































































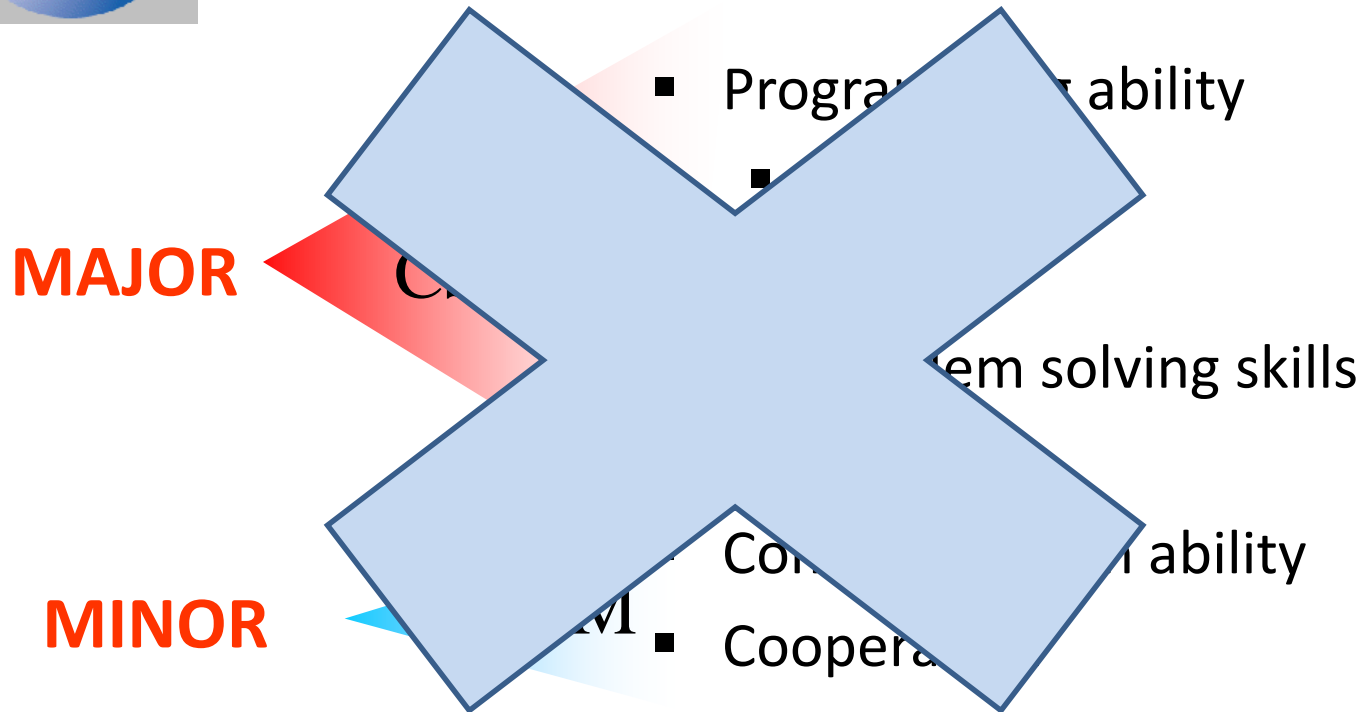








# Traditional Capability Rating

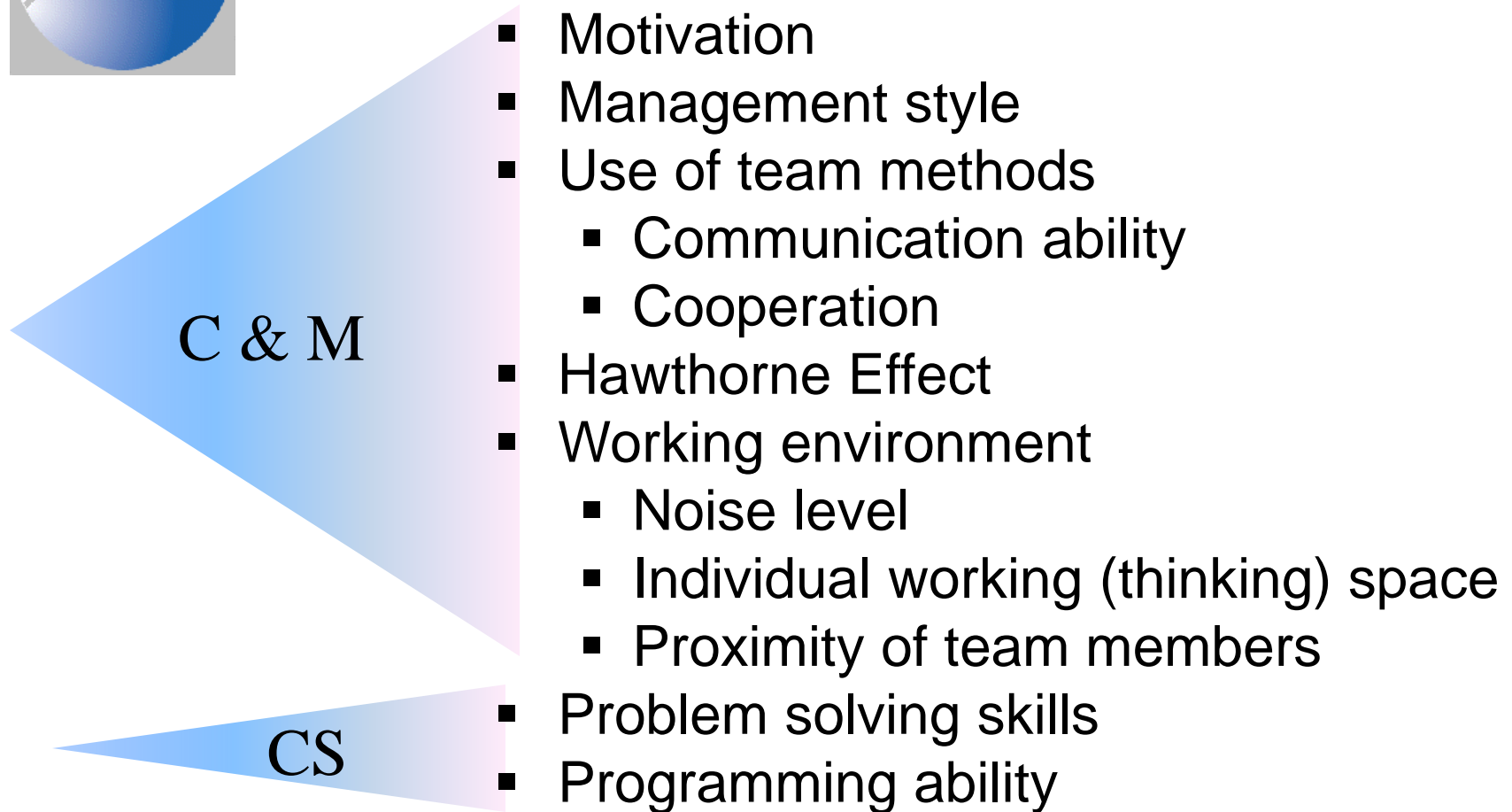


Traditional data does not work for agile development environments





# Effective Capability Rating





# Effectiveness Formula Redux

$$E = CM (CS)$$

where

$E$  = Effectiveness

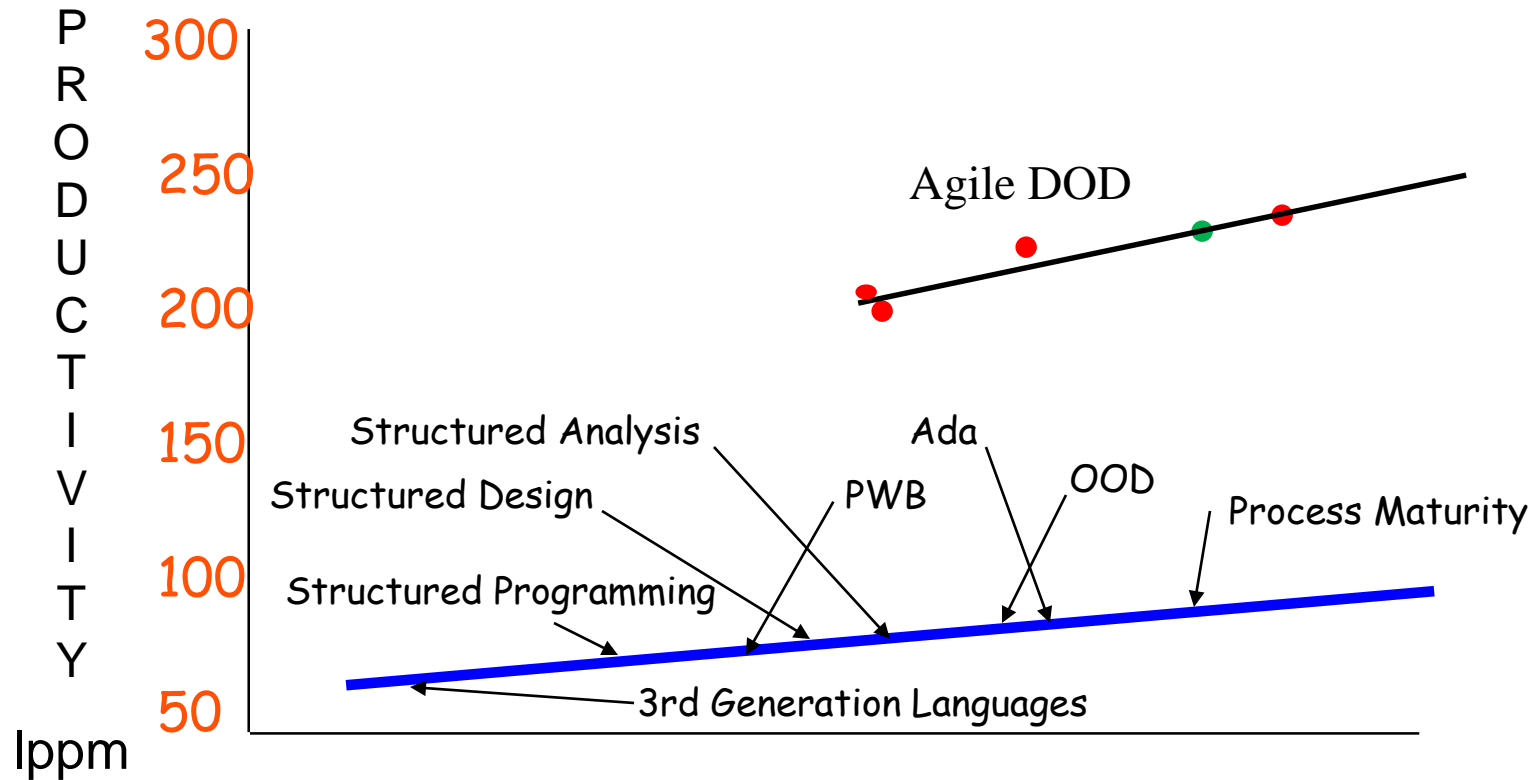
$CM$  = Communications/Management ability (0 – 1)

$CS$  = Software Engineering technical ability (0 – 1)

- Forty five years of validation data !!
- Data does not permit communication – management split



# Software Productivity Gains





Development Component:		Task Name		Basic Estimate	
Complexity, D	12	Cte Calculation			
		Experience			
Effective Size		DEXP	1.00	Development Effort	586.5PM
SLOC, New	80,000	LEXP	1.00	Productivity	140.9SLOC/PM
SLOC, Modified	2,000	PEXP	1.00	Requirements Level	8.0Percent
SLOC, Reused	33,000	TEXP	1.00	Requirements Effort	46.9PM
Size, Total	115,000	Support		Integration Level	22.0Percent
Size, Effective	82,650	PVQL	1.00	Integration Effort	129.0PM
		RLOC	1.00	Total Effort	762.5PM
		Environment			
ACAP	1	DVOL	1.07	Development Schedule	26.2MO
AEXP	1.29	RDED	1.00	Requirements Schedule	7.4MO
MODP	1.1	Management			
PCAP	1	MCLS	1.00	Peak development staff	34.5Pers
RESP	1	MORG	1.00	Peak programming staff	18.5Pers
TOOL	1	MULT	1.00	Max staffing rate	26.2Pers/Yr
TURN	0.87	Product			
		DISP	1.05	Maintenance	
Capability Score	0.19	HOST	1.00	Upgrades (ACT)	10 %/Yr
Percentile Rating	29%	MEMC	1.00	Upgrade Effort	87.2PM/Yr
		QUAL	1.03	Knowledge Retention	88.2PM/Yr
Ctb	4,953	RTIM	1.00	Support level	88.2Pers/Yr
		RVOL	1.07		
Templates		SECR	1.00		
Management		SPEC	1.12		
	3	TEST	1.05		
Product		TIMC	1.00		
	13	TVOL	1.00		
		Cte	3,402		



# Effectiveness Value Rating



Eff Value	Percentile of Industry	Ctb Value
0.1	5.0	
0.17	22.4	4570
0.2	35.2	
0.23	50.0	5707
0.28	57.9	6735
0.3	61.0	7000
0.31	62.5	7350
0.4	75.2	8630
0.45	81.0	9587
0.5	86.0	
1.0	99.9	



# The Next Generation?

- The next generation of software development is already here
  - First organization experiments in “modern management in 1910s (Hawthorne Effect)
  - First evidence of an organization shift is traceable to the mid 1940s (Lockheed Skunk Works®)
- Symptoms of next generation shift
  - Agile Manifesto (2001)
  - Herman Miller Co. introduces new office evolution including movable walls and open workplace forms (2013)
- **New stress on acquisition cost and productivity**



# Caverns of Socrates

*Our job is to escape the cave, look around, then come back and tell others what we have seen . . .*

*Of course, they won't believe us.*

Dennis L. McKiernan, 1995



# Productivity?

