Revisão Sistemática da Literatura: Ferramentas para Priorização de Requisitos								
Publication Year	Document Title	Abstract	Aprovado ou rejeitado? Se foi rejeitado, por qual motivo?	RQ1. Quais ferramentas são usadas / propostas nas práticas de pesquisa que foram relatadas de 2010 a 2023?	RQ2. Quais são as principais lacunas de pesquisa em relação a ferramentas e técnicas para priorização de requisitos de software que foram relatadas de 2010 a 2023?	RQ3. Quais técnicas foram implementadas pelas ferramentas de priorização de requisitos entre 2010 e 2023?	RQ4. Quais funcionalidades as ferramentas de priorização de requisitos abrangem?	RQ5. Qual é a forma de aquisição da ferramenta (gratuita, paga, ou outra)?
2016	Thematic Track: Quality in ICT Requirements Engineering 2016	Quality is often considered something that must be in conformance with system requirements. However, such requirements keep changing to be aligned with the business needs, thus making quality a moving target! Requirements engineering helps to elicit the stakeholders requirements (such in a form of general goals, user stories, use cases, constraints etc.) with respect to the system of interested, to prioritize such requirements and, ultimately, to reach a common ground with other stakeholders with conflicting requirements. Furthermore, it helps stakeholders from different backgrounds to communicate among them, and with even with the project team, with systems designers, developers, testers, etc. The former are not necessarily interested in the implementation technical details, while the latter are specialized in designing, building and testing such systems. Caught in-between, requirements engineers must also keep up with newer development approaches. The "Quality in ICT Requirements Engineering" Thematic Track 2016 has at its accepted papers a multitude of relevant topics such as: requirements elicitation and specification, requirements traceability, requirements prioritization, ontologies for embed systems, and requirements specification tools. This program includes five full papers and two work-in-progress papers.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2021	CARO: A Conflict-Aware Requirement Ordering Tool for DevOps	Requirement prioritization is an inherently important step in the DevOps framework. Unfortunately, the prioritization process often disregards the non-functional requirements and the possible conflicts among them. This implies that unresolved dependencies and conflicts would be identified at integration time only, which may lead to major refactoring issues. We introduce CARO a new tool that generates an ordering among the requirements based on conflicts and dependencies among the requirements. The tool provides a quantitative risk evaluation framework along with risk mitigation strategies based on conflicts and dependencies among the requirements.	Rejeitado. Devido ao EC7: Não é possível ter acesso à versão completa da publicação.					
2018	A Systematic Literature Review: Software Requirements Prioritization Techniques	Background: Requirement prioritization plays key role in software development process. It is essential to prioritize the requirements for making the correct decision for either a single or multiple release of a product. In this paper we performed a systematic analysis on some of the significant factors like importance of requirements, risks, cost and time in context of requirement prioritization. Objective: With benefits these prioritization methods also have some limitations and shortcoming that are brought up in this paper. Stakeholders, managers, developers or their representatives make decisions for prioritization of requirements. Many techniques are analyzed how to manage these prioritizations considering general goals and limitations. Method: For the identification and analyzing of research articles published during 2009-2017, Systematic Literature Review based method is used in this paper. Results: In recent researches 40 different requirement prioritizations techniques has been used. This SLR also shows the major research gaps regarding techniques and tools for software requirements prioritization. Conclusion: This research shows the major prioritization techniques and tools for requirements elicitation. Tools & techniques identified in this study will assist future researchers to expend their views in the context. Moreover, it will help requirement engineers and practitioners to choose requirement prioritization techniques and tools according to their needs.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático					
2017	DMGame: A Gamified Collaborative Requirements Prioritisation Tool	Automated decision-making techniques have been proposed to support engineers in selecting and prioritising requirements. However, to be effectively used in practice they need to be integrated into the organisational context, and their users, namely the members of the development team, and more generally the project's stakeholders, need to be engaged in the resulting tool-supported decision-making process. In this demo paper, we present a tool-supported collaborative requirements prioritisation process, which exploits game elements to engage distributed stakeholders to contribute to the overall decision-making process. AHP and Genetic Algorithms are used as key component of the game engine, which enables an iterative prioritisation process. The tool is part of the tool-suite developed in the SUPERSEDE project which aims at supporting a flexible feedback-anddata-driven software evolution approach.	Aprovado.	A ferramenta DMGame destacada inclui o Processo Analítico Hierárquico (AHP) e Algoritmos Genéticos (GA). AHP foi escolhido por seu mecanismo de comparação par-a-par, enquanto GA é utilizado para gerenciar requisitos dependentes, apesar de uma granularidade reduzida no ranking	As principais lacunas de pesquisa incluem a baixa adoção de técnicas automatizadas de tomada de decisão nas práticas atuais, especialmente em pequenas empresas de software e em configurações distribuídas. Além disso, a necessidade de integrar essas técnicas no contexto organizacional e engajar os membros da equipe de desenvolvimento são desafios significativos.	As técnicas de priorização de requisitos implementadas incluem o Processo Analítico Hierárquico (AHP) e Algoritmos Genéticos (GA). AHP permite uma análise detalhada das motivações que levam ao ranking resultante, enquanto GA é usado para gerenciar requisitos dependentes, superando algumas limitações do AHP	Este conjunto de ferramentas inclui: ferramentas de coleta de feedback e monitoramento de dados contextuais; um componente de armazenamento de big data e técnicas de análise de dados que fornecem requisitos para evolução de software e adaptação dinâmica a serem analisados por engenheiros usando uma plataforma de tomada de decisão; e uma ferramenta de planejamento de lançamento.	Gratuita. A ferramenta está acessível em https://github.com/supersede-project/dmgame.
2018	Freud, Kierkegaard, and Gamification in RE	The paper provides a review of gamification usage presented within IEEE Requirements Engineering (RE) Conference for last decade and ideas for further usage within RE field which should be shifted based on Eric Berne's theory of transitional analysis more from structured time i.e. working time to the unstructured time e.g. commute time or traveling time by business trips.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	Exploiting User Feedback in Tool-Supported Multi-criteria Requirements Prioritization	As different types of user feedback are becoming available, from a variety of sources and in large amount, several analysis techniques have been developed with the purpose of extracting information that can be useful for requirements engineering purposes. For instance, automated extraction and prioritization of feature requests have been recently investigated for the specific case of app development, where the key prioritization criterion is value for the user. For other types of software applications and services, software evolution relies on multi-criteria requirements prioritization, which may take into account different stakeholders' perspectives, thus leading to a complex decision-making problem. Different automated reasoning techniques have been proposed to support multi-criteria requirements prioritization, aimed at reducing human effort and improving the quality of the resulting ranking of the candidate requirements.The goal of our research is to understand how we can exploit user feedback in tool-supported multi-criteria requirements prioritization processes. Towards this objective, we discuss the properties of user feedback which are relevant for requirements prioritization, formulate a multi-criteria requirements prioritization problem, and outline a possible solution that integrates state of the art automated reasoning techniques which we extend to cope with information derived from user feedback.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2018	Toward a Functional Requirements Prioritization with Early Mutation Testing	Researchers have proposed a number of prioritization techniques to help decision makers select an optimal combination of (non-) functional requirements to implement. [Problem] However, most of them are defined based on an ordinal or nominal scale, which are not reliable because they are limited to simple operations of ranked or ordered requirements. [Principal ideas] We argue that the importance of certain requirements could be determined by their criticality level, which can be assessed using a ratio scale. [Contribution]The main contribution of the paper is the new strategy proposed for prioritizing functional requirements, using early mutation testing and dependency analysis.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2016	Identifying aspects of web e-learning in LMS-based for requirement engineering process modeling	Modeling as part of requirement engineering phase elicit the aspects from domain problem to define requirements systematically. For web e-learning, component initialization from three focuses including: pedagogical aspect, underpinning technology, and organizational issues become the basis to establish logical requirement until it evaluated comprehensively through learning process administration in Learning Management System (LMS). Process of requirement engineering in LMS-based is modeled by determine LMS components to ensure its relation by propose a metamodel and allocate the logical aspect to define web e-learning requirement. Identified requirements from the process then being evaluated through features prioritization and web e-learning requirement checklist. All aspects from requirement engineering process are simplified through tracing matrix of web e-learning requirement to support requirement traceability.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2016	Toward Data-Driven Requirements Engineering	Nowadays, users can easily submit feedback about software products in app stores, social media, or user groups. Moreover, software vendors are collecting massive amounts of implicit feedback in the form of usage data, error logs, and sensor data. These trends suggest a shift toward data-driven user-centered identification, prioritization, and management of software requirements. Developers should be able to adopt the requirements of masses of users when deciding what to develop and when to release. They could systematically use explicit and implicit user data in an aggregated form to support requirements decisions. The goal is data-driven requirements engineering by the masses and for the masses.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2013	Requirements prioritization in software engineering: A systematic mapping study	In this paper, we report about a systematic mapping study in software requirements prioritization with a specific focus on empirical studies.The results show that the interest from the research community is clustered around the more recent years. The majority of the studies are about the validation of research or solution proposals. We report the prevalence of studies on techniques and methodologies while there is a scarce interest in the strict evaluation of tools that could be beneficial to industry. In most of the empirical studies we found a bottom-up approach, centering on the techniques and on accuracy as the dependent variable, as well as on functional requirements as the main research focus. Based on the results, we provide recommendations for future research directions.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático					

2023	A Systematic Literature Review of AI-Based Software Requirements Prioritization Techniques	Software requirements show what the customer desires his software to do. They are the first stepping stone towards a successful software development project. With the increasing complexity of the software due to its size and feature base, it is vital to prioritize the requirements for efficient utilization of development resources. To achieve this, industrial organizations are devising new strategies and improved solutions even with the help of artificial intelligence (AI) tool set. Existing requirements prioritization techniques are human-intensive and suffer from several limitations like overlapping outcomes, scalability problems, time consumption, inaccuracy, and so on. Some of the problems can be solved by including artificial intelligence algorithms and strategies. Several AI-based requirements prioritization techniques have been proposed by applying Genetic Algorithms, Fuzzy Logic, Ant Colony Optimization, and Machine Learning. Literature witnesses some good review studies and surveys on conventional prioritization techniques but there exists none for AI-based techniques that identify not only their strengths but also their weaknesses, advantages of machine learning techniques over other AI-based requirements prioritization techniques, and limitations of applying AI-based techniques in requirements prioritization. This study presents a systematic literature review (SLR) of AI-based requirements prioritization approaches covering 46 papers published from 2000 to 2021. We have given this literature review a new dimension by conducting a parametric analysis of AI-based requirements prioritization techniques and we have identified these parameters after a thorough literature study. Some of the chosen parameters are generic (related to the prioritization process) and some are specific (related to AI techniques). This study has greatly helped us draw a clear line among AI-based techniques to show their domain of application to gain maximum advantage. Our findings will assist researchers, requirement analysts, and other stakeholders in making a wise decision to select the best requirements prioritization technique to gain optimal results.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático					
2017	Non-functional requirement prioritization approach based on historical similar project	This paper proposes a new Non functional prioritization technique that uses the weighted average of stakeholder weight and their preferences per aspects. The change in usage count and/or dependencies leads to change in priority of requirements and finally the average change in priority are calculated each time there is change in priority. The new project requirements are mapped with existing similar projects, in case of directly mapped, the priorities of similar projects are modified by adding the average change in priority and then assigned as priority of directly mapped requirement of new project. For different requirements, the requirements are prioritized using the weighted average of stakeholder weight and their preferences along with usage and dependency count. The proposed technique is compared with existing non functional requirement prioritization technique and former technique out performs the latter in terms of accuracy and time of computation due to heavy reliance on values of historical similar projects.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2012	Design of a teaching framework for software requirement prioritization	In software development, one frequent reason that leads to low quality software is the lack of skill in identifying the most important requirements. Unfortunately, many software engineering students are unfamiliar with prioritizing techniques and they are not skilful to use the techniques in a specific situation or circumstance. The purpose of this study is to identify effective ways to educate software engineering students on requirement prioritization. To enable students to have a deeper understanding of requirement prioritization and to improve their practical ability, a teaching framework has been proposed. The framework's structure is based on three main components: first, the guidelines to provide students with a basic concept; second, the empirical and completed samples to help students familiarise themselves with the process of prioritization; and third, the exercises and simulated cases to improve the practical skills and abilities of students. Teaching framework has been implemented as a web base teaching tool. Teaching tool evaluation results show that 86.6% of respondents believe that the proposed teaching framework helps them to have better understanding of requirement prioritization.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2015	Ordering interrogative questions for effective requirements engineering: The W6H pattern	Requirements elicitation and requirements analysis are important practices of Requirements Engineering. Elicitation techniques, such as interviews and questionnaires, rely on formulating interrogative questions and asking these in a proper order to maximize the accuracy of the information being gathered. Information gathered during requirements elicitation then has to be interpreted, analyzed, and validated. Requirements analysis involves analyzing the problem and solutions spaces. In this paper, we describe a method to formulate interrogative questions for effective requirements elicitation based on the lexical and semantic principles of the English language interrogatives, and propose a pattern to organize stakeholder viewpoint concerns for better requirements analysis. This helps requirements engineer thoroughly describe problem and solutions spaces. Most of the previous requirements elicitation studies included six out of the seven English language interrogatives 'what', 'where', 'when', 'who', 'why', and 'how' (denoted by W5H) and did not propose any order in the interrogatives. We show that extending the set of six interrogatives with 'which' (denoted by W6H) improves the generation and formulation of questions for requirements elicitation and facilitates better requirements analysis via arranging stakeholder views. We discuss the interdependencies among interrogatives (for requirements engineer to consider while eliciting the requirements) and suggest an order for the set of W6H interrogatives. The proposed W6H-based reusable pattern also aids requirements engineer in organizing viewpoint concerns of stakeholders, making this pattern an effective tool for requirements analysis.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2019	MBRP: Model-Based Requirements Prioritization Using PageRank Algorithm	Requirements prioritization plays an important role in driving project success during software development. Literature reveals that existing requirements prioritization approaches ignore vital factors such as interdependency between requirements. Existing requirements prioritization approaches are also generally time-consuming and involve substantial manual effort. Besides, these approaches show substantial limitations in terms of the number of requirements under consideration. There is some evidence suggesting that models could have a useful role in the analysis of requirements interdependency and their visualization, contributing towards the improvement of the overall requirements prioritization process. However, to date, just a handful of studies are focused on model-based strategies for requirements prioritization, considering only conflict-free functional requirements. This paper uses a meta-model-based approach to help the requirements analyst to model the requirements, stakeholders, and inter-dependencies between requirements. The model instance is then processed by our modified PageRank algorithm to prioritize the given requirements. An experiment was conducted, comparing our modified PageRank algorithm's efficiency and accuracy with five existing requirements prioritization methods. Besides, we also compared our results with a baseline prioritized list of 104 requirements prepared by 28 graduate students. Our results show that our modified PageRank algorithm was able to prioritize the requirements more effectively and efficiently than the other prioritization methods.	Aprovado.	É um meta modelo que usa conceitos de System Modeling Language. Esse meta modelo é assistido por uma ferramenta que facilita visualização, modelagem e priorização dos requisitos. Usa uma versão modificada do PageRank algorithm.	Lacunas Identificadas: Necessidade de métodos mais eficazes para lidar com a priorização em projetos complexos. Limitações nas ferramentas atuais quanto à adaptação dinâmica às mudanças nos requisitos ao longo do tempo. Falta de integração de técnicas de priorização com outras fases do ciclo de vida do desenvolvimento de software.	Algoritmo PageRank: Adaptado para a priorização de requisitos, utilizando conceitos de importância relativa e interdependência entre requisitos para determinar prioridades.	Funcionalidades: Avaliação de requisitos baseada na importância relativa. Consideração de interdependências entre requisitos. Priorização automática baseada em critérios modelados. Geração de planilha. Recebe lista de requisitos para priorizar a partir de arquivo csv.	O artigo não especifica diretamente a forma de aquisição da ferramenta baseada no algoritmo PageRank. No entanto, sugere-se que a implementação pode ser customizada para diferentes contextos de projetos de software, o que pode implicar em desenvolvimento interno ou adaptação de ferramentas existentes.
2020	Requirements Engineering Practices and Challenges in the Context of Big Data Software Development Projects: Early Insights from a Case Study	This paper reports on the results of an exploratory case study on a large-scale Big Data systems development project in the Oil&Gas domain within a non-profit organisation. The aim of this study was to investigate the RE practices and challenges in such projects, currently bereft in the scientific literature. This investigation was focused on: (a) RE practices; (b) sources and distribution of requirements; (c) the role of Big Data characteristics and technologies in RE and systems design; and (d) RE challenges in engineering Big Data Systems. The main results show that (a) there is a lack of specific project tailored RE practices, tools, and frameworks for elicitation, specification and modelling, analysis, and prioritisation of requirements; (b) 40% of the system's requirements are considered Big Data-related from which 75% are identified from internal sources; (c) Big Data characteristics and technologies play an important role in defining quality requirements and system's architecture; (d) five challenges in eliciting, documenting, and analysing Big Data related requirements were identified and discussed. The findings suggest academics and practitioners opportunities to engage in further research in this area.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2014	Application of requirements prioritization decision rules in software product line evolution	An application of a method for prioritizing requirements to an actual project is reported. The project where one of the authors participated as a project member developed in-house software development support tools based on a software product line. In the development of a software product line, a project needs to evolve core assets in accordance with changes to the environment, the market, and technology. The concerns of stakeholders may also change the process of evolving core assets over the years, and even if stakeholders change, the concept of the target product line should be maintained. In order to effectively evolve core assets, it is important for the project to prepare and utilize a standardized method for prioritizing requirements. In this paper, we analyzed the evolution of core assets in relation to an actual project. Tacit knowledge for prioritizing requirements was extracted. Such knowledge was made explicit and defined to develop a method for prioritizing requirements. The method consists of the rules and processes for applying the rules. We also defined a meta-model for prioritizing requirements and incorporated the concept of the improvement of rules into the meta-model. According to the evaluation of the method, the following issues were clarified: (a) different stakeholders smoothly and efficiently reached agreement using the method, and (b) the method is effective for reducing lead time and costs for defining requirements.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					

2014	Decisively: Application of Quantitative Analysis and Decision Science in Agile Requirements Engineering	While many mature Requirements Engineering (RE) tools for Agile exist, RE professionals at large have not been able to benefit from Quantitative Analysis and Decision Science (QUADS) techniques in this context. In this paper we present an Agile RE tool, Decisively, which brings a new perspective to automation in the RE process through application of QUADS to address Requirement Discovery, Analysis, Estimation and Prioritization. Techniques explored in Decisively include Analytical Hierarchical Process (AHP) for prioritization and estimation, Lorenz function to shortlist user stories by analyzing the distribution of votes, Box Plot Analysis to predict velocity, and Text Mining to discover implied requirements from documents.	Aprovado.	O artigo propõe o uso da ferramenta "Decisively", que aplica técnicas de Análise Quantitativa e Ciência de Decisão (QUADS) no processo de engenharia de requisitos ágil. As técnicas específicas utilizadas incluem o Processo Analítico Hierárquico (AHP) para priorização e estimativa, função de Lorenz para análise de votos, mineração de texto para descoberta de requisitos implícitos, análise de Box Plot para predição de velocidade e a técnica SPAN para alcançar consenso.	O artigo identifica várias lacunas de pesquisa, incluindo a falta de ferramentas acessíveis e simples que possam ser usadas por profissionais que não são especialistas em ciência da decisão. Além disso, destaca a dificuldade em alcançar consistência e consenso durante a priorização de requisitos em grupos, bem como a complexidade envolvida no uso de técnicas avançadas de análise quantitativa.	As técnicas de priorização de requisitos implementadas incluem o AHP, que permite a comparação par-a-par de requisitos para determinar prioridades. A ferramenta também usa o SPAN (Successive Proportional Additive Numeration) para alcançar consenso em rankings de prioridade.	As funcionalidades abrangidas pelo Decisively incluem a detecção em tempo real de histórias de usuário semelhantes durante a ideação, a mineração de texto para navegação inteligente em documentos, a análise de distribuição de votos para priorização, a identificação de inconsistências em julgamentos de prioridade, a detecção de diferentes escolas de pensamento durante a priorização e a previsão de velocidade de desenvolvimento através de análises estatísticas.	O artigo menciona que o Decisively é uma ferramenta web com foco em usabilidade, mas não especifica diretamente a forma de aquisição, seja gratuita ou paga.
2016	Selection of prioritization technique for software requirement using Fuzzy Logic and Decision Tree	Requirement prioritization for software products is one of the most important activities in software development. Prioritization is a critical step towards making great choices with respect to product planning for single and multiple releases. There are numerous requirement prioritization techniques and selecting the most appropriate one is a challenging task. In this paper a framework for selection of prioritization technique using fuzzy based rule engine is discussed. Here, the user inputs the characteristic value of the prioritized factor as input and on the basis of the fuzzy rules formed; most appropriate prioritization technique is predicted. Various prioritization techniques like AGORA, AHP, Win-Win etc. are considered against factors like consistency, priority etc. and the best approach is anticipated. Later the results are validated using Decision Tree approach. The developed framework could be beneficial to requirements engineer during requirement analysis phase.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2019	Improving Requirement Prioritization and Traceability using Artificial Intelligence Technique for Global Software Development	Global software development (GSD) organizations encouraged to improve software quality of products. The GSD used highly skilled and advance technology at one place through the internet. The main challenges face in GSD with benefits are communication, coordination and control. These issues create ambiguities and incompleteness in requirements prioritization and traceability process due to lots of stakeholders and human efforts involved. Therefore, we proposed a framework to improve requirements prioritization and traceability process using artificial intelligent technique. The framework was evaluated using experiment and compared with existing solutions. Results described that proposed framework significantly improved requirements prioritization and traceability with less human interaction to reduce GSD challenges.	Aprovado.	A ferramenta, embora não nomeada explicitamente no resumo, utiliza técnicas de inteligência artificial para gerenciar requisitos e criar links de rastreabilidade com menos esforço humano.	O artigo destaca que as abordagens existentes para a priorização de requisitos muitas vezes envolvem muita interação humana, são propensas a erros e podem ser ineficazes em ambientes de desenvolvimento de software global devido a desafios como a coordenação e comunicação entre equipes geograficamente distribuídas.	O artigo menciona o uso de técnicas de inteligência artificial, como o raciocínio baseado em casos (CBR) e ferramentas como Weka para análise de dados e tomada de decisões de priorização. O CBR é utilizado para reutilizar soluções de problemas anteriores para novos problemas, o que ajuda a priorizar os requisitos de forma eficiente.	A ferramenta aplica IA para reduzir a necessidade de interação humana intensiva na priorização de requisitos. Facilita a rastreabilidade dos requisitos ao longo do ciclo de vida do desenvolvimento do software. Utiliza algoritmos de aprendizado de máquina para classificar e priorizar requisitos com base em dados históricos e análises atuais.	A descrição sugere que foi desenvolvida para uso em ambientes corporativos de desenvolvimento de software global, o que pode implicar em um acesso mais restrito ou sob condições comerciais.
2023	Value Based Prioritization of Requirements in Software Engineering Education	Both physical and software products have a functional use for which they were designed. Putting a new project idea into action necessitates a clear, holistic vision of the expected gain and costs. However, gain (or value) can have many different manifestations that often go far beyond pure functionality. For one thing, it can be about purely monetary value, but it can also be about expanding the company's reach, improving customer loyalty, displacing competitors, or generating other additional benefits for the company or the user. Cost and Value Engineering is a promising approach for addressing such a value-centered perspective without losing sight of expenses. In typical Software Engineering courses Software Engineering students learn how to deal with requirements in general, as well as user stories, epics, and other requirements artifacts in the context of agile software development projects. However, aside from rudimentary planning activities for user stories or epics, they rarely learn to apply good value prioritization techniques. The primary goal of this paper is to present a validation experiment for two cost and value engineering methods in order to determine whether these methods are appropriate and valuable in a student context. The results are promising, indicating that these methods should be used in software engineering courses on a regular basis. In order for these methodologies to be properly incorporated into Software Engineering courses, an integrated tool support is required.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2018	A Social Network Based Process to Minimize In-Group Biasedness During Requirement Engineering	Evolution of social networking services has prompted a huge impact on major facets beyond the daily life of mankind. The Internet-based social media platforms are aiding us in numerous domains including healthcare, education, business, and software development. Social networking, being a communication medium, has corroborated various software development activities, especially requirement engineering. It has helped in overcoming various shortcomings of the conventional requirement engineering approaches, such as selection of stakeholders and prioritization of stakeholders, and requirements using diverse techniques based on centrality measures. However, these techniques do not address the biasedness problem while identifying and prioritizing stakeholders. To rectify this problem, specifically the in-group bias, we propose a social network-based process. It combines hybrid centrality measure and power, legitimacy, urgency technique. To validate our methodology, a controlled experiment was performed on a sample set of stakeholders. It was observed from the results of the controlled trial that the group using the proposed social network-based process not only identified the stakeholders and their requirements more efficaciously but also prioritized the stakeholders significantly better than the group that did not use our proposed process. The results also demonstrate that the group using proposed social-network-based process was less biased as compared to the group with no social network-based framework.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	Open innovation in software requirements engineering: A mapping study	Background: Since 2003, when the concept of open innovation (OI) was introduced, OI has been applied in many industrial fields. Previous research indicates that the use of OI in computer science is less diverse than in other fields. Especially, the role of OI in software requirements engineering (RE) seems to be little explored. Goals: This study aimed to summarize the body of knowledge about the use of OI in the field of RE. More specifically, we analyzed what uses of OI in the context of RE have been reported and how OI has contributed to individual steps of the RE process. Method: We conduct a mapping study on the literature provided in four scientific databases (ISI Web of Science, IEEE Xplore, ACM Digital Library, and Science Direct). Results: We identified 20 relevant papers. We found: 1) 20 primary studies from the period 2003-2016 report on results about applying OI in RE. 2) Half of the studies report on the application of OI on RE as a whole. 3) Only one paper each is related to requirement prioritization and validation. 4) None of the primary studies presents a proprietary tool support for OI in RE. Only one study presents a method for automatic requirements extraction in OSS projects which can be implemented using standard machine learning tools. Conclusions: Acknowledging the lack of published research on the use of OI strategies in specific RE activities, i.e., prioritization and validation, as well as the lack of reported tool support, we see new opportunities for research on automated and thus non-intrusive and low-cost methods for applying OI strategies in RE.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático					
2019	Design Thinking and Acceptance Requirements for Designing Gamified Software	Gamification is increasingly applied to engage people in performing tool-supported collaborative tasks. From previous experiences we learned that available gamification guidelines are not sufficient, and more importantly that motivational and acceptance aspects need to be considered when designing gamified software applications. To understand them, stakeholders need to be involved in the design process. This paper aims to (i) identify key requirements for designing gamified solutions, and (ii) understand if existing methods (partially fitting those requirements) can be selected and combined to provide a comprehensive gamification design method. We discuss a set of key requirements for a suitable gamification design method. We illustrate how to select and combine existing methods to define a design approach that fits those requirements usingDesign Thinking and the Agon framework. Furthermore, we present a first empirical evaluation of the integrated design method, with participants including both requirements analysts and end-users of the gamified software. Our evaluation offers initial ideas towards a more general, systematic approach for gamification design.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2011	Requirements Exchange: From Specification Documents to Models	The documentation of customer needs from the source specifications in a modeling environment for allocating them to architectural elements needs efficient tools and techniques in requirement engineering. Once requirements are present in models, enhancement with suitable properties, classification, prioritization, and allocation on system architecture are then possible. A downside is that the customer needs are likely to evolve over time, and then, we would need to manually redo the modeling of the requirements. Then, what we want to avoid is the manual definition of the customer needs from the source documents as a requirements model in the target environment. We propose in this paper a solution to import and export in Papyrus MDT, a UML modeling tool, the customers' needs from Microsoft documents using the Requirement Interchange Format, ReqIF.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1 e no IC2.					
2014	Application of Hybrid Assessment Method for Priority Assessment of Functional and Non-Functional Requirements	Requirements prioritization is recognized as a critical but often neglected activity during software development process. To achieve a high quality software system, both functional and non-functional requirements must be taken into consideration during the prioritization process. Although in recent past years a lot of research has been devoted to requirements prioritization problems, research on proposing approaches to consider both functional and non-functional requirements throughout the prioritization process is still limited. In this article, we propose an approach using Hybrid Assessment Method (HAM) to prioritize both functional and non-functional requirements simultaneously. The effectiveness of the proposed approach has been evaluated through an experiment with the aim of comparing the approach with the other state-of-the-art-based approach, Analytic Hierarchy Process (AHP).	Aprovado.	A ferramenta é o CHAM, que implementa o método HAM para priorizar requisitos em projetos de software.	O artigo menciona a necessidade de métodos que considerem tanto requisitos funcionais quanto não funcionais simultaneamente, destacando que muitas abordagens existentes priorizam esses tipos de requisitos de forma separada.	O método HAM é uma abordagem de decisão multicritério que combina uma matriz de comparação par a par com uma matriz de decisão multicritério clássica. Este método visa facilitar a priorização de um conjunto de alternativas (requisitos) com base em um conjunto de critérios.	CHAM automatiza o processo de priorização de requisitos utilizando comparações par a par e uma matriz de decisão ponderada para calcular a priorização final dos requisitos. Ele ajuda a gerenciar e simplificar o processo de tomada de decisões envolvendo múltiplos critérios e alternativas	É provável que a ferramenta tenha sido desenvolvida e utilizada em um contexto de pesquisa, e mais detalhes sobre o acesso podem depender dos desenvolvedores ou do contexto de uso.

2020	Software Requirements Modeling: A Systematic Literature Review	Software requirements modeling (SRM) is a subprocess of requirements engineering (RE) which is used to elicit and represent the need of the stakeholders. Different systematic literature reviews (SLR) have been performed in different areas of RE like requirements elicitation, stakeholder identification, requirements prioritization, use case models, etc. Despite the availability of different SRM techniques, less attention is given to synthesize the existing SRM techniques in the context of the unified modeling language (UML) and goal oriented techniques like “Knowledge Acquisition for Automated Specifications” (KAOS), I* framework, non-functional requirements (NFR) framework, and Tropos, etc. Therefore, to address this issue, in this paper we present the SLR by analysing the existing SRM techniques based on the following formulated research questions (RQs): (a) how UML and goal oriented techniques were evolved? (b) which modeling techniques are appropriate for modeling the NFRs? (c) what are the tools available for modeling the different types of the software requirements, i.e., functional and nonfunctional requirements? Search items were extracted from the RQs to identify the primary studies from the Journals, Conferences, Workshops, and Symposium. Our SLR has identified 56 distinct studies which have been published from 2008 to 2019. Selected studies were assessed according to the formulated RQs for their quality and coverage to specific SRM technique thus identifying some gaps in the literature. We observed that there is need to develop the SRM techniques for representing the different types of the NFRs; and also to strengthen the UML by integrating the NFRs and multi-criteria decision making techniques.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático					
2019	Patients’ requirements prioritization on the House of Quality: The Case of Glucose Monitoring Devices in Young Adults with Type 1 Diabetes	The House of Quality (HoQ) is a product development and improvement tool part of the overall process of Quality Function Deployment (QFD), which is widely used by organizations since the late 1960s when Japanese researchers and industrials started to formalize the approach. This paper presents an overview on the use of the HoQ for medical devices applications highlighting a part of a case study where the focus is placed on the prioritization of requirements of glucose monitoring devices from the point of view of young adults with type 1 diabetes. The paper highlights priority ranking issues in the HoQ and makes use of a multi-criteria decision aid (MCDA) approach in order to a proper prioritization and application with HoQ as a support for development and improvement activities.	Aprovado.	A ferramenta, embora não nomeada especificamente, aplica técnicas de inteligência artificial para ajudar na priorização e rastreabilidade de requisitos.	O artigo identifica a falta de integração e a necessidade de mais automatização no processo de priorização e rastreabilidade de requisitos como principais lacunas. Destaca a necessidade de técnicas mais eficientes que possam ser aplicadas globalmente, especialmente em contextos de desenvolvimento distribuído.	Utiliza técnicas de inteligência artificial, incluindo aprendizado de máquina, para analisar e priorizar requisitos baseados em diversos critérios, incluindo a importância relativa e a urgência.	Automatiza o processo de priorização e rastreabilidade de requisitos. Melhora a precisão na identificação e priorização de requisitos críticos. Facilita a comunicação e colaboração entre equipes distribuídas globalmente ao proporcionar visões claras das prioridades e dependências de requisitos.	O artigo não especifica se a ferramenta tem acesso público ou privado, nem se é gratuita ou paga. Dada a natureza do desenvolvimento descrito, pode ser uma ferramenta desenvolvida internamente ou destinada a um uso mais corporativo.
2011	A systematic review of goal-oriented requirements management frameworks for business process compliance	Legal compliance has been an active topic in Software Engineering and Information Systems for many years. However, business analysts and others recently started exploiting Requirements Engineering techniques, and in particular goal-oriented approaches, to model and reason about legal documents in system design and business process management. Many contributions involve extracting legal requirements, providing law-compliant business processes, as well as managing and maintaining compliance. In this paper, we report on a systematic literature review focusing on goal-oriented legal compliance of business processes. 88 papers were selected out of nearly 800 unique papers extracted from five search engines, with manual additions from the Requirements Engineering Journal and four relevant conferences. We grouped these papers in eight categories based on a set of criteria and then highlight their main contributions. We found that the main areas for contributions have been in extracting legal requirements, modeling them with goal modeling languages, and integrating them with business processes. We identify gaps and opportunities for future work in areas related to prioritization to improve compliance, templates for generating law-compliant processes, general links between legal requirements, goal models, and business processes, and semi-automation of legal compliance and analysis.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático					
2017	Tool-Supported Collaborative Requirements Prioritisation	Automated decision-making techniques are useful to support engineers when performing requirements engineering tasks. However, to be effectively used in practice they need to be integrated into the organisational context, in which stakeholder engagement becomes a critical adoption factor. In this paper, we propose a tool-supported collaborative requirements prioritisation process, called GRP, which exploits gamification elements to engage distributed stakeholders to contribute to the overall decision-making process. Analytic Hierarchy Process is used as key component of the game engine, and enables an iterative prioritisation process. The GRP process has been evaluated through an exploratory case study, which has been conducted at a small software company, providing us with preliminary evidence about the effectiveness of the proposed solution. The main findings and lessons learned from the case study are presented.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	The Crowd in Requirements Engineering: The Landscape and Challenges	Crowd-based requirements engineering (CrowdRE) could significantly change RE. Performing RE activities such as elicitation with the crowd of stakeholders turns RE into a participatory effort, leads to more accurate requirements, and ultimately boosts software quality. Although any stakeholder in the crowd can contribute, CrowdRE emphasizes one stakeholder group whose role is often trivialized: users. CrowdRE empowers the management of requirements, such as their prioritization and segmentation, in a dynamic, evolved style through collecting and harnessing a continuous flow of user feedback and monitoring data on the usage context. To analyze the large amount of data obtained from the crowd, automated approaches are key. This article presents current research topics in CrowdRE; discusses the benefits, challenges, and lessons learned from projects and experiments; and assesses how to apply the methods and tools in industrial contexts. This article is part of a special issue on Crowdsourcing for Software Engineering.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	Requirement parameriſation of flap actuation system: Product life-cycle management processes & tools	Flap actuation systems (FAS) have numerous operational states, modes and environmental constraints, which translate to thousands of requirements associated with them. FAS must be analyzed and tested to determine compliance with requirements in any operating conditions. In this paper, examples of parametrized requirements for centrally driven FAS are presented and the advantages brought by a requirement parametrization process in the systems engineering life- cycle discussed, from requirements elicitation to requirements validation and verification. The challenges of robust re-use and customization of components within legacy systems to drive cost reduction is significant as often legacy products were not developed within a model base framework. The requirements prioritization process provides a low cost, high impact example of alternative to ensure integrity and full traceability of requirements without the need to implement complex simulation platforms.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2023	Secondary Study on Social Factors that Affect the Prioritization of Software Requirements	requirements, in the context of the software development process. The study uses an ad hoc methodology to perform Systematic Reviews of Literature in Software Engineering. The objective was to analyze primary studies developed in the review period around the requirements process, particularly in prioritization tasks, for which three research questions were established around: trends in research on the subject, associated factors to the requirements prioritization process, as well as and the requirements process management tools. The findings allow us to identify that since 2015 there has been a significant increase in studies related to the requirements process, likewise, five categories of social factors could be identified; Finally, a small number of tools were found to assist the requirements process, in which benefits related to the prioritization of requirements are integrated.	EC7: Não é possível ter acesso à versão completa da publicação.					
2016	A Serious Game for Eliciting Social Engineering Security Requirements	Social engineering is the acquisition of information about computer systems by methods that deeply include nontechnical means. While technical security of most critical systems is high, the systems remain vulnerable to attacks from social engineers. Social engineering is a technique that: (i) does not require any (advanced) technical tools, (ii) can be used by anyone, (iii) is cheap. Traditional security requirements elicitation approaches often focus on vulnerabilities in network or software systems. Few approaches even consider the exploitation of humans via social engineering and none of them elicits personal behaviours of individual employees. While the amount of social engineering attacks and the damage they cause rise every year, the security awareness of these attacks and their consideration during requirements elicitation remains negligible. We propose to use a card game to elicit these requirements, which all employees of a company can play to understand the threat and document security requirements. The game considers the individual context of a company and presents underlying principles of human behaviour that social engineers exploit, as well as concrete attack patterns. We evaluated our approach with several groups of researchers, IT administrators, and professionals from industry.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1 e no IC2.					
2020	Cyber Digital Twin Simulator for Automatic Gathering and Prioritization of Security Controls' Requirements	The scale and complexity of cyber threats in digital enterprises hamper operators' ability to gather, prioritize and rationalize which security controls requirements should be handled first to achieve rapid risk reduction. This paper presents a cyber digital twin, based on attack graph analytics, that automatically gathers and prioritizes security controls requirements at scale over active networks. The first-of-a-kind twin collects information about the computer network, associates it with attack tactics, measures the efficiency of implemented security controls requirements and automatically detects missing security controls. The twin also evaluates a cyber risk value using the attack graph and proposes prioritization of the detected requirements to rapidly reduce risk within existing system constraints. The cyber digital twin simulator offers several new risk reduction methods for automatically selecting security controls requirements. The necessary data for constructing a contextual cyber digital twin is defined, including the relationship between security controls and attack tactics. The paper illustrates the calculations used for ranking security controls' risk impact, the algorithm for security controls' requirements prioritization, and finally demonstrates successful results using a field experiment conducted via an active network.	Aprovado.	No artigo "Cyber Digital Twin Simulator for Automatic Gathering and Prioritization of Security Controls' Requirements", a ferramenta proposta é o "Cyber Digital Twin Simulator". Esta ferramenta utiliza gráficos de ataque analíticos para reunir e priorizar automaticamente os requisitos de controles de segurança em redes ativas.	As principais lacunas de pesquisa identificadas incluem a necessidade de métodos mais eficientes para priorizar requisitos de controle de segurança em redes complexas e em grande escala. O artigo destaca a dificuldade de realizar análises manuais em redes complexas e a falta de integração das táticas de ataque dos hackers nos processos de definição de requisitos de segurança.	As técnicas de priorização de requisitos implementadas incluem a utilização de gráficos de ataque analíticos (AAG) e a aplicação de regras de inferência lógica para gerar esses gráficos. O simulador utiliza métricas de risco de gráfico (GRV) para avaliar o sucesso na redução de riscos e decidir quais requisitos de controle de segurança devem ser tratados primeiro. Métodos de redução de risco como o "Area Under Curve" (AUC) e "Gradient Reduction" são empregados para determinar a ordem de implementação dos controles de segurança.	As funcionalidades do Cyber Digital Twin Simulator incluem: Coleta automática de informações da rede e táticas de ataque. Avaliação da eficiência dos controles de segurança implementados. Detecção automática de controles de segurança ausentes. Priorização de requisitos de controle de segurança com base em métricas de risco. Simulação iterativa e incremental para redução de risco cibernético. Visualização de gráficos de ataque e histogramas de influência dos controles de segurança.	O artigo menciona que o sistema AgiSec, incluindo o módulo AgiSC que implementa o simulador, é propriedade intelectual da Accenture e que o código-fonte não está disponível publicamente. Isso sugere que a ferramenta é proprietária e provavelmente disponível sob licença comercial.

2016	Planning Optimal Agile Releases via Requirements Optimization	This paper focuses on improving requirements quality in agile projects by determining requirements prioritization. Current methods suggest to take into account business value in order to determine the requirements priority rank. In practice it was observed that many other factors enter into the equation, such as implementation cost and functionality dependencies. Since agile methods suggest that priority should be customer/user's prerogative, taking all relevant factors becomes challenging without decision supporting tools. Our research question is the following: How can we formulate the agile release decision problem, and which computations can we do over requirements models to recommend solutions to that decision problem? Our contributions are the following: (i) we formulate this agile release decision problem as an optimization problem, (ii) we provide a modelling language to represent instances of this problem as requirements models, and (iii) we describe an online tool to make the models and solve the resulting optimization problem instances.	Aprovado.	A ferramenta é o AnalyticGraph.com, um sistema online que permite modelar e resolver instâncias de problemas de otimização relacionados à priorização de requisitos.	O artigo menciona que, enquanto a literatura sugere que a priorização deve ser prerrogativa do cliente, na prática, muitos outros fatores entram em jogo, como o custo de implementação e dependências funcionais. A dificuldade de levar em conta todos esses fatores sem uma ferramenta de suporte à decisão é destacada como um gap que a ferramenta procura preencher.	O artigo propõe modelar o problema de liberação ágil como um problema de otimização e fornece uma linguagem de modelagem para representar instâncias desse problema em modelos de requisitos. Utiliza um programa de programação inteira mista (MIP) para definir automaticamente um planejamento de liberação que leva em consideração o valor de negócios, restrições funcionais e esforço necessário.	AnalyticGraph.com permite criar modelos de requisitos e resolver problemas de otimização resultantes. Ele ajuda a definir planejamentos de liberação que maximizam o valor de negócios enquanto consideram o custo e dependências funcionais. A ferramenta é descrita como suporte à tomada de decisões em projetos ágeis, permitindo ajustes dinâmicos conforme o projeto progride.	Gratuito, porém não está mais online.
2017	Gamifying Collaborative Prioritization: Does Pointsification Work?	Gamification has been applied in software engineering contexts, and more recently in requirements engineering with the purpose of improving the motivation and engagement of people performing specific engineering tasks. But often an objective evaluation that the resulting gamified tasks successfully meet the intended goal is missing. On the other hand, current practices in designing gamified processes seem to rest on a try, test and learn approach, rather than on first principles design methods. Thus empirical evaluation should play an even more important role.We combined gamification and automated reasoning techniques to support collaborative requirements prioritization in software evolution. A first prototype has been evaluated in the context of three industrial use cases. To further investigate the impact of specific game elements, namely point-based elements, we performed a quasi-experiment comparing two versions of the tool, with and without pointsification. We present the results from these two empirical evaluations, and discuss lessons learned.	Aprovado.	A ferramenta é o DMGame, que integra elementos de gamificação para engajar os stakeholders no processo de priorização colaborativa.	O artigo identifica que a "pointsification" (uso de pontos como elementos de jogo para engajamento) pode não ser eficaz sem avaliação empírica. A pesquisa sugere que a abordagem tradicional de design para gamificação baseada em tentativa e erro precisa de avaliação empírica mais rigorosa para validar a eficácia.	A técnica principal é o Analytical Hierarchy Process (AHP), que é usado para sintetizar as visões heterogêneas dos stakeholders de forma automatizada, ajudando a formar uma classificação consensual dos requisitos.	A ferramenta DMGame apoia a configuração e execução de sessões de jogo para a priorização de requisitos, oferece elementos de gamificação como pontos e indicadores de progresso para aumentar o engajamento, e utiliza AHP para facilitar decisões complexas com base em comparações par a par	O artigo não especifica se a ferramenta tem acesso público ou privado, nem se é gratuita ou paga.
2012	Application of Value Based Requirement Prioritization in a Banking Product Implementation	This paper describes the need for Value Based Requirement Prioritization (VBRP) in Core Banking transformation programs. We describe the VBRP tool selected for this purpose and how it was customized for use in a large product implementation in a bank. In the original VBRP tool developed before this experience we had hierarchical prioritization for various levels for requirements like modules, sub modules and requirements but we did not have goal hierarchies. We now came to know that hierarchies are also needed for goals and hence we introduced "value levers" and goals as two levels of the goal hierarchy. Also based on experience from the implementations of the product at various banks we came up with an exhaustive set of 22 goals for core banking transformation projects and used this knowledge to customize the generic VBRP tool for Core banking product implementations. This paper will help one understand the concept behind VBRP and get expertise to customize the concept to take care of special needs of projects in other domains.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC2.	A ferramenta é o VBRP, que foi customizado para ser utilizado em grandes implementações de produtos em bancos.	O artigo aborda a falta de ferramentas que integram a priorização de requisitos com os valores de negócios em core banking. O VBRP foi desenvolvido para preencher essa lacuna, proporcionando uma priorização que reflete melhor os valores e objetivos de negócios do banco.	O VBRP utiliza uma abordagem baseada em valores para a priorização de requisitos, permitindo que os requisitos sejam avaliados de acordo com sua contribuição para os objetivos estratégicos do banco. Isso é feito através da ponderação de cada requisito contra um conjunto definido de metas.	Permite aos stakeholders priorizar requisitos com base em uma mentalidade focada em valor. Implementa um rigor no processo de seleção de requisitos, combinando intuição, conhecimento de domínio e uma abordagem científica. Ajuda a otimizar o escopo e gerenciar recursos, focando nos itens de maior valor primeiro. Facilita o teste downstream, identificando os requisitos de maior valor que são críticos para testes.	A descrição sugere que foi desenvolvida internamente na Infosys para uso em projetos de implementação de produtos bancários, o que pode indicar um uso mais restrito dentro de contextos específicos de projetos.
2022	Paving the Way to a Software-Supported Requirements Prioritization in Distributed Scrum Projects	Both, agile software development (e.g., Scrum) and the geographical distribution of project stakeholders have gained increasing significance in recent years. Establishing agile methods in distributed software development projects challenges science and practice as the characteristics of agile software development are not compatible with distributed project environments. Especially the task of requirements prioritization that incorporates a significant role in Scrum and that requires high communication and collaboration between stakeholders lacks an extensive software-supported methodology. This research-in-progress paper presents the first three steps of a design science research project. Based on an initial literature review combined with expert interviews addressing two software companies, the paper presents issues, requirements, and solution characteristics. Finally, it proposes a solution concept in form of a process model. These artifacts offer a solid foundation for further research, especially instantiating and evaluating the concept using a functional software prototype.CCS CONCEPTS• Software and its engineering → Software creation and management; • Information systems;	Rejeitado. Devido ao EC7: Não é possível ter acesso à versão completa da publicação.					
2018	Review on Cost-Value Approach for Requirements Prioritization Techniques	The use of appropriate requirements prioritization techniques is crucial to the success of a software development project. There are many techniques offered with all the advantages and disadvantages of each. The question that come up frequently when doing requirements prioritization is “whether the priority list is generated based on customer's required value?” and “whether the value is generated comparable with the cost incurred for implementation?”. This paper aims to conduct an empirical systematic review to identify and review the requirements prioritization studies based on the cost-value approach. This literature review generates many insights including: reduction of pairwise comparisons, factors and aspects of cost-value, features that support cost value and cost-value constraints.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático.					
2022	A Review on Requirements Prioritization Approaches of Software Project Management	Planning, executing, monitoring, and managing software projects are the primary concerns of software project management (SPM). SPM is a branch of the broader project management discipline. SPM covers the knowledge, methods, and tools required to manage software project development. An essential part of SPM is requirements prioritization, which is used to decide which features or needs will be executed first or which releases will include those features or requirements. At the outset of any software development process and project, requirements are elicited, and the projects will be chosen based on their worth to the market and the product itself. However, the existing requirements prioritization approaches fail to consider all the necessary factors to establish these priority demands. Some of these factors are risk, time to market, value, the total number of requirements, cost, and the outcomes of both functional and non-functional requirements. Therefore, this paper aims to review the existing requirements prioritization approaches used in SPM. To reach this goal, a narrative review methodology was used to evaluate and summarise a body of scientific literature that came from a number of different scientific sources. The results confirm that there are several approaches used in SPM to prioritize the requirements in descending order of importance. Nonetheless, the discussion in this review is restricted to just 17 different studies. The authors provide an overview of the main results and suggest further research directions. This study may guide both researchers and practitioners toward the best method for doing the requirements prioritization task.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático.					
2017	Business process modelling tool selection: A review	The interest in business process modelling has increased in the last decade. Numerous business process modelling tools for developing business processes exist. These tools serve a wide range of business functions and applications. There exist limitations in effectively selecting the appropriate business process modelling tool relative to corporate functions and applications. This research explores this specific limitation and serves as a guide to mitigate this specific limitation relative to prioritizing and selecting a business process modelling tool. This investigation explores the limitations in the currently designed business process modelling tool based on local, regional and global modelling of corporate processes. Results prove essential prioritization constituents relative to selecting a more enhanced business process modelling tool for enterprise professionals. The applicability of the proposed prioritization approach is demonstrated.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC2.					
2022	Advancing the Use of an Analytical Hierarchy Process and Improved Random Indexes for Making Prioritized Decisions in Systems	In the early stages of the systems engineering process, an important focus is to create an understanding of the stakeholder needs. This is primarily done to prepare the system specification that forms the basis for the system’s design. By extension, example steps in this process include surveying stakeholders to better capture their intent, deriving and documenting requirements, and then using those requirements for subsequent activities, such as developing a functional baseline and candidate design alternatives. During this process, it is important to consider the full system lifecycle. As such, one major objective of a systems engineer is to translate the stakeholder’s needs into functional and nonfunctional requirements (NFRs). Despite this important role, early system designs are often faulty because important NFRs are poorly prioritized or not prioritized at all. While the prioritization of all requirements can be useful, this work focuses specifically on NFRs. It has been identified that the inability to identify the most useful NFRs can lead to system failure. Furthermore, the lack of NFR prioritization is considered one of the most expensive and difficult errors to correct, as well as one of the ten most significant risks in engineering. Systems need more emphasis on the relationships between the system’s elements, rather than on the individual elements or the whole system. Relationships among elements in a system can illustrate more than just the behavior of each element. The illustration can include the purpose for the system and the implications of changing how the NFRs associated with those elements are prioritized. This emphasis requires quantifiable tools and rigor to inform the decision makers. This research’s objective is to contribute to quantifiable decision-making methods and prioritization of NFRs in three ways: the development of a process to determine unique random index; the use of a continuous ranking scale; and the development of a universal decision-making heuristic to accompany prioritization of NFRs.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.	A ferramenta é o Analytic Hierarchy Process (AHP), que é usada para ajudar na priorização de requisitos de software.	O artigo identifica que muitas ferramentas de priorização de requisitos não levam em conta as opiniões e o conhecimento tácito dos stakeholders de maneira eficaz, o que pode levar a decisões de priorização que não refletem totalmente as necessidades e os contextos dos projetos	O AHP é usado para estruturar o problema de priorização em diferentes níveis e ajudar os stakeholders a fazerem julgamentos sobre a importância relativa dos requisitos, usando um método matemático para calcular pesos que refletem a prioridade de cada requisito.	O AHP permite uma avaliação estruturada e sistemática dos requisitos. Facilita a comparação par a par entre requisitos para determinar qual deles tem maior prioridade. Gera resultados quantitativos que ajudam na tomada de decisão.	O artigo não especifica se a ferramenta tem acesso público ou privado, nem se é gratuita ou paga.

2013	Requirements elicitation: Towards the unknown unknowns	Requirements elicitation research is reviewed using a framework categorising the relative `knowness' of requirements specification and Common Ground discourse theory. The main contribution of this survey is to review requirements elicitation from the perspective of this framework and propose a road map of research to tackle outstanding elicitation problems involving tacit knowledge. Elicitation techniques (interviews, scenarios, prototypes, etc.) are investigated, followed by representations, models and support tools. The survey results suggest that elicitation techniques appear to be relatively mature, although new areas of creative requirements are emerging. Representations and models are also well established although there is potential for more sophisticated modelling of domain knowledge. While model-checking tools continue to become more elaborate, more growth is apparent in NL tools such as text mining and IR which help to categorize and disambiguate requirements. Social collaboration support is a relatively new area that facilitates categorisation, prioritisation and matching collections of requirements for product line versions. A road map for future requirements elicitation research is proposed investigating the prospects for techniques, models and tools in green-field domains where few solutions exist, contrasted with brown-field domains where collections of requirements and products already exist. The paper concludes with remarks on the possibility of elicitation tackling the most difficult question of `unknown unknown' requirements.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	Design and Implementation of Combinatorial Testing Tools	As an effective software testing technique, combinatorial testing has been gradually applied in various types of test practice. In this case, it is necessary to provide useful combinatorial testing tools to support the application of combinatorial testing technique on industrial scenarios, as well as the academic research for combinatorial testing technique. To this end, on the basis of the research results of this group, a suite of combinatorial testing tools has been developed, whose functions include test case generation, test case optimization, and etc. For the requirements from both industrial and academic scenarios, the tools should be configurable, scalable, modular, and etc. This paper gives a brief introduction to the design and implementation of these tools. Keywords—combinatorial testing, combinatorial testing tools, test generation, test prioritization.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2019	An Evolutionary Tool For Requirements and Design Crosscutting Concerns	To elevate a simple but important fashion to tolerate rapid changes in cross-cutting concerns in the requirements and design phases in multiple sizes of software development and maintenance tasks, Identification, Modularization, Design Composition Rule and Conflict Dissolution (IM-DeCRuD) approach was previously offered. This study delivered a tailored-design, prototype and constructed tool as a proof of concept of the proposed approach to IM-DeCRuD. The main attributes of the IMDeCRUD prototype are: requirements specification definition, requirements specification modification, requirements prioritization setting and graphics visualization of the representation generated using the Generic Modeling Environment (GME) tool. Java language was used as an interpreter to integrate the prototype functions. This research applied a library system as a simple case study to determine the importance of the IM-DeCRuD prototype. Ultimately, during the software development and evaluation activities, the prototype showed its ability for the tedious engineering process of requirements and design crosscutting concerns becoming more simpler.	Aprovado.	A ferramenta é o IM-DeCRuD, que é usada para identificar, modularizar, compor regras de design e resolver conflitos em requisitos e design.	O artigo destaca a falta de abordagens adequadas para lidar com preocupações transversais que são difíceis de identificar e muitas vezes estão espalhadas por diversos módulos. Esses problemas complicam a manutenção e o desenvolvimento de software, levando potencialmente a falhas inesperadas.	O IM-DeCRuD aplica regras de design para modularização e composição, utilizando um esquema XML e operadores do LOTOS (Language of Temporary Ordering Specifications) para ajudar na priorização e resolução de conflitos de requisitos. Além disso, integra uma representação gráfica para visualizar as inter-relações e priorizações.	Definição de Especificações de Requisitos: Permite a transformação das especificações obtidas através dos modelos de requisitos. Modificação de Especificações de Requisitos: Suporta a adição ou remoção de especificações de requisitos, propagando automaticamente o impacto nos componentes de design de software correspondentes. Configuração de Priorização de Requisitos: Assiste na definição do nível de prioridade de elementos específicos de requisitos não funcionais. Representação Visual Gráfica: Visualiza graficamente a representação (em formato XML) das regras de composição geradas automaticamente.	A descrição sugere que foi desenvolvida para uso em um contexto acadêmico ou de pesquisa, o que pode indicar um acesso mais restrito.
2019	Analysis and Prioritization of App Reviews	Smartphone apps market is a billion dollar industry and is growing rapidly. Thus, app developers are constantly on the lookout for efficient and reliable data analytics and prioritization tools that analyze crucial feedback present in app reviews and at the same instance prioritize the reviews for remedial actions. Such analysis and prioritization tools significantly assist app developers to identify and address requirements raised in the app reviews by the app's customers (end-users). This, in general, aids the app maintenance and evolution cycles. In this study, we propose and develop analytics and prioritization methods and represent the methods in the form of a software tool to support app developers of the MyTracks app towards the app's maintenance and evolution cycles. Our findings through the means of system usability scores reveal that the app developers had significantly agreed with the usability, reliability, and efficiency of our tool.	Rejeitado. Devido ao EC7: Não é possível ter acesso à versão completa da publicação.					
2010	Understanding requirement engineering (REQ) from a software agent modeling perspective	The requirements for modeling a software product are growing in size and increasingly getting complex, interdependent and to understand them requires the availability of simple representational requirement engineering tools and measures to evaluate them. Requirements engineering still remains a key factor to guarantee stakeholders involvement, facilitating their understanding and participation. The paper presents an overview of agent based modeling requirements engineering (REQ) from a software agent point of view via a JADE platform. It describes the main areas of RE practice, tools for requirement management, conflict between goals of different agents and highlights some key open research issues for the future. The paper addresses how to model requirements engineering problem model using a proposed Prioritization Agent matrix Scheduling (PAMS) as a use-case example.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2018	Exploring RE Knowledge for Gamification: Can RE Achieve a High Score?	Gamification is receiving more and more attention by researchers and practitioners who want to motivate people to participate in various software-supported tasks. Although its promising nature, there is the risk that many gamified software applications will fail. This is also caused by missing guidelines and methods, which support a structured development of gamified systems. Researchers investigating gamification recommend using iterative design and development approaches which focus on early prototypes. The proposed approaches are based on ideas from various disciplines, but seem to neglect requirements and software engineering knowledge. We argue that successfully gamifying software applications can benefit from existing processes, concepts, methods and tools available and applied in requirements engineering (RE). In this paper, we present our idea on how RE knowledge can stimulate and support the successful development of gamified software applications. We present a method, which makes use of RE knowledge and allows to bridge stakeholders' goals, intended behavior and experience. We illustrate our method on a use case about a tool-supported collaborative prioritization task. The contribution of our paper are first ideas on how to use RE knowledge to successfully apply gamification to software-supported tasks.	Aprovado.	A ferramenta é o DMGame, que integra elementos de gamificação para engajar usuários no processo de priorização de requisitos.	O artigo destaca que muitas aplicações gamificadas falham devido à falta de métodos de design estruturados e orientados para o desenvolvimento gamificado. Existe um risco significativo de falha se a gamificação for mal aplicada, o que pode desmotivar os usuários.	O DMGame aplica técnicas de gamificação no processo de priorização, utilizando o Analytic Hierarchy Process (AHP) para elicitação de preferências entre pares de requisitos. Além disso, incorpora elementos de gamificação para manter os usuários engajados durante tarefas que podem ser percebidas como tediosas.	Gamificação do fluxo de processo para priorização de requisitos. Interface que incorpora elementos de pontuação para recompensar usuários que realizam tarefas de forma alinhada e rápida. Suporte à colaboração entre múltiplos decisores, potencializando o engajamento e a precisão no processo de decisão.	A descrição sugere que a ferramenta foi desenvolvida e avaliada em um contexto acadêmico, implicando um possível acesso restrito a contextos de pesquisa ou educação.
2021	A Study of Relevant Parameters Influencing Code Smell Prioritization in Object-Oriented Software Systems	Code smells are indicators of some design flaws in the software code. The evolutionary property of an object-oriented software product increases the number of code smells with every release of a version of the product. These code smells like to hamper the quality of the software system. During software maintenance, it becomes cost and effort-intensive to eliminate such a large number of smells due to time and budget constraints. This demands the prioritization of code smells where the developers are with top severe smells to save time and effort. Before proposing any prioritization approach, it becomes important to Figure out the need for code smell elimination using different refactoring activities. Following this, it is imperative to understand the role of different relevant elements in code smell prioritization. To address this need, this paper highlights the drawbacks of code smells as well as provides an overview of several prioritization-related elements such as factors, subject programs, performance metrics, and detection tools. This would help the researchers in getting a preliminary understanding of various parameters that are crucial for proposing and validating code smell prioritization approaches.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1 e no IC3.					
2017	ARRoW: Tool Support for Automatic Runtime Reappraisal of Weights	Prioritization of non-functional requirements (NFRs) is a research field that needs more attention. We demonstrate ARRoW, a novel approach for automatic runtime reappraisal and update of the weights of NFRs given new evidence collected from the environment during the execution of the system. In this paper, we showcase how ARRoW is used in an substantial industrial case study. Our results shows how the approach offers a better-informed decision-making process by allowing the reappraisal and update of the weights of the NFRs in accordance to the newly detected environmental contexts.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2012	Value-Based Coverage Measurement in Requirements-Based Testing: Lessons Learned from an Approach Implemented in the TOSCA Testsuite	Testing is one of the most widely practiced quality assurance measures and also one of the most resource-intensive activities in software development. Still, however, most of the available methods, techniques and tools for software testing are value-neutral and do not realize the potential value contribution of testing. In this paper we present an approach for value-based coverage measurement that can be used to align the testing effort with the achievable value associated with requirements and functional units. It has been implemented as part of a commercial test tool and was successfully applied in real-world projects. The results demonstrated its ability to adequately capture the distribution of the business value and risks involved in different requirements. The paper concludes with sharing important lessons learned from developing value-based coverage measurement in the practical setting of commercial tool development and real-world test projects.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					

2012	Does the prioritization technique affect stakeholders' selection of essential software product features?	Context: To select the essential, non-negotiable product features is a key skill for stakeholders in software projects. Such selection relies on human judgment, possibly supported by structured prioritization techniques and tools. Goal: Our goal was to investigate whether certain attributes of prioritization techniques affect stakeholders' threshold for judging product features as essential. The four investigated techniques represent four combinations of granularity (low, high) and cognitive support (low, high). Method: To control for robustness and masking effects when investigating in the field, we conducted both an artificial experiment and a field experiment using the same prioritization techniques. In the artificial experiment, 94 subjects in four treatment groups indicated the features (from a list of 16) essential when buying a new cell phone. In the field experiment, 44 domain experts indicated the software product features that were essential for the fulfillment of the project's vision. The effects of granularity and cognitive support on the number of essential ratings were analyzed and compared between the experiments. Result: With lower granularity, significantly more features were rated as essential. The effect was large in the general experiment and extreme in the field experiment. Added cognitive support had medium effect, but worked in opposite directions in the two experiments, and was not statistically significant in the field experiment. Implications: Software projects should avoid taking stakeholders' judgments of essentiality at face value. Practices and tools should be designed to counteract biases and to support the conscious knowledge-based elements of prioritizing.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2018	Feature-Based Testing by Using Model Synthesis, Test Generation and Parameterizable Test Prioritization	An approach for feature-based testing in efficient test processes, especially for use in agile development, is presented. Methods of model synthesis, model-based test generation, as well as coverage-based and requirement-based test prioritization are linked together in order to systematically and efficiently obtain prioritized test cases. The result is a reordered test suite promising quick feedback for the test engineer during test execution. The process is highly parameterizable in regard to the selection of features to be tested and the optimization criteria for the test prioritization. Using an example from industrial automation, the results of the work are demonstrated.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1 e no IC3.					
2020	An Information Theoretic Approach to Platform Technology Selection to Aid Influence Operations	The influence operations domain would benefit from a strategic adoption of automation, technological adaptability, and agile processes. The focus of this article is on the technical aspects of determining the required technologies to fully support conducting an influence operation rather than cognitive aspects of an operation. A unified approach to the application of these technologies does not appear to have occurred in this domain. A conceptual information theoretic framework for identifying appropriate technologies to support influence and other cyber operations is presented. It provides a holistic framework for making planning decisions about the development and employment of technology capabilities independent of specific detailed operational requirements, while allowing assessments of risk, cost, and effectiveness to be considered in the process. The framework defines the data, information needs, and acquisition process in the context of specific technology insertion point data, information, or knowledge requirements and services to facilitate execution of an operation. The framework allows for identification, down-selection, and prioritization of specific shared technologies that support multiple phases of the decision process and stages of an operation. This allows for concentration of limited engineering, programmatic, and financial resources on technologies with the widest applicability irrespective of the specific operation.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1 e no IC3.					
2023	Technology Prioritization and Architecture Flexibility for Space System-of-Systems	Decision makers face a difficult task when planning large-scale space missions or long-term development of technologies for space systems architectures. The difficulties arise from multiple factors. First, the size of the problem, the diversity of the involved systems and technologies, and the variety of stakeholders and their needs result in a large a complex trade space. Second, technologies are continuously evolving, and it can be hard to find data and model for new technologies, which increases the uncertainty about availability and performance. Third, in these complex problems decision makers need to account not only for traditional engineering trade-off (including cost, time, performance, and risk) but also for policies, stakeholder preferences, and flexibility of space architectures. Building on our previous research in System-of-Systems methodologies, we propose a combination of tools to support decision-making for technology prioritization and analysis of development time, risk, and flexibility of space architectures. Based on developmental dependencies between technologies, Technology Readiness Level (TRL), mission requirements, uncertainty, cost, and budget limitations, the tools produce the optimal expected schedule and allow the user to identify potential bottleneck and risks. Different strategies for prioritization of technologies can also be compared. The tools can handle constraints such as policies or stakeholder preferences, which impose prioritization of certain technologies or space missions. Finally, since long-term space mission planning is very dynamic and its specific objectives change often, we implemented tools to add analysis of flexibility on top of the technology prioritization tools. This analysis is performed from different perspectives. From a mission viewpoint, given a selected mission category (and its associated technologies), we assess how difficult it is to transition to a different mission, in terms of cost and number of technologies that are missing, as well as evaluating differences in cost. From a programmatic viewpoint, we quantify flexibility of specific technology prioritization schedules when decisions to switch to a different mission arise.	Rejeitado. Devido ao EC7: Não é possível ter acesso à versão completa da publicação.					
2023	Applying the Assessment List for Trustworthy Artificial Intelligence on the development of AI supported Air Traffic Controller Operations	The advance of AI in safety- and security-critical domains such as aviation needs high standards for its trustworthy development. In this context the EASA introduced the Assessment List for Trustworthy AI (ALTAI) as an helpful tool. This paper presents an approach for applying the ALTAI in the development of an AI-based digital Air Traffic Control Operator (ATCO). Specifically, the aim was using the ALTAI to derive a set of high-level requirements for the AI-based system to guarantee trustworthiness in the early development stages. The focus is thus given on how the ALTAI questions can be processed in order to yield system requirements. However, the necessity for a structured approach becomes apparent when confronted with the abundance of diverse perspectives within the ALTAI. Accordingly, various filtering, prioritization, and grouping methods were implemented in an usable framework. Consequently, the applicability of the ALTAI is analyzed, discovering a divergence between technical and ethical requirements. It is illustrated that technical questions often lead to highly applicable specific requirements, compared to ethical questions. Especially due to their importance, the challenges of deriving specific requirements for certain ethical aspects are emphasized and discussed. Additionally, suggestions on future versions of the ALTAI are given in order to strengthen its application during the development of AI-based systems. By showcasing our method and specific requirements obtained for the digital ATCO system, the objective is to highlight the necessity of the ALTAI and to provide a basis for its wider use.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	Knowledge Transfer for Global Roles in GSE	This practice paper presents how a software engineering organization spread across three countries successfully transferred the knowledge of a few identified roles for a large mission-critical software system that had to conform to regulatory requirements. Multiple releases of the system have been delivered to customers over the 15 years it has been in the market. Each release of the product had a focus area. The competence availability for these focus areas was distributed. As a natural evolution of the globally distributed team, greater responsibility is devolved to a particular location, based on the availability of the competence at that location. Moving the increased responsibility to a location, created a global role, which did not exist earlier. Building the new role required a new skill, what is unique about a global role. Equipping the team members in the new skill was necessary to take up the roles effectively and quickly. The first step was the identification of the competence for a function/role, training for which may be imparted to another person, who will take over the function/role. This is followed by a process of knowledge transfer, which ensured that a person can take up a new global role from another location. Prioritization based on ease of knowledge transfer for different areas of work, that was found to be effective is described. This helped reduce possible problems that could occur due to incorrect or incomplete transfer of knowledge. The advantages by such knowledge transfer that resulted in new persons taking up global roles have outweighed its disadvantages. The practices described are generic and can be applied to any organization of similar size and complexity.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2018	Clustering Based Prioritization of Test Cases	Regression testing is the procedure of retesting the product and checking whether additional faults or errors have been created in the existing one. It is vital for keeping up programming quality. But it is a costly process. By., utilizing prioritization technique cost can be diminished. Prioritization increases productiveness of regression testing and its main criteria is to build the rate of error detection. Merging requirements information into current testing practice helps the engineers to recognize the source of faults easily. In this paper a research is done on whether the requirements-based grouping methodology can enhance the viability of prioritization techniques. So., here a grouping approach is performed on given requirements and prioritization techniques based on code scope metric.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	Fuzzy Approach to Prioritize Usability Requirements Conflicts: An Experimental Evaluation	The lack of attention to the correlation between the attributes of usability requirements leads to several problems with software development. This paper presents a novel framework that focuses on the mapping of usability requirements attributes to the linguistic assessment from the users using fuzzy logic. Our proposed framework prioritizes conflicting usability requirements attributes. For implementation, we have used MATLAB Fuzzy Logic Toolbox. This proposed framework is aimed at helping the requirement analyst in taking better decisions by automating the whole process of identifying and resolving usability requirements conflicts. The major task in the proposed system involves determining the numerical value for each attribute considering their respective importance in different quantitative and qualitative evaluation standards. On the basis of numerical value, conflicts and their respective severities are identified.	Aprovado.	A ferramenta é um framework baseado em lógica fuzzy implementado usando o MATLAB Fuzzy Logic Toolbox. Ele foca na priorização de atributos de requisitos de usabilidade em conflito.	O artigo identifica um gap significativo na falta de uma técnica abrangente para priorizar conflitos entre atributos de requisitos de usabilidade de forma separada. A maioria das técnicas existentes não aborda adequadamente a quantificação e a priorização desses conflitos de maneira eficaz.	A técnica principal utilizada é a lógica fuzzy, especificamente o método de Mamdani, para avaliar qualitativamente os conjuntos de conflitos possíveis baseados em avaliações linguísticas dos critérios de usabilidade coletados dos stakeholders.	Automatização do processo de identificação e resolução de conflitos em requisitos de usabilidade. Quantificação de conflitos e sua severidade usando valores numéricos. Uso de valores de pertinência fuzzy para lidar com a incerteza nas avaliações dos stakeholders. Capacidade de processar e sintetizar pontos de vista heterogêneos de maneira automática e inteligente.	O artigo não especifica diretamente a forma de aquisição do framework proposto. No entanto, menciona que a implementação foi realizada utilizando o MATLAB Fuzzy Logic Toolbox, que é uma ferramenta comercial. Isso sugere que, para utilizar o framework conforme descrito no artigo, é necessário acesso ao MATLAB e seu toolbox de lógica fuzzy, que são softwares pagos.

2021	Technical Debt Prioritization: Taxonomy, Methods Results, and Practical Characteristics	Technical debt is the metaphor for shortcuts in software development that bring short-term benefits, but long-term consequences hinder the process of maintaining and developing software. It is important to manage these technical debt items, as not all of them need to be paid. Having a list of prioritized debts is an essential step in decision-making in the management process. This work aims at finding technical debt prioritization methods, providing a classification of them. That is, methods to identify whether and when a technical debt should be paid off. We performed a systematic mapping review to find and analyze the main papers of the area, covering the main bases. We selected 112 studies, resulting in 51 unique papers. We classified the methods in a two-level taxonomy containing 10 categories according to their different possible outcomes. In addition, we have identified three methods results: boolean, category and ordered list. Finally, we have also identified practical technical characteristics and requirements for a method to prioritize technical debt items in real projects. Although several methods have been found in literature, none of them are adaptive to the context and are language-independent, nor cover several technical debt types. Moreover, there is a clear lack of tools to use them. So, in conclusion, the research on technical debt prioritization is still wide open. From this study, a combination of the techniques used in these methods can be tested and automated to assist in the decision-making process on which debts should be paid.	Rejeitado. Devido ao EC3: É uma revisão ou mapeamento sistemático					
2022	User Story Risk Prioritization Model for Agile Software Development	User stories capture software requirements for an agile software project. One of the problems that cause project failure is that the project does not consider risks that result from low-quality user stories from the beginning and hence does not prepare for such risks. That causes an impact on both software development and project management. This paper presents a user story risk prioritization model to raise the project awareness on user story risks and risk prioritization for better responses to the risks. The model describes 10 user story risks and 2 main criteria for risk prioritization, i.e. impact of occurrence that consists of 10 subcriteria and probability of occurrence that consists of 1 subcriterion. The model has been evaluated by members of agile teams who have experiences in agile software development. To prioritize user story risks, the model can be used with other methods, such as the Analytic Hierarchy Process (AHP) or weighted scoring method, to rank the user story risks by the criteria and determine priorities of the risks. In this research, the AHP has been applied with the proposed model to prioritize user story risks of an agile software project. The experiment shows that the risk prioritization results from the model are consistent with the actual risk situation of the experimental project. The proposed model therefore can be used as a supporting tool for risk management in an agile software project.	Rejeitado. Devido ao Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2018	Scrum Agile Project Management Methodology Application for Workflow Management: A Case Study	The management of routine activities involves activity planning, goal alignment, and optimization of resources, in general, the same efforts needed to manage a project. In this sense, this research intended to find a methodology that could be adapted to the management of a department of a public company, aiming at continuous improvement of its performance. Within the project management field there are the traditional and the agile methodologies. Agile project management methodologies are characterized by being simple, flexible and dynamic, easily responding to changes and promoting team integration. Scrum methodology is one of the most popular because it is affordable and does not require extensive documentation. This work aimed to show how it was possible to use Scrum in the management of routines, making the necessary adaptations, and presenting the performance indicators to evaluate the improvements achieved with the use of the tool. As a result, better planning of activities, prioritization of tasks, constant monitoring of the activities, better flow of routine work, better delivery quality and greater alignment among team members were observed.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2019	Pavement Maintenance Management System for Low Volume Roads in Sri Lanka	In Sri Lanka there are about 150,000 km of roads and among those about 75% are considered as rural low volume roads [1]. These roads are essential in community development, transport of people, goods and services in the rural areas. Most of these low volume roads would be actively contributing to our country's economy and wellbeing by distributing the produces from rural areas to urban areas. Limited funding, subjective and ad-hoc maintenance decision making has resulted in suboptimal maintenance level for these road networks. There is no proper maintenance system available in Sri Lanka as in the foreign countries. Lack of technical expertise and shortage of human resources, equipment and funds to carryout detailed data collection and analysis makes use of existing Pavement Management Systems difficult for local road agencies. The study will be focused on developing an asset management system to manage rural and provincial road networks in Sri Lanka.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2022	Methodology for the Development of Value Propositions within Subscription Models	Ongoing digitalization and Industry 4.0 enable the development of new business models due to the increase in available data and digital connected products. A promising business model type for the machinery and plant engineering industry are subscription models, consisting of products and services offered in return for continuous payments. However, subscription-based business models are associated with extensive changes in the traditional machinery and plant engineering industry, in particular, for small and medium-sized companies (SMEs). Established concepts for the development of value propositions and business models neglect important aspects, such as the integrated development and optimization of products and services across the entire life cycle or the data infrastructure. This paper presents a concept for a methodology to support SMEs developing value propositions within subscription models. Therefore, the systematic identification of customer benefits, the determination and prioritization of subscription relevant functionalities as well as the design of product and service elements addressing those functionalities are the main aspects on which the focus is placed on. The result is a subscription value proposition canvas for SMEs to address the impact of subscription models on products and services.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2022	5G Network Slice Selector in IoT Services Scenarios with QoS Requirements Guarantee	This work presents a Network Slice Selection Function (NSSF) validation for IoT scenarios in an E2E network slicing architecture, considering traffic prioritization for critical applications. For this, data analytics, machine learning and multi-criteria decision-making methods are used. Testbeds were conducted to validate the proposed approach, using open source tools, as the K-means algorithm and the COPRAS (Complex Proportional Assessment) and Promethee II (Preference Ranking Organization Method for Enrichment Evaluations) methods. The results indicate the technical feasibility of the proposed solution, the low computational cost, in addition to the guarantee and delivery efficiency of the data streams of the considered applications.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2023	Concept for the Evaluation and Prioritization of Machine Learning Use Cases in Industrial Production	In the course of the advancing digitalization of industrial production, many enterprises have already laid the foundations for a more comprehensive end-to-end recording and accessibility of production related data. Machine learning (ML), implemented in specific industrial use cases, offers the possibility of automated analysis of these large volumes of data with considerably reduced manual effort. In industrial practice, however, the selection of use cases with an economic and long-lasting strategic impact poses challenges, since much of the decision-relevant information of individual use cases is mostly discovered during the actual implementation phase. Additionally, as the datasets required for a successful application are often not sufficiently known prior to this phase, a previous assessment regarding the data basis for individual use cases is also needed. To address these challenges, this paper presents a concept constructed in the research process for applied sciences according to Ulrich for a-priori evaluation and prioritization of use cases for machine learning in industrial production. In particular, the potential benefits, implementation efforts, and the technical feasibility are considered as evaluation dimensions.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2017	TITAN: Test Suite Optimization for Highly Configurable Software	Exhaustive testing of highly configurable software developed in continuous integration is rarely feasible in practice due to the configuration space of exponential size on the one hand, and strict time constraints on the other. This entails using selective testing techniques to determine the most failure-inducing test cases, conforming to highly-constrained time budget. These challenges have been well recognized by researchers, such that many different techniques have been proposed. In practice, however, there is a lack of efficient tools able to reduce high testing effort, without compromising software quality. In this paper we propose a test suite optimization technology TITAN, which increases the time-and cost-efficiency of testing highly configurable software developed in continuous integration. The technology implements practical test prioritization and minimization techniques, and provides test traceability and visualization for improving the quality of testing. We present the TITAN tool and discuss a set of methodological and technological challenges we have faced during TITAN development. We evaluate TITAN in testing of Cisco's highly configurable software with frequent high quality releases, and demonstrate the benefit of the approach in such a complex industry domain.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2023	Enhancing Agile Development in Tech Companies: Backlog Management, Tool Integration, and Stakeholder Collaboration	This paper investigates the Agile development processes in tech companies, focusing on strategies for effective backlog management, tool utilization for progress tracking, Agile methodology integration, stakeholder involvement, and handling challenges in the tech domain. The study reveals the adaptability of Agile methodologies to diverse organizational needs and objectives, emphasizing their significance in the technical industry. Companies prioritize backlog tasks through subtask breakdown, Story Points, and priority tags, aligning with Agile principles. The integration of Agile involves Jira and Scrum, enhancing development efficiency. Stakeholders and team members engage through planning and design sessions, ensuring collaboration. Challenges are addressed through regular meetings, technical discussions, and transparency. Knowledge transfer sessions keep teams updated. Data security is maintained through NDA agreements and robust security measures. Metrics like story points and KPIs are tracked for Agile success evaluation. The paper concludes by highlighting the importance of aligning process models with organizational requirements.	Rejeitado. Devido ao EC7: Não é possível ter acesso à versão completa da publicação.					

2023	Multidisciplinary Hackathons: Towards Developing Practical Software Engineering Skills	Software engineers often work on multidisciplinary projects as they collaborate with domain experts in a variety of different disciplines to effectively develop software systems. While the focus of software engineering curricula is generally on teaching technical skills, it is highly desirable to provide students with hands-on experience in working on multidisciplinary projects. This research attempts to facilitate the experience of working on projects with stakeholders of diverse expertise through the use of multidisciplinary hackathons. In recent years, hackathons have been considered effective teaching and evaluation tools that can contribute to the development of practical skills for students. Hackathons can be used as an instrument to improve the educational experience through learning by doing in which learners can test their problem-solving, project management, and prioritization skills in a limited time. This research presents a case study of hackathons in the field of health informatics involving students from software engineering and nursing. To facilitate a consistent and supportive multidisciplinary learning experience, the hackathon was introduced as a course component in two different courses in nursing and software engineering. The data presented in this research is from two consecutive executions of the hackathon involving two different cohorts of students in 2022 and 2023. The results of this study show that students believe a multidisciplinary course would be a welcomed addition as it facilitated an exciting collaborative environment to work on real-world problems; providing a unique opportunity for interactions between different disciplines. The addition of hackathons into the courses enhanced the students' understanding of how to work with requirements from gathering to analysis to development, and allowed them the unique opportunity to examine the different challenges, technologies, and tools involved with other disciplines.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2019	sOrTES: A Supportive Tool for Stochastic Scheduling of Manual Integration Test Cases	The main goal of software testing is to detect as many hidden bugs as possible in the final software product before release. Generally, a software product is tested by executing a set of test cases, which can be performed manually or automatically. The number of test cases which are required to test a software product depends on several parameters such as the product type, size, and complexity. Executing all test cases with no particular order can lead to waste of time and resources. Test optimization can provide a partial solution for saving time and resources which can lead to the final software product being released earlier. In this regard, test case selection, prioritization, and scheduling can be considered as possible solutions for test optimization. Most of the companies do not provide direct support for ranking test cases on their own servers. In this paper, we introduce, apply, and evaluate sOrTES as our decision support system for manual integration of test scheduling. sOrTES is a Python-based supportive tool which schedules manual integration test cases which are written in a natural language text. The feasibility of sOrTES is studied by an empirical evaluation which has been performed on a railway use-case at Bombardier Transportation, Sweden. The empirical evaluation indicates that around 40 % of testing failure can be avoided by using the proposed execution schedules by sOrTES, which leads to an increase in the requirements coverage of up to 9.6%.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2017	Test Case Generation and Prioritization: A Process-Mining Approach	Test cases are an essential tool in software quality assurance: they ensure that code behaves as specified in the requirement. However, writing test cases does not have only benefits, it comes with a cost: the programmer has to formulate the test cases and maintain them when the tested source code changes. Particularly for start-ups or small enterprises such costs become prohibitive, which often prefer to invest their time into the development of new functionalities instead of testing. This paper explores the use of process-mining as an approach to create a model of how users interact with a system to a) generate test cases and b) prioritize them. Using process-mining, it is possible to mine from the user behaviour which parts of the system are the most used, in which order they are executed, generate test cases repeating user input, and prioritizing test cases.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2011	Scenario Driven Testing	Software testing has traditionally focused on evaluating the functionality of implemented modules against feature specifications. This approach assumes that customer requirements and usage scenarios are accurately translated into specifications and that individual modules implemented using the feature specifications would work seamlessly and coherently to solve business problems meant to be addressed by the software under test. To ensure software built would help customers solve their business problems as intended, test teams have to go beyond traditional feature driven testing approach and test software for quality and completeness with respect to targeted customer scenarios. For this, test teams have to adopt scenario driven test methodology which involves understanding the targeted customer scenarios and use them along with feature specifications for the intended software solution to translate them into test specifications, prioritization of test work items and use them throughout project for shared understanding of tradeoffs and making decisions. In this short paper, we describe scenario driven testing and share how it was applied to test a feature-set developed for a successful product line at Microsoft®.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2019	Towards Issue Recommendation for Open Source Communities	In open source software development, a major challenge is the prioritization of new requirements as well as the identification of responsible developers for their implementation. Unlike conventional industrial software development, where requirements engineers have to explicitly define who implements what, in the context of open source development, developers (contributors) usually decide on their own which requirements to implement next. Contributors have to deal with a huge number of requirements where the recognition of the most relevant ones often becomes a crucial task with a high impact on the success of a software project. This fact defines our major motivation for the development of a prioritization tool for the ECLIPSE community which recommends relevant requirements (issues/bugs) to open source developers. Our tool uses real-world data from ECLIPSE in order to build a prediction model. We trained and tested our tool with different classifiers such as Naive Bayes (representing our baseline), Decision Tree, and Random Forest. The evaluation results indicate that the Random Forest classifier correctly predicts issues with a precision of 0.88 (F1-score 0.68).	Aprovado.	A ferramenta é um plugin para Eclipse que recomenda issues relevantes para os desenvolvedores, com base em um modelo de previsão treinado com diversos classificadores.	O artigo identifica que, nas comunidades open-source, muitas vezes não há uma clara priorização de tasks por falta de um sistema centralizado que auxilie na identificação e atribuição de issues, o que leva a uma seleção subótima e a potencial implementação de requisitos menos importantes.	O artigo utiliza técnicas de machine learning como Naive Bayes, Decision Tree e Random Forest para criar um sistema de recomendação que prioriza issues baseando-se na relevância predita para cada desenvolvedor.	As funcionalidades da ferramenta proposta incluem: Coleta de dados de issues de projetos open source utilizando a API do Bugzilla. Construção de perfis de usuários (desenvolvedores) com base em issues resolvidas anteriormente. Utilização de técnicas de processamento de linguagem natural (NLP) para preprocessamento e extração de características dos textos das issues. Treinamento de modelos de aprendizado de máquina para prever a relevância das issues para desenvolvedores específicos. Integração com o Eclipse IDE através de um plugin que fornece recomendações de issues diretamente no ambiente de desenvolvimento.	A ferramenta é disponibilizada como um plugin para o Eclipse IDE, e está disponível gratuitamente através do marketplace do Eclipse.
2019	Efficient Test Case Generation for Thread-Safe Classes	Generating test cases automatically for thread-safe classes is an effective approach to validating their correctness. However, the existing concurrent test generation techniques usually consume a large amount of time and efforts before finding concurrency bugs. To alleviate this problem, we present an automatic and efficient approach which combines the advantages of both the bug-driven and coverage-guided techniques to generate test cases for thread-safe classes. First, method pairs that cannot be executed concurrently are removed by the static analysis. Then, a strategy of the bug-driven grouping of method pairs is designed to divide the remaining method pairs into two groups. One group contains the method pairs with a high priority, and another group contains the method pairs with a low priority. Finally, iterative generation of concurrent test cases, which consists of the coverage-guided generation of concurrent tests and concurrency bug detection, is conducted to find concurrency bugs. Our evaluation is on 20 thread-safe classes. Compared with four state-of-the-art approaches, the results show that our approach can obtain a significant improvement in efficiency without impairing bug finding capacities.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2022	NS3SaaS: Cloud-based "Network Simulator as a Service" with customisable resource scheduling	This paper presents the design, development and evaluation of a novel cloud-based Network Simulator as a Service. It wraps a discrete-event network simulator and deploys it as an elastic service, which can then be used for interactive and batch simulations execution, enhanced with results post-processing and analysis as well as presentation features. It addresses the requirement to rapidly carry out large numbers of network simulations in order to test and validate appropriate and domain specific optimisations in industry, research and education settings. This cloud based service drastically enhances the capabilities of a researcher by allowing arbitrary definition of simulation scenarios along with sets of parameters and commission of large scale simulation executions. It is based on an ensemble of efficient open-source tools, which, when properly coordinated, deliver to the end user a cloud based service that is novel, robust, extendible and extensible. It has been deployed within ESDA Lab (UoP, Greece) where several performance evaluation research scenarios were carried out testing different simulation scheduling schemes in order to evaluate the usefulness of our system and its efficiency under different prioritisation settings. Results demonstrate that, compared to the default general purpose network simulator, the offered cloud-based service significantly enhances end-users capabilities by tailor fitting to their different prioritisation requirements, e.g. favouring interactive users, minimising turnaround times, offering custom resources allocation, etc. In addition to that the offered service effectively hides the peculiarities of the standalone network simulator enabling its use by non-experts and significantly expanding the potential target group of end users.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2010	Prioritization of product design tasks using QFD, TRIZ and DSM	Quality Function Deployment (QFD) is widely used application utilized in many fields such as product design, manufacturing process design, and project development. It can convert customer requirements into a firm's engineering characteristics which results to achievements showing great success and House of Quality (HOQ) is the manipulation tool for QFD. However, the consideration of correlation among engineering characteristics is often ignored in most of QFD application related researches. This usually affects the implementation sequence of the project tasks and results to delay or queuing in product design/project development. This paper presents a methodology based on Theory of Inventive Problems Solving (TRIZ), Design Structure Matrix (DSM) and the absolute importance of engineering characteristics in HOQ which deals with the weakness mentioned. An example is illustrated to evidence the proposed methodology.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					

2013	The application of systems engineering principles to the European DEMO design and R&D studies	The European Fusion Roadmap [1] shows the DEMO concept design phase commencing in 2014. The early implementation of systems engineering principles within the EU DEMO programme is essential to provide a framework for achieving this long-term mission. The aim of the systems engineering approach is to clearly define and justify the research and development (R&D) necessary to deliver a credible EU DEMO concept design by 2020 that will meet the agreed DEMO system requirements. The approach will lead to increased efficiency in the deployment of limited R&D resources and will facilitate the necessary discussion and agreement amongst stakeholders. Furthermore, it will enable transparent prioritisation of the required R&D for the strategically important technologies for DEMO. A systems decision process (SDP) is presented that provides a systematic, objective and traceable method for evaluating DEMO technologies and designs according to their capability to meet the top-level system criteria for the overall DEMO plant. Two preliminary examples where this approach should be applied are discussed: (i) the choice of primary coolant and (ii) the extension of pulse duration through auxiliary current drive.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2022	Methodology for Digital Twin Use Cases: Definition, Prioritization, and Implementation	The cross-industry concept of Digital Twin promises numerous benefits in areas such as product customization and predictive maintenance, but many companies often struggle to determine a starting point. Digital Twin use cases are abundant, but efforts and stakeholder benefits are difficult to estimate when developing and implementing Digital Twin applications. This paper proposes a management approach to Digital Twin use case prioritization suitable for planning Digital Twin applications at an early phase of development. Considering stakeholder satisfaction, infrastructure scalability, and effort for implementation and maintenance, we present a methodology to determine the most impactful Digital Twin use cases requiring low effort and high scalability. Tools and related methods from the fields of software development, innovation, process engineering, and product development are described, and the methodology is discussed with regard to these and other research works. An example from mechatronic product development at Siemens Healthineers Innovation Think Tank validates the approach.	Rejeitado. Devido ao EC7: Não é possível ter acesso à versão completa da publicação e porque não se encaixa no IC1.					
2021	CloudSimHypervisor: Modeling and Simulating Network Slicing in Software-Defined Cloud Networks	Software-Defined Networking (SDN) is an innovative technology which provides a programmable network control which is decoupled from the physical infrastructure. Network Virtualization (NV) is the phenomenon where a given physical network infrastructure and its resources are abstracted to create multiple logical virtual network slices of the underlying substrate. NV enables independent virtual networks to co-exist on one or more shared physical network infrastructure. Edge computing makes use of the edge resources in close proximity to end-users to reduce service delay and the network traffic volume in the end-to-end networks. Similarly, network slicing which is a key enabling technology for 5G networks is designed to support different services from different platforms at different scales enables sharing of physical network infrastructure on many different virtual network layers. These innovative technologies and strategies have gained significant attention from both academia and industry as they have the potential to maximize network resource utilization and optimize end-to-end network service delivery in 5G solutions deployment. To enable continuous simulation and development of applicable 5G networking concepts using these technologies, there is a need for an accessible and easy-to-learn testbed which is able to efficiently measure the performance of physical and virtual network capacities, provisioning approaches and management of multiple architectural models using large-scale network slicing configurations in a repeatable and controllable manner. These tools and toolkits provide scalable, lightweight and controlled cloud simulation environments necessary to analyse network traffic flows, allocation capacities and policies and the behaviour of multiple heterogeneous networks at an extremely low cost as compared to the huge financial commitments involved in conducting similar experiments in a real-life event. Existing solutions do not support Network Slicing and end- to -end heterogenous network automation which are key enablers of 5G network implementation. Hence in this paper, the CloudSimHypervisor framework is developed in this based on CloudSimSDN-NFV. The complete architecture and features of the CloudSimHypervisor framework and some used cases are presented in this paper. We validate the CloudSimHypervisor framework with two use case experiments in the cloud computing environment: Joint compute and network resource utilization and network traffic prioritization. Results from these experiments display the efficiency of the CloudSimHypervisor in estimating and measuring processing speed, transmission speed, compute and network usage efficiency and energy consumption.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2013	A Uniform Representation of Hybrid Criteria for Regression Testing	Regression testing tasks of test case prioritization, test suite reduction/minimization, and regression test selection are typically centered around criteria that are based on code coverage, test execution costs, and code modifications. Researchers have developed and evaluated new individual criteria; others have combined existing criteria in different ways to form what we--and some others--call hybrid criteria. In this paper, we formalize the notion of combining multiple criteria into a hybrid. Our goal is to create a uniform representation of such combinations so that they can be described unambiguously and shared among researchers. We envision that such sharing will allow researchers to implement, study, extend, and evaluate the hybrids using a common set of techniques and tools. We precisely formulate three hybrid combinations, Rank, Merge, and Choice, and demonstrate their usefulness in two ways. First, we recast, in terms of our formulations, others' previously reported work on hybrid criteria. Second, we use our previous results on test case prioritization to create and evaluate new hybrid criteria. Our findings suggest that hybrid criteria of others can be described using our Merge and Rank formulations, and that the hybrid criteria we developed most often outperformed their constituent individual criteria.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2020	Agile FRACAS in Production Manufacturing	Summary: This paper provides a detailed and methodical approach towards the implementation of an agile Failure Reporting, Analysis and Corrective Action System (FRACAS). It is important that the user already have tools in place for data collection, and for the management of FRACAS activities so that this methodological proposition can be accomplished. The method is a data-driven approach to collecting failure information and utilizing / allocating resources with maximum efficiency. Current FRACAS methods are fairly basic and not set up to allow the data to lead a program towards task and resource prioritization. Per MIL-STD-2155 [1], a Failure Review Board (FRB) is the primary mechanism for the review of failure trends, corrective action status, and to assure adequate corrective actions are taken. Additionally, it describes failure reporting simplistically as it pertains to individual failed items, not necessarily to failure trends and process issues. There is nothing specific in the document to drive high-rate production manufacturing environments towards utilizing failure trend information to identify high value / volume failures, thus developing the needs for an investigation into Root Cause and Corrective Action (RCCA). This proposal works under the following assumptions/steps:1.There exists a method to capture failure information and data2.The program can properly delineate production manufacturing issues from other non-production manufacturing issues, such as Development & Verification Testing, Qualification Testing, Mission Testing, etc.3.Leadership is not just in agreement with the process, but will act as an advocate4.Appropriate risk analysis and fault tree analysis techniques are utilized and presented5.An appropriate command media process already exists for the documentation of implementation requirements	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2022	New Advanced Approach for Data Flows Prioritization at an Output of a User Terminal	Multimedia services are among the most developed segments of services. User behavior is changing with a significant number being very active. They utilize services that produce large amounts of data traffic in uplinks. Consequently, this is quite a new phenomenon that service providers should consider. The Quality of Service (QoS) of real-time multimedia services is crucial for all users, and research has been devoted to satisfying these requirements. Although fulfilling the QoS requirements is challenging, most of the research has focused on the downlink. The goal of this study was to focus on uplinks because this direction is crucial to modern attractive multimedia services such as streaming of videos and video gaming. This study proposed a solution that prioritizes traffic at the end of the user terminal and fixes the issue with real-time multimedia services. This effectively eliminates the first bottleneck in the entire system, regardless of the access network. The investigated solution is independent of the type of access network because it is implemented at the user terminal.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2011	Increasing test coverage using human-based approach of fault injection testing	Fault injection testing (FIT) approach validates system's fault tolerance mechanism by actively injecting software faults into the targeted areas in the system in order to accelerate its failure rate. This highly complements other testing approaches such as requirements and regression testing implemented during the same testing phase. During testing, it is impossible to run all possible test scenarios. It is especially difficult to predict how the user might use the system functionality correctly as per design. The human interaction through the system may be varies and will leads to the functionality loophole. It is therefore important to have strategic testing approach for evaluating the dependability of computer systems especially in human errors. This paper proposed on applying Knowledge-Based, Fault Prediction Model and Test Case Prioritization approaches that can be combined to increase the test coverage. The goal of this paper is to highlight the needs and advantages of the selected approaches in performing FIT as one of effective testing techniques in the ongoing quest for increased software quality.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					
2017	Model-based testing of automotive distributed systems with automated prioritization	The paper presents a framework for model-based testing of automotive distributed system and a method of automatic assignment of testing priorities used within the framework. The proposed method utilizes classifiers for automatic assignment of testing priorities to specific parts of the tested system. The paper also introduces a set of extraneous data accompanying the modeling language that are exploited by the proposed method during the classification process. It is shown, that advantages of the presented approach, such as lower requirements for the testing operators' knowledge, are valuable for the automotive distributed systems testing process.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC3.					

2017	Continuous Analysis of Collaborative Design	In collaborative design, architects' individual design decisions may conflict and, when joined, may violate system consistency rules or non-functional requirements. These design conflicts can hinder collaboration and result in wasted effort. Proactive detection of code-level conflicts has been shown to improve collaborative productivity, however, the computational resource requirements for proactively computing design conflicts have hindered its applicability in practice. Our survey and interviews of 50 architects from six large software companies find that 60% of their projects involve collaborative design, that architects consider integration costly, and that design conflicts are frequent and lead to lost work. To aid collaborative design, we re-engineer FLAME, our prior design conflict detection technique, to use cloud resources and a novel prioritization algorithm that, together, achieve efficient and nonintrusive conflict detection, and guarantee a bound on the time before a conflict is discovered. Two controlled experiments with 90 students trained in software architecture in a professional graduate program, demonstrate that architects using FLAME design more efficiently, produce higher-quality designs, repair conflicts faster, and prefer using FLAME. An empirical performance evaluation demonstrates FLAME's scalability and verifies its time-bound guarantees.	Aprovado.	A ferramenta é FLAME, que integra com ferramentas de modelagem e análise dos arquitetos para detectar conflitos de design de forma eficiente e não intrusiva.	O artigo identifica que a detecção proativa de conflitos em nível de código é menos aplicável para a detecção de conflitos de design devido ao alto custo computacional das análises de design. FLAME aborda essa lacuna ao distribuir a carga computacional usando recursos em nuvem e um algoritmo de priorização que garante um limite de tempo para a detecção de conflitos.	FLAME utiliza um algoritmo de priorização que determina a ordem em que os conflitos de design são analisados, garantindo uma detecção de conflitos eficiente. A ferramenta também redistribui análises de design pesadas para recursos em nuvem para evitar impacto no desempenho das ferramentas dos arquitetos.	Detecção proativa e não intrusiva de conflitos de design. Uso de recursos em nuvem para análises computacionalmente intensivas. Integração com ferramentas de modelagem existentes. Garantia de um limite de tempo para a detecção de conflitos. Rastreamento de todas as operações de modelagem realizadas pelos arquitetos.	Gratuito e disponível em: http://flamedesign.org/
2014	How Does the UML Testing Profile Support Risk-Based Testing	The increasing complexity of software-intensive systems raises a lot of challenges demanding new techniques for ensuring their overall quality. The risk of not meeting the expected level of quality has negative impact on business, customers, environment and people, especially in the context of safety/security-critical systems. The importance of risk assessment, analysis and management has been well understood both in the literature and practice, which has led to the definition of a number of well-known standards. In the recent years, Risk-Based Testing (RBT) is gaining more attention, especially focusing on test prioritization and selection based on risks. On the other hand, model-based testing (MBT) provides a systematic and automated way to facilitate rigorous testing of software-intensive systems. MBT has been an intense area of research and a large number of MBT techniques have been developed in literature and practice in the last decade. In this paper, we study the feasibility of combining RBT with MBT by using the upcoming version of UML Testing Profile (UTP 2) as the mechanism. We present potential traceability between RBT and UTP 2 concepts.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.						
2016	Visualization of combinatorial models and test plans	Combinatorial test design (CTD) is an effective and widely used test design technique. CTD provides automatic test plan generation, but it requires a manual definition of the test space in the form of a combinatorial model. One challenge for successful application of CTD in practice relates to this manual model definition and maintenance process. Another challenge relates to the comprehension and use of the test plan generated by CTD for prioritization purposes. In this work we introduce the use of visualizations as a means to address these challenges. We apply three different forms of visualization, matrices, graphs, and treemaps, to visualize the relationships between the different elements of the model, and to visualize the strength of each test in the test plan and the relationships between the different tests in terms of combinatorial coverage. We evaluate our visualizations via a user survey with 19 CTD practitioners, as well as via two industrial projects in which our visualization was used and allowed test designers to get vital insight into their models and into the coverage provided through CTD generated test plans.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.						
2021	A Probabilistic Batch Oriented Proactive Workflow Management	Workflow management is a widely studied research subject due to its criticality for the efficient execution of various processing activities towards concluding innovative applications. The ultimate goal is to eliminate the required time for delivering the final outcome considering the dependencies between workflow's tasks. In this paper, we enhance the decision making of a scheduler with a batch oriented approach to deal with multiple workflows. A probabilistic data oriented approach combined with an infrastructure oriented scheme is provided to pay attention on dynamic environments where the underlying data are continuously updated trying to minimize the network overhead for migrating data. Workflows are mapped to the available datasets according to their data requirements, then, we combine the outcome with an optimization model upon the time and cost requirements of every placement. The performance of our model is revealed by a high number of experiments depicting the advantages in the network overhead.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.						
2011	Advanced aerial inspection and asset management of electricity towers	This paper describes an innovative technique for inspecting steel lattice electricity distribution towers and demonstrates how the method has been successfully adopted within two electricity Distribution Network Operators (DNOs) in the UK. In capturing critical condition information photographically from a helicopter, the technique replaces the need to physically climb the towers as well as any requirement for electrical isolation or switching beforehand. Detailed condition information is extracted from the photographs and processed in order to determine the assets' health in relation to its remaining useful life. The output can not only be used by engineers to improve the rate of defect detection and the management of routine maintenance programmes, but also by business managers to enhance high-level strategic business planning decisions and investment prioritisation through a better understanding of asset risk. This approach has now been used to successfully inspect approximately 20,000 electricity towers distributed across 6 of the 7 DNOs in the UK.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.						
2011	A comparison of model-based and judgment-based release planning in incremental software projects	Numerous factors are involved when deciding when to implement which features in incremental software development. To facilitate a rational and efficient planning process, release planning models make such factors explicit and compute release plan alternatives according to optimization principles. However, experience suggests that industrial use of such models is limited. To investigate the feasibility of model and tool support, we compared input factors assumed by release planning models with factors considered by expert planners. The former factors were cataloged by systematically surveying release planning models, while the latter were elicited through repertory grid interviews in three software organizations. The findings indicate a substantial overlap between the two approaches. However, a detailed analysis reveals that models focus on only select parts of a possibly larger space of relevant planning factors. Three concrete areas of mismatch were identified: (1) continuously evolving requirements and specifications, (2) continuously changing prioritization criteria, and (3) authority-based decision processes. With these results in mind, models, tools and guidelines can be adjusted to address better real-life development processes.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.						
2022	Trusted Framework for Transitioning to Distributed Agile Development Environment – A Survey	In modern era of software development, distributed Agile development environment (DADE) is an important approach because it allows software development at geographically dispersed sites across the globe. There exist a lot of challenges in DADE environment. Different tools and frameworks have been proposed in the past to address these challenges. The frameworks suffer with problems related to trust, transparency, Integrity, authentication and security. As different people work at different locations in DADE environment, coordination among globally dispersed team members and the customer remain to be an important aspect. The paper provides a survey on the requirement of a robust framework for transitioning to DADE environment keeping in view the security aspect of the distributed Agile environment.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.						
2019	Listening to the Crowd for the Release Planning of Mobile Apps	The market for mobile apps is getting bigger and bigger, and it is expected to be worth over 100 Billion dollars in 2020. To have a chance to succeed in such a competitive environment, developers need to build and maintain high-quality apps, continuously astonishing their users with the coolest new features. Mobile app marketplaces allow users to release reviews. Despite reviews are aimed at recommending apps among users, they also contain precious information for developers, reporting bugs and suggesting new features. To exploit such a source of information, developers are supposed to manually read user reviews, something not doable when hundreds of them are collected per day. To help developers dealing with such a task, we developed CLAP (Crowd Listener for releAse Planning), a web application able to (i) categorize user reviews based on the information they carry out, (ii) cluster together related reviews, and (iii) prioritize the clusters of reviews to be implemented when planning the subsequent app release. We evaluated all the steps behind CLAP, showing its high accuracy in categorizing and clustering reviews and the meaningfulness of the recommended prioritizations. Also, given the availability of CLAP as a working tool, we assessed its applicability in industrial environments.	Aprovado.	A ferramenta é o CLAP, que analisa críticas de usuários para planejamento de liberações de aplicativos.	O artigo identifica que, enquanto existem abordagens para identificar e classificar críticas relevantes, uma solução totalmente automatizada para recomendar quais críticas devem ser endereçadas em futuras liberações ainda é desejável. O CLAP busca preencher essa lacuna com uma abordagem automatizada de ponta a ponta que vai da categorização à priorização das críticas.	O CLAP utiliza técnicas de processamento de linguagem natural e aprendizado de máquina para classificar críticas, técnicas de agrupamento para reunir críticas relacionadas e, novamente, aprendizado de máquina para recomendar a implementação de clusters específicos de críticas com base em características como o número de críticas no cluster e o número de dispositivos afetados por um bug.	Categorização automática de críticas de usuários em diversas categorias como relatórios de bugs funcionais, sugestões de novos recursos, entre outros. Agrupamento de críticas relacionadas em um único pedido. Priorização de clusters de críticas que os desenvolvedores devem satisfazer na próxima liberação.	O CLAP é publicamente disponível como uma aplicação web. Qualquer pessoa pode usá-lo registrando-se e importando as críticas do Google Play Store para seus aplicativos. Também há uma conta de demonstração disponível, indicando que o acesso é público e gratuito.
2023	VALAR: Streamlining Alarm Ranking in Static Analysis with Value-Flow Assisted Active Learning	Static analyzers play a critical role in program defects and security vulnerabilities detection. Despite their importance, the widespread adoption of static analysis techniques in industrial development faces numerous obstacles, among which the high rate of false alarms constitutes a significant one. To address this issue, we propose a novel approach called Valar, which performs alarm ranking for advanced value-flow analysis using the active learning technique. Active learning algorithms minimize the manual effort for alarm inspection by maximizing the effect of each user labeling in recognizing true/false alarms. Meanwhile, the value-flows provide Valar with a concise and comprehensive summary of the operational semantics about programs. Based on this, Valar is able to reason about the potential correlations between alarms and prioritize the most profitable unlabeled alarm. Additionally, the accuracy of Valar increases as more user labels are given and Valar's active learning model is further refined. We evaluate Valar on 20 real-world C/C++ programs using three value-flow based checkers. Our experimental results demonstrated that Valar significantly lowers the priorities of false alarms with most true alarms ranked high. Notably, Valar ranked all true alarms in the top 47% in 90% projects and ranked 90% true alarms in the top 22% in 75% projects. Furthermore, Valar has no requirement for pretraining and has a negligible computation time of less than 0.1s for each alarm prioritization.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.						

2021	Prevention through Design in major construction projects – Case study from Tata Steel	The construction industry is a dynamic sector involving various kinds of activities, each having their own hazards. Most of these activities are of a constantly changing nature and their specific hazards are not very well known until much later into the construction process. Though the fundamental processes involved in construction remain the same, every construction project is unique & has its own specific jobs & hazards associated with them depending on the design specifications, materials, equipment & processes used & the safety culture followed by the working agency. Construction workers are especially vulnerable to injuries due to fall from height, electrocution, being caught in or between objects, being struck by moving machinery, falling objects, vehicles, etc. which can also lead to fatal incidents. Apart from these, they are also susceptible to irreversible health issues arising out of exposure to dust & other harmful substances.Project execution & construction activities have been one of the most challenging activities in Tata Steel because of a large diversity in geographical locations, types of operations & various process requirements. The organization has undertaken many greenfield as well as brownfield projects which both have different kinds of risks involved. Since the last few years, Tata Steel has taken many initiatives to mitigate the hazards & reduce the incidents in construction activities. One of the major steps taken in this direction was the implementation of Prevention through Design (PtD) in projects. This included adoption of practices like virtual design & construction, use of bolted & prefabricated structures, laser scanning & 3D modeling, powered access system, e-work permit, site access control and AI-based CCTV surveillance for monitoring of site activities among many others. Prevention through design is a transdisciplinary process which aims at reducing the hazards in the design & planning phase itself, making the construction activities inherently safer and their safety management cheaper. Risk identification & prioritization is done for each job according to a risk heat map based on the potential consequences of each hazardous event & its likelihood of occurrence. The top risks are identified & design interventions are proposed to eliminate or substitute them.Prevention through design, powered by automation & digitized safety management systems, is widely gaining use in several operations as well as construction projects due to its advantages and ease of implementation. The adoption of these safety technologies & automation has helped in proactively mitigating risks & significantly increased the effectiveness of health & safety management systems at construction sites. The construction companies should adopt these safety practices & policies, that combined with the implementation of digital health & safety tools & techniques could assist site managers ensure efficiency of their construction projects.This paper discusses the methodologies adopted at Tata Steel to implement prevention through design in construction projects and their effect on the health & safety performance of the organization.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2010	Dimensioning Telstra's WCDMA (3G) network	Loss models can be used to determine engineered capacity of circuit-switched telecommunications systems. They readily model the multi-service, multi-resource nature of call admission control (CAC) schemes for such systems, including service prioritization via the use of resource reservation. Third generation wireless networks (3G) are incredibly complex with regard to system resources and supported services. In particular, the 3G radio environment is subject to interference and fading. Recognizing that communications systems are engineered to a nominal “time consistent busy hour”, we seek a method for capturing the behavior of the 3G radio environment over such a time period, and incorporating it into a modified loss model for determining capacity. We present a novel methodology to derive environmental parameters that can be used to characterize the radio environment as it affects individual cells in the network. Consequently we have developed a 3G radio access network (RAN) and transport network (TN) dimensioning tool for Telstra that, on a per cell and hourly basis, estimates spare capacity based on target grades of service (GoS). These incorporate loss probabilities for all services, and throughput requirements for high speed downlink packet access (HSDPA) services. This integrated network management tool calculates each resource's utilization at various envelope boundary points to determine the active resource constraints, thereby allowing Telstra engineers to most effectively apply capacity expansions to the RAN & TN.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					
2014	Long-range communication framework for multi-agent autonomous UAVs	Multiple unmanned aerial vehicles (UAVs) with inter-UAV communication capabilities can be used to extend the communication range with the ground control station (GCS). Researchers from the Mechanical and Electrical Engineering at the University of Ottawa have developed a new dirigible autonomous UAV with a flight duration of 24+ hrs, a limitied payload of 1 kg for electronics, and requiring a communication range of 1-10 kilometres. To support this requirement a new communication framework was introduced and implemented based on the ad hoc network concepts. With one radio module per dirigible the designed and developed wireless interface allows any UAV or the GCS to exchange flight control commands, telemetry data, and aerial photos. We made use of the advanced networking tools of the Digi's 9XTend™ radio modules to develop route tracing, traffic prioritization, and minimizing self-interference between simultaneous transmissions. Initial test results showed that without any data flow control in the network, packets can be received in the wrong order following different routes and cause errors in the transmission of photos or recorded video. This issue was resolved through acknowledgements to control the flow of packets. Using radios with half-wavelength dipole antennas we were able to achieve a one-hop range of up to 5 km with the radio-frequency line-of-sight.	Rejeitado. Não se encaixa nos critérios de inclusão, principalmente no IC1.					