Assessing Architectural Significance

A Lightweight Approach

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Presenter: Jim Hosey
Co-Authors: Dan Hughes, Ben Sommer

Strategic thinking.
Practical application.

Abstract

Knowing when and where to engage an architect is a critical factor in successfully managing an IT portfolio, particularly in organizations where architects are scarce – and often expensive – resources. Many times it is clear which projects would benefit from the participation of an architect; in other cases, the decision is not so obvious. In these not-so-obvious cases, a structured means of assessing a project's architectural significance is key. This instructional session presents a lightweight, flexible set of techniques and guidelines for assessing the architectural significance of a project to aid in determining when to engage an architect. Using real-world examples, we will demonstrate these techniques and their application, and will explore how they can be tailored to fit IT organizations of different sizes and with various portfolio mixes.

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Agenda

- The Challenge
- Decision Making
- The Deliverable
- The Method – Converting Art to Science
  - Identifying Attributes
  - Using Rubrics to Score Attributes
  - Visualizing Architectural Significance
- Assessment Case Study
- Tips and Guidelines
- Tailoring the Method

The Challenge

- There never seem to be enough architects to cover all the projects
- Without a defined decision-making process, the squeaky wheel gets the grease
- The impact and value of an architect diminishes as the architect juggles too many projects
- Knowing which projects to support can be art more than science

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The Most Important Architecture Decision…

- So, if you can't cover them all:
  - Which projects you cover is as important as
  - What you do to "cover" them

- Assuming you have a great process for the latter… let's talk about the former!

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A Brief Word on Decision Making

"Although every man believes that his decisions and resolutions involve the most multifarious factors, in reality they are mere oscillation between flight and longing."

- Hermann Broch (1886 - 1951), Austrian Writer

- Without a defined decision-making process, most decisions result from personal bias (although not necessarily consciously)
- The framework you choose isn't as important as the fact that you have one

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The Deliverable

- An architectural assessment, or “brief,” that includes:
  - A distillation of the project business case or vision document for IT management
  - A scorecard and visual chart of the architectural significance
  - A narrative summary of the architectural impact

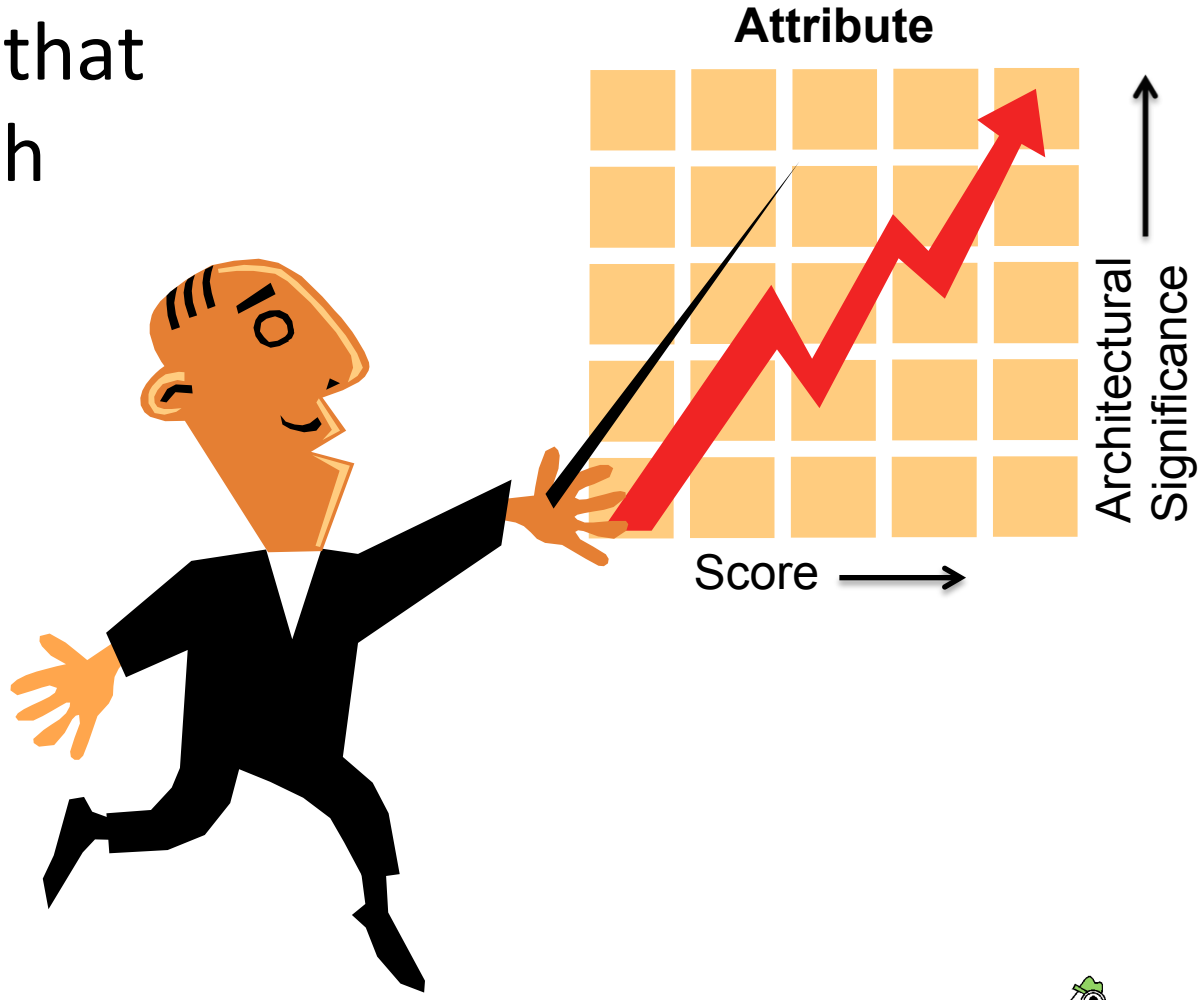
The Method

or… "Converting Art to Science"

1. Identify attributes of a project that can be measured.
2. Determine which of these attributes indicate architectural significance.
3. Define rubrics for each non-numeric attribute.
4. Approach with a scorecard methodology.
5. Package the scorecard with a cogent analysis.

But… Where Do I Start?

Find attributes that correspond with architectural significance



Identifying Attributes

- Look for attributes that:
  - Can be gleaned in project scoping
  - Indicate architectural significance
- Some can be measured numerically; others will require leveraging rubrics to assign a numeric score
- There is unavoidable interplay and overlap between attributes
- Different organizations will have different attributes

Common Attributes

- Usual Suspects
  - ROI
  - Cost (Implementation, Ongoing, TCO)
  - Strategic Value
  - Risk
- Sources of Attributes
  - Existing organizational metrics
  - Organizational / IT pain points
  - Unsuccessful or otherwise painful projects
    - Which attributes, in hindsight, would have alerted you early to future challenges?

Attributes of Interest

Attribute	Description
Strategic Technical Value	A measure of the value of the solution to the overall technology strategy of the enterprise.
Total Cost	An approximate measure of the total cost of the solution.
Complexity	A measure of the technical complexity of the solution.
Enterprise Impact	A measure of the overall impact of the solution on the functioning enterprise.
Criticality	A measure of the tactical necessity of the solution to the overall business.
Vendor Involvement	A measure of the impact or influence that third-party vendors have on the solution.

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Strategic Technical Value

Description

Overall value to advance the enterprise strategy. Solutions that provide incremental growth towards a particular goal are more valuable than tactical solutions that solve a particular problem without added benefits. Assign higher values to solutions which provide extensive technical benefits to the enterprise.

Measures

- Does the solution realize an enterprise architecture strategic target?
- Is it an incremental step in a strategic direction? (Incremental steps are less valuable than full realization of the target strategy.)
- Does the solution improve the quality or availability of mission-critical systems?
- Does the solution introduce new infrastructure that will be harnessed by future solutions?
- Does the solution provide an incremental benefit to existing architecture – such as providing new reusable services, increased security, etc.?
- Does the solution provide benefits to development speed or quality? (e.g., Does it establish a new solution framework or reference architecture?)

Total Cost

Description
An early estimate of “order-of-magnitude” technology cost for the project. It is a very low-fidelity estimate that is made in the absence of project details. While not always the case, a good rule of thumb is that a project spending more money can likely help/ hurt the enterprise more than one spending less.
Measures
If a project has an established budget, using that budget number is acceptable although it is important for enterprise architects to perform a reasonableness (“sanity”) check against that budget. Expected cost overruns or large savings should be communicated to project management and sponsors.

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Complexity

Description
Complexity is a measure of the technical complexity of the solution. The more complicated a solution, the more likely it will require architecture guidance and governance.

Measures
• Is this a new type of solution or is it following an existing reference architecture? • How many different technical components are being integrated? • How many technology teams are involved? • Does the solution have significant network (e.g., bandwidth, topology) implications? • Is the solution required to handle very high volumes of data or transactions? • Does the solution involve communications with external applications or services? • Is there development complexity or risk (e.g., due to a complex user interface or algorithmic complexity)? • Do the teams involved have experience with this type of implementation?

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Enterprise Impact

Description
Measuring the impact on the enterprise requires the enterprise architect to consider how the solution impacts the functioning enterprise/organization. Solutions that impact any of the areas listed below should be scored higher than others. Solutions with large enterprise impacts should be governed architecturally to ensure the impact is as positive as possible.
Measures
• How many channels, departments, employees, LOBs are affected? • Are major new infrastructure components being introduced? • Are changes/integrations required with a large numbers of systems? • Is the solution modifying enterprise-critical business processes? • Is the solution changing enterprise-critical data stores?

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Criticality

Description
Criticality measures the tactical necessity of a solution across both the business and technology domains. The more critical the success of the project is to the overall enterprise, the higher the score.

Measures
• Has the solution been identified as a high priority by executive management? • Does the solution address regulatory compliance or existing issues that could lead to fines or restrict future business growth? • Is the solution a critical revenue driver? • Has the solution been identified as crucial for the organization's survival?

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Vendor Involvement

Description

The overall impact of external vendors on the solution (assumes that external vendors should be governed more closely than internal resources). Solutions that do not involve external vendors or that use commoditized vendor components should receive the lowest scores. Solutions that involve one or more vendor components with engineering services receive higher marks.

Measures

- The more critical the component is to the solution in this situation, the higher the score. Solutions that are contracted out to third-party implementers should receive the highest scores.
- How many vendors are engaged for this solution?
- How critical are the vendor components being provided?
- Are the components commodity or custom-developed?
- Are vendor components mature and typically deployed in a solution of this type?
- Has the organization worked successfully with these vendors before?

Leveraging Rubrics

- A rubric is “an assessment tool for communicating expectations of quality”
- Allows qualitative factors to be measured quantitatively by assigning qualitative factors to a quantitative scale
- In turn, we can map a qualitative observation to a numeric score
- Attempts to turn some of the “art” into “science” (but not foolproof!)

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Sample Rubric (Art Project)

Grade	Quality Description
A	Planned carefully, made several sketches, and showed an awareness of the elements and principles of design; chose color scheme carefully, used space effectively.
B	The artwork shows that the student applied the principles of design while using one or more elements effectively; showed an awareness of filling the space adequately.
C	The student did the assignment adequately, yet it shows lack of planning and little evidence that an overall composition was planned.
D	The assignment was completed and turned in, but showed little evidence of any understanding of the elements and principles of art; no evidence of planning.
F	The student did the minimum or the artwork was never completed.

Sample Rubric (Architecture)

Vendor Implementation Impact	
Score	Quality Description
0	An external party is not involved in the implementation.
1	The product vendor will be implementing their product.
3	An implementation partner of the product vendor will be implementing a vendor product.
6	A external party not associated with the product vendor will be implementing a vendor product.
8	Multiple external parties will be involved in implementing one or more vendor solutions.
10	An external vendor will be custom developing this solution.

We are assessing significance. So, a higher score needs to indicate more architectural significance.

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Ok, attributes and rubrics! Now what?

Once you've defined your attributes and determined how you will score them, it's time to:

- Gather attribute data from existing information sources
- Assess the project based on your attributes and scoring method
- Visualize and summarize

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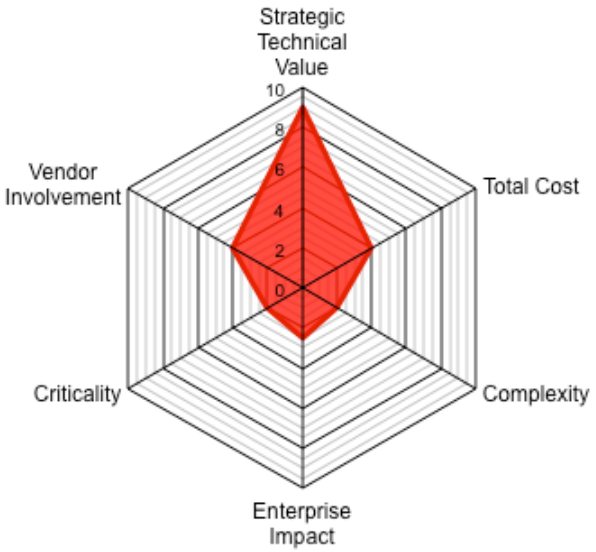
What is a Radar Chart?

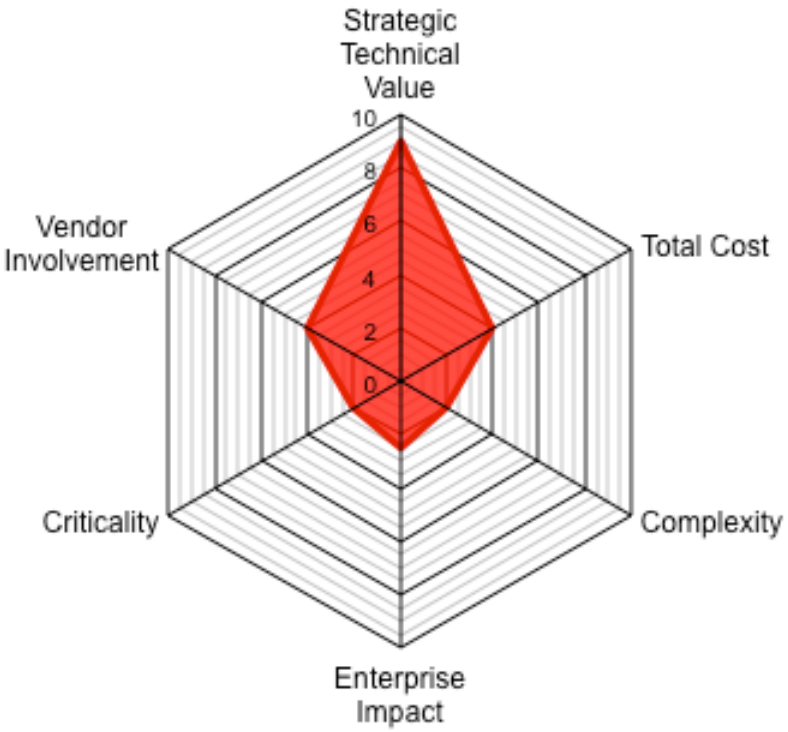
Also known as: web chart, spider chart, star chart, star plot, cobweb chart, irregular polygon, polar chart, or kiviat diagram

- Radar charts are a useful way to display multivariate observations
- Coloring area inside data points results in overall visual indicator
- Individual plots display attribute magnitude and outliers



Sample Scorecard/Chart

Attribute	Score
Strategic Technical Value	9.0
Total Cost	4.0
Complexity	2.0
Enterprise Impact	2.5
Criticality	2.0
Vendor Involvement	4.0
TOTAL SCORE	**23.5**



The scorecard does not stand alone; instead, it is delivered as part of the architectural "brief."

Where Do I Get The Data?

Information Sources

- Project Requests
- Vision Documents
- Business Cases
- Draft Requirement Documents

Stakeholders

- Project Manager
- Program Manager
- Business Analyst
- Business Sponsor

Some Process Notes

- Recommend producing as early as possible / practical in the lifecycle. However:
  - The method is lightweight (and relevant) enough to be used at any point as needed
  - It can be refined as more is learned about the project
- Provides opportunity for relationship-building with project stakeholders
  - A good way to establish a dialog with executives / business sponsors
  - Useful for demonstrating the value of architecture in your organization
- The information gathered can assist stakeholders even if architecture team decides not to engage

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Case Study

The Company	*Massive Insurer, Inc.*
The Product	*EzeWorkflow*
The Project	New to you!
The Task	Assess the Architectural Significance

Case Study

To: james.hosey@sysflow.com
Subject: EzeWorkflow

Jim,

Help! This EzeWorkflow project just hit my desk and I need to know if it's something we should spend any time on.

EzeWorkflow is a workflow automation platform that is being implemented in the claims processing area.

Regards,
Dan

Chief Information Officer
Massive Insurer, Inc.

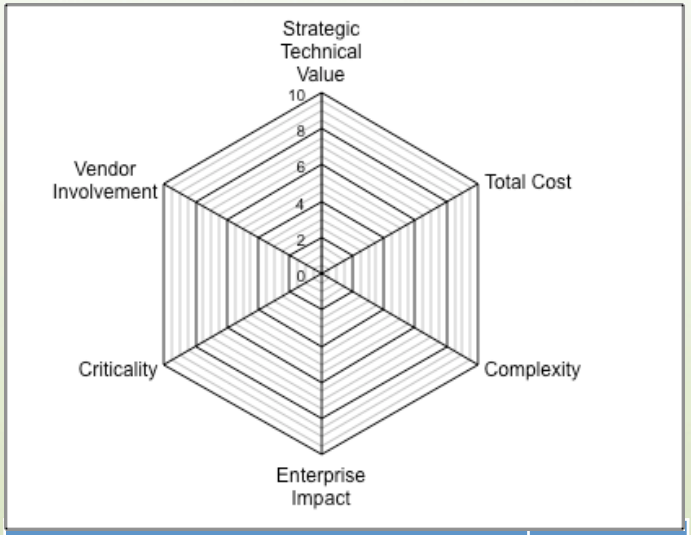
Attribute	Score
Strategic Technical Value	
Total Cost	
Complexity	
Enterprise Impact	
Criticality	
Vendor Involvement	

Case Study

Strategic Technical Value	Score
Realizes a strategic target	4.0
Closes gap in IT support for critical business processes	1.0
Creates an architectural foundation for future solutions	2.0
Improves IT capability to deliver	2.0
Total Strategic Value	**9.0**

In this case study, we know that workflow automation is a known gap in the strategic IT portfolio.

The project proposes to roll out a shared environment for workflow, focusing first on claims.



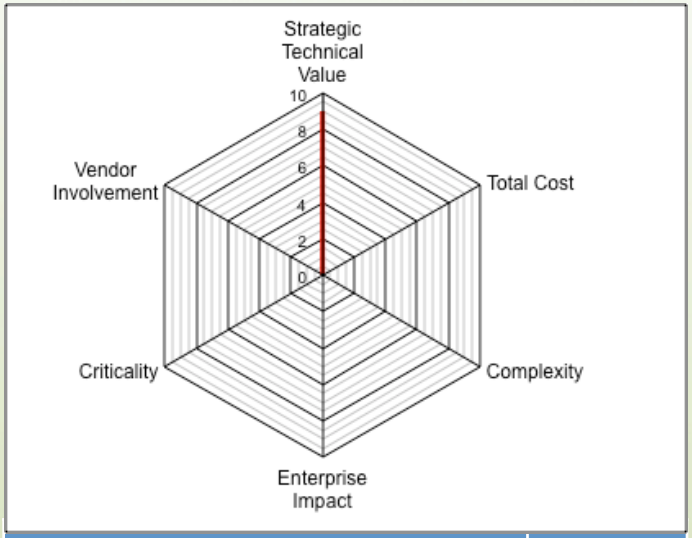
Attribute	Score
Strategic Technical Value	?
Total Cost	?
Complexity	?
Enterprise Impact	?
Criticality	?
Vendor Involvement	?

Case Study

Cost		Score
At least	**But less than**	
$0	$50K	1.0
$50K	$500K	2.0
$500K	$1M	4.0
$1M	$5M	8.0
$5M	$10M	10.0
$10M		*

* Off the chart – gets support!!

We've incorporated typical project costs, annual portfolio budget, and staffing levels into our Cost Scale above. In this particular case, the Eze implementation is estimated to cost between $500K and $1M.

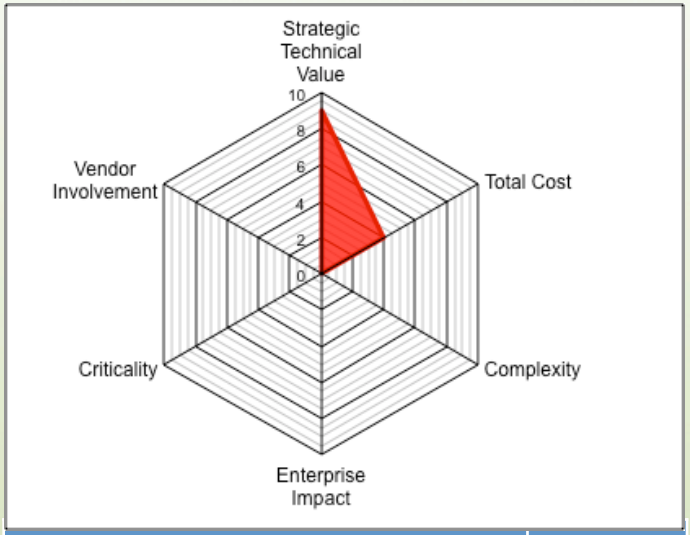


Attribute	Score
Strategic Technical Value	9.0
Total Cost	?
Complexity	?
Enterprise Impact	?
Criticality	?
Vendor Involvement	?

Case Study

Complexity	Score
New solution	1.0
Solution architecture	0.0
Solution integrations	1.0
Infrastructure complexity	0.0
Significant volume or size requirements	0.0
Total Complexity	**2.0**

EzeWorkflow is a mostly "self-contained" application that integrates with external systems using industry-standard protocols. Claims will not require many integrations.

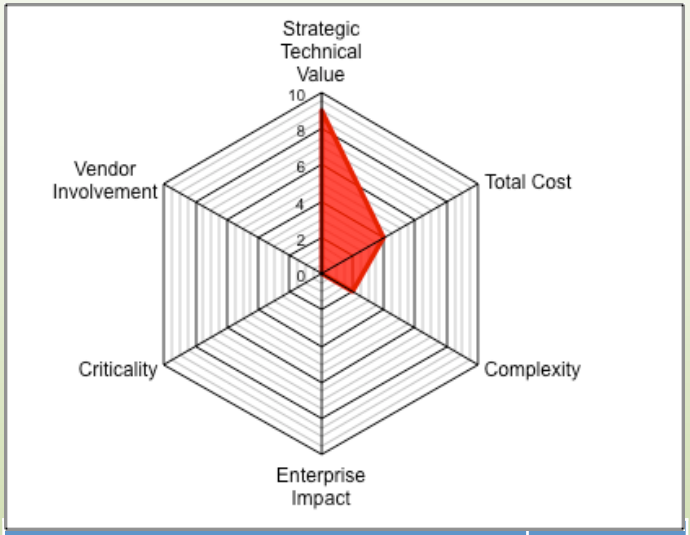


Attribute	Score
Strategic Technical Value	9.0
Total Cost	4.0
Complexity	?
Enterprise Impact	?
Criticality	?
Vendor Involvement	?

Case Study

Enterprise Impact	Score
Customer- or public-facing	0.5
Multiple channels, departments, LOBs impacted	1.0
Large number of systems changes	0.0
Impacts critical business processes	1.0
Impacts critical enterprise data stores	0.0
Total Enterprise Impact	**2.5**

Customers will fax claims to the system, which will then be used by multiple internal departments to process each claim. Claims processing is our core business.

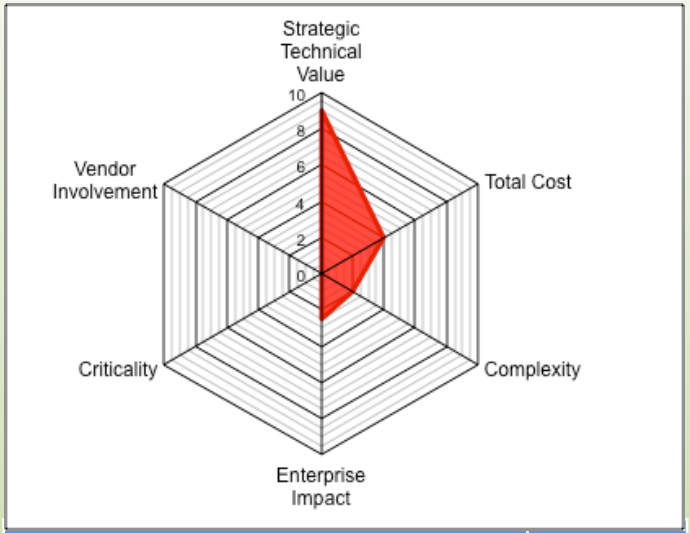


Attribute	Score
Strategic Technical Value	9.0
Total Cost	4.0
Complexity	2.0
Enterprise Impact	?
Criticality	?
Vendor Involvement	?

Case Study

Criticality	Score
Executive mandate	0.0
Regulatory	0.0
Critical revenue driver	0.0
Critical expense reduction	2.0
Total Criticality	**2.0**

The only criticality indicator in the business case points to an expense reduction (e.g., headcount) being sought this year.

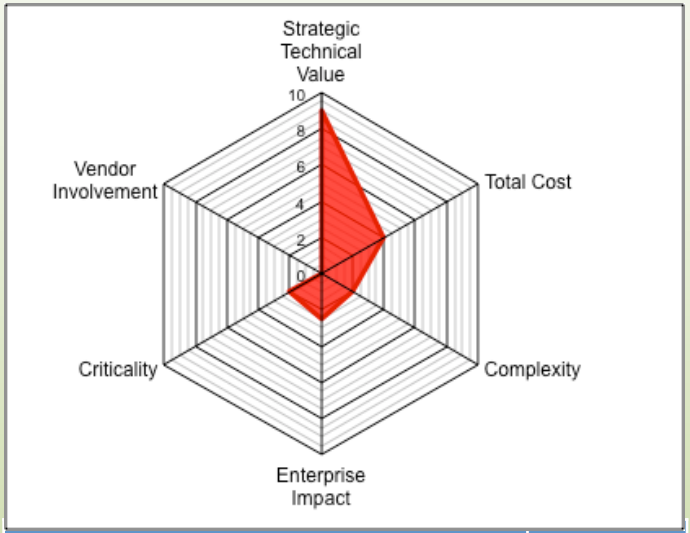


Attribute	Score
Strategic Technical Value	9.0
Total Cost	4.0
Complexity	2.0
Enterprise Impact	2.5
Criticality	?
Vendor Involvement	?

Case Study

Vendor Involvement	Score
Third-party Implementer	2.0
New third-party components	2.0
Atypical or new deployment of vendor solution	0.0
Third-party custom development	0.0
Total Vendor Involvement	**4.0**

EzeWorkflow is being implemented by one of their implementation partners. It has been implemented at other insurers for processing claims.



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Case Study

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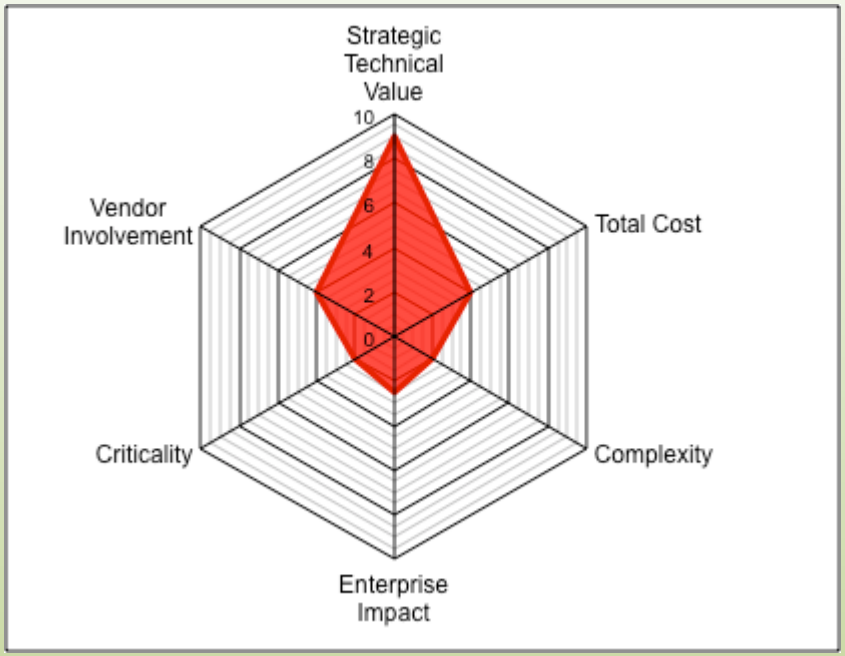

What this chart means depends on what the charts for other projects in your portfolio look like. In general, though, the project doesn't seem very significant aside from the Strategic Technical Value.

Interpreting the Results

or… "Lies, Damned Lies, and Statistics"

- With great power comes great responsibility
- The scorecard is an attempt to quantify as much as possible
- However, the assessment still requires the judgment of an (experienced) architect
  - Ideally one experienced with the organization's strategy, goals, drivers, culture, etc.
- How to interpret:
  - On its own
  - Against a similar project
  - Against your organization's portfolio
  - Evaluation improves over time with additional data

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Tailoring/Extending the Method

- Scoring method
  - Attribute selection, granularity, weighting
  - Rubrics and how they are applied
  - Aggregated vs. dimensional scoring
- Visual representation
  - Bar charts
  - Scatter plots
  - Infographics (e.g., Harvey Balls, heat maps, etc.)
  - Incorporate baselines, norms, or heuristics
- Feeding back – harvesting scorecard data is key to improving assessment quality over time
- Same techniques apply to application, solution, or enterprise architecture – a matter of defining your scope

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Closing Thoughts

- There is still plenty of “art” to the method
- The tighter the guardrails (scoring method), the more rigorous it becomes. But…
- Strike the right balance to avoid over-analysis
- The analysis itself is valuable and worth the time investment:
  - Improves visibility of portfolio
  - Enhances relationships with business, projects
  - Can form the basis of a knowledge repository

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Questions?

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References

More information on this topic from Systems Flow:

- http://www.sysflow.com/publications/
- http://www.sysflow.com/blog/investigative-architecture/

Wikipedia article on Radar Charts and their use:

- http://en.wikipedia.org/wiki/Radar_chart

More about us, as well as additional articles:

- http://www.sysflow.com/author/james.hosey/
- http://www.sysflow.com/author/daniel.hughes/
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Systems Flow helps organizations dramatically improve their competitive advantage through the practical, effective application of best practices in enterprise architecture and software development.

Investigative Architecture is the term we coined in 2008 for our approach that facilitates the rapid assessment and documentation of "as-is" and proposed IT architectures. We developed this Investigative Architecture approach a decade ago in support of our enterprise and solution architecture consulting services.

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Thank You!

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