How the FBI learned to catch bad guys one iteration at a time

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Who is speaking?

- Justin Babuscio
- HPTi for over four years
- Software developer leaping into the hybrid “technical” management
- Initiated corporate wide agile movement after attending Agile 2008
- Leading working groups to integrate agile procedures into HPTi’s process improvement plans
Who's in the room?
What I won’t tell you

- Mysteries of the FBI
- Upcoming contracts
- Secrets to winning government and/or FBI contracts
What I will tell you

- HPTi and FBI team up to tackle software with discipline and agility
  - Challenges
  - Failed attempts
  - Transition from waterfall to agile while complying with CMMI III

- Where we are today
High Performance Technologies, Inc
Reston, VA
Founded in 1991
Technology services
Federal contractors
Federal Bureau of Investigation
Established in 1908
“Fidelity, Bravery, and Integrity”
Protect and defend America
How we started at the FBI

- First contract in 1994
- Primarily software projects
- Built our reputation on service delivery with solid approaches
- 2004 - Awarded contract to develop software application for streamlining business processes
Life Cycle Management Directive
- Introduced in 2004 with new CIO
- Standard set of processes
- Compliance

How did HPTi react?
- Hired new PM
- Corporate initiative to achieve CMMI III with software projects
The TEAM

- HPTi - 9 total people
  - Project Manager
  - Technical Lead
  - 7 developers
  - 1 interface designer
  - 1 tester

- FBI – 3 total people
  - Product Manager
  - 2 SMEs
“The Model”

- Instinctive to use Waterfall
- Defined procedures for CMMI II and CMMI III Practice Areas
- Applied to project successfully
- Received CMMI III certification
Old approach

- Schedule planned from Technical Lead’s estimations only
- Full specifications with screenshots for requirements development
- Design documents that required team review for verification
- 25% period for functional testing to validate requirements
- Goal was to comply
Storming with The Model

- Evolutionary crime = Evolutionary agency
- Pitfalls experienced
  - Outdated designs
  - Skipping design and code reviews
  - “Light” testing
  - Missed waterfall steps
  - Repeated bugs in production
Responding to change

- ...over following a plan
- Agile introduced
  - Slow transition
  - Inject quality into volatile environment
  - Encourage communication
  - Force communication
- Practices first used
  - TDD/CI – CruiseControl server
  - Pair programming
  - User Stories – planning poker
FBI reigns in Agile Cowboy

- Where are our developers?
  - Teams split between two floors
  - Meetings & reviews pulled key members of team from production

- What happened to requirements documents?
  - User stories introduced
  - Full specifications were used less frequently
Evolutionary agency =

- ...Evolutionary product owner
- FBI embracing change
  - Understood tailoring of processes
  - Appreciated and believed in the agile manifesto
  - Welcomed recommendations
- Moved to customer engagement
  - User demonstrations
  - Retrospectives with customers
New approach

- Two-week iterations
- Planning poker for requirements development and estimation
- Pair programming for verification of designs and implementations
- Continuous integration for quality assurance and autonomous testing
- Customer demonstrations for validation of implemented requirements
Satir Model applied
HPTi and FBI norming

- Ubiquitous language among team
- Have delivered three major versions of software
- Production patches from defects decreased 50%
- Team changes size but process doesn’t change
FBI and agile

- LCMD updated
- Agile section defining processes like Scrum and XP
- Latest Statement of Work requested agile techniques
- Members of FBI IT welcome suggestions and new breakthroughs to evolve process management
Lessons learned

- It is never too late to change
- Communication is crucial
- Team buy-in significantly increases effectiveness
- Organizational support can only help
- Agile approach complying with CMMI is possible
- There is no silver bullet; tailor approaches to the customer