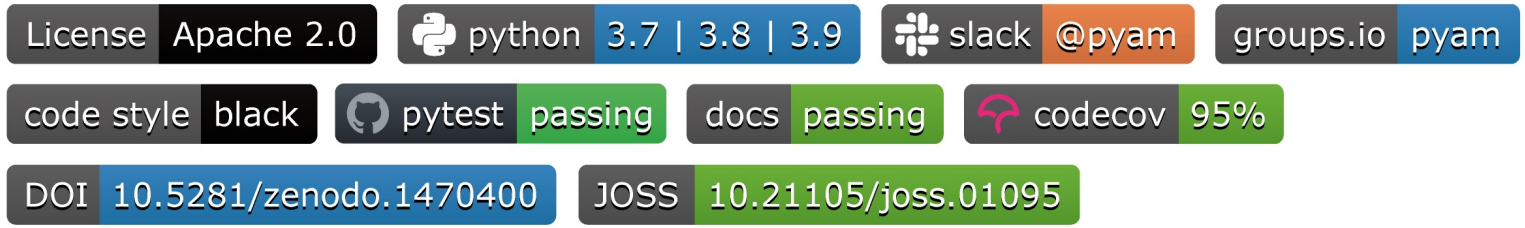
IAMC
Integrated Assessment Modeling Consortium
Founded 2007

The *pyam* package
An open-source Python package for analysis & visualisation of integrated assessment and macro-energy scenarios

Daniel Huppmann, Matthew Gidden, Zebedee Nicholls, Jonas Hörsch, Robin Lamboll,
Paul Natsuo Kishimoto, Thorsten Burandt, and many others



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Motivation – the workflow from model to insight

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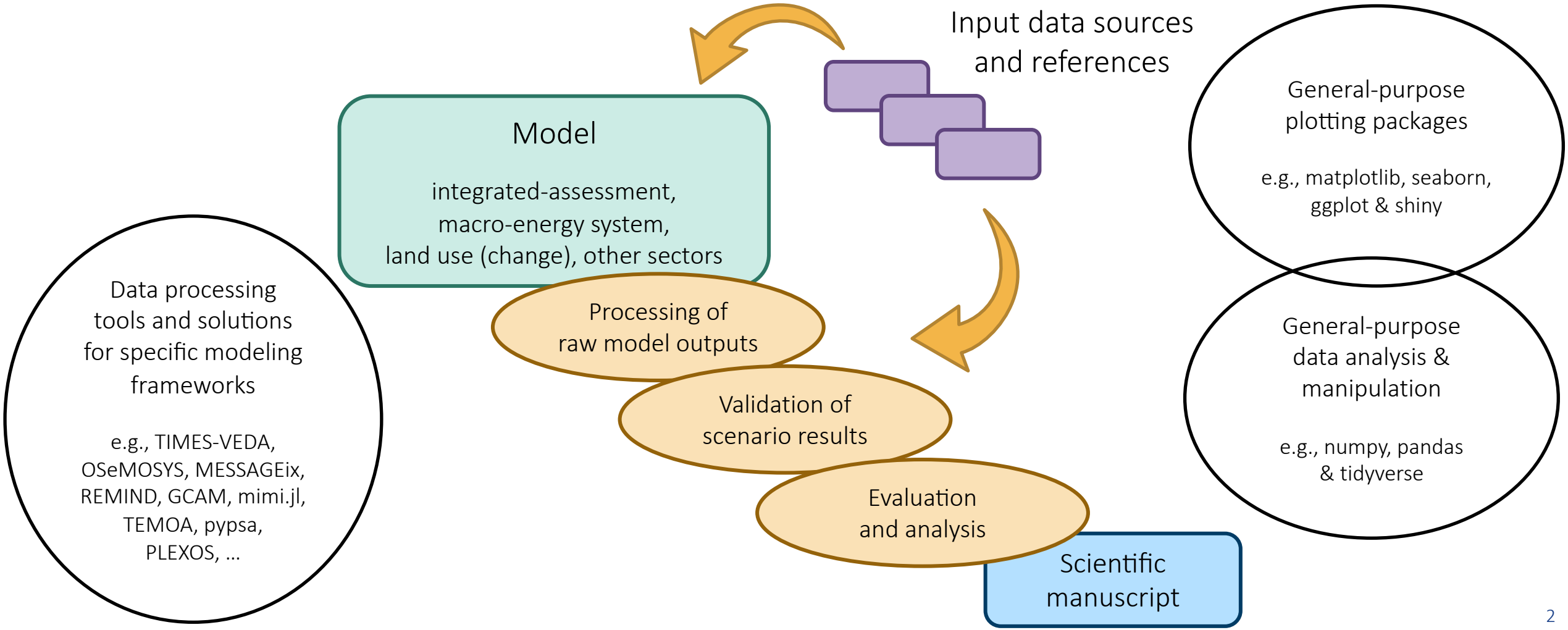
There are numerous tools for data processing & scenario analysis, but most solutions are either "hard-wired" to a model or general-purpose packages



Supported data models and file formats

The package supports various formats & types of timeseries data and is currently used by more than a dozen modelling teams

Supported timeseries data formats:

The *pyam* package was initially developed to work with the *IAMC template*, a tabular format for yearly timeseries data

	A	B	C	D	E	F	G	H
1	**Model**	**Scenario**	**Region**	**Variable**	**Unit**	**2005**	**2010**	**2015**
2	MESSAGE	CD-LINKS 400	World	Primary Energy	EJ/y	462.5	500.7	...

But the package also supports sub-annual time resolution

⇒ Continuous-time formats (e.g., hourly timeseries data)

⇒ Representative sub-annual timeslices (e.g., "winter-night")

Compatible i/o and file formats:

⇒ Full integration with the *pandas* data analysis package

⇒ Tabular data (`xlsx`, `csv`) & "frictionless" datapackage format

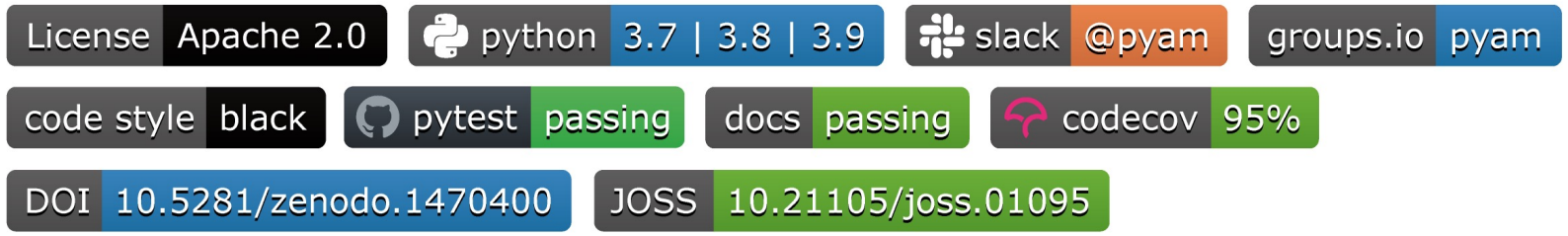
The *pyam* package for integrated assessment & macro-energy modelling

A community package for scenario processing, analysis & visualization following best practice of collaborative scientific software development

Use cases and features

- ⇒ Data processing — Data i/o & file format conversion, aggregation, downscaling, unit conversion, …
- ⇒ Validation — Checks for completeness of data, internal/external consistency, numerical plausibility …
- ⇒ Analysis & visualization — Categorization and statistics of scenario ensembles, plotting library, …

M. Gidden and D. Huppmann (2019). *Journal of Open Source Software* 4(33):1095. doi: 10.21105/joss.01095



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#pyam_iamc

pyam-iamc.readthedocs.io

Thank you very much for your attention!

Read the docs on pyam-iamc.readthedocs.io

Join the mailing list on groups.io or the Slack workspace

Create an issue or start a pull request
on github.com/IAMconsortium/pyam/

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