Challenges of Data Transfer

Dr Roger Chandler
Tender

45 km railway in Hong Kong
1800 Borehole logs
1 AutoCAD drawing required showing depth to granite
Logs available for viewing in HK CEDD Library
WAG or SWAG required in 3 minutes
My Story

• 1996 – Offshore Engineer tasked with rapid reporting
• 1997 – Drafted onto AGS committee in UK
• 1998 – Co-founded Keynetix
• 2005 – Representing AGS on DIGGS committee
• 2016 – Working with Hong Kong, Australia, New Zealand, UK and USA with data transfer formats
Challenge 1

Do you currently use a Data Transfer Format?
Welcome to the 2016 TRB Annual Meeting

IMPORTANT: Online Registration will be unavailable at times between the hours of 10:00 AM and 2:00 PM.

The Transportation Research Board (TRB) 95th Annual Meeting will be held January 10–14, 2016, at the Walter E. Washington Convention Center in Washington, D.C. The meeting will draw 12,000 transportation professionals from around the world.

The meeting program will cover all transportation modes, with more than 5,000 presentations in nearly 800 sessions and workshops, addressing the needs of representatives of government, industry, and academic institutions. More than 35 sessions and workshops will focus on the spotlight themes of one or more of three “hot topics:” Transformation Technologies, Resilience, and Transportation and Public Health.

The full 2016 program is available online now via the Interactive Program. You can view the events chronologically, or search just for the session or paper you are interested in.

You can also download the mobile app, which provides full meeting information in an easy-to-use format on your mobile device.

2016 Exhibit and Marketing Opportunities are available and on sale now. Exhibit space and some advertising opportunities are limited.

Plan now to attend the 95th TRB Annual Meeting. We look forward to seeing you in January.
Challenge 2
What is Geotechnical Data?
Geotechnical Data

“facts or figures obtained from all phases of a geotechnical project, including derivations from other data

NOTE Facts and figures might include text, numbers and formulae.”

Source: BS 8574:2014 Code of practice for the management of geotechnical data for ground engineering projects
Data or Information

If you can process it into one or more formats

without re-entering it

or

without using multiple cut and paste operations

You have data
Data or Information

If not ...

You have information
Quiz - Have you been given Information or Data?
<table>
<thead>
<tr>
<th>Sample</th>
<th>Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>11.80</td>
</tr>
<tr>
<td>0.10</td>
<td>11.90</td>
</tr>
<tr>
<td>0.50</td>
<td>12.40</td>
</tr>
<tr>
<td>1.00</td>
<td>13.40</td>
</tr>
<tr>
<td>1.50</td>
<td>14.90</td>
</tr>
<tr>
<td>2.00</td>
<td>16.40</td>
</tr>
<tr>
<td>2.50</td>
<td>17.90</td>
</tr>
<tr>
<td>3.00</td>
<td>19.40</td>
</tr>
<tr>
<td>3.50</td>
<td>21.90</td>
</tr>
<tr>
<td>4.00</td>
<td>24.40</td>
</tr>
</tbody>
</table>

**Sample Description**

- Sample 1: Gravelly sand and medium gravelly sand
- Sample 2: Fine to medium grained sand with a few fine gravel particles
- Sample 3: Medium to coarse grained sand with a few gravel particles
- Sample 4: Fine to medium grained sand with a few fine gravel particles
- Sample 5: Medium to coarse grained sand with a few gravel particles
You have Information
An Excel table
<table>
<thead>
<tr>
<th></th>
<th>Date</th>
<th>Location ID</th>
<th>Water Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>02/09/2012</td>
<td>DH 1</td>
<td>24.150</td>
</tr>
<tr>
<td>2</td>
<td>03/09/2012</td>
<td>DH 1</td>
<td>25.692</td>
</tr>
<tr>
<td>3</td>
<td>04/09/2012</td>
<td>DH 1</td>
<td>25.656</td>
</tr>
<tr>
<td>4</td>
<td>05/09/2012</td>
<td>DH 1</td>
<td>22.377</td>
</tr>
<tr>
<td>5</td>
<td>06/09/2012</td>
<td>DH 1</td>
<td>23.644</td>
</tr>
<tr>
<td>6</td>
<td>07/09/2012</td>
<td>DH 1</td>
<td>20.045</td>
</tr>
<tr>
<td>7</td>
<td>08/09/2012</td>
<td>DH 1</td>
<td>24.895</td>
</tr>
<tr>
<td>8</td>
<td>09/09/2012</td>
<td>DH 1</td>
<td>21.500</td>
</tr>
<tr>
<td>9</td>
<td>10/09/2012</td>
<td>DH 1</td>
<td>23.280</td>
</tr>
<tr>
<td>10</td>
<td>11/09/2012</td>
<td>DH 1</td>
<td>20.500</td>
</tr>
<tr>
<td>11</td>
<td>12/09/2012</td>
<td>DH 1</td>
<td>20.620</td>
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<tr>
<td>12</td>
<td>13/09/2012</td>
<td>DH 1</td>
<td>20.490</td>
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<td>13</td>
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<td>DH 1</td>
<td>20.080</td>
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<td>14</td>
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<td>20.139</td>
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<td>15</td>
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<tr>
<td>16</td>
<td>17/09/2012</td>
<td>DH 1</td>
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<tr>
<td>17</td>
<td>18/09/2012</td>
<td>DH 1</td>
<td>20.379</td>
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<tr>
<td>18</td>
<td>19/09/2012</td>
<td>DH 1</td>
<td>20.323</td>
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<tr>
<td>19</td>
<td>20/09/2012</td>
<td>DH 1</td>
<td>20.270</td>
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<tr>
<td>20</td>
<td>21/09/2012</td>
<td>DH 1</td>
<td>20.420</td>
</tr>
<tr>
<td>21</td>
<td>22/09/2012</td>
<td>DH 1</td>
<td>20.420</td>
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<tr>
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<td>23/09/2012</td>
<td>DH 1</td>
<td>19.975</td>
</tr>
<tr>
<td>23</td>
<td>24/09/2012</td>
<td>DH 1</td>
<td>19.790</td>
</tr>
</tbody>
</table>
Data or Information?

An Excel Report
Data or Information?

An AGS data file

A DIGGS data file

keynetix.com
You have Data!
No Data
Data in one place
Challenge 3
Data Transfer is not a Database
Data Transfer
Challenge 4
Importance of Standardization
5 Stages of Data Transfer

1. Drilling Rig/Crew to Engineer
2. Engineer to Lab
3. Lab to Client
4. Client to Regional Archive
5. Regional Archive to Engineer
15 Stages of Data Transfer
Two Golden Rules for Data Entry

1. Only do it once
Two Golden Rules for Data Entry

Get someone else to do it
Two Golden Rules for Data Entry

Record data as close to source as possible and transfer it in a standardized electronic format.
Data Transfer

*GPJ

Keynetix
Geotechnical Data
Software Transformed

keynetix.com
Challenge 5
Understanding Your Data Journey
Swim Lanes

NOTE 3
Swimlane diagrams (also known as a cross-functional diagram) can be very useful to document the steps, activities or processes in a workflow, especially where there are numerous organizations or systems involved. Recording the method and format of data transfer between the steps is helpful.
Workflow
## Sample Details

<table>
<thead>
<tr>
<th>Drilling Crew</th>
<th>Field Engineer</th>
<th>Office Engineer</th>
<th>Laboratory</th>
<th>Client</th>
</tr>
</thead>
</table>

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*keynetix.com*
Sample Details

- Drilling Crew: Samples Created
- Field Engineer: Samples Reported
- Office Engineer: Parameters Checked
- Laboratory: Samples Scheduled
- Client: 

Keynetix
Geotechnical Data
Software Transformed

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Sample Events

• Created
• Reported
• Scheduled
• Tested
• Reviewed
Sample Details

Drilling Crew
- Samples Created
- Samples Recorded
- Samples Labelled

Field Engineer
- Samples Recorded

Office Engineer
- Samples Reported

Laboratory
- Samples Scheduled
- Samples Scheduled

Client
- Samples Scheduled
- Parameters Checked
Challenge 6
Where do you start?
Driven by Client

• Client Drives Adoption

United Kingdom – Highways England
New Zealand – Canterbury Earthquake Recovery Authority
Hong Kong – Civil Engineering Design Department
Singapore – BCA
Australia – RTA (New South Wales DOT)
Remaining Challenge
Conclusions

- Standardised Data Transfer Formats are often hidden from the user and are not new.
- DIGGS offers the opportunity to address all the challenges outlined in this presentation.
- DIGGS could be the worldwide standard for geotechnical data transfer.
DIGGS - Time for Take off?