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
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
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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
**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
Industry productivity variation by language

Productivity by Language

ISBSG Data Release 8 - 2002
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

- Conclusions
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
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
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???