GIANT

Book of RE Techniques

108 techniques that every requirements engineer should know.

LN Mishra

CPRE, CBAP, CSM, LSBB, SPOC

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About the Author

LN Mishra (LN) has 22+ years of professional experience in software development, requirements analysis, business analysis, governance, risk and compliance management (CMMI, ISO9001, ISO27001, HIPAA and Six-Sigma).

LN is a practicing business analyst for more than 18 years. He was involved in multiple multi-country large ERP implementation projects. He currently consults in development of 2 large systems - one of the largest paint companies in the world to develop their next generation color management system and development of a GRC system. He is also the product manager for an enterprise Governance, Risk and Compliance management system (GRCPerfect) which is operational in multiple client places.
He was involved in one of the world's change management program in PricewaterhouseCoopers, a leading management consulting firm, in one of the largest privatization effort in India for a public sector utility agency.
LN has conducted more than 100 workshops, both public and in house in the areas of Business Analysis, Requirements Management, Agile Project Management, software Project Management, Six Sigma, CMM, ISO 9001 and ISO 27001. He has also guided 30+ six sigma green belt projects in iGate, MACH and Akzo Nobel.

LN holds a Post Graduate Diploma in Management (PGDM) from IIM Ahmedabad, the too-most business management school in India and Bachelor in Engineering (Honours) in Electronics and Telecommunication from University College of Engineering, Burla, India.

Major Awards/Recognitions:

- ✓ Certified Business Analyst Professional (CBAP®) from IIBA, Canada.
- ✓ Certified Requirements Engineering Professional (CPRE) from IREB, Germany.
- ✓ Certified Project Management Professional (PMP) from PMI, USA.
- ✓ Certified Scrum Master from Good Agile, USA.
- ✓ World Topper Certified software Quality Analyst (CSQA), 2000.
- ✓ Certified Lead Auditor for ISO 9001, ISO 27001, ISO 20000 and BS 25999.

LN lives with his wife, Ananya, son, Siddharth and daughter, Saianshee in Bangalore, the IT capital of India.

About Adaptive Processes Consulting

Adaptive Processes is formed with a view to help organizations establish and improve requirements engineering practices.

Our values

Key facts

- ✓ World's most innovative requirements engineering solutions organization.
- ✓ 200+ person-years consulting experience in developing and improving systems based on BABOK, Agile, CMMI, ISO 9K, 27K, 20K, and HIPAA.
- ✓ 200+ Clients across the globe.
- ✓ More than 10 Fortune 500 clients.
- ✓ Successfully conducted 200+ workshops in India, US, Thailand, Philippines, Malaysia.
- ✓ Online sessions for world-wide audiences.
- ✓ 10+ International partners.

Adaptive's strategic partners

Organization Name	Focus	Logo
IREB (International Requirements Engineering Board), Germany www.IREB.org	World's leading certification body for CPRE FL and CPRE AL	IREB International Requirements Engineering Board
IIBA (International Institute of Business Analysis), Canada www.iiba.org	World's leading body on Business Analysis.	IIBA Endorsed Education Provider
SCRUMstudy, USA www.scrumstudy.com	Best in scrum certification and Agile certification.	SCRUMstudy Registered Education Provider

1. Introduction

1.1. Why this book?

As I have been practicing requirements engineering for close to 20 years, I have come across many tools that requirements engineers use while conducting requirements engineering activities.

I decided to compile all the tools that I came across and find useful.

Hopefully this can serve as a good guidebook for both new and experienced requirements engineer.

If you come across any new technique that you find useful during requirements engineering, do write to me. I will include the same in my book.

1.2. Other sources of requirements engineering information

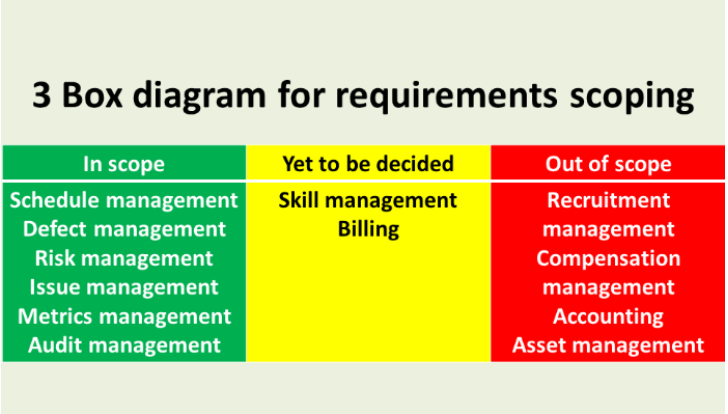
1. Syllabus for CPRE Foundation Level examination, IREB, Germany
2. A Guide to Business Analysis Body of Knowledge v2.0. International Institute of Business Analysis. Toronto: IIBA, 2009. PDF and EBook.
3. A Guide to Business Analysis Body of Knowledge v3.0. International Institute of Business Analysis. Toronto: IIBA, 2009. PDF and EBook.
4. Project Management Institute, Project Business Analysis Guide.
5. Business Analysis, Debra and Paul, British Computer Society.
6. CMMI for Development, Carnegie Mellon University.
7. ISO 9001:2008 from ISO.
8. System Engineering Body of Knowledge, IEEE.
9. Enterprise architecture (including Zachman Framework for Enterprise architecture™, and TOGAF™).
10. Governance, and Compliance Frameworks, including Sarbanes-Oxley, Basel II, and others.
11. IT Service Management (including ITIL).
12. Rupp, Klaus Pohl and Chris. A Study Guide for the Certified Professional for Requirements Engineering Exam Foundation Level 2nd Edition. Rocky Nook Inc., 2015. Kindle and Paperback.
13. Podeswa, Howard. The Business Analyst's Handbook. Boston: Course Technology, 2009.

14. UML for the IT Business Analyst, Second Edition. Boston: Course Technology, 2010.
15. James Cadle, Debra Paul and Paul Turner. Business Analysis Techniques. Chippenham: British Informatics Society Limited, 2010.

2. 3 bucket technique for requirements scoping

3 bucket technique is a very simple technique to put requirements into 3 buckets. The 3 buckets are:

1. Green bucket - Items in scope
2. Yellow bucket - Items about which it is not clear whether they are in scope or not
3. Red bucket - Items out of scope



Advantages

✓ Simple visual technique.

Disadvantages

✓ None.

3. 6356 technique

6356 is a simple and structured brainstorming technique. In this technique, each participant is asked to generate 3 ideas every 5 minutes. The session is carried out for 30 minutes.

Choose	Every	Each participant gives	Repeat this process for
6	5	3	6
Participants	Minutes	Ideas	times

Advantages

- ✓ Generates 100+ ideas in just 30 minutes time.

Disadvantages

- ✓ None.

4. Acceptance criteria

Acceptance criteria describe minimal set of requirements to be met for a solution to be worth implementing. Typically used when only one possible solution is being evaluated, and expressed as pass or fail. Evaluation criteria are set of requirements used to choose between multiple solutions options, solutions or solution components. This allows for a range of possible scores.

Scoring is the process of determining how well a solution meets a requirement. Business analyst must establish a scale for scoring each requirement, and define multiple possible scoring levels. Stakeholders must agree on the criteria, and how solutions will be rated against them. Ranking is the process of determining the order of importance for all requirements using MoSCoW technique. Acceptance and evaluation criteria must be testable.

Advantages

- ✓ Agile methodologies require requirements to be expressed as testable acceptance criteria.
- ✓ Necessary when requirements express contractual obligations.

Disadvantages

- χ May express contractual obligations, and difficult to change for legal or political reasons.

5. Active listening

Communication is very vital activity for BAs. Listening as a skill is extremely important for business analysis. Most often we hear, rather than listen. When we hear, we are not fully immersed in the conversation and tend to lose vital information being communicated from stakeholders. Active listening is listening with all senses.

Active listening involves:

1. Paying undivided attention to the speaker,
2. Suspending all judgment about what is being heard,

3. Asking questions when something is not clear without creating conflicts,
4. Paraphrasing back what is discussed,
5. Do a check on implicit requirements.

Advantages

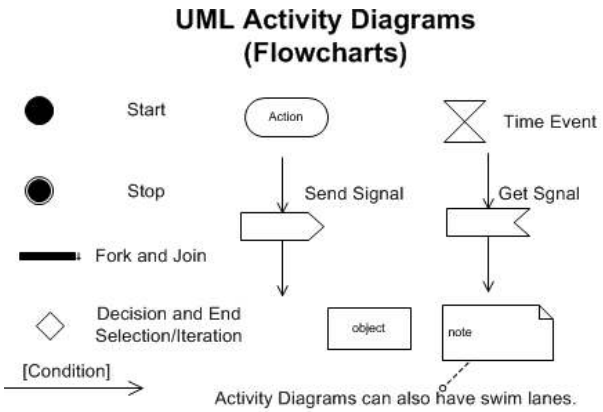
✓ Reduces communication gap significantly.

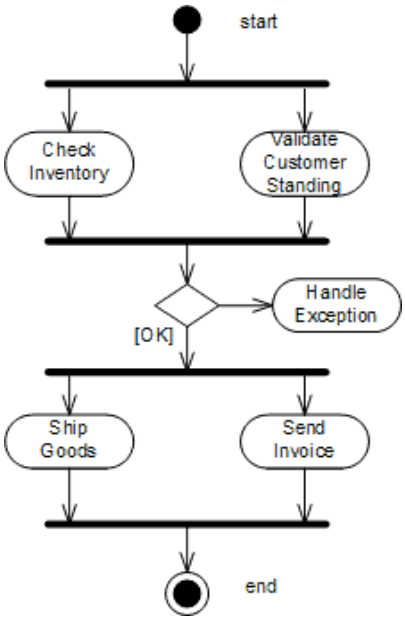
Dis-advantages

χ None.

6. Activity diagrams

UML activity diagrams model action sequences.





Action nodes

Action nodes execute an action. Start nodes initiate execution of activity diagram. End nodes represent termination of activity diagram.

Control flows, object flows, responsibilities

Alternative control flows in activity diagrams are achieved through use of decision nodes. Synchronization bars depict concurrent execution of control flows.

Swim lanes are informal modeling where activities are placed along the lines of roles / actors responsible.

Advantages

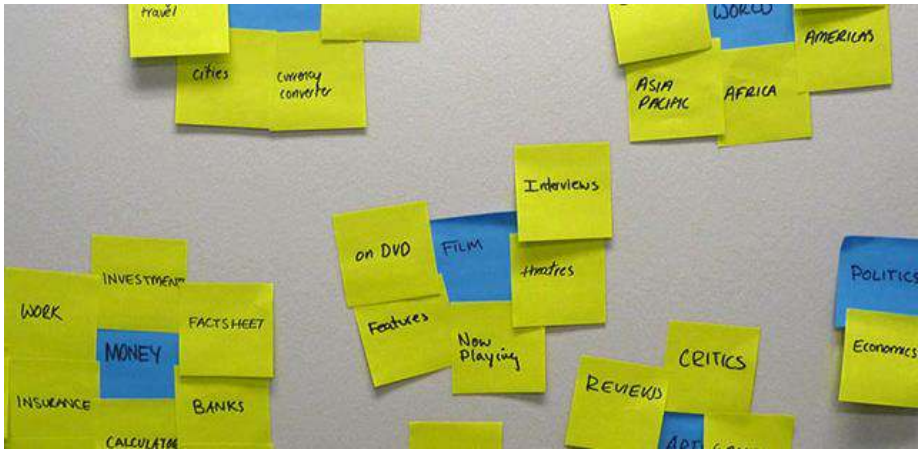
✓ Provides clarity on actions carried out in a process.

Dis-advantages

χ None.

7. Affinity diagram

Affinity diagrams cluster categories and subcategories of ideas that have an affinity to each other. Affinity diagrams are useful for generating common themes when faced with number of unorganized findings.



Advantages

- ✓ Helps to connect related issues of a problem or opportunity.
- ✓ Helps to understand root causes and possible solutions to problems.
- ✓ Helps in generating necessary capabilities to address a problem or opportunity.
- ✓ Prevents any one person from having undue influence on the outcome.

Disadvantages

- χ None.

8. Apprenticing

During apprenticing, requirements engineers collect requirements by becoming an apprentice in the stakeholder's work environment. This is useful for

- ✓ Documenting details about current processes.
- ✓ When the project's objective is to enhance or change a current process.

Steps for apprenticing

Prepare for apprentice

1. Determine activities to apprentice.
2. Identify a mentor for apprenticeship.

Learn

1. Learn safety aspects
2. Learn the process.

Be the apprentice

1. Execute tasks under mentor's guidance.
2. Record requirements.

Review requirements

1. Provide a summary of notes to the stakeholders, as soon as possible, for review, and any clarifications.
2. Review findings with the entire group to validate requirements.

Advantages

- ✓ Provides realistic, and practical insight into business processes.
- ✓ Elicits details of informal communication.

✓ Identify workarounds which may not be documented.

Disadvantages

χ Possible for existing processes only.

χ Time-consuming.

9. Audio and video recordings

Audio and video recordings are helpful to preserve discussions for future reference. Take approval of stakeholders prior to recording the discussions.

Many internet based screen sharing software allow recording of the discussions.

Advantages

✓ Helps in reviewing requirements in future.

Disadvantages

χ Needs additional resources.

χ Some stakeholders may not like the discussions to be recoded.

10. Baselining

A baseline is a set of approved configuration items at a specific period of times.

Configuration items within a baseline are not modified further without a change in their version numbers.

Baselines are hence read only copies for the team.

Advantages

✓ Helps to ensure build stable versions of the solution.

Disadvantages

χ None.