

Function Points and Software Metrics



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Why Measure Anything?

- The primary purpose of a measurement program (any measurement program) is to control and monitor.
- Why do cars have speedometers?
- Why do we use scales to weigh ourselves?



Question?

- How many of you would have a house built if you did not know how “big” the house would be?
- What metric does a builder use to communicate cost? Size (square meter) and cost per square meter.



What is a Function Point?

- Function Points are a unit of measure
 - Like a hour is to measuring time
 - Or a inch is to measuring distance
- A unit is important to understanding and communicating such metrics as *Average Cost*.



Benefits of Function Point Analysis

- Improves requirements documentation
- Improves the estimating process
- Improves the communication of workload
- Improves the understanding of business functions
- Improves traceability of requirements through implementation
- Improves the allocation of resources



Benefits of Software Metrics

- Reduce cost by 15% - 20% by just measuring.
- Create baseline of quality and productivity and compare against industry averages.
- Pinpoint opportunities for improvement.
- Ability to measure initiatives and measure ROI.



Do you need to improve?

- Do you think your competition is holding steady?
- Do you think your competition is not looking for ways to improve their software development process?
- Do you think your competition is not looking for ways to implement new products faster, better and cheaper?



Estimating

- Develop an estimating process based upon past historical results.
- Create estimates which can be explained.
- Generate estimates which can be revised using the same process (same inputs).
- Establish estimates which are fact based.



Function Point

- A software application is in essence a defined set of elementary business processes.
- A function point is not a screen, a report, an online, but instead an elementary business process. We often count screens, reports, and online's so on and so forth, but these are not function points.



The point of FPA

- All other industries are managed by unit cost except the software industry.
- FPA when combined with hours or \$ is nothing more than the unit cost of software development or \$/FP.



The point of Software Metrics

- Demonstrate (quantity) continuous process improvements.
- Pinpoint opportunities of improvement.



Function Points Analysis

- Is a structured technique of classifying components of a system.
- Is a method to break systems into smaller components, so they can be better understood and analyzed.
- Measures software by quantifying its functionality provided to the user based primarily on the logical design.
- Logical functionality from a sophisticated user view rather than a physical view.
- A standard method for measuring software development from the customers point of view



Function Point Mechanics

- Following a set of prescribed rules break the applications into parts.
 - External Inputs
 - External Outputs
 - External Inquiries
 - Internal files and external files.
- As part of the process determine the interaction between components.



Function Point Inventory

- FPA mechanics is nothing more than taking an inventory of business functions contained in a software application.



FPA Summary

- Can you imagine a builder not knowing the square feet of a building they were building?
 - Or the cost per square meter
- Can you imagine a store manager not knowing the inventory levels?
- Can you imagine a factory manager not knowing unit cost?



Summary

- The cost of FPA and Software Metrics should not exceed 1% of the cost of a software project.
- The total cost of a metrics program (including FP's) should not exceed 2% of project cost.
- Costs will be reduced (improved productivity) by 10-15% just measuring. This means a ROI of 8 – 13% on a metrics/FP program.
- The benefit is better management and control of scarce resources used to develop software applications.

The bottom line of metrics and FPA

- Improve profit margins.
- Increase return on investment for software projects.
- Enhance communication with customers





Recommendations

- Count several software projects and software applications and create a productivity and quality baseline (the what's).
- Interview IT staff to collect additional qualitative information (the whys).
- Compare this baseline with other IT Organization of similar size and scope.
- Baseline creation and assessment normally takes 20 consulting days.



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Recommendations

- Contract with David Longstreet to provide training and additional consulting days as needed.
- His clients include both domestic and international clients including, MasterCard, Sprint, USAA, MONY, Amadeus, and many others.
 - www.SoftwareMetrics.Com/client.htm
- He has conducted seminars in the USA, Europe, Asia South Africa, and the Middle East.
- He provides data to the US Bureau of Economic Analysis and Securities Exchange Commission.
- He is conducting research with the Harvard School of Business.