The Role of 'ISO/IEC 19515:2019 Information Technology – Object Management Group Automated Function Points (AFP), 1.0' in Supplier Productivity Measurement

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Please Note: The Consortium for Information & Software Quality™ (CISQ™) and Object Management Group® (OMG®), its managing organization, cannot give legal advice and the following is shared in good faith for example purposes only. As part of due diligence, we recommend all contracts are reviewed by a competent contracts lawyer.

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Introduction to the AFP Standard

Purpose

The Automated Function Point standard developed by CISQ defines a method for automating the counting of Function Points that is generally consistent with the Function Point Counting Practices Manual, Release 4.3.1 (IFPUG CPM) produced by the International Function Point Users Group (IFPUG). Guidelines in this standard may differ from those in the IFPUG CPM at points where subjective judgments have to be replaced by the rules needed for automation. The IFPUG CPM was selected by members of CISQ as the anchor for this standard because it is the most widely used functional measurement specification with a large supporting infrastructure maintained by a professional organization.

Applicability

This standard is applicable to the functional sizing of transaction-oriented software applications, and in particular those with data persistency. To be consistent with the IFPUG CPM, the standard provides details on the support of applications using relational databases. However, the standard can be used and extended for any type of transactional application with data persistency.

Limitations

This standard does not address the sizing of enhancements to an application or maintained functionality (often called Enhancement Function Points). This standard does not address sizing for the non-functional components of a software application. Non-functional components (as defined by IFPUG) include:

- Structural Quality Constraints Reliability, Security, Performance Efficiency, Maintainability, etc.
- Organizational Constraints locations for operations, target hardware, compliance to standards, etc.
- Environmental Constraints interoperability, security, privacy, safety, etc.
- Implementation Constraints development language, delivery schedule, etc.

General Recommendations for Pre-Contracting

Standards Compliance

The supplier should inform the client as to the level of compliance they hold, or claim to hold, against ISO/IEC 19515:2019.

No compliance to the ISO/IEC 19515:2019 standard should not in itself preclude the suppler if (a) it is not an auditable requirement, or (b) there is no benchmarking requirement.

In the case of no compliance, and (a) and (b) above are not a factor, the supplier should demonstrate they can deliver the required productivity measurement capability, provided by ISO/IEC 19515:2019, by other verifiable means.

The client has the right to audit for compliance and/or request relevant documentation from the supplier in support of their statement of compliance.

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Level	Description	Compliance
Level 5	Holds independently certified compliance to standard	Full
Level 4	Demonstrable self-certified auditable compliance to standard	Full
Level 3	Generally In Accordance (GIA) with only immaterial departures from standard, if any	Full
Level 2	Significant material departures from standard	Partial
Level 1	No compliance to standard	None

Pre-Contract Systems Assessment

It is considered best practice when dealing with existing systems for them to undergo technical architecture and code structural review before negotiation, contracting, and work commences. The review process is required to establish baseline quality levels to set fair and realistic contract productivity levels and target incentive thresholds.

Systems assessment may be undertaken using ether a manual review process or systematized code and asset analysis, or any combination of the two.

Ethical Supplier Measurement

It is considered ethical best practice to set productivity at a sustainable pace so as not to cause undue stress and/or physical illness with the supplier workforce. The supplier is accountable for their staff's well-being and to bring to the attention of the client any welfare concerns that may require joint action to resolve.

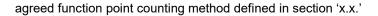# Contracting and Productivity

Productivity

The contract is based on a base level of productivity of 18 function points per staff month. A staff month is defined as 22 days per calendar month, 8 hours per day, equaling 176 working hours per month.

Alternatively, the contract is based on a base level of productivity of 9.5 hours per function point.

These are example figures. Actual figures used should be based on the maturity of the supplier, complexity of the program, and any legacy technical debt.

Rate

The supplier shall invoice at a rate of £500 per function point delivered to the client as measured by the

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agreed function point counting method defined in section 'x.x.'

Exceptions to the rate and activities that will not be invoiced by function points must be agreed in advance of contract signing.

Delivered Quality

All code by must be of an acceptable level of quality when delivered to the client as defined by 'x.x' quality section of the contract agreement.

The supplier can only invoice based on function points for code that has reached the agreed quality level.

Exceptions to 'x.x' quality section are allowed with the agreement of the client. Any exception must be clearly marked in the invoice as "Deliver Function Points with Exception" with a relevant explanatory note. The supplier cannot use function points marked as exceptions in any related productivity reporting.

The client may reject deliverables if they do not meet required quality and there is no exception agreement in place. The client should state in function points what amount of the invoice is being rejected. The supplier cannot use rejected function points in any related productivity reporting.

Measurement

Function point measurement of delivered software must be in accordance with ISO/IEC 19515:2019 Object Management Group Automated Function Points (AFP).

The Automated Enhancement Points standard developed by CISQ and standardized by OMG can be used as an alternative to ISO/IEC 19515 or ISO/IEC 20926 where the program of work is sensitive to non-functional requirements. This will require prior agreement with the client.

Exclusion

The following activities are excluded from function points based invoicing and expected to be invoiced as line items based on fixed prices/time and material (delete as appropriate). All exclusions must be agreed in advance of contract signing.

Exclusions	Why	When Invoiced	FP or TM

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Penalties

If the supplier fails to meet the agreed base productivity level for three consecutive invoicing periods, or three consecutive sprints in the case of agile based delivery, the penalty clause defined is section "a.a" shall be triggered.

If overall average productivity for the program is below the agreed productivity base level at the completion of the contract, the penalty clause defined is section "a.a" shall be triggered.

Note: If agreed base productivity has not been met as defined above, and (a) the supplier can show the root cause was due to client-owned activities, and (b) if issues with the aforementioned activities were raised with the client at the earliest opportunity, then the penalties clause shall be waived with client agreement.

Incentives

If productivity is 10% or more above the agreed base level for three consecutive invoicing periods, or three consecutive sprints in the case of agile based delivery, the incentive clause defined is section "y.y" shall be triggered.

If overall average productivity for the program is 10% or more above the agreed base level at the completion of the contract, the incentive clause defined is section "y.y" shall be triggered.

Note: The incentive clause shall be deemed null and void if at a later date it is proven that the base level of productivity agreed by the supplier is shown to have been artificially lower than what could have been reasonably expected.

Note: The incentive clause shall not apply where the base level of productivity is below current independently verifiable benchmarks, and where even after improvement, average contract productivity is still below the benchmark.

These are example figures. Actual figures used should be based on the maturity of supplier, complexity of the program, and any legacy technical debt.

Reporting

Based on the use of ISO/IEC 19515:2019 Object Management Group Automated Function Points (AFP) it is expected function point data be made available to the client on a continuous basis, and the client can review said data when required without prior notice.

When function point data cannot be made continuously available to the client, function points must be reported (a) when the code enters functional testing, and (b) before delivery and invoicing to the client.

Verification

Both parties agree that a manual verification count, based on ISO/IEC 20926:2009 Software Measurement – IFPUG Functional Size Measurement Method, can be undertaken on size of the delivered code in the event of disagreement between the client and supplier.

Invoice payment and code delivery will not be interrupted or delayed whilst a verification count is undertaken.

In the event of the verification count confirming a discrepancy, both parties will agree relevant re-payments or

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re-invoicing.

Independent Arbitration

Either the client or supplier can engage a mutually agreed upon third party to arbitrate on the functional size of delivered code as defined by ISO/IEC 19515:2019 Object Management Group Automated Function Points (AFP).

The supplier agrees that if they trigger the independent arbitration process the invoice payment will be withheld until an independent arbitration process is complete. The supplier also agrees to pay all reasonable costs related to the independent arbitration process.

The client agrees that if they trigger the independent arbitration process to pay any related supplier invoices within 28 days and to seek repayments from the supplier if arbitration is in the client's favor.

Client and supplier agree to be abided by independent arbitration.