

ESIP TRL Evaluation Form Final Recommendations

John Graybeal
Graybeal.SKI Consulting

for

ESIP Federation
Products and Services Committee

Special Thanks: Erin & Annie

Product

docs.google.com/spreadsheets/d/1trb-1Lszz_TXzE0xWCIQMleNjimpvmVtv

TRL Evaluation Structure ☆

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive

Comments Share

Ctrl Cmd Undo Redo Bold Italic Underline Text Color Fill Color Border Background Color Conditional Formatting Filter Sort

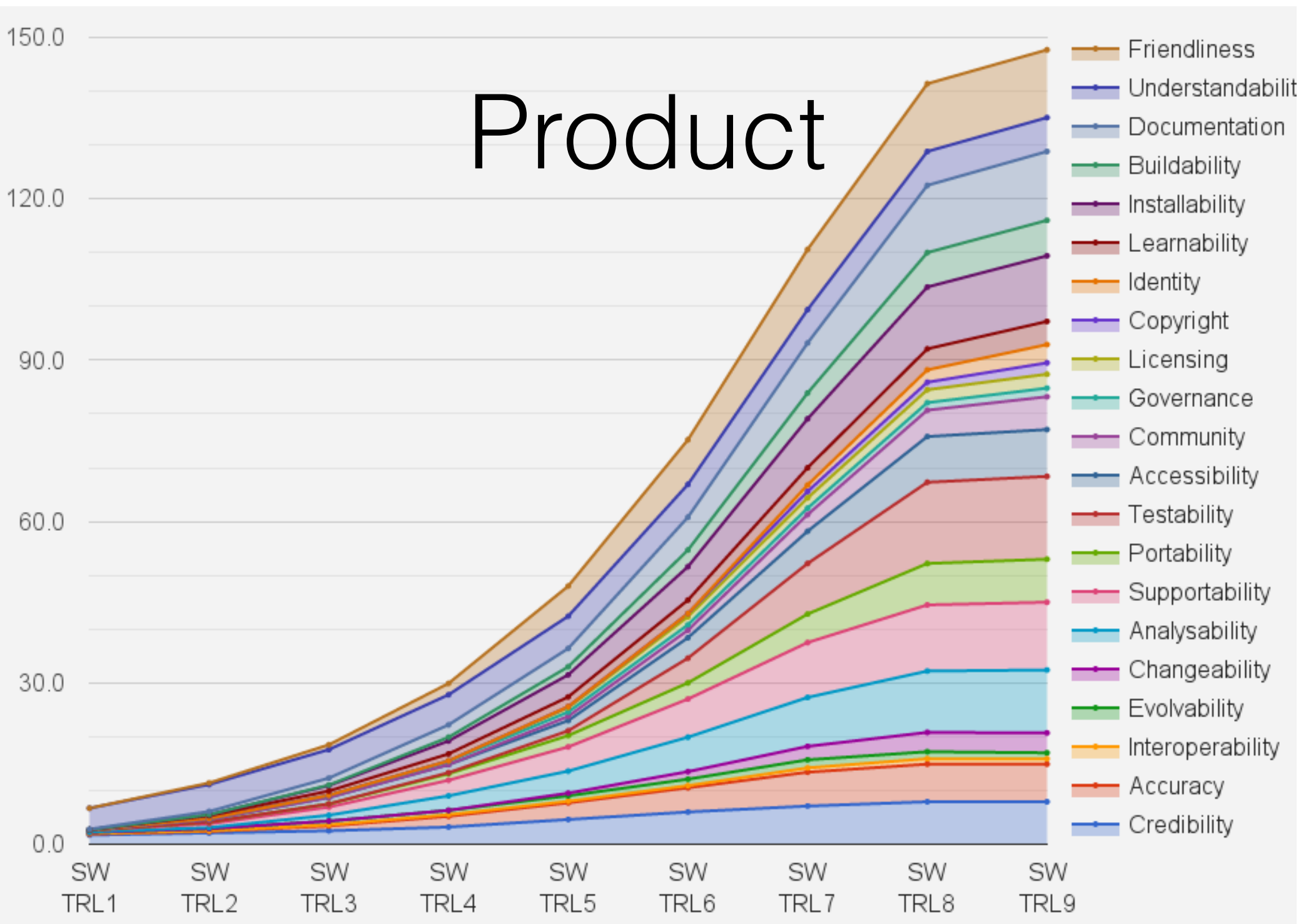
	A	B	D	E	F	G	H
1	TRL Evaluation Structure	Version 1.0.1	Enter TRL Level to Evaluate >>	TRL9	Filter	0%	<< % RANKING (100% = Perfect score)
2	Criteria Questions	Get Help	SUM TOTALS >>		147.7	0.0	
3	Group	Category	Criteria Question	Your Rating	TRL Weight	Weighted Rating	Evaluator Comments
18	Usability	Understandability	High-level description of what/who the product is for is available.		1.0	0.0	
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23	Usability	Understandability	Descriptions of intended use cases are available.		0.8	0.0	
24	Usability	Understandability	Case studies of use are available.		0.5	0.0	
25			Category Summary Rating (max 100%): 0%		6.3 (max)	0.0	
26	Usability	Documentation	Provides a high-level overview of the product.		1.0	0.0	
27	Usability	Documentation	Partitioned into sections for users, user-developers and developers (depending on the software).		0.5	0.0	
28	Usability	Documentation	States assumed background and expertise of the reader, for each class of user.		0.4	0.0	
29	Usability	Documentation	Lists resources for further information.		0.6	0.0	
30	Usability	Documentation	Further information is suitable for the level of the reader, for each class of user.		0.5	0.0	
31	Usability	Documentation	Is task-oriented or objective-oriented.		0.6	0.0	
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33	Usability	Documentation	Gives examples of what the user can see at each step, e.g., screen shots or command-line excerpts; installation outcomes; working examples and error examples.		0.5	0.0	

Criteria Questions Evaluation Criteria Summary TRL Levels Help

Sum: 30040%

Explore

Product



Product

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Criteria Questions Get Help SUM TOTALS >> 147.7 0.0

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line item weights

Criteria Questions Evaluation Criteria Summary TRL Levels Help

Sum: 30040%

Explore

Product

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Callouts in the image:

- "line item ratings" points to the "Your Rating" column.
- "line item weights" points to the "TRL Weight" column.

Product

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TRL Evaluation Structure Version 1.0.1

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Comments Share

TRL Evaluation Structure Version 1.0.1

Criteria Questions [Get Help](#)

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line item ratings

line item weights

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auto-calc for TRL level

line item ratings

line item weights

line item comments

Product

The image shows a Google Sheets spreadsheet titled "TRL Evaluation Structure" with several callouts explaining its features:

- auto-calc for TRL level:** A callout pointing to the "Enter TRL Level to Evaluate >>" input field in row 1, column E.
- page (TRL) average:** A callout pointing to the "0%" value in row 1, column G, which represents the overall ranking percentage.
- line item ratings:** A callout pointing to the "Your Rating" column (column E) for individual criteria questions.
- line item weights:** A callout pointing to the "TRL Weight" column (column F) for individual criteria questions.
- line item comments:** A callout pointing to the "Evaluator Comments" column (column H) for individual criteria questions.

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TRL Evaluation Structure

File Edit View Insert Format Data Tools Add-ons Help

auto-calc for TRL level

page (TRL) average

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line item ratings

line item weights

line item comments

category average

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- line item comments**: Points to the "Evaluator Comments" column (H) for individual criteria.
- category average**: Points to the "Category Summary Rating (max 100%): 0%" in row 25.
- category summaries**: Points to the "Evaluation Criteria Summary" tab at the bottom.

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Product Features

- item ratings: binary (0/1), normalized (0.0 to 1.0), or positive value (>0.0)
- TRL-dependent line item weightings
- category summaries
- page and category averages
- line item and instance-wide comments
- instant re-calculation for different TRL levels

Recommendations

TRL Evaluation Structure		
File Edit View Insert Format Data Tools		
Arial		
	A	B
1	TRL Evaluation Structure	Version 1.0.1
2	Criteria Questions	Get Help
3	Group	Category Crit
18	Usability	Understandability Hig

General: Product



- Identifier/summary metadata for each instance
- User documentation: local to form? include sources
- Developer documentation: create and reference
- Minor usability issues:
 - lock code to prevent user overwrite
 - auto-update based on TRL changes

General: Process

- Leverage opportunities for customization!
 - Customer: evaluation manager has the ball
 - ESIP: evaluate customization process
- Let project experts pre-enter technical information
- ★ Save all completed customizations and instances
 - Find unimportant or uncompleted criteria
- Minor usability: lock fixed cells, TRL -> autoupdate

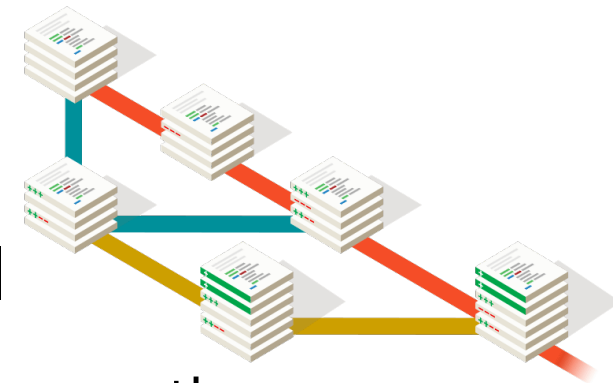
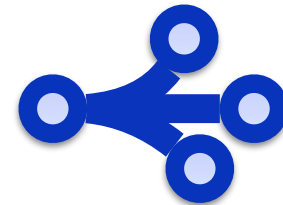
TRL Weight
1.0
1.0
1.0



General: Maintenance



- Improve processes for version control
 - Track/document template changes over time
 - Track/document changes for an evaluation cycle
- System development over time
 - For now, keep evaluation template to 1 document
 - In long term, may be best converted to software



Software Evaluation

- Timeliness: Update to reflect current practices
- ★ • Checklist size: Keep detail, but add 'short form'
- Validation: Evaluate criteria against other standards
- Software classes: Customize for each class?
 - *Desktop apps, web services, infrastructures*

Other Evaluation Types

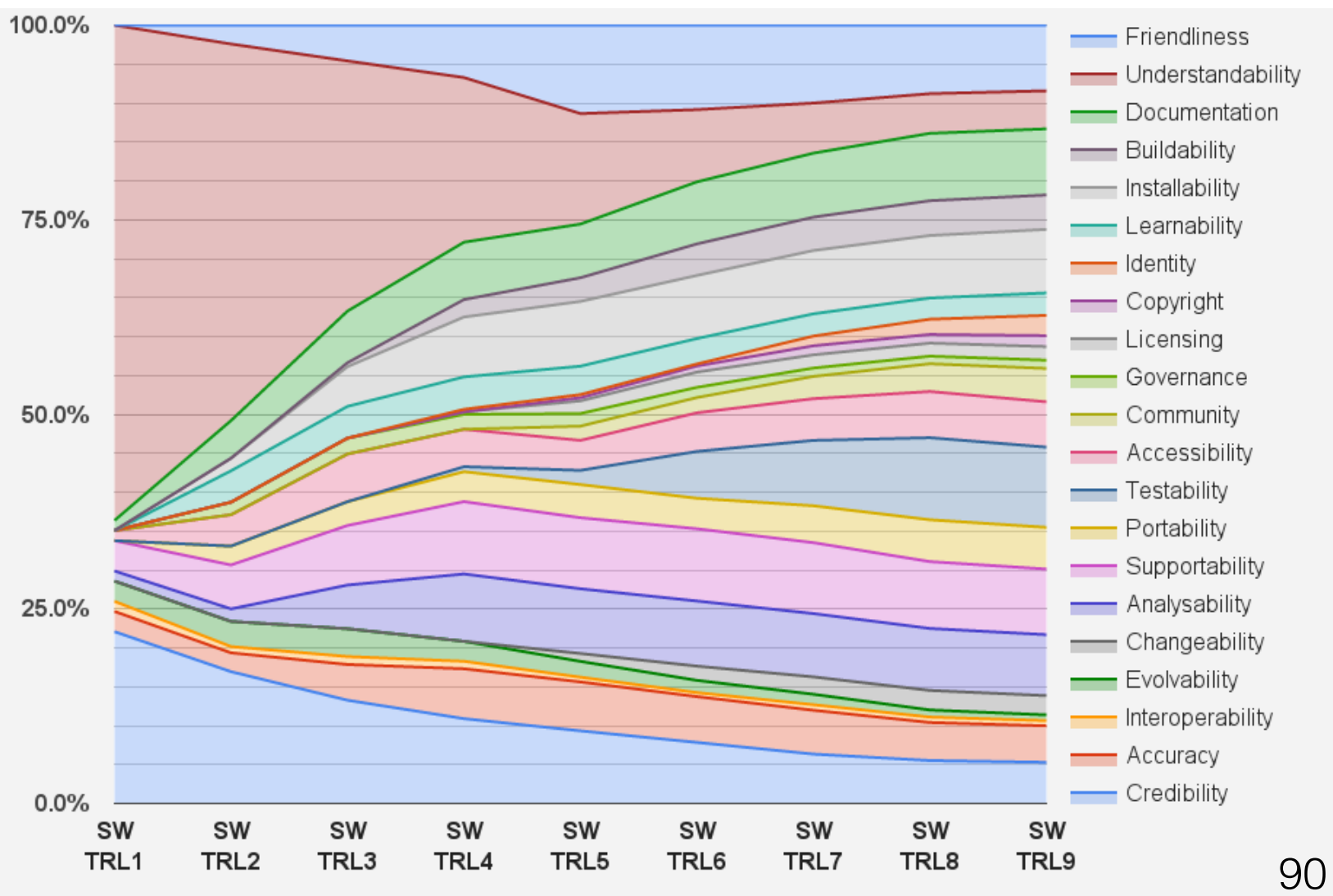
- Status: Re-weighted existing criteria for these artifacts
- Data Sets: harder to capture mix of types, opinions
 - Metadata guidelines could dominate criteria
 - Recommend: Finding existing checklists
- Knowledge Artifacts: hardest to capture
 - Many recent publications on ontology evaluation
 - Recommend: Wait for specific evaluation request
- ★ • Overall: ESIP teams as knowledge aggregators?

Potential Applications

- ★ • providing a basis for discussing project evaluation or deliverable requirements with clients
- ★ • creating project readiness/progress evaluation criteria for managers
 - tracking a project's lifetime technology readiness levels
- ★ • providing long-term aggregation of projects' results
 - enabling technology maturity evaluation services
 - providing an up-to-date summary of best practices

Technology Evaluation Framework Conclusions

- ★ • The TEF has been an extremely useful prototype.
- ★ • The TEF has many existing and future applications.
 - TEF needs improving, especially as usage grows.



% Category Weight at Each TRL

(Cumulative Values)

Total Category Weight at Each TRL

