• Capture knowledge in a simple and straightforward way
• Leverage lessons learned to quickly drill down on a small set of integration options
• Identify potential challenges early

Alternative and recurring design options
- Patterns
- Styles
- Data management solutions
- Combinations of COTS products

Desired properties and outcomes
- Quality goals and non-functional properties
- Integrated system capabilities
- Required features

Design options and outcomes tailored for different organizations and domains
- Health care information systems
- Enterprise databases
- Intelligence and sensor fusion

Relationships between options and outcomes
- A concise symbol (+/-) or rank (1 – 10)
- A link to textual explanation of the relationship (rationale and past experiences)

Constructing an Integration Matrix
- Define design options and solutions that recur often in the given domain or organization
- Define general or domain-specific properties of interest
- Establish the effect of a design option on a property of interest
- Capture rationale/knowledge

Using an Integration Matrix
- Determine the primary properties of the planned integration
- Summarize the positives/negatives
- Eliminate low-value design options
- Weigh tradeoffs between high-value options, while using the documented rationale, knowledge, and prior experience

Example: Integration Styles
http://softarch.usc.edu/wiki/doku.php?id=integration_style_table:start

<table>
<thead>
<tr>
<th>Integration Styles vs. Properties</th>
<th>Topology</th>
<th>Linkage</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hub and Spoke</td>
<td>Secure</td>
<td>Data intensive</td>
<td>Data consistency</td>
</tr>
<tr>
<td>Shared Bus</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Shared Data</td>
<td>-</td>
<td>+</td>
<td>-</td>
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<td>Data streaming</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Adapter</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Arbitrator</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

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