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# **COSMIC/ISBSG Concise Data Collection Questionnaire**

This Concise Data Collection Questionnaire (DCQ) can be used instead of the full ISBSG Data Collection Questionnaire for new development, enhancement or re-development projects measured using the COSMIC sizing method. (Note that the numbering of the questions is kept aligned with the full ISBSG form.)

Please submit one DCQ for each project for which key data such as effort, duration, etc. was separately recorded and for which the total size of the developed or enhanced software was measured. Use one DCQ even if the project concerned separate pieces of software in different layers and/or separate components in the same layer.

The COSMIC and ISBSG organizations guarantee that any project data you submit via this DCQ will be anonymized by ISBSG staff so that no-one will be able to link that data to your organization.

Please, fill all questions in order to achieve a good submission rating, then send your submission to [admin@isbsg.org](mailto:admin@isbsg.org) (Subject “D&E Project Submission”). Thank you!

# A. Submitter Information

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| --- | --- |
| 1. Contact information for the questionnaire submitter.  Contact person:  Organisation:  Country:  E-mail: | This information is necessary for ISBSG’s quality assurance processes. This data, like all information on this page, is kept confidential and is only seen by the ISBSG Administrator. This prevents users of ISBSG data from identifying project submitters. |
| 2. Your identifying name or ID for this submitted project.  Project ID:  Date Submitted:         (dd-mmm-yy, e.g. 05-Jul-11) | This allows identification of the Project Benchmark Report provided for your submitted project. (Date you completed this questionnaire.) |
| 3. What was the role in this submitted project of the person who completed this questionnaire?  Analyst/Programmer  Customer/End User  Development manager  Independent Reviewer  IT/MIS Manager  Metrics Manager/Consultant  Project Manager/Leader  Project Office/Tech. Support Other (specify): | |

# B. Process

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| 5. What type of software project was your project?  New Development  Re-development  Enhancement  Other (specify): | New Development: building a new software product in a context where the customer has no existing product meeting their requirements.  Re-development: creating a software product with new technology that replaces or enhances a product that customers currently use.  Enhancement: changing or extending the functionality of an existing product. |
| 6. Choose the description (i.e. Domain) below that best describes your project.  Business application  Real-Time application  Mathematically intensive application  Infrastructure software | The Domain defines the principle purpose of the software.  Choosing a description may be helped by the types given in question 87. |
| 7. Indicate whether the project delivered software that is reusable.  Custom (non-reusable)  Reusable | Reusable software is designed to be (potentially) reusable as a component of other pieces of software.  Custom (non-reusable) software is used by a single project and not intended for re-use. |
| 9. If the project used Agile development, please indicate:  Number of sprints/iterations:  Length of (each) sprint/iteration:   (days)  Deliverable ‘size’ per sprint/iter.:   (Story Points) | This question is only relevant to agile development, so should otherwise be skipped. |
| 12. Is the development team involved in a process improvement program?  Yes  No  Which if any, software process or quality standards was the project performed under? (Where applicable, pls provide details such as version, level, year of certification.)  Software-CMM (Details:     )  CMMI (Details:     )  SPICE (Details:       )  ISO 9002 (Details:     )  TICKIT (Details:      )  Other (Details:     ) | |

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# C. Technology

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| 58. What was the primary technology used to build or enhance the software? i.e. that used for most of the build effort.  Yes No Primary Tool (version)  Programming Language  Operating System  Integrated Dev. Environment  Debugging  Database  Object/Component Server  HTML/Web Server  E-Mail or Message Server  Other (specify): | P.Language: primary language/tool used to create the source code/objects.  I.D.E.: development environment integrating a range of tools to aid the processes of designing, constricting and testing the software [...]  Debugging: tools specifically to identify location of software defects. Database: specific tool used for persistent data storage that is distinct from the programming language.  Object/Component Server: tool under which software objects execute for multiple users e.g. CORBA broker or Microsoft™ MTS. [...] (if >1 tool used, pls specify “Other”.) |
| 60. What is the environment in which software was developed?  PC or microcomputer  Mid range  Main Frame  Multi platform  Other (specify): | (Based on primarily the development operating system.)  A Multi platform environment would include aspects of more than one of the categories Mainframe, Midrange, or PC. |
| 63. What was the implementation platform of the software product? i.e. that which the software was implemented into.  Is the implementation platform the same as development?  Yes (skip rest of question)  No (pls provide details)  Primary Implementation Platform  Mobile or Device Embedded  PC  Mid range  Mainframe  Multi Platform  Other (specify):  If ‘mobile or device embedded’, please specify the target:  Automotive  Aviation  Domestic appliance  Games device  Machine tool  Mobile phone  PDA  Games device  Music device  Other (specify): | The implementation platform may be different from that on which the software was developed, or may be the only platform known for the project.  For mobile or device embedded software, please specify the generic device into which the software is implemented. |

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# D. People and Work Effort

## Development Team

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| --- | --- |
| 64. In which country did the development team perform most of the project work? Other(s):  In which country was the project implemented?  Other(s): | This data allows demographic analysis by country. The country of an individual project will not be published however. |

70. Development team effort (in hours) expended in each major activity of the ‘generic’ project process, and the number of team members involved in each activity. (Please provide summary values at least.)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Enter numbers of people & their effort for each activity | | | | | | **Or summary values for the whole project** |
|  |  | **Plan** | **Specify** | **Design** | **Build** | **Test** | **Impl.** |
| **Dev. Team** | People |  |  |  |  |  |  |  |
| **Totals** | Effort |  |  |  |  |  |  | hours |

## Customers / Functional Users / End Users

|  |
| --- |
| 71. In which industry is the software used (or do the software’s end users primarily work)?  Aerospace/Automotive  Agriculture, Forestry etc.  Banking  Chemicals  Communications  Community Services  Computers & Software  Construction  Consumer Goods  Defence  Education Institution  Electricity, Gas & Water  Electronics  Food Processing  Finance & Business Service  Government  Insurance  Manufacturing  Media  Medical/Health Care  Mining  Oil & Petroleum  Professional Services  Recreation & Personnel Serv.  Real Estate & Property  Telecommunications  Transport & Storage  Wholesale & Retail Other (specify): |

75. Number of customer and end user personnel involved in each major activity, and the effort that they expended.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Enter numbers of people & their effort for each activity | | | | | | **Or summary values for the whole project** |
|  |  | **Plan** | **Specify** | **Design** | **Build** | **Test** | **Impl.** |
| **Customer / End** | People |  |  |  |  |  |  |  |
| **User Totals** | Effort |  |  |  |  |  |  | hours |

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## Work Effort Validation

|  |  |
| --- | --- |
| 78. What procedure, if any, was used to record effort spent on the project by development team/organisation?  *No timesheets* were recorded by the development team  Recorded only the total *hours worked each day* or week  Recorded *hours worked each project* for each day/week  Recorded the *work done on each project task* for each day  Other (specify): |  |
| 81. Has all the work done been included in the effort figure (Q’s 70-75)?  Yes (skip the next question)  No | For example, do the figures include unpaid overtime, work done from home, initial planning effort? |
| 82. If no (prev. question), what do you estimate the uncollected effort to be?  Less than 5% of recorded  5 – 10% of recorded effort  Other (specify):         Unable to estimate | Uncollected effort data makes a project appear more effective than it really was, which typically results in unrealistic future expectations. |
| 85. How would you rate the quality of the work effort data?  Poor  Adequate  Good  Excellent | |
| 86. Why did you assign the above quality rating? | This assists our data quality processes on work effort data, which is core data for project analysis. |

# E. Product

|  |  |
| --- | --- |
| 87. What type of software, within the selected domain, has the project produced or enhanced?  **Business Application:**  Catalogue or register of things or events  Customer billing  Customer relationship management  Data Warehouse system  Document management  Electronic data interchange  Financial transact. processing & accounting  Job, case, incident or project management  Logistic or supply planning & control  Management or performance reporting  Online analysis and reporting  Reservation system (e.g. Airline, hotel)  Stock control & order processing  Trading  Workflow support & management Other (specify):  **Real-time Application:**  Automatic Data Logging  Embedded software for simple device control  Command & control system  Complex process control  (e.g. military, air traffic, police) (e.g. oil refinery, steel manf)  Robot control  Telecom & network management  Transportation control Other (specify):  (incl. avionics, signalling)  **Mathematically-Intensive Application:**  3D modelling or animation  Geographic or spatial information systems  Image, video or sound processing  Mathematical modelling  Scientific/engineering application  Statistical analysis  Other (specify):  **Infrastructure Software:**  Data or database management  Device or interface driver  Graphics & publishing tools or system  Operating system or software utility  Personal productivity  Software development tool  (e.g. word processor, spreadsheet)  Other (specify):  **Minor component (**see the example in section 2.2.3 of the Measurement Manual**):**  Software component (re-usable or not), e.g. SOA component | |
| 92. If there was reuse of software development work products on this project, what was the amount of functionality provided by reused work products (if it was measured)?  Size:       Unit/Method:       Other Method: | Software development work products include software components, libraries or frameworks.  The ‘amount of functionality’ is measured using COSMIC Function Points (CFP, or cfsu). |

# F. COSMIC Project Functional Size

|  |  |
| --- | --- |
| 93. Which COSMIC functional sizing standards were applied?  Version:       Specific local customisation?  Yes  No | If a local customisation was used, please attach a brief description, titled ‘Q93/99’. |
| 94. What was the approach used to determine the project’s functional size?  Followed the COSMIC manual  Estimated from software components  Backfired from source lines of code (what factor used):  Other (specify): | Examples of software components used for estimation: screens, reports, modules, etc.  If the count is backfired from lines of code, pls specify the factor used for the language (if known). |
| 95. Please specify the type(s) of functional user. Tick all that apply.  Human(s)  Hardware device(s)  Other pieces of software |  |
| 96. Whole, major or minor components of an application or infrastructure software.  If the software that was developed comprised a whole application, or one piece of infrastructure software, or one minor component (as in Q87), then enter data for this one item in this section (Questions 96 – 97).  If the 'Application or Infrastructure software' that was developed or enhanced comprised two or more major components, designed to execute on the same or different technologies AND the functional sizes of these major components have been measured separately, list the major components as separate 'Items' in this question. The 'Description' of each Major Component should include the 'Programming Language' (Question 58) and the 'Primary Implementation Platform' (Question 63). The Items in this question must correspond to the Items in the next question (Size Information).   |  |  |  | | --- | --- | --- | | Item | Name | Description | | 1. |  |  | | 2. |  |  | | 3. |  |  | |  |

### **Development/Redevelopment Software Size**

97. Size Information

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item | Functional processes (amount) | Total size of ENTRIES | Total size of EXITS | Total size of READS | Total size of WRITES | **ITEM TOTAL SIZE** |
| 1. |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |
|  | **Total COSMIC Function Points (CFP or cfsu)** | | | | |  |

### 

### **Enhancement Software Size**

104. Added Functionality – Size Information

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item | Functional processes (added) (amount) | Total size of ENTRIES | Total size of EXITS | Total size of READS | Total size of WRITES | **ITEM TOTAL SIZE** |
| 1. |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |
|  | **Total ADDED COSMIC Function Points (CFP or cfsu)** | | | | |  |

105. Changed Functionality – Size Information

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item | Functional processes (modified) (amount) | Total size of ENTRIES | Total size of EXITS | Total size of READS | Total size of WRITES | **ITEM TOTAL SIZE** |
| 1. |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |
|  | **Total MODIFIED COSMIC Function Points (CFP or cfsu)** | | | | |  |

106. Deleted Functionality – Size Information

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item | Functional processes (deleted) (amount) | Total size of ENTRIES | Total size of EXITS | Total size of READS | Total size of WRITES | **ITEM TOTAL SIZE** |
| 1. |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |
|  | **Total DELETED COSMIC Function Points (CFP or cfsu)** | | | | |  |

107. Total size of the Enhancement = Totals of added + modified + deleted sizes =       CFP (or cfsu)

### **Context of the Functional Size Measurement**

|  |  |
| --- | --- |
| 109. Date of the functional size measurement:        (d-mm-yy) | |
| 110. After which of the following activities was this measurement performed?  Planning  Specification  Design  Build  Test  Implementation | |
| 111. If this measurement was performed before the test and implementation activities, does it accurately measure the implemented software?  Yes (skip the next question)  No | |
| 112. If this measurement does not accurately measure the implemented software, what is the likely difference from the functional size to the implemented software?  Increased by:  0-10%  11-20%  21-50%  >50%  Decreased by:  0-10%  11-20%  21-50%  >50% | |
| 113. Does the functional size entered in this section F (questions 93-107) match the functionality that was developed by the project effort entered in section D (questions 69-77)?  Yes  No  If ‘No’ describe any additional functionality that was:  developed by the project:  delivered, but not developed, by the project: | Additional functionality may occur in software ‘items’ that were not addressed by the functional size measurement entered in ‘Software size’, e.g. the development of device drivers.  Additional functionality may be delivered but not developed, for example purchased software. |
| 114. Which of the following information sources were used for the functional size analysis?  Feasibility Study  Requirements Specification  Functional Specification  User Interface Prototype  Logical Data/ER Model  User Manual  High-Level Design Spec.  Technical Design Spec.  Report Layouts  Physical use of the software  Message Sequence Diagrams  Use Cases  None Other (specify): | |
| 115. For counting purposes, what was the documentation quality?  Low  Average  High | |
| 116. What technology was used to support the sizing process?  Manually counted and manually documented  Man. counted, documented with a software tool e.g. a spreadsheet or specialist documentation tool  Count automatically generated by a software tool e.g. a CASE tool  Derived from a count of lines of code (i.e. backfired) Other (specify): | |

### **Experience of the Measurer**

|  |
| --- |
| 119. What training had the functional size measurer received?  Reading and/or mentoring  Course (in-house trainer)  Course (specialised FP trainer)  Course certified by FSM method’s certification body Other (specify): |

# G. Project Completion

|  |  |
| --- | --- |
| 123. On what date did the software go into operation? (e.g. 05-Apr-09) | (dd-mmm-yy) |
| 124. What was the total project elapsed duration (including inactivity)? | (months) |
| 125. If there was any time of total inactivity, what was its duration? | (months) |
| 126. Are there any factors that you think had a **positive** impact on the project performance or outcomes? | This question assists us in identifying factors that may have a significant effect on project performance or outcomes. |
| 127. Are there any factors that you think had a **negative** impact on the project performance or outcomes? | This question assists us in identifying factors that may have a significant effect on project performance or outcomes. |
| 128. What was the number of defects recorded during the first month of the software’s operation (first 30-days after the date on which the software began operation)?  Minor:       Major:       Extreme:  or Total Defects: | Minor defect: does not make the software unusable in any way (e.g. minor defect in a report).  Major defect: causes part of the software to become unusable.  Extreme defect: failure causing the software to become totally unusable. |

Please, check that all questions are answered in order to achieve a good submission rating, then send your submission to [admin@isbsg.org](mailto:admin@isbsg.org) (Subject “D&E Project Submission”).

**Thank you!**

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