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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 (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[ ]  EnhancementOther (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 [ ]  NoWhich 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 PlatformOther (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

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| 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

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| 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 effortOther (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

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| 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 analysisOther (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. |        |        |

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### **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 | **ITEMTOTAL SIZE** |
| 1. |       |       |       |       |       |       |
| 2. |       |       |       |       |       |       |
| 3. |       |       |       |       |       |       |
|  | **Total COSMIC Function Points (CFP or cfsu)** |       |

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### **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 | **ITEMTOTAL 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 | **ITEMTOTAL 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 | **ITEMTOTAL 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**

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| 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 [ ]  NoIf ‘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**

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| 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

|  |  |
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| 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 (Subject “D&E Project Submission”).

**Thank you!**

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