Probability of Detection (PoD)

Variety of NDI Methodologies

S MT

P MT

P PT

S PT

SECI

A PT

BH ECI

LF ECI

PoD

L UT

C X-RAY

SW UT

RT X-RAY

BT

DRT

Probability of Detection (PoD) for NDI

0.100

Variety of Influences on
Inspection Application

Human Factors

Equipment

Inspection Conditions

0.250
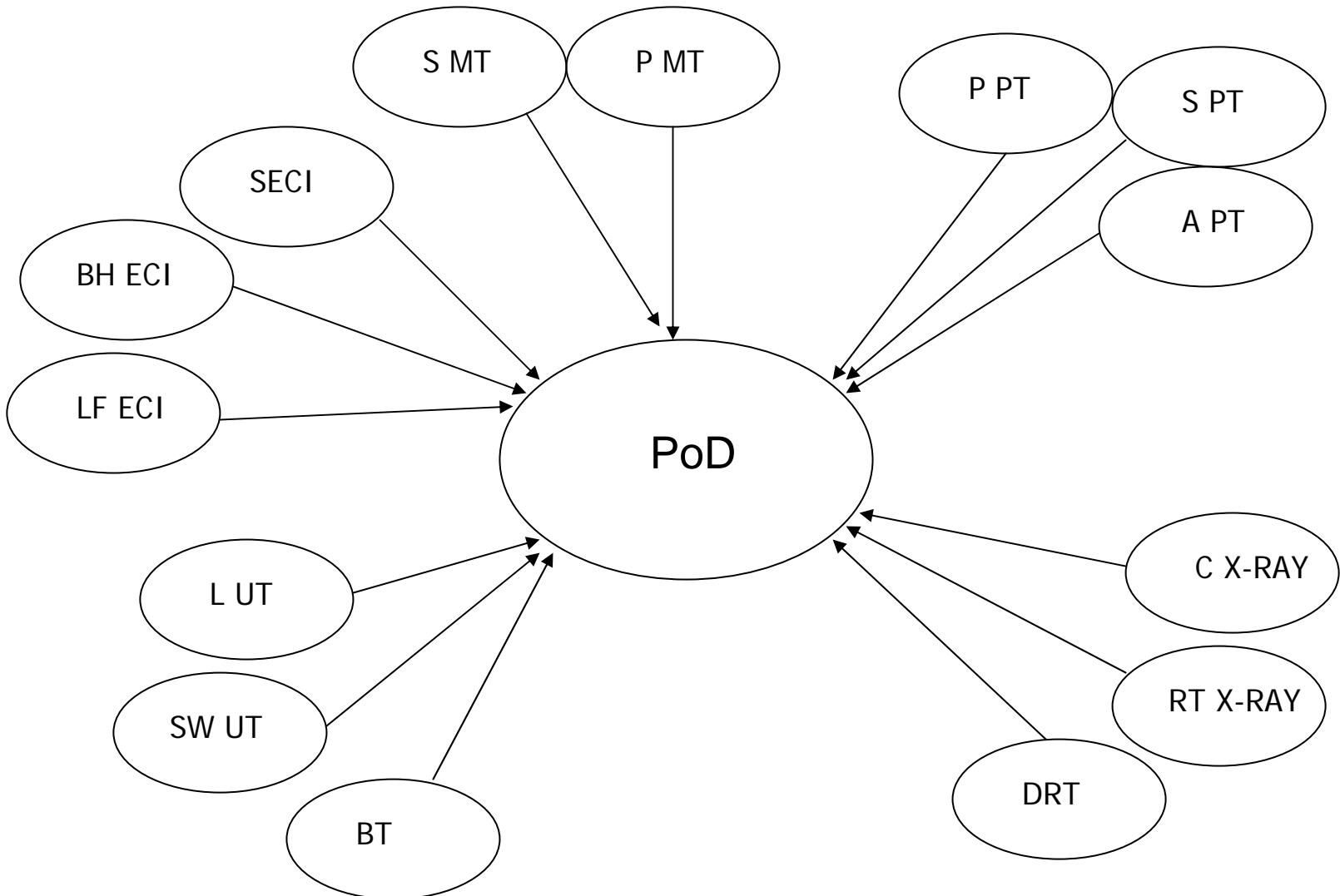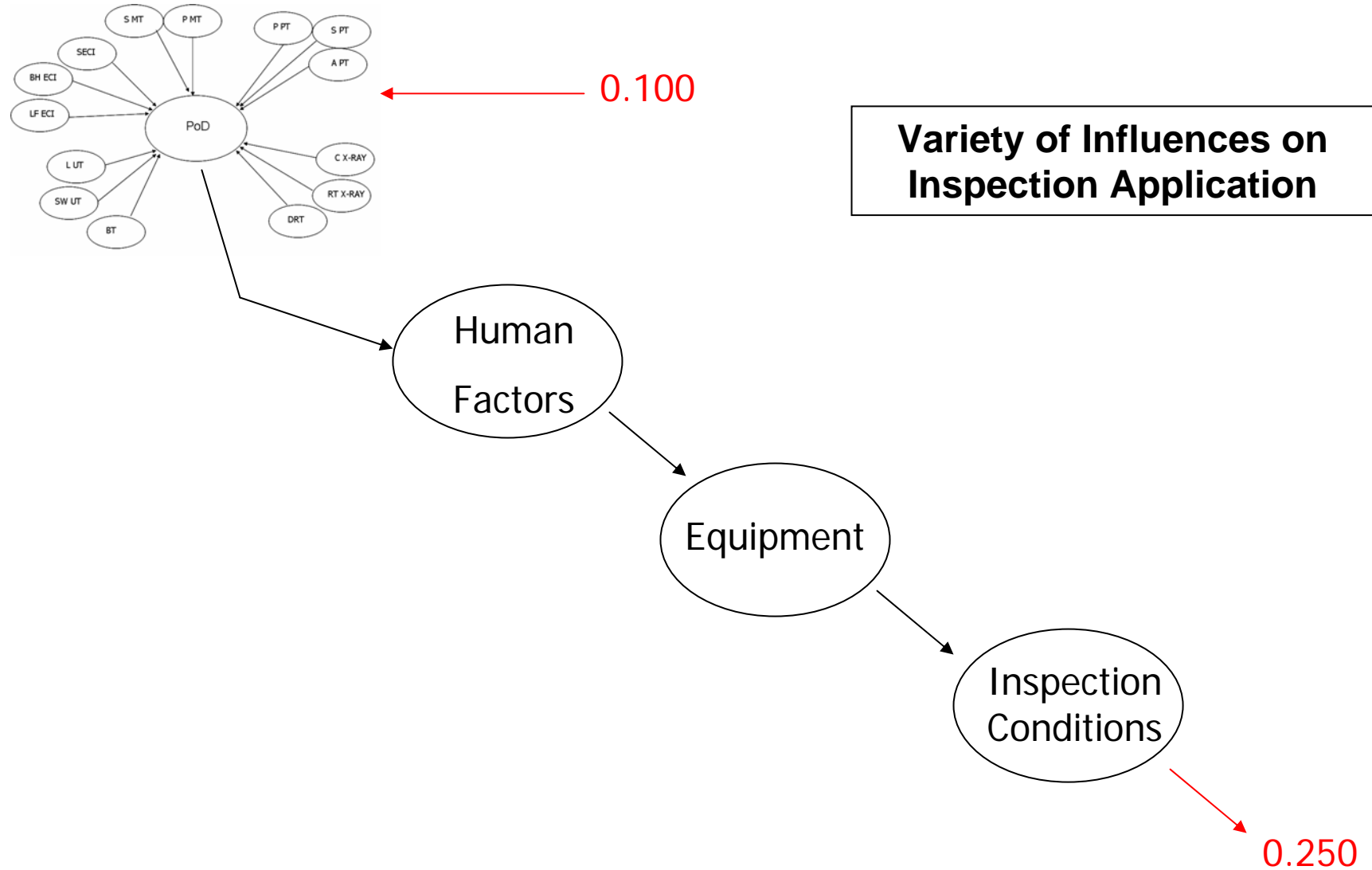
Probability of Detection (PoD) for NDI

Example: Inspection Baseline

Assumptions

-36	IATP Code	Detail Number	Detail Description	1980 DADTA	1996 DADTA	Added	IATP	Acrit	Inspection Interval	Inspection Type/Length	Inspection Hours
		WING LOWER									
7-2-1	4	WL-8-1	FS Lwr Flange Fwd Skin Attach at WS 1036.5				x	0.74	11500 hrs	SEC 0.10"	2.9
7-2-7	38	WL-9	S-2 Runout at WS 1111.5		x		x	1.32	1420 hrs	SEC 0.10"	12.6
7-2-13	39	WL-10-3	Lwr Rear Spar Chord Web Attach, WS 1050		x		x	0.74	3500 hrs	SEC 0.15"	12.6
7-2-19	41	WL-11-3-1	RS Web to Lwr Chord Attach, WS 1055-1085		x		x	0.26	600 hrs	SEC 0.10"	21.4
	2	WM-12	Wing Rear Spar Terminal Ftg				x	1.74	2450 hrs	SEC 0.25"	11.8
7-2-5		WL-14-3-1	Lwr Chord, Spar Web at Ext Tank Attach		x		x	0.14	1850 hrs	BHEC 0.05"	22
7-2-31	42	WL-20-2	S-3 Skin Attach, WS 1029		x		x	0.33	300 hrs	SEC 0.10"	22
7-2-37	43	WL-28-3	RS Lwr Chord to Web Attach, WS 1070-1080		x		x	0.69	3200 hrs	SEC 0.10"	13.6
7-2-43	5	WL-29-1	WS 1072 Skin @ Sftn S-2				x	4.00	S/A WL-29-2	SEC 0.25"	97
7-2-49	44	WL-29-2	S-2 Skin Attach, WS 1072		x		x	0.58	3000 hrs	SEC 0.10"	13.6
7-2-55	45	WL-33-2	S-7 Skin Attach, WS 1072		x		x	0.71	2750 hrs	SEC 0.10"	13.6
7-2-61	6	WL-45-1	RS Lwr Chord at WS 665				x	0.90	12750 hrs	SEC 0.25"	39
7-2-67	1	WL-47-2	S-4 at WS 222				x	0.82	10,000 hrs	SEC 0.25"	13.8

DI	Comments			Degree Difficulty (1-5)		Frequency of Inspection		Frequency of Technique		Combined Estimate Degree of Difficulty	
						1 Easiest and Most Frequent - 5 Most Difficult and Least Frequent					
				1		1		1		1	
				3		2		1			
	Smaller Detectable Possible?			2				1			
				3				1			
	Smaller Detectable Possible?							1			
	Post CX Analysis, CCL = 0.23", T=2400 H			2				1			
				3				1			
				2				1			
				3				1			
				3				1			
				3				1			
	Smaller Detectable Possible?			3				1			
	Smaller Detectable Possible?			3				1			
	Smaller Detectable Possible?			3				1			
	Smaller Detectable Possible?							1			
	Smaller Detectable Possible?			3				1			
	Smaller Detectable Possible?			3				1			
				3				1			
	Smaller Detectable Possible?			3				1			
				1				3			

	R	S	T	U	V	W	X	Y	Z	AA	A
				1 Easiest and Most Frequent - 5 Most Difficult and Least Frequent							
DI	Comments			Degree Difficulty (1-5)		Frequency of Inspection		Frequency of Technique		Combined Estimate Degree of Difficulty	
				1		1		1		1	
				3		2		1			
	Smaller Detectable Possible?							1			
	Smaller Dete										
	Post CX Anal										
	Smaller Dete										
	Smaller Dete										
	Smaller Dete										
	Smaller Dete										
	Smaller Detectable Possible?			3				1			
	Smaller Detectable Possible?			3				1			
				3				1			
	Smaller Detectable Possible?			3				1			
				1				3			

1 – Optimal Inspection Capability

2 – Minor Hinderances

3 – Multiple Inspection Issues

Inspection, Inspector Fatique, Documentation

4 – Confined Spaces/Accessibility Issues

5 – High Sensitivity/Blind/Mirrors