Faster...Better...Cheaper... Improving (Function Point) Counting Productivity and Delivery

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Why this subject?

- Internal and external clients are concerned about the ‘cost’ of using function points
- Tangible costs are reflected in price, effort, SLA and contract negotiations
- How can we…..?
  - Maximize counter productivity internally and externally
  - Maximize the return on the counting investment
  - Improve client-supplier relations in the function point environment
Function Point Relationships

- Internal relationships
  - Client-supplier
  - Within IT
  - IT and the rest of the world
- External relationships
  - Supplier is a vendor
Client-Supplier Relationships

- Relationships Support -
  - Pricing, Content, Quality and Schedule
  - SOWs, SLAs
  - Contracting based on fps, compliance metrics and delivery metrics
  - Support for internal metrics and benchmarking, supported by internal budget
  - Benchmarking external development vendors

- Require -
  - Expertise
  - Mutual respect and understanding
What are some key measures?

- **Productivity rate = Size/Effort**
  - Number of fps counted/effort to produce the fps. Industry average varies from 300-500 fps/day for an IFPUG CFPS, given the same process and documentation artifacts.

- **Delivery Rate = Hours/Count**
  - Enhancements 6-8 hours; Application counts 5-7 days

- **Throughput (Velocity) = Productivity within a time box**
  - Counter velocity is gauged by the number of counts that are delivered in a specified time period
  - “I would suggest that with or without a time box, throughput is a much more valuable measure of value delivery. The faster and higher number of work items completed the higher the delivered value. For example, if you have a backlog of randomly sized units of work then throughput is more important than productivity.” Tom Cagley, Past President, IFPUG.
Costs and Pricing

- Counting Costs (directly associated with the counting activity)
- Process costs (directly associated with collection of function point data)
- Measurement costs (directly associated with collection, analyses and reporting using the count data)
- Other indirect costs (management, internal compliance)
Estimation – Process Capability

Where does function points fit in estimation?
From a business perspective, there are five (5) core goals for any project or program.

- Effectively manage workflow
- Proactively manage end user expectations
- Accurately plan, budget and forecast deliveries
- Accurately estimate deliverables
- Show value to the organization and the client

These should be the same goals for a function point program.
Industry usually claims that most counters can count 300-500 fps per day

This is not “proportionate”, e.g. smaller counts can take just as long

Depends on....

- Organizational culture
- Process used to produce the count
- Type of count (development, enhancement)
- Quality of the count references (documentation, access, interviews)
- Level of count expectation (usage and details)
- Experience level of the counter
Organizational Capability

The ability to foster good estimation practices

- Considerations
  - How are you organized? Central or distributed fp groups?
  - Are you going to contract the function out, and if so, do you have the controls in place to manage your vendors and your expectations?
  - Are the counters embedded in the team or in an independent group?
  - Who reviews and verifies the count, or is it needed?
  - When introducing into the organization, do you use a pilot project?
- Hindrances to effective implementation and maintenance
  - Dysfunctional from a process perspective
  - Directed, not cooperative, environment
  - Processes without responsibility or accountability
  - Poor change management
  - Poor estimation(s) can easily be a result of organizational culture
Best Practices

Software Engineering Institute (SEI) lists the requirements for good estimating to involve the following:

• An historical database of quantitative and qualitative data
• **Structured processes for estimating product size and reuse**
• Mechanisms for extrapolating benchmark characteristics of past projects (Analytics)
• Audit trails
• Integrity in dealing with dictated costs and schedules
• Data collection and feedback processes to foster correct data interpretation

“Project managers reference historical data points for similar project types and then calculate estimates based on known parameters and statistical calculations of risk. Actuals are recorded and stored for use in future estimates.”
Counting Process

- Receive and review documentation
  - Process s/b in place
  - The tendency is to read everything - Are there certain docs you can eliminate or ignore?
- Count Overview (Questions Meeting)
  - Documenting Feedback
  - Checklists
- Produce Draft Count
  - Format
  - Standard tool or workbook
- Count Review
  - Documenting Feedback
  - Checklists
  - Peer review or quality check before delivery
- Process Feedback & Finalize Count
  - Format
  - What happens after this?

“Eighty-five percent of the reasons for failure are deficiencies in the systems and process rather than the employee....If you can't describe what you are doing as a process, you don't know what you're doing.” Deming
Counter Productivity - Optimization

- **Counting Process**
  - Document Process, document evidence, document deliverable
  - All involved parties should be aware of the process
  - Tracking should be in place
  - More meetings = more effort, longer delivery
  - Streamline documentation and deliverables
  - Use of checklists to accomplish quality checks and interviews
  - If you are contracting the counting services to a vendor, then a vendor should be able to provide you with a documented, standardized process including templates, reporting formats, checklists and should be able to tailor it to your process needs
Type of count (application, development, enhancement)

What is the purpose of the count? (Benchmarking, Estimation)

How is it used?

Baselines (application counts) require more effort and documentation

Development count is counting the first install of an application

Enhancements generally take less effort and less documentation

A baseline is not necessary to count enhancements

Cost perspective

Baselines can be estimated (calibrated) through a variety of methods and algorithms
Quality of the count references

- First and foremost, user requirements!
  - Requirements and design, system specifications, user stories
  - Supporting data models, screen prints, formats and layouts
- How “complete” is the documentation?
- Availability of the subject matter experts (SMEs)
- Can you perform a count without the SMEs?

If documentation is cumbersome or incomplete, then consider facilitated count sessions

- Joint session with SMEs and counter
- Application demos, general discussion about internal files or interfaces, ‘fact finding’ interviews facilitated by an experienced counter
- Larger time commitment for SMEs but generally less time to delivery for counts (for applications not well documented)
Level of count expectation

- What level of detail is required at the count level?
- FP Lite™
  - All entities are rated average complexity unless otherwise evident
  - Eliminates the need for details relating to FTRS, RETS and DETS
  - 75% of the time the FP Lite™ method resulted in counts that were +/- 20% of the detailed function point count
  - Counts that were 150 fps or more had a smaller variance (-8.9% to 3.65%).
  - Using this method resulted in a productivity increase of 18.6% (50 – 150 fps) to 37.6% (150-300 fps).
  - As a direct result, delivery and throughput were also increased
  - If all the products are counted with the same method, then the metrics are generally consistent
- SiFP – Simple Function Points – a method of estimating IFPUG fps using transactions and data functions
- In estimations, always consider the use of ranges and document the method used to determine the ranges
Level of experience of key players
- Counters, project managers, SMEs
- Less experience = more time, slower delivery
- Invest in training, mentoring, auditing if internal counting “center of excellence” is desired
- How important are the credentials? (IFPUG)

What do we know?
- Use of patterns and profiles
- Standard complexity level used for all or parts of systems
  - Subsystem, entity, type of application, functional, scenario
  - Where do we document these ‘standards’?
Use of Local guidelines - Set of locally applied counting rules, or interpretation of the rules, that are used for consistency and integrity

- Can be used as a basis of understanding and negotiation between vendor and client, especially in audit situations
- Should be simple to understand and apply
- Example: All reports are counted as EO; All transactions within application ABC are counted as high complexity;
- Should be fully documented and maintained
- Should be an extension, or interpretation of the rules, not a new counting technique
- Can be extended and applied in a workbook or estimation tool as well
- Prevents excessive time spent on counting issues
Return on Investment

- What are your goals?
  - Measure productivity, quality, time and cost to market
  - Compliance
  - Process Improvement
  - Benchmarking

- Are you getting the best value?
  - Depends on the audience
  - Subjective vs Objective (Qualitative vs Quantitative)
  - What does ‘value’ mean to you?
  - Cost efficient, good quality, consistent results
Apparent drivers fall within a variety of capabilities for building a function point estimation model.
That’s all, folks!

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