

Table: List of the selected studies to be investigated in the SLR

#	Title	Reference
S1	Social debt in software engineering: insights from industry	[1]
S2	The Architect's Role in Community Shepherding	[2]
S3	Gender diversity and women in software teams: How do they affect community smells?	[3]
S4	Splicing community and software architecture smells in agile teams: An industrial Study	[4]
S5	Software Architecture Social Debt: Managing the Incommunicability Factor	[5]
S6	Learning to detect community smells in open source software projects	[6]
S7	On the detection of community smells using genetic programming-based ensemble classifier chain	[7]
S8	Refactoring Community Smells in the Wild: The Practitioner's Field Manual	[8]
S9	Gender Diversity and Community Smells: Insights from the Trenches	[9]
S10	Splicing Community Patterns and Smells: A Preliminary Study	[10]
S11	Understanding the involvement of developers in missing link community smell: An exploratory study on apache projects	[11]
S12	Beyond Technical Aspects: How Do Community Smells Influence the Intensity of Code Smells?	[12]
S13	Predicting the emergence of community smells using socio-technical metrics: A machine-learning approach	[13]
S14	Exploring Community Smells in Open-Source: An Automated Approach	[14]
S15	Understanding Community Smells Variability: A Statistical Approach	[15]
S16	Predicting Community Smells' Occurrence on Individual Developers by Sentiments	[16]
S17	CsDetector: An open source tool for community smells detection	[17]
S18	Do Missing Link Community Smell Affect Developers Productivity: An Empirical Study	[18]
S19	Understanding the Relationship between Missing Link Community Smell and Fix-inducing Changes	[19]
S20	Community Smell Occurrence Prediction on Multi-Granularity by Developer-Oriented Features and Process Metrics	[20]
S21	Gender Diversity and Community Smells: A Double-Replication Study on Brazilian Software Teams	[21]

Table: Classification of the RQs

RQ Category	Sub-Category	RQs
Exploratory	Existence	<ol style="list-style-type: none"> <li>1. Are there patterns in factors related to social debt? [1]</li> <li>2. Can the factors related to social debt be mitigated? [1]</li> <li>3. Are there any community smells emerging in the process of software architecting? [5]</li> <li>4. Provided that architectural community smells do exist, can the extent of the impact for reported community smells be measured? [5]</li> <li>5. Can social debt be addressed and mitigated? [5]</li> <li>6. Can the proposed metrics improve the performance of community smells detection? [6]</li> <li>7. Do developers actually perceive the presence of smells in their community? [14]</li> <li>8. Can we explain the behavior of the best-performed models in individual-wide prediction? [20]</li> <li>9. Can we explain the behavior of the best-performed models in community-wide prediction? [20]</li> <li>10. Is there a recurrent organizational structure pattern in agile software engineering teams? [21]</li> </ol>
	Description and Classification	<ol style="list-style-type: none"> <li>1. What are the factors at play around social debt during the software lifecycle? [1]</li> <li>2. What are the common community types and their features? What are each feature's importance to each community type? [2]</li> <li>3. What types of community smells does our GP-ECC approach detect correctly? [7]</li> <li>4. How accurately can our GP-ECC detect community smells? [7]</li> <li>5. What is the relevance of community smells in practice? [8]</li> <li>6. What is the perception of software developers concerning the relevance of gender diversity to address the occurrence of four Community Smells (Organizational Silo, Black Cloud, Lone Wolf and Radio Silence)? [22]</li> <li>7. What are the main actions taken by Brazilian software development teams to mitigate those Community Smells? [22]</li> </ol>
	Description-Comparative	<ol style="list-style-type: none"> <li>1. How does the number of community smells differ in teams without women and in teams with women? [3]</li> <li>2. How does the proposed approach perform compared to state-of-the-art community smells detection approaches? [6]</li> <li>3. What is the sensibility of our model with respect to outlier/influential data points?</li> <li>4. Does a community-aware code smell intensity prediction model improve the performance of models that do not consider this information? [12]</li> <li>5. How does the distribution of community smells in open-source software communities vary over time? [14]</li> </ol>

		6. Are smelly and non-smelly developers different in terms of their sentiments? [16]
Base rate	Frequency Distribution	1. How many developers are involved in missing link community smell? [11]
	Descriptive Process	1. How can software architects know if there are community smells? [2] 2. What should software architects do if their community smells? [2] 3. What are the refactoring strategies applied by practitioners to deal with community smells? [8] 4. If there is a recurrent organizational structure pattern in agile software engineering teams, what does that pattern imply, in terms of software architecture quality? [21]
Relationship		1. To what extent does the presence of women within teams influence the number of community smells? [3] 2. To what extent do community smells occur in agile teams? [4] 3. To what extent do community smells in agile organizational structures reflect good software quality outputs? [4] 4. To what extent can the employed learner model efficiently detect community smells? [6] 5. What is the relation between community patterns and community smells? [10] 6. How does missing link smell relate with a developer's contribution? [11] 7. What concerns affect the developers' decision to eliminate or preserve code smells? [12] 8. To what extent can community smells explain the increase of code smell intensity? [12] 9. How do community smells relate to existing socio-technical factors? [14] 10. How do socio-technical metrics affect the variability of community smells? [15] 11. To what extent can we predict the occurrence of community smells on developers using their sentiments? [16] 12. To what extent can we predict the occurrence of community smells on individual developers using the proposed features? [20]
Causality		1. What are the most influential characteristics that can indicate the presence of community smells? [6] 2. What are the most influential features that can indicate the presence of community smells? [7]
Design		1. What is the predictive power of socio-technical metrics when it comes to community smell prediction? [13]

2. What is the performance of a community smells prediction model built using socio-technical metrics when trained using within-project data? [13]
3. What is the performance of a community smells prediction model built using socio-technical metrics when trained using cross-project data? [13]
4. What is the predictive power of sentiments to the occurrence of community smells on developers? [16]
5. What is the accuracy that we can forecast the number of smelly developers in a community? [20]

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