ISWC 2025 RESOURCES TRACK: quality attribute checklists for specific resource types

Focus of the Resources Track

Papers describing *resources*: high-quality information artifacts that are reusable in novel contexts. They include, but are not limited to:

- Datasets and knowledge graphs
- Ontologies, vocabularies and ontology design patterns
- Evaluation benchmarks or methods
- Protocols and metrics for experiments

- Reusable software and services
- Services and APIs
- Community-shared software frameworks
- Crowdsourcing task designs
- Educational material

Quality criteria of resources

When considering the general quality criteria valid for all kinds of resources (impact, reusability, technical quality and availability), both **authors** and **reviewers** may benefit from **checklists** of typical quality attributes of the different types of resources, by the experience from the previous editions of the Resources Track. The following slides present such **fine-tuned checklists** for one or groups of resource type at a time (for such resources there has been sufficient experience with; *protocols* and *metrics* are not covered)

Datasets and knowledge graphs

- The resource is easy to access and query
- The model used to represent the data is clear
- The methodology to produce or acquire the data is sound
- For synthetic datasets:
  - The data generator is scalable
  - The data capture important characteristics of the equivalent real-world data
- For annotated datasets:
  - The assumptions behind the annotations are sufficiently described
  - The methodology used for producing the annotations is sound
- For knowledge graphs:
  - The ontology/vocabulary used to represent the data is clear
  - The dataset provide a significant coverage of the domain it targets and it can be meaningfully used for real world applications and/or for supporting scientific experiments

Ontologies, vocabularies and Ontology Design Patterns (ODP)

- Methodological soundness
- Clarity of the domain and requirements being addressed by the ontology, vocabulary or ODP
- The resource is sufficiently general to be interesting for reuse (better: there is evidence of reuse in a number of independent resources)
- Clarity of modelling problems encountered
- Soundness of modelling choices and motivations including validation of SPARQL queries over possible evaluation scenarios
- High quality design: e.g. no hacks and workarounds, no redundancy
- Logical correctness: e.g. logical consistency, correct use of the modelling language primitives
- Meaningful and motivated reuse of other resources
- Reuse of ontology design patterns, if applicable (e.g. specialisation)
- Limits and advantages of the resource are clearly explained
- Validation in a real use case
- Quality of the resource documentation: rich annotations accompany and are included in the resource e.g. competency questions, rdfs:comment, reports, guidelines.
- Alignment to existing, relevantly related and widely used resources, if applicable. Or sound and convincing comparison with them

Software frameworks

- The framework differs from existing ones that cover similar requirements and the difference addresses relevant requirements
- Quality and performance of the tool/system. Papers should include a clear evaluation of the performance of the tool/system according to relevant measures such as speed, usability, efficiency, etc.
- The service is well documented to enable use, e.g. availability of tutorials, code snippets
- For prototypes:
    - The chosen abstractions are useful and likely to generalize to other problems
    - Complexity of the implemented functionalities: the framework allows others to save significant coding effort
- For services/APIs:
    - The functionality of the service is clear and important features of the service are published
    - Relevant metrics about the service are provided, e.g. uptime of the service, service levels
    - The API is documented in a machine processable way
- For community-shared software: e.g. active mailing list, issue trackers, can be used by others

Crowdsourced tasks and designs

- The crowdsourced task is clearly described and sound

- If the task is composed of more than one task, the workflow (sequence of tasks involved) is described and related designs and code are provided
- The task(s) template(s) design is clearly explained and the code available for reuse
- The setting for the crowdsourcing platform is provided: number of workers, restrictions, etc.
- Generality of the template to be applied to different data
- The template is easy to adapt to other platforms or data formats

- Sample of input data and result data is provided or alternatively, if data are not shareable, comprehensive examples and explanations
- Limits or potential weak points are pointed out

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Benchmarking, evaluation methodologies, and metrics

- The benchmark measures something significant, it is it relevant and sufficiently general
- The proposed performance metrics are sufficiently broad and relevant
- The tasks are well motivated in terms of testing the system or mimicking real-world scenarios
- The scale of the dataset used in the evaluation is appropriate for the task
- It differs significantly from existing benchmarks developed for similar purposes and the difference addresses a relevant shortcoming
- Others can use the data and software of the benchmark
- The benchmark has been run on at least three different systems (not variants of the same system)
- The coverage of systems is reasonable and a suitable baseline has been provided
- Sufficient experimental details are provided to enable interpretation of the results and replication of the experiments (e.g. software version numbers, hardware details)
- Good experimental protocols have been followed (e.g. warm-up periods, multiple runs, standard errors reported)
- The results are discussed and explained sufficiently

Educational material

- The resource is accessible for all students and not just practitioners of the Semantic Web field.
- Learning objectives are clear
- All semantic artifacts are comprehensively documented.
- High quality of content (considers all the aspects pertaining to the topic)
- Innovative, Uniqueness, Timely, Open (the material is unique and currently not available through other resources/books/tutorials)

Disclaimer

Adapted by Angelo Salatino and Cogan Shimizu from the 2023 edition slides.

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