

**DEVELOPMENT SUPPORT CENTER, INC.**

**People Leveraging Technology**

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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)



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# 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: 2<sup>nd</sup> Opinion**

**Control Specification Creep**



# Big Question

**Would you like a BIG raise?**

**What is a BIG raise? \$20,000?**

**What is our Biggest appl? 2<sup>nd</sup> Biggest?**

**How BIG is the project?**

**How BIG is our biggest success?**

**How BIG is an outsourced success?**

...



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# Function Point Model

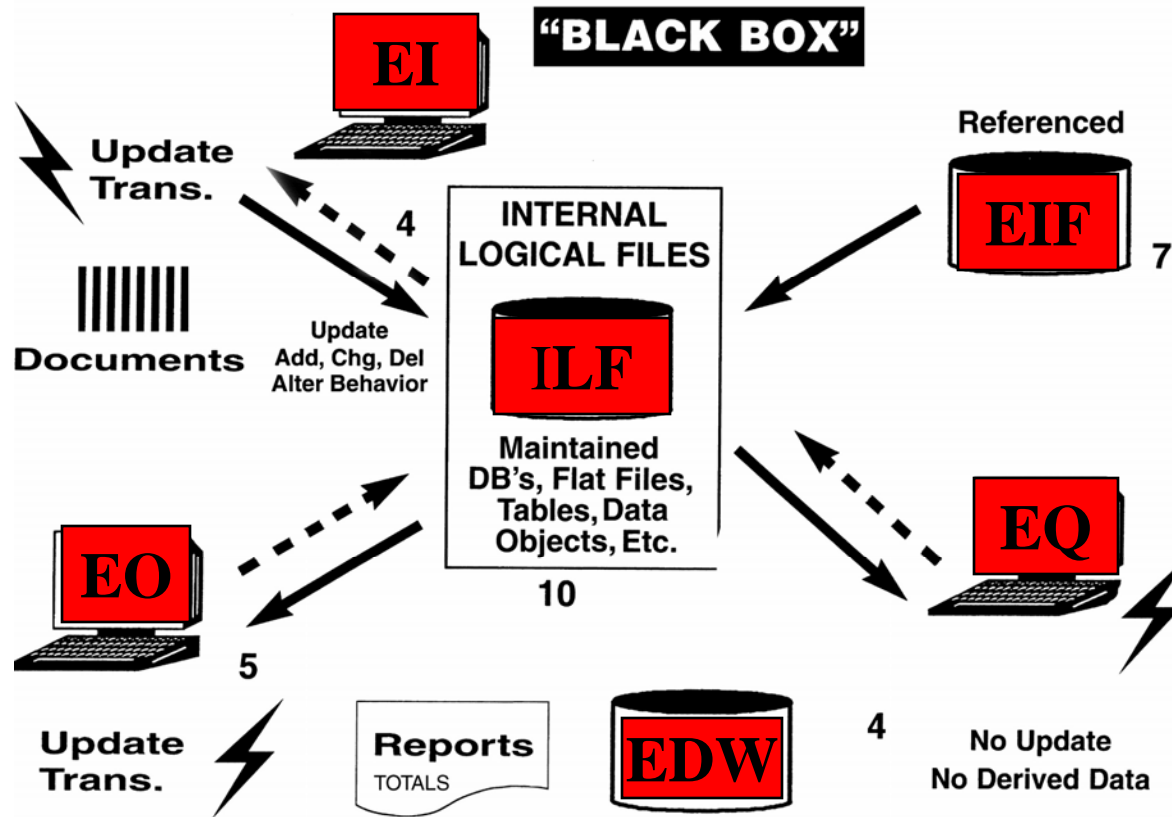
## A Quick Review of the Function Point Model

**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)



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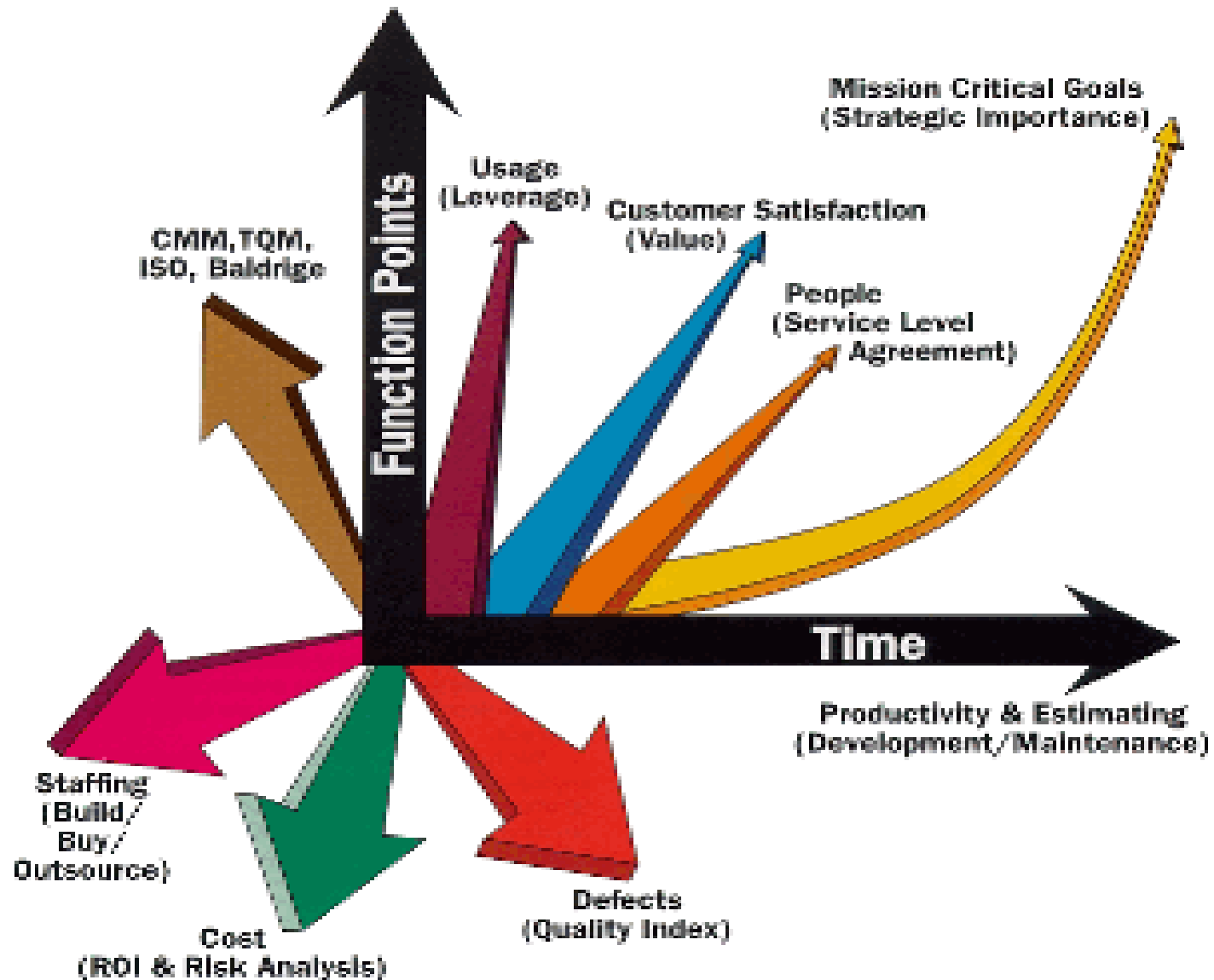
# 10 Dimensional Model

## A Quick Review of the 10 Dimensional Integrated Software Measurement Model

**Replacing Opinions with Facts!**



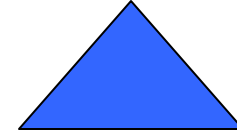
# Doing Things Right and Doing The Right Things!



September 20



# FP Model



## Management by Delta

**Productivity = Output/Input**

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

**25 → 30 = 20%**

**5 → 6 = 20%**

**Maint/Support = HRs/IFP**

**= 1000/1000 = 1.0**

**= 900/1000 = .9**

**= 900/1100 = .78 = 22%**

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

**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

<u>System</u>	<u>FP</u>	<u>VAF</u>	<u>Del Rate</u> (FP/WM)	<u>Maint Rate</u> (HRS/IFP)	<u>Maint*</u> 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)

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





# Rack and Stack (VAF)

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



# Rack and Stack (Del Rate)

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



# Rack and Stack(Maint Rate)

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



# Rack and Stack (Change)

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



# 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

$1.0\text{M}/3000=333$

B

5000

$1.2\text{M}/5000=240$

C

7000

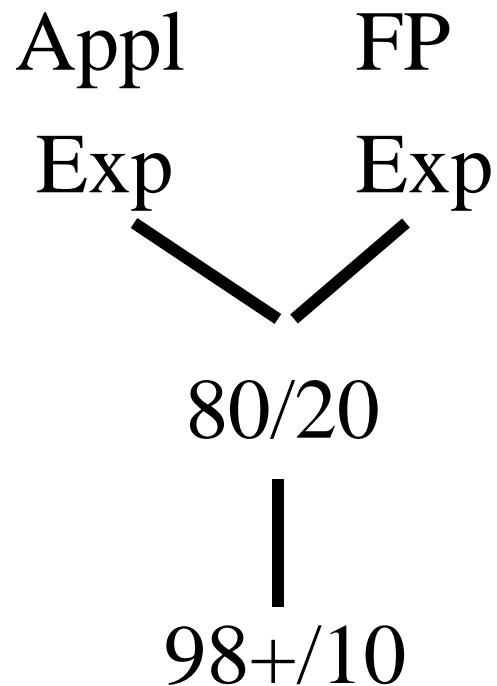
$1.4\text{M}/7000=200$

0 - 1000 Small  
- 2500 Med  
+ Major



# How - Who?

Fastest, Cheapest, Highest Consistency





# How, Who - Packages

Highest Consistency

Appl          FP          User          Mgmt

Exp          Exp          Exp



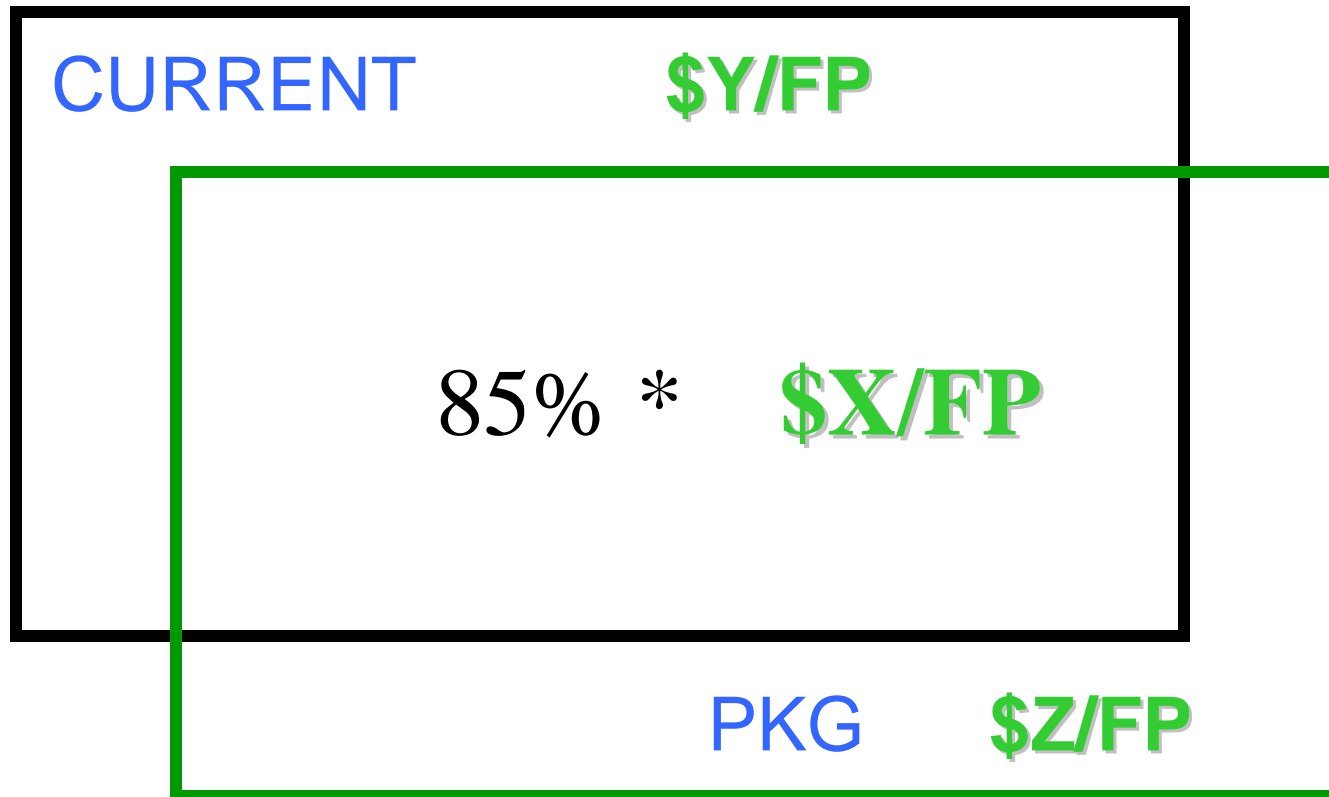
80/20



98+/10



# How - Bill Square



\* Use in Negotiating Price



# How, When (Vendor Comp)

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



# 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

<u>Year</u>	<u>Hours</u>	<u>Chg</u>
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1	27,113	
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2	29,557	<b>9.0</b>
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# 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%

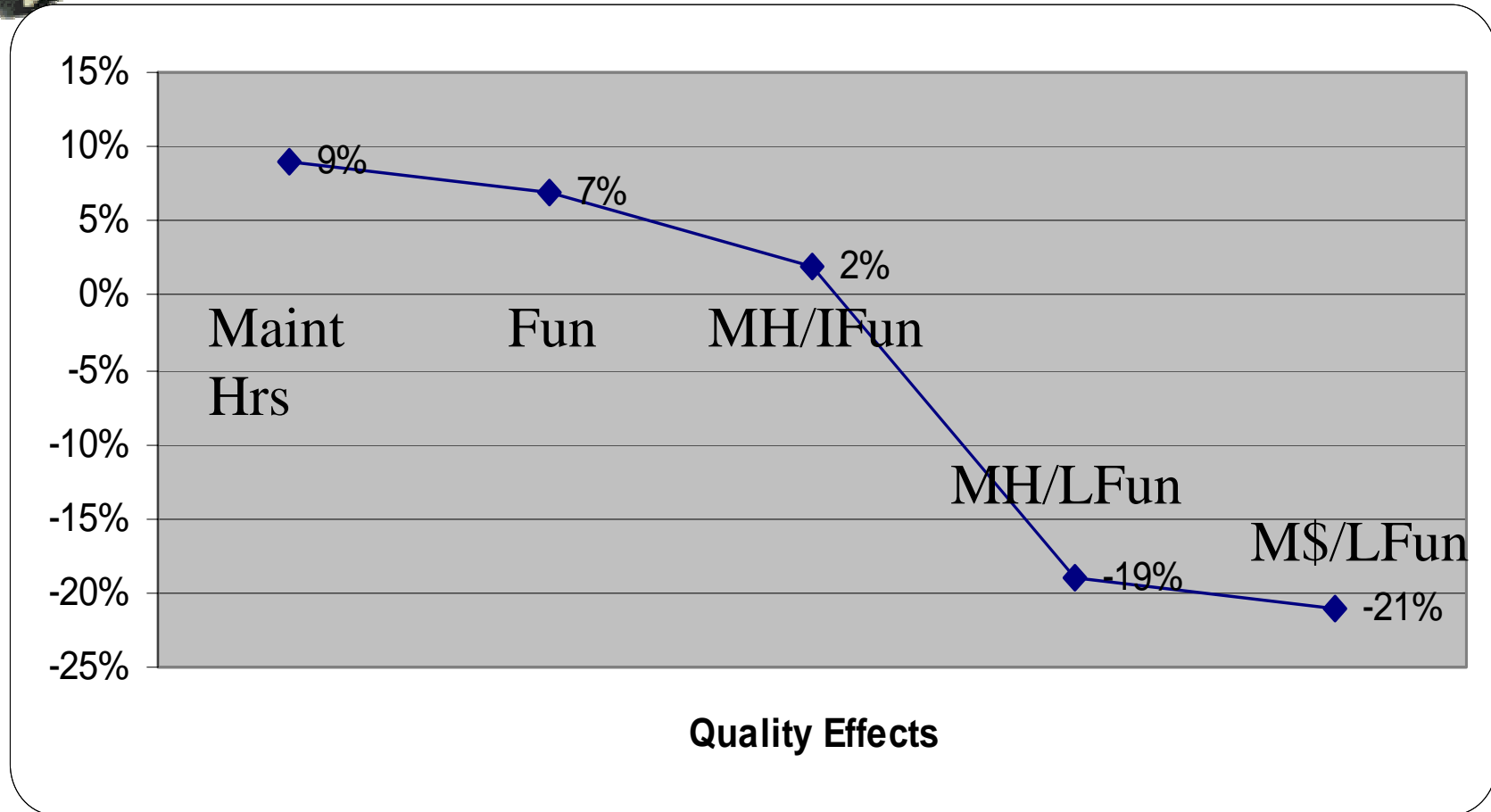


# Estimating Maintenance

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





# Estimating Churn

$$\begin{aligned}\text{Churn} &= 1 - (\text{Fun Added} / \text{Fun Worked}) \\ &= 1 - (50 / 250) \\ &= 1 - (.2) = .80 = 80\%\end{aligned}$$

**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

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





# Staffing Support Rate

<b>Dept</b>	<b>Yr</b>	<b>Staff</b>	<b>Fun</b>	<b>Fun/FTE</b>	<b>Chg</b>
<b>A</b>	<b>1</b>	<b>25</b>	<b>50,000</b>	<b>2,000</b>	
	<b>2</b>	<b>25</b>	<b>55,000</b>	<b>2,200</b>	<b>10%</b>
<b>B</b>	<b>1</b>	<b>40</b>	<b>80,000</b>	<b>2,000</b>	
	<b>2</b>	<b>36</b>	<b>88,000</b>	<b>2,444</b>	<b>22.0%</b>
<b>C</b>	<b>1</b>	<b>60</b>	<b>90,000</b>	<b>1,500</b>	
	<b>2</b>	<b>62</b>	<b>92,000</b>	<b>1,484</b>	<b>(1.1%)</b>



# Benchmarking

## IFPUG- ICEBAGS – The Third Opinion

### Shelfware



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## Summary

**Estimating Sunday's score is  
easier on Monday.**

**Without Function Points,  
You're Just Another Opinion!  
Estimating with a Guarantee!**