Requirements Engineering in Practice: There Is No Requirements Engineer Position

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Abstract. [Context and motivation] For the requirements engineering (RE) community it is clear that requirements engineering is a specific activity and role within software development. **[Question/problem]** However: What about practice? Is RE seen there as a separate role? What qualifications do practitioners see as critical for this task? **[Principal ideas/results]** 141 job advertisements from 2009 and 67 from 2012 were analysed statistically in order to find out how practice perceives and staffs RE: Which official job title do those persons have who do RE? Which further responsibilities do these persons have? Which qualifications are demanded? **[Contribution]** The study´s main results are: The position "requirements engineer" hardly exists. RE instead is done by consultants, software engineers, architects, developers and project managers, who additionally have an average of 3 further tasks. RE is no task for job beginners: 73% of the job advertisements wish or demand previous job experience. Further important qualifications are: 94% soft skills (the Top 3 soft skills are: capacity for teamwork, English language and communication skills), 76% demand knowledge with respect to the technology used, while only 34% mention RE knowledge. RE is most often combined with solution design (77% respectively 61%).

Keywords: job advertisement, organisation, practice, requirements engineer, role.

1 Introduction and Motivation

For the requirements engineering (RE) community it is clear that requirements engineering is a specific activity and role within software development, which demands specific qualifications. However: What about practice? Is RE seen there as a separate role? What qualifications do practitioners see as critical for this task?

In this study, we define a person to be a natural person with an individual name. When a person is employed in an organisation, it is integrated into the hierarchical system which is modeled by the organisation´s organigram. The organigram´s basic elements are positions which have hierarchical relations with each other. Each position is identified by a job title, and usually specific expectations in terms of responsibilities, tasks and power (and salary) are linked to job titles. A position´s definition usually is organization-specific and is described in a job advertisement and

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in the work contract. The concept of role describes a set of tasks and responsibilities and competencies, but is usually not identical with the position. While the position is attributed to a person permanently until change of position, e.g. promotion, project roles are attributed to persons dynamically, according to the current need. One person can work on several roles in parallel, but has only one position at a time.

In the present study, we analyse job advertisements which are an official model of how practitioners integrate RE in their organisations and which qualifications they believe to be critical for this task. Ideally, these job advertisements also reflect previous experience, i.e. they demand such qualifications which in the past had shown to be critical. Therefore, 141+67 job advertisements were analysed statistically in order to find out how practice perceives and treats RE.

The **research questions (RQ)** for this study are:

1. What is the job title of the person / position doing RE?
2. Which tasks are part of RE?
3. Which further tasks does this position include?
4. Which competencies are demanded?

These questions were chosen for three reasons:

a) Although theory offers proposals to all of them, it is little known whether practice shares this view or has developed its own Best Practices.
b) They reflect aspects of the way how practitioners choose and integrate the persons who are responsible for RE. For instance, if a person doing RE also must fill several more roles, then (s)he can put less focus on RE than a person for whom RE is a full-time task. The competencies demanded are potentially those which have been critical in previous projects.
c) They can be answered based on the information contained in published job advertisements.

This paper is structured as follows: Section 2 presents related work, Section 3 the study design and execution, Section 4 describes the study results. Section 5 discusses threats to validity. Section 6 concludes the paper with a summary.

2 Related Work

In this section, we review empirical studies which have investigated our four research questions in practice. It is not the intention of this section, to summarize the state of the art of theoretical work and the answers it proposes to the four research questions. We here focus on the perception of practitioners and how RE is executed in practice. Nevertheless, additionally to empirical studies, some few theoretical frameworks will be cited to show what answers to the four RQ we might find. There exist many case studies and field studies about different questions concerning RE. However, only few discuss job titles, multiple roles and the competencies which companies demand from the person who does RE. The remainder of this section is structured according to the four RQ.

2.1 RQ1: What Is the Job Title of the Person / Position Doing RE?

The Project Management Body of Knowledge PM BOK [11] sees RE as one of the knowledge areas (i.e., tasks) of the project manager. It foresees no specific job title or even person for doing RE.

In many organisations, the role of the requirements engineer is not defined clearly. The division of responsibilities and tasks varies depending on the organisational structure, project circumstances or personal capabilities [4].

Nikula et al. [10] investigated roles in software developing SME. They found, among 12 companies: "The most common specialist role for team members was designer for user interface, database, or alike that was present in seven companies. The next most common specialist groups were the technical writers and systems analysts, both found in six companies. Three companies had testers and five did not have any such specialists but called all employees developers." So, if five out of 12 SMEs do not define roles within their development team and the others have only few specialist roles, then we can expect that there is no specific requirements engineer role or position. As RE must be done by someone, we can expect that there might be developers and analysts who do RE.

Neill and Laplante [9] in their RE survey found the following positions to be involved in RE: executive, architect, consultant, project manager, system designer, analyst, and technical specialist.

Zowghi et al. [16] in their field study also found persons with many different job titles to be involved in RE: marketing, engineering and technical management, product development, support, customer support center, customers, product users.

We can expect that not only software development companies look for RE personnel, but also the customer side. An interview study in 25 German SMEs [15] investigated the participation of the business department in the RE process. This study found that business departments often have experience in process organisation, however no defined RE process or RE methods, partly caused by a lack of RE knowledge. None of the 25 organisations had established an explicit role of a requirements engineer. The interviewed persons, however, wish a more formalised and better qualified RE process for the future. The study found different scenarios of who is involved how in the RE: Sometimes, the developers already know the requirements (e.g. after a long cooperation), and business is not involved. Or business department defines the requirements for new information systems. Or top management decides about the introduction or upgrading of information systems with external technical and process consulting. This study shows some actors within the RE: business department (=user perspective), developers and external consultants.

2.2 RQ2 Which Tasks Are Part of RE?

We could not find any empirical study answering this question. RE is generally accepted to include elicitation, analysis, specification and validation [1], [13].

2.3 RQ3 Which Further Tasks Does This Position Include?

The fact that there is usually no separate RE role or position implies that those persons who do RE also have other tasks. But which are these? How many? This is not known, but previous studies found that the variety of tasks overstrains those who do RE [4] and recommend defining a separate RE role or position. Klendauer et al. [8] found in their case study: "In the interviews with software developers, we discovered that the formal introduction of the organisational role RA [Requirements Analyst] can facilitate the success of projects considerably. Through the clear task divisions that this introduces, the developers can focus on their primary job – the development of the software itself, while the analyst takes over all communication related tasks. However, to achieve this result, the RA must have the appropriate competencies in order to be effective. If not, they can be very obstructive. In two cases, the developers bypassed the analyst and directly contacted the customer for further inquiries."

2.4 RQ4 Which Competencies Are Demanded?

According to the study of Alenljung and Persson [2], the requirements engineer must cope with lack of communication, time pressure, cognitive load of his task and lack of resources. These authors emphasize the importance of knowledge about domain, product and RE, and the importance of communication. In the RE literature, it is consensus that additionally to RE knowledge, RE also demands communication and soft skills. However, there is no consensus on whether the person doing RE must have domain knowledge. Here again, we focus on the results of empirical research about RE practice and about needed competencies.

RE Knowledge (concepts, methods, tools)
Alexander, Robertson and Maiden [3] in a survey among 152 practitioners found that "respondees felt that training, own standards, tools, the regulator, first principles and experienced colleagues were the main influences on their requirements processes. Most of the other factors, which are mainly sources of process knowledge external to their organizations, had little influence."

In their case study in Sweden, Alenljung and Persson [2] found that requirements work has a low status within software development organisations. This means that "To become a requirements engineer is not viewed as a step upwards on the career ladder. Thus, experienced software engineers do not want to have that role. Instead, engineers fresh out of university are often recruited. Since there is a low understanding in the organisation in the difficulties of being a requirements engineer, education in RE is not, as far as we have seen in our case study, a requirement to become a requirements engineer. This results in requirements engineers having limited experience and limited knowledge about the product as such, the domain in which the product is to be used, and the RE task. The low status and lack of understanding also have other consequences. There are fewer possibilities to improvement of qualifications and fewer and less developed support tools. A couple of interviewees compare the support given to requirements engineers and the much

more developed support a compiler gives to a programmer." And "There is not enough introduction to and education in RE for novice requirements engineers, which makes it difficult to carry out the RE tasks."

Nikula et al. [10] in their interviews with 12 SME found a significant lack of awareness in practice about what RE competencies even exist: "This paper presents the results of an empirical survey showing that the problem is not in the practitioners' lack of desire for improvement but in the management not knowing that many RE issues can be solved with standard practices that are well documented in literature. Raising the management awareness of RE practices would make it easier to start RE process improvement efforts in industry and thus eventually also raise the RE process maturity in companies." And: "No company had RM [requirements management] tools in use." The most frequently used RE tools were word processor and spreadsheets, and requirements are usually described in natural language.

Klendauer et al. [8] finds about RE tools: "Surprisingly, applying specific tools and advanced techniques did not seem to play a significant role from the interviewees' perspective."

Soft Skills (social and communication competencies)

Many empirical studies have found the importance of soft skills and communication skills especially in RE (see for instance [6], [7]), even more in distributed RE [12],[16]. Curtis, Krasner and Iscoe [6] in their 17 case studies found that the communication between requirements analysts and stakeholders, as well as between requirements analysts and developers, is of critical importance.

Klendauer et al. [8] conducted 64 interviews at eight major North American and European financial services companies in order to investigate the competencies of requirements analysts. The interviews use the critical incident technique. The competencies found are:

- need for power and control (deciding and initiating action; leading and supervising)
- agreeableness (working with people; adhering to principles and values)
- extraversion (relating and networking; presenting and communicating information; persuading and influencing)
- mental ability (writing and reporting; applying expertise and technology; analysing)
- openness (learning and researching; creating and innovating; forming strategies and concepts)
- Conscientiousness (planning and organising; delivering results and meeting customer expectations; following instructions and procedures)
- emotional stability (adapting and responding to change; coping with pressure and setbacks)
- need for achievement (achieving personal work goals and objectives; enterprising and commercial thinking)

Domain Knowledge
Berry [5] from several case studies concludes that ignorance (in the domain) of the person doing RE is useful. It helps to identify tacit assumptions. On the other hand, Curtis et al. [6] emphasize that domain knowledge must be available.

3 Study Design and Execution

In order to answer the four RQ, job advertisements from an online job portal were analysed. The data selection and analysis proceeded like this:

1. First, IT-related job advertisements were read in the German job portal www.stepstone.de. Those job advertisements were selected for further analysis which include RE tasks.
2. The ad´s text was coded: job titles, tasks and demanded competencies were collected in a table and attributed to categories.
3. Quantitative analyses were executed on these data in order to answer the four RQ.

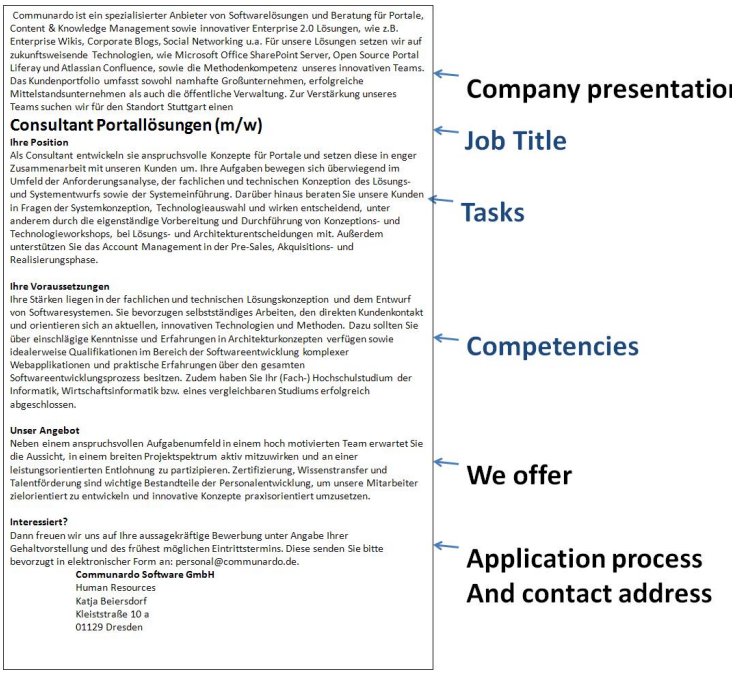

Fig. 1. Typical structure of a job advertisement

Step 1:
The search for relevant job advertisements was performed on two dates: on 17 July 2009 and on 29 October 2012. This allows us to also observe the changes within three years.

The jobs were searched under category "IT". The sub-categories which the portal offers were changed between the two searches. In 2009, the four sub-categories considered were Software Engineering, application analysis, IT consulting and IT systems analyst. In 2012, the sub-category considered was "Consulting, Engineering". The sub-categories from 2009 did no longer exist. It seems that these four were merged into this one. The search included the countries Germany, Switzerland and Austria, all application domains, and all types of jobs (permanent job, temporary appointment, etc; only internships were excluded).

In 2009, there were 16721 IT hits all together. Among these were: Software Engineering 709, Application analysis 124, IT consulting 458, and IT systems analyst 87. Out of these 1378, 141 advertisements described RE tasks.

In 2012, there were 10483 IT hits. Sub-category "Consulting, Engineering" included 2542 hits. Of these, the 589 most recent jobs advertisements from 25 to 29 October were analysed and 67 were found which contain RE tasks.

So, approximately 10% of the analysed job advertisements mentioned RE tasks.

We defined RE to be the elicitation, analysis, specification, validation and management of requirements [1], [13]. However, this task is usually not called RE, but can have many names. Therefore, the decision about relevance of an advertisement had to be done manually. No predefined key words were used, but instead the task sections were read and it was decided whether RE is included or not. The most frequent key words that were found to be an indicator of RE tasks were: customer requirements, problem analysis, functional specification, clarification of requirements with customers, analysis of business processes, communication of requirements to the development team. However, the following activities were considered to not be part of RE: making decisions about requirements, technical specification, solution design (e.g. security concepts, data base designs), solution development, software customizing, consulting in the meaning of selling the company´s specific product, process improvement.

Step 2:

Job advertisements all have a similar structure, as shown in Fig. 1. For answering RQ1, the job titles were extracted. For RQ2 and RQ3, the task section was analysed, separating RE tasks and other tasks from each other. RQ4 refers to the competencies section which describes which competencies the applicant must have.

Job titles, tasks and competencies were coded in categories. These categories were not taken from literature, but were defined iteratively, as described by the Grounded Theory [14]. The categories did emerge from the data.

In what follows, the categories are listed and the original terms included in each category (mostly English translations of German terms) are given.

Job titles

- **Requirements Engineer[1]:** requirements engineer, requirements manager
- **Consultant:** consultant, analyst, business process manager, system planner, user experience specialist

[1] The term „Requirements Engineer" is also used in German.

- **Architect:** (solution) architect, design expert, IT infrastructure consultant
- **Developer:** (software) developer, project member, member of development team, programmer, technology associate
- **Sales Person:** engagement manager, lead engineer, sales support
- **Project Manager:** project manager, technical IT project leader, sub-project manager
- **Software Engineer:** software engineer, systems engineer, product manager

Non-RE Tasks we grouped along the following categories:

- **Feasibility analysis:** feasibility analysis, cost estimation,
- **Solution conception:** design, technical specification, solution design (e.g. security concepts, data base designs), architectural design, improvement / optimisation of business processes, analysis and assessment of IT architectures, specification of optimizations, specification of standardisations
- **Realisation:** implementation, development, programming, software customizing, system integration
- **Quality assurance:** testing, specification of test cases, reviews, quality management, integration testing, functional tests, load tests, usability tests
- **Documentation / training:** documentation, (user) training
- **Deployment:** installation, data migration, rollout
- **Maintenance / hotline:** (user) support, technical support, coaching, trouble-shooting, problem management
- **Project management:** project management, management of sub-project, deadline monitoring, risk management
- **Sales:** sales, sales support, identification of business opportunities, networking, bid proposal management, observation of market

The categories of competencies are RE competencies (with the sub-categories listed in Table 3) and further competencies as listed in Table 4, where soft skills have the sub-categories shown in Table 5.

4 Results

From the data gathered as described in Section 3, we derive the following answers to the RQ1 to RQ4.

4.1 Research Question RQ1 "What Is the Job Title of the Person / Position Doing RE?"

The job title „Requirements Engineer" does hardly exist. In 2009, only one such job title was found among 141 advertisement which described RE tasks, and in 2012, it was 3 among 67. RE is done by consultants, software engineers, developers, and many more. Table 1 shows the distribution of job titles of those persons who do RE, in 2009 and 2012. The largest group of persons doing RE have the job title of a

consultant. There is a clear trend from 2009 to 2012 that there are more requirements engineers, more architects, a bit more software engineers and also more explicit double roles. Vice versa, in 2012 there are clearly less developers who also do RE. It is possible that this combination of developer position and RE tasks was not ideal in the past.

Table 1. Distribution of job titles of those persons who do RE, in 2009 and 2012

Job title	Number (%) in 2009	Number (%) in 2012
Requirements engineer	1 (0.7 %)	3 (4.5 %)
Consultant	72 (51 %)	29 (43.3 %)
Architect	12 (8.5 %)	11 (16.4 %)
Developer	36 (25.5 %)	5 (7.5 %)
Sales Person	2 (1.4 %)	0
Project manager	3 (2.1 %)	2 (3.0 %)
Software engineer	10 (7.1 %)	7 (10.4 %)
Double role	5 (3.5 %)	7 (10.4 %)
Others	0	3 (4.5 %)

4.2 Research Question RQ2 "Which Tasks Are Part of RE?"

The following categories of RE sub-tasks emerged from the data in the advertisements:

- elicitation of requirements
- analysis of processes
- documentation
- coordination of requirements with customers
- collaboration / coordination with development team
- management of requirements changes
- expectation management
- consulting in decision processes
- assessment of solutions
- consulting of customers with modelling, development of RE guidelines, doing RE trainings

These categories are more detailed than those found in literature (see Section 2).

4.3 Research Question RQ3 "Which Further Tasks Does This Position Include?"

RE is no full-time task. This is not only reflected by the fact that there are few positions with RE in the job title. Additionally, in the task list, many more tasks are listed. Those who do RE, additionally do several further tasks. Table 2 lists how many positions are described to do which non-RE task. While specifying the technical concept still is the most frequent non-RE task combined with RE, its frequency went down from 77.3% in 2009 to 61.2% in 2012. This is similarly the case for other tasks

which demand technical knowledge like realisation, deployment, and feasibility analysis / cost estimation. For the non-technical tasks, the percentages stayed the same. In parallel to this development, the number of tasks which are done additionally to RE, went down from 3.23 in 2009 to 2.79 in 2012. This might reflect that RE is increasingly seen as a separate activity which cannot be done additionally to development and which demands a larger part of a person´s work day. As we see in Table 4, experience with a specific technology still is demanded at 76%. So, the discharge of RE-doing positions from technical tasks is not correlated to a discharge from technical knowledge.

Table 2. Tasks in 2009 and 2012

Task	Percentage in 2009	Percentage in 2012
solution design	77.3 %	61.2 %
realisation	53.9 %	44.8 %
deployment	41.1 %	23.9 %
quality assurance	37.6 %	38.8 %
project management	34.8 %	31.3 %
maintenance / hotline	24.8 %	23.9 %
documentation/ training	22.7 %	25.4 %
sales	19.1 %	19.4 %
feasibility analyses, cost estimation	12.1 %	10.4 %

4.4 Research Question RQ4 "Which Competencies Are Demanded?"

Only about one third of the job advertisements demand RE specific competencies: 37% (51) in 2009 respectively 34% (17) in 2012. Which RE competencies were demanded, is shown in Table 3.

Table 3. RE competencies demanded

RE competency	Number (%) in 2009	Number (%) in 2012
modelling methods	21/51 (41%)	10/23 (43%)
experience with RE	20/51 (39%)	4/23 (17%)
RE tools	16/51 (31%)	7/23 (30%)
experience process analysis	13/51 (25%)	7/23 (30%)
RE&M (requirements engineering & management) knowledge	10/51 (20%)	7/23 (30%)

The most remarkable fact about this is that so few specific RE knowledge or experience is demanded of those who do RE. The fact that those persons also have other tasks, is not sufficient as an explanation. Compared to the other tasks, RE competencies are demanded at a lower rate. Those advertisements which mention the solution conception, demand technical knowledge at 82% (in 2009) or 76% (in 2012),

those who do development must have technical knowledge at 85.5% (in 2009) and 83.3% (in 2012). This can be interpreted as a lack of awareness that RE methods exist or are needed, or it is assumed that RE competencies are taught at universities and during apprenticeship anyway. Studies or apprenticeship are expected at 89% (in 2009) and 85% (in 2012). Remark: For the project management, it is even worse. Of those ads which mention project management tasks, only 26% demand project management knowledge (in 2009) or at 14.3% (in 2012).

However, RE is no tasks for job beginners: 72% (in 2009) respectively 73% (in 2012) of the advertisements wish or demand previous work experience.

Table 4 shows which further competencies are demanded. Soft skills and technical knowledge are most important, and also to have previous experience with the corresponding task. The importance of specific methods or tools has clearly diminished from 2009 to 2012, and the demand or wish for domain knowledge went down from 50% to 34%.

Table 4. Further competencies demanded

Competency	**percentage (2009)**	**percentage (2012)**
Technical knowledge	79 %	76 %
Experience with a method	31 %	13 %
Experience with a tool	27 %	12 %
Experience with a task	49 %	55 %
Project management knowledge	17 %	16 %
Soft skills	92 %	94 %
Domain knowledge	50 %	34 %

Table 5. Soft skills demanded. Given are percentage with respect to all ads

Competency	**percentage (2009)**	**percentage (2012)**
English language	57 %	72 %
Capacity for teamwork	57 %	52 %
Communication skills	55 %	60 %
Analytical skills	43 %	40 %
Sense of responsibility	43 %	33 %
Commitment	37 %	13 %
Self-confidence	35 %	30 %
Result orientation	30 %	18 %
Flexibility	29 %	28 %
Customer orientation	28 %	39 %
German language	28 %	33 %
Willingness to travel	27 %	45 %
Conceptual skills	26 %	18 %
Self-organisation	14 %	10 %

Table 5 shows which soft skills are explicitly demanded in detail. The soft skills often make up a long part of the ad´s competencies section. The average number of soft skills per advertisement was 5.6 in 2009 and 7.8 in 2012 (counting only these ads where soft skills were mentioned). The most important soft skills in both 2009 and 2012 were English language skills, communication skills and capacity for teamwork. The major changes are observed in that English, willingness to travel and customer orientation are much more frequent now and result orientation and commitment has become less frequent.

5 Threats to Validity

This study might be affected by two major threats to validity: The job advertisements might not reflect real work conditions, and the results of their analysis depend on the coding procedure.

Do the job advertisements reflect real work? The job advertisements analysed are data material that has not been written for the purpose of this study but instead for the purpose of attracting competent job candidates. As such, this material might be afflicted with several threats to validity. One can imagine that job advertisements do not reflect the job reality in the following respects:

- The real tasks of an employee depend on the company´s current demand and the future development of the organisation, but also on the person´s real qualifications and availability. Therefore, it is possible that the job advertisement only names the main tasks without mentioning all or vice versa lists all potential tasks which finally will not all be done by the new colleague.
- Due to skills shortage on the German workforce market, especially in the software development field, job advertisements might either list only the main qualifications demanded in order not to be too restrictive or vice versa list all qualifications, knowing well that they would also accept a candidate who only fulfills 80% of them.
- Job advertisements in larger organisations might be written by the human resource department, using templates and previous versions, without consulting the future superior and without using experience from daily practice. The high demand of soft skills might even reflect a current “fashion”.

Nevertheless, it can be assumed that job advertisements as official company publications are written and reviewed with high diligence by several experienced professionals in order to attract the right candidates. In fact, it seems that the job advertisements do not draw a too idealized picture of the RE job, as they often demand conflict handling skills, being able to do structured work under time pressure, and more than average commitment to work, and they list many qualifications as a must. They communicate that RE is a highly difficult task. As a researcher, I believe that job advertisements are empirical data material that is maybe even written with more diligence than answers to research questionnaires.

Finally, all data and conclusions from this study must be seen as statistical analysis results of job advertisements, not necessarily as reflection of the actual work practice. However, they reflect a model that practitioners, mainly human resource departments and managers, have of the work organisation and competencies demanded in daily work in RE.

Comparing our results to previous work (see Section 2), we find that our results are consistent with those of other researchers, who did case study research and surveys about the state of the practice. Our RQ1 finds a variety of job titles involved in RE, including analysts and developers as observed before. We cannot say how many customer-side positions mention RE because we did not include this criterion in the coding scheme and we expect that these end user positions would be published not in the IT section of the job portal. As can be seen in Section 2, other researchers also found that RE is done by persons with multiple roles and tasks and that soft skills are important, while RE knowledge often is not present, either because companies do not use RE methods or because they even do not know what specific RE competencies exist.

How do the answers to the RQs depend on the coding procedure? For answering RQ1 to RQ4, free text answers were coded in categories. The answers to the RQs therefore depend on the granularity and correctness of this coding. Other coders might have chosen different categories. In the answer to RQ1, for instance, we do not distinguish between roles on customer side and on contractor side, what other researchers do (see Section 2). In order to make the coding process transparent, in Section 3 it is documented which terms were attributed to which category. RQ2 led to an RE task list that does not correspond to task lists in the RE literature. It is what we read in the ads. In RQ3 and RQ4, quantitative analysis were done. The percentages, the number of tasks and the number of competencies, of course, directly depends on the granularity of the categories. More fine-grained categories would lead to higher numbers of tasks per position and competencies demanded. If other researchers would like to do a different coding on our data, we would share them.

6 Summary and Outlook

This study analyses 141 job advertisements from 2009 and 67 from 2012 with respect to the practice of RE. Which job titles do those have who do RE, which further tasks do they have and which competencies are demanded?

The job title “Requirements Engineer” hardly exists. RE tasks are done by persons who have different job titles and an average of 4.23 respectively 3.79 tasks. In few cases, the job title explicitly was a double role. RE is most often done by persons with the job title consultant. RE is most often combined with solution conception, realisation and quality assurance.

For doing RE, studies or apprenticeship are important preconditions, as well as work experience. However, specific RE knowledge is demanded explicitly only at 37% in 2009 and 34% in 2012. Further competencies demanded are soft skills, technical knowledge and previous experience with a specific task. The most important soft skills are English language, communication skills and capacity for teamwork.

Future studies could analyse similar data for other countries to compare internationally how RE is integrated into the organization. Furthermore, the study can be repeated in 2015 to observe trends for a longer period of time. Another approach could be to ask the four RQ in a questionnaire survey among practitioners or to analyse work conditions in case studies. Such studies can reveal differences between job advertisements and the reality of daily work.

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