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HUPO Proteomics Standards Initiative Structure

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Abstract

This document describes the structure, characteristics and processes used by the HUPO PSI to create standards which aid the global proteomics research community.

Contents

1. Introduction

The HUPO Proteomics Standards Initiative (PSI) is the community of users, developers, operators, researchers, and vendors leading the global standardization effort for proteomics data interchange. Together we work for the pervasive adoption of standards for research and industry worldwide.

The work of PSI is accomplished primarily through working groups (WG) that are aligned with the key functions of PSI. The work of these groups is often delivered via the PSI Document Series – documents that serve to inform the community regarding requirements, use cases and best practices or recommend detailed specifications that lead to broadly adopted standards.

2. Group structure and relationship to HUPO

To accomplish our mission of standards adoption, the PSI focuses on three primary functions: (1) Community - building an international community for the exchange of ideas, experiences, requirements, and best practices; (2) Standards - defining specifications that lead to broadly adopted standards; (3) Operations - ensuring ongoing support of our mission and communication of our progress. The work associated with the Community and Standards functions is accomplished primarily through volunteer participants structured into groups managed by Group Chairs – normally two Chairs per group. The efforts of individual groups are coordinated by a Steering Group which is comprised of Working Group chairs and general members.

This simple structure of multiple, related groups aligned with the key functions within PSI though a steering group enables a deep focus on specific proteomics-related issues at the individual group level. It also encourages collaboration and cross-fertilization between groups. Collaboration and synergy is highly encouraged.

The PSI-Co-Chair positions are appointed by the HUPO leadership in accordance with the HUPO governance process. The PSI-Editor and the PSI-Secretary roles are filled by the consensus of the PSI-SG. Working group chairs nominated in the process of working group creation in accordance with the management process outlined in [1].

3. Group characteristics and management

PSI recognizes that the documentation of standards and best practices are critical to the adoption of proteomics standards within industry and research. PSI documents and informs the community regarding use cases, requirements and best practice and recommend specific technical architectures and specifications for data interchange within heterogeneous experimental environments.

The quality of its specifications and best practice documents can be positively influenced by the breadth of input from research communities, proteomics experimentalists, bioinformaticians, and managers of core facilities. This input ranges from applications of proteomics experiments in scientific or industry disciplines (i.e., USING instruments and software) to technology innovations from forward-thinking organizations and multi-disciplinary proteomics projects (i.e., research ON the use of proteomics data). So, in addition to working groups that primarily focus on proteomics-related specifications, PSI seeks to include the broader proteomics community which can offer a wider perspective on the requirements and practices.

3.1   Working Group Characteristics

Working groups are primarily aligned with the PSI Standards function – working on specifications that lead to data interchange standards. Working group participants are primarily technologists,

authors and editors who have in-depth knowledge in a particular aspect of proteomics technology (e.g., mass spectrometry).

A Working Group is focused on a specific problem, technology, or opportunity for which the members will deliver a document or series of documents, after which they may disband or create a revised charter for further work. The completion of a working group charter and subsequent disbanding of the group are viewed as a sign of success. The typical lifespan of a working group ranges from 4 to 24 months. The process for creating working groups is described in [1]. All types of PSI documents may come from PSI working groups (or from outside the PSI altogether). Two documents are critically important for working groups developing recommendations track documents: specifications, and any data reporting requirement document associated with a specification. The PSI-SG will be responsible for ensuring consistent use of technologies (formats, etc.), abstract data models and ontology.

Within a Working Group, one or more "design teams" may be established to quickly investigate an approach or "fast track" progress in an area critical to the overall Work Group charter. Because the PSI group process is consensus based, there are times when a group must delegate a particular portion of its work to a smaller team who can explore possibilities, develop a proposal, and present it back to the group at large. Design teams are recognized "sub-groups" under the authority of the group to carry out a short-term, specific task, and report back to the group, normally via a proposal. Design teams are not separate groups and have no authority outside of what is granted them by the group itself. Groups delegate tasks to these teams so that the overall momentum of the group is facilitated.

Working group charters may also be created to perform early investigations into areas where standards are likely to be needed. These groups are expected to be made up of individuals who are engaged in a particular scientific discipline (e.g., Repository Development) or industry sector (e.g., Biomarker Discovery). These working groups will develop charters to explore applications of proteomics standards in their particular community and may interact with other previously-defined research or industry associations. The goal of this type of working group is to (1) capture best practices that can enable successful adoption within the community and/or (2) develop use cases and requirements that inform the architecture and specification work of PSI. It is also possible for a working group to develop a charter to explore technology innovations. These groups are created largely from the compute science researchers or computer industry vendors because they are exploring better technologies to build proteomics applications. The goal of most technology innovator working groups is to propose new solutions to proteomics technology problems and spawn new working groups to write specifications that are consistent with these new solutions.

3.2   Group Management

Group management is described in [1]. The formation of new groups, merging of multiple groups, or dissolution of groups is the responsibility of the PSI-SG. Working groups may also be used for the operational aspects of the community such as marketing, events, finance, and sponsorship.

4. Founding Structure

The PSI has been in operation for several years and developed several operating standards for use in HUPO initiatives. The operation of the PSI under the structure described in this document and in [1,2] is founded on the following working groups:

1. Molecular Interactions (MI)
2. Mass Spectrometry Data Interchange (MS)
3. Proteomics Informatics (PI)
4. Protein Modifications (MOD)

5. Separations and Sample Preparation (SP)
6. Gel-based methods of analysis (GEL)

See the charters for these founding groups for their specific deliverables.

The PSI Steering Group ("SG") is therefore responsible for the following:

1. Community Communications and Feedback
2. Reporting requirements (MIAPE) and Journal/Agency interactions
3. Consistent abstract data modeling
4. Consistent format usage
5. Consistent Ontology
6. Operational Process

The PSI-SG is therefore formed with the following formal roles:

Chair and Co-Chair
PSI-Editor
PSI-Secretary
MIAPE Chair
Ontology Chair
(6) Working Group Chairs/co-Chairs

Each member of the PSI-SG will oversee one or more of the charter responsibilities above.

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This document attempts to capture the recommendations of many members of the PSI steering group and working group chairs as well as the foundational work that is documented in the references.

Glossary

PSI-SG	Proteomics Standards Initiative Steering Group, consisting of selected senior PSI participants and area directors, chaired by the PSI chair.
PSI	Proteomics Standards Initiative, see psidev.sf.net
PSI Chair	General chair of PSI.
PSI Co-Chair	Chair of the PSI Steering Group with management responsibility for the operation of the PSI and it's groups.
Working Group	("WG") A set of individual participants chartered to accomplish a specific set of goals and deliverables, managed by one or more Group Chairs
WG Chair	Member of PSI with the responsibility for leading a group of individual participants to deliver on the charter of the group

Charter   The Working Group Charter outlines the goals and deliverables of the group with approval by the PSI-SG

References

[1] Julian, R., Hermjakob, H., "Proteomics Standards Initiative Management", January 2006.
[2] Julian, R., Hermjakob, H., "Proteomics Standards Initiative Document Process", January 2006.

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