

# **Mapeamento Sistemático da Literatura sobre problemas de comunicação de requisitos**

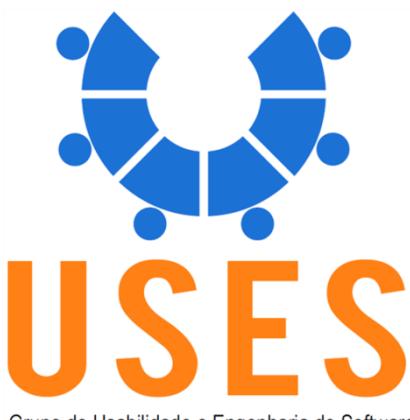
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<sup>1</sup>USES – Grupo de Usabilidade e Engenharia de Software

<sup>1</sup>PPGI – Programa de Pós-Graduação em Informática Instituto de Computação

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<sup>2</sup>Universidade Federal do Estado do Rio de Janeiro (UNIRIO)



Grupo de Usabilidade e Engenharia de Software

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# **Mapeamento Sistemático da Literatura sobre problemas de comunicação de requisitos**

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## **Resumo**

Este relatório técnico apresenta a lista dos artigos selecionados do mapeamento sistemático relevantes para a pesquisa e também outros artigos inseridos manualmente, descritos no capítulo 2 da tese de doutorado.

| ID  | Nome do artigo  | Autores   | Ano  | Critério         |
|-----|---|---|------|------------------|
| A1  | Achieving excellence in communications: A key to developing complete, accurate and shared information requirements                              | Bostrom, Robert P. and Thomas, Barry D.                           | 1983 | [Inc1]           |
| A2  | Information systems user-designer communication problems  | Verrijn-Stuart, A.A. and Anzenhofer, K.                           | 1988 | [Inc5]           |
| A3  | Sharing and Reuse of Requirements Knowledge   | Johnson, W.L. and Harris, D.R.                                    | 1991 | [Inc1]<br>[Inc5] |
| A4  | The change and evolution of requirements as a challenge to the practice of software engineering   | Harker, S.D.P. and Eason, K.D. and Dobson, J.E.                   | 1993 | [Inc1]<br>[Inc3] |
| A5  | Introducing measurable quality requirements: a case study   | Jacobs S.   | 1999 | [Inc1]<br>[Inc5] |
| A6  | An Industrial Case Study of Immediate Benefits of Requirements Engineering Process Improvement at the Australian Center for Unisys Software     | Damian, D.a and Zowghi, D.b and Vaidyanathasamy, L.c and Pal, Y.c | 2004 | [Inc2]           |
| A7  | Comprehensive documentation made agile - Experiments with RaPiD7 in Philips   | Dooms, K.a and Kylmäkoski, R.b                                    | 2005 | [Inc5]           |
| A8  | "How do i know what i have to do?"- The role of the inquiry culture in requirements communication for distributed software development projects | Mikulovic, V. and Heiss, M.                                       | 2006 | [Inc3]           |
| A9  | Practices and supporting structures for mature inquiry culture in distributed software development projects                                     | Mikulovic, V.a and Heiss, M.b and Herbsleb, J.D.c                 | 2006 | [Inc3]           |
| A10 | Toward a unified model for requirements engineering   | Berenbach, B. and Gall, M.  | 2006 | [Inc5]           |
| A11 | Layered requirement views in global legacy system reengineering   | Xu, B. and Hu, A. and Shi, H.                                     | 2006 | [Inc3]           |
| A12 | Requirements, Plato's Cave, and Perceptions of Reality  | Davis, A.M. and Nori, K.V.  | 2007 | [Inc1]<br>[Inc5] |
| A13 | Practically relevant quality criteria for requirements documents  | Simon, T. and Streit, J. and Pizka, M.                            | 2008 | [Inc5]           |
| A14 | Goal-Oriented Requirements Communication in New Product Development   | Fricke, S.a and Gorschek, T.b and Glinz, M.c                      | 2008 | [Inc2]<br>[Inc4] |
| A15 | Integrating system and software engineering through modeling  | Mindock, Jennifer and Watney, Garth                               | 2008 | [Inc5]           |
| A16 | Towards the Integration of Sysml and Problem Frames   | Colombo, Pietro and del Bianco, Vieri and Lavazza, Luigi          | 2008 | [Inc5]           |
| A17 | Communicating Requirements for Business: UML or Problem Frames?   | Vincent, Mark   | 2008 | [Inc5]           |
| A18 | EARS (Easy Approach to Requirements Syntax)   | Mavin, A. and Wilkinson, P. and Harwood, A. and Novak, M.         | 2009 | [Inc5]           |

| ID  | Nome do artigo  | Autores   | Ano  | Crítério         |
|-----|---|---|------|------------------|
| A19 | Quality improvement for use case model  | Ramos, R.a b and Castro, J.a and Alencar, F.a and Araújo, J.c and Moreira, A.c and Penteado, R.d  | 2009 | [Inc5]           |
| A20 | Empirical study of Sommerville and Sawyer's requirements engineering practices  | Cox, K.a and Niazi, M.b and Verner, J.c   | 2009 | [Inc5]           |
| A21 | A systematic literature review to identify and classify software requirement errors   | Walia, G.S.a and Carver, J.C.b  | 2009 | [Inc1]           |
| A22 | Errors on space software requirements: A field study and application scenarios  | Veras, P.C.a and Villani, E.a and Ambrosio, A.M.b and Silva, N.c and Vieira, M.d and Madeira, H.d | 2010 | [Inc5]           |
| A23 | 7 Requirements modeling for embedded realtime systems   | Krüger, I., Farcas, C., Farcas, E., & Menarini, M   | 2010 | [Inc5]           |
| A24 | Handshaking with implementation proposals: Negotiating requirements understanding   | Fricke, S.a and Gorschek, T.b and Byman, C.c and Schmidle, A.c                                    | 2010 | [Inc2]           |
| A25 | How interaction between roles shapes the communication structure in requirements-driven collaboration   | Marczak, S. and Damian, D.  | 2011 | [Inc3]           |
| A26 | Integrating ontologies, model driven, and CNL in a multi-viewed approach for requirements engineering   | Pires, P.F.a and Delicato, F.C.a and Cobe, R.b and Batista, T.b and Davis, J.G.c and Song, J.H.c  | 2011 | [Inc3]<br>[Inc5] |
| A27 | User requirements modeling and analysis of software-intensive systems   | Soares, M.D.S.a and Vrancken, J.b and Verbraeck, A.b  | 2011 | [Inc5]           |
| A28 | Necessary and neglected?: an empirical study of internal documentation in agile software development teams                                      | Stettina, C. J., & Heijstek, W  | 2011 | [Inc1]<br>[Inc5] |
| A29 | Requirements are slipping through the gaps—A case study on causes & effects of communication gaps in large-scale software development.          | Bjarnason, E., Wnuk, K., & Regnell, B.  | 2011 | [Inc1]<br>[Inc3] |
| A30 | What you need is what you get!: The vision of view-based requirements specifications  | Gross, A. and Doerr, J.   | 2012 | [Inc5]           |
| A31 | Describing agile requirements development and communication using complex adaptive systems theory   | Read, A., Briggs, R. and Vreede, G.J.   | 2012 | [Inc3]<br>[Inc5] |
| A32 | Task descriptions versus use cases  | Lauesen, S. and Kuhail, M.A.  | 2012 | [Inc5]           |
| A33 | Defects in Natural Language Requirement Specifications at Mercedes-Benz: An Investigation Using a Combination of Legacy Data and Expert Opinion | Daniel Ott , Daimler AG   | 2012 | [Inc5]           |
| A34 | Detecting and Classifying Patterns of Requirements Clarifications   | Eric Knauss, Daniela Damian, Germán Poo-  | 2012 | [Inc5]<br>[Inc8] |

| ID  | Nome do artigo  | Autores   | Ano  | Critério                   |
|-----|---|---|------|----------------------------|
|     |   | Caamaño, and Jane Cleland-Huang   |      |                            |
| A35 | What do software architects expect from requirements specifications? Results of initial explorative studies.  | Gross, A., & Doerr, J.  | 2012 | [Inc5]                     |
| A36 | Requirements elicitation: Towards the unknown unknowns  | Sutcliffe, A. and Sawyer, P.  | 2013 | [Inc5]                     |
| A37 | The requirements problem for adaptive systems   | Jureta, I.J.a and Borgida, A.b and Ernst, N.A.c and Mylopoulos, J.d       | 2014 | [Inc5]                     |
| A38 | Evaluating Presentation of Requirements Documents: Results of an Experiment   | Tu, Y.-C. and Tempero, E. and Thomborson, C.                              | 2014 | [Inc1]<br>[Inc5]<br>[Inc8] |
| A39 | The study of available techniques for existing requirements engineering challenges based on literature review evidences                                     | Besrour, S. and Rahim, L.B.A. and Dominic, P.D.D.                         | 2014 | [Inc5]<br>[Inc8]           |
| A40 | Knowledge sharing for common understanding of technical specifications through artifactual culture  | Zahedi, M.a and Babar, M.A.a b  | 2014 | [Inc5]<br>[Inc7]           |
| A41 | Evaluating modeling languages: An example from the requirements domain  | Horkoff, J. and Aydemir, F.B. and Li, F.-L. and Li, T. and Mylopoulos, J. | 2014 | [Inc5]                     |
| A42 | Abstract Syntax Tree Based Unified Modeling Language to Object Oriented Code Conversion   | Veeramani, Arun and Venkatesan, Kausik and Nalinadevi, K                  | 2014 | [Inc5]                     |
| A43 | Modern DevOps: Optimizing Software Development Through Effective System Interactions  | Cois, Constantine Aaron and Yankel, Joseph and Connell, Anne              | 2014 | [Inc1]<br>[Inc4]           |
| A44 | A simplified systematic literature review: Improving Software Requirements Specification quality with boilerplates  | Anuar, U. and Ahmad, S. and Emran, N.A.                                   | 2015 | [Inc5]                     |
| A45 | Does Quality of Requirements Specifications Matter? Combined Results of Two Empirical Studies   | Mund, J. and MÃ©ndez FernÃ¡ndez, D. and Femmer, H. and Eckhardt, J.       | 2015 | [Inc5]                     |
| A46 | Combining Process Modeling and Requirements Engineering: An Experience Report   | HiisilÃ¤, H. and Kujala, M.   | 2015 | [Inc5]                     |
| A47 | The role of distances in requirements communication: a case study   | Bjarnason, E.a and Sharp, H.b   | 2015 | [Inc3]                     |
| A48 | How artifacts support and impede requirements communication   | Liskin, O.  | 2015 | [Inc5]                     |
| A49 | Towards an artifact-oriented requirements engineering model for developing successful products, services, and systems: Identification of model requirements | Ruf, C.   | 2015 | [Inc6]                     |

| ID  | Nome do artigo  | Autores   | Ano  | Crítario         |
|-----|---|---|------|------------------|
| A50 | Exploratory study to assess and evaluate requirement specification techniques using analysis determination requirements framework                       | Besrour, S. and Rahim, L.B.A. and Dominic, P.D.D.   | 2015 | [Inc2]<br>[Inc5] |
| A51 | How can we design products, services, and software that reflect the needs of our stakeholders? Towards a canvas for successful requirements engineering | Ruf, C. and Back, A.  | 2015 | [Inc6]           |
| A52 | Naming the pain in requirements engineering: A design for a global family of surveys and first results from Germany                                     | Fernandez, D.M.a and Wagner, S.b  | 2015 | [Inc1]           |
| A53 | A case study on artefact-based re improvement in practice   | Fernandez, D.M.a and Wagner, S.T.b  | 2015 | [Inc6]           |
| A54 | Towards building knowledge on causes of critical requirements engineering problems  | Kalinowski, M.a and Spanola, R.O.b and Conte, T.c and Prikladnicki, R.d and Fernandez, D.M.e and Wagner, S.f                                  | 2015 | [Inc1]           |
| A55 | Agile Requirements Engineering with Prototyping: A Case Study   | Marja Käpyaho, Marjo Kauppinen  | 2015 | [Inc3]<br>[Inc5] |
| A56 | What You Ask Is What You Get: Understanding Architecturally Significant Functional Requirements   | Preethu Rose Anish, Maya Daneva, Jane Cleland-Huang, Roel J. Wieringa, Smita Ghaisas  | 2015 | [Inc3]<br>[Inc5] |
| A57 | Forging High-Quality User Stories: Towards a Discipline for Agile Requirements  | Lucassen, G., Dalpiaz, F., van der Werf, J. M. E., & Brinkkemper, S.  | 2015 | [Inc5]           |
| A58 | Investigating the Link between User Stories and Documentation Debt on Software Projects   | Soares, H.F., Alves, N.S.R., Mendes, T.S., Mendonça, M.G., and Spínola, R.O   | 2015 | [Inc1]<br>[Inc5] |
| A59 | An experiment on the impact of transparency on the effectiveness of requirements documents  | Tu, Y.-C. and Tempero, E. and Thomborson, C.  | 2016 | [Inc2]<br>[Inc4] |
| A60 | The role of semiotic engineering in software engineering  | Abdelzad, V.a and Lethbridge, T.C.a and Hosseini, M.b   | 2016 | [Inc5]           |
| A61 | Preventing incomplete/hidden requirements: Reflections on survey data from Austria and Brazil   | Kalinowski, M.a and Felderer, M.b and Conte, T.c and Spanola, R.d and Prikladnicki, R.e and Winkler, D.f and Fernandez, D.M.g and Wagner, S.h | 2016 | [Inc5]<br>[Inc8] |
| A62 | Can user stories and use cases be used in combination in a same project? A systematic review  | Cohn-Muroy, D. and Pow-Sang, J.A.   | 2016 | [Inc5]           |
| A63 | Workshop videos for requirements communication  | Fricke, S.A. and Schneider, K. and Fotrousi, F. and Thuemmler, C.   | 2016 | [Inc2]<br>[Inc7] |

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|-----|---|---|------|------------------|
| A64 | A multi-case study of agile requirements engineering and the use of test cases as requirements  | Bjarnason, E. and Unterkalmsteiner, M. and Borg, M. and Engstram, E.  | 2016 | [Inc5]           |
| A65 | Definition of a Behavior-Driven Model for Requirements Specification and Testing of Interactive Systems   | Silva, T.R.   | 2016 | [Inc5]           |
| A66 | What Questions do Requirements Engineers Ask?   | Sugandha Malviya; Michael Vierhauser; Jane Cleland-Huang; Smita Ghaisas   | 2017 | [Inc5]           |
| A67 | A Survey on Identifying and Addressing Business Analysis Problems   | Jarzębowicz, A. and Marciniak, P.   | 2017 | [Inc1]<br>[Inc8] |
| A68 | Naming the pain in requirements engineering: Contemporary problems, causes, and effects in practice   | Fernandez, D.M. and Wagner, S. and Kalinowski, M. and Felderer, M. and Mafra, P. and Vetra, A. and Conte, T. et al. | 2017 | [Inc1]           |
| A69 | Towards requirements communication and documentation guidelines for agile teams   | Hess, A. and Dlebold, P. and Seyff, N.  | 2017 | [Inc3]<br>[Inc5] |
| A70 | Use case elicitation with FrameNet frames   | Kundi, M. and Chitchyan, R.   | 2017 | [Inc1]<br>[Inc5] |
| A71 | Video as a by-product of digital prototyping: Capturing the dynamic aspect of interaction   | Karras, O. and Unger-Windeler, C. and Glauer, L. and Schneider, K.  | 2017 | [Inc5]           |
| A72 | A reference method for user story requirements in agile systems development   | Bik, N. and Lucassen, G. and Brinkkemper, S.  | 2017 | [Inc5]           |
| A73 | Improving goal communication with information flow maps and distances   | Mellhorn, M. and Bjarnason, E.  | 2017 | [Inc2]<br>[Inc3] |
| A74 | Team meetings and their relevance for the software development process over time  | Kluender, J. and Unger-Windeler, C. and Kortum, F. and Schneider, K.  | 2017 | [Inc3]           |
| A75 | Challenges of working with artifacts in requirements engineering and software engineering   | Ghazi, P. and Glinz, M.   | 2017 | [Inc5]           |
| A76 | Linguistic patterns and linguistic styles for requirements specification (I): An application case with the rigorous rsl/business-level language | Da Silva, A.R.  | 2017 | [Inc5]           |
| A77 | An Evaluation of Requirements Specification Capability Index  | Yamamoto, S.  | 2017 | [Inc5]           |
| A78 | A Set of Artifacts and Models to Support Requirements Communication Based on Perspectives   | Oran, Ana Carolina  | 2017 | [Inc5]           |
| A79 | Analysing Requirements Communication Using Use Case Specification and User Stories  | Oran, Ana Carolina and Nascimento, Elizamary and  | 2017 | [Inc5]           |

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|-----|---|---|------|------------------|
|     |   | Santos, Gleison and Conte, Tayana   |      |                  |
| A80 | How to Make Use of Empirical Knowledge about Testers' Information Needs   | Hess, A., Doerr, J., & Seyff, N.  | 2017 | [Inc3]<br>[Inc5] |
| A81 | Interview Review: Detecting Latent Ambiguities to Improve the Requirements Elicitation Process  | Ferrari, A. and Spoletini, P. and Donati, B. and Zowghi, D. and Gnesi, S.   | 2017 | [Inc1]<br>[Inc6] |
| A82 | Specifying Safety Requirements with GORE languages  | Vilela, J. and Castro, J. and Martins, L.E.G. and Gorscheck, T. and Silva, C.   | 2017 | [Inc1]<br>[Inc6] |
| A83 | Analysing Requirements Communication Using Use Case Specification and User stories  | Oran, Ana Carolina and Nascimento, Elizamary and Santos, Gleison and Conte, Tayana                                    | 2017 | [Inc1]<br>[Inc3] |
| A84 | A method of software requirements specification and validation for global software development  | Ali, Naveed and Lai, Richard  | 2017 | [Inc5]           |
| A85 | A Controlled Experiment on Comparison of Data Perspectives for Software Requirements Documentation                                    | Ibriwesh, I., Ho, S. B., Chai, I., & Tan, C. H.   | 2017 | [Inc5]           |
| A86 | Fuzzy artefacts: Formality of communication in agile teams  | Gerard, W. and Overbeek, S. and Brinkkemper, S.   | 2018 | [Inc3]<br>[Inc5] |
| A87 | From user stories to use case scenarios towards a generative approach   | Gilson, F. and Irwin, C.  | 2018 | [Inc5]           |
| A88 | Using human error information for error prevention  | Hu, W. and Carver, J.C. and Anu, V. and Walia, G.S. and Bradshaw, G.L.  | 2018 | [Inc1]<br>[Inc5] |
| A89 | A review on requirements validation for software development  | Moktar, N.A. and Kamalrudin, M. and Yusof, M.M. and Sidek, S.   | 2018 | [Inc5]           |
| A90 | Effect of Project Management in Requirements Engineering and Requirements Change Management Processes for Global Software Development | Shafiq, M. and Zhang, Q. and Akbar, M.A. and Khan, A.A. and Hussain, S. and Fazal-E-Amin and Khan, A. and Soofi, A.A. | 2018 | [Inc1]<br>[Inc3] |
| A91 | Towards a framework for agile development of physical products influence of artifacts and methods                                     | Bohmer, A.I. and Meinzinger, M. and Hostettler, R. and Knoll, A. and Lindemann, U.                                    | 2018 | [Inc5]<br>[Inc7] |
| A92 | In praise of use cases – a paean with a software accompaniment  | O'Neill, I.   | 2018 | [Inc5]           |
| A93 | Mapeamento dos processos e artefatos da Engenharia de Requisitos para o eXtreme programming   | Cardoso, R.D. and Silva, R.B. and Siqueira, F.L.  | 2018 | [Inc5]           |
| A94 | Keeping evolving requirements and acceptance tests aligned with automatically generated guidance                                      | Hotomski, S. and Ben Charrada, E. and Glinz, M.   | 2018 | [Inc1]<br>[Inc5] |

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|-----|--|--|------|------------------|
| A95 | GuideGen: An approach for keeping requirements and acceptance tests aligned via automatically generated guidance | Hotomski, S. and Glinz, M.                                     | 2019 | [Inc1]<br>[Inc3] |
| A96 | Eliciting user requirements for e-collaboration systems: a proposal for a multi-perspective modeling approach    | Wang, Y. and Zhao, L.  | 2019 | [Inc6]           |
| A97 | Towards a Meta-model for Requirements-Driven Information for Internal Stakeholders                               | Noorwali, I. and Madhavji, N.H. and Arruda, D. and Ferrari, R. | 2019 | [Inc3]           |
| A98 | Improving requirements-test alignment by prescribing practices that mitigate communication gaps                  | Bjarnason, E. and Sharp, H. and Regnell, B.                    | 2019 | [Inc3]<br>[Inc5] |
| A99 | Understanding information needs of agile teams to improve requirements communication                             | Hess, Anne and Diebold, Philipp and Seyff, Norbert             | 2019 | [Inc3]<br>[Inc5] |