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"So how can I know the Estimate is any good?"

Executive VP

A subset of Best Metrics-Estimating

Bill Hufschmidt CFPS, CQA,

Professional Metrics Consultant

President

Abstract

Do you use Historical, Hysterical or Political Estimating?

Estimate any project in two minutes,

sight unseen, with a guarantee,

as early in the life cycle as

"gleam in the boss's eye!"

(User VP: "Equal chance of winning the lottery or getting an accurate estimate.")

Biography: Bill Hufschmidt

Bill Hufschmidt is President of and Professional Metrics Consultant for Development Support Center, Inc.   Now in their eighteenth year, Bill and the Development Support Center have assisted with the implementation of measurement programs worldwide in over 250 companies and organizations covering over a dozen industries.   His practical experience with metrics includes **proving** multi-million dollar savings. Bill helped establish IFPUG; gave it its name; served multiple terms on the Board and is currently involved with multiple committees. He has been a keynote or featured speaker at, SIM, QAI, ASM, CASMA, CQAA, PSQT, IFPUG, GUIDE, SHARE, IASA, LOMA and other regional, national and international productivity, quality and measurement forums. Bill holds a BA in Economics and has been named to Who's Who in American Business. (CFPS, CQA)

Partial Client List

Ameritech, BellSouth,

Wisconsin Gas, Eckerd Drug,

Dell, GE, NCR, Allied Signal,

US Army, British Airways,

Montgomery County Public Schools,

15 Years, 250+ clients

Objectives

User Benefits

Estimating's Value Add: 10 Dim Metric Model
Development, Maintenance

In House Tools: Rack and Stack,
Productivity Risk Analysis, Leverage, Packages,
Vendor Comp, RFI, Scorecard, Churn, Staffing
Benchmarking – The Third Opinion
Summary

User Benefits

Manage Expectations: BIG Question

Document and Quantify their Requirements, Understand Risk,

Build vs. Buy vs. Outsource

Establish Unit Cost: Inside, Vendor, Package

Improve Estimates: 2nd Opinion

Control Specification Creep

Big Question

Would you like a BIG raise?

What is a BIG raise? $20,000?

What is our Biggest appl? 2nd Biggest?

How BIG is the project?

How BIG is our biggest success?
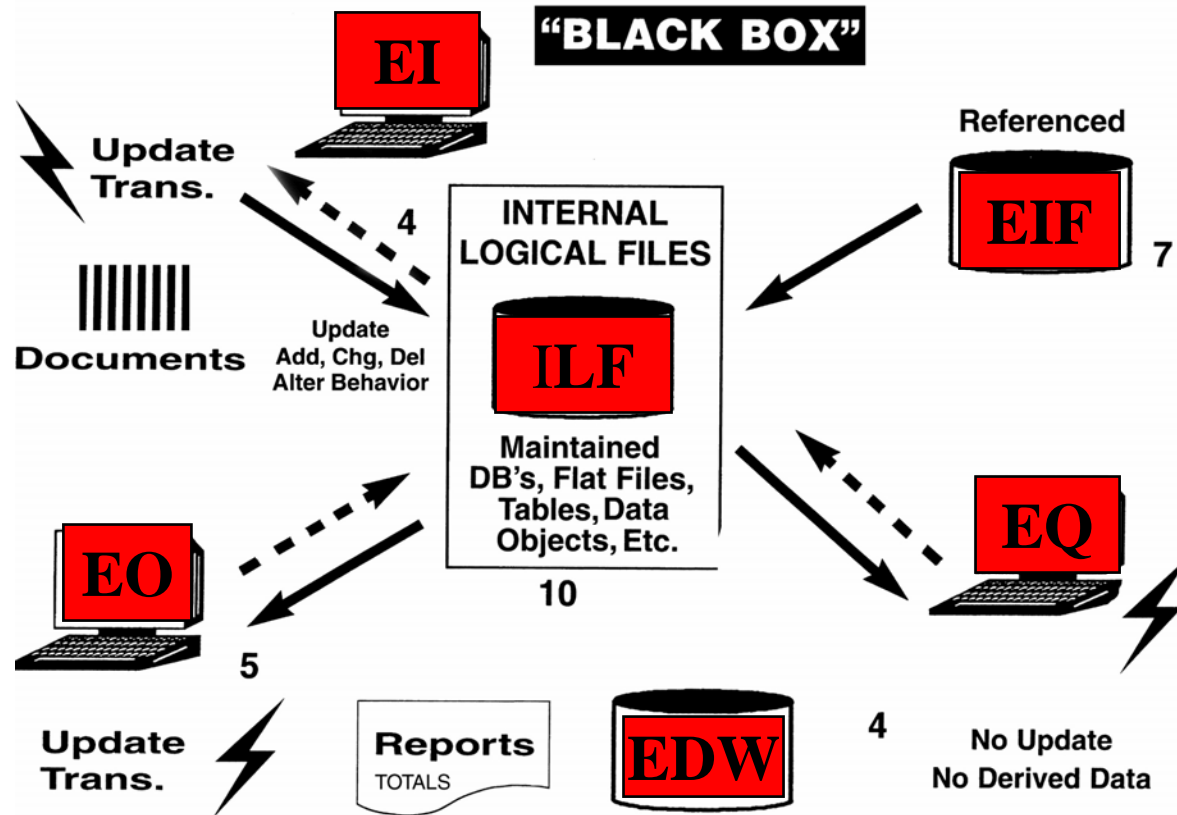
How BIG is an outsourced success?

…

Function Point Model

A Quick Review of the

Function Point Model

Without Function Points, You're Just Another Opinion!

Function Points: An Independent, Objective, Quantified, Consistent, Auditable measure of the size and complexity, of an application, based upon the User's view.

Function Point- A measure which represents the functional size of application software. (Glossary)

10 Dimensional Model

A Quick Review of the

10 Dimensional

Integrated Software

Measurement Model

Replacing Opinions with Facts!

Doing Things Right and Doing The Right Things!

Mission Critical Goals (Strategic Importance)

Usage (Leverage)

Customer Satisfaction (Value)

People (Service Level Agreement)

CMM, TQM, ISO, Baldrige

Function Points

Time

Productivity & Estimating (Development/Maintenance)

Staffing (Build/ Buy/ Outsource)

Cost (ROI & Risk Analysis)

Defects (Quality Index)
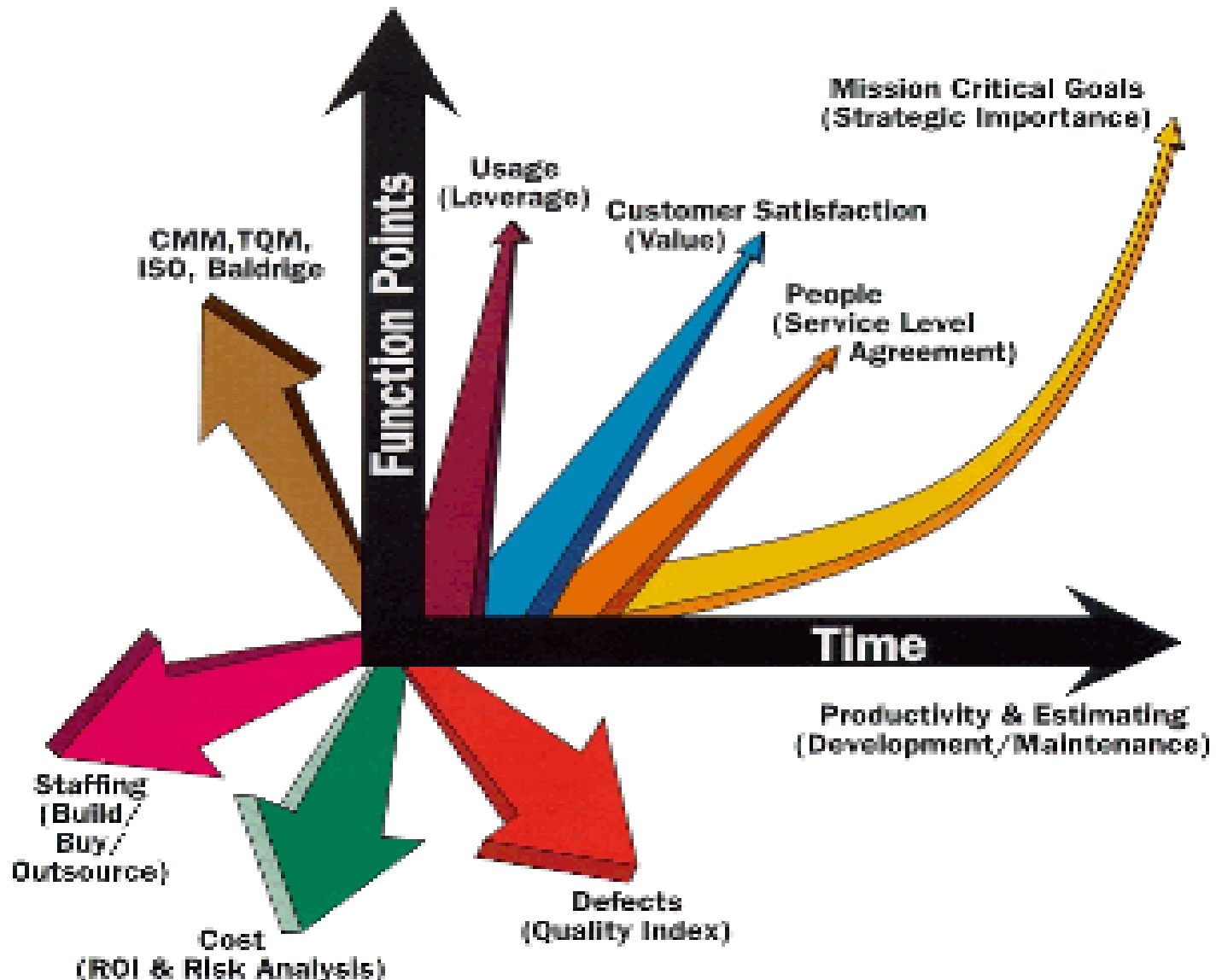
FP Model Management by Delta

Productivity = Output/Input

Delivery Rate = FP/WM, where 1WM=130 applied hours

$\quad$ 25 ⟶ 30 = 20%

$\quad$ 5 ⟶ 6 = 20%

Maint/Support= HRs/IFP

$\qquad$ = 1000/1000 = 1.0

$\qquad$ = 900/1000 = .9

$\qquad$ = 900/1100 = .78 = 22%

Hardware/Software/People/Requirements (H/S/P/R)

$\quad$ **People** = Staff, Users, Management

Estimating - Unit Costs

- **Development (Diff Rates for Diff Sys)**
- **Enhancements**
- **Testing**
- **Roll Out (Leverage)**
- **Help Desk**

Estimating with Guarantee

Gleam	Req	DtlDsgn	Implement
(WAG)	(SWAG)	(Count)	(Update)

1000...........................1500............1650

In	10Low		
Out			15High
Inq		15Avg	15High
Files	6Low		
Inter	3Low		

1000/25 = 40 Work Months
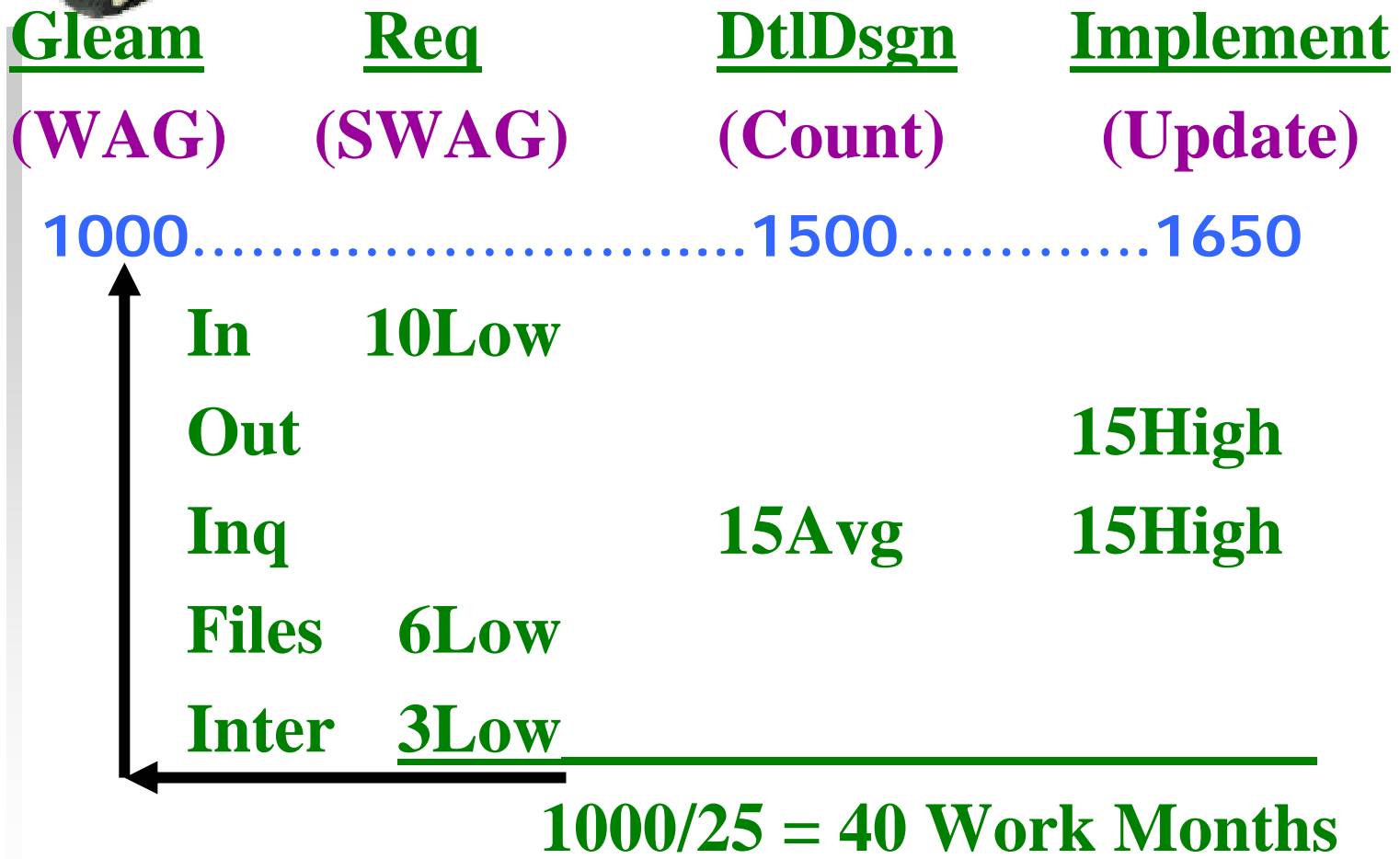
Rack and Stack

System	FP	VAF	Del Rate (FP/WM)	Maint Rate (HRS/IFP)	Maint* Rate Change
A	3004	1.15	20	1.5	(1%)
B	32,500	1.05	6	1.8	15%
C	3325	1.10	25	1.1	(30%)
D	3894	1.00	10	1.0	(25%)
E	8100	0.95	11	1.2	(20%)

*Maint Rate Change or Del Rate Change or ...

Rack and Stack (Size)

System	FP		VAF	Del Rate (FP/WM)	Maint Rate (HRS/IFP)	Maint Rate Chng
B	32,500					
E	8100					
D	3894					
C	3325					
A	3004					

Rack and Stack (VAF)

System	FP	VAF	Del Rate (FP/WM)	Maint Rate (HRS/IFP)	Maint Rate Chng
A		1.15			
C		1.10			
B		1.05			
D		1.00			
E		0.95			

Rack and Stack (Del Rate)

System	FP	VAF	Del Rate (FP/WM)	Maint Rate (HRS/IFP)	Maint Rate Chng
C			25		
A			20		
E			11		
D			10		
B			6		

Rack and Stack(Maint Rate)

System	FP	VAF	Del Rate (FP/WM)	Maint Rate (HRS/IFP)	Maint Rate Chng
D				1.0	
C				1.1	
E				1.2	
A				1.5	
B				1.8	

Rack and Stack (Change)

System	FP	VAF	Del Rate (FP/WM)	Maint Rate (HRS/IFP)	**Maint Rate Chng**
C					**(30%)**
D					**(25%)**
E					**(10%)**
A					**(1%)**
B					**15%**

Rack and Stack

80/20

Perception / Profit$

Productivity Risk Analysis

H/S/P/R

Thumbs Up

Neutral

Thumbs Down

Leverage, Business Impact

Initial Impact (after one month):

**1000 FP x 100 agents (usage factor)
= 100,000 Leveraged Function Points
(LFP)**

Penetration: 100 agents/500 agents = 20%
**Projected Impact: 1000 FP x 500 agents
= 500,000 LFP**

Leverage (cont)

In Progress Impact (after eight months):

1200 FP x 350 agents = 420,000 LFP

This is a 20% greater impact than expected.

In Progress Penetration:

350 agents/510 agents = 70.5%

Leverage (cont)

Actual Final Impact

    (at 12 months after full implementation):

1300 FP (incl 100 extra Function Points

        during final 4 months)

x 525 agents (100% Penetration but now

        525 agents)

682,500 LFP

Leverage (cont)

Actual Final Impact

682,500 LFP (actual final impact)

/500,000 LFP (orig projected impact)

= 1.365

Change = 36.5% greater impact than ever expected

How

FastPath Package Process

Current	A	$
5000	**3000**	**1.0M/3000=333**

B

	5000	**1.2M/5000=240**

0 - 1000 Small
- 2500 Med
+ Major

C

	7000	**1.4M/7000=200**

How - Who?

Fastest, Cheapest, Highest Consistency

Appl   FP
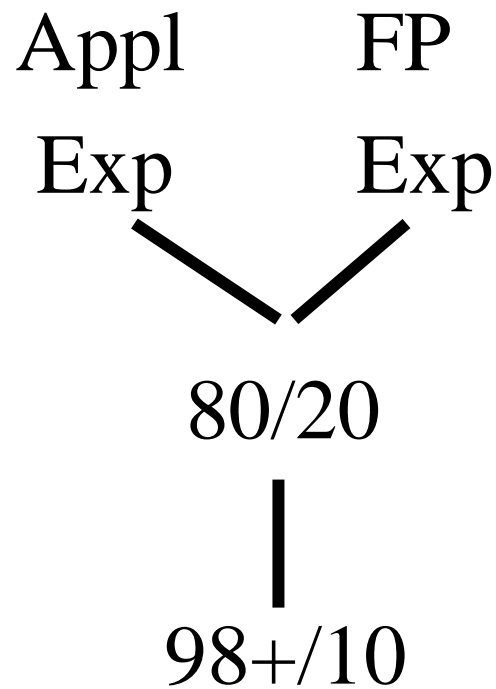
Exp   Exp

80/20

98+/10

How, Who - Packages

Highest Consistency

Appl	FP	User	Mgmt
Exp	Exp	Exp	

80/20

98+/10

How - Bill Square

CURRENT   **$Y/FP**

85% *   **$X/FP**

PKG   **$Z/FP**
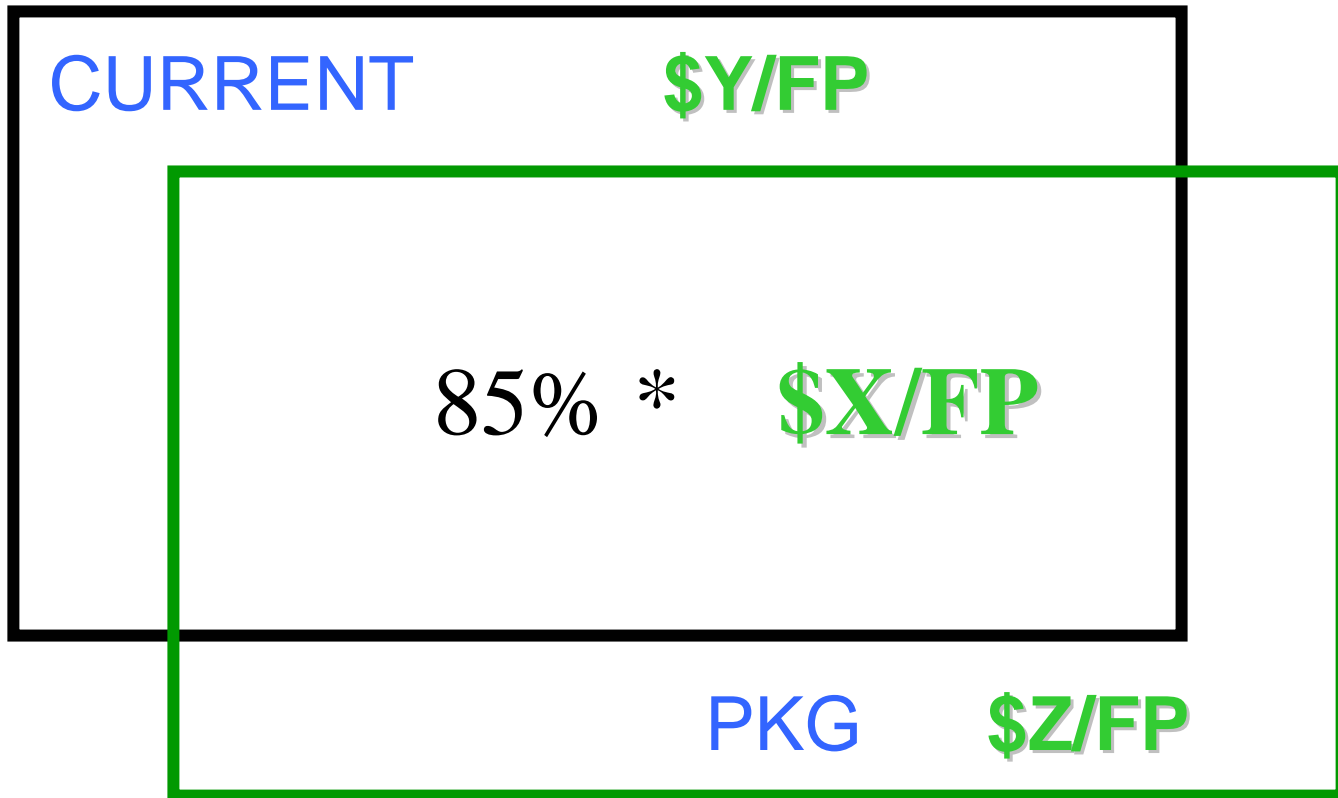
* Use in Negotiating Price

How, When (Vendor Comp)

	Vendor A	Vendor B
Cost per Hour	75	50
Hours to Develop	40,000	60,000
Total Cost	3,000,000	3,000,000
Function Points	4,000	2,000
Hrs per FP (Prod)	10	30
Norm Cost per FP	750	1,500

Results-New RFI Process

Page 1- Who you are. What your environment is. What your problem is.

Page 2- Supplier, What is your expertise, experience and track record in this area.

Page 3- Supplier, What is your Function Point Unit Cost?

- Development

- Enhancements

- Roll Out

- Help

Results-Balanced Scorecard

Productivity – Release	**22.4 FP/WM**	
Productivity	**Install Hrs,**	**Incl $+Hrs**
Major Project	**125 FP/WM,**	**59 FP/WM**
Major Project	**132 FP/WM,**	**82 FP/WM**
Major Project	**554 FP/WM,**	**75 FP/WM**
Staff	**+22%**	

Staff Support Rate   **1485FP/Person (FTE) to**
2382FP/Person =+60%

Actual Cost	**+10%**
Unit Cost	**$53/FP to $30/FP = -43%**
TOP Index	**103%**

Estimating Maintenance

Year **Hours** **Chg**

1   27,113

2   29,557   **9.0**

Estimating Maintenance

Sys-Yr	Maint Hrs	% Chg	Fun	% Chg	MH/IFun	% Chg
Customer						
1	11,957		14,596		819	
2	12,555	5%	14,896	2.5%	840	2.5%
Inventory						
1	10,000		12,895		775	
2	10,500	5%	13,540	5%	775	0%
Accounting						
1	5156		7,335		702	
2	6502	26%	8,802	21%	738	5%
Total						
1	27,113		34,826		779	
2	29,557	9%	37,238	7%	794	2%

Estimating Maintenance

Sys-Yr	Maint Hrs	Fun	MH/Ifun	Lev Fun	MH/LFun	M$/LFun
Customer						
1						
2	5%	2.5%	2.5%	31%	-26%	-21%
Inventory						
1						
2	5%	5%	0%	25%	-20%	0%
Accounting						
1						
2	26%	21%	5%	21%	5%	-40%
Total						
1						
2	9%	7%	2%	28%	-19%	-21%

Estimating Maintenance

Chart: Quality Effects

- Maint Hrs: 9%
- Fun: 7%
- MH/IFun: 2%
- MH/LFun: -19%
- M$/LFun: -21%

Y-axis: 15%, 10%, 5%, 0%, -5%, -10%, -15%, -20%, -25%

X-axis label: **Quality Effects**
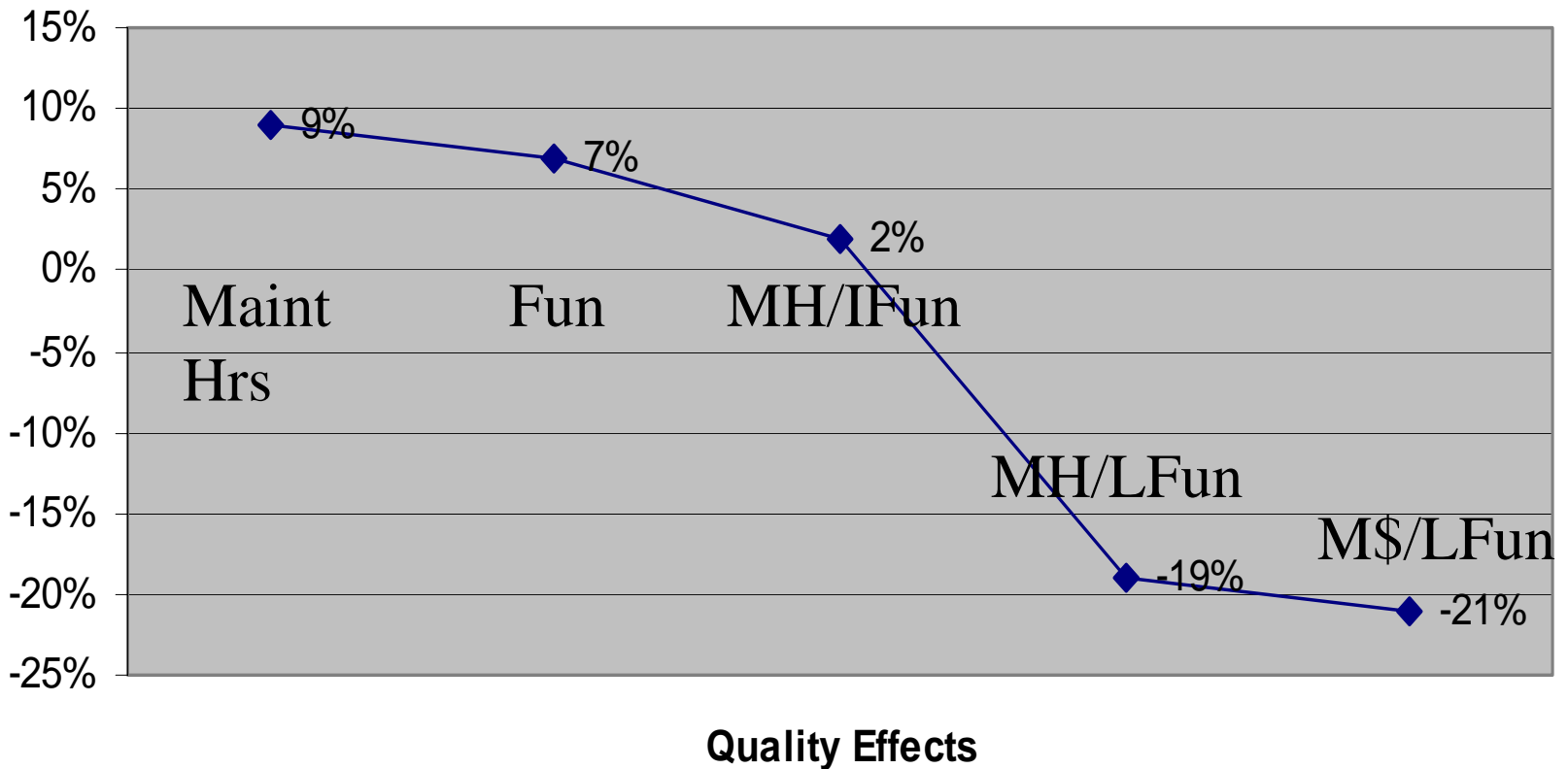
Estimating Churn

Churn = 1 − (Fun Added / Fun Worked)

= 1 − (50 / 250)

= 1 − (.2) = .80 = 80%

Mandatory: Legal, Regulatory, Corporate, Political

Increase Sales or Market Share

Increase Efficiency (Cash Flow, Cost, Cycle Time)

Increase Customer Satisfaction

Future Investment

Staffing Support Rate

Overstaffed, Understaffed or properly staffed?

Dept	Yr	Staff	Fun	Fun/FTE	Chg
A		25			
B		40			
C		60			

Staffing Support Rate

Dept	Yr	Staff	FP	FP/FTE	Chg
A	1	25	50,000	2,000	
B	1	40	80,000	2,000	
C	1	60	90,000	1,500	

Staffing Support Rate

Dept	Yr	Staff	Fun	Fun/FTE	Chg
A	1	25	50,000	2,000	
	2	25	55,000	2,200	10%
B	1	40	80,000	2,000	
	2	36	88,000	2,444	22.%
C	1	60	90,000	1,500	
	2	62	92,000	1,484	(1.1%)

Benchmarking

IFPUG- ICEBAGS – The Third Opinion

Shelfware

Summary

Estimating Sunday's score is easier on Monday.

Without Function Points, You're Just Another Opinion!

Estimating with a Guarantee!