

Project II: Analysis of Systematic Mapping

Activities of each student:

- ➔ Get the papers according to Tables 1 and 5 below.
- ➔ How do you could to collect the data?
 - Highlight in the papers the text where the information for the questions is found, indicating the number of the questions.
 - Observe that several answers for the questions can be already found in Tables 2, 3, and 4.
 - Fill out the data extraction form (available in the electronic format).

Table 1. Distributions of the papers

Name	Ref. Study
Aparecida Maria Zem Lopes	MS[1], MS[19], MS[37]
Artur José Ferro Sampaio	MS[2], MS[20], MS[38]
Bruno Elias Penteadó	MS[3], MS[21], MS[39]
Domenico Schettini Filho	MS[4], MS[22], MS[40]
Elias Adriano Nogueira da Silva	MS[5], MS[23], MS[41]
Fernando Roberto Hebler Andrade	MS[6], MS[24], MS[42]
Flavio Eduardo Aoki Horita	MS[7], MS[25], MS[43]
Karen Dias Rabelo	MS[8], MS[26], MS[44]
Lina María Garcés Rodríguez	MS[9], MS[27], MS[45]
Luiz Fernando Ferreira Gomes de Assis	MS[10], MS[28], MS[46]
Marcos Pereira dos Santos	MS[11], MS[29], MS[47]
Olibario José Machado Neto	MS[12], MS[30], MS[48]
Raul Eduardo Simoni Castanhari	MS[13], MS[31], MS[49]
Ricardo Fontão Verhaeg	MS[14], MS[32], MS[50]
Ricardo Ramos de Oliveira	MS[15], MS[33], MS[51]
Stevão Alves de Andrade	MS[16], MS[34]
Suellen Castro Gomes da Silva	MS[17], MS[35]
Vanderson Hafemann Fragal	MS[18], MS[36]

Table 2. List of mapping studies identified in the literature

Study Ref.	Year	Review Topic	Cited Guidelines	Useful for practitioners?	Number Studies	Paper Type*
MS[01]	2008	Human Aspects	Y ^[2]	N	92	J
MS[02]	2008	Research Topics in Software	N	N	691	J
MS[03]	2008	Software Project Management	N	N	48	C
MS[04]	2008	Agile Software Development	Y ^[3]	Y	36	J
MS[05]	2008	Software Testing	Y ^[5]	Y	14	C
MS[06]	2008	Requirements Engineering	Y ^[1]	N	240	C
MS[07]	2008	Usability	Y ^[3]	Y	51	C
MS[08]	2008	Software Process Improvement	Y ^[3]	Y	50	C
MS[09]	2008	UML	Y ^[3]	N	33	C, S
MS[10]	2009	Software Testing	Y ^[3]	N	35	J
MS[11]	2009	Software Maintenance and Evolution	Y ^[1, 3]	N	34	J
MS[12]	2009	Requirements Engineering	Y ^[2]	N	58	C
MS[13]	2009	Design Patterns	Y ^[3]	N	4	C
MS[14]	2009	Software Maintenance and Evolution	Y ^[2]	Y	12	C
MS[15]	2009	Risk Management	Y ^[1, 4]	N	80	J
MS[16]	2009	Software Fault Prediction	N	N	74	J
MS[17]	2009	Software Product Line	Y ^[3]	N	34	C
MS[18]	2009	Software Product Line	Y ^[3]	N	97	C
MS[19]	2009	Requirements Engineering	N	N	46	C, S
MS[20]	2009	Software Maintenance and Evolution	Y ^[2]	N	176	J
MS[21]	2009	Empirical Research Methods	N	N	8	J
MS[22]	2009	Human Aspects	Y ^[2]	N	92	J
MS[23]	2009	Context Aware Systems	N	N	237	J
MS[24]	2009	Distributed Software Development	Y ^[3]	Y	20	C
MS[25]	2009	Distributed Software Development	Y ^[3]	Y	78	J
MS[26]	2009	Distributed Software Development	Y ^[3]	Y	98	C
MS[27]	2009	Distributed Software Development	Y ^[2]	Y	12	C, S
MS[28]	2009	Software Product Line	Y ^[1]	N	89	J
MS[29]	2009	Software Product Line	Y ^[2]	N	23	C
MS[30]	2009	Risk Management	N	N	27	C
MS[31]	2009	Requirements Engineering	N	Y	36	C
MS[32]	2009	UML	Y ^[1, 4]	N	44	J
MS[33]	2009	Software Development	Y ^[1]	Y	40	J
MS[34]	2009	Software Product Line	Y ^[2]	N	39	C
MS[35]	2009	Requirements Engineering	Y ^[1, 4]	Y	24	J
MS[36]	2009	Distributed Software Development	Y ^[5]	Y	72	J
MS[37]	2009	Agile Software Development	Y ^[2]	N	50	C
MS[38]	2009	Requirements Engineering	N	N	22	C
MS[39]	2009	Software Architecture	Y ^[2]	N	11	C
MS[40]	2009	Empirical Research Methods	Y ^[1]	N	63	W
MS[41]	2009	Requirements Engineering	Y ^[2, 4]	Y	149	J
MS[42]	2009	Software Testing	Y ^[5]	N	27	C
MS[43]	2008	Software Product Line	Y ^[2]	Y	17	C
MS[44]	2009	Software Testing	Y ^[2]	Y	78	J
MS[45]	2009	Distributed Software Development	Y ^[2, 4]	N	12	C
MS[46]	2009	Service Oriented Systems Engineering	Y ^[1]	N	51	J
MS[47]	2009	Software Evaluation and Selection	N	N	60	J
MS[48]	2009	Empirical Research Methods	N	N	299	J
MS[49]	2009	Human Aspects	Y ^[2]	N	92	J
MS[50]	2008	Distributed Software Development	Y ^[2]	N	26	C
MS[51]	2008	Software Product Line	Y ^[3]	N	19	C

* J= Journal; C = Conference; W = Workshop; S = Short Paper

- [1] Kitchenham, B.A. et al. Preliminary Guidelines for Empirical Research in Software Engineering. TSE, 28(8), 721–734, 2002.
- [2] Kitchenham, B.A. Procedures for Undertaking Systematic Reviews. Joint Technical Report (TR/SE-0401), 2004.
- [3] Kitchenham, B.A.; Charters, S. Guidelines for performing systematic literature reviews in software engineering, Technical Report EBSE-2007-01, School of Computer Science and Mathematics, Keele University, 2007.
- [4] Biolchini, J. et al. Systematic Review in Software Engineering. Technical Report RT-ES 679-05, 2005.
- [5] Khan, R. et al. Systematic Reviews to Support Evidence-Based Medicine: How to Review and Apply Findings of Healthcare Research. Royal Society of Medicine Press Ltda, 2003.

Table 3: Methods of synthesis as described by the authors of the reviews

Method of Synthesis as described by the authors	Studies Ref.
Mapping	MS[43]
Classification Analysis	MS[07], MS[35]
Thematic Synthesis	MS[01], MS[24]
Descriptive Evaluation	MS[10]
Grounded approach	MS[22]
Content Analysis	MS[30]
Meta-ethnography	MS[04]
Not explicit about the method	MS[27], MS[28], MS[32], MS[41]

Table 4: Quality assessment (QA) Scores

Study Ref.	QA1*	QA2**	QA3***	QA4****	Score
MS[01]	1	1	1	1	4
MS[02]	0.5	1	0	0	1.5
MS[03]	0	0	0	1	1
MS[04]	1	1	1	1	4
MS[05]	0.5	0.5	1	1	3
MS[06]	1	1	0	0	2
MS[07]	0	0	0	1	1
MS[09]	1	0.5	0	0	1.5
MS[10]	1	1	1	1	4
MS[13]	1	1	0	0	2
MS[14]	1	1	0	0	2
MS[15]	1	1	0	0	2
MS[16]	1	1	0	0	2
MS[19]	1	0.5	0	0	1.5
MS[22]	1	1	0.5	1	3.5
MS[24]	1	1	1	1	4
MS[26]	1	1	0	0	2
MS[27]	1	1	0	0	2
MS[28]	1	1	0.5	1	3.5
MS[30]	1	1	0	0.5	2.5
MS[31]	1	1	0	0	2
MS[35]	1	1	1	1	4
MS[36]	0	1	0	1	2
MS[38]	0	0	0.5	0	0.5
MS[39]	1	1	0	0	2
MS[41]	1	1	1	1	4
MS[42]	0.5	1	0	0.5	2
MS[44]	0.5	1	0.5	0	2
MS[45]	0	0.5	0	1	1.5
MS[48]	0	0	0	0	0
MS[49]	1	1	0	0.5	2.5

* QA1 = Are the inclusion and exclusion criteria described and appropriate?

** QA2 = Is the literature search likely to have covered all relevant studies?

*** QA3 = Did the reviewers assess the quality/validity of the included studies?

**** QA4 = Were the basic data/studies adequately described?

Scoring Procedure = Yes = 1.0; Partly = 0.5; No = 0.0

Table 5: List of mapping studies

Study Ref.	References of the mapping studies
MS[01]	Beecham, S. et al. Motivation in Software Engineering: A systematic literature review. IST, 50(9-10), 860-878, 2008.
MS[02]	Cai, K.; Card, D. An analysis of research topics in software engineering – 2006. JSS, 81(6), 1051-1058, 2008.
MS[03]	Dong, F. et al. Software Multi-project Resource Scheduling. ICSP, 63-75, 2008.
MS[04]	Dybå, T. et al. Empirical studies of agile software development: A systematic review. IST, 50(9-10), 833-859, 2008.
MS[05]	Haugset, B.; Hanssen, G. K. Automated Acceptance Testing: A Literature Review and an Industrial Case Study. Agile, 27-38, 2008.
MS[06]	Herrmann, A.; Daneva, M. Requirements Prioritization Based on Benefit and Cost Prediction: An Agenda for Future Research, 16 th RE, 125-134, 2008.
MS[07]	Insfran, E. et al. A Systematic Review of Usability Evaluation in Web Development. Workshops on Web Information Systems Engineering, 81-91, 2008.
MS[08]	Kalinowski, M. et al. Towards a Defect Prevention Based Process Improvement Approach. 34 th Euromicro, 199-206, 2008.
MS[09]	Pretorius, R.; Budgen, D. A mapping study on empirical evidence related to the models and forms used in the UML. ESEM, 2008.
MS[10]	Afzal, W et al. A systematic review of search-based testing for non-functional system properties. IST, 51(6), 957-976, 2009.
MS[11]	Benestad, H. C. Empirical Assessment of Cost Factors and Productivity during Software Evolution through the Analysis of Software Change Effort. Sciences-New York, 2009.
MS[12]	Blanes, D. et al. Requirements Engineering in the Development of Multi-Agent Systems: A Systematic Review. 10 th IDEAL, 510-517, 2009.
MS[13]	Budgen, D.; Zhang, C. Preliminary Reporting Guidelines for Experience Papers. EASE, 1-10, 2009.
MS[14]	Burrows, R. et al. Coupling Metrics for Aspect-Oriented Programming: A Systematic Review of Maintainability Studies. ENASE, 2009.
MS[15]	Calvo-ManzanoVillalón, J. a. et al. State of the art for risk management in software acquisition. SIGSOFT Software Engineering Notes, 34(4), 1, 2009.
MS[16]	Catal, C.; Diri, B. A systematic review of software fault prediction studies. Expert Systems with Applications, 36(4), 7346-7354, 2009.
MS[17]	Chen, L. et al. Variability Management in Software Product Lines: A Systematic Review. 13 th SPLC, 81-90, 2009.
MS[18]	Chen, L. et al. A Status Report on the Evaluation of Variability Management Approaches. 13 th EASE, 2009.
MS[19]	Condori-Fernandez, N. et al. A Systematic Mapping Study on Empirical Evaluation of Software Requirements Specifications Techniques. ESEM, 502-505, 2009.
MS[20]	Cornelissen, B. et al. A Systematic Survey of Program Comprehension through Dynamic Analysis. TSE, 35(5), 684-702, 2009.
MS[21]	Edwards, H. et al. The repertory grid technique: Its place in empirical software engineering research. IST, 51(4), 785-798, 2009.
MS[22]	Hall, T. et al. A Systematic Review of Theory Use in Studies Investigating the Motivations of Software Engineers. TOSEM, 18(3), 2009.
MS[23]	Hong, J. et al. Context-aware systems: A literature review and classification. Expert Systems with Applications, 36(4), 8509-8522, 2009.
MS[24]	Hossain, E.; Babar, M. A. Using Scrum in Global Software Development: A Systematic Literature Review. ICGSE, 175-184, 2009.
MS[25]	Jiménez, M. et al. Challenges and Improvements in Distributed Software Development: A Systematic Review. Advances in Software Engineering, 1-15, 2009.
MS[26]	Khan, S. U. et al. Critical Barriers for Offshore Software Development Outsourcing Vendors: A Systematic Literature Review. 16 th APSEC, 79-86, 2009.
MS[27]	Khan, S. U. et al. Critical Success Factors for Offshore Software Development Outsourcing Vendors: A Systematic Literature Review. 14 th ICGSE, 207-216, 2009.
MS[28]	Khurum, M. et al. A systematic review of domain analysis solutions for product lines. JSS, 82(12), 1982-2003, 2009.
MS[29]	Lamancha, B. P. et al. Software Product Line Testing A Systematic Review. ICISOFT, 23-30, 2009.
MS[30]	Liu, D. et al. The Role of Software Process Simulation Modeling in Software Risk Management: a Systematic Review. 3 rd ESEM, 302-311, 2009.
MS[31]	Lopez, A. et al. Risks and Safeguards for the Requirements Engineering Process in Global Software Development. 14 th ICGSE, 394-399, 2009.
MS[32]	Lucas, F. J. et al. A systematic review of UML model consistency management. IST, 51(12), 1631-1645, 2009.
MS[33]	Mohagheghi, P. et al. Definitions and approaches to model quality in model-based software development – A review of literature. IST, 51(12), 1646-1669, 2009.
MS[34]	Montagud, S. et al. Gathering Current Knowledge about Quality Evaluation in Software Product Lines. SPLC, 91-100, 2009.
MS[35]	Nicolás, J. et al. On the generation of requirements specifications from software engineering models: A systematic literature review. IST, 51(9), 1291-1307, 2009.
MS[36]	Persson, J. S. et al. Managing Risks in Distributed Software Projects: An Integrative Framework. TOSEM, 56(3), 508-532, 2009.

MS[37]	Racheva, Z. et al. Value Creation by Agile Projects: Methodology or Mystery? LNBIP, 32(4), 141-155, 2009.
MS[38]	Rainer, A. et al. An assessment of published evaluations of requirements management tools. 13 th EASE, 2009.
MS[39]	Savolainen, J.; Myllarniemi, V. Layered architecture revisited — Comparison of research and practice. WICSA/ECSA, 317-320, 2009.
MS[40]	Stol, K. et al. The use of empirical methods in Open Source Software research: Facts, trends and future directions. Workshop on Emerging Trends in FLOSS Research and Development, 19-24, 2009.
MS[41]	Walia, G. S.; Carver, J. C.A systematic literature review to identify and classify software requirement errors. IST, 51(7), 1087-1109, 2009.
MS[42]	Zakaria, Z. et al. Unit Testing Approaches for BPEL: A Systematic Review. 16th APSEC, 316-322, 2009.
MS[43]	de Souza Filho, E. D. et al. Evaluating Domain Design Approaches Using Systematic Review. ECSA, 50-65, 2008.
MS[44]	Dias-Neto, A. C.; Travassos, G. H. Model-based testing approaches selection for software projects. IST, 51(11), 1487-1504, 2009.
MS[45]	Ebling, T. et al. A Systematic Literature Review of Requirements Engineering in Distributed Software Development Environments. 11 th ICEIS, 363-366, 2009.
MS[46]	Gu, Q. et al. Exploring service-oriented system engineering challenges: a systematic literature review. Service Oriented Computing and Applications, 3(3), 171-188, 2009.
MS[47]	Jadhav, A. S. et al. Evaluating and selecting software packages: A review. IST, 51(3), 555-563, 2009.
MS[48]	Zelkowitz, M. V. An update to experimental models for validating computer technology. JSS, 82(3), 373-376, 2009.
MS[49]	Sharp, H., et al. Models of motivation in software engineering. IST, 51(1), 219-233, 2009.
MS[50]	Prikladnicki, R. et al. Patterns of Distributed Software Development Evolution: A systematic review of the literature. 12 th EASE, 2008.
MS[51]	Khurum, M. et al. Systematic Review of Solutions Proposed for Product Line Economics. 2 nd MESPUL, 2008, pp.386-393.