BSIMM: A Software Security Maturity Model

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Joint work with Gary McGraw and Sammy Migues from Cigital

OWASP-Day III

Centro di Competenza ICT-Puglia - Dipartimento di Informatica
Università degli Studi di Bari

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About Fortify

- Founded in 2002 on premise that security must be built in; reactive security doesn't work.
- Fortify sells products and services for creating secure code and for defending deployed applications.
  (Free product license for university research.)

Data loss

244,928,681

Number of data records reported compromised from Feb 2005 – Sept 2008

Source: Privacy Rights Clearinghouse www.privacyrights.org

45%

Percentage of IT, security and business executive respondents that did not know what types of attacks have occurred on their system

Source: CxO Magazine – PwC, 5th Annual Global State of Information Security Survey, 2007

+106%

Increase in reported breaches due to 3rd parties, such as outsourcers, contractors and consultants since 2006

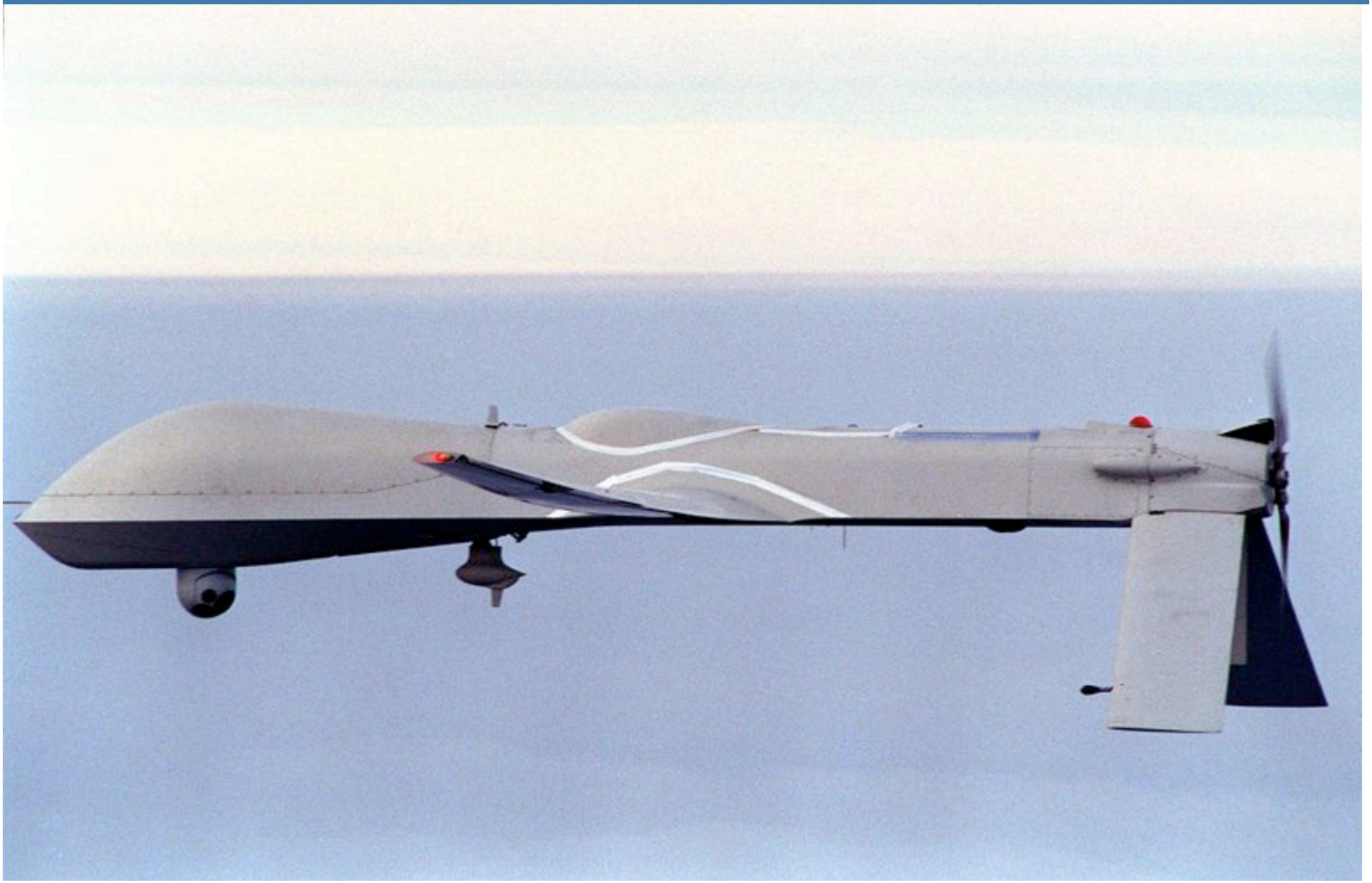
Source: Ponemon Institute, 2007

40%

Percentage of IT, security and business executive respondents that did not know the number of security incidents experienced in 2007

Source: CxO Magazine – PwC, 5th Annual Global State of Information Security Survey, 2007


VOTE
You have already checked the maximum selections in this contest.
If you wish to select a different selection in this contest, you must first de-select a previous selection.
Return to ballot

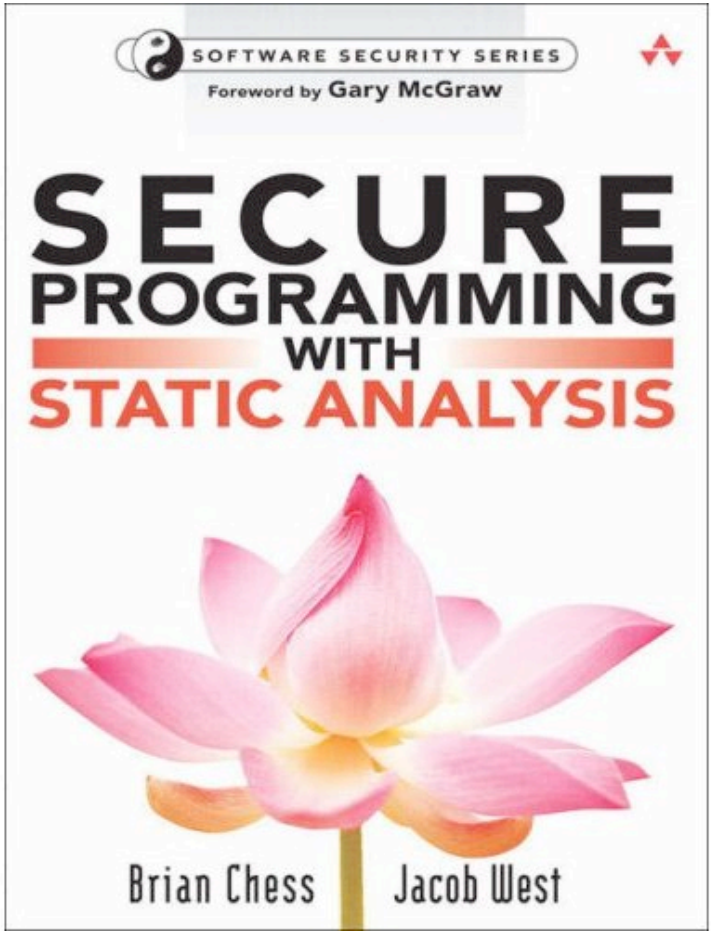


Software security common sense

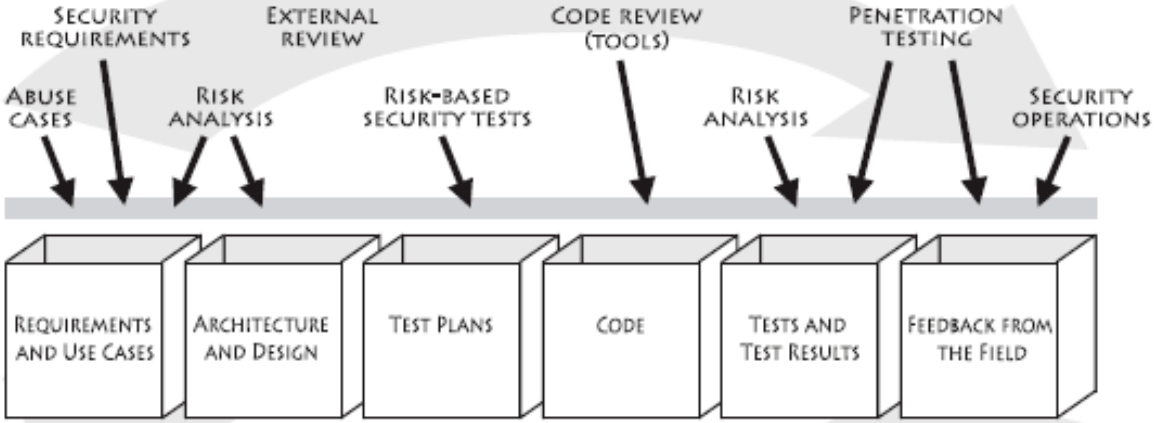
- Software security is more than a set of security functions
  - Not magic crypto fairy dust
  - Not silver-bullet security mechanisms
- Non-functional aspects of design are essential
- Must address both bugs in code and flaws in design
- Security is an emergent property (just like quality)
- To end up with secure software, you have to build security in

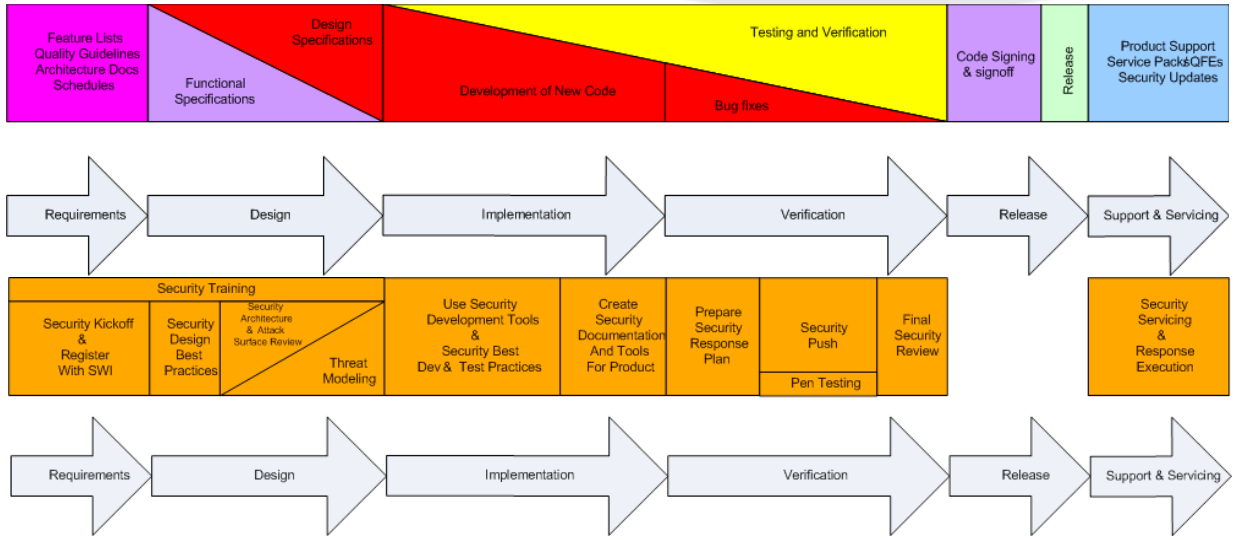
Technology is cool

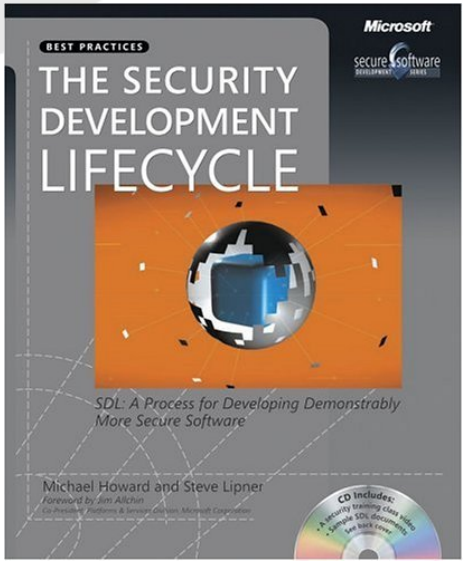
- Find vulnerabilities
- Protect against attack
- Harness dev horsepower
- Manage vulnerabilities



Security in the Development Lifecycle







More Questions than Answers

- Same activities for all software project?
- How to get budget / internal support?
- Which vulnerabilities do I have to fix?
- What about outsourcing?
- How to handle open source?
- Who does the work?

Objective: describe what works

BSIMM

- Building Security In Maturity Model
- Real data from real initiatives

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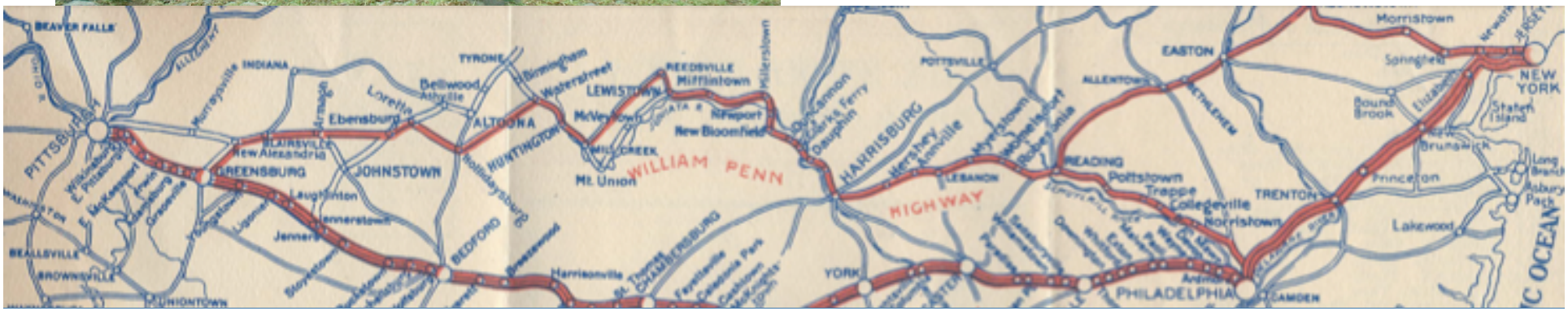


The process

- Big idea: Build a maturity model from actual data gathered from 9 large-scale initiatives
- Create software security framework
- In-person executive interviews
- Build bullet lists (one per practice)
- Bucketize the lists to identify activities
- Create levels
  - Objectives → Activities
  - 110 activities supported by real data
  - Three levels of "maturity"

Seven of the nine

Real world data

- Age
  - Avg 5.25 yrs
  - Newest 2.5
  - Oldest 10
- SSG Size
  - Avg 41
  - Smallest 12
  - Largest 100
  - Median 35
- Satellite size
  - Avg 49
  - Smallest 0
  - Largest 300
  - Median 20
- Dev size
  - Avg 7750
  - Smallest 450
  - Largest 30,000
  - Median 5000

Software Security Framework

Governance	Intelligence	SSDL Touchpoints	Deployment
Strategy and Metrics	Attack Models	Architecture Analysis	Penetration Testing
Compliance and Policy	Security Features and Design	Code Review	Software Environment
Training	Standards and Requirements	Security Testing	Configuration Management and Vulnerability Management

Common ground

- Everyone has a software security group (SSG)
- SSG is roughly 1% size of dev team
- Ten activities that ALL do
  - evangelist role
  - policy
  - awareness training
  - history in training
  - security features
  - static analysis
  - SSG does ARA
  - black box tools
  - external pen testing
  - good network security

Ten surprising things

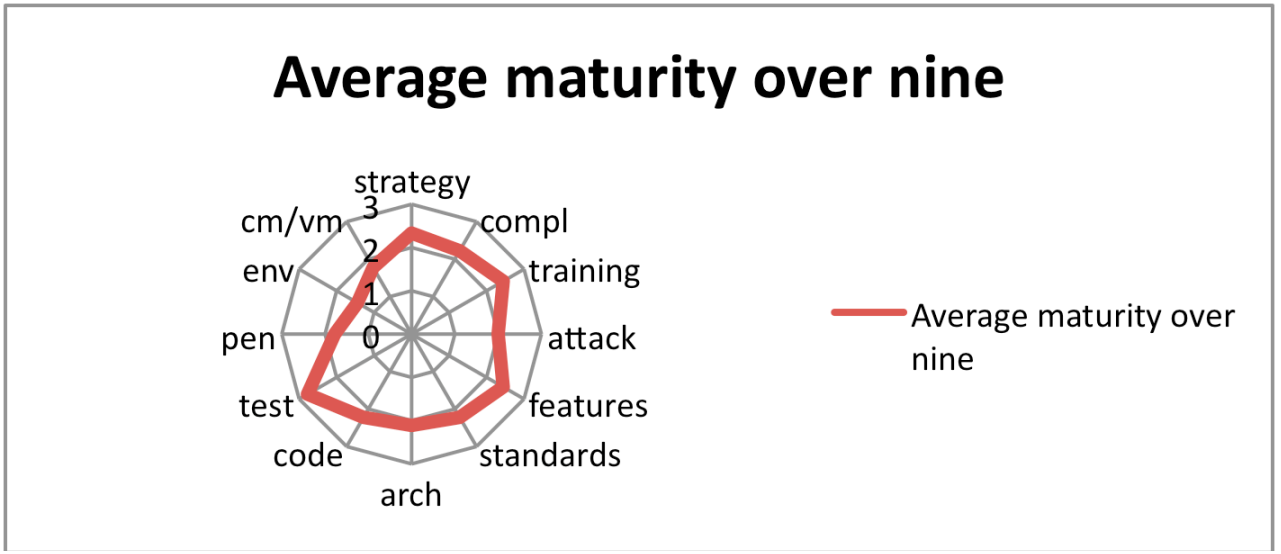
1. Bad metrics hurt
2. Secure-by default frameworks
3. WAF Myth
4. QA can't do security
5. Evangelize over audit
6. ARA is hard
7. Practitioners don't talk attacks
8. Training is advanced
9. Decline of Pen Testing
10. Fuzz testing

BSIMM

- Release March 10
- Top-down presentation through GOALS and OBJECTIVES
- 110 activities with examples
- Three levels of maturity
- Creative commons

- How to use the model
- Where do you stand?
- What should you do next?

Report Card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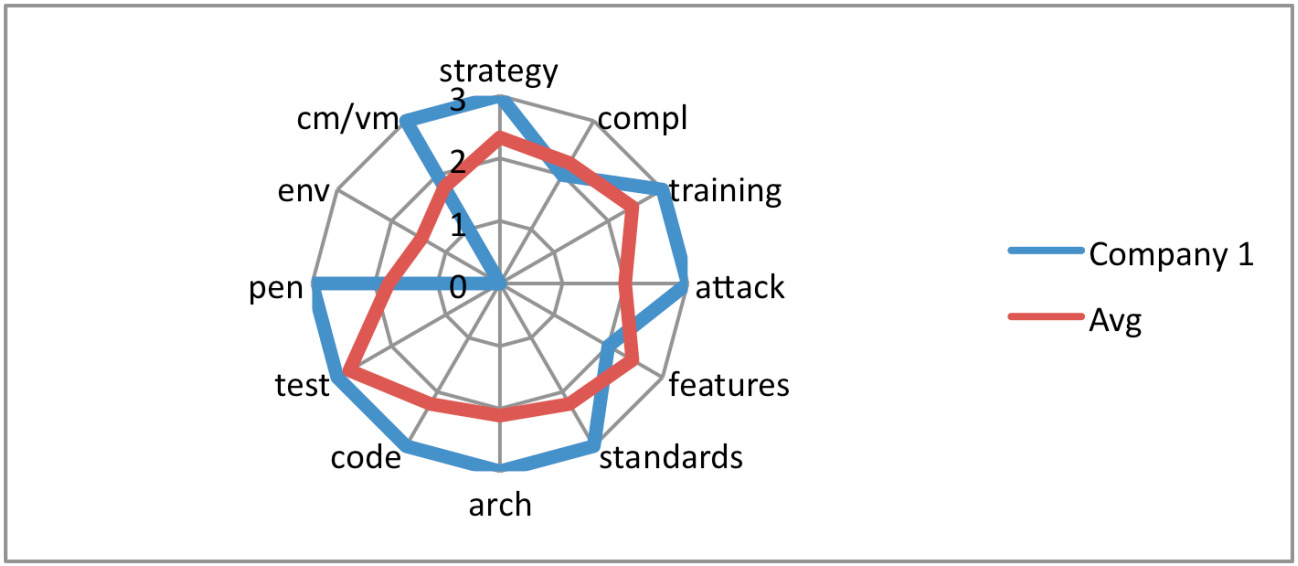
Average maturity over nine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Coming March 10

http://www.bsa-mm.com

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