Specification Report

1. Describe the content, audience, and purpose of the BRS, StRS, SyRS, and SRS in general.
2. Summarize your experience of creating your BRS and SRS.

Definition from SE VOCAB - **Specification**: detailed formulation, in document form, which provides a definitive description of a system for the purpose of developing or validating the system.

Requirement processes and specifications documents -

Sources - 29148-2018 Sections 7, 8, & 9, SWEBOK Ch. 1 Section 5, Professor Vanselow website https://sites.google.com/site/profvanselow /swebok/software-requirements-ch-1/5-specification

Business Requirements Specifications (BRS) -

- The Business Requirement Specification (BRS) **purpose** is to describe the organization's motivation for why a system is being developed or changed. It defines processes and policies/rules under which the system is used and documents top-level requirements from the stakeholder perspective including expressing the needs of user/operators/maintainers in the context of a specific, precise, and unambiguous manner. The BRS serves as the basis of the stakeholder's active participation in the requirements processes.
- The BRS **content** describes how the organization is pursuing new business or changing the current business in order to fit a new business environment, and how to utilize the system as a means to contribute to the business. The description includes, at the organization level, the organizational environment, goals and objectives, the business model, and the information environment, and, at the business operation level, the business operation model, business operation modes, business operational quality, organizational formation, and concept of the proposed system. Types of requirements included in the BRS are organizational requirements and business requirements. Note, it's important that the business management level actively participates and/or leads the development of the BRS.
- The BRS should be **created** by the business itself, often with a business analyst. The business management should be responsible for the content of the specification.
- The BR's **target audience** is:
    - a business analyst or representative user from the business to review and discuss the business model or operation
    - business management to verify and revise
    - a system analyst to review and discuss potential technical solutions
    - software/systems engineers to create the SyRS and/or SRS

Additional info: Users of the BRS can combine the StRS according to the user's environment. The BRS is sometimes defined as the user requirements document or concept of operations document which records the system requirements. These define the high-level system requirements from the domain perspective just like the BRS. It may include conceptual models designed to illustrate the system context, usage scenarios, and principal domain entities, as well as workflows.

BR's example outline:

```
1. Introduction
        1.1 Business purpose
        1.2 Business scope
        1.3 Business overview
        1.4 Definitions
        1.5 Major stakeholders
2. References
3. Business management requirements
        3.1 Business environment
        3.2 Mission, goals, and objectives
        3.3 Business model
        3.4 Information environment
4. Business operational requirements
        4.1 Business processes
        4.2 Business operational policies and rules
        4.3 Business operational constraints
        4.4 Business operational modes
        4.5 Business operational quality
        4.6 Business structure
5. Preliminary operational concept of proposed system
        5.1 Preliminary operational concept
        5.2 Preliminary operational scenarios
6. Other preliminary life-cycle concepts
        6.1 Preliminary acquisition concept
        6.2 Preliminary deployment concept
        6.3 Preliminary support concept
        6.4 Preliminary retirement concept
7 Project Constraints
8. Appendix
        8.1 Acronyms and abbreviations
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Stakeholder Requirements Specification (StRS) -

- The Stakeholder Requirements Specification (StRS) **purpose** is to describe the organization's motivation for why a system is being developed or changed. It defines processes and policies/rules under which the system is used and documents top-level requirements from the stakeholder perspective including expressing the needs of user/operators/maintainers in the context of a specific, precise, and unambiguous manner. The StRS serves as the basis of the stakeholder's active participation in the requirements processes (Exactly like the BRS). Note: the StRS is often identified with the BRS in many industries.
- The StRS **content** consists of stakeholder requirements such as organizational requirements, business requirements, and user requirements.
- The StRS information should be **created** and specified by the stakeholders. The stakeholders should be responsible for the content of the specification. The contents are specified from the stakeholder's perspective. There is no one optimal organization for all projects.
- The StRS **target audience** is:
    - Stakeholders to review and achieve consensus
    - software/systems engineers to create the SyRS and/or SRS

Additional info: The StRS should be organized such that a consensus of the stakeholders agrees that the organization method aids understanding of the requirements.

StRS example outline:

1. Introduction
      1.1 Stakeholder purpose
      1.2 Stakeholder scope
      1.3 Overview
      1.4 Definitions
      1.5 Stakeholders
2. References
3. Business management requirements
      3.1 Business environment
      3.2 Mission, goals, and objective
      3.3 Business model
      3.4 Information environment
4. System operational requirements
      4.1 System processes
      4.2 System operational policies and rules
      4.3 System operational constraints
      4.4 System operational modes and states
5. User requirements
6. Detailed Life-cycle concepts of proposed system
      6.1 Operational concept
      6.2 Operational scenarios
      6.3 Acquisition concept
      6.4 Deployment concept
      6.5 Support concept
      6.6 Retirement concept
7 Project Constraints
8. Appendix
      8.1 Acronyms and abbreviations

System Requirements Specification (SyRS) -

- The System Requirements Specification (SyRS) **purpose** is to identify the technical requirements for the system-of-interest and for the envisaged human-system interaction. SyRS defines high-level system requirements from the domain perspective, along with background information about the overall objectives for the system. Additionally, a statement of the constraints, assumptions, and non-functional requirements.
- The **purpose** of the SyRS is to provide a description of what the system should do, in terms of the system's interactions or interfaces. It should describe all inputs, outputs, and required relationships between inputs and outputs. A description of what the system's acquirers expect it to do for them, the system's expected environment, the system's usage profile, performance parameters, expected quality and effectiveness, and verification activities
- The SyRS **content** includes conceptual models designed to illustrate the system context, usage scenarios, the principal domain entities, data, information, and workflows. The document should describe all inputs, output, and required relationships between inputs and outputs. It can be represented as a paper document, models, prototypes, other non-paper document representations, or any combination. However, care should be taken to be certain that each of these presentations is traceable to a common source of system requirements information.
- The SyRS should be **created** by a system engineer or software engineer.
- The SyRS **target audience** is:
  - the technical community who will specify and build the system. Needs to be understandable by both the acquirer and the technical community.

Additional info: Generally, process requirements (how to develop or construct the system) should be contained in contract documentation such as a Statement of Work, not in a requirements specification. If included in a specification, they should be clearly identified as process requirements. System requirements specification is a system engineering activity and falls outside the scope of the SWEBOK Guide.

SyRS example outline:

```
1. Introduction
        1.1 System purpose
        1.2 System scope
        1.3 System overview
                1.3.1 System context
                1.3.2 System functions
                1.3.3 User characteristics
        1.4 Definitions
2. References

3. System requirements
        3.1 Functional requirements
        3.2 Usability requirements
        3.3 Performance requirements
        3.4 Interface requirements
                3.4.1 External interface requirements
                3.4.2 Internal interface requirements
        3.5 System operations
        3.6 System modes and states
        3.7 Physical characteristics
        3.8 Environmental conditions
        3.9 Security requirements
        3.10 Information management requirements
        3.11 Policy and regulation requirements
        3.12 System life cycle sustainment requirements
        3.13 Packaging, handling, shipping and transportation
             requirements

4. Verification
        (parallel to subsections in Section 3)
5. Appendices
        5.1 Assumptions and dependencies
        5.2 Acronyms and abbreviations
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Software Requirements Specification (SRS) -

- The Software Requirements Specification (SRS) **purpose** is a specification for a particular software product, program, or set of programs that perform certain functions in a specific environment. The SRS establishes the basis for agreement between customers and contractors or suppliers on what the software product is to do as well as what is not expected.

- The SRS **content** defines all the required capabilities of the specified software product to which it applies, as well as documenting the conditions and constraints under which the software has to perform, and the intended verification approaches for the requirements. Additionally, it permits a rigorous assessment of requirements before design can begin and reduces later redesign.

- The SRS should be **created** by usually a software engineer but could be a technical writer, a systems architect, or a software programmer; one or more representatives of the supplier, one or more representatives of the acquirer, or by both.

- The SR's **target audience** is:
  - stakeholders to review and validate
  - the development team and team managers as a basis for coding
  - quality assurance/testers as a basis for designing tests
  - operations
  - maintenance
  - project consultants

Additional info: The SRS indicates the precedence and criticality of requirements. In SRS natural language is supplemented by formal or semiformal descriptions. The general rule is that notations should be used that allow the requirements to be described as precisely as possible.

SRS example outline:

My experience of creating the BRS and SRS for the BLRB -

My overall experience with creating the BRS was extremely positive. Getting to know Dell Boomi's motivation, values, and principles was interesting as I've never worked with any company to build software. Finding information related to high-level requirements from my main stakeholder (Ed McCarthy) was generally smooth with no hiccups. Identifying the goals and purpose of the system to be built was my main priority but understanding the business scope of work and operational requirements allowed me to create a structure to help me identify boundaries and constraints. Playing the role of a business analyst is extremely important and valuable in the field of software engineering as setting the correct foundation for why the system should be developed will clear and simplify misconceptions.

Although my SRS is not completed yet I can share some of my experience with eliciting and analyzing requirements/system requirements. After creating the BRS and beginning to elicit requirements the project overall started to slow down especially since the Texas winter in (Febuary 2020) did not allow me to elicit requirements as a majority of stakeholders were in Texas (Dell HQ). It took about 2-3 weeks to receive 10 requirements that were somewhat forced with some critical thinking and feedback from my main sponsor. This would lead to continuous back and forth with my sponsor to refine and define requirements/constraints that the BLRB must have. This would lead to the creation of Use case diagrams, Data Flow diagrams, Mockup, and more requirements to create Boomi's Legal Response Bot Requirements Document. This document overviews everything we had done for the BLRB so far, and after some waiting my main sponsor was content with the information provided to what is to be expected of the system. Overall, the building of the SRS or the elicitation and analysis of the requirements to produce a particular software within a specific environment was fun and scary at the same time, as the last thing I would want to do is identify incorrect requirements and build the wrong system.