An Industrial Survey on
Software Process Practices, Preferences and Methods

Adnan Causevic[1], Iva Krasteva[2], Rikard Land[1], A. S. M. Sajeev[3], Daniel Sundmark[1]

[1]*Department of Computer Science and Electronics, Mälardalen University, Västerås, Sweden*
adnan.causevic@mdh.se, rikard.land@mdh.se, daniel.sundmark@mdh.se

[2]*Faculty of Mathematics and Informatics, Sofia University, 5 James Bourchier Blvd, Sofia 1165, Bulgaria*
iva.krasteva@rila.bg

[3]*School of Science & Technology, University of New England, Armidale, NSW 2351, Australia.*
sajeev@une.edu.au

Table of Contents

Introduction

This report presents details of the questionnaire and responses of a web-based survey conducted during early spring 2009. It was intended to survey current processes, practices, and methods in the software industry.

The report contains no analysis of the data, but is intended to be a reference for other publications, both by ourselves, but by making the data publicly available, also by others.

Focus Areas

In the questionnaire, there are three focus areas which are being studied both separately and in combination:

- **Process practices.** To what extent are different process practices, agile development in particular, adopted and considered of benefit?
- **Component-based development.** What is the state of practice concerning the usage and development of software components in industry?
- **Testing.** What testing methods are being used, and to what extent are they considered sufficient by their users?

Research Ethics

The survey was anonymous, and while inviting respondents we promised that no information identifying individuals or companies will be published. At the end of the survey, respondents were given the choice to enter company and project name, to allow correlation of responses from the same organization. The information thus provided has in this report been anonymized.

Respondent Selection and Responses

Invitation emails were sent to companies that were part of our joint research projects such as FLEXI[1] and NESSI[2] , as well as other contacts in our informal networks. We received 93 responses of which 42 responses were complete. Only the complete responses are given in Appendix C here. Note that because of conditional questions, even within the complete responses, not all had to answer all questions. This explains some of the blank cells in the data in the Appendix. Since the respondents are anonymous we cannot know how many organizations these represent. Since we also sent the invitation to participate to some email lists, and encouraged every recipient to further spread the invitation we can neither know the response frequency, nor exactly which organizations are represented. This type of convenience sampling is suitable to collect empirical data exploring "how" questions, but during all our statistical treatment of the data we must bear in mind the limitations imposed by convenience sampling to the generalisability of the results.

Survey System

The survey system used was the Limesurvey open source software (www.limesurvey.org). It was a very versatile package with options to construct conditional questions and items with different kinds of responses as well as facilities for respondents to save their partially completed surveys for later resumption.

---

[1] http://www.flexi-itea2.org/
[2] http://www.nessi-europe.com/

The Appendices

The rest of the report presents the survey data in three appendices:

- **Appendix A** presents the overall structure of the questionnaire, and describes the purpose groups of each group of questions.
- **Appendix B** presents the questions, with alternatives as they appeared to the users. Here are also listed the codes used for questions and answers, as used in appendix C, as well as the dependencies between groups, i.e. the decisions whether some group would be shown or hidden depending on previous answers.
- **Appendix C** lists all the data of the 42 completed responses.
- **Appendix D** presents the questions, with alternatives as they appeared to the users.

If someone would like to have access to all data (including the non-completed answers) in a more convenient format, please contact one of the authors.

Appendix A: Question Groups

G1. Demographic questions
This section collects demographic data about the respondent.

G2. Project and product characteristics
This section gathers information about characteristics of the software you are developing and the project you are involved in.

G3. Software development practices
This section contains a number of statements related to software development processes. For each item in this section, please provide two responses. In the first response (marked Current practice) please tell us how strongly the statement applies to the current practices in your organisation. In the second response (marked My preference), tell us how strongly you prefer the statement to apply if your organisation were to implement an ideal software process. Note: Throughout the whole questionnaire the term business people means any business-oriented specialist such as business analysts, marketing or sales specialists who could be involved in specifying requirements for the software under development (in projects where real customers are not involved).

G4. Software Testing in your organisation
Current section collects information about testing practices within your organization

G5. Component development
The current section collects information about some of the characteristics of the component you are building as well as your development process. In some of the questions your opinion is sought.

G6. System characteristics
Current section gathers information about some of the characteristics of the system you are developing.

G7. System development
Current section collects information regarding the activities connected with component selection and system development in your project. In some of the questions your opinion is sought.

G8. Discretional information
The respondents could optionally type their organization and project name, to allow correlation of responses from the same organization. The information thus provided has in this report been anonymized.

Appendix B: Questions and Codes

G1. Demographic questions

Q1. My gender is:
A: Male (M)/Female (F)

Q2. My age is:
A: Under 20(1), 20-24(2), 25-29(3), 30-34(4), 35-39(5), 40-49(6), 50-59(7), 60 and over (8)

Q3: My educational qualification is:
A: Undergraduate or lower (1), Bachelor degree (2), Postgraduate degree (3), PhD or above (4)

Q4: My IT work experience is:
A: Less than 1 year (1), 1-4 years(2), 5-8 years(3), 9-12 years(4), 13-16 years(5), more than 16 years (6)

Q5: My experience in international software development projects is:
A: None (1), 1-4 years(2), 5-8 years(3), 9-12 years(4), 13-16 years(5), more than 16 years (6)

Q6: My job position is: [Software Engineer]
A: Yes (Y)/No (N)

Q7: My job position is: [Hardware Engineer]
A: Yes (Y)/No (N)

Q8: My job position is: [Project Manager]
A: Yes (Y)/No (N)

Q9: My job position is: [Line Manager]
A: Yes (Y)/No (N)

Q10: My job position is: [Senior Executive]
A: Yes (Y)/No (N)

Q11: My job position is: [Business Analyst]
A: Yes (Y)/No (N)

Q12: My job position is: [Researcher]
A: Yes (Y)/No (N)

Q13: My job position is: [Other]
A: Text value

Q14: At work, I perform the following activities: [writing code]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q15: At work, I perform the following activities: [interacting with customers]

A: Scale of 0 to 7 (0 for never, 7 for always)

Q16: At work, I perform the following activities: [designing software]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q17: At work, I perform the following activities: [writing requirements documents]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q18: At work, I perform the following activities: [writing user/technical documentation]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q19: At work, I perform the following activities: [planning projects]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q20: At work, I perform the following activities: [managing managers]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q21: At work, I perform the following activities: [managing projects]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q22: At work, I perform the following activities: [testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q23: At work, I perform the following activities: [quality assurance]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q24: At work, I perform the following activities: [other (specify in next question)]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q25: Please specify "other":
A: Text value

Q26: The size of my company is:
A: 1-10 employees (1), 11-50 employees (2), 51-100 employees (3), 101-250 employees (4), 251-10000 employees (5), more than 1000 employees (6)

Q27: The size of my project team is:
A: 1-5 people (1), 6-10 people (2), 11-15 people (3), 16-20 people (4), 21-50 people (5), more than 50 people (6), I am not in a team (7)

Q28: In my estimate, the percentage of members in my project team who has almost all the information about the project is:
A: Less than 10% (1), 11% to 20% (2), 21% to 50% (3), 51% to 80% (4), 81% to 99% (5), 100%(6)

Q29: I lived most of my life in:
A: Western Europe (1), Eastern Europe (2), North America (3), South America (4), Asia (5), Africa (6), Australia/New Zealand (7)

Q30: Location of my current job is:
A: Western Europe (1), Eastern Europe (2), North America (3), South America (4), Asia (5), Africa (6), Australia/New Zealand (7)

Q31: Our current software development process is:
A: ad hoc (1), agile(2), adaptive (3), spiral (4), waterfall (5), other (0)

Q32: Our current software development process is: [Other]:
A: Text value

Q33: Our software development practices are at CMMI Level:
A: One (1), Two (2), Three (3), Four (4), Five (5), Don't Know (6)

Q34: In my assessment, the size of most of the projects that I am involved in is:
A: Small (1), Medium (2), Large (3), Hard to answer (4)

Q35: In my assessment, the size of the current project that I am involved in is:
A: Small (1), Medium (2), Large (3), Hard to answer (4)

Q36: In my assessment, the risk of my current project failing to deliver its intended outcomes is:
A: Small (1), Medium (2), Large (3), Hard to answer (4)

Q37: If the software developed in our current project fails, the maximum damage could be the loss of:
A: Many lives (1), A single life (2), Essential funds (3), Discretionary funds (4), Comfort (5), Other (0)

Q38: If the software developed in our current project fails, the maximum damage could be the loss of: [Other]
A: Text value

G2. Project and product characteristics

Q39: The application domain of the system we build is:
A: Text value

Q40: The software we build in our project is: [embedded software]
A: Yes (Y)/No (N)

Q41: The software we build in our project is: [web-based software]
A: Yes (Y)/No (N)

Q42: The software we build in our project is: [desktop software]
A: Yes (Y)/No (N)

Q43: The software we build in our project is: [Other]
A: Text value

Q44: I perceive the end product of our project as being:
A: a software part/component which is to be integrated (1), a software service (2), a software system that will be used by end users (3), other (0)

Q45: I perceive the end product of our project as being: [Other]
A: Text value

Q46: The expected number of units you expect to sell in a year is approximately:
A: one (1), several (2), dozens (3), hundreds (4), thousands and more (5)

Q47: The expected number of different systems that will use our service is approximately:
A: one (1), several (2), dozens (3), hundreds (4), thousands and more (5)

Q48: The expected number of end users of the system we build is approximately:
A: one (1), several (2), dozens (3), hundreds (4), thousands and more (5)

Q49: We build our software by: [integrating components]
A: Yes (Y)/No (N)

Q50: We build our software by: [assembling services]
A: Yes (Y)/No (N)

Q51: We build our software by: [writing source code]
A: Yes (Y)/No (N)

Q52: We build our software by: [Other]
A: Text value

Q53: Our project is:
A: New development (1), Maintenance project (2), Enhancement project (3), Legacy system evolution (4), other (0)

Q54: Our project is: [Other]
A: Text value

Q55: The software we build: [will be available as a product on the market]
A: Yes (Y)/No (N)

Q56: The software we build: [will suit the needs of a particular client (custom/bespoke software)]
A: Yes (Y)/No (N)

Q57: The software we build: [will be used by our organization]
A: Yes (Y)/No (N)

Q58: The software we build: [is an open-source software]
A: Yes (Y)/No (N)

Q59: The requirements to the software we build:
A: are likely to change within a couple of months (1), are likely to change within a year (2), are not anticipated to change in next couple of years (3), Can't assess (4)

Q60: The duration of our project is:
A: Up to 3 months (1), 3-6 months (2), 6-12 months (3), Up to 2 years (4), More than 2 years (5)

Q61: In our project the most common iteration length is:

A: A couple of weeks (1), Around a month (2), Around 2 months (3), 3 months or more (4), The length greatly varies (5), We don't use iterations (6)

Q62: In our project we deliver functionality incrementally:
A: every month (1), up to 3 months (2), up to 6 months (3), The interval greatly varies (4), We don't use incremental delivery (5)

Q63: The following constraints are present in our project: [fixed-price contracts]
A: Rate severity (0 for not present, 7 for very strong)

Q64: The following constraints are present in our project: [fixed delivery dates]
A: Rate severity (0 for not present, 7 for very strong)

Q65: The following constraints are present in our project: [staffing and team size limitations]
A: Rate severity (0 for not present, 7 for very strong)

Q66: The following constraints are present in our project: [performance or response time constraints]
A: Rate severity (0 for not present, 7 for very strong)

Q67: The following constraints are present in our project: [memory utilization or storage constraints]
A: Rate severity (0 for not present, 7 for very strong)

Q68: The following constraints are present in our project: [reliability constraints]
A: Rate severity (0 for not present, 7 for very strong)

Q69: The following constraints are present in our project: [security constraints]
A: Rate severity (0 for not present, 7 for very strong)

Q70: The following constraints are present in our project: [other]
A: Rate severity (0 for not present, 7 for very strong)

Q71: Specify Other:
A: Text value

Q72: In our team:
A: all of the team members are collocated in one building (1), some of the team members are located in different buildings or towns (2), some of the team members are located in different countries (3), some of the team members are located in different time zones with a big time difference between them (4)

Q73: In our team:
A: almost all of the team members have a lot of experience in software development (1), more than a half of our team members have a lot of experience in software development (2), less than a half of our team members are experienced in software development (3)

Q74: In our team:
A: people have dedicated roles, each person perfoms a low number of different roles (high-level of specialization) (1), there are a couple of roles that are performed by dedicated team members (2),

developers are responsible for requirements elicitation, design, development, testing and documenting the system (low-level of specialization) (3)

Q75: In our team the most common communication mechanisms among team members are: [face-to-face communication]
A: Rate severity (0 for not present, 7 for very strong)

Q76: In our team the most common communication mechanisms among team members are: [informal written communication]
A: Rate severity (0 for not present, 7 for very strong)

Q77: In our team the most common communication mechanisms among team members are: [formal written communication]
A: Rate severity (0 for not present, 7 for very strong)

Q78: In our team the most common communication mechanisms among team members are: [various types of video and voice conferencing]
A: Rate severity (0 for not present, 7 for very strong)

Q79: In our team the most common communication mechanisms among team members are: [other]
A: Rate severity (0 for not present, 7 for very strong)

Q80: Specify Other:
A: Text value

G3. Software development practices

Q81: Management should encourage regular interaction between developers and customers/business people [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q82: Management should encourage regular interaction between developers and customers/business people [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q83: Management should provide flexibility for employees to form project teams [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q84: Management should provide flexibility for employees to form project teams [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q85: There should be a clearly defined method to track the progress of the project [Current practice:]

A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q86: There should be a clearly defined method to track the progress of the project [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q87: There should be general guidelines and principles for software development but not detailed rules [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q88: There should be general guidelines and principles for software development but not detailed rules [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q89: Interaction with customers/business people should be for capturing the requirements at the beginning of the project and then for acceptance testing at the end of the project [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q90: Interaction with customers/business people should be for capturing the requirements at the beginning of the project and then for acceptance testing at the end of the project [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q91: Programming should start only after the design is completed [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q92: Programming should start only after the design is completed [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q93: Comprehensive documentation should be an essential part of software development [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q94: Comprehensive documentation should be an essential part of software development [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q95: All related documents should be updated when a requirement, design or code is changed [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q96: All related documents should be updated when a requirement, design or code is changed [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q97: The main focus of the team should be to get the code to work [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q98: The main focus of the team should be to get the code to work [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q99: The main focus of the team should be on the production of all artefacts (e.g. design documents, requirements documents) not just code [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q100: The main focus of the team should be on the production of all artefacts (e.g. design documents, requirements documents) not just code [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q101: Delivering software to customers should be done incrementally [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q102: Delivering software to customers should be done incrementally [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q103: Designing and coding should be done incrementally [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q104: Designing and coding should be done incrementally [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q105: Meetings should be planned well ahead with set agenda [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q106: Meetings should be planned well ahead with set agenda [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q107: Project members should frequently meet to update each other on progress of the project [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q108: Project members should frequently meet to update each other on progress of the project [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q109: A comprehensive written plan for the whole project should be developed at the start of the project [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q110: A comprehensive written plan for the whole project should be developed at the start of the project [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q111: Project planning should be incremental, one iteration at a time [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q112: Project planning should be incremental, one iteration at a time [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q113: Customers/ business people should be discouraged from changing requirements once they are specified [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q114: Customers/ business people should be discouraged from changing requirements once they are specified [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q115: How far a project has progressed should be determined by the phase the project is in (e.g. requirements phase, design phase, coding phase etc.) [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q116: How far a project has progressed should be determined by the phase the project is in (e.g. requirements phase, design phase, coding phase etc.) [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q117: How much functionality is in the current working code should be the sole criteria for determining progress of the project [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q118: How much functionality is in the current working code should be the sole criteria for determining progress of the project [My preference:]

A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q119: Once a piece of code starts working, it should rarely be modified [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q120: Once a piece of code starts working, it should rarely be modified [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q121: Regular changes to working code should be encouraged if they improve the code in some way (e.g. its design, its structure etc.) [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q122: Regular changes to working code should be encouraged if they improve the code in some way (e.g. its design, its structure etc.) [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q123: Management should clearly define each team member's role in a project [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q124: Management should clearly define each team member's role in a project [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q125: Documented rules and procedures should be available for every stage of the software development process [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q126: Documented rules and procedures should be available for every stage of the software development process [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q127: Procedures and processes should be allowed to be changed often if the change brings in an improvement [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q128: Procedures and processes should be allowed to be changed often if the change brings in an improvement [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q129: Test cases should be written before writing code [Current practice:]

A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q130: Test cases should be written before writing code [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q131: Testing should be a defined phase in project development [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q132: Testing should be a defined phase in project development [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q133: Testing and code development should not be distinct phases in a project [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q134: Testing and code development should not be distinct phases in a project [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q135: Team members should not have to wonder how their organisation manages to produce working software [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q136: Team members should not have to wonder how their organisation manages to produce working software [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q137: Organisations should be hierarchically structured [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q138: Organisations should be hierarchically structured [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q139: Meetings should be infrequent and unplanned [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q140: Meetings should be infrequent and unplanned [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q141: Changing working code should not be encouraged but cannot be prevented [Current practice:]

A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q142: Changing working code should not be encouraged but cannot be prevented [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q143: Breaking rules and procedures should be all right in order to get things done [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q144: Breaking rules and procedures should be all right in order to get things done [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q145: Before we start designing or coding we should try to elicit requirements as comprehensively as possible [Current practice:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

Q146: Before we start designing or coding we should try to elicit requirements as comprehensively as possible [My preference:]
A: Very strongly disagree (-3), Strongly disagree (-2), Disagree (-1), Neither agree nor disagree (0), Agree (1), Strongly agree (2), Very strongly agree (3)

G4. Software Testing in your organisation

Q147: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation: [We never have to wait for source code in order to start the testing process]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q148: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation: [The necessary infrastructure for executing test cases is always in place]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q149: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation: [Our management encourages us to participate on testing conferences/workshops/trainings]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q150: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation: [I have enough time to test the software before its deployment]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q151: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation: [There are no changes done on code during integration testing]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q152: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation: [During integration testing, I do not mind code to be changed while I'm testing it]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q153: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation: [We measure testing adequacy using code coverage (e.g., statement coverage)]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q154: Which testing technique do you use in your organisation? (if you are not sure of the name of the technique, try to explain in short how you perform testing)
A: Text value

Q155: Do you use any tools for testing within your organisation? Please provide us with their names:
A: Text value

G5. Component development

Q156: The component we develop is intended to be used/reused in:
A: one particular context (or system) (1), many similar contexts (e.g. product-lines) (2), restricted number of not fully known contexts (3), many, not fully known contexts (4)

Q157: The component we develop is intended to be used [only in my organization|only by other organizations]
A: 100/0 (1), 83.33/16.66(2), 66.66/33.33(3), 50/50 (4), 33.33/66.66(5), 16.66/83.33(6), 0/100 (7), don't know (8)

Q158: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [In our project we put extra efforts to predict and analyze future requirements for component usage]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q159: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [From my experience, if enough efforts for building a good and maintainable design of a component are not spent in advance, the cost of change for a component is really high]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q160: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [We use different mechanisms to collect and evaluate feedback from the end customers of our component]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q161: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [We give the end users access to early versions (alpha/beta) of the component we build]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q162: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [We give access to most of the component source code to the end customers (just to read it, no permissions to change or reuse it)]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q163: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [In our project we rely more on individual skills and knowledge than on formal validation and verification mechanisms such as reviews and inspections]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q164: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [We equip our components with suites of tests]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q165: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [We certify our components]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q166: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [We automate our testing process as much as possible]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q167: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [The current state of documentation and verification of our component is enough for the needs of the component users]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q168: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [The verification of the system(s) built using our component is made easier because our component is verified separately]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q169: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project [It is difficult to verify a component in isolation, without a system context]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q170: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use pair programming in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q171: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use pair-programming for learning purposes (e.g. when introducing new people to the team)]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q172: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use pair-programming for growing the confidence in implementation code]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q173: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use test-driven development in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q174: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use refactoring in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q175: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use continuous integration in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q176: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use frequent and automated builds in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q177: Please, describe some of the difficulties in verifying a component in isolation, without a system context
A: Text value

Q178: In our project we use the following testing types: [unit testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q179: In our project we use the following testing types: [functional black-box testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q180: In our project we use the following testing types: [different testing types based on code analysis]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q181: In our project we use the following testing types: [performance testing (including load and stress testing)]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q182: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [security testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q183: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [testing of documentation]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q184: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [unit testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q185: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [functional black-box testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q186: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [different testing types based on code analysis]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q187: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [performance testing (including load and stress testing)]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q188: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [security testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q189: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [testing of documentation]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q190: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [other]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q191: In my opinion, the following factors have impact on delaying the deliveries of our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [extensive documentation]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q192: In my opinion, the following factors have impact on delaying the deliveries of our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [extensive verification of system functionality and performance]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q193: In my opinion, the following factors have impact on delaying the deliveries of our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [formal reviews and inspections]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q194: In my opinion, the following factors have impact on delaying the deliveries of our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [inefficient communication mechanisms with clients\business people]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q195: In my opinion, the following factors have impact on delaying the deliveries of our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [inefficient communication mechanisms within the team]
A: Scale of 0 to 7 (0 for never, 7 for always)

G6. System characteristics

Q196: The number of components in the system we build is (use your organization's or project's definition of a component):
A: one (1), a couple (2), less than 10 (3), less than 30 (4), more than 30 (5), hard to count (6)

Q197: In the system we build, the ratio of components that are implemented to suit this particular system to components that are general and intended to be reused later is: [custom-made|general]
A: 100/0 (1), 83.33/16.66(2), 66.66/33.33(3), 50/50 (4), 33.33/66.66(5), 16.66/83.33(6), 0/100 (7), don't know (8)

Q198: In the system we build, the ratio of components developed within our organization to ones acquired from outside our organization is: [all in-house|all outside]
A: 100/0 (1), 83.33/16.66(2), 66.66/33.33(3), 50/50 (4), 33.33/66.66(5), 16.66/83.33(6), 0/100 (7), don't know (8)

Q199: Within the components that are acquired from outside, the ratio of components that are developed to our demand (subcontracting) to ones that are already developed, generally reusable components (a.k.a. Off-The-Shelf, OTS) is: [all subcontracting|only COTS]
A: 100/0 (1), 83.33/16.66(2), 66.66/33.33(3), 50/50 (4), 33.33/66.66(5), 16.66/83.33(6), 0/100 (7), don't know (8)

Q200: Please indicate how strongly you agree or disagree with the following statements with respect to the system you build [When building our system, all of the work consists of wrapping, gluing, adapting, and integrating existing code/components (which we do not modify)]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q201: Please indicate how strongly you agree or disagree with the following statements with respect to the system you build [We have a systematic product-line (i.e., we build system variants by combining existing components in different ways)]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

G7. System development

Q202: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [In our project we put extra efforts to predict and analyze future requirements for the system we build]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q203: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [Redesigning a system is not a big issues when building a system out of components]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q204: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [We always involve customers\business people during component selection and evaluation process]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q205: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [We use test cases provided with candidate components as a means to evaluate them]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q206: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [We create test cases to evaluate candidate components for our system]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q207: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [From my experience, using tests to evaluate candidate components is more efficient than reading comprehensive documents describing component behaviour]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q208: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [We use the tests created during component selection process further as integration tests]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q209: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [We automate our testing process as much as possible]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q210: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [We give the end users access to early versions (alpha/beta) of the component we build]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q211: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [We use different mechanisms to collect and evaluate feedback from the end customers of our component]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q212: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project [In our project we rely more on individual skills and knowledge than on formal validation and verification mechanisms such as reviews and inspections]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q213: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use pair programming in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q214: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use pair-programming for learning purposes (e.g. when introducing new people to the team)]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q215: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use pair-programming for growing the confidence in implementation code]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q216: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use test-driven development in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q217: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use refactoring in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q218: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use continuous integration in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q219: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project [We use frequent and automated builds in our project]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q220: We use prototyping in our project to [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [clarify requirements]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q221: We use prototyping in our project to [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [evaluate component assemblies]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q222: We use prototyping in our project to [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [examine technology or architecture]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q223: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [unit testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q224: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [functional black-box testing of components]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q225: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [functional black-box testing of the whole system]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q226: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [different testing types based on code analysis of the glue code]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q227: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [performance testing (including load and stress testing)]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q228: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [security testing]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q229: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [testing of documentation]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q230: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [unit testing (i.e. individual functions and classes)]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q231: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [functional black-box testing of components]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q232: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [functional black-box testing of the whole system]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q233: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [different testing types based on code analysis of the glue code]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q234: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [performance testing (including load and stress testing)]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q235: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [security testing]

A: Scale of 0 to 7 (0 for never, 7 for always)

Q236: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [testing of documentation]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q237: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]: [other]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q238: In my opinion, the following factors have impact on increasing the time-to-market interval in our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [extensive documentation]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q239: In my opinion, the following factors have impact on increasing the time-to-market interval in our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [extensive verification of system functionality and performance]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q240: In my opinion, the following factors have impact on increasing the time-to-market interval in our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [formal reviews and inspections]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q241: In my opinion, the following factors have impact on increasing the time-to-market interval in our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [inefficient communication mechanisms with clients\business people]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q242: In my opinion, the following factors have impact on increasing the time-to-market interval in our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [inefficient communication mechanisms within the team]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q243: In my opinion, the following factors have impact on increasing the time-to-market interval in our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]: [inefficient communication mechanisms within component vendors]
A: Scale of 0 to 7 (0 for never, 7 for always)

Q244: Please answer the following statements about in-house components: [We have explicit demands on the verification and documentation of in-house built components]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q245: Please answer the following statements about in-house components: [The current state of documentation and verification of in-house built components is enough for our needs]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q246: Please answer the following statements about in-house components: [The verification of the system is made easier because in-house built components are verified separately]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q247: Please answer the following statements about subcontacted components: [We have explicit demands on the verification and documentation of subcontracted components]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q248: Please answer the following statements about subcontacted components: [The current state of documentation and verification of subcontracted component is enough for our needs]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q249: Please answer the following statements about subcontacted components: [The verification of the system is made easier because subcontracted components are verified separately]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q250: Please answer the following statements about OTS components: [We have explicit demands on the verification and documentation of OTS components]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q251: Please answer the following statements about OTS components: [The current state of documentation and verification of OTS component is enough for our needs]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q252: Please answer the following statements about OTS components: [The verification of the system is made easier because OTS components are verified separately]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q253: Please answer the following statements about OTS components: [When searching for and selecting pre-existing components (OTS) the requirements on the component are specified fully in advance]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q254: Please answer the following statements about OTS components: [When searching for and selecting pre-existing components (OTS) it is easy to break down system requirements to component requirements]
A: Very strongly disagree (7), Strongly disagree (6), Disagree (5), Neither agree nor disagree (4), Agree (3), Strongly agree (2), Very strongly agree (1)

Q255: Please describe the difficulties with verification of components in isolation. Please elaborate on any differences between in-house developed components, subcontracted components, and OTS components
A: Text Value

G8. Discretional information

Q256: The name of our project is:
A: Text value

Q257: The name of our organization is:
A: Text value

Appendix C: Full Responses

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Q1	M	M	M	M	M	M	M	M	M	M	M	M	M	F	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		M	M	M	M	M	M	M	M	M	M	F	M
Q2	2	6	4	3	4	4	4	7	5	3	3	3	5	3	5	3	5	5	4	4	3	7	7	4	6	6	7	6	5		3	5	4	5	5	5	4	4	5	7	4	5
Q3	2	4	3	2	3	4	3	2	3	2	3	3	3	3	2	3	3	3	2	2	3	2	3	2	4	2	4	3	2		3	3	2	4	2	3	2	3	3	2	3	3
Q4	2	6	3	2	3	2	3	3	5	3	2	2	5	2	3	3	4	5	4	4	2	6	6	5	5	6	6	6	5		3	4	3	4	6	4	4	3	3	6	3	2
Q5	2	6	1	2	3	2	2	1	4	2	2	1	3	2	3	2	3	3	2	3	2	6	1	3	3	3	6	6	4		2	4	2	4	2	4	2	2	2	4	3	2
Q6	Y	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	N	Y	Y	Y	Y	N	N	Y	N	Y		N	N	N	N	Y	Y	N	Y	Y	Y	N	N	Y
Q7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N	N	N	N	N	N	N	N	N	N	N	N
Q8	Y	N	N	N	Y	N	N	Y	N	Y	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N	N	N	Y	Y	N	N	N	N	N	N	N
Q9	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N		N	N	N	Y	N	N	N	N	N	N	N	N
Q10	N	Y	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N		N	N	N	N	N	N	N	N	N	N	N	N
Q11	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N		N	N	N	N	N	N	N	N	N	N	N	N
Q12	Y	N	N	N	N	Y	N	N	N	Y	N	N	Y	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N		N	N	N	Y	N	N	N	N	N	N	N	N
Q13			(1)							(2)												(3)		(4)		(5)					(6)	(7)				(8)				(9)	(10)	

(1) architecht

(2) SW Architect

(3) Technical Architect

(4) Architect

(5) Software Architect

(6) Coach

(7) Prouduct Architect

(8) Test Team Lead

(9) Enterprise Architect

(10) Quality Engineer

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Q14	2	1	0	6	5	3	5	0	0	4	7	7	1	7	4	7	3	6	7	5	6	5	5	1	3	0	0	1	5		2	2	1	1	5	2	7	7	5	0	1	6
Q15	2	6	3	2	3	2	1	6	4	2	0	1	6	4	7	1	5	6	4	4	5	3	3	6	7	5	7	5	5		0	6	6	0	5	4	3	5	4	7	4	0
Q16	3	5	4	6	5	3	3	2	1	5	7	3	3	5	5	4	3	6	5	4	2	6	4	6	5	5	3	2	5		1	6	1	3	6	1	7	5	4	0	1	6
Q17	2	5	6	0	4	2	2	3	0	3	0	0	4	1	5	0	1	2	6	2	6	3	3	6	7	1	7	3	1		0	2	6	3	2	1	3	2	4	1	4	0

Q18	3	6	1	4	3	1	1	0	0	2	4	1	4	4	5	6	6	4	6	2	0	6	5	6	5	2	6	1	5		0	2	3	0	6	1	3	5	3	0	5	4
Q19	3	7	1	7	4	1	1	5	2	2	4	0	7	0	7	1	1	4	4	4	0	1	2	5	4	1	3	7	1		4	4	5	4	2	3	3	4	2	7	7	2
Q20	0	7	0	0	0	0	0	3	7	0	0	0	0	0	4	0	0	0	3	0	0	0	0	4	5	4	1	7	0		1	6	7	0	0	0	0	0	0	7	3	0
Q21	6	7	0	0	4	0	0	3	1	2	0	0	7	0	6	1	0	3	3	4	0	0	0	3	2	3	0	5	1		4	2	4	4	2	1	0	1	2	7	6	0
Q22	2	2	0	6	3	3	1	0	0	2	1	3	1	1	1	2	6	5	5	5	1	3	4	2	2	0	0	4	5		4	1	0	0	4	6	4	5	4	0	6	2
Q23	2	3	1	5	3	3	1	1	4	1	0	0	5	1	5	3	6	3	5	5	1	4	3	1	3	5	0	5	5		5	6	6	0	6	5	4	2	1	1	7	0
Q24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	5	0	0	0	0	0	0		0	0	0	0	0	0	6	0	0	0	0	2
Q25																	(1)		(2)		(3)															(4)						(5)

(1) safety

(2) Planning resources

(3) System architecture, ie more than just software. Defining interfaces, protocols etc. Deciding required hardware size.

(4) Planning test activitiesDefining test approachesPerforming risk analysisTest automation

(5) Meetings. Team managing.

Q26	4	5	6	6	1	4	6	4	4	2	3	2	6	4	2	6	6	6		4	6	6	6	6	6	6	6	5	3		5	6	4	6	6	2	6	5	5	6	5	6
Q27	1	6	3	2	1	1	1	1	7	1	1	1	2	1	2	4	1	3	2	2	5	3	2	1	5	4	1	5	1		6	6	2	5	2	5	2	2	1	7	5	2
Q28	4	5	1	3	6	6	6	5		1	4	3	6	6	1	2	4	4	4	3	1	2	4	4	1	3	6	4	5		3	2	4	1	3	1	3	3	5	3	3	5
Q29	1	1	1	1	2	1	1	1		2	2	2	1	2	2	5	1	1	1	1	1	1	7	7	1	1	1	1	1		1	5	1	1	1	1	1	1	1	1	1	1
Q30	1	1	1	1	2	1	1	1		2	2	2	1	2	2	1	1	1	1	1	1	1	7	7	1	1	1	1	1		2	5	1	1	1	1	1	1	1	1	1	1
Q31	2	2	0	2	5	3	1	0	0	3	5	1	3	2	3	4	5	2	3	3	5	5	3	5	2	3	5	2	0		2	5	0	5	2	0	1	3	5	5	2	0
Q32		(1)				(2)	(3)																									(4)			(5)		(6)					(7)

(1) dual V

(2) V-model

(3) RUP based

(4) bit waterfall, bit agile

(5) iterative

(6) incremental

(7) ICE

Q33	6	6	6	6	2	6	6	2		3	3		2	6	3	1	3	6	6	6	1	6	6	1	6	1	6	6	1		3	5	6	1	1	2	1	6	6	3	6	6
Q34	3	2	2	2	2	1	1	1		1	1	4	2	3	2	2	1	3	3	2	2	4	2	1	2	2	1	2	1		3	3	1	2	2	2	2	2	4	3	2	2
Q35	3	2	2	2	2	1	1	1		1	1	4	2	3	1	2	1	2	3	3	2	2	2	3	2	2	2	2	1		3	3	1	2	2	2	2	2	1	3	2	2
Q36	2	1	2	4	2	1	3	1		1	1	1	2	1	2	1	2	2	2	1	3	2	1	2	2	1	1	2	3		1	2	2	3	2	2	3	1	1	1	2	1

Q37	4	1	0	3	3	1	0	4	0	4	3	0	4	5	3	4	1	3	4	3	4	0	5	3	3	4	3	1	3	0	4	0	3	2	3	2	2	3	4	4	3	3
Q38			(1)				(2)																(3)										(4)									

(1) fuel economy

(2) data (and indirectly, dangerous decisions could be made based on wrong data)

(3) Reputation of us and the client (government)

(4) Business

Q39	(1)	(2)	(3)	(4)		(5)	(6)	(7)		(8)	(9)		(10)			(11)	(12)	(13)		(14)	(15)	(16)	(17)	(18)	(19)	(20)		(21)	(22)	(23)		(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)

(1) embedded domain

(2) security

(3) automotive embedded system

(4) Global telecom, transport network area

(5) vehicular, safety-critical

(6) database system to manage simulation data

(7) Industrial

(8) Business Support Systems

(9) Atomotive industry

(10) metals

(11) Healthcare IT

(12) earth moving machinery

(13) Automotive

(14) Forestry

(15) Physics simulation

(16) Education -- for adults

(17) SCADA

(18) integration

(19) public services

(20) financial services

(21) security

(22) travel agency

(23) Simulator

(24) Telecom

(25) Transportation

(26) Automotive

(27) telecom

(28) Medical Systems

(29) Automotive

(30) Web

(31) Industrial application

(32) Internet, Workflow

(33) Security

(34) Telecom

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Q40	Y	Y	Y	Y	N	Y	N	Y	N	N	N	N	N	N	N	N	Y	Y	N	Y	N	N	Y	N	N	N	N	Y	N	N	N	N	Y	Y	Y	Y	Y	N	N	N	N	Y
Q41	N	Y	N	N	N	N	N	N	N	Y	N	Y	N	Y	Y	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	Y	N	Y	N
Q42	N	Y	N	N	Y	N	Y	N	N	N	Y	N	Y	N	N	N	Y	N	Y	N	N	Y	N	Y	N	N	N	N	Y	N	Y	Y	N	N	N	N	N	N	N	N	Y	N
Q43																							(1)							(2)			(3)									(4)

(1) enterprise server

(2) back-office service

(3) OSS/BSS

(4) software solution

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Q44	3	2	0	1	3	1	3	3	1	3	3	3	3	3	3	3	1	0	3	3	3	3	3	3	3	1	3	3	1	3	1	3	3	1	1	1	1	3	3	3	3	3
Q45			(1)														(2)																									

(1) software intensive system

(2) Real-time environment

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Q46				5		3		4									5												1			5		5			5	5	5	5		
Q47		5																																								
Q48	4			2		3	1		3	3	3	5	3	3	4		5	4	4	5	3	3	5		4	5		3		5	4							4	2	5	5	5
Q49	Y	Y	N	Y	N	N	Y	Y	N	Y	N	Y	N	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	N	Y	Y	Y	Y	N	Y	Y	Y
Q50	Y	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N
Q51	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Q52																																										
Q53	1	3	4	3	1	3	1	1	1	4	1	1	3	4	1	3	1	1	1	1	4	3	3	3	1	1	3	3	3	1	3	0	2	1	1	3	1	1	1	3	4	1
Q54																																	(1)									

(1) New and Enhancement

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Q55	Y	Y	Y	Y	Y	N	N	N	N	N	Y	N	Y	N	N	N	Y	N	N	Y	N	N	N	Y	Y	N	N	Y	N	Y	Y	Y	Y	N	N	Y	N	N	N	Y	Y	Y

Q56	N	N	N	Y	Y	Y	N	Y		N	Y	N	Y	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	Y	N	N	N	N	N	N	Y	Y	N	N	N	Y	Y	N	N	N
Q57	N	Y	N	N	N	N	Y	N		N	N	Y	N	N	N	N	N	N	N	Y	N	N	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	Y	N	Y	N	Y	N	Y	N
Q58	Y	N	N	N	N	N	N	N		N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Q59	2	1	1	3	1	1	1	2		1	4	4	3	2	4	1	1	3	3	1	1	2	4	2	2	1	1	1	2	2	1	2	2	1	1	1	2	2	4	2	1	2	
Q60	4	2	3	3	3	1	5	1		2	3	3	3	3	2	2	3	5	5	5	5	2	2	3	3	3	4	2	1	5	2	2	1	4	3	4	3	3	1	4	2	5	
Q61	1	1	5	1	2	3	5	2		2	6	6	6	6	2	6	2	1	1	1	4	6	1	3	2	2	2	2	1	2	1	6	2	6	2	4	2	6	6	3	1	3	
Q62	1	1	4	4	2	5	4	4		4	5	5	3	4	1	4	1	1	1	4	5	4	5	5	1	2	2	1	5	4	4	5	3	4	1	3	1	3	5	2	1	2	
Q63	3	0	2	0	6	6	0	2		5	7		0	4	7	4	3	2		0	0	5	6	6	7	5	0	0	0	0	5	7	4	6	0	1	3	0	0	6	0	0	
Q64	3	5	4	7	3	5	0	4		4	7	4	0	1	5	4	4	3		6	5	5	5	5	7	5	1	7	0	6	6	7	6	6	7	5	5	7	2	5	6	5	
Q65	5	5	5	5	3	5	5	5		3	4	2	3	7	3	6	6	5		6	7	6	6	1	5	5	4	6	7	5	3	7	4	5	5	5	7	7	4	2	6	4	
Q66	3	5		6	5	7	1	4		5	7		0	7	3	2	4	7		6	5	4	5	6	6	5	6	6	4	3	4	7	4	4	3	5	5	2	3	1	5	6	
Q67	4	5	5	4	0	7	1	1		5	7	6	0	1	3	1	4	6		2	3	3	3	1	3	3	4	7	0	2	6	7	5	4	2	3	5	1	2	1	5	5	
Q68	4	6	6	7	7	7	3	6		7	7	4	6	2	5	5	6	7		6	2	3	5	5	5	4	6	7	0	6	4	7	6	5	6	6	7	3	5	3	6	7	
Q69	3	7	6	7	5	0	1	6		7	5	3	0	2	6	5	1	7		6	0	4	6	6	5	6	6	7	0	6	7	7	6	3	2	4	7	4	3	5	6	6	
Q70	0	0	0		0	7	0			0	0	0	0	0	0	0			0	0		0			0		0	0	0	0		0			0	0		0	0	0	
Q71						(1)																																					
(1) safety
Q72	1	4	2	1	1	1	1	1		2	3	1	1	1	3	4	1	2	3	3	2	4	1	2	2	3	2	4	1	4	1	4	2	4	1	2	1	1	1	2	4	1
Q73	1	1	1	1	1	1	2	1		2	2		1	2	2	1	2	1	2	1	3	3	1	2	2	2	1	1	2	1	3	3	2	2	3	2	1	2	1	2	2	1
Q74	2	2	1	3	3	3	3	2		2	3	2	2	3	2	2	2	2	1	1	1	2	3	2	1	2	1	3	2	3	2	3	2	2	2	2	3	2	3	2	2	1
Q75	7	7	7	7	7	7	5	5		7	5	7	7	7	6	7	7	7		5	6	5	6	6	5	5	7	7	6	7	7	7	6	5	7	6	7	7	5	7	7	7
Q76	4	5	7	5	1	4	5	3		4	7	3	4	4	6	5	6	5		5	5	5	4	7	5	1	7	4	6	5	6	1	4	4	5	2	5	6	5	5	6	5
Q77	4	7	3	2	0	2	2	6		1	3	0	1	0	6	5	1	4		0	1	5	2	1	6	4	7	5	4	3	2	5	1	1	3	6	3	4	3	1	4	2
Q78	0	7	0	0	0	0	0	1		6	7	0	0	0	5	3	0	1		6	3	4	2	4	5	0	0	4	6	1	1	6	0	5	0	0	0	0	0	1	4	1
Q79		0	0		0		0			0	0	0	0		0	0			0	0		0	0		5		0		6	0	0		0			0	0	0	0			
Q80																									(1)			(2)														
(1) instant messaging
(2) MSN
Q81	1	3	1	-2	1	1	0	-1	0	0	-1	0	3	2	2	0	1	2	1	1	-2	1	2	-1	0	0	3	3	2	2	3	-1	0	-1	-1	-1	1	2	2	-1	1	-1
Q82	2	3	1	1	1	1	0	1	2	-1	1	-1	3	2	3	2	1	2	2	3	2	1	2	2	2	3	3	3	2	2	-1	-1	2	2	1	2	3	2	2	-1	2	0
Q83	3	2	0	-1	2	0	-1	0	-2	1	1	2	3	1	2	1	0	2	0	1	0	-1	1	-1	1	1	1	2	-1	2	2	-1	-1	-2	-1	2	0	-1	1	-1	-2	1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Q84	3	2	0	3	2	0	0	2	-2	2	1	2	3	3	2	1	2	3	2	2	0	-1	1	-1	-1	1	1	2	1	2	2	-1	0	0	1	2	2	1	2	0	1	3
Q85	2	3	2	1	1	2	-3	0	1	1	0	0	1	2	1	1	1	0	0	0	-1	1	1	2	1	-1	3	3	0	1	3	1	1	1	1	1	2	-1	1	1	1	2
Q86	2	3	2	1	1	3	2	3	3	2	3	2	1	1	2	1	1	1	2	3	1	1	2	2	2	2	3	3	2	1	1	2	2	2	1	2	1	2	2	2	2	1
Q87	3	2	1	1	2	2	-1	-1	1	2	3	0	-2	2	1	1	0	2	0	2	-2	1	1	2	1	2	3	3	0	2	3	-1	1	-2	-1	2	1	0	0	0	1	2
Q88	3	2	3	2	1	2	1	3	2	2	3	1	1	2	1	1	3	2	2	2	2	1	2	2	2	2	3	3	2	2	1	1	1	1	-1	2	2	2	1	2	3	3
Q89	-1	2	1	0	-2	2	-2	1	0	0	2	-2	3	-3	0	1	1	-1	1	1	1	0	0	0	1	-3	-1	3	0	-2	3	-2	1	0	-1	2	1	2	-1	0	-1	1
Q90	-1	2	1	-3	-1	2	1	1	0	1	2	-2	3	-3	-2	1	2	-2	2	2	-1	0	0	-2	1	-3	-1	3	-3	-3	-3	-3	1	-2	-2	2	3	2	-1	-2	-1	2
Q91	0	-3	0	2	-2	-1	-2	1	-2	-1	-1	-2	1	1	-1	1	0	1	0	0	-1	1	1	0	0	-3	1	-3	1	-2	-1	-2	2	-2	-2	-1	1	-1	0	0	-1	1
Q92	0	-3	0	-3	-1	-1	-2	2	-1	2	0	2	1	1	1	1	2	-2	2	0	2	2	0	2	0	-3	1	-3	-1	-2	-3	2	2	1	2	-1	3	-1	1	2	-1	-2
Q93	1	-3	0	1	-1	-1	1	2	0	1	1	-1	0	2	1	2	0	1	2	1	-2	1	2	-1	-1	0	3	-3	0	2	2	-1	2	-1	0	2	0	1	0	1	-3	2
Q94	1	-3	1	0	1	-1	-1	3	1	2	1	1	0	2	2	2	2	1	2	2	3	2	2	2	2	1	3	-3	1	1	0	2	3	1	-1	2	2	3	0	2	-1	-1
Q95	1	-3	1	1	-2	2	1	1	1	1	1	1	0	2	-1	2	0	1	2	-1	-3	0	-1	-1	1	1	3	-1	0	2	0	-1	0	-2	1	2	1	1	1	1	-1	2
Q96	0	-3	2	1	1	2	1	3	3	2	3	2	3	2	2	2	2	1	2	-1	3	1	2	2	2	2	3	-1	1	2	2	2	2	1	1	2	3	3	1	1	1	2
Q97	3	3	3	-1	-1	0	2	1	-2	2	2	0	2	-1	0	1	1	2	2	2	2	0	2	0	1	-2	1	2	1	1	1	1	1	-1	1	-2	2	2	0	0	1	2
Q98	3	3	1	3	-1	0	1	2	-2	2	2	-1	2	-1	-1	1	-1	2	2	2	-1	0	1	1	0	-2	1	2	3	2	2	-2	0	-1	2	-2	2	1	0	0	2	3
Q99	0	-2	1	1	-2	1	0	0	1	0	0	0	1	1	0	2	0	1	1	1	-1	0	1	-1	1	1	-1	0	1	2	-1	1	0	-1	1	2	1	-2	1	0	-1	2
Q100	0	-2	3	-1	1	1	0	3	2	1	2	-1	1	1	-1	2	0	1	2	1	2	0	2	2	2	2	-1	0	3	2	-2	3	0	1	3	2	0	1	1	2	1	2
Q101	0	3	1	3	1	1	2	1	2	-1	0	1	0	2	0	2	1	2	1	2	-2	1	-1	-1	0	1	1	3	0	-1	0	-2	-1	1	2	0	1	0	0	0	-2	1
Q102	2	3	3	3	1	1	1	2	3	1	0	1	2	2	1	3	1	3	2	2	3	1	0	1	0	3	1	3	1	-1	2	2	-1	0	2	2	2	0	0	1	1	1
Q103	2	2	1	1	1	0	2	1	3	1	1	1	1	1	0	2	1	2	2	2	-2	0	0	-1	2	1	1	3	0	1	3	-2	1	0	1	1	1	1	0	0	2	2
Q104	2	2	1	3	1	0	2	2	3	2	1	1	2	1	1	2	1	3	2	2	3	0	0	2	2	3	1	3	2	2	3	2	1	0	2	2	2	2	0	0	2	2
Q105	2	1	3	1	1	-2	-1	-1	1	-1	2	0	2	0		1	1	1	2	1	1	0	-1	-1	0	1	1	1	0	2	-3	-2	0	0	0	2	0	1	1	-1	-1	1
Q106	2	1	3	0	1	-2	-1	2	2	-1	2	0	3	0	2	1	2	1	2	1	0	0	2	3	-1	1	1	1	0	2	-3	3	3	0	-2	2	3	1	2	-1	1	0
Q107	3	3	3	2	-1	3	1	0	1	1	3	1	2	3		3	1	2	2	0	1	1	0	0	1	1	2	3	1	2	1	1	1	-1	3	1	2	3	1	1	3	1
Q108	3	3	3	3	-1	3	2	2	3	1	3	2	3	3	2	3	1	2	2	0	1	1	2	3	2	3	3	2	3	3	2	3	2	1	3	2	1	3	1	1	3	2
Q109	3	-3	1	1	-2	0	1	2	0	1	1	0	3	1		1	0		2	0	1	1	0	1	2	2	2	-1	0	1	1	2	-1	-2	-1	-1	1	0	1	0	-3	2
Q110	-1	-3	0	-1	-1	0	-2	3	0	-1	1	1	3	0	1	1	1		2	2	-1	1	1	2	2	2	2	-1	1	1	1	2	1	1	-3	0	2	2	1	0	-3	-1
Q111	1	3	-1	1	1	2	1	2	2	1	1	0	3	1		1	1		1	2	1	0	0	0	2	1	1	1	0	1	1	-2	0	0	2	-1	1	1	0	-1	-1	-2
Q112	2	3	1	3	2	1	1	2	2	2	1	0	3	0	1	1	1		2	2	0	0	0	1	2	3	1	1	3	2	1	-1	1	0	2	2	1	1	0	-1	1	-2
Q113	-1	-3	1	3	-2	-1	-2	-1	-2	1	1	3	0	2		-1	0	-1	2	1	2	0	2	0	0	-1	1	-3	0	0	0	-2	0	1	1	-1	0	-3	0	1	-1	1
Q114	-1	-3	-1	0	1	-1	2	2	-2	1	3	3	-1	2	1	1	2	-1	2	1	-1	0	1	0	0	-1	1	-3	-3	0	-2	2	-2	-1	-2	-1	2	1	0	2	-1	-1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Q115	-1	-3	3	-1	-1	2	1	1	-1	-1	1	0	0	-1	1	0		2	0	0	1	0	1	0	0	-1	-3	0	-3	-1	2	1	1	1	-2	1	1	0	-1	-3	-1
Q116	-1	-3	-1	-3	-1	1	-1	1	-1	-2	1	-1	1	-1	1	1		2	0	0	1	0	-1	0	-2	-1	-3	-3	-3	-2	2	-1	0	-2	-2	1	1	0	-1	-3	-1
Q117	1	2	-1	1	-2	-2	2	1	-2	0	2	1	0	-1	0	0		2	1	2	0	0	-2	1	2	-1	2	0	-2	2	2	-1	-1	0	-2	0	1	-1	0	-1	1
Q118	1	2	1	2	-3	-3	1	2	-2	-1	2	1	0	-1	0	-2		2	1	-1	0	0	-2	1	3	-1	2	0	-2	-3	-2	-2	-1	2	-2	0	1	-1	0	-2	2
Q119	0	-1	-1	0	0	-1	-2	1	1	2	0	1	0	-3	0	0		2	-1	2	0	0	-2	-1	-2	1	-3	0	-1	-1	-2	1	0	-2	-1	0	-3	0	0	1	1
Q120	0	-1	-1	-1	-1	-1	-2	1	2	2	-1	-1	0	-3	-2	1		2	-1	-2	0	0	-2	-1	-2	1	-3	-2	-1	-2	-2	2	-2	-2	1	0	0	0	0	-1	-2
Q121	1	2	1	1	0	1	-2	1	-2	1	1	0	0	0	1	1		2	-1	-1	0	0	0	0	0	-2	2	0	0	1	-1	0	-1	2	0	1	-2	0	0	1	-1
Q122	2	2	1	1	0	1	2	1	-1	1	3	1	1	2	1	2		2	-1	1	0	1	0	1	0	-2	2	3	0	3	2	0	1	2	-1	2	1	0	-1	2	3
Q123	1	1	0	-3	0	1	1	2	1	1	2	0	1	0	2	0	-1	2	0	-1	1	0	1	1	1	3	3	0	-1	-1	-1	1	-2	-2	1	1	1	1	-1	-1	1
Q124	1	1	0	-3	0	1	1	2	1	2	2	1	1	-1	2	1	-1	2	2	1	1	0	2	1	1	3	3	2	-1	-2	2	2	2	2	-2	2	3	-1	1	-1	1
Q125	0	2	0	0	-2	1	2	1	0	-1	3	-1	1	1	2	-1		2	0	-1	0	-2	0	-1	2	-1	1	0	1	-1	2	1	-1	2	1	1	1	1	1	0	1
Q126	-1	2	1	-1	0	1	1	3	0	1	3	1	3	0	2	2		2	1	-1	1	-1	1	0	2	-1	1	1	1	-1	2	1	0	1	2	2	1	1	0	1	-1
Q127	2	3	2	0	0	1	2	1	2	0	0	0	1	1	0	1		2	1	1	1	0	1	1	2	-1	3	0	1	-3	-1	0	1	-1	0	1	1	1	-1	2	0
Q128	2	3	2	-2	0	1	1	3	3	1	2	-1	2	2	0	1		2	1	1	1	2	1	1	2	-1	3	2	1	-3	-1	3	1	1	1	1	1	1	-1	2	2
Q129	1	-3	-1	1	-2	-1	-2	-2	-1	0	-3	-1	-1	0	1	-1		2	1	-2	1	-2	-1	-1	1	2	-1	0	0	-2	2	-1	-2	-2	0	-1	0	0	-1	-1	0
Q130	2	-3	1	1	-1	-1	-1	2	-1	2	1	0	-3	-2	2	2		2	1	1	1	1	1	2	2	2	-1	2	0	2	2	3	0	1	0	1	2	0	1	1	0
Q131	1	-3	1	3	-2	-1	2	2	-2	1	3	1	0	2	1	1		2	2	1	0	-1	1	1	-2	3	0	1	3	1	3	0	1	1	2	1	3	0	1	0	1
Q132	3	-3	1	3	0	-1	1	2	-2	2	3	1	2	3	1	2		2	2	2	0	0	1	1	-2	3	0	-1	3	1	3	2	0	-1	2	2	3	1	1	-1	-1
Q133	1	3	0	3	-1	1	1	1	2	0	0	0	0	2	1	0		2	-1	-1	1	0	-1	0	2	-3	1	-1	2	-1	-3	0	-1	-1	-1	-1	-3	0	-1	1	-1
Q134	2	3	0	3	0	1	2	2	2	1	3	1	2	3	1	-2		2	-1	1	1	2	-1	0	2	-3	1	1	2	1	-3	0	0	1	-1	-1	-3	-1	-1	2	1
Q135	0	3	1	-1	1	3	-2	1	2	1	0	0	1	0	1	1		2	-1	0	1	0	2	-1	2	3	3	0	2	-1	2	1	0		0	-1	0	0	0	2	3
Q136	0	3	1	3	1	3	3	2	2	2	0	0	2	-2	1	2		2	-1	3	1	0	2	-1	2	3	3	-2	3	-2	2	-1	0		0	-1	3	1	-1	2	3
Q137	0	-2	2	2	1	-2	1	0	1	-1	1	1	0	2	2	1		2	0	1	1	-1	2		-1	3	-1	0	0	0	2	1	2	3	0	0	1	0	0	1	1
Q138	0	-2	1	0	1	-2	1	1	1	-1	1	1	-3	-1	0	-2		2	0	0	1	-1	1		-3	3	-1	0	0	0	0	1	0	1	0	0	-3	0	-1	1	0
Q139	-1	-2	-3	-1	2	-3	-2	0	-2	-1	-3	0	1	-1	0	-1	1	-1	-1	-1	-1	1	-1	1	0	-3	-1	1	2	-1	1	0	-1	-2	-2	-2	-1	0	-1	-1	-1
Q140	-2	-2	-3	0	0	-3	-2	-2	-2	-2	-3	0	-1	0	0	-1	2	-1	-1	-1	-1	0	-1	-1	0	-3	-1	-1	2	2	-1	1	-1	1	-2	-2	-1	-2	-2	-2	1
Q141	1	-1	1	0	0	1	-2	0	0	1	0	-1	0	0	2	1		-1	1	1	1	0	1	1	0	1	0	1	2	0	2	0	0	0	2	-1	1	0	-1	-1	1
Q142	1	-1	1	0	0	1	1	-1	0	1	0	-1	2	-1	2	1		-1	1	0	1	0	1	1	-2	1	0	-2	2	0	2	1	0	1	2	-1	1	0	-1	-2	-1
Q143	-1	0	0	1	1	0	3	1	1	0	-2	-1	1	0	0	0	-1	-1	0	1	0	0	1	0	2	-1	-2	-1	-2	0	1	0	0	1	-2	0	3	0	-1	1	1
Q144	-1	0	-1	1	0	0	1	2	2	0	-1	-2	3	1	1	-1	-1	-1	0	0	0	1	-2	0	1	-1	-2	-3	-2	-1	-1	0	0	-1	-2	-1	2	0	-1	1	0
Q145	1	-3	1	-1	2	2	-1	1	2	1	1	0	0	1	0	1		-1	1	0	1	1	0	1	1	3	-2	2	3	-1	0	1	-1	1	2	1	1	1	1	-2	2

Q146	1	-3	2	-1	2	2	-1	2	3	1	3	1	3	1		1	2		-1	2	0	1	2	2	2	0	3	-2	1	3	-2	3	1	2	1	2	1	1	1	2	-2	1
Q147	3	2		3	1	5	4		5	7	4	1	5	3	3	4		5	2	3	5	4	4	6			1	4		5	6		6	1	4	5	6			2		6
Q148	5	2		5	1	6	4		3	5	3	1	6	3	5	6		3	6	5	5	6	6	3		2	5		4	5		5	3	5	5	6			1		5
Q149	4	1		5	7	4	4		5	4	5	5	6	4	4	4		3	2	5	4	7	5	4		1	5		3	3		6	2	3	6	5			4		3
Q150	3	2		4	4	2	7		4	3	3	4	5	5	3	5		3	5	6	3	6	5	5		2	5		3	5		3	4	5	5	4			4		5
Q151	5	7		5	5	1	6		3	3	4	5	6	3	3	4		3	6	6	5	5	5	3		5	5		5	6		6	7	5	7	5			6		2
Q152	4	5		3	3	7	4		5	5	3	5	3	4	3	5		3	5	5	3	3	7	5		5	5		4	5		5	7	2	4	4			3		4
Q153	4	1		1	6	1	3		5	7	6	7	5	5	4	4		3	5	6	5	5	4	4		1	5		5	3		1	2	3	6	4			5		2
Q154	(1)			(2)	(3)	(4)	(5)		(6)			(7)				(8)			(9)	(10)	(11)	(12)		(13)			(14)	(15)		(16)			(17)		(18)	(19)			(20)		(21)

(1) Unit testing, integration testing and functional testing.

(2) Low level: Lint, Code coverage, Manual code review.High level:Integration test, Regression test (to verify legacy functionality), Function test (verify new stuff), System test (from an end user perspective)

(3) White box unit testing

(4) unit testing w test coverage strategies (all statements, black-box behavior)system testing with real hardware done by or together with our customer

(5) No automated testing, only interactive. Though, we have tools which measures coverage as well as performance bottlenecks.

(6) unit testing by developers, per use case manual testing done by testers

(7) No technique as we just do prototypes. We dont test it towards test documents, since just on user tests.

(8) 1. Manually develop and debug using whatever equipment available using PC/Windows or actual target hardware.2. Module testing on workstation platform using PC/Windows in a repetetive form. 3. Manual repetetive integration tests on actual target hardware platform. 4. Automated tests on actual hardware and/or system. (not all tests use have automated test cases)

(9) White-box (developers testing their code using debuggers)Black-box (on system level)Unit testing (not so common)Automatic testing (no so common)

(10) Limited regression testing, limited automated user interface testing

(11) It varies from project to project. My current project writes unit tests at the same time as the code, and different people do system testing.

(12) Ad hoc testing, ie. testing only specific functionality rather than full regression testing for each release.

(13) Testframe (http://nl.wikipedia.org/wiki/Testframe)

(14) vast test automation, explorative testing, black-box - white-box, etc, etc...

(15) manual testing

(16) Unit Testing and Integration Testing (White box) by the development team. Black Box (System Testing and Performance Testing) by an independent Test Team

(17) Use case testingState transition testingClassification tree methodBoundary value analysis

(18) Add hoc

(19) Different in different projects.

(20) User-story approach, old-fashioned test-case approach, exploratory testing, test automation, TDD

(21) Component testing done by designers during development. Function testing before delivery to integration branch. Integration testing. System/load testing.

Q155	(1)			(2)	(3)	(4)	(5)		(6)			(7)				(8)	(9)	(10)	(11)		(12)		(13)			(14)			(15)	(16)		(17)			(18)	(19)

(1) Not any specific tool.

(2) Expect/TCL, Jcat (java based tool), Perl. Also some proprietary testing platforms based on previously named tools.

(3) NUnit

(4) internally developed tool, simple script on top of a CAN & I/O simulator and same scripts using real CAN & I/O when software is downloaded on target.

(5) Two tools named something with "coverage" and "perform" (cannot remember the company behind)

(6) JUnit, JEmitter

(7) PC-Lint and/or Programming Research QA C for static analysis, MSDevStudio for code coverage analysis of test cases, homebrewed testing harness suited for the current development tools, RTOS supported functions for timing analysis.JTAG/BDM-debuggers for on-target testing. National Instruments LabView using automated test cases derived from requirement tools.

(8) TestComplete (tool for automatic tests)

(9) Yes. Do not know.

(10) Again it varies from project to project. I think my current project uses JUnit, but I have no time to get involved.

(11) Not personally.

(12) code coverage, JUnit(UnitTest)

(13) change control, bug tracking, test case management, etc., etc.

(14) Proprietary in most cases.

(15) tcl/expect, Test-RT

(16) Test DirectorCTETest execution tools (self-made, using Labview and Perl)NUnit for developer tests

(17) No

(18) In-house test automation

(19) TTCN. Load/trafic generators (not sure of name, SipP-).

Q156	2	1	2	2		1	2	2	1	1	2
Q157	6	7	1	1	8	1	6	1	7	1	3
Q158	5	3	4	4	3	4	5	6	6	3	3
Q159	2	2	2	2	3	4	3	3	2	3	3
Q160	4	3	6	3	3	3	5			4	2
Q161	1	5	3	3	3	3	3	5	2	2	2
Q162	4	1	6	2	6	5	7	5	2	6	4
Q163	1	7	2	3	5	3	5	4	6	6	3
Q164	1	2	5	4	2	4	2	5	2	3	3
Q165	1	5	7	5	4	6	4	5	7	6	3
Q166	1	2	4	5	4	5	3	3	1	3	2
Q167	5	2	2	3	3	5	6	5		2	4

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Q168			4	1		3				3					4	4	5		3	2	2	4					
Q169			1	3		6				5					2	3	5		3	5	5	3					
Q170			3														5			2							
Q171			3														4			3							
Q172			1														5			2							
Q173			5														3			6							
Q174			2														3			2							
Q175			4														3			6							
Q176			2														3			6							
Q177																											
Q178			7	7		2				5					7	6	6		5	7	2	5					
Q179			5	6		2				3					7	4	5		2	7	7	4					
Q180			4	4		1				5					7	0	4		2	0	1	2					
Q181			2	4		2				3					4	2	4		2	5	6	6					
Q182			7	0		0				1					7	0	4		0	0	6	6					
Q183			1	0		2				3					4	2	1		0	0	6	3					
Q184			2	7		4				5					7	6	7		7	7	6	6					
Q185			7	7		5				7					7	6	6		1	7	6	7					
Q186			4	7		4				6					7	3	5		3	7	4	3					
Q187			3	4		2				5					5	6	5		4	5	6	7					
Q188			7	0		0				3					7	0	6		4	0	6	7					
Q189			1	2		3				7					7	6	2		0		5	3					
Q190																	0		0	4	4	0					
Q191			7	6		2				5					1	3	0		0	2	4	4					
Q192			7	7		5				3					1	3	0		0	5	1	5					
Q193			6	7		4				5					1	0	0		0	2	1	5					
Q194			2	2		5				6					7	5	5		6	6	4	6					
Q195			0	0		2				4					7	1	4		2	4	1	6					
Q196	4	5	5	4	2	3	3	4	4	5	5	6	3	4	5	4	4	5	3	6	5	5	5	5	5	4	5
Q197	4	4	6	3	3	2	5	4	2	4	8	2	6	5	2	4	6	3	6	2	2	6	4		3	7	6
Q198	2	3	5	3	4	2	2	5	2	2		5	2	2	5	3	6	5	4	2	5	4	2		6	2	2

Q																										
Q199	7	3	6	7	5	7	7	7	2	6		8	6	4	3	5	6	6	3	4	1	1	7	6	6	6
Q200	3	6	2	5	4	6	7	6	3	5	3	5	5	3	5	3	1	5	6	7	6	5	6	5	7	6
Q201	5	1	3	4	3	4	7	6	3	3	2	5	6	5	4	5	6	1	3	2	4	3	3	3	1	6
Q202	2	6	3	5	3	3	4	5	5			5	4	5	5	5	2	3	3	5	3	3	3	3	6	3
Q203	3	6	3	2	3	3	1	3	3			4	3	2	3	5	1	5	2	6	5	4	5	3	5	6
Q204	3	1	5	5	4	3	3	4	5	2		5	4	3	3	4	1	1	5	3	4	3	5	4	2	7
Q205	3	1	4	7	4	5	4	4	4			5	5	3	5	3	4	1	6	4	4	6		3	3	7
Q206	3	1	4	6	4	5	4	3	4			5	5	3	4	3	4	1	6	4	4	6		3	3	7
Q207	4	2	4	2	4	4	4	2	2			5	2	3	3	4	4	1	4	3	4	4		2	2	4
Q208	4	2	4	7	3	4	4	4	4			5	4	5	4	3	4	1	6	3	4	4		3	2	7
Q209	4	1	1	6	3	2	4	3	3			4	6	5	2	4	6	1	5	2	3	3	6	2	5	2
Q210	2	1	1	2	3	5	4	4	3			3	3	3	4	3	4	1	3	2	3	3	1	2	1	3
Q211	2	1	3	3	3	4	4	4	3			5	4	4	2	3	4	1	3	4	4	1		3	3	3
Q212	3	5	3	2	5	3	3	3	4			4	3	2	3	4	5	4	6	6	5	3	2	4	1	3
Q213	3	3	3								4				7		3			2				3		
Q214	2	3	3								4				4		3			2				2		
Q215	3	5	3								3				7		3			2				3		
Q216	4	5	5												4		5			6				3		
Q217	3	1	3								1				3		2			3				3		
Q218	3	1	3								2				4		1			6				1		
Q219	2	1	2												1		1			6				1		
Q220	5	2	0	2	6	2	4	4	4	6		4	2	1	6	5	5	6	3	0	6	3	4	5	4	1
Q221	5	2	3	2	4	3	4	4	3	0		4	2	4	3	4	1	6	4	0	4	4	3	5	5	0
Q222	5	2	7	0	4	5	5	5	6	6		5	1	5	5	6	1	6	4	0	6	4	4	4	6	
Q223	5	1	3	0	5	7	3	5	3			5	5	6	6	6	7	7	2	7	1	4	7	7	5	0
Q224	4	0	5	0	4	4	2	5	2			4	4	4	6	6	7	7	4	2	4	4		6	7	6
Q225	4	0	7	2	7	3	0	4	6	6		6	4	4	6	6	7	7	4	7	5	4		6	6	7
Q226	4	0	3	0	1	4	0	3	3	6		0	5	2	4	3	1	7	1	2	2	2		4	5	3
Q227	5	0	3	2	4	7	0	7	4	6		6	2	5	6	4	7	7	5	7	6	1		7	5	6
Q228	4	0	5	0	6	6	3	2	1			6	2	5	6	6	7	7	3	6	6	1		5	6	1
Q229	4	2	2	0	2	1	0	1	2			2	0	0	3	3	7	7	0	6	2	0		3	4	5

Q																								
Q230	5	1	1	5	6	6	7	7	3	7	4	7	7	5	7	7	7	2	6	6	7	6	7	0
Q231	5	0	4	7	6	6	7	5	4	7	4	6	6	7	6	7	7	4	6	7	5	7	7	4
Q232	5	0	7	5	7	5	5	5	7	7	6	6	5	7	6	7	7	5	7	7	7	7	7	6
Q233	5	0	3	0	4	4	1	4	6	7	2	4	4	4	3	0	7	3	6	4	1	6	6	3
Q234	5	0	4	2	4	7	5	5	4	7	5	5	6	6	4	7	7	7	7	7	3	7	6	7
Q235	5	0	5	1	6	7	5	4	2	7	6	5	6	6	7	7	7	6	6	7	3	7	7	1
Q236	5	2	1	0	4	2	1	3	7	1	6		4	5	5	7	7	3	6	2	0	6	5	4
Q237				0				0			0		0		0			0	0			0	0	5
Q238	4	7	7	2	2	3	2	0	5	6	2	6	6	7	3	2	0	4	5	5	4	4	0	3
Q239	4	0	7	6	6	3		1	4	7	3	4	6	7	4	4	7	2	2	4	4	6	1	4
Q240	4	6	5	1	5	6	3	1	4	4	2	4	4	2	2	2	0	2	2	5	4	4	0	3
Q241	5	7	3	6	5	6	7	7	5	7	3	5	6	6	7	2	7	6	2	5	6	7	2	0
Q242	5	7	0	6	2	5	4	4	4	7	3	5	4	7	7	2	7	5	2	6	6	5	1	1
Q243	3	6	2	1	4	5	2	2	3		5	4	5	5	7	2	7	2	2	6	6	7	1	1
Q244	5	1	1	6	4	5		3	3		5	4	5	5	2	1	2	5	1	2	3	4	3	2
Q245	3	1	3	6	5	5		5	5		5	6	5	6	3	5	1	5	1	4	5	4	3	3
Q246	3	7	4	4	3	4		4	3		5	4	4	3	2	1	5	5	1	3	3	5	5	3
Q247		1	1		4			4	4		4	3	5	3	1	1		3	3	2		2	3	4
Q248		1	5		4			4	4		3	4	3	4	2	1		3	2	3		3	3	4
Q249		7	4		2			4	4		4	2	3	2	1	5		2	3	2		3	5	4
Q250	4	1	2	6	4	3		5	4		3	4	5	3	4	1		3			5	5	3	3
Q251	3	1	5	6	6	3		3	4		3	3	4	4	4	1		3			3	5	3	5
Q252	3	7	5	4	2	4		3	4		3	2	3	2	4	5		2			3	3	5	4
Q253	3	2	3	3		3		4	4		5	3	3	4	4	5		6			4	3	5	3
Q254	3	5	7	4	3	4		5			4	3	5	4	4	5		6			4	4	5	4
Q255				(1)							(2)	(3)							(4)		(5)			(6)

(1) We build our system from components, plus some external GUI components and an Orcale DB. Difficult to test GUI without the "intelligence component" underneath, and much of that relies on the DB access. So we can basically test the chain from "button pressed" to "something retrieved from database and shown", other tests (like unit tests) would require much more effort in terms of creating the system components to be more easily testable in isolation (e.g. without the database), but our project manager is much more focused on adding more features when he can "see that it works" rather than stabilizing the current version. So, everything is tightly connected in terms of testing, but it is not properly tested... it feels very brittle. And every once in a while we are indeed hit by a big bug, we have to track an enormous amount of errors down and restructure the system. Which annoys the project manager, because "we are not making progress"...

(2) Verification of externally-sourced components is not a mjor problem for us. It is the code written for the project which is of poor quality, because we don't have enough good programmers.As this is my last chance to comment, let me say that some of your questions are poorly constructed, eg "There should be general guidelines and principles for software development but not detailed rules". What is the answer if I think there should be detailed rules- What if I think there should be no guidelines at all- Also the "increasing the time-to-market" -- in my opinion better reviews and documentation would decrease time-to-market for code with given quality.

(3) In our line of work, a lot of components only work when integrated, so verifying components in isolation can be time-consuming.

(4) Lack of time to make requirement specifications, makes testing of components very time consuming. Valid for both in-house and subcontracted components.

(5) In house components and their verification are easier to control.Outsourced development incl. verification needs to be specified contracted before hand.

(6) There are dependencies between components. This makes the decrease the value of the varification but most of all it requires a lot of effort to mock/stub out those dependencies. We don't verify (isolated) OTS components and don't have any subcontracted.

Q256	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)

(1) Project 1

(2) Project 2

(3) Project 3

(4) Project 4

(5) Project 5

(6) Project 6

(7) Project 7

(8) Project 8

(9) Project 9

(10) Project 10

(11) Project 11

(12) Project 12

(13) Project 13

(14) Project 14

(15) Project 15

(16) Project 16

(17) Project 17

Q257	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)

(1) Organization 1

(2) Organization 2

(3) Organization 3

(4) Organization 4

(5) Organization 3

(6) Organization 3

(7) Organization 7

(8) Organization 8

(9) Organization 9

(10) Organization 10

(11) Organization 11

(12) Organization 3

(13) Organization 13

(14) Organization 14

(15) Organization 13

(16) Organization 4

(17) Organization 3
(18) Organization 18
(19) Organization 19
(20) Organization 20
(21) Organization 21
(22) Organization 13

Appendix D: Questions as They Appeared to Respondents

Industrial Survey on process practices, preferences and methods

Demographic questions

* Q1: My gender is:

Please choose *only one* of the following:

☐ Female

☐ Male

* Q2: My age is:

Please choose *only one* of the following:

☐ Under 20   ☐ 35-39

☐ 20-24   ☐ 40-49

☐ 25-29   ☐ 50-59

☐ 30-34   ☐ 60 and over

* Q3: My educational qualification is:

Please choose *only one* of the following:

☐ Undergraduate or lower   ☐ Postgraduate degree

☐ Bachelor degree   ☐ PhD or above

* Q4: My IT work experience is:

Please choose *only one* of the following:

☐ Less than 1 year   ☐ 9-12 years

☐ 1-4 years   ☐ 13-16 years

☐ 5-8 years   ☐ more then 16 years

Q5: My experience in international software development projects is:

Please choose *only one* of the following:

☐ None   ☐ 9-12 years

☐ 1-4 years   ☐ 13-16 years

☐ 5-8 years   ☐ more then 16 years

* Q6-Q13: My job position is:

Please choose *all* that apply:

☐ Software Engineer   ☐ Senior Executive

☐ Hardware Engineer   ☐ Business Analyst

☐ Project Manager   ☐ Researcher

☐ Line Manager   Other: [_____]

* Q14-Q24: At work, I perform the following activities [indicate how often on a scale of 0 to 7 (0 for never, 7 for always)]:

<u>Please choose the appropriate response for each item:</u>

	0	1	2	3	4	5	6	7
writing code	☐	☐	☐	☐	☐	☐	☐	☐
interacting with customers	☐	☐	☐	☐	☐	☐	☐	☐
designing software	☐	☐	☐	☐	☐	☐	☐	☐
writing requirements documents	☐	☐	☐	☐	☐	☐	☐	☐
writing user/technical documentation	☐	☐	☐	☐	☐	☐	☐	☐
planning projects	☐	☐	☐	☐	☐	☐	☐	☐
managing managers	☐	☐	☐	☐	☐	☐	☐	☐
managing projects	☐	☐	☐	☐	☐	☐	☐	☐
testing	☐	☐	☐	☐	☐	☐	☐	☐
quality assurance	☐	☐	☐	☐	☐	☐	☐	☐
other (specify in next question or choose 0 to continue)	☐	☐	☐	☐	☐	☐	☐	☐

* Q25: Please specify "other" :

<u>Please write your answer here:</u>

[ ]

Q26: The size of my company is:

<u>Please choose *only one* of the following:</u>

☐ 1-10 employees   ☐ 101-250 employees

☐ 11-50 employees   ☐ 251-1000 employees

☐ 51-100 employees   ☐ more than 1000 employees

* Q27: The size of my project team is:

<u>Please choose *only one* of the following:</u>

☐ 1-5 people   ☐ 21-50 people

☐ 6-10 people   ☐ more than 50 people

☐ 11-15 people   ☐ I am not in a team

☐ 16-20 people

Q28: In my estimate, the percentage of members in my project team who has almost all the information about the project is:

<u>Please choose *only one* of the following:</u>

☐ Less then 10%   ☐ 51% to 80%

☐ 11% to 20%   ☐ 81% to 99%

☐ 21% to 50%   ☐ 100%

Q29: I lived most of my life in:

Please choose *only one* of the following:

- ☐ Western Europe
- ☐ Eastern Europe
- ☐ North America
- ☐ South America
- ☐ Asia
- ☐ Africa
- ☐ Australia/New Zealand

Q30: Location of my current job is:

Please choose *only one* of the following:

- ☐ Western Europe
- ☐ Eastern Europe
- ☐ North America
- ☐ South America
- ☐ Asia
- ☐ Africa
- ☐ Australia/New Zealand

---

* Q31-Q32: Our current software development process is:

Please choose *only one* of the following:

- ☐ ad hoc
- ☐ agile
- ☐ adaptive
- ☐ spiral
- ☐ waterfall
- ☐ Other

Q33: Our software development practices are at CMMI Level:

Please choose *only one* of the following:

- ☐ One
- ☐ Two
- ☐ Three
- ☐ Four
- ☐ Five
- ☐ Don't Know

Q34: In my assessment, the size of most of the projects that I am involved in is:

Please choose *only one* of the following:

- ☐ Small
- ☐ Medium
- ☐ Large
- ☐ Hard to answer

Q35: In my assessment, the size of the current project that I am involved in is:

Please choose *only one* of the following:

- ☐ Small
- ☐ Medium
- ☐ Large
- ☐ Hard to answer

Q36: In my assessment, the risk of my current project failing to deliver its intended outcomes is:

Please choose *only one* of the following:

- ☐ Small
- ☐ Medium
- ☐ Large
- ☐ Hard to answer

Q37-Q38: If the software developed in our current project fails, the maximum damage could be the loss of:

Please choose *only one* of the following:

- ☐ Many lives
- ☐ Discretionary funds

☐ A single life   ☐ Comfort

☐ Essential funds   ☐ Other [＿＿＿＿＿＿＿]

Project and product characteristics

This section gathers information about characteristics of the software you are developing and the project you are involved in.

Q39: The application domain of the system we build is:

Please write your answer here:

[＿＿＿＿＿＿＿＿＿＿]

Q40-Q43: The software we build in our project is:

Please choose *all* that apply:

☐ embedded software

☐ web-based software

☐ desktop software

Other: [＿＿＿＿＿＿＿＿＿]

---

* Q44-Q45: I perceive the end product of our project as being:

Please choose *only one* of the following:

☐ a software part/component which is to be integrated

☐ a software service

☐ a software system that will be used by end users

☐ Other [＿＿＿＿＿＿]

Q46: The expected number of units you expect to sell in a year is approximately:

Please choose *only one* of the following:

☐ one   ☐ hundreds

☐ several   ☐ thousands and more

☐ dozens

Q47: The expected number of different systems that will use our service is approximately:

Please choose *only one* of the following:

☐ one   ☐ hundreds

☐ several   ☐ thousands and more

☐ dozens

Q48: The expected number of end users of the system we build is approximately:

Please choose *only one* of the following:

☐ one   ☐ hundreds

☐ several   ☐ thousands and more

☐ dozens

---

* Q49-Q52: We build our software by:

Please choose *all* that apply:

☐ integrating components

- ☐ assembling services
- ☐ writing source code

Other: [   ]

Q53-Q54: Our project is:

Please choose *only one* of the following:

- ☐ New development
- ☐ Maintenance project
- ☐ Enhancement project
- ☐ Legacy system evolution
- ☐ Other [   ]

Q55-Q58: The software we build:

Please choose *all* that apply:

- ☐ will be available as a product on the market
- ☐ will suit the needs of a particular client (custom/bespoke software)
- ☐ will be used by our organization
- ☐ is an open-source software

Q59: The requirements to the software we build:

Please choose *only one* of the following:

- ☐ are likely to change within a couple of months
- ☐ are likely to change within a year
- ☐ are not anticipated to change in next couple of years
- ☐ Can't assess

Q60: The duration of our project is:

Please choose *only one* of the following:

- ☐ Up to 3 months
- ☐ 3-6 months
- ☐ 6-12 months
- ☐ Up to 2 years
- ☐ More than 2 years

Q61: In our project the most common iteration length is:

Please choose *only one* of the following:

- ☐ A couple of weeks
- ☐ Around a month
- ☐ Around 2 months
- ☐ 3 months or more
- ☐ The length greatly varies
- ☐ We don't use iterations

Q62: In our project we deliver functionality incrementally:

Please choose *only one* of the following:

- ☐ every month
- ☐ up to 3 months
- ☐ up to 6 months
- ☐ The interval greatly varies
- ☐ We don't use incremental delivery

Q63-Q70: The following constraints are present in our project [please rate their severity (0 for not present, 7 for very strong)] :

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
fixed-price contracts	☐	☐	☐	☐	☐	☐	☐	☐
fixed delivery dates	☐	☐	☐	☐	☐	☐	☐	☐
staffing and team size limitations	☐	☐	☐	☐	☐	☐	☐	☐
performance or response time constraints	☐	☐	☐	☐	☐	☐	☐	☐
memory utilization or storage constraints	☐	☐	☐	☐	☐	☐	☐	☐
reliability constraints	☐	☐	☐	☐	☐	☐	☐	☐
security constraints	☐	☐	☐	☐	☐	☐	☐	☐
other	☐	☐	☐	☐	☐	☐	☐	☐

* Q71: Other

Please write your answer here:

[   ]

Q72: In our team:

Please choose *only one* of the following:

☐ all of the team members are collocated in one building

☐ some of the team members are located in different buildings or towns

☐ some of the team members are located in different countries

☐ some of the team members are located in different time zones with a big time difference between them

Q73: In our team:

Please choose *only one* of the following:

☐ almost all of the team members have a lot of experience in software development

☐ more than a half of our team members have a lot of experience in software development

☐ less than a half of our team members are experienced in software development

Q74: In our team:

Please choose *only one* of the following:

☐ people have dedicated roles, each person perfoms a low number of different roles (high-level of specialization)

☐ there are a couple of roles that are performed by dedicated team members

☐ developers are responsible for requirements elicitation, design, development, testing and documenting the system (low-level of specialization)

Q75-Q79: In our team the most common communication mechanisms among team members are [please rate their usage (0 for never used, 7 for always used)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
face-to-face communication	☐	☐	☐	☐	☐	☐	☐	☐
informal written communication	☐	☐	☐	☐	☐	☐	☐	☐
formal written communication	☐	☐	☐	☐	☐	☐	☐	☐

various types of video and voice conferencing	☐	☐	☐	☐	☐	☐	☐
other	☐	☐	☐	☐	☐	☐	☐

* Q80: Other:

Please write your answer here:

[   ]

Software development practices

This section contains a number of statements related to software development processes. For each item in this section, please provide two responses. In the first response (marked Current practice) please tell us how strongly the statement applies to the current practices in your organisation. In the second response (marked My preference), tell us how strongly you prefer the statement to apply if your organisation were to implement an ideal software process.

Note: Throughout the whole questionnaire the term business people means any business-oriented specialist such as business analysts, marketing or sales specialists who could be involved in specifying requirements for the software under development (in projects where real customers are not involved).

Q81-Q82: Management should encourage regular interaction between developers and customers/business people

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q83-Q84: Management should provide flexibility for employees to form project teams

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q85-Q86: There should be a clearly defined method to track the progress of the project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q87-Q88: There should be general guidelines and principles for software development but not detailed rules

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree

| | Current practice: | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| My preference: | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Q89-Q90: Interaction with customers/business people should be for capturing the requirements at the beginning of the project and then for acceptance testing at the end of the project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q91-Q92: Programming should start only after the design is completed

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q93-Q94: Comprehensive documentation should be an essential part of software development

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q95-Q96: All related documents should be updated when a requirement, design or code is changed

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q97-Q98: The main focus of the team should be to get the code to work

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q99-Q100: The main focus of the team should be on the production of all artefacts (e.g. design documents, requirements documents) not just code

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q101-Q102: Delivering software to customers should be done incrementally

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q103-Q104: Designing and coding should be done incrementally

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q105-Q106: Meetings should be planned well ahead with set agenda

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q107-Q108: Project members should frequently meet to update each other on progress of the project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q109-Q110: A comprehensive written plan for the whole project should be developed at the start of the project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q111-Q112: Project planning should be incremental, one iteration at a time

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q113-Q114: Customers/ business people should be discouraged from changing requirements once they are specified

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q115-Q116: How far a project has progressed should be determined by the phase the project is in (e.g. requirements phase, design phase, coding phase etc.)

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q117-Q118: How much functionality is in the current working code should be the sole criteria for determining progress of the project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q119-Q120: Once a piece of code starts working, it should rarely be modified

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q121-Q122: Regular changes to working code should be encouraged if they improve the code in some way (e.g. its design, its structure etc.)

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree

agree

Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q123-Q124: Management should clearly define each team member's role in a project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q125-Q126: Documented rules and procedures should be available for every stage of the software development process

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q127-Q128: Procedures and processes should be allowed to be changed often if the change brings in an improvement

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q129-Q130: Test cases should be written before writing code

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q131-Q132: Testing should be a defined phase in project development

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q133-Q134: Testing and code development should not be distinct phases in a project

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q135-Q136: Team members should not have to wonder how their organisation manages to produce working software

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q137-Q138: Organisations should be hierarchically structured

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q139-Q140: Meetings should be infrequent and unplanned

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q141-Q142: Changing working code should not be encouraged but cannot be prevented

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Q143-Q144: Breaking rules and procedures should be all right in order to get things done

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
My preference:	☐	☐	☐	☐	☐	☐	☐

Q145-Q146: Before we start designing or coding we should try to elicit requirements as comprehensively as possible

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
Current practice:	☐	☐	☐	☐	☐	☐	☐
My preference:	☐	☐	☐	☐	☐	☐	☐

Software Testing in your organisation
Current section collects information about testing practices within your organisation.

Q147-Q153: Please indicate how strongly you agree or disagree with the following statements with respect to your testing experience in current organisation:

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
We never have to wait for source code in order to start the testing process	☐	☐	☐	☐	☐	☐	☐
The necessary infrastructure for executing test cases is always in place	☐	☐	☐	☐	☐	☐	☐
Our management encourages us to participate on testing conferences/workshops/trainings	☐	☐	☐	☐	☐	☐	☐
I have enough time to test the software before its deployment	☐	☐	☐	☐	☐	☐	☐
There are no changes done on code during integration testing	☐	☐	☐	☐	☐	☐	☐
During integration testing, I do not mind code to be changed while I'm testing it	☐	☐	☐	☐	☐	☐	☐
We measure testing adequacy using code coverage (e.g., statement coverage)	☐	☐	☐	☐	☐	☐	☐

Q154: Which testing technique do you use in your organisation?
(if you are not sure of the name of the technique, try to explain in short how you perform testing)

Please write your answer here:

Q155: Do you use any tools for testing within your organisation? Please provide us with their names:

Component development
The current section collects information about some of the characteristics of the component you are building as well as your development process. In some of the questions your opinion is sought.

Q156: The component we develop is intended to be used/reused in:

Please choose *only one* of the following:

- ☐ one particular context (or system)
- ☐ many similar contexts (e.g. product-lines)
- ☐ restricted number of not fully known contexts
- ☐ many, not fully known contexts

Q157: The component we develop is intended to be used…

Please choose the appropriate response for each item:

	100/0			50/50			0/100	don't know	
only in my organization	☐	☐	☐	☐	☐	☐	☐	☐	only by other organizations

---

Q158-Q169: Please indicate how strongly you agree or disagree with the following statements with respect to the component development process in your project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
In our project we put extra efforts to predict and analyze future requirements for component usage	☐	☐	☐	☐	☐	☐	☐
From my experience, if enough efforts for building a good and maintainable design of a component are not spent in advance, the cost of change for a component is really high	☐	☐	☐	☐	☐	☐	☐

We use different mechanisms to collect and evaluate feedback from the end customers of our component	☐	☐	☐	☐	☐	☐	☐
We give the end users access to early versions (alpha/beta) of the component we build	☐	☐	☐	☐	☐	☐	☐
We give access to most of the component source code to the end customers (just to read it, no permissions to change or reuse it)	☐	☐	☐	☐	☐	☐	☐
In our project we rely more on individual skills and knowledge than on formal validation and verification mechanisms such as reviews and inspections	☐	☐	☐	☐	☐	☐	☐
We equip our components with suites of tests	☐	☐	☐	☐	☐	☐	☐
We certify our components	☐	☐	☐	☐	☐	☐	☐
We automate our testing process as much as possible	☐	☐	☐	☐	☐	☐	☐
The current state of documentation and verification of our component is enough for the needs of the component users	☐	☐	☐	☐	☐	☐	☐
The verification of the system(s) built using our component is made easier because our component is verified separately	☐	☐	☐	☐	☐	☐	☐
It is difficult to verify a component in isolation, without a system context	☐	☐	☐	☐	☐	☐	☐

Q170-Q176: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
We use pair programming in our project	☐	☐	☐	☐	☐	☐	☐

We use pair-programming for learning purposes (e.g. when introducing new people to the team)	☐	☐	☐	☐	☐	☐	☐
We use pair-programming for growing the confidence in implementation code	☐	☐	☐	☐	☐	☐	☐
We use test-driven development in our project	☐	☐	☐	☐	☐	☐	☐
We use refactoring in our project	☐	☐	☐	☐	☐	☐	☐
We use continuous integration in our project	☐	☐	☐	☐	☐	☐	☐
We use frequent and automated builds in our project	☐	☐	☐	☐	☐	☐	☐

Q177: Please, describe some of the difficulties in verifying a component in isolation, without a system context

Please write your answer here:

[ ]

Q178-Q183: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
unit testing	☐	☐	☐	☐	☐	☐	☐	☐
functional black-box testing	☐	☐	☐	☐	☐	☐	☐	☐
different testing types based on code analysis	☐	☐	☐	☐	☐	☐	☐	☐
performance testing (including load and stress testing)	☐	☐	☐	☐	☐	☐	☐	☐
security testing	☐	☐	☐	☐	☐	☐	☐	☐
testing of documentation	☐	☐	☐	☐	☐	☐	☐	☐

Q184-190: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
unit testing	☐	☐	☐	☐	☐	☐	☐	☐
functional black-box testing	☐	☐	☐	☐	☐	☐	☐	☐
different testing types based on code analysis	☐	☐	☐	☐	☐	☐	☐	☐

performance testing (including load and stress testing)	☐	☐	☐	☐	☐	☐	☐	☐
security testing	☐	☐	☐	☐	☐	☐	☐	☐
testing of documentation	☐	☐	☐	☐	☐	☐	☐	☐
other	☐	☐	☐	☐	☐	☐	☐	☐

Q191-Q195: In my opinion, the following factors have impact on delaying the deliveries of our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
extensive documentation	☐	☐	☐	☐	☐	☐	☐	☐
extensive verification of system functionality and performance	☐	☐	☐	☐	☐	☐	☐	☐
formal reviews and inspections	☐	☐	☐	☐	☐	☐	☐	☐
inefficient communication mechanisms with clients\business people	☐	☐	☐	☐	☐	☐	☐	☐
inefficient communication mechanisms within the team	☐	☐	☐	☐	☐	☐	☐	☐

System characteristics
Current section gathers information about some of the characteristics of the system you are developing.

Q196: The number of components in the system we build is (use your organization's or project's definition of a component):

Please choose *only one* of the following:

☐ one   ☐ less than 10   ☐ more than 30

☐ a couple   ☐ less than 30   ☐ hard to count

---

* Q197: In the system we build, the ratio of components that are implemented to suit this particular system to components that are general and intended to be reused later is:

Please choose the appropriate response for each item:

	100/0			50/50			0/100	don't know	
custom-made	☐	☐	☐	☐	☐	☐	☐	☐	general

---

* Q198: In the system we build, the ratio of components developed within our organization to ones acquired from outside our organization is:

Please choose the appropriate response for each item:

	100/0			50/50			0/100	don't know	
all in-house	☐	☐	☐	☐	☐	☐	☐	☐	all outside

---

* Q199: Within the components that are acquired from outside, the ratio of components that are developed to our demand (subcontracting) to ones that are already developed, generally reusable components (a.k.a. Off-The-Shelf, OTS) is:

Please choose the appropriate response for each item:

	100/0			50/50			0/100	don't know	
all subcontracting	☐	☐	☐	☐	☐	☐	☐	☐	only COTS

Q200-Q201: Please indicate how strongly you agree or disagree with the following statements with respect to the system you build

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
When building our system, all of the work consists of wrapping, gluing, adapting, and integrating existing code/components (which we do not modify)	☐	☐	☐	☐	☐	☐	☐
We have a systematic product-line (i.e., we build system variants by combining existing components in different ways)	☐	☐	☐	☐	☐	☐	☐

System development
Current section collects information regarding the activities connected with component selection and system development in your project. In some of the questions your opinion is sought.

Q203-212: Please indicate how strongly you agree or disagree with the following statements with respect to the system development process in your project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
In our project we put extra efforts to predict and analyze future requirements for the system we build	☐	☐	☐	☐	☐	☐	☐
Redesigning a system is not a big issues when building a system out of components	☐	☐	☐	☐	☐	☐	☐
We always involve customers\business people during component selection and evaluation process	☐	☐	☐	☐	☐	☐	☐
We use test cases provided with candidate components as a means to evaluate them	☐	☐	☐	☐	☐	☐	☐
We create test cases to evaluate candidate components for our system	☐	☐	☐	☐	☐	☐	☐
From my experience, using tests to evaluate candidate components is more efficient than	☐	☐	☐	☐	☐	☐	☐

reading comprehensive documents describing component behaviour							
We use the tests created during component selection process further as integration tests	☐	☐	☐	☐	☐	☐	☐
We automate our testing process as much as possible	☐	☐	☐	☐	☐	☐	☐
We give the end users access to early versions (alpha/beta) of the component we build	☐	☐	☐	☐	☐	☐	☐
We use different mechanisms to collect and evaluate feedback from the end customers of our component	☐	☐	☐	☐	☐	☐	☐
In our project we rely more on individual skills and knowledge than on formal validation and verification mechanisms such as reviews and inspections	☐	☐	☐	☐	☐	☐	☐

Q213-Q219: Please indicate how strongly you agree or disagree with the following statements with respect to the agile practices you use in your project

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
We use pair programming in our project	☐	☐	☐	☐	☐	☐	☐
We use pair-programming for learning purposes (e.g. when introducing new people to the team)	☐	☐	☐	☐	☐	☐	☐
We use pair-programming for growing the confidence in implementation code	☐	☐	☐	☐	☐	☐	☐
We use test-driven development in our project	☐	☐	☐	☐	☐	☐	☐
We use refactoring in our project	☐	☐	☐	☐	☐	☐	☐
We use continuous integration in our project	☐	☐	☐	☐	☐	☐	☐

	0	1	2	3	4	5	6	7
We use frequent and automated builds in our project	☐	☐	☐	☐	☐	☐	☐	

Q220-Q222: We use prototyping in our project to [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
clarify requirements	☐	☐	☐	☐	☐	☐	☐	☐
evaluate component assemblies	☐	☐	☐	☐	☐	☐	☐	☐
examine technology or architecture	☐	☐	☐	☐	☐	☐	☐	☐

Q223-Q229: In our project we use the following testing types [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
unit testing	☐	☐	☐	☐	☐	☐	☐	☐
functional black-box testing of components	☐	☐	☐	☐	☐	☐	☐	☐
functional black-box testing of the whole system	☐	☐	☐	☐	☐	☐	☐	☐
different testing types based on code analysis of the glue code	☐	☐	☐	☐	☐	☐	☐	☐
performance testing (including load and stress testing)	☐	☐	☐	☐	☐	☐	☐	☐
security testing	☐	☐	☐	☐	☐	☐	☐	☐
testing of documentation	☐	☐	☐	☐	☐	☐	☐	☐

Q230-Q237: In my opinion, the ideal level for each of the following testing types in our project should be [please rate their usage on a scale of 0 to 7 (0 for never, 7 for always)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
unit testing (i.e. individual functions and classes)	☐	☐	☐	☐	☐	☐	☐	☐
functional black-box testing of components	☐	☐	☐	☐	☐	☐	☐	☐
functional black-box testing of the whole system	☐	☐	☐	☐	☐	☐	☐	☐
different testing types based on code analysis of the glue code	☐	☐	☐	☐	☐	☐	☐	☐
performance testing (including load and stress testing)	☐	☐	☐	☐	☐	☐	☐	☐
security testing	☐	☐	☐	☐	☐	☐	☐	☐
testing of documentation	☐	☐	☐	☐	☐	☐	☐	☐
other	☐	☐	☐	☐	☐	☐	☐	☐

Q238-Q243: In my opinion, the following factors have impact on increasing the time-to-market interval in our project [please rate their impact on a scale of 0 to 7 (0 for no impact, 7 for very strong impact)]:

Please choose the appropriate response for each item:

	0	1	2	3	4	5	6	7
extensive documentation	☐	☐	☐	☐	☐	☐	☐	☐
extensive verification of system functionality and performance	☐	☐	☐	☐	☐	☐	☐	☐
formal reviews and inspections	☐	☐	☐	☐	☐	☐	☐	☐
inefficient communication mechanisms with clients\business people	☐	☐	☐	☐	☐	☐	☐	☐
inefficient communication mechanisms within the team	☐	☐	☐	☐	☐	☐	☐	☐
inefficient communication mechanisms within component vendors	☐	☐	☐	☐	☐	☐	☐	☐

Q244-Q246: Please answer the following statements about in-house components:

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
We have explicit demands on the verification and documentation of in-house built components	☐	☐	☐	☐	☐	☐	☐
The current state of documentation and verification of in-house built components is enough for our needs	☐	☐	☐	☐	☐	☐	☐
The verification of the system is made easier because in-house built components are verified separately	☐	☐	☐	☐	☐	☐	☐

Q247-Q249: Please answer the following statements about subcontacted components:

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
We have explicit demands on the verification and documentation of subcontracted components	☐	☐	☐	☐	☐	☐	☐
The current state of documentation and verification of subcontracted	☐	☐	☐	☐	☐	☐	☐

component is enough
for our needs

The verification of the
system is made easier
because subcontracted   ☐   ☐   ☐   ☐   ☐   ☐   ☐
components are
verified separately

Q250-Q254: Please answer the following statements about OTS components:

Please choose the appropriate response for each item:

	Very strongly agree	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Very strongly disagree
We have explicit demands on the verification and documentation of OTS components	☐	☐	☐	☐	☐	☐	☐
The current state of documentation and verification of OTS component is enough for our needs	☐	☐	☐	☐	☐	☐	☐
The verification of the system is made easier because OTS components are verified separately	☐	☐	☐	☐	☐	☐	☐
When searching for and selecting pre-existing components (OTS) the requirements on the component are specified fully in advance	☐	☐	☐	☐	☐	☐	☐
When searching for and selecting pre-existing components (OTS) it is easy to break down system requirements to component requirements	☐	☐	☐	☐	☐	☐	☐

Q255: Please describe the difficulties with verification of components in isolation. Please elaborate on any differences between in-house developed components, subcontracted components, and OTS components

Please write your answer here:

Q256: The name of our project is:

Please write your answer here:

Q257: The name of our organization is:

Please write your answer here:

Submit your survey.
Thank you for completing this survey..