

Workshop Tools for Filtering Using The Sieve Collaboration Pattern

Reference Chapter 9 in *Requirements by Collaboration* by Ellen Gottesdiener, Addison-Wesley, 2002.

The following list describes tools that can help you filter user requirements. Some of these tools are listed in the section “The Sieve,” which describes a collaboration pattern that is useful for filtering requirements (or any set of items). References are listed in the book’s Bibliography. Remember: After you apply any of these tools in a workshop, use the group’s decision-making process to reach closure.

| Tool | Predefined prioritization and ranking scales |
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| Brief Description | Scales or schemes for evaluating options defined by a standards body or another organization. Examples include IEEE (essential, conditional, optional); DuBLIN (definitely have, better have, like to have, not have); MoSCoW (must, should, could, won’t); high, medium, low; critical, important, useful. |
| Uses and Tips | Use for prioritizing and ranking scope-level or high-level user requirements such as events, use cases, and business policies. Write a precise definition of each element in the scale, send it with the agenda, and review it before applying. |
| Further Reference | (IEEE, 1998; Stapleton, 1997) |

| Tool | Multivoting |
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| Brief Description | A technique for taking several votes on a list of items in which participants are given a fixed number of choices each time they vote. You then distribute the number of votes using a predetermined method such as <ul style="list-style-type: none">• N/3 (total number of items on the list divided by 3)• N/3 +1• Cast five draws• Choose all you like |
| Uses and Tips | Use for selecting items from a long list. Participants can use dots or checkmarks to indicate votes. Before voting, establish rules about the maximum number of votes allowed per item and conduct a brief discussion about each item. Take multiple passes at the list. Optionally, use colored dots for prioritizing the votes. |
| Further Reference | (Bens, 2000; Kearny, 1995) |

| Tool | Cost-risk-value matrix |
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| Brief Description | An analytic method of assigning relative priorities to a set of requirements based on the attributes cost, risk, and value. Depending on the software product you're building, risk can involve human life, regulatory exposure, technical risks, or risks associated with organizational or industry change. Value includes the potential income from the software or benefits gained from operational efficiencies. |
| Uses and Tips | As you uncover your requirements, assign these attributes to each one. For example, in a use case requirements workshop, review the assignments, adjust them as needed, and then use the rankings to formally prioritize the requirements. |
| Further Reference | (Wiegers, 1999) For a spreadsheet to help you use this techniques, see "Requirements Prioritization Worksheet" provided by Karl Wiegers, the technique's author: http://www.processimpact.com/goodies.shtml#reqs |

| Tool | Voice of the customer |
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| Brief Description | A technique within the quality function deployment (QFD) methodology that categorizes customer needs as <i>expectors</i> (characteristics taken for granted by customers that would disappoint them if not present), <i>unspoken</i> s (characteristics not stated by the customers but that would upset them if not present), <i>spoken</i> s (normal requirements customers will tell you about), or <i>delighters</i> (requirements that are exciting to the customer but would have little adverse effect if they were not present). |
| Uses and Tips | Use both for generating and for analyzing requirements such as use cases. |
| Further Reference | (Cohen, 1995; Pardee, 1996) |

| Tool | \$100 test |
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| Brief Description | A variant QFD matrix that metaphorically allows customers and users to spend money on requirements. Customers and users must distribute \$100 among requirements such as a list of use cases. The total amount for each requirement is summed, and an importance weighting is assigned (the total dollars spent by all participants divided by the number of participants). |
| Uses and Tips | Use to allow customers and users to “put their money where their mouth is.” Key customers and users must be present. Follow up with discussion or a formal ranking scheme. This approach ranks only importance. Other benefits or barriers, such as market demand, technical difficulty, architectural dependency, or project risk, are not included and should also be analyzed. Customers can write dollar amounts on the matrix posted on the wall, or tack play money into the matrix. |
| Further Reference | n/a |

| Tool | Nominal group technique |
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| Brief Description | A technique that integrates anonymous polling for both generating and selecting items in a group. In the selection portion, participants privately rank their choices. Each then explains her rankings; each speaker has the same amount of time, and there is no discussion or debate. This is followed by a second round of private ranking, after which preferences are recorded and weighted. |
| Uses and Tips | Use when one or a few items must be selected in priority order, the choices are well understood, and there are participants at different levels in the organization whose decisions are equally needed. |
| Further Reference | (Bens, 2000; Ritter and Brassard, 1994) |

| Tool | Pairwise prioritization matrix |
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| Brief Description | A matrix for comparing each option in a long list; participants evaluate them in pairs until all the choices are reviewed. This results in individual as well as group rank-ordered lists. |
| Uses and Tips | Use to help participants to assess each option individually against another; useful for ranking a list of six or more items. A variation is to take a second pass as a whole group after individual scores are tallied and shared. |
| Further Reference | (Kearny, 1995) |

| Tool | Criteria grid |
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| Brief Description | A matrix is created that allows participants to rate options against an agreed-upon list of criteria. Examples of criteria are as follows: the impact on an organization's objectives, the benefit to customer service goals, the effect on organizational change, the effect on utilization of resources, and the time to implement. Participants use numeric ranking scales for each option. |
| Uses and Tips | <p>A criteria grid is useful when the group has a set of clear and agreed-upon criteria, when one or a few items in priority order must be selected, and when participants like to use analytical tools and have sufficient knowledge of the choices. Agree upon and clearly define each criterion and the ranking scales before using the grid. Use a short list of criteria (three to five). A variation is to use an <i>x</i> in the cell to indicate whether the option meets the criteria rather than a numerical scale.</p> <p>Complex variations of multi-criteria grids borrow from decision analysis and decision modeling methodologies and require the separation of benefits and costs and then their integration after each of the options is weighted separately.</p> |
| Further Reference | (Bens, 2000; Kearney, 1995; Ritter and Brassard, 1994) |

| Tool | Weighted criteria grid |
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| Brief Description | A variation of the criteria grid in which each of the criteria is assigned a weight. This permits options that satisfy more important criteria to be prioritized higher. For example, criteria such as "speed to implement" might be twice as important as the other criteria, so ranking for that criteria would be multiplied by 2. |
| Uses and Tips | Use whole numbers for weights, such as 1, 2, or 4. Items with a weight of 2 are twice as important as those with a weight of 1, and those with a weight of 4 are twice as important as those with a weight of 2. |
| Further Reference | (Bens, 2000) |

| Tool | Effort-Impact grid |
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| Brief Description | A grid for plotting choices along gradients of effort and impact. |
| Uses and Tips | Use when the top criteria are effort and impact and there are a small number of items to consider. It can also be used to determine which |

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| | projects to undertake first. Decide beforehand how you will treat each quadrant of the grid. For example, options that are easy to do and have maximum impact would be prioritized highest, those that are difficult to do and have minimum impact are eliminated, items that are easy but with minimum impact are prioritized to be implemented as resources allow, and items that are difficult to do but have a high impact are selected for detailed action planning in a follow-up workshop. |
| Further Reference | (Bens, 2000, Grove Consultants, 1994) |

| Tool | Portfolio matrix |
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| Brief Description | A matrix with four sections in which participants map items along a lifecycle metaphor—sow, grow, harvest, and plow—to help decide where to allocate resources. For example, the “plow” category means that the option needs to be eliminated and resources reallocated to other choices. “Plow” might have criteria such as not aligned with vision, uses critical resources, and fails to generate sufficient customer justification. |
| Uses and Tips | Use for reallocating user requirements to match strategies, analyzing current resource allocation, or prioritizing projects. Clarify each life cycle’s meaning and determine its criteria before applying them to the options. |
| Further Reference | (Grove Consultants, 1997) |

| Tool | Ask why five times |
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| Brief Description | A directed thinking technique for understanding the root cause of something such as a goal, need, or want. For each item, such as a use case and its related requirements, ask, “Why do you need this?” Participants respond, and then you ask “why?” to each answer successively until you have asked “why?” five times. |
| Uses and Tips | Be sure that each requirement is well understood before using this technique; ideally, direct users (and not surrogate users) participate. When the last question yields an answer that directly relates to a project’s goals and objectives, that requirement should be prioritized higher than others that less directly promote goals and objectives. |
| Further Reference | n/a |