DSIWG

SCSC Data Safety Initiative – WG Meeting 70

21st July 2022, Zoom

Minutes

Attendees

Richard Garrett (RG) – SQEP, Michael Green (MG) – Ecomergy, Mike Parsons (MP) – AAIP, Dave Murray (DM) – BAE, Nick Hales (NH) – Consultant, Martin Atkins (MA) – MCA, Divya Atkins (DA) – MCA, Jennifer Kracht (JK) – TomTom, Brent Kimberley (BK) – Durham, Rhiannon Chilton (RC) – Dstl, Tim Rowe (TR) – Consultant, Mike Standish (MS) – Dstl, Dale Callicott (DC) – BAE Systems, Richard Clarkson Webb (RCW) - Atkins

Apologies

Paul Hampton (PH) – CGI, Oscar Slotosch (OS) – Validas, Andy Williams (AW) – Consultant, Dave Banham (DB) – Blackberry

Agenda

1. Welcome
2. Data Risk Cygnology
3. DSITN (Data Safety in the News)
4. Update on Tooling
5. Proposal to make an ISO TR document
6. Migrating, Porting, Exporting and Importing Data - ctd
7. SSS'23 Abstracts Status
8. Actions
9. Next meeting
10. AOB

NOTE: All comments or opinions in these notes are attributed only to individual attendees of the meeting, not to their respective organisations.

*[Note that actions are presented in the form **N.Mx** where **N** is the meeting number, **M** a reference number for the action raised in that meeting and **x** is an optional letter that differentiates related actions arising from the same discussion point].*

The meeting slides are available at: https://scsc.uk/file/gd/70th_DSIWG_Slides_v1-1418.pptx

1. Welcome

MP opened the meeting and welcomed those attending. Recently joined members introduced themselves.

2. Data Risk Cygnology

MP presented the latest work that PH and MP had done on data risk categories, originally based on the idea of Black Swan Data (BSD) and introduced the concept of Unknowingly Critical Data (UCD). The four risk-based data types are now:

Type	Brief Explanation	Examples
Black Swan Data (BSD)	Data which is totally unexpected by those receiving it (i.e. 'out of the blue') and has huge (detrimental) impact, but in retrospect should have been anticipated	C-130 Crew Gets a Rude Shock When They Fly Their Plane Below Sea Level https://www.popularmechanics.com/military/aviation/a26598/c-130-sea-level-dead-sea/
Perfect Storm Data (PSD)	Combinations, sets or occurrences of data (or sets of absences of data) which would never have been thought possible to occur together, and when they do have a large and undesirable impact	Uberlingen? https://en.wikipedia.org/wiki/2002_%C3%9Cberlingen_mid-air_collision
Unknowingly Critical Data (UCD)	Data which is unknowingly and unexpectedly critical to the whole operation and if missing or incorrect in some way has a dramatic and negative impact. After the event it may be obvious that it was critical.	A400M engine torque parameters https://www.reuters.com/article/us-airbus-a400m-idUSKBN0OP2AS20150609 Also Boeing 737 Max.
Dragon King Data (DKD)	Data which might have been foreseen, but leads to an unexpected and explosive escalation with major impact ('things get rapidly out of control').	Computer virus code (various) / ransomware. Also maybe Boeing 737 Max? Software patches that create new problems.

There was then a discussion about a different name for UCD, more in line with the highly-visual names of the other types. MP presented a table of some suggestions and new ones were added:

Names for Unknowingly Critical Data (same family as Black Swan Data, Dragon King Data, Perfect Storm Data)			
Achilles Heel Data	King Pin Data	Lynch Pin Data	Tinderbox Data
Black Rat / Plague Data	Banana Skin Data	Snow White's Apple Data	Apollo 13 Oxygen Tank Data

Shuttle Tile Data	Grenfell Cladding Data	Roman Lead Pipe Plumbing Data	Nail in the Tyre Data
Burst Appendix Data	Titanic / Iceberg Data	Icarus Wax Data	Dropped Stitch Data
Persephone's Pomegranate Data	Asteroid Impact Data	Jack in the Box Data	Crystal Ball Data
Pudding Lane Data	Schrödinger Data?	Wild Card Data	Trojan Horse Data
Wolf in Sheep's Clothing Data	Bakery Data (Fire of London)	Black Death Data	Neutron Initiator Data
Daemon Data (Socrates)	Mad Cow Data	Stealth Data	

MP thanked the group for the suggestions. The most popular seemed to be "Pudding Lane Data", relating to the Great Fire of London, https://en.wikipedia.org/wiki/Great_Fire_of_London

The main points are that (i) the data is (largely) unknown and considered insignificant to those it impacts (at the time of the event), (ii) the impact is large (and may be subject to unknown escalation laws), (iii) after the event it is obviously identifiable as a cause.

Note that the representation should be very visual and well-known, e.g. could be represented as an icon or small picture and people would know what it represents.

3. Data Safety in the News (DSITN)

MP thanked all contributors of articles, MG, AW and particularly MA who provided 3 items.
The news items discussed were:

1. Incorrect data caused mobile work platform to topple over killing one man, https://www.hsmsearch.com/fatality-mobile-elevating-work-platform
2. Incorrect runway data nearly caused major crash, https://www.flightglobal.com/safety/klm-737-used-whole-runway-for-take-off-after-intersection-data-slip-up/148742.article?utm_source=pocket_mylist
3. Capstone moon mission problem partly caused by incorrectly formatted message: https://www.theregister.com/2022/07/08/capstone_software_bug/
4. The SOHO spacecraft survived a multitude of severe problems, some of which were data-related, https://www.theregister.com/2020/07/29/esa_soho_space_extenders/
   (The history of SOHO is fascinating story of how to miraculously recover from many severe problems, one of which looked hopeless – a highly recommended read)
5. UK pensions payments revealed as incorrect for decades and only just admitted, https://www.bbc.co.uk/news/uk-61829661

All of these are candidates for the next issue of the DSG. MP will forward to Mark Templeton.

DA proposed that there is a central database set up for data safety-related accident reports, as MCA had already made a good start. The group agreed this was a good idea.

Action 70.1 (DA/MA) – Investigate feasibility of creating searchable web database of data safety-related accidents.

4. Update on Tooling

DA said that 3 potential users had been granted access today.

DA presented the registration of a new user in the Data Safety Tool. This tool is now available free of charge for evaluation. Feedback and comments are requested: https://data-safety.tech/tooling/

5. Proposal to make an ISO TR document

No update

6. Migrating, Porting and Importing Data - ctd

MP had slightly revised the slides from last meeting.

7. AOB

None.

8. Actions, etc.

See table at end.

9. Next Meeting

Next meeting will be held 15th September 2022 in London if a suitable venue can be found (also accessible by Zoom). MP to arrange.

10.Thanks

Thanks to all those who sent data safety in the news links.
Thanks to MP for taking the minutes.
Thanks to MP for chairing.

Summary of Open Actions

Actions greyed out are considered closed and will be removed from the list at next issue.

65.1 has been dropped.

Ref	Owner	Description	Target Guidance Version
42.9	MP	Work out a matrix of data categories (previously 'types') and data properties (as per DB discussion)	N/A
43.4	MP	Write up a data focussed FMEA approach.	4.0
44.2	MP	To discuss with AK on how to get the Wikipedia article published	N/A
46.1	MP	Review the application of DSALs to higher level forms of aggregation	N/A

Ref	Owner	Description	Target Guidance Version
49.6	MT	Review Overleaf briefing material and aim to hold a briefing before end of March 2021 in the use of Overleaf in the production of the guidance.	N/A
53.1	MP	To talk to Kevin King about what we need to do in the guidance for digital twins.	4.0
61.2	AW	Research the relevance of digital currencies and report back to the group (with MA and MT)	4.0
63.1	CT	Look at both Dark Data and Dazzle Data for sensors (e.g. when a sensor is saturated, in noisy environment or when readings are below the detection level floor)	4.0
64.1	MP	Contact Thor and establish the details of the guidance proposals in the paper.	4.0
65.1	MP	Contact Davy Pissoort and see if any interest in this funding route for Data Safety	-
66.6	MT	Add these three properties [‘Analysability’, ‘Explainability’, ‘Verifiability’] to the user-visible further work section. If time allows then develop into the guidance further.	4.0
68.1	MP/PH	Develop the Black Swan / Dragon King Data work further and consider publishing as a newsletter article	4.0
68.2	MP/MT	Develop the migration work further and present at next meeting	4.0
69.1	CT	Establish a list of similar / related TRs that we could use as examples.	
69.2	RR	Explore the issue of data / software compatibility issues and to what extent data can impose requirements on software	4.0
69.3	PMcK	Develop a scoping diagram that shows how the DSG fits into the overall lifecycle process and other standards	4.0
69.4	MA	Write a short note on the issues of aggregation	4.0
69.5	RO	Look at the government call for information and see if there were any opportunities for the group to provide useful input.	-
69.6	MA/DA	Update the data safety tool to use the latest version of the guidance document	-
70.1	MA/DA	Investigate feasibility of creating searchable web database of data safety-related accidents.	-