# The European Research Council
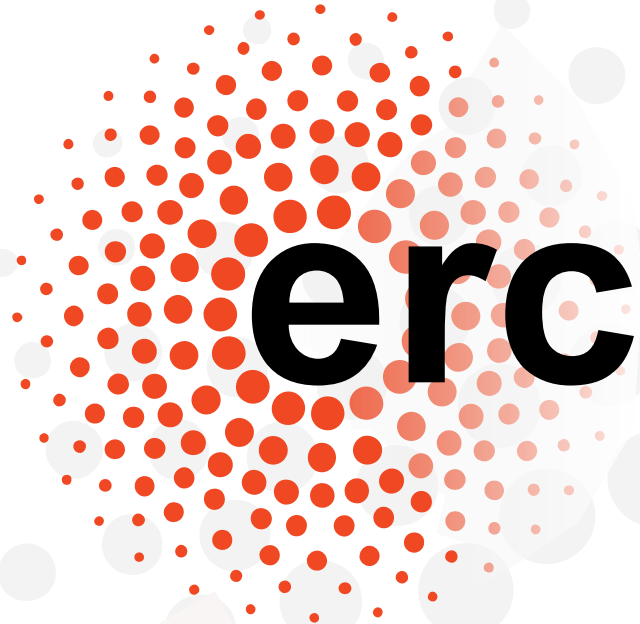
**Diego Chialva**

ERC Executive Agency, Unit A1

**DINGO: an ontology for projects and funding in the Science Knowledge Graph(s)**

**25 August 2020**

# Outline

**DINGO (Data INtegration for Grants Ontology)**

- Motivations and targeted practical problems

- Design approach and specific features

- Main elements and documentation

- Uptake and use

# Why? And why for SKG(s)?

**This workshop is dedicated to SKGs, quoting from the webpage:**
*"SKGs focus on the scholarly domain and describe the actors (e.g., authors, organizations), the documents (e.g., publications, patents), and the research knowledge (e.g., research topics, tasks, technologies) in this space as well as their reciprocal relationships."*

**But academic research (=scholarly) data involve many more dimensions, stakeholders and complexity, across multiple societal levels and strata**

**One dimension not named above is the one of funding and funding policies**

**And yet funding and research policies are one of the most impactful moments where stakeholders meet**

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# DINGO: practical motivations and issues

Integrating these data and being able to model them and make them easily parsable, processable and interpretable is demanded more and more:

◆ Funding bodies → asked to report, assess and justify their activities and the impact of their funding policies and funded research

◆ Researchers → asked to prove that they comply with policy requirements

◆ Portions of the public → getting distrustful of scientific research, demanding for revision/changes in funding, which needs to be evidence-based

◆ Research practices → under scrutiny (reproducibility, open access policies, ….) and need to be accounted for in policies

◆ New societal and world issues/goals (greener practices, inclusive practices, ….) → impact on research and funding processes and policies, which need benchmarking

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# DINGO and SKGs to answer specific data-related problematic aspects

**Problematic features demand proper models & conceptualisations**

A multiplicity of stakeholders and questions

Huge variety of practices and terminology in research but even more in funding and its policies

Relationships between data form complex networks

Data comes from different sources, actors, with different licenses

Necessary collecting and processing large amount of data

# Aims, goals, main features

**DINGO (http://w3id.org/dingo): a machine readable, extensible, interoperable ontology framework to model data on projects, grants, funding policies and related concepts**

A number of new features compared to the few related existing ontologies (FRAPO, CERIF):

◆ Covers knowledge areas of interest at large (=academy+others, example: funders)

◆ Conceptualises funding policies

◆ Balances modelling power to cope with the extreme variety of research and funding practices, policies, practical use cases while maintaining sufficient power and granularity to allow actual analysis

◆ Interoperability/integration from inception with existing large graphs/ conceptualisations (Wikipedia, Schema.org….), and other ontologies

◆ Augmentable modelling power by extension, also via the use of "hook properties"

◆ Allows ID's mapping

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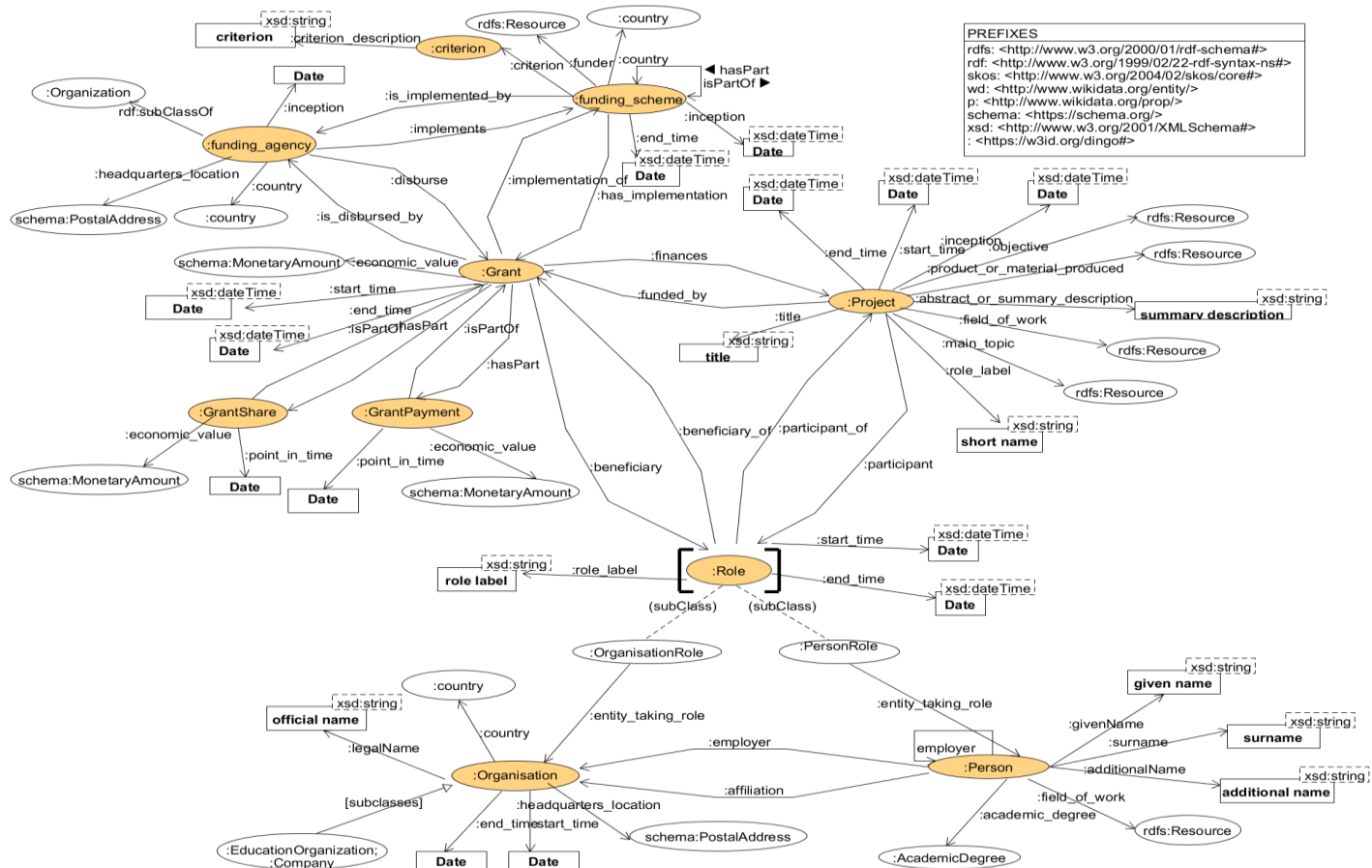
# DINGO: design and approach

- Modelling extreme variety of practices/policies/use cases while maintaining sufficient power/granularity → DINGO combines features of upper ontology and domain ontology[a]

  → can be used to model data from areas beside research where funding is relevant

- Variety of data → design mixing middle-out and bottom-up approaches (with testing on a number of datasets)

- Semantic clarification of terminology used by different stakeholders with overlapping or contrasting connotations and denotations (examples: "funding scheme/program/action", "project")

[a] Guarino N. (1997) https://doi.org/10.1007/3-540-63438-X_8

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# The DINGO ontology graph (main entities)



PREFIXES
rdfs: <http://www.w3.org/2000/01/rdf-schema#>
rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
skos: <http://www.w3.org/2004/02/skos/core#>
wd: <http://www.wikidata.org/entity/>
p: <http://www.wikidata.org/prop/>
schema: <https://schema.org/>
xsd: <http://www.w3.org/2001/XMLSchema#>
: <https://w3id.org/dingo#>

# Community uptake and use of DINGO

Beside the activities at the ERC and Commission:

◆ the OpenAire LOD service hosts the European Commission H2020 and FP7 data for grants and related organisations, modeled using the DINGO ontology

◆ DINGO is the basis of Schema.org categories for funding and research projects [*https://schema.org/docs/releases.html*]

◆ used as ingredient of the Crossref schema for the GRANT-ID initiative

# Documentation

Documentation, serialisation and namespace at

(http://w3id.org/dingo)

# Thank you for your attention!