On the Business Analyst's Responsibilities in an Agile Software Project - a Multi-Method Study

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Abstract

[Context] Agile methods are now used in the majority of software projects, but the definitions of such methods rarely include the role of a business analyst (BA). [Objective] This paper investigates the responsibilities assigned to BAs participating in agile software projects. [Method] We identified potential responsibilities through a systematic literature review (3 databases) and interviews with 6 practitioners. The most commonly mentioned responsibilities were further evaluated in an international questionnaire survey study with 72 respondents. [Results] The combined findings from the SLR and interviews resulted in 89 unique responsibilities grouped into 7 areas. 49 of these were ranked according to the frequency with which they were assigned in the survey respondents' organizations. [Conclusions] Our findings show that BAs typically support Product Owners (rather than taking on that role) and focus on requirements engineering, business needs, and working closely with development teams.

Keywords: business analyst, agile software development, business analysis, requirements engineering, SLR.

1. Introduction

Agile software development (ASD) is an approach commonly used in software projects today. It is a term that describes a way of thinking and working that follows the principles and values summarized in the Agile Manifesto [12]. ASD encompasses a number of specific agile methods, some of which predate the Manifesto (e.g. [6]), while the others were proposed after the agile approach gained more recognition. One of the core elements of any agile method is the definition of project roles and their responsibilities. Agile methods, however, usually do not recognize a role of business analyst (BA) or similar. There are some exceptions, e.g. OpenUP and AgilePM, but the most popular ones (according to e.g. State of Agile Survey [45]) like Scrum, Kanban, Scrumban and XP, as well as SAFe (Scaled Agile Framework) do not include a business analyst role. At the same time, the number of BAs and the industry's demand for them is growing, as evidenced by job postings (e.g., a search on LinkedIn on June 26, 2024 returned 7508 job postings for BAs in the EU and 9180 in the US). It is also confirmed by job market trends [9], and the number of certificate holders [20][21].

It is widely recognized that business analysis and requirements engineering activities affect agile projects. This fact is reflected in industry guides [18][19][22] and academic works [37][48] to the extent that a term of Agile Requirements Engineering (ARE) was coined [38]. ARE focuses on practices and techniques that fit well with agile processes and values. However, there is no established guidance on the role and responsibilities of the BA in an agile project, especially in relation to other roles such as Product Owner (PO) or Scrum Master (SM) defined in Scrum. Some sources suggest that the BA should act as a PO [22], others that the BA should

rather support the PO and/or the development team [18]. While there is no consensus on this issue, the IT industry seems to be finding appropriate ways to employ BAs in software projects, as evidenced by the growing number of BA positions. We found that while this matter is discussed in thematic forums [31] and blogs [1], it is difficult to identify any scientific works dedicated to the role of BA in an agile environment. Considering the current level of adoption of ASD in the IT industry [45], it is very likely that BAs are being utilized in agile projects, although it is not clear how exactly. We decided to fill this research gap by investigating what constitutes the role of the BA in agile projects, i.e. what responsibilities are assigned to BAs. We defined the following research questions: **RQ1** - What are the potential responsibilities of BAs working in agile software projects?; **RQ2** - What responsibilities are most frequently assigned to BAs in industrial practice?

To answer RQ1, we conducted a systematic literature review (SLR) and a series of interviews with BA practitioners, which resulted in a list of potential BA responsibilities. We then selected the most frequently mentioned responsibilities and conducted a questionnaire-based survey. Respondents were asked to select responsibilities performed by BAs in agile projects in which they participated. We used the survey results to answer RQ2.

This paper is organized as follows. We summarize related work in Section 2. The next three sections are dedicated to the subsequent steps of the research study conducted: a systematic literature review (Section 3), a series of interviews (Section 4), and a questionnaire-based survey (Section 5). Each of these sections describes the design, execution, and results of a particular step. We discuss the results in Section 6 and report threats to validity in Section 7. The paper is concluded in Section 8.

2. Related Work

Two main themes of related work can be distinguished. The first is research on business analysis and requirements engineering in agile projects and organizations. It is a widely explored area of scientific studies, and its various aspects are investigated, for example: the practices used in agile projects [38][17][33], the problems/challenges [17][46][25], the solutions to such problems [24][37][48], the available techniques used by analysts [49]. Also, more specific aspects of agile projects related to requirements are studied, for example: management of quality requirements [7], requirements-related communication with agile team members [16], use of test cases in requirements documentation [8]. However, there is no comprehensive study on the BA's responsibilities in Agile projects.

The second related area consists of works dedicated to the responsibilities of different roles in agile projects. While the strict separation of roles and responsibilities can be questioned [26], the particular roles are still recognized and explored by researchers. There are several studies dedicated to standard agile roles such as Product Owner [39] and Scrum Master [32]. There are also suggestions for new roles to be performed in agile teams, such as UX Designer [36] and Product Manager [41]. However, no such suggestion could be found for a BA. The sources that provide partial input on the roles of BA and PO are not discussed here, but are listed in the Section 3 dedicated to the literature search.

3. Systematic Literature Review

The first step was dedicated to RQ1 and involved a review of the current literature using the Systematic Literature Review method [27]. We selected several independent scientific literature databases relevant to software engineering, namely Elsevier Scopus, IEEExplore, and SpringerLink. We designed the search string based on RQ1, but also considering synonyms and different expressions used in the software engineering community. After initial searches and analysis of the results, we found that the queries returned very few results. This confirmed our initial

Table 1. SLR results

Database	All sources	Titles	Abstracts	Full texts
Scopus	507	73	38	17
IEEEXplore	159	39	6	1
SpringerLink	341	42	1	0
Total	1007	154	45	18

suspicion, based on non-systematic searches, that the topic is not widely covered in the scientific literature. However, in order to obtain a more comprehensive set of sources to review, we decided to include the keyword "product owner" in our search string. The reason is that several sources indicate that the BA assumes the position of the PO in an agile project and performs the responsibilities of the PO. Being aware that this might introduce some bias, we planned to treat BA and PO responsibilities separately in the data extraction phase. The generic search string below was later adapted to specific search engines used in scientific databases.

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A: (("business analysis" OR "business analyst" OR "product owner"
OR "requirements engineering")
B: ("agile" OR "scrum" OR "kanban" OR "XP" OR "FDD" OR "DSDM" OR "lean")
C: ("role" OR "roles" OR "responsibilities" OR "activities" OR "duties"
OR "job" OR "work" OR "tasks"))

Final search string: A AND B AND C
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Inclusion criteria were defined as follows: (IC1) sources in English; (IC2) peer-reviewed sources; (IC3) sources relevant to the defined search terms; (IC4) sources related to industry practice (empirical research, experience reports). We excluded articles that met the following criteria: (EC1) sources referring to other sources (e.g. extended versions); (EC2) sources not referring to industry experience. The SLR study was conducted from March 2022 to May 2022 and involved both authors of this paper. The results of the search are shown in the "All sources" column of Table 1. The Scopus database was used first in the search process. The search in the IEEEXplore and SpringerLink databases therefore resulted in many duplicates, which were discarded from further processing and are not shown in Table 1. The sources returned by the database search engines were checked in three steps by examining: (1) titles; (2) abstracts; (3) full texts. Table 1 provides details on how many sources were qualified after each step. The final number of qualified sources was 18.

The data extraction process focused on the responsibilities (tasks, duties) listed by the reviewed source as assigned to the BA or PO (recorded separately for each of these roles). In addition, the basic information about the paper and its venue, research methodology used and the relevance to the search topic were recorded. The extracted responsibilities were analyzed in order to identify identical or very similar articles and thus to create a unified list summarizing all qualified sources. Each such decision was agreed upon by both authors in a consensus-based manner. To structure the results, we decided to divide the responsibilities into 7 work areas: Product Backlog, Requirements, Project, Product, Business, Team and Development. These work areas have been adopted from the classification proposed by Remta [39] on the basis of reviewing several sources. However, we have introduced two additional areas (namely Requirements and Product) due to the fact that such topics are emphasized as the core of BA's work [18].

The partial results of the SLR study are summarized in Tables 2, 3, 4 in "SLR: PO" and "SLR:BA" columns. The full results could not be included here due to page limitations and are available online [29]. Separate columns for BA and PO allowed us to retain PO responsibilities as candidate items for use in the planned quantitative study (questionnaire-based survey), but

Table 2. Product Backlog-related responsibilities

ID	Responsibility	SLR: PO	SLR: BA	Interviews
R1	Managing the Product Backlog (PB)	[39], [35], [42], [34], [4], [40], [3], [15], [14]	[11], [13], [23], [10]	A, B, C, E
R2	Accepting User Stories to the PB	[39], [43]	[10]	A
R3	Refining the Product Backlog	[39]	[11], [13], [47],	B, C
R4	Story mapping		[47]	
R5	Prioritizing the Product Backlog			C

Table 3. Requirements-related responsibilities

ID	Responsibility	SLR: PO	SLR: BA	Interviews
R6	Analyzing Use Cases			A, B, D
R7	Gathering requirements	[39], [35], [4], [3], [14]	[10], [47]	A, E
R8	Prioritizing requirements	[42], [40], [3], [15], [14], [43], [44]	[13], [10], [47]	A, B, C
R9	Creating User Stories	[39], [15], [43], [44]	[13], [23], [47]	B, C, D
R10	Documenting requirements	[39], [35], [14]	[23]	A, B, D, E, F
R11	Requirements completion verification	[39], [4], [14]		
R12	Managing Agile sample documentation repository		[13]	
R13	Explaining requirements to developers		[23]	A, B, C, E
R14	Requirements refinement		[23], [47]	A, B, C
R15	Acceptance test criteria definition	[39], [14]	[11], [13], [23], [47]	F
R16	Creating epics	[15]	[23]	B
R17	Designing workshops	[35]	[11]	
R18	Collaboration with stakeholders	[39], [14], [43]	[47]	A, B
R19	Prototyping requirements		[23]	
R20	Analyzing requirements			A
R21	Collaboration with Product Owner on creating requirements			B
R22	Creating UML models			D
R23	Checking if requirements are met			F

without mixing them with BA responsibilities. The decision process regarding the questionnaire design and its content is described in Section 5. As an additional contribution, such a presentation makes it possible to compare how such two roles are considered in the literature.

4. Interviews

The second research step also aimed to answer RQ1 with qualitative research. As the findings from the literature turned out to be not very complete (especially considering the tasks explicitly mentioned as responsibilities of BAs), we decided to apply a triangulation approach and collect additional information using another research method. We chose semi-structured moderated interviews with industry practitioners as the most appropriate method to facilitate the free identification of responsibilities. The target population in this case consisted of BAs and other practitioners directly involved in business analysis tasks in agile projects.

An interview guide was prepared beforehand to ensure that, despite the open nature of the interviews, the essential information was collected. The interview included a formal introduction: informing the interviewee about the purpose of the interview, guarantee of confidentiality

Table 4. Project-related responsibilities

ID	Responsibility	SLR: PO	SLR: BA	Interviews
R24	Release management	[39], [42], [4], [40], [3], [43], [5]	[13]	B
R25	Managing the project	[39], [34]		B
R26	Ensuring corporate guidelines and policies	[39], [3], [5]		
R27	Risk assessment	[39], [42], [40], [3], [43], [44], [5]		A, B, C, D
R28	Improving project processes	[39]		
R29	Tracking status of the project		[47]	D, F
R30	Creating specification document			A
R31	Prioritizing tasks			A
R32	Creating project roadmap			B
R33	Organizing other employees' work			D
R34	Adding project tasks to Jira			D, F
R35	Managing Sprints			F

and use of the information collected for scientific purposes only; asking for permission to record the interview. It also listed a number of demographic questions about the interviewee's background and experience, as well as their work environment (organization and its structure, agile methods used, team structure and roles) to provide some context. The main part of the guide started with an open question about the responsibilities of BAs in the interviewee's organization. This was followed by questions about the BA's responsibilities in each of the 7 BA work areas (explained in Section 3) to provide better coverage.

We identified potential interviewees primarily through thematic groups on LinkedIn and other social media, and to some extent through personal contacts. We took care to include practitioners from organizations of different sizes and business sectors. However, it was not possible to use systematic sampling, so the method used was purposive sampling. The basic characteristics of the 6 practitioners interviewed are summarized in Table 5. The interviews were conducted by the first author between July 2022 and November 2022. In each case, a videoconferencing tool was used and the interview was recorded with the consent of the interviewee.

We reviewed the recordings to extract the responsibilities mentioned by the interviewees and processed them by performing open coding [2] based on the qualitative data available (interviewee responses). As a result, complex sentences were converted into codes. Next, the coded responsibilities were assigned to areas (in many cases the interviewees mentioned them in the parts of the interview dedicated to another topic) and reviewed to identify duplicates and similarities. Finally, a comparative analysis was conducted between the results of the two research studies (SLR and interviews). The partial results are presented in Tables 2, 3, 4, while all of them are included in the online appendix [29]. The interview results are included in the "Interviews" columns and juxtaposed with the corresponding SLR results.

5. Survey

The third research step was dedicated to RQ2 and involved a quantitative approach - a survey of industry practitioners conducted using the guidelines of Kitchenham and Pfleeger [28]. We wanted to assess the frequency with which certain responsibilities are confirmed by practitioners as carried out by BAs in their working environment. We decided to use a questionnaire with closed questions dedicated to specific responsibilities identified in the previous steps. However, the number of responsibilities was too high (89) to include them all. We decided to make a selection to minimize the risk of potential respondents becoming tired or overwhelmed and dropping out.

Table 5. Characteristics of the practitioners interviewed

ID	Position(s)	Pos. exp.	Agile exp.	Total exp.	Sector	Org. size
A	Senior Manager of Software, System Design Architect, Product Owner	6	10	16	Telecommunications	2000
B	Business Analyst	8	6	22	Software house	200
C	Business Analyst	4	4	15	Leasing	150
D	Technical Advisor, Business Analyst, DevOps	10	15	20	Software house	>10000
E	Business and System Analyst	1,5	3	3,5	Finances	>10000
F	Business Analyst	0,5	0,5	1	Insurance	850

The following selection criteria were used. The questionnaire items were selected from the results of the interviews and the literature review. They included all the responsibilities that were mentioned by at least two interviewees. For each of the remaining items, a score was calculated using the following values:

- A responsibility is mentioned in an interview: +3 points;
- A responsibility is listed in the literature as assigned to BA (SLR results): +2 points;
- A responsibility is listed in the literature as assigned to PO (SLR results): +1 point.

For each of the 7 areas (described in Section 3), two additional responsibilities with the highest scores were included in the questionnaire (more in case of equal top scores). The values used to calculate the score reflect our attitude - we treated interview results as the most reliable and up-to-date. As for the literature, we again distinguished the results related to BAs and POs. The selection of additional responsibilities from each job results from the intention to cover all aspects of the BA's job. A total of 49 responsibilities were included.

We created the online questionnaire in English using the Google Forms service. The questionnaire included a number of demographic questions about the respondent (job position, job experience, experience with agile methods) and their current organization (size, industry, agile methods used). We also asked an explicit question about the name of the position within the organization given to people who work on business analysis tasks in agile projects. The reason for this was our curiosity whether the BA position is still recognized in agile organizations or whether a different name is used. The main part of the questionnaire was divided into 7 parts, corresponding to the identified work areas. In each part, the respondent was asked the question: "What are the responsibilities of the business analyst in (. . .) area in your company?", followed by a list of responsibilities. We used closed-ended, multiple-choice questions - a respondent was asked to select any number of responsibilities from those presented. To ensure the accuracy of the questionnaire, a pilot study was conducted with individuals who matched the profile of the target respondent.

The questionnaire was published online on February 24, 2023. Invitations were posted in several international IT related forums (for BAs, Product Owners, Scrum Masters and developers) and sent to a few IT companies through personal contacts. The survey was closed on March 20, 2023 with 72 complete and valid responses.

We processed the results to uncover the demographics of the respondents as well as the responses that contributed to RQ2 (about the BA's responsibilities). The majority of respondents identified themselves as business analysts (63.5%). The others were mostly: Product Owners (6.9%), developers (6.9%), testers (5.6%), project managers (4.2%) and Scrum Masters (4.2%). Most of the respondents had 2-5 years of experience in their current position (34.7%), followed

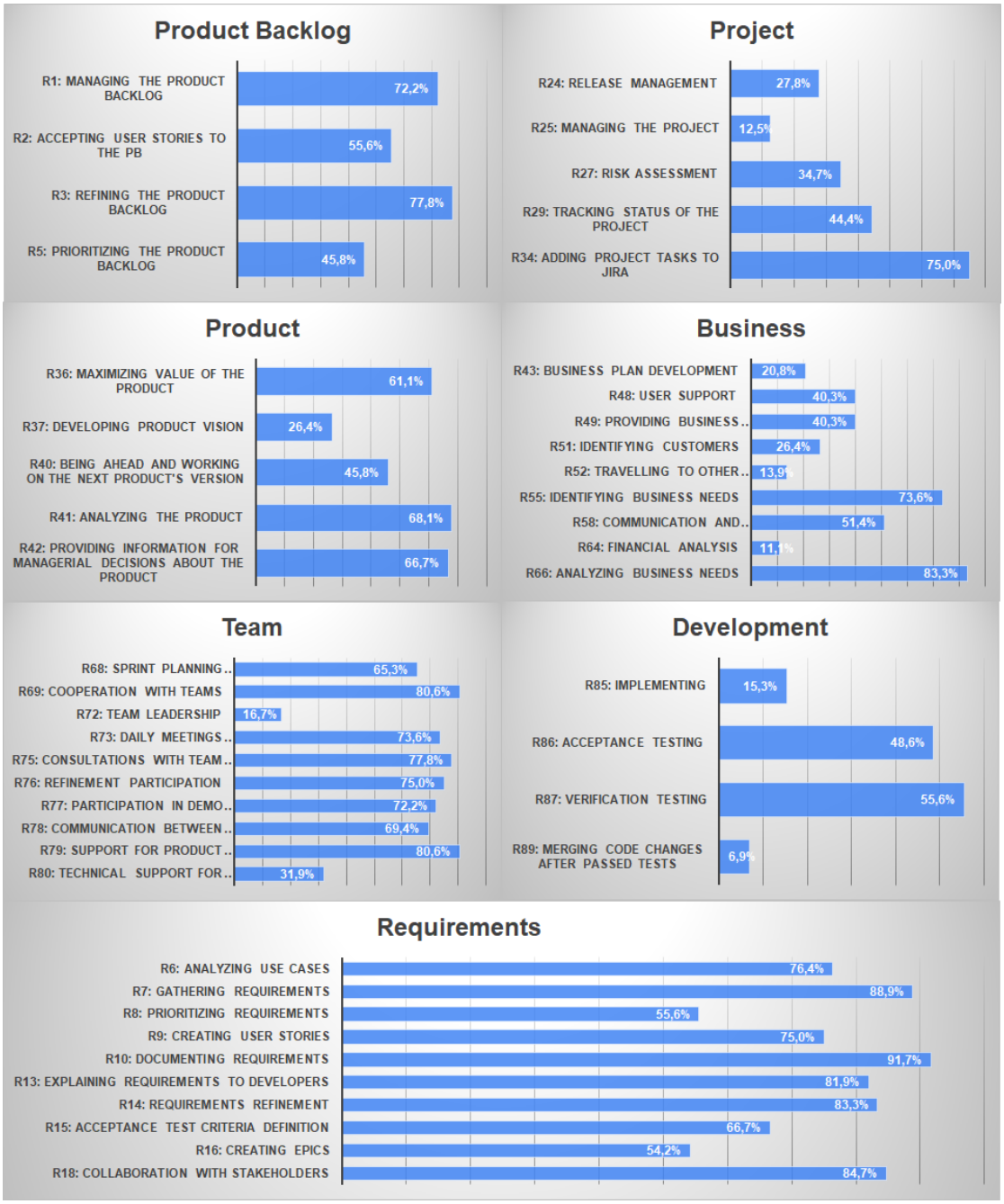

Fig. 1. Responsibilities of BAs in respondents' organizations - distribution of survey responses.

by 10+ years (22.2%), 1-2 years (19.4%) and 5-10 years (15.3%), while inexperienced practitioners (less than 1 year of experience) made up only 8.3% of the population. Respondents were also quite experienced in using Agile methods, with most reporting between 2 and 5 years (45.8%), followed by 1-2 years (22.2%) and 5-10 years (15.3%). Respondents tended to work for larger organizations: 1000+ employees (59.7%), 100-500 employees (18.1%), 500-1000 employees (12.5%). This means that the proportion of practitioners working in smaller organizations (less than 100 employees) was less than 10%. The organizations in which the respondents worked represented a very wide range of business sectors, with the most common being Services (19.4%), Telecommunications (16.7%), Finance (11.1%), and Insurance (8.3%). When it comes to Agile methods, Scrum dominates the landscape, with 79.2% of respondents report-

ing that it is used in their organizations. The other most frequently cited methods are Kanban (5.5%) and Scrumban (4.2%). The majority of respondents' organizations (77.8%) recognize the job position of Business Analyst. None of the alternative job titles provided by respondents was mentioned by more than 1 person, they seem to depend on the nomenclature used by a particular organization. Unfortunately, we did not ask about the country in which the respondent works, so this characteristic is not available.

The main result of the survey is shown in Figure 1. Each of the responsibilities listed in the questionnaire was selected at least 5 times (6.9%) and at most 66 times (91.7%). We believe that this confirms the validity of the results of the previous research steps (SLR and interviews). The more conprehensive survey results can be found in the second online appendic [30].

6. Discussion

The results from the literature suggest that the BA's involvement in an agile project is mostly focused on requirements development (R7-R10; R12-R19) and on Product Backlog maintenance (R1-R4). Other responsibilities are rather single, selected activities from the remaining areas: communicating with business stakeholders and sharing the product vision with them (R58) and participating in Scrum ceremonies (R68; R73-R74). If we compare the SLR results for BA and PO, we see that there are many similarities in the tasks that deal with Product Backlog and requirements. Interestingly, POs have many more tasks listed in the literature, especially those related to business aspects, project management and team cooperation. The possible reason is that the original distinction of three roles in Scrum implies more responsibilities for each of them, while the introduction of additional roles like BA or Design Architect allows to narrow their work focus.

The interviews resulted in some changes to the overview provided by the literature review. The results regarding the responsibilities from Product Backlog and requirements areas confirmed the SLR results, although the interviewees listed some additional tasks (R20-R23). However, they implied much more responsibilities of BAs in project-related (especially risk assessment - R27) and product-related (especially product vision development - R37) areas. The BAs in the interviewees' organizations are also much more active in the business-related area (which had almost no coverage in the literature), the most frequently mentioned responsibilities include: identification of business needs (R55) and their further analysis (R66), providing business expertise to the rest of the team (R49) and using advanced tools such as financial analysis (R64). A similar situation can be observed in the development area - most respondents confirmed the involvement of BAs in verification testing to determine whether the developed software meets the established requirements (R87). In addition, BAs may participate in acceptance testing (R86) and even act as developers and write the source code (R85). The most significant differences, however, are in team-related responsibilities. Contrary to the findings from the literature, the interviews revealed numerous tasks for which BAs are responsible, including participating in various meetings and activities (R73-R74, R76-R77), supporting team members on technical issues (R80), and supporting POs (R79). However, the main team-related responsibilities of the BA include facilitating communication between teams and customers (R78), working closely with teams (R69), and, in particular, providing answers and explanations to team members when they have doubts about product requirements (R75). This last task was mentioned in all 6 interviews.

The survey study examined only a subset of the responsibilities identified through the SLR and interviews. Unsurprisingly, the greatest involvement of BAs is reported in the requirements area and consists mainly of typical requirements engineering activities such as collaborating with stakeholders (R18), gathering (R7), refining (R14) and documenting (R10) requirements. BAs also create and analyze specific requirements representations, such as use cases (R6), user stories (R9), and epics (R16). Defining acceptance test criteria (R15) is closely related to requirements (testability/verifiability is a key quality characteristic of requirements) and is also

often performed by BAs. Their tasks also include communicating the requirements to the developers and explaining the features to be implemented (R13). All these activities are defined in standards and guides on business analysis and requirements engineering, and it seems natural that a BA is responsible for them in software projects, including agile ones.

Significant BA involvement is also reported in the team-related area, although the proportion of responses is lower than in the requirements-related area. BAs work closely with development teams (R69, R75, R78) and participate in meetings (R68, R73, R76, R77). They are not expected to be team leaders (R72). Interestingly, a very high number of responses (80.6%) for providing support to the PO (R72) suggests that the positions of BA and PO are distinct in industrial practice, contrary to the ideas found in the literature. This seems to be confirmed by the responses from the Product Backlog area - BAs are more often involved in PB management (R1) and refinement (R3) than in making decisions about PB contents (R2) or their priorities (R5). It seems that the PO is the keeper of the Product Backlog (as defined in Scrum), while the BA interacts with stakeholders, performs requirements engineering activities, and provides expertise in maintaining the Backlog.

The involvement of BAs in product-related responsibilities is rather average, and they are expected to analyze (R41) and improve (R36) the product as well as provide information necessary for management decisions (R42). They rarely have primary responsibility for the long-term vision of the product (R37, R40). The possible reason is that this responsibility is taken by someone else (e.g. PO, product manager). In addition, product vision is not so important in the case of custom software for a particular customer, and some respondents may work on such projects. As for the business-related area, the responsibilities of BAs seem to focus on the core business analysis activities, i.e. identifying business needs (R55), analyzing them to introduce the necessary changes (R66), and working with stakeholders to establish a shared vision of the solution (R58). Neither the specific techniques/tools such as business plan development (R43) or financial analysis (R64) nor working with other parties (R48-R52) are as common in respondents' organizations.

BAs are not expected to perform project management activities (R24-R27), except for tracking the status of the project (R29) and defining additional tasks as needed (R34). As the BA interacts with customer representatives and other stakeholders, he/she may be informed about discovered defects and change requests, so it is natural that such information is translated into tasks to be performed. In terms of development-related responsibilities, BAs are quite often involved in testing (R86, R87), but very rarely in typical developer tasks (R85, R89).

7. Threats to Validity

We discuss the threats to each of the research steps presented (SLR, interviews, survey) separately.

In an SLR study, it is crucial to minimize the risk of omitting relevant sources. In our study, a possible limitation is that we restricted the search to three databases, but we deliberately chose databases that are provided by the main publishers of software engineering research and that are diverse, i.e. their content does not overlap significantly (such as e.g. Scopus and ScienceDirect). It was a trade-off between the coverage of the databases and the effort required. We believe that the threat of insufficient size and number of samples is not applicable, as the search resulted in over 1000 records to be reviewed, which is a considerable size for a small number of researchers. The threat of an incorrect or suboptimal search string was mitigated by careful selection of keywords and construction of the search string, including synonyms, and by conducting initial searches (e.g., PO-related keywords were added as a result). The threat of selection bias was mitigated by explicit inclusion/exclusion criteria and a shared, consensus-based decision-making process.

In the case of the interview study, selection of participants can be considered a threat, espe-

cially given the purposive sampling method used. However, we are not aware of any means of systematic sampling of the target population. The number of interviewees (6) is a limitation that we acknowledge - it was difficult to persuade busy professionals to participate, especially as we were unable to offer them any bonuses. We did, however, attempt to diversify the interviewees in terms of organization size and industry. The inclusion of an interviewee with little experience (participant F) can be seen as a threat. However, the analysis of the recorded interview convinced us that the interviewee was able to answer all the questions and demonstrated substantial knowledge about his responsibilities and about the software development processes of his company. Therefore, there was no reason to doubt the information gathered in this interview and we decided to process and use it in the next research step. The risk of not covering important aspects relevant to the research objective was mitigated by preparing an interview guide based on the results of the SLR and by asking open-ended questions without restricting the interviewees. The threat of researcher confirmation bias was mitigated by collecting data through open-ended questions, while the threat of bias during data analysis was mitigated by recording all interviews and following a coding process applied to the collected data.

Questionnaire-based surveys are highly dependent on the quality of the questionnaire. Therefore, we paid attention to the questionnaire design process and the wording used in the questions. The design process included several iterations and a pilot study with representatives of the target population. A non-systematic sampling method was used (personal and group invitations, mainly through social media), which can be considered a threat (a sample that is not representative of the population), but we were not able to apply systematic sampling. The results of the survey show that very few respondents worked for smaller organizations (<100 employees), which could also introduce a bias. The limited number of respondents (72) is also a threat to external validity. We assess the threat related to the trustworthiness of the respondents as very low - although we cannot exclude the possibility of their being dishonest (e.g. giving false answers, completing the questionnaire multiple times), we are not able to find any evidence of such behavior.

8. Conclusions

The aim of the research reported in this paper was to identify the potential responsibilities of BAs working in agile software projects (RQ1) and to evaluate which responsibilities are assigned to them in industrial practice (RQ2). The main contributions of this paper are: the list of 89 responsibilities identified through an SLR and a series of interviews (answer to RQ1) and the results of a survey in which practitioners selected from 49 items the responsibilities performed by BAs in their organizations (answer to RQ2). Since we were not able to find any related work that provides a comprehensive overview of the responsibilities of BAs in agile projects, there is no way to compare the results with those reported by others. Moreover, to the best of our knowledge, it is the first systematic attempt to address the topic we identified as a research gap.

Our work has several implications for research and practice. The list of identified responsibilities and the evaluation of their subset can be used in future research studies, for example, involving a larger group of practitioners or focusing on a more concrete context (organization size, project type, software development processes). It may also be interesting to investigate whether there are differences in agile BA roles across countries or parts of the world. Another possibility is to analyze which responsibilities are shared or to investigate the reasons why certain responsibilities are assigned to the BA or not in a given context. We plan to work on such further studies ourselves. Implications for practice include the possibility for BAs to review the possible competencies required to work in agile projects, and for managers to review the definitions of roles (and their responsibilities) in their projects/organizational units.

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