Environmental Materials Information Technology (EMIT) Consortium
Minutes of Steering Committee Meeting

Hosted by: Sandia National Labs, Albuquerque, NM, 4-5 April, 2019

ATTENDANCE

Members

AWE	Martyn Staff, Sharon Wheeler*
Boeing	Peter Mezey, Brenda Fukai-Allison; Jean Clampitt*
Emmerson	Amy Neal*
Granta Design Limited	Kate Osborne, David Cebon, Nic Austin, James Goddin
Honeywell	Angel Cruz-Walker, Christopher Raver
Pratt and Whitney	Enna Wilson, Rick Shanks
Pratt & Whitney Canada	Valerie Bilodeau
Sandia National Labs	Celeste Drewien, Rick Karnesky
Savannah River National Lab	Paul Korinko
NPL	Graham Sims*

* By Webex

Apologies

Rolls Royce	Andy Clifton, Laura Wilkinson
Airbus Helicopters	Cyrielle Gendre

SUMMARY OF ACTIONS

Minute	Item	Owner
7.4	Granta will investigate a 5-point scale; write a document describing what each rating means, with examples from various legislations; Try to re-classify all legislation and lists onto this 5-point scale and report back to the next meeting.	Granta
11.3	Granta to explore the possibility of Granta and ChemWatch providing a joint service for automated population of material-spec data using SDSs.	Granta
14.6, 21.1	Granta will compile the user stories on Fallback Links into a voting spreadsheet and will arrange a prioritization vote before the next meeting.	Granta
15.9	Change the way that additions to the legislation and lists are managed	Granta
16.5	Prioritize development of the IPC1754 schema and supplier declaration importers and workflows	Granta
17.8	Granta to circulate an email detailing the PLM Forum.	Granta
18.8	Members to email comments on EMIT Report to Rob Davis	All
19.6	Send Granta a list of AMS specs that are not currently available in MI	P&WC
19.7	Arrange a Webex discussion of the issues around the structure of the Specifications Table and the data roll-ups needed. This should include 3 short presentations on how members handle this issue from PWC, PW, Boeing	Granta
19.8	It would be valuable for members to send any data they have about usage of the IHS spec data in MI	All
23.4	Circulate dates for next EMIT meeting by Doodle Poll	Granta

MINUTES DAY 1 (THURSDAY APRIL 4, 2019)

1   Introductions

1.1   Brenda Fukai-Alison took the chair and welcomed the members to the 22nd EMIT meeting.

1.2   The Members introduced themselves.

1.3   The Agenda was reviewed. There were no changes.

2   Minutes of the last meeting

2.1   The minutes of the meeting held in Derby, 16-18 October 2018, were approved.

2.2   The actions from the minutes of the October meeting were reviewed as described in the table below.

Minute	Item	Owner	Outcome
4.4	EMIT members are encouraged to send Python scripts to Nic Austin for sharing on the script-sharing site.	All	Done
8.7	Run a project to demonstrate the concept of substance reporting using material declarations and substance where-used data.	Granta	To be carried forward
9.4	Arrange a telecon with Boeing to flesh out requirements for managing chemical requests.	Granta	Done
12.6	Break-down the Norway/Switzerland heading on the Legislations voting list into more granular items.	Granta	Done
12.9(iii)	Members to provide lists of substances and regulations that they would like to add to the database	All	Done
17.4	Generate a voting list for BoM Analysis user stories	Granta	Done
20.4	Update the EMIT report	Granta	Done
21.1, 21.2	Arrange votes on: (i) User Stories – BoM Analysis II (ii) EMIT Report (iii) Legislation and Lists (iv) Data projects (excluding Legislation and Lists and Where-Used data)	Granta	Done
24.1	Next meeting to be held on 4 & 5 April, 2019	Granta	Done

3   Software and Data Development Process

3.1   David Cebon reviewed the software development process. He explained how the process has shaped the agenda of this meeting. He also reviewed Granta's long-term plans for the software system to put all the development activities into context.

3.2   David summarised the EMIT development process. He explained how the process has shaped the agenda of this meeting. He also reviewed Granta's long-term plans for the software system to put all the development activities into context.

3.3   He reviewed the current MI development roadmap and explained the components that will be discussed in this meeting.

3.4   Summary of the meeting:

(i)   Demos: What's new in MI?

(ii)   Software
- Software Deep-Dive: Clone Schema
- User Stories: Fallback Links
- Update: PLM Enterprise Integration

(iii)   Data
- Legislation Ratings
- Product Risk Update

(iv)   'EMIT Report'

(v)   Other Items: PLEIADES project and IAEG update

(vi)   Member Presentations

3.5   Enna Wilson asked whether Granta would consider releasing the Product Risk database every 6 months instead of every 3 months, because of the burden of getting IT to apply updates. It was pointed out that it is not necessary to apply every update. It is possible to skip one or more and the updating software will apply all previous changes at a future update.

4   GRANTA MI Roadmap

4.1   Rob Davis presented the strategy and vision for Granta MI as well as the current software roadmap at Granta.

4.2   He explained Granta's Material Intelligence vision from the viewpoint of various users or 'personas'. The MI product strategy is concerned providing the software needed by each of 4 key personas.

4.3   Rob explained the major development areas in CY2019 and 2020. These include Enterprise Integration; Materials Innovation; Product Risk and Core MI. It is planned to improve the MI Explore user interface.

4.4   Platform Support: Support for Windows Server 2008R2 was removed in MI 12. No further changes to platform support are planned for MI 13.

5   What's new in MI?

5.1   Nic Austin presented recent developments in GRANTA: MI. The main new features are:

(i)   Improved clipboard

(ii)   Hyperlink Address Tokens

(iii)   New Search Engine

(iv)   Workflow 2.0

(v)   BoM Store Phase 1 – released one month ago

(vi)   Enterprise integration

(vii)   Python Scripting Toolkit 1.5

5.2   Improved Clipboard: The clipboard is used to copy and paste lists of records between applications. The clipboard format has been replaced by a simple text format and using the data has been made much more intuitive and productive. Nic demonstrated this functionality working with the Product Risk database. He copied a list of records from Viewer to the Clipboard, showed the list and how it can be pasted back into the software with much more capable importing functionality.

5.3   Hyperlink Address Tokens: This capability enables 'address tokens' to be put into hyperlinks. These are replaced at run-time. This means that if the location of a set of URLs changes (e.g. the server is moved), then the root URL only needs to be changed in one place. Data values from the datasheet can also be substituted into URLs as well.

5.4   New Search Engine. In MI12, Lucene.net was replaced by 'Elastic Search' in order to support larger databases, larger numbers of users and Far-Eastern languages. Generally the MI12 search results are as good as MI11, with some significantly improved functionality (e.g. stemming), speed and scalability. Unfortunately, data updates take longer than previously. This will be fixed in MI12 update 3, in July.

5.5   Workflow 2.0. The MI12 release has some major changes: The ability to launch workflows on multiple records; support for long-running activities; Python-based activities; Enhanced User Experience. Workflow 1.0 and Workflow 2.0 workflows can run simultaneously, facilitating an upgrade path for long-running workflows.

5.6   Python Scripting Toolkit 1.5. Enhancements include:

(i)   Record deletion and withdrawal
(ii)   Resolve record references
(iii)   Search and explore last modified data and user
(iv)   Unit conversion data
(v)   Improved error handling.
        Nic showed how MI Explore can be linked to Jupyter Notebooks so that Python can be used to generate Reports or other types of extensions for MI: Explore.

6   Member Presentation – Boeing

6.1   Peter Mezey gave a member presentation for Boeing.

6.2   He described the workflow for internal data requests within the company ('CSDR'). Most of the requests follow a standardized path through the available data. Peter showed how Boeing have formalized this into a data schema (with some new database tables) and process workflow. It is planned for Boeing and Granta to automate the process using MI Workflow.

6.3   Questions for the group:

(i)   ECHA is generating an 'Article' database as a result of the Waste Framework Directive. (ProActive Alliance)
        • Currently being developed – available to populate by end 2019
        • Anything placed on the market has to populate the database by 2020
        • Will include any article with > 0.1% SVHC
        Granta needs to really pay attention to this and understand what ECHA is doing.   (NOTE: Granta)

(ii)   What are others using to get supplier chemical data?
        • PW use a simplified spreadsheet of their own design
        • There are organisations that have developed tools based on IPC1754

(iii)   Hierarchy of Material and Process Universes: Can we use it? How to use it? What if it changes? David Cebon pointed out the hierarchy in the MaterialsUniverse is just one of many hierarchies in Granta databases. Each one is designed for its own purposes… The one in MatUni was designed for materials selection purposes. David offered Granta's expertise in hierarchy design for EMIT members who would like to discuss the issues.

6.4   Accomplishments

(i)   Migration to Product Risk database is complete. (Currently holding at MI 11)
(ii)   More interest in use of the system as the datasets grow
(iii)   First draft of the CSDR process is in place.

6.5   Functionality needs   (NOTE: Granta – see Boeing Presentation)

(i)   NESHAP specialty coatings categories
(ii)   Reporting
- Boeing has created a Materials to Specs report that may be of interest to other members.
                                                              (NOTE Granta)
- Add material product name and revision date as standard fields
- Add min, max and normalized values
- Report can require millions of rows
- Performance Issue: Report needs to detect circular links

(iii)   Date Pickers in MI Viewer is not consistent across the different attributes that can contain dates
(iv)   It would be useful to have an Audit trail/comment field (which could be used like a version history), easily accessible each record – even for non-version-controlled records
(v)   Adding Tabular attribute rows: For linking values it would be useful to have a 'type-ahead' function to suggest suitable values, make it easier to find what you are looking for.
(vi)   Unique Identifier generator for ID fields
(vii)   Negative List Search.
(viii)   Substance Risk Ratings would be better at CAS level rather than at Legislation level.

7   Data Deep Dive – Legislation Ratings

7.1   Kate Osborne introduced a data deep-dive session on legislation ratings.

7.2   Overview: There are currently 9 legislation ratings in the database.

(i)   Is it time for review? Do the terms make sense? Are the legislations still rated correctly? What do members use the ratings for?
(ii)   Current ratings:
- Banned
- Banned with conditions
- To be phased-out
- Very high risk of phase-out
- High risk of phase out
- Risk of phase-out
- Caution
- Superseded
- Unrated

(iii)   Thoughts for possible improvements:
- Should 'Banned' be replaced by 'Prohibited above a certain threshold'? Or should 'banned' and 'banned with conditions' be merged into a single category?
- To be phased out, Very high risk of phase out. Could be changed to 'To be prohibited'
- High risk of phase out, Risk of phase out➔ 'To be prohibited (or restricted)?
- Could existing industry definitions be used?

7.3   Discussion:

(i)   PW doesn't use these ratings at all.

(ii)   Boeing: Possibly keep it simple (e.g. on/off):
- Prohibited – no exceptions (e.g. PCBs)
- Restricted

(iii)   Sandia use a system with:
- 1 = CAS number on no list
- 2-5 , increasing risk

(iv)   P&W: ADDSL has a system of ratings with:
- Restricted in articles
- Restricted in substances and mixtures
- Declarable in articles
- Of interest

(v)   It would be useful to add sunset dates to relevant legislations.

7.4   <u>The following plan was agreed:</u>   (ACTION: Granta)

(i)   Granta will investigate a 5-point scale:
- Prohibited (Absolutely cannot be used! e.g. contains PCBs, Asbestos, etc)
- Restricted with Conditions (e.g. on REACh Authorisation list)
- Risk of Phase Out (e.g. on REACh Candidate List)
- Caution (e.g. on SIN List)
- Unrestricted (not on any list)

(ii)   Write a document describing what each rating means, with examples from various legislations
(iii)   Try to re-classify all legislation and lists onto this 5-point scale and report back to the next meeting.

8   Member Presentation – Sandia National Labs

8.1   Rick Karnesky gave a member presentation for Sandia National Labs. He gave a brief history of Sandia which is responsible for maintaining the nation's nuclear deterrent.

8.2   Status of 'At-Risk Materials' management program (@RM)

(i)   The aim is to have a system that can Identify, Prioritize and Track Horizon Risks. It targets R&D efforts to strategically address priorities across Energy sites
(ii)   The energy labs have been working on multi-site licensing with a shared server. There will be two examples on the shared database, of which one will be Product Risk.

8.3   It is necessary to generate and manage case studies of @RM issues. A Case table has been created.   It contains records describing each materials issue. Fields include:

Method of discovery	Inventory	Estimated cost of proactive management
Primary rick category	Estimated 'good-through' date	Estimated cost of reactive management
Site-specific rankings	Shelf life	Technical basis for information
Impacted systems	Open procurement Y/N	Handling strategy
Impacted components	Internal manufacturing Y/N	Current mitigation activities
Date added	Reuse from JTA	Possible alternatives
Date resolved		

8.4   Biggest grumbles:

(i)   Offline syncing (across air-gapped networks) – In progress by Granta
(ii)   Cross-NSE licensing – In progress by Granta
(iii)   More robust linking between databases - e.g. movable between servers which may not have the same GUIDs. – Not available yet.

8.5   More requests:

(i)   More functionality in tabular attributes
- Deeper transversal of tabular links (more hops)
- Multiple linked fields in each row

(ii)   Nicer Linux support for Python toolkit
- Python setup.py install –home=~

(iii)   Single sign-on to work in Linux with active Kerberos ticket for AUTH. It currently only works in Windows

9   Member Presentation – Honeywell

9.1   Angel Cruz-Walker presented an update of activities at Honeywell. Honeywell is using Granta MI v11.0, with 15-20 people working on Product Risk.

9.2   The substance team performs REACh analyses on products from all divisions of Honeywell – both mechanical and electrical parts - more than 30 different Honeywell sites.

9.3   The main objective is to evaluate the impact of all Honeywell products shipped to EU customers or manufactured in an EU site – and ensure compliance with existing environmental regs: REACh, RoHS, etc.

(i)   Centralized system for products environmental compliance inquiries
(ii)   Standard BOM analysis process through Honeywell sites
(iii)   Centralized tool to track all Honeywell materials
(iv)   Communication system to get compliance information from suppliers
(v)   Manage Materials obsolescence - using IHS tool.

9.4   The team does detailed 'top-down' BoM analyses… "what substances are contained in this BoM?". They also do bottom-up assessments of specifications to find out the substances implicated. The Granta MI 'where-used' data is a key component of this process.

9.5   The Honeywell system has an integrated set of in-house, web-based applications, based on Teamcenter. Granta MI is used for handling material properties, Risk, legislation data and models.

9.6   Going forward

(i)   Tool integration with Teamcenter
(ii)   New product introduction – integration of tools to initial stages

10 Software Deep Dive – Clone Schema

10.1 Nic Austin presented a Software Deep Dive on Clone Schema. The project will be based on the 'Data Updater' tool.

10.2 Nic recapped the functionality of the Data Updater tool. The need is to port changes from a source database to a target database which may also have changed. The changes may be 'Add', 'Change' or 'Delete'.

10.3   Creation of updates involves a 4-step process, which are currently performed in-house at Granta. It generates a 'Contents Report' (Excel) and an Update file (XML). The update is applied by the end-user. It currently only works for Product Risk databases.

10.4   New User Stories:

(i)   A site wishes to send a full schema to another site without including data.   (Data deletion from a version-controlled table is not possible)
(ii)   Two sites A&B wish to synchronize the schema of two copies of a database.
(iii)   A source site wishes to send a subset of a schema to another site.

10.5   Challenges to this functionality

(i)   Not all item types are currently supported. (functional data, local tabular data, some links, EELs).
(ii)   Creating a schema update can be complex
(iii)   Creating changes and deletions requires a baseline, which may not exist.
(iv)   Corresponding items added manually to source and target may not be matched correctly.

10.6   Next Phase plan

(i)   Extend items supported by Data Updater.
(ii)   Improve schema selection UI
(iii)   Support changing existing target items from 'Add packets'
(iv)   Synchronize target item GUIDS with source GUIDS, based on item name

10.7   Open Issues

(i)   Version control – it would probably be important to send version history information in an update in due course.
(ii)   Access control – it is possible that access control schema information may not need to be transferred.
(iii)   Complex scenarios – where changes may have been made to the same item in two copies of a database.

10.8   Discussion   (NOTE: Granta)

(i)   Valerie Bilodeau mentioned her use case which is to move a schema change from a QA server to Production server… this currently must be done manually.
(ii)   Peter suggested that it would be good if data could be obfuscated before sharing with the tool - particularly for communicating performance problems to Granta. It would be necessary to specify which fields must be obfuscated. Rick suggested that this could be done in the XML update file.

11 SDS data – ChemWatch SDS lookup

11.1   David Cebon described an idea for linking Granta MI to ChemWatch to provide-Chemical information from Safety Data Sheets (SDSs) to populate an MI database. The user would create a list of materials/preparations in MI. This would be sent to ChemWatch, which would respond automatically with lists of chemicals (CAS Nos) and their compositions. These could be automatically imported into the database and linked to the original materials.

   11.2   There was a discussion of the concept:

   (i) What if there are multiple country versions of an SDS? Use the superset of all – the 'worst case'
(ii)   It would be helpful to be able to update the information in MI that was created from the SDS system periodically and automatically. We need to know what has changed from last time. (DC: A simple checksum could be used). This is a way to identify reformulations.

(iii)   If the SDS doesn't declare 100% of the composition of a material/preparation, the material is more risky: (a) because the content is unknown – the material can't be substituted and (b) because the user is dependent on the particular supplier for the IP in that preparation.

(iv)   This capability could be made to work with other SDS service providers as well as ChemWatch.

11.3   There was considerable enthusiasm for this idea from the members. Granta to explore it with ChemWatch.   (ACTION: Granta)

12 Member Presentation – AWE

12.1   Martyn Staff gave a member presentation for AWE.

12.2   AWE has previously had a materials at risk spreadsheet. They try to catch chemical risks, supplier risks, materials development risks and other risks. The Granta installation will handle Chemical risk.

12.3   AWE have Teamcenter, Granta, a chemical database and a PIMMS database – which don't communicate. The PLM project plans to link these by 2022.

12.4   Martyn aims to link Granta MI and the Chemical database – or to import the Chemical data into Granta MI. The Chemical data contains information about how much chemical stock is in each facility.

12.5   Martyn will be doing a preliminary study in order to create pull from the other tech centres at AWE. He will be trying to work from best practice developed by other EMIT members.

13 Member Presentation – Savannah River National Labs

13.1   Paul Korinko gave a member presentation for SRNL.

13.2   SRNL is rolling out its first instances of Granta MI. Polly Schrum from MDMI is visiting in a couple of weeks to provide training.

13.3   SRNL has about 10,000 employees. There are many different systems for SDSs, Chemical inventories, etc. It is hoped to use Granta MI to bring all the internal data together.

13.4   SRNL is interested in the Materials at Risk initiative – so they can be proactive.

13.5   Paul is one of 5 members of the SRNL Granta team. The database will be integrated with PLM and will also have data for design (MMPDS), Additive Manufacturing, etc.

14 User Stories – Fallback Links

14.1   David Cebon presented the concept of 'Fallback Links' and described the way that they currently work.

14.2   Nic Austin demonstrated fallback links working in MI Explore. He opened a record in Explore with fallback links switched off and showed a limited amount of information available. When Fallback Links were switched on, much more data was available in Explore and in a report.

14.3   David posed the following questions to the group:

(i)   How should fallback attributes be specified? (eg Standard names, attribute mapping….) What about differences in attribute types or units?

(ii)   What MI functions need to support fallback links? (eg Data sheets, Search, Report, FE Export, Custom Reports…)

(iii)   How would you want Fallback links to appear on datasheet, etc?

(iv)   What restrictions are there? – eg Access Control, Version control, static/dynamic links…

14.4   The meeting divided into two breakout groups that generated user stories for Fallback Links.

14.5   One member of each group reported back on key user stories.

14.6   Granta will compile the two sets of user stories into a voting spreadsheet and will arrange a prioritization vote before the next meeting.   (ACTION: Granta)

MINUTES DAY 2 (FRIDAY APRIL 5, 2019)

15 Product Risk Data Update

15.1   Kate Osborne presented a session on product risk data. She reviewed the annual release cycle for the Product Risk Database and described the last two releases.

15.2   Product Risk 8.4 (Oct 2018)

(i)   Material Universe data: New Records and REACH Indicators
(ii)   New schema: Two new units added
(iii)   New legislations: Frank R Lautenberg Chemical Safety; NESHAP for Area Sources
(iv)   Legislation and List updates: REACH; SIN List and Biocidal Products Regulation; CLP; IARC Monographs; Stockholm Convention; Rotterdam convention CEPA 1999; CoRAP; RoHS2 + other RoHss
(v)   Substance Data: High Risk of Obsolescence indicator; REACH Registration status; SVHC Prioritization Score; CLP updates.

15.3   Product Risk 9.1 (January 2019)

(i)   New schema – new attribute and unit in Specs table
(ii)   New legislations: Cross reference for Export controlled chemicals, BAuA Haz Subs Ordinances
(iii)   Legislations and lists:
- REACH updates;
- Montreal protocol update, HFCs added.
- US TSCA and EPCRA;
- Canada CEPA, Prohibition of Certain Toxic Substances
- Japan x 3 lists
- China Catalog

(iv)   Substances data: REACH candidate list and SVHC prioritization score

15.4   Kate reviewed previous EMIT voting on legislation and lists and on data projects.

15.5   She suggested that we implement following changes to the voting list:

(i)   Add: Korean Toxic Chemical Substances list (1904 substances)
(ii)   Add: K-BPR, came into effect on 1 Jan 2019
(iii)   Add: China List of Priority Control Chemicals (22 substances/groups)
(iv)   Remove: EU Directive 91/339/EEC which has been repealed.

15.6   Coming in Release 9.2

(i)   SVHCs for Candidate list
(ii)   SIN list updates
(iii)   Biocidal products Regulation updates
(iv)   TSCA updates
(v)   K-REACH

(vi)   CoSHH, F-Gas, ODS Regs

(vii)   High Risk of Obsolescence indicator

15.7 Release 9.3 onwards

(i)   DoT Hazardous materials

(ii)   PIC Reg EU 649/2012

(iii)   Brazil RoHS

(iv)   Other top priority legislations

15.8 There was discussion about priorities for data development activities.

(i)   Brenda suggested that we should focus on rationalizing effort on the regs/list updates, rather than adding more lists.

(ii)   David suggested that Granta could shift effort to some of the other value-added activities

(iii)   It would be useful to do some work to validate the indicators – e.g. High Risk of Obsolescence indicator.

15.9 Future Strategy for Data Projects

(i)   It was agreed only to add further lists when they are specifically requested by members or by Granta and to focus more effort on adding value through other data projects.

(ii)   It was agreed to change the way that list addition is managed as follows: (ACTION: Granta)
* Normal legislation/list/substance maintenance activities to continue as in the past
* At each meeting, have a 'Legislation and Lists' session in which Members or Granta can 'pitch' proposals to add specific legislation/lists/substances to the database and provide their reasons/rationale for the proposal. Circulate a reminder prior to the meeting.
* Sandia (DoT regs), PW (particular substances) and Granta (gaps in coverage) could pitch at the next meeting.
* After the meeting the members will vote on a short list of key priorities. Rick Shanks suggested that we could vote on a simple basis: 'Must have', 'Nice to have', 'Not needed'

16 Member Presentation – P&W

16.1 Enna Wilson presented a member update from P&W.

16.2 The P&W Project Structure is as follows:

(i)   Phase 1 – Improve database structure and update Teamcenter and SAP integration scripts (now completed in 11 weeks). Send regulatory lists to SAP.

(ii)   Phase 2 – Implement Material of Concern (MOC) design waiver process in Granta. (8 weeks planned, go live on April 26)

16.3 Next Implement IPC 1754 Materials declaration standard in database – for accepting supplier declaration data.

16.4 Enna requested improved feedback of importer errors.   (NOTE: Granta)

16.5 It was agreed that Granta should complete the IPC1754 schema in consultation with EMIT members as a high priority. Granta should then begin work on Excel and XML (ADSRT) importers and supplier declaration workflows, taking account of the fact that companies may use their own supplier declaration systems -e.g. SAP to manage the declaration process.   (ACTION: Granta)

17 PLM Integration

17.1 Stuart Baker presented a session on PLM Integration by Webex.

17.2 Stuart described Granta's view of the role of materials information in product engineering. Materials data is needed at all stages and many types of data are used, depending on the stage. There is a need for a deep integration between the product lifecycle and the materials information lifecycle.

17.3 Stuart discussed the authoring process for products into PLM. Materials data needs to be introduced into PLM as first-class objects - just as for geometry and simulation data.

17.4 There are three categories of value for PLM integrations

(i)   Derivation of approved, traceable materials information, published for enterprise-wide use
(ii)   Assignment of relevant materials to the design or product structure, building out the engineering BoMs
(iii)   Analytics and reporting on these assignments, enabling design optimization, risk avoidance, etc.

17.5 Integration approaches

(i)   MI: Enterprise Connect
- Server level synchronization with PLM
- Full materials lifecycle managed in MI
- Subset of materials authored into PLM
- Live Link to MI retained.

(ii)   MI Materials Gateway
- End-user access to materials information directly within PLM
- Dashboard and reporting
- CAD-PLM assignment and synch

17.6 Stuart presented video demonstrations of various PLM integration solutions:

(i)   Gateway integrations with PTC Creo and Windchill: (PLM user and designer personas)
(ii)   Synchronization between MI and Teamcenter using MI Enterprise Connect (Materials authority and designer personas)
(iii)   A similar synchronization between MI and 3DExperience using MI Enterprise Connect (materials expert, materials authority and simulation analyst personas)

17.7 What's new?

(i)   MI: Enterprise connect for Teamcenter IMM v2.5 – robustness improvements
(ii)   Creo-Windchill: enhanced interoperability, user experience and performance improvements.

17.8 Granta is starting a PLM forum which will be open to EMIT and MDMC members. Ask Granta reps to add you to the list. The forum will be entirely online, with quarterly teleconferences. The first one will be on 24th April. This meeting will have member presentations from AWE and LANL. Granta to circulate an email to EMIT members with the details.   (ACTION: Granta)

18 EMIT Report

18.1 David Cebon introduced the EMIT Report session. He described the reason for the report and the process.

18.2 Rob Davis reviewed the 2018 EMIT report.

(i)   He recapped the top 5 drivers

(ii)   He recapped the maturity matrix and the heat map of barriers to progress.

(iii)   Key conclusions were

- process and resources were significant barriers to progress.
- Improved reporting is generally the biggest barrier Granta can help with
- Significant process changes are required to fully implement design for compliance initiatives.

18.3   2019 EMIT Report

(i)   The survey was changed slightly since the last meeting. Additional barriers to progress were added and the format made more consistent with the MDMC report

(ii)   8 members completed the survey. 5 were the same as last time and 3 were new respondents.

(iii)   Industry trends and drives were the same apart from number 2: 'The need to quantify exposure and mitigate increased risk caused by environmental regs' was replaced by 'The increased requirement to understand and communicate with the supply chain.'

(iv)   Maturity report: Broadly no change, as expected from year to year.

(v)   The barriers heat map indicates that the changes to the barriers framework have significantly clarified the picture. Data availability is an important issue. Resources – staff and budget are important for other areas.

EMIT SoC Maturity Overview
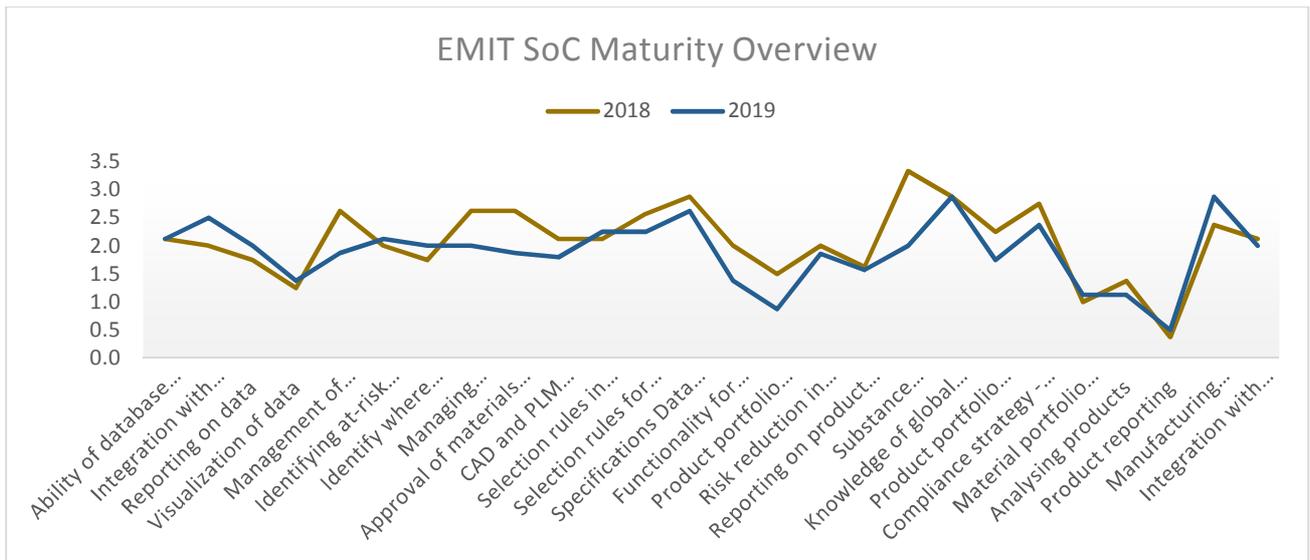
18.4   Rob reported on the biggest barriers to progress for the three different consortia: MDMC, EMIT and AutoMatIC. The biggest barriers are:

(i)   Budget – Granta can help with building ROI

(ii)   Data availability – Which areas can Granta help with?

(iii)   Design for compliance requires technology and process changes. Is this a priority area to focus on?

18.5   Possible improvements to report format   (NOTE: Granta)

(i)   It would be good to provide a shaded band on the Maturity graph, showing the range of responses from each member

(ii)   It would be good to color- code the mean values on the Heat Map and show the number of respondents in each row.

Theme	Subject	Mean	StdDev	Technology			Process			Resources			
				Software	Data struct.	Data avail.	Lack of proc.	Inconsistency	Complexity	Staff	Expertise	Budget	Priority
Data model	Ability of database schemas to support company's needs	2.1	0.9	0.3	0.3	0.4	0.4	0.3	0.3	0.6	0.5	0.6	0.4
Data management	Integration with other systems & sources	2.5	1.0	0.3	0.5	0.1	0.3	0.4	0.5	0.3	0.3	0.5	0.5
	Reporting on data	2.0	0.9	0.1	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.6	0.3
	Visualization of data	1.4	1.1	0.3	0.1	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.3
Workflow management	Management of supplier declaration process - Collecting supply-	1.9	0.6	0.3	0.3	0.1	0.3	0.4	0.3	0.3	0.4	0.4	0.5
Substitution of materials and substances	Identifying at-risk substances in materials and processes in new design	2.1	1.4	0.3	0.1	0.6	0.3	0.4	0.4	0.3	0.4	0.3	0.4
	Identify where substances are used in our legacy and current products and manufacturing processes	2.0	1.3	0.3	0.3	0.6	0.1	0.3	0.4	0.3	0.1	0.3	0.4
	Managing substitution process	2.0	1.5	0.0	0.3	0.6	0.1	0.3	0.4	0.3	0.3	0.4	0.5
Materials approval	Approval of materials and substances used by our supply chain	1.9	0.8	0.1	0.3	0.3	0.1	0.1	0.4	0.3	0.1	0.3	0.3
Material & Process selection	CAD and PLM integration	1.8	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.3	0.4
	Selection rules in design process - for hazardous and restricted substances	2.3	0.8	0.1	0.1	0.3	0.1	0.0	0.4	0.1	0.3	0.1	0.1
	Selection rules for manufacturing processes involving hazardous and restricted substances, including disposal path	2.3	0.7	0.1	0.3	0.5	0.4	0.3	0.3	0.1	0.1	0.3	0.3
Industry and internal Specifications	Specifications Data Coverage	2.6	1.4	0.1	0.5	0.4	0.1	0.1	0.1	0.3	0.3	0.5	0.3
	Functionality for managing specifications	1.4	0.5	0.4	0.5	0.4	0.1	0.1	0.1	0.3	0.1	0.3	0.4
Risk reduction (Supply chain and eco)	Product portfolio analysis - analyse supplier and eco risks across all products and processes	0.9	1.3	0.5	0.4	0.6	0.5	0.3	0.1	0.4	0.3	0.8	0.5
	Risk reduction in design	1.9	0.8	0.5	0.5	0.5	0.6	0.1	0.0	0.3	0.3	0.3	0.4
	Reporting on product portfolio	1.6	0.9	0.3	0.4	0.4	0.5	0.1	0.1	0.4	0.3	0.6	0.4
Global regulations, eg REACh	Substance Registration Process	2.0	0.7	0.1	0.4	0.5	0.4	0.1	0.1	0.4	0.3	0.4	0.3
	Knowledge of global regulations	2.9	0.8	0.0	0.3	0.4	0.3	0.1	0.3	0.3	0.0	0.3	0.1
	Product portfolio analysis - analyse compliance and risk across all products and processes	1.8	1.3	0.1	0.4	0.9	0.3	0.3	0.1	0.3	0.3	0.4	0.3
	Compliance strategy - permission to operate	2.4	1.0	0.3	0.6	0.6	0.3	0.3	0.3	0.3	0.3	0.5	0.3
Eco Design	Material portfolio analysis	1.1	1.1	0.1	0.3	0.5	0.5	0.1	0.1	0.3	0.1	0.4	0.5
	Analysing products	1.1	1.1	0.1	0.3	0.4	0.5	0.1	0.1	0.3	0.1	0.4	0.5
	Product reporting	0.5	1.0	0.3	0.4	0.5	0.5	0.1	0.1	0.4	0.1	0.5	0.4
Manufacturing Process approval	Manufacturing processes used in-house	2.9	0.6	0.0	0.3	0.4	0.5	0.1	0.1	0.3	0.1	0.3	0.3
	Integration with supply chain - selection and approval of external processes	2.0	0.5	0.1	0.3	0.5	0.5	0.1	0.3	0.3	0.1	0.3	0.4

18.6   Rob asked about the data availability issue. Members said that availability of both reference data and their own in-house data are important.

18.7   Brenda: Changing documents (e.g. pdfs) into data is an important problem as is handling input errors.

18.8   Rob invited members to email any further comments on this report to him.   (ACTION: All)

19 Member Presentation – P&W Canada

19.1   Valerie Bilodeau gave a member presentation about P&WC's RS project.

19.2   The PWC product risk strategy involves:

(iii)   Exposure assessment (using Granta)
(iv)   Technology development
(i)   Engineering changes
(ii)   Industrialization
(iii)   Compliance (using Granta)

19.3   Core software platforms in the system

(i)   Granta MI Product Risk
(ii)   PLM Enovia 3D Experience
(iii)   MRP system – SAP
A key issue was to generate the necessary interfaces between MI and the PLM and MRP systems

19.4   Valerie gave an example of the Granta-Enovia interface which pushes the necessary data to Enovia.

(i)   MI is used to identifying the substances that impact P&WC businesses world-wide;
(ii)   The PWC REACH office maintains the links between substances and specs
(iii)   An import template is used to maintain the chemicals database up to date

(iv)   Spec-to-CAS and Spec-to-part relationships in Enovia allow 'where-used' analysis.

19.5   Accomplishments

(i)   Internal spec records with links to materials in-house
(ii)   Import of chemicals

19.6   P&WC to send Granta a list of AMS specs that are not currently available in MI.   (ACTION: Valerie)

19.7   PWC has some issues around the structure of the specs table - around rolling-up to collections of type-class-grade to generic records. Boeing has similar challenges. Granta to arrange a Webex discussion of the issues around the structure of the Specifications Table and the data roll-ups needed. This should include 3 short presentations on how members handle this issue from PWC, PW, Boeing.   (ACTION: Granta)

19.8   It is important for Granta to focus on the IHS spec data. It would be valuable for members to send any data they have about usage of the IHS spec data and generation of traffic to IHS. Sandia has some qualitative information.   (ACTION: Members, Granta)

19.9   PWC's next step is to focus on IPC 1754.

20 PLEIADES Report

20.1   James Goddin gave a status update on Pleiades. The aim of the project is to create a demonstrator on the integration of materials and process data into design. The project has been running for 3 years. There is one year to go.

20.2   The demonstratable outcomes of the project are:

(i)   Extension of the granta schema for managing environmental information
(ii)   Evaluation of uncertainties and unknowns in eco-design
(iii)   Development of fallback links
(iv)   Development of rata roll-ups as a key enabler for eco-design
(v)   Development of a supplier declaration framework
(vi)   Managing data on methods of manufacture
(vii)   Development of workflow tools
(viii)   Integration of key engineering design and business decision systems.
(ix)   Enhancement of existing full LCA software for cost effective integration in product development
(x)   Development of meaningful handshakes between leading tools.

20.3   James presented the system demonstration concept. Key functionality are:

(i)   Evaluating risks
(ii)   Identifying hotspots
(iii)   Approval and release process
(iv)   Dashboard reports
(v)   Connections to LCA and supplier declaration tools

20.4   James presented some of the technical developments:

(i)   A case study is on Blisk manufacture – development of fallback links, data roll-ups and integration with key software systems
(ii)   Supplier declaration framework
(iii)   Uncertainty Assessment and meaningful data handshakes between leading tools. James demonstrated a spreadsheet analyzing uncertainty and sensitivity of data.

(iv)   LCA – a data exporter has been created between Granta MI and GaBi, but much of the GaBi analysis has to be done by hand.

20.5   Future work: Development of a workflow tool to navigate the entire system.

21   Review of Voting Items

21.1   David Cebon reviewed the items that need voting after the meeting. It was agreed to have votes on: 'User Stories – Fallback links'. No other votes are needed.   (ACTION: Granta)

22   Review of Meeting

22.1   The facilities and logistics of the meeting were good, though the room was a bit big, making the acoustics sub-optimal.

22.2   The dial-technology wasn't great. It would be a good idea for Granta to purchase a VOIP phone system with satellite microphones for these meetings.   (NOTE: Granta)

22.3   The meeting was too short (1.5 days), with insufficient time for discussion. It would be better to have two full days – probably Tuesday and Wednesday.

23   Date of Next Meeting

23.1   The next IAEG meeting will be in the week of 23rd September.

23.2   David Cebon presented a proposal to hold a joint EMIT/AutoMatIC/User Group meeting in October. The plan is to hold sessions as follows:

Combined sessions (2 x half day)	Separate sessions (1 x full day)
Aims, objectives & software dev process	All other member presentations
Roadmap	Software deep dive
PLM and enterprise integration	Data deep dive
EMIT & AutoMatIC Report	User story sessions
1 x shared member presentation	Technical sessions

23.3   The members were generally in-favour of this plan, however it was thought better for the EMIT/AutoMatIC Report sessions to be separate and to have two (not one) shared member presentations.   (NOTE: Granta)

23.4   Possible dates to be circulated by Doodle Poll.   (ACTION: Granta)

24   Vote of Thanks

24.1   David Cebon thanked Celeste Driewen and Rick Karnesky for hosting an excellent meeting. He also thanked Charlotte Kirby of Granta for all her help organizing the meeting.

DC, NA, KO
April 5, 2019