

NormSys

Standards and Standardisation Processes to Exchange Models and Data in Systems Biology

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Aim

The aim of NORM-SYS is to prepare the standardisation of existing community standards for models and data in the field of systems biology and computational modelling in close cooperation with relevant stakeholders and existing standardisation initiatives.

NORM-SYS is a project funded in the frame of a standardisation support program of the German Federal Ministry for Economic Affairs and Energy. The project has a duration of two years and started in September 2014 as a cooperative project of three German organisations: HITS gGmbH, University of Potsdam, and LifeGlimmer GmbH.

Project Objectives

1. Harmonisation of formats and standards along the pipeline of systems biology research to achieve fast and efficient data integration (the basis for the automation: "from machine to model").
2. The systems biology communities are still working relatively independent from each other; the challenge is to bring together the various activities and involve as early as possible the respective experts and representatives in the standardisation process.
3. Harmonisation of "bottom-up" and "top-down" approaches, i.e. formation of a joint working group consisting of the scientific communities and the relevant standardisation bodies at the international (e.g. ISO), European (eg CEN / CENELEC / ESTI) or national level (e.g. DIN).
4. The involvement of relevant decision makers and stakeholders from academia, industry and other interest groups as potential users or promoters for standards developed by the research communities in the field of systems biology and computational modelling.
5. Development of concepts for the transformation of existing standards into certified specifications or norms to achieve a wider acceptance of the developed standards and a more effective transfer of systems biology research results into applications.

NORM-SYS – Community

NORM-SYS embraces a broad spectrum of relevant stakeholders:



Research Communities
Develop community standards and apply



Industries
Need standards to integrate research data



Standardisation Bodies
Help to define and promote standards

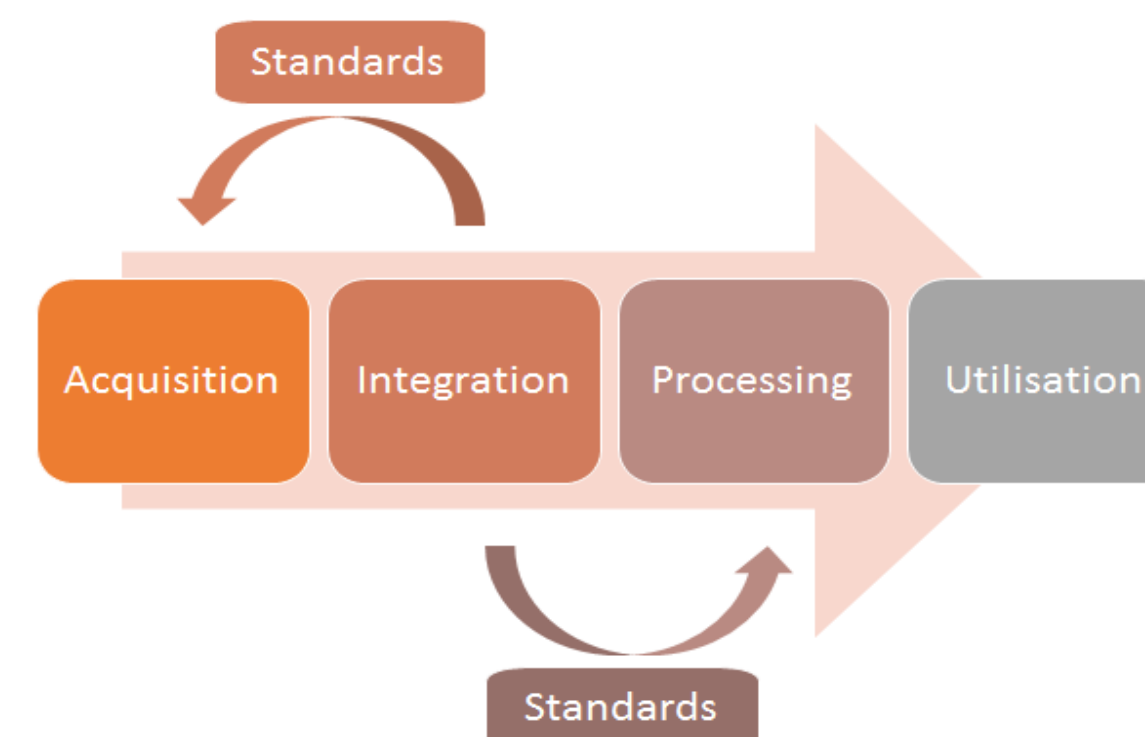
Overview about existing standardisation bodies:



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Standards in Systems Biology



Pipeline in systems biology research from data generation via integration and modeling for the efficient translation into application.

(modified from D. Jameson, University Manchester)

Community Standards for Modelling in Systems Biology:

	Model descriptions	Simulations and analysis	results
Minimal requirements	MIRIAM	MIASE	
Data-models	SML, SGN, CellML	SED ML	NuML
Terminologies	SO	KISAO	

Overview of some of the existing standards in systems biology data, models, simulations, results and their respective descriptions. A comprehensive overview is provided by: www.biosharing.org

Source: Nicolas Le Novère, Data Integration in the Life Sciences (Babraham Institute, UK, 2009), modified by Carole Goble (University of Manchester, UK)

Workplan

The workplan foresees four work packages:

- WP1: Identification and classification of standards
- WP2: Community building between relevant stakeholder groups
- WP3: Certification concept for existing standards
- WP4: Strategy development and dissemination

	Year 2014		Year 2015			Year 2016		
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
WP1								
WP2								
WP3								
WP4								

Interaction with ISO/TC 276 Biotechnology

ISO/TC 276 Biotechnology will work closely with related committees in order to identify standardisation needs and gaps, and collaborate with other organisations to avoid duplication and overlapping of standardisation activities.

Standardization activities of ISO/TC 276 in the field of biotechnology processes includes the following topics: ^{ISO/TC 276 - Biotechnology} 21 participating countries, 14 observer countries

- WG1: Terminology
- WG2: Biobanks/Bioresources
- WG3: Analytical Methods
- WG4: Bioprocesses
- WG5: Dataprocessing and Integration (in decision process)



Project Partners



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Please visit our webpage for more information:

www.normsys.org