

The Computational Materials Data Network: Innovation through Collaboration

The Computational Materials Data Network (CMDN) supports advanced computational materials science and engineering by facilitating the completion of projects through interactive data sharing and collaboration. These projects serve as elements of larger “ecosystems,” which share and manage large amounts of data for the advancement of research and product development and the rapid development of next-generation materials.

What the CMDN Provides

The CMDN, founded and supported by ASM International, brings a range of capabilities to joint projects to accelerate materials and processing innovations.

Hosting and curating ecosystem databases

With support from ASM, Granta Design Ltd., and other third party partners, the CMDN will provide hosting capabilities for the databases needed in each ecosystem. It will also curate the databases to ensure consistency of data format, completeness of metadata, and awareness of data quality.

Cataloguing available materials databases and providing open architecture for new databases

Many materials databases exist, but they are widely dispersed and have differing levels of descriptive metadata. The CMDN website will provide a gateway to materials databases and include descriptive metadata for each along with search functionality to enable targeted access to desired materials data.

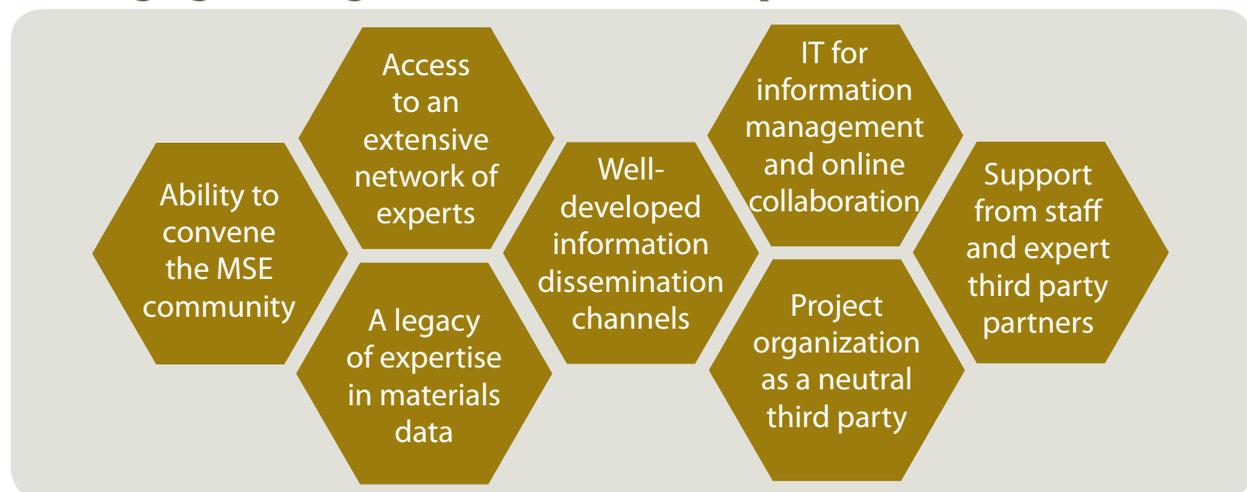
Organizing projects to address the needs identified by the materials community

A key role of the CMDN will be to develop and carry out focused projects that will not only build databases in targeted areas for the community, but also carry out demonstrations of the utilization of such databases in modeling and simulation, including the verification and validation of models.

Developing needed data standards and protocols

Developing common data formats and other data management protocols has been identified as critical, particularly by NIST’s Building the Materials Innovation Infrastructure: Data and Standards Workshop. With ASM support, the CMDN will convene the community in a series of targeted workshops to develop the needed standards and protocols for effective data capture, cataloguing, and sharing.

Leveraging Existing ASM International Capabilities



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