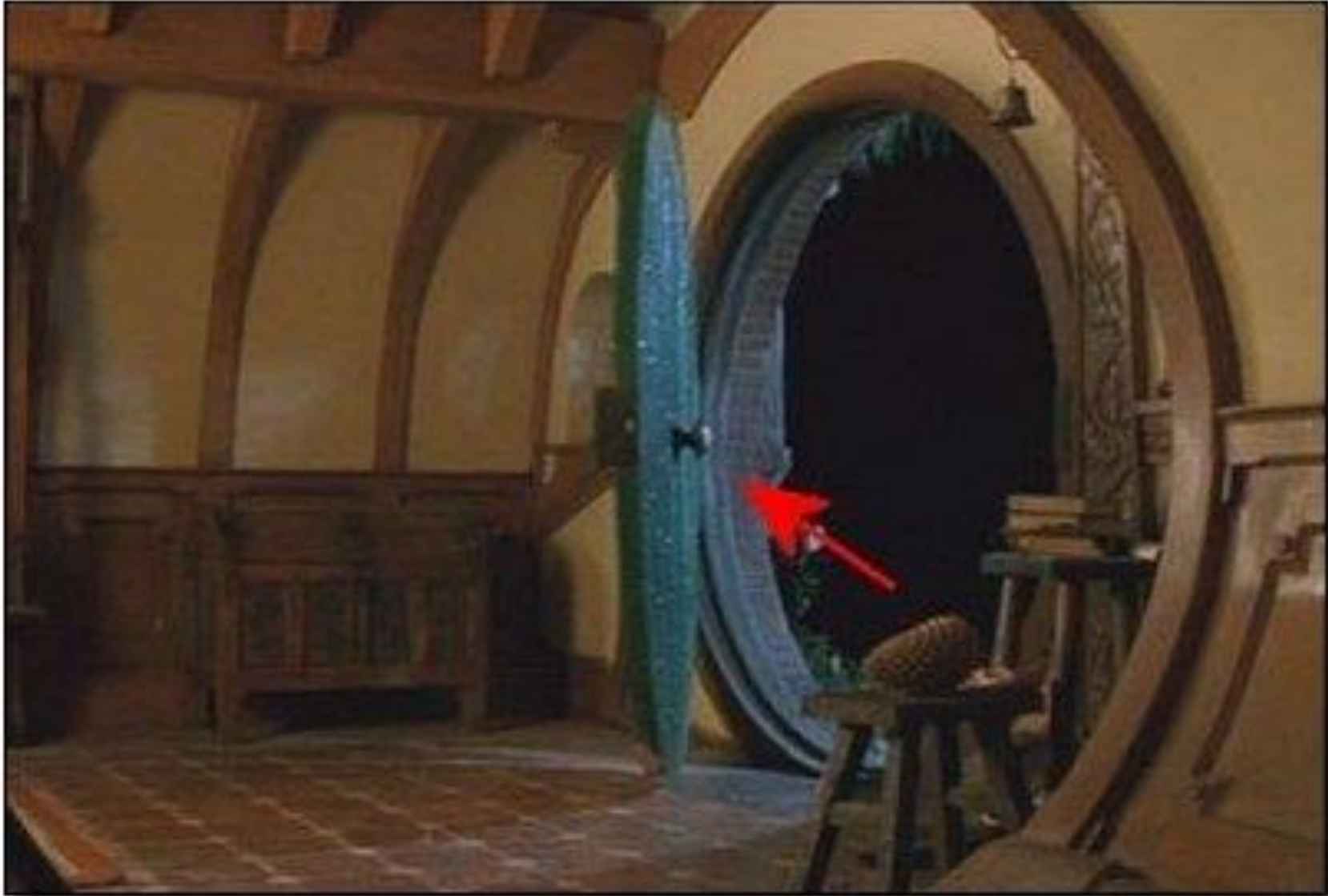
- 1880 - 1

→ Self-Servi

- 1916
- Benefit

→ Bag Balm

- For soo
- For mal



WHY DOES TECHNOLOGY GET ADOPTED?

“THE BIG 10 REASONS”

→ It doesn't cost too much

- Procurement
- Operation
- Maintenance
- Replacement

→ It doesn't break

→ It works

- Better than what was before (in both reality & perception)
- Testable & understandable
- For multiple environments

→ It plays nice with existing systems

- Space & Performance

→ It does no harm

- No added corner cases
- No new costs, training, expertise
- Health
- Privacy
- Operational
- In both reality & perception

→ It should work (better) in the future

→ It doesn't cost too much

→ It works

→ It doesn't cost too much

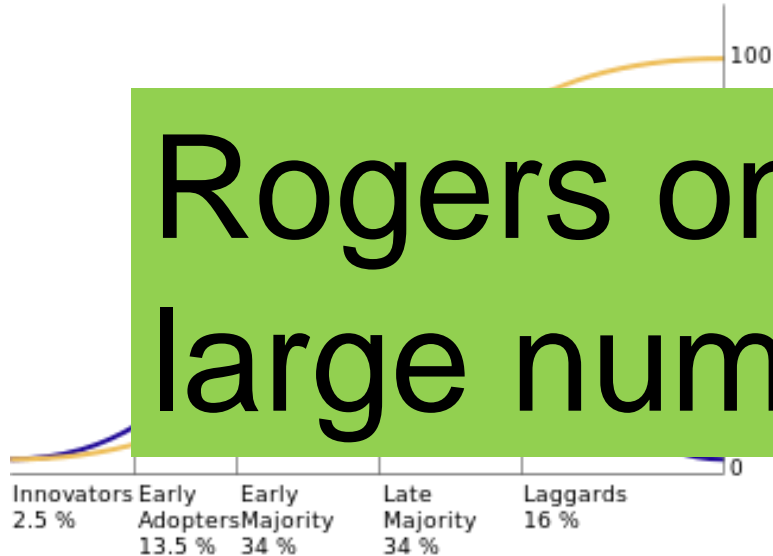
BUILD A REALISTIC SCORECARD

Technology	Cost	Reliability	Play Nice	Works	Future	Do No Harm
CT (HBS)						
CT (CBS)						
SV X-Ray						
MV X-Ray						
XRD						
QR						
mmW (AIT)						
XBS (AIT)						
Neutron						
Your Solution						
Doing Nothing						

A WORD ABOUT THE “ROGERS CURVE”

Five Stages in the Decision Innovation

Rogers only applies for large numbers of adopters



Five Intrinsic characteristics of innovations that influence decision to adopt or reject:

Relative Advantage, Compatibility, Complexity/Simplicity, Trialability, Observability

WHAT CAN BE DONE TO PAVE THE WAY?

→ Adoption of new technology takes time

- Maybe 30 years

→ Worry about the “Big Ten” early

- It needs to work better, predictably and reliably, at an acceptable cost

→ Try to know if you’re solving an existing problem or a new problem

- But be flexible in your answer – you may solve a problem that you don’t even know exists

→ Unless you’re in a new game, play nice with others

- If you’re in a new game, play nice with others

→ Lastly, a word about the future...

- Good luck predicting it

Engineering is Science... that works