




SUPPLY CHAIN VISIBILITY & ENSURING GREATER TRANSPARENCY

SUPPLY CHAIN INNOVATION SUMMIT – JULY 2019

DAVID MCNEIL

CUSTOMER EXPERIENCE MANAGER

a company of
 LIBERTY

An aerial photograph of a construction site at sunset. In the foreground, a large black tower crane stands on the left, with its long jib extending across the top of the frame. Below the crane, a multi-story building is under construction, with blue safety netting and scaffolding visible. In the background, a city skyline is silhouetted against a bright orange and yellow sunset sky. The Sydney Tower Eye is prominent on the right side of the skyline. The overall scene is a mix of industrial construction and urban development.

At InfraBuild – We are on a mission to inspire and drive nation building infrastructure and the construction of Australia's tomorrow by using local resources, sustainable solutions, new technology, and big thinking.

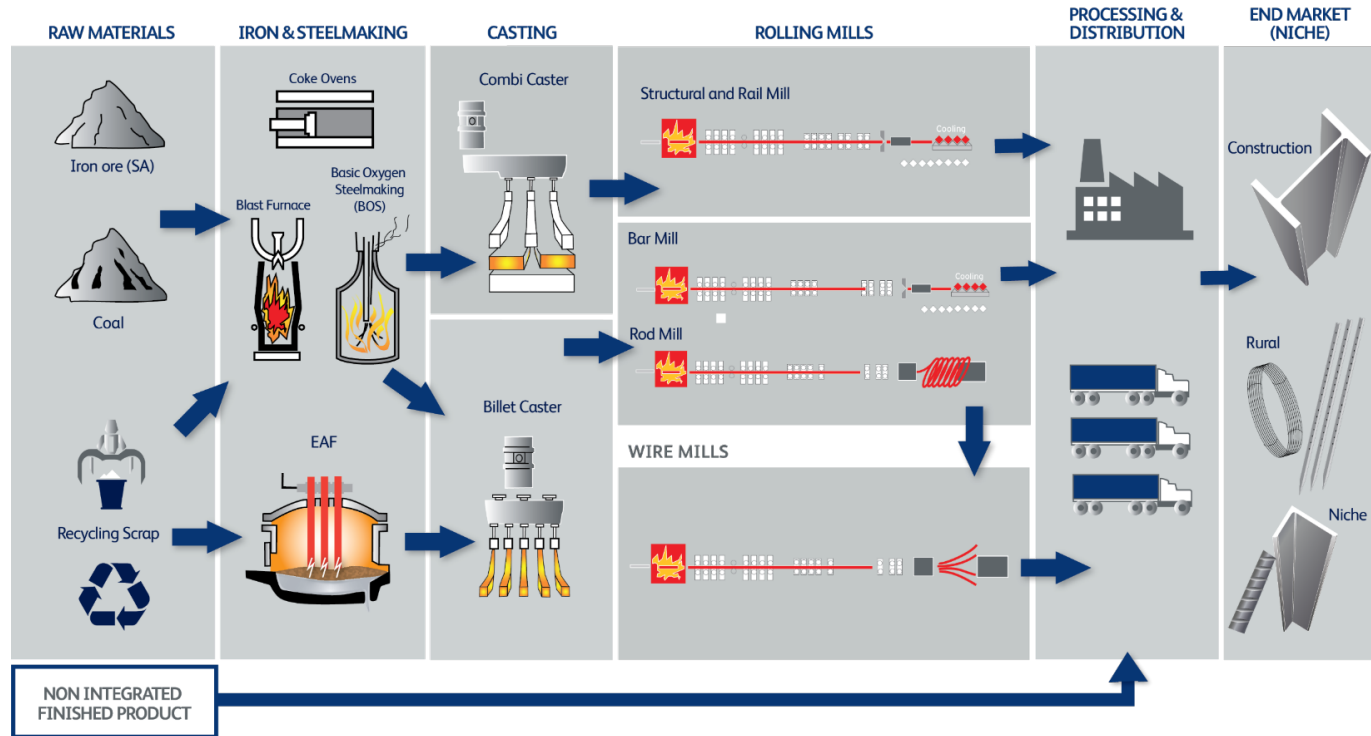
LIBERTY and InfraBuild's Footprint



- Australian manufacturer and processor of steel long products
 - EAF and integrated blast furnace production flexibility
 - Australia's largest integrated steelmaker
 - Large product range – structural, pipe and tube, reinforcing, rail, wire, fencing and strand products and solutions
- Integrated Australian steel operations
 - Scrap/iron ore → Manufacturing → Distribution
- The leading distributor of metal products in Australia
 - National footprint
 - #1 in general Australian steel distribution
 - #1 in Australian reinforcing
 - #1 in Australian wire

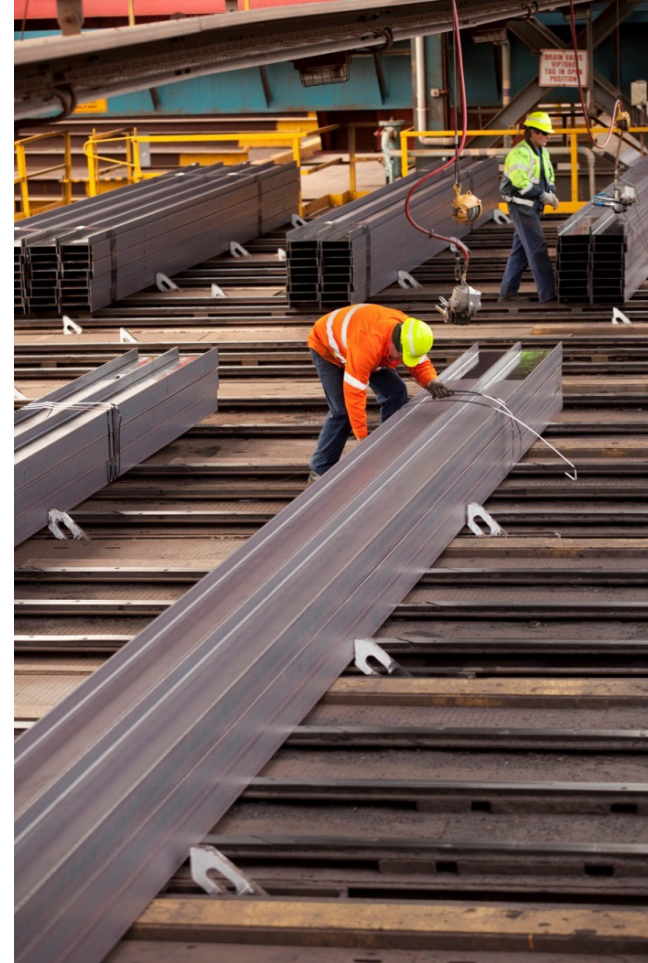
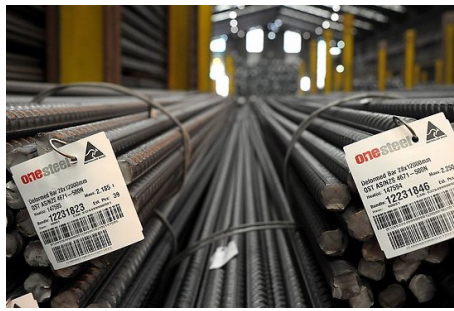
We use our expertise in steel manufacturing, sales, logistics, supply chain and processing to deliver a safe, fast, flexible and reliable product to all Australian customers.

InfraBuild's Integrated Value Chain

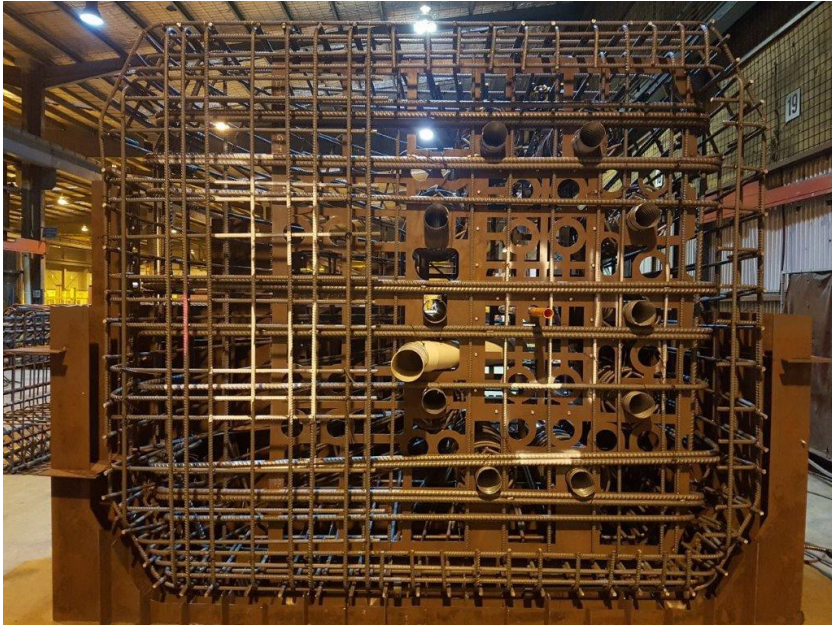


Our products

- Long and/or bulky
 - ➔ 6m to 20m
- 1.5~5t per bundle/coil
- ~ 1 million coils/bundles p.a.
- Traceable at a bundle/coil level



Construction is our key market



Needs of the customer

OUR CUSTOMERS HAVE COMPLEX NEEDS:

- Innovation, Aus certification, compliance, sustainability
- Reliability of delivery through a complex supply chain
- Certainty of cost and on-time delivery
- Scrupulous attention to safety
- Minimise and accurately schedule truck movements
- Most importantly...

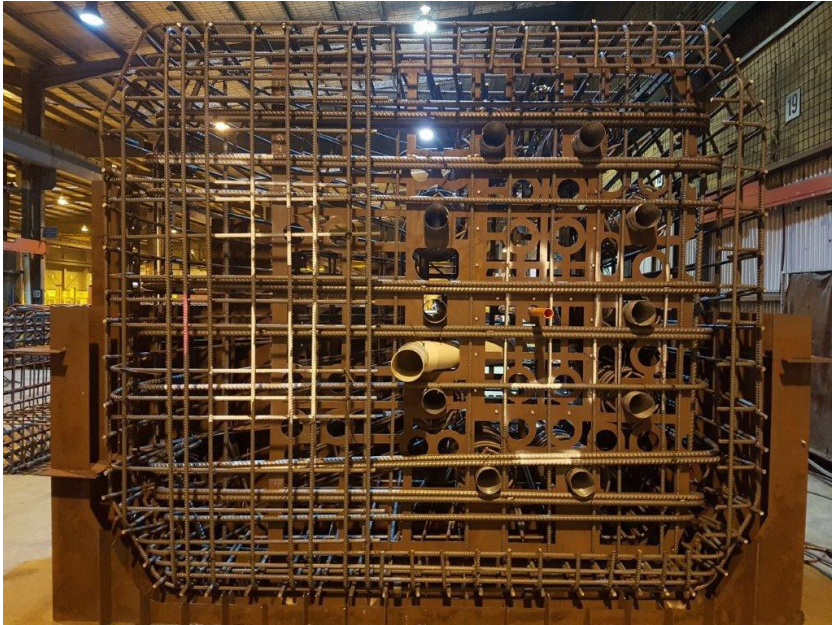


...transparency and traceability

Providing confidence and certainty in the products and services we supply



Whole-of-life in construction?



Technology versus data?



125X125X9.0 LITEOIL
RHS 8.0M
AS/NZS1163-C450

LOT I130134

ITEM **55320** 1.00 PACK
PACK QTY **8** LENGTHS
WEIGHT **1.958** TONNES NOMINAL
PACK **9813063108** 13/08/05 12:58



#W

onesteel
australian tube mills
An Arrium Company



onesteel OneSteel Manufacturing Pty Limited ABN 42 804 051 325		CUSTOMER WO LEE STEEL DESTN. ZIK DELIVERY YAGA HONG KONG PORT OF HONG KONG HONG KONG	
REMARKS ONE-105237 WO LEE / TEL. 23811506	S/O No. X6054	ITEM 0277	
SPEC/USAGE 200 PFC EN10025S275JR	SPEC 00000	LENTH 9.600	NO. / MASS 20 / 4.40
NO. / HEAT 20 571567	NO. / HEAT	NO. / HEAT	NO. / HEAT
22958909			



Data – Uniqueness and Serialisation

'Reading' the InfraBuild tag

Primary emphasis given to the unit / bundle id

GS1-128 Bar-code comprising:

- (AI 01) GTIN
- (AI 21) Unit ID

Ensures compatibility with older-type scanners



The tag contains the following information:

- InfraBuild logo and Australian Made logo
- ACRS CERT NO. 311021
- MICRO-ALLOYED AS/NZS 4671-500N
- Deformed Bar Coil 16mm SQ
- UNIT ID: **16785276**
- COUNT: **1**
- HEAT: **211479**
- MASS: **2.073t**
- GTIN: 99316266013925
- Item: 90253
- GS1 Data Matrix bar-code
- Standard 1D bar-code
- A company of LIBERTY

Comprehensive product description

GS1 Data Matrix bar-code comprising:

- (AI 01) GTIN
- (AI 21) Unit ID
- (AI 10) Heat
- (AI 30) Bar Count
- (AI3100) Mass

LIBERTY/Pandrol Case Study



Link to YouTube video –

GS1 standards in action – A supply chain success story in the steel industry –

<https://www.youtube.com/watch?v=xqIVPXjGeBQ>

onesteel
OneSteel Manufacturing Pty Limited
ABN 42 004 651 325



CUSTOMER DESTN. ONESTEELST ZIX MELBOURNE

DELIVERY M92A OHESTEEL 1257- 1259 FERITREE GULLY RD JELLS PARK SCORSEBY

300PLUS/ISO (AS/NZS 3679-1-300/300S0)
ACRS CERT NO. 110301

Q/IO No.	ITEM	Number of Bars	No.	4.24 t
M5318	0015	10	10	4.24 t
		SPEC.	LOICH	
		00000	200C	

310UB40.4 300PLUS/ISO

10.50m

40.4kg/m

00000

No./HEAT No./HEAT No./HEAT No./HEAT No./HEAT No./HEAT

10 546205



UNITID:

295

(01) 9 9317869 54968 0 (21) 7113228003



AustubeMills



ACRS Cert: 111104

LOT **Q131713**
ITEM **54988**

75X 75X4.0
DURAGALPLUS 8.0 M
AS/NZS1163-C450L0

UNIT ID **7113228003**

QTY **25** LENGTHS

MASS **1.698 T NOM**

1.00 PACK

16/08/13
12:20



GTIN(01) 9 9317869 54968 0 (21) 7113228003

LIBERTY



ACRS CERT NO. 311021

MICRO-ALLOYED AS/NZS 4671-500N

Deformed Bar Coil 16mm SQ

UNIT ID: **16785276**

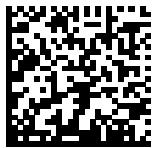
COUNT **1**

HEAT: **211479**

MASS **2.073t**

GTIN: 99316266013925

Item: 90253



(01)99316266013925(21)16785276

Member of GFG Alliance



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Size / Type	60 KG A/S HH
Seq. No. / Length	50694 13.72 m
Heat ID	540345 11C



www.infrabuild.com

GDS at work!

- ▶ An example of how using an agreed standard for identification can unlock data...


MRO Identification Standards in the Australian Rail Industry

Case Study Sample: OneSteel – Identification of Steel Products (including rails) using GSI keys

In Australia, OneSteel is the premier manufacturer and distributor of long steel products, and is the sole Australian manufacturer of both plain Carbon and head hardened steel rails supplied from the OneSteel Whyalla Steelworks in South Australia.

For some time OneSteel has recognised the supply chain & quality benefits that can be gained from standard product identification & barcoding and has worked closely with GSI Australia to consistently utilise GSI keys in the identification of its products. The examples below illustrate how these principles have been applied

STEEL RAILS

Steel rails ex OneSteel Whyalla are individually labelled on the bottom flange of the rail identifying each piece.


The label typically will look like the example below:


oneSteel

Steel
Type: 41 KG A/S PC

Serial
No.: 64869 13.72M

Ident
ID: 549032 14A






The GSI DataMatrix applied for OneSteel rail uses the following GSI keys:

AI Code	AI Type	Data	Comments
01	Global Trade Item Number (GTIN)	99316103038050	This is the OneSteel issued GTIN for A5 41kg Plain Carbon Steel Rail produced in 13.72m lengths to OneSteel Rail Technical Standard RT23, supplied undrilled & with a length tolerance of +150mm / -0mm
11	Production Date (YYMMDD)	150609	Production date: 9th June, 2015
21	Serial Number	54903214A	This is the combination of the cast, or heat, of steel and the production identity of the feed length of rail.
250	Secondary Serial Number	64869	The secondary serial number indicates the individual identity of the rail length cut from the production identity & combined with the Serial Number & GTIN gives the unique identity of the individual rail length.
3112	Length or first dimension, metres (Variable Measure Trade Item)	001372	This is the length of the rail in metres, the "2" in the AI (3112) string indicates that the decimal point sits between the 4th & 5th digit ==> 13.72m

Release Version 1.0_22 November 2016
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GDS at work!

WHAT YOU SEE...




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Size / Type: 41 KG A/S PC

Seq. No. / Length: 64869 13.72M

Heat / ID: 549032 14A



GDS at work!

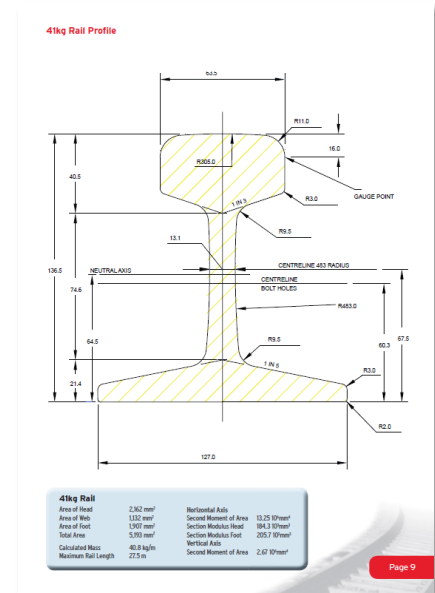
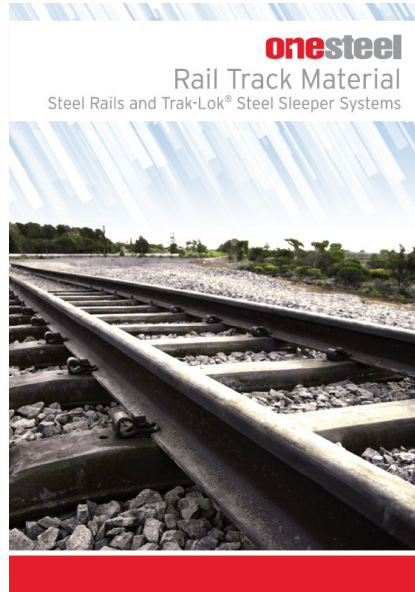
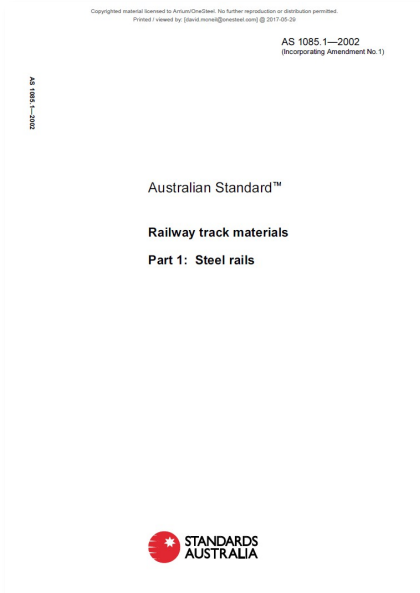
WHAT THE SCANNER SEES



AI Code	AI Type	Data	Comments
01	Global Trade Item Number (GTIN)	99316183038858	This is the OneSteel issued GTIN for AS 41kg Plain Carbon Steel Rail produced in 13.72m lengths to OneSteel Rail Technical Standard RT23, supplied undrilled & with a length tolerance of +150mm / -0mm
11	Production Date (YYMMDD)	150609	Production date: 9th June, 2015
21	Serial Number	54903214A	This is the combination of the cast, or heat, of steel and the production identity of the feed length of rail.
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GDS at work!

WHAT THE SCANNER UNLOCKS



GDS at work!



WHAT THE SCANNER UNLOCKS

onesteel

DESPATCH ADVICE
CUSTOMER COPY
MELBOURNE FREIGHT TERMINAL
MELBOURNE

ADVISE NO: MD-233022
DATE: 28/09/15
PAGE: 1 OF 2

DESPATCHED TO: [REDACTED] DESPATCHED BY: LOREY
VEHICLE: XQE249
CARRIER: K & S

Customer Reference	Supplier Order Number	ITEM DESCRIPTION	Dispatch Unit	Unit Number	Invoice Part Label	Qty	Taxes	Cost
689706		AS 4.50 WALL X 13.72M R12241504C SEP11 2W2070CD 150M-2648 RFP-9316781038853	A06A54021	1	06A	560		
			A06A54022	1	"	560		
			A06A54023	1	"	560		
			A06A54024	1	"	560		
			A06A54025	1	"	560		
			A06A54026	1	"	560		
			A06A54027	1	"	560		
			A06A54028	1	"	560		
			A06A54029	1	"	560		
			A06A54030	1	"	560		
			A06A54031	1	"	560		
			A06A54032	1	"	560		
			A06A54033	1	"	560		
			A06A54034	1	"	560		
			A06A54035	1	"	560		
			A06A54036	1	"	560		
			A06A54037	1	"	560		
			A06A54038	1	"	560		
			A06A54039	1	"	560		
			A06A54040	1	"	560		
			A06A54041	1	"	560		
			A06A54042	1	"	560		
			A06A54043	1	"	560		
			A06A54044	1	"	560		
			A06A54045	1	"	560		
			A06A54046	1	"	560		
			A06A54047	1	"	560		
			A06A54048	1	"	560		
			A06A54049	1	"	560		
			A06A54050	1	"	560		
			A06A54051	1	"	560		
			A06A54052	1	"	560		
			A06A54053	1	"	560		
			A06A54054	1	"	560		
			A06A54055	1	"	560		
			A06A54056	1	"	560		
			A06A54057	1	"	560		
			A06A54058	1	"	560		
			A06A54059	1	"	560		
			A06A54060	1	"	560		

Signatures
Loaded By: _____ Driver: _____ Received In Good Order: _____ Unloaded Date: _____ Time: _____

onesteel

DESPATCH ADVICE
CUSTOMER COPY
MELBOURNE FREIGHT TERMINAL
MELBOURNE

ADVISE NO: MD-233022
DATE: 28/09/15
PAGE: 2 OF 2

DESPATCHED TO: [REDACTED] DESPATCHED BY: LOREY
VEHICLE: XQE249
CARRIER: K & S

Customer Reference	Supplier Order Number	Product Description	Dispatch Unit	Unit Number	Number of Part Units	Qty	Taxes	Cost	
			10A64848		1	"		560	
			10C54887		1	"		560	
			14A64868		1	"		560	
			24A64869		1	"		560	
			16A64865		1	"		560	
			16A64866		1	"		560	
			17B64863		1	"		560	
			17B64864		1	"		560	
			17C64867		1	"		560	
			19A64861		1	"		560	
			19A64862		1	"		560	
			25A64893		1	"		560	
			27B65294		1	"		560	
			32A65293		1	"		560	
			32B65284		1	"		560	
			33A69285		1	"		560	
			ORDER/ITEM TOTAL :		42 BUNDLES			42 BARS	23.520
			TOTAL FOR ADVISE MD-233022 :		42 UNITS			42 UNIT	23.520

Signatures
Loaded By: _____ Driver: _____ Received In Good Order: _____ Unloaded Date: _____ Time: _____

GDS at work!



WHAT THE SCANNER UNLOCKS

Consignment History (P) x

panorama.ksgroup.com.au/Panorama/Orders/ConsignmentHistory.aspx?identifierID=1722790&identifierType=Consignment&ExternalUser=1

PANORAMA Connection

Consignment History **845 ITEMS** Monday, 29 May 2017

Consignment Details		Pickup and Delivery Details			
Customer Load No	MD233022	Req Pickup	28/09/2015	HH-MM	HH-MM
Consignment No	1722790	Actual Pickup	28/09/2015	17:31	
Customer Consignment No	MD233022	Cust Req Delivery Date	DD/MM/YYYY	HH-MM	HH-MM
Customer Reference		Actual Delivery	28/09/2015	17:32	
Service Mode	LOCAL ROAD	System Scheduled Delivery Date	28/09/2015		
Actual Weight (kgs)	23520	Switch History			
Volume (m3)		Consignment MD233022		Show History	
Consignment Status	Goods Delivered				
	Link to POD	View POD Image 1			
	POD links not working?	View POD Image 2			

Events	Tasks	Add Incident
Event Date/Time	Description	Consignment
28/09/2015 5:31:00 PM	Local Task Planned	MD233022
28/09/2015 5:31:00 PM	Local Task In Transit	MD233022
28/09/2015 5:32:00 PM	Local Task Completed	MD233022
29/09/2015 5:16:00 PM	ORDER CAPTURED AND PICKUP REQUIRED AT 28/09/2015	
29/09/2015 5:16:00 PM	CON-NOTE RECORDED. Delivery Due 28/09/2015	
1/10/2015 9:27:00 AM	DELIVERY CONFIRMED	
1/10/2015 9:27:00 AM	CONSIGNMENT COMPLETED	
1/10/2015 9:27:00 AM	Order Completed	
1/10/2015 9:27:00 AM	POD RETURNED	
6/10/2015 11:07:00 AM	POD IMAGED	
6/10/2015 11:07:00 AM	POD IMAGED	

onesteel

TEST CERTIFICATE

Page 1 of 1
Certificate No. 19921684
Transmission Date: 23/09/15

Customer:	Supplier: OneSteel Manufacturing Pty Limited Whylaha, SA - 5000, Australia A.B.N. 42 004 651 325
Ship To:	Sales Order No: T5024 Printer on: 23/09/2015

MATA Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced except in full.

Sampling undertaken by OneSteel Whylaha 15352
Approved Signatory - P. Ramsday
Chemical results as certified are from Bureau Veritas Minerals Pty Ltd, Whylaha SA
Approved Signatory - K. Bandy

STEELMAKING: Basic Oxygen - Slab Cast
SPECIFICATION: RT23 Rev10 PC
PRODUCT: 41RL

INSPECTION: Supplier
CERTIFICATION: Supplier

ITEMS COVERED BY THIS TEST CERTIFICATE

Item No	Unit No	Customer Order	Weight	UNIT IDENTIFIER
0005	S49007	089705	13.720	05-A-000 32-A-000 34-B-000 35-B-000 35-C-000
0006	S49012	089705	13.720	33-B-000
0006	S49013	089705	13.720	34-B-000
0006	S49024	089705	13.720	01-A-000 02-A-000 02-B-000 02-C-000 04-A-000 04-B-000 06-A-000 06-B-000 06-C-000 08-A-000 08-B-000 08-C-000 08-D-000 08-E-000 08-F-000 08-G-000 08-H-000 08-I-000 08-J-000 08-K-000 08-L-000 08-M-000 08-N-000 08-O-000 08-P-000 08-Q-000 08-R-000 08-S-000 08-T-000 08-U-000 08-V-000 08-W-000 08-X-000 08-Y-000 08-Z-000
0005	S49025	089705	13.720	34-A-000 04-C-000 10-C-000
0005	S49030	089705	13.720	19-A-000
0005	S49031	089705	13.720	34-B-000 14-C-000 15-A-000 17-B-000 17-C-000

CHEMICAL ANALYSIS
Percentage of element by mass

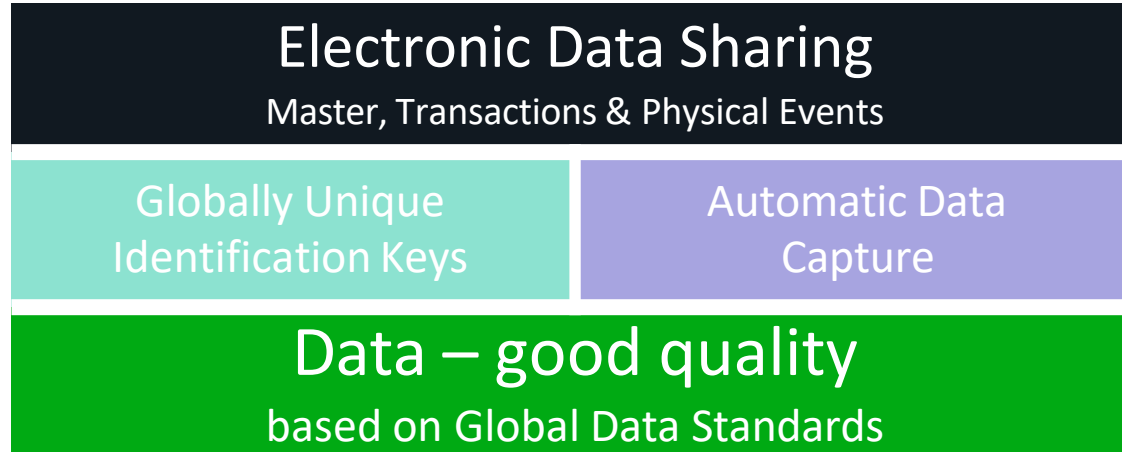
Item No	Unit No	NATA Lab	L	C	P	Mn	Si	S	CP1
0006	S49009	0534	L	81	016	70	230	016	75
0006	S49012	0534	L	61	010	72	250	016	75
0006	S49013	0534	L	61	016	69	230	014	74
0006	S49024	0534	L	62	011	71	240	017	76
0006	S49025	0534	L	62	009	69	230	019	75
0006	S49030	0534	L	62	012	70	250	019	76
0006	S49032	0534	L	63	012	71	230	015	77

CP1=C + MnS

COMMENTS
OneSteel Whylaha is quality endorsed to AS/NZS ISO9001 under SAI GLOBAL Lic. No. QCE0331.
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I certify the conformance of the material to the specification and that the information on this certificate is in accordance with the records of the company.
E. Bennett - OneSteel Whylaha

What are the flow-on benefits?



Electronic Data Sharing – The results

Freight Order Event Updates in TMS :

Display OneSteel Metalcentre FO Type 610006179

Save Cancel Edit Refresh Print Check Follow Up Scheduling Subcontracting

No Messages [Display Message Log](#)

General Data Business Partner Items Stages Utilization Subcontracting

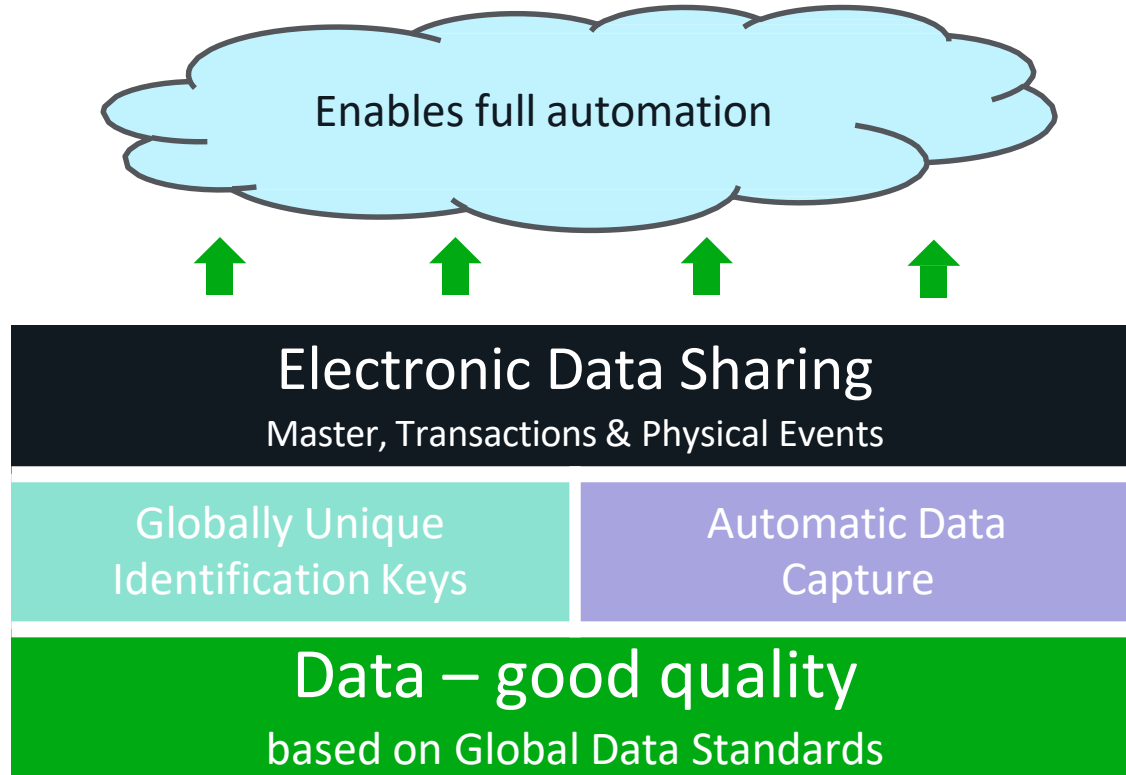
Report Event Insert Event

St...	Event	Actual Event Date	Actual Event Time	Time Zone
●	Freight Order Start	29.06.2016	05:00:00	AUSNSW
●	Arrival at Destination	29.06.2016	05:54:10	AUSNSW
●	Unloading End	29.06.2016	06:06:31	AUSNSW
●	Arrival at Destination	29.06.2016	06:26:40	AUSNSW
●	Unloading End	29.06.2016	07:56:25	AUSNSW
●	Arrival at Destination	29.06.2016	08:02:24	AUSNSW
●	Unloading End	29.06.2016	08:26:42	AUSNSW
●	Arrival at Destination	29.06.2016	09:17:40	AUSNSW
●	Unloading End	29.06.2016	09:26:08	AUSNSW
●	Arrival at Destination	29.06.2016	09:36:23	AUSNSW
●	Unloading End	29.06.2016	09:57:35	AUSNSW
●	Arrival at Destination	29.06.2016	12:15:23	AUSNSW
●	Unloading End	29.06.2016	12:25:10	AUSNSW
●	Freight Order End	29.06.2016	13:15:00	AUSNSW

- Example of live messaging using the GS1 TI and TS messages
- Real-time, triggered by truck telematics/GPS



Where to next...



Next steps / Challenges / Learnings



- **Creating the complete 'digital' twin of our products and services**
- **Location Master Data – replicate learnings from product identification**

- **Open versus Closed data – getting the right balance around confidentiality and transparency**
- **Who owns the data?**

- **Collaboration is critical!**
- **Patience is a virtue**

The end game

Greenland Centre – Repurposing a 1966 steel structure





InfraBuild

David McNeil

Customer Experience Manager

0417 882 155 | david.mcneil@infrabuild.com

a company of

