



# Billing by Function Points: Pitfalls to Avoid and Issues to Consider

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## ❖❖ Objectives

### Billing by Function Points

- Discuss the benefits
- Highlight problematic issues
- Outline the first steps
- Present a case study

# ⋮⋮⋮ Agenda

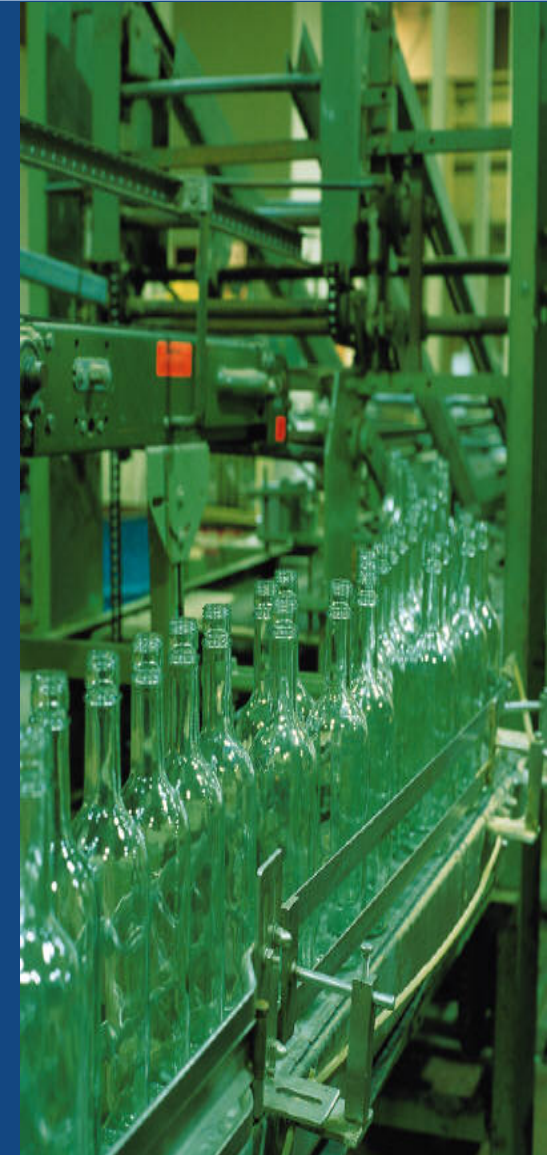
## ➡ Benefits

- Required Foundations
- Contract Considerations
- Pitfalls and Issues
- Preparations
- Case Study: ACME Corporation
- Conclusions

## ☼☼☼ Benefits

### How does the client benefit?

- Lifecycle costs can be predicted early in the life of the project
- Buy vs. build analysis
- Schedule risk analysis
- Alternative/ break even analysis
- Calculate actual lifecycle costs vs. estimated costs
- Useful information when bidding




## Benefits



### How does the service provider benefit?

- Increased productivity can increase profit margins
- Greater control of projects
- Increased customer satisfaction
- Improved scope and change management

# Agenda

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## Required Foundations

### **Cost of delivery from recently completed projects (12 – 24 months)**

- Productivity rates
- Function point counts
- Effort data
- Complete and comprehensive system documentation
- FP validation/audit process

# Required Foundations



## Client discipline

- High quality requirements
- Quick response
- Stable requirements / rigorous change management
- Define service level agreement metrics
- Steady flow of work




## Required Foundations

### Service provider discipline

- Development teams use mature processes
- Development process that has function points ingrained
- Certified function point counters with formal, consistent method of counting
- Development teams experienced in estimating using function points
- Historical data available (local and industry)
- Lessons learned process in place

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# Contract Considerations

## Non-functional services

- Hardware
- Infrastructure
- Software
- Technical and quality requirements
- Project development and requirements analysis
- Set up of development environment (compilers, testing tools, etc.)



## Contract Considerations

### Non-functional services (cont.)

- Sizing in function points, verifying counts
- Configuration of COTS systems
- Project proposal, business case development, and requirements analysis
- User training
- Help desk
- Adaptive, perfective, and corrective maintenance

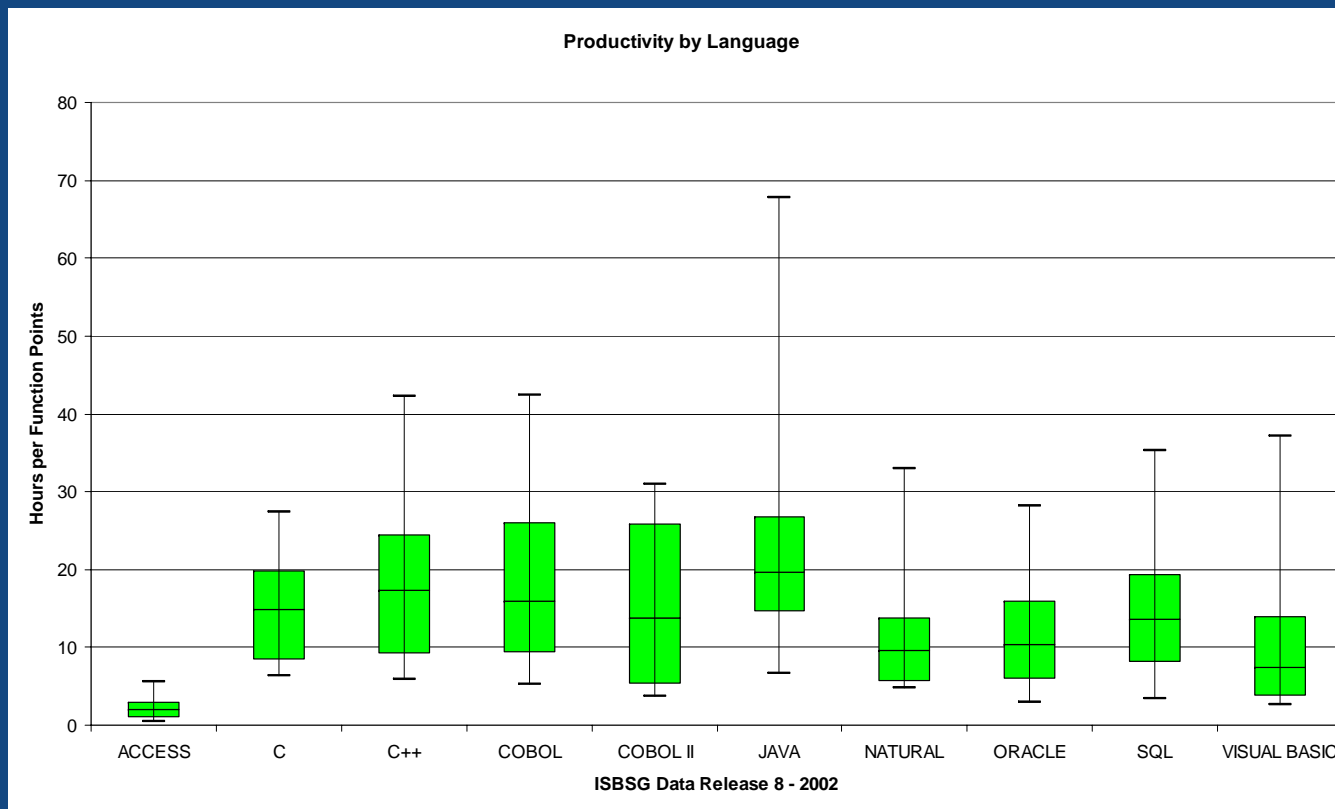
# Contract Considerations

## Billing adjustments

- Cost adjustment for new technology, platform or software
- Surcharge for schedule delays
- Surcharge for schedule compression
- Different billing rates based on project type, size, application complexity and other project characteristics

# Contract Considerations

## Industry productivity variation by language




## Contract Considerations

### Constraints on the client and service provider

- Separating functional and non-functional services makes billing more complex
- Multiple billing rates adds to billing complexity
- Variation in productivity between projects will require careful setting of rates
- Ability to negotiate delivery date
- Volatility of new technology

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## ⋮⋮ Pitfalls and Issues



### Where can some pitfalls appear?

- Roles, responsibility and accountability
- Scope
- Flexibility
- Controlling costs

## ❖❖❖ Pitfalls and Issues

### **Roles, Responsibility and Accountability**

#### **Pitfall to avoid:**

Accountability for success of billing by function points not specifically assigned

#### **Issues to consider:**

- Who will size the applications and projects?
- Who will validate the counts?
- Who is responsible for making billing decisions for disputed activities?
- Who will minimize cost adjustments?

# ⋮⋮ Pitfalls and Issues

## Scope

### **Pitfall to avoid:**

Unclear definition of the activities being billed by function points

### **Issues to consider:**

- Non-functional services
- Types of projects
- Regression testing
- Involvement in User Acceptance Testing

# ❖❖❖ Pitfalls and Issues

## Flexibility

### Pitfall to avoid:

Inflexible definition of functional requirements

### Issues to consider:

- Resolve disputes of requirements not clearly functional, quality or technical
- Resolve gray areas in functional services and non-functional services
- Re-evaluate billing rates periodically based on actual performance

# ⋮⋮ Pitfalls and Issues

## Controlling costs


### Pitfalls to avoid:

One partner accepting all the cost risks

### Issues to consider:

- Both the client and service provider affect costs
- Handling deviation from original requirements and assumptions
- Handling cancelled projects
- Package work for optimal productivity
- Profit and loss

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# Preparations



## Getting started

- Clearly defined scope, roles, responsibilities, billing rates, and non-functional services
- Current size and productivity measures of supported systems
- Application maintenance complexity
- Characteristics of the project
- Stable workload
- Procedures for periodic review of productivity baselines

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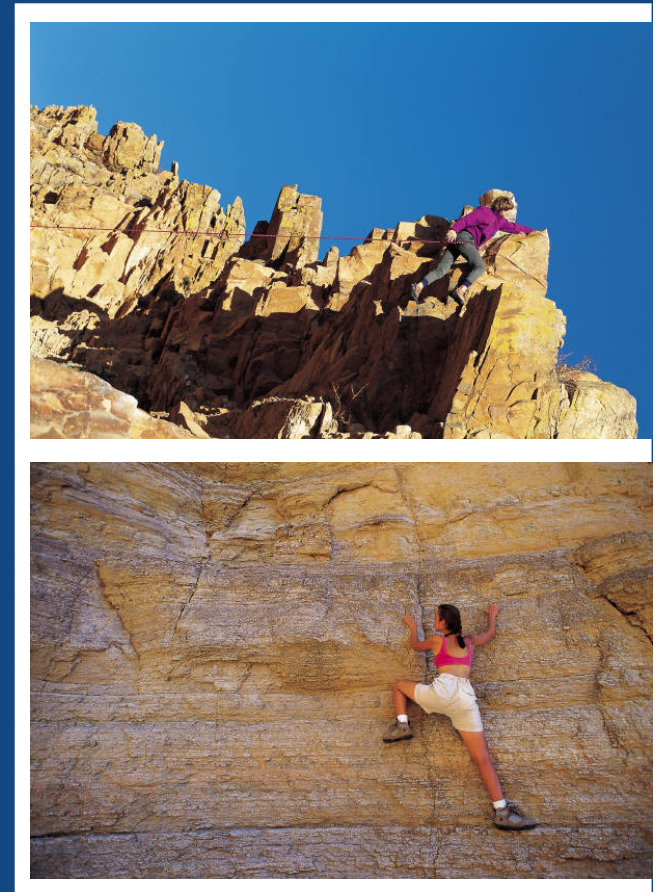
## Case Study

*ACME Corporation*

## Case Study

### ACME current problems

- Need to reduce costs
- Time & material vs. HR legal issues
- Lack of agility due to too many RFPs





## Case Study

### ACME renewal requirements

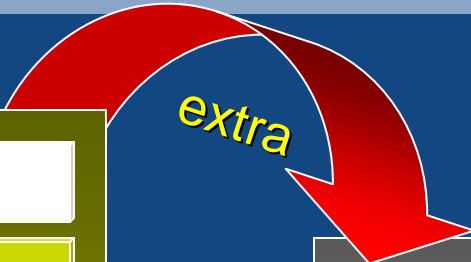
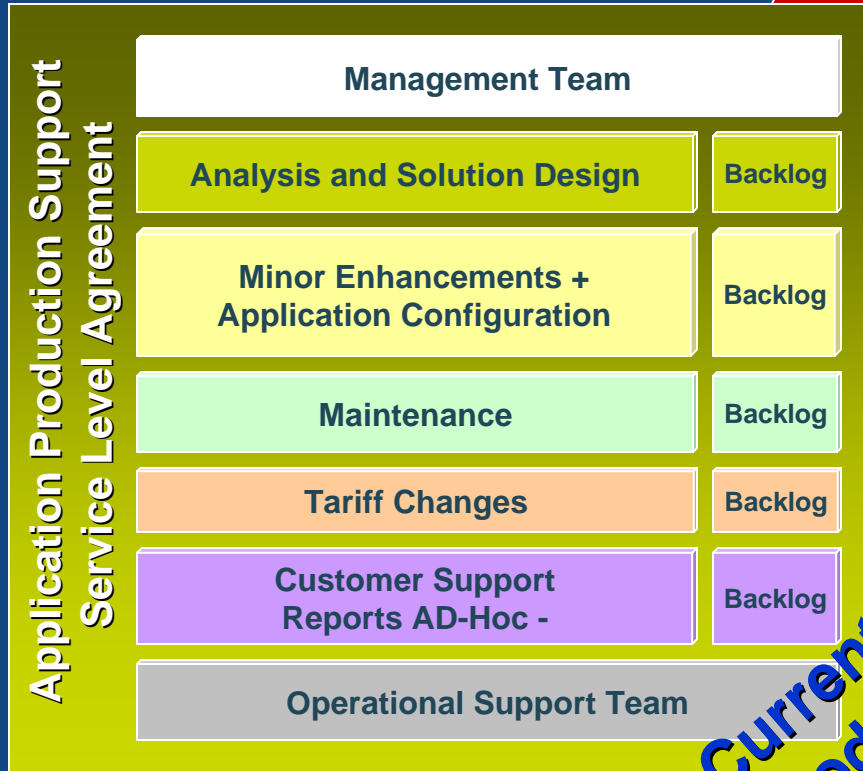
- Change from time and material to Function Points (Purchasing Department)
- Reduce cost and increase agility for new projects (Purchasing Department and IT)
- Propose new model to renew current contract and avoid an RFP for the same services
- Align with ACME Factory Software Model
- One supplier to support all application services (umbrella contract)
- Year-over-year cost reduction



# BAU – Business as Usual

ACME / Service Provider  
New Software Factory Environment  
Under an umbrella 36 months contract !

Application Requirements



Extra-Capacity Add-On  
Price per Service



Current Model

New Additional Model

Permanent Maintenance Team  
Fixed Capacity



## Case Study

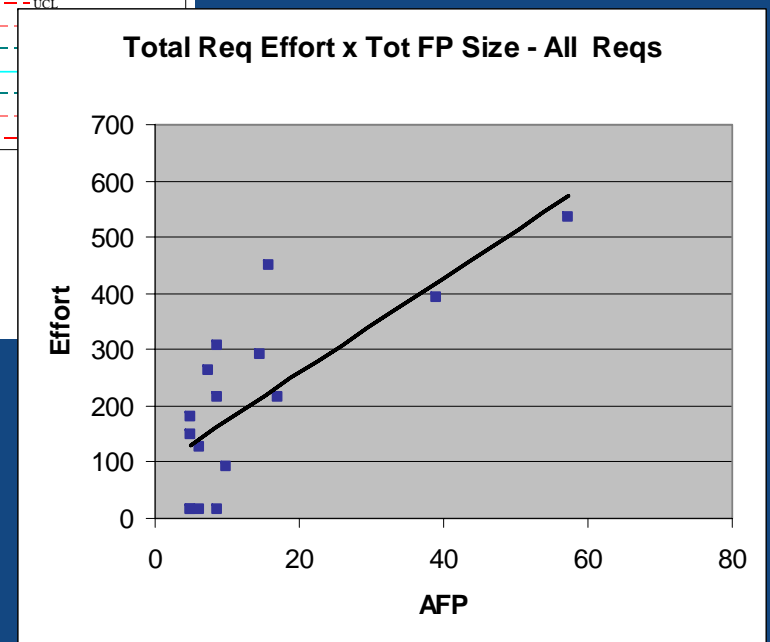
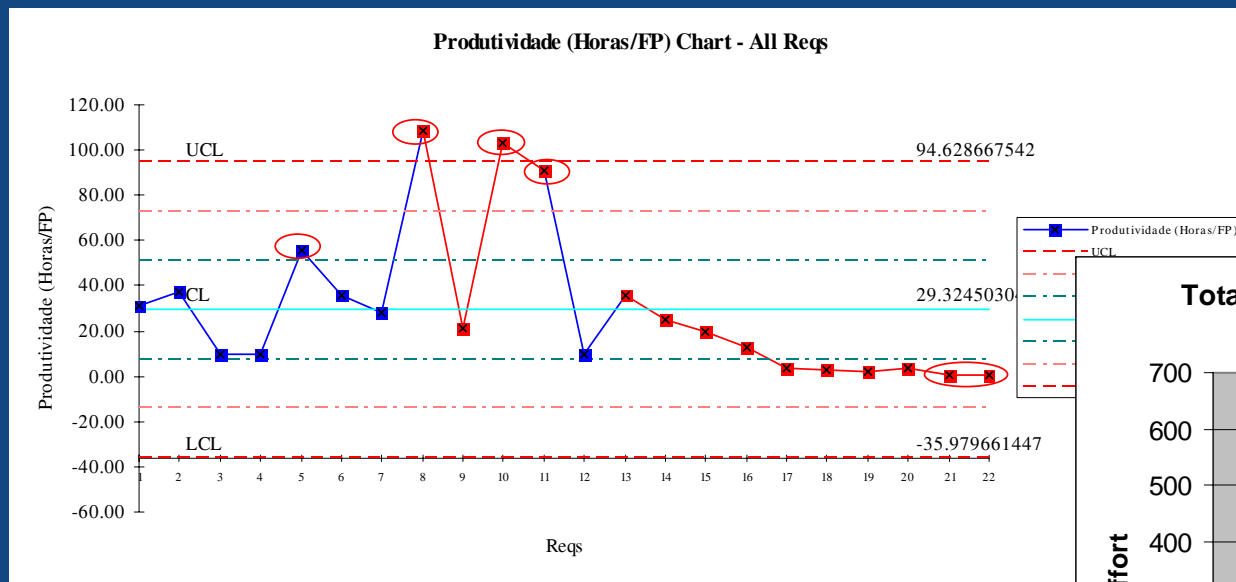
### Function Point Pricing Strategy

- Customer participates in the discussion of project productivity anomalies
- Periodically review productivity variations
- Historical data was collected and analyzed for previous of 8 months of service delivery
- Average productivity indexes were used based on this historical data to calculate effort and derive unit cost
- Service provider may decline any add-ons



# Case Study

## Historical Data Analysis




Average productivity indexes created based on historic data

## ••• Case Study

### **Contract assumptions**

- Software will be provided by ACME
- There are no penalties defined in contract
- Upgrades and patches are supported on time and material basis
- Y.O.Y. cost reduction only in Fixed Capacity Team
- The traditional estimating process will be used to check function point estimating
- Estimate variations greater than 10% will be reviewed with customer in order to guarantee “win-win” add-on negotiations

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## ❖❖❖ Conclusions



### **Billing by function points best fit**

- Renegotiation of existing contract with trusted partner
- High, steady volume of development work
- Few languages and environments
- Low variability in productivity
- Few non-functional services provided
- Service provider with mature metrics and development processes



# Questions???



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