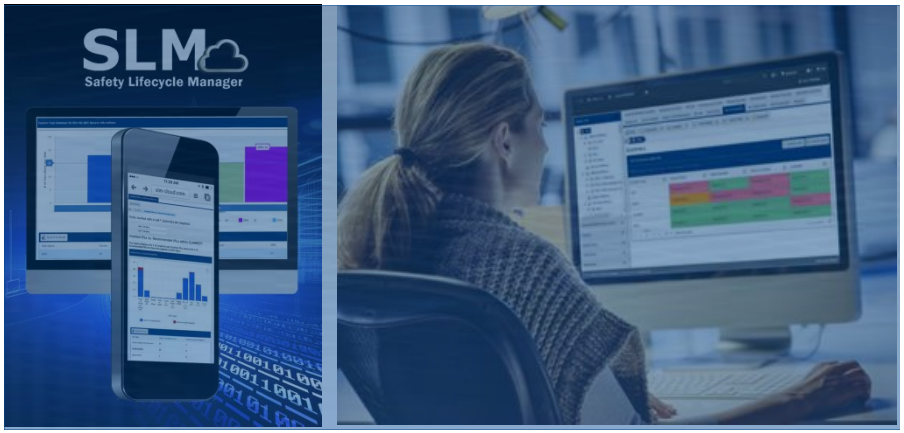


MANGAN
SoftwareSolutions

SPInspector V 1.7
An Automated SPI Database Validation Tool

LTUF
May 15, 0218

CONFIDENTIAL

Mangan, Inc

MANGAN INC. ENGINEERING & AUTOMATION SPECIALISTS

MANGAN RENEWABLES DIVISION OF MANGAN INC.

MPI PROVING & INSTRUMENTATION SPECIALISTS

MANGAN Biopharm

MANGAN SoftwareSolutions

Barry D. Payne & Associates, Inc. A Mangan Company — BDP — On Target Solutions!

MANGAN SoftwareSolutions

- 17+ Years
- 3 Office Locations
- International Footprint

SLM® Safety Lifecycle Manager

SPInspector

MSS – A Core Focus on Software

Engineering

- **Core Focus**: Engineering Services
- **Development**: Outsourced/Small Group of Product Managers
- **Experts**: Internal/ Sales/Service Projects
- **Implementation Capabilities**: Limited to Application support

MSS

- **Core Focus**: Software & Implementation Services
- **Development**: In House
- **Experts**: Design Software
- **Implementation Capabilities**: Internal capabilities. World-wide experience deploying ProSys SLM

Software

- **Core Focus:** Software Sales
- **Development**: In House
- **Experts**: Sales/Marketing
- **Implementation Capabilities**: Internal Capabilities & experience deploying software or Outsourced

Strong Relationships

Celebrating 17 Years of

SUCCESSFUL PARTNERSHIPS

Chevron

Shell

ExxonMobil

PHILLIPS 66

TOTAL

HUNTSMAN

TCO
ТЕҢІЗШЕВРОЙЛ

ASCEND
PERFORMANCE MATERIALS

andeavor

TESORO

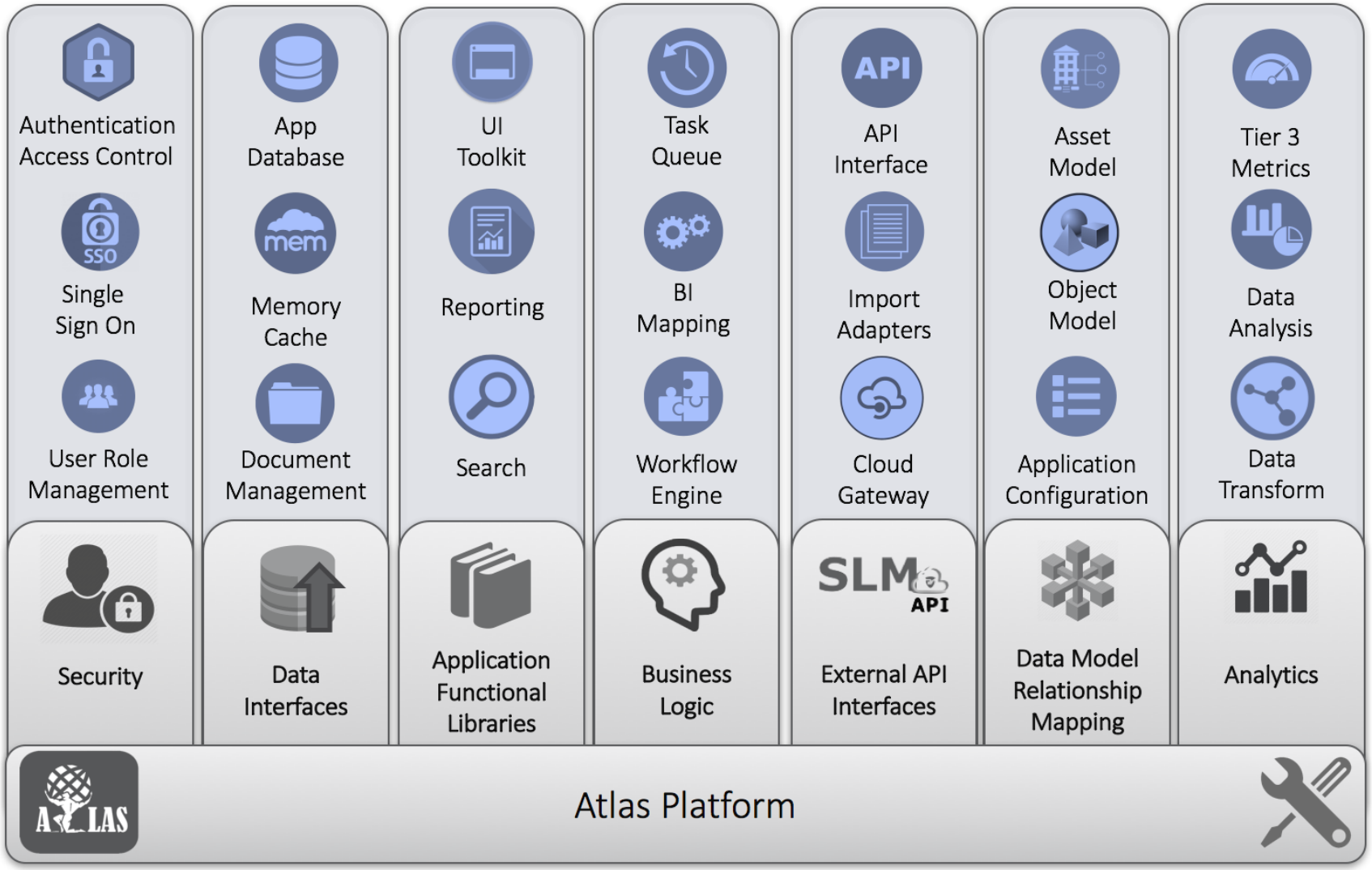
أرامكو السعودية
saudi aramco

SRC

SPRC

INEOS

World Class Architecture



SPInspector

- ✓A software **empowerment tool** designed to provide a full, **real-time assessment** of the SPI database; allowing for an efficient approach to validate your data.

A New Software Approach

Automated Interface

- ✓ Improved efficiency with instant audit
- ✓ Consistent protocol for inspection
- ✓ Comprehensive coverage of entire database
- ✓ Continuous, real-time access

Pre-Packaged

- ✓ Designed by SPI subject matter experts
- ✓ Leveraged growing user base feedback
- ✓ Adaptable to complex environments

Audit Scope

Minimum Data

Duplicate Items

Instrument Index

MINIMUM DATA

- Loop Type
- Loop Function
- Loop Criticality
- Loop Measured Variable
- Tag I/O
- Tag Location
- Tag Equipment
- Tag Line
- Tag Manufacturer
- Tag Model
- Tag Instrument Type
- Panel Location
- Panel Manufacturer (excluding device panels)
- Panel Model (excluding device panels)
- Cable Description
- Cable Type
- Cable End 1 Location
- Cable End 2 Location

DUPLICATE ITEMS

- Loops
- P&ID's
- Equipment
- Documents
- Instrument Types
- Lines
- Panels
- Tag Models
- Tag Manufacturer
- Terminals
- Cables
- Channels
- Control System Tags
- Wire Group (signals)
- Wiring Equipment
- Wiring Equipment Strips

INSTRUMENT INDEX

- Check for Leading or Ending Spaces on a Number of Tables
- Fieldbus tags w/ no VFD Tags
- Additional Fieldbus Association Queries
- Line No.: Capital I vs. Lowercase l (lower case L) for Insulation
- Additional Line Number Association Queries
- Mismatch b/w Tag Class & I/O Type
- Tag Model & No Manufacturer
- Tags w/ I/O, but Not Wired to I/O
- Externally Associated Documents
- Loop Service Check Box = Y; however, Loop & Tag Service is Different
- Loop Service Check Box = N; however, Loop & Tag Service is the Same
- Loop P&ID Check Box = Y; however, Loop & Tag P&ID are Different
- Loop P&ID Check Box = N; however, Loop & Tag P&ID are the Same
- Loop Equipment Check Box = Y; however, Loop & Tag Equipment are Different
- Loop Equipment Check Box = N; however, Loop & Tag Equipment are the Same
- The Words "See Notes" in Tag Manufacturer or Model Number Table
- Mismatch b/w Tag Instrument Type & the Instrument Type Table
- Mismatch b/w Tag Process Function & Spec Process Function

REPORTS

- Reports w/ No Revisions (specs, loops, wiring, etc.)
- Reports w/ No Document Names (specs, loops, wiring, etc.)
- Inconsistency b/w Item PAU & Report PAU

ESL TABLES

- Missing Redlining & Symbols for ESL Reports
- Lost ESL Macros & Positioning
- Corrupted ESL Default Layouts

WIRING

- CS Tags w/ No Tag Association
- CS Tags w/ No I/O Association
- Device Panels w/ No Connections
- Device Panels w/ No Tag Associations
- Panels with "?", "Copy Of" or "Parenthesis" in Name
- Cables with "?", "Copy Of" or "Parenthesis" in Name
- Cable or Device Panels w/ No Connections
- Jumpers & Cross Wiring w/ No Connections
- Fieldbus Segments (no I/O association, no tags, etc.)
- Additional Fieldbus Specific Queries
- Inconsistency b/w Tag I/O and I/O Card
- Multi-Input Device Associations
- Wiring Items w/ Leading or Ending Spaces
- Cables, Jumpers & Cross Wiring w/ One End Connection
- Mismatch between Shield or OAS Polarities
- Mismatch Connections w/in the Same Cable Set
- Invalid ID Values for Wiring Equipment Associations

CLAIM AND FLAGS

- Merge Release Flags

Reports

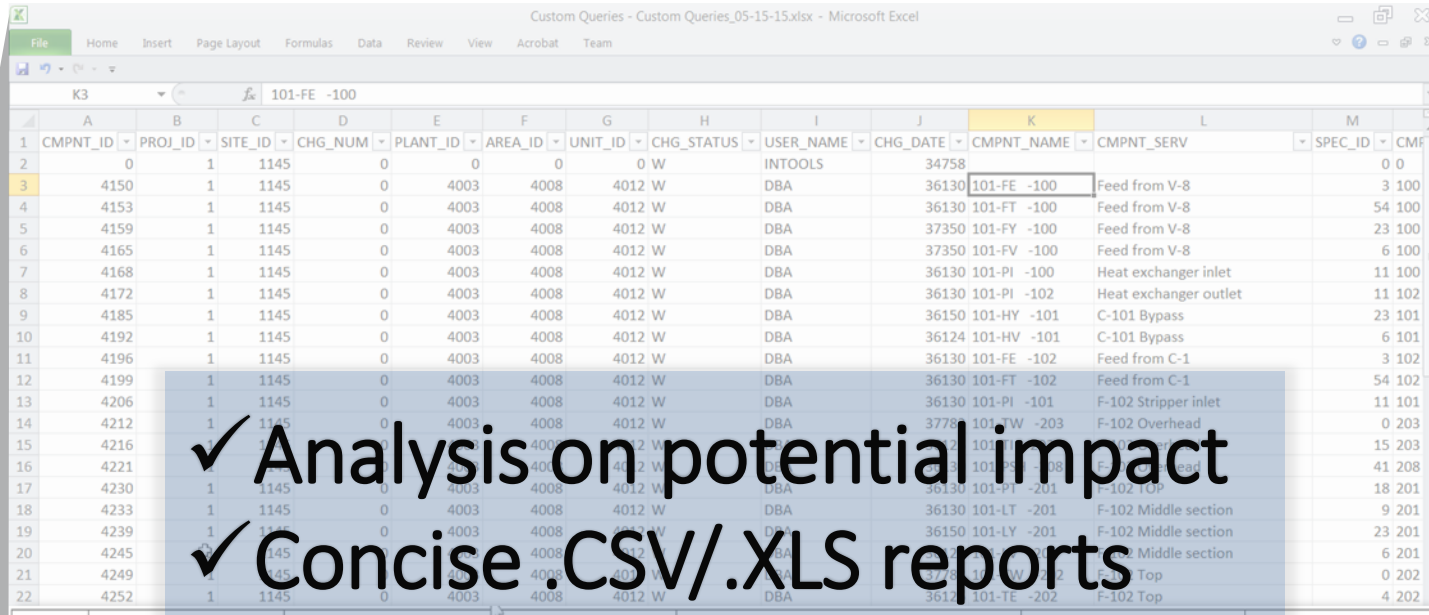
ESL Tables

Wiring

Claim and Flags

A Clear Path to Action

SPInspector
Deliverables

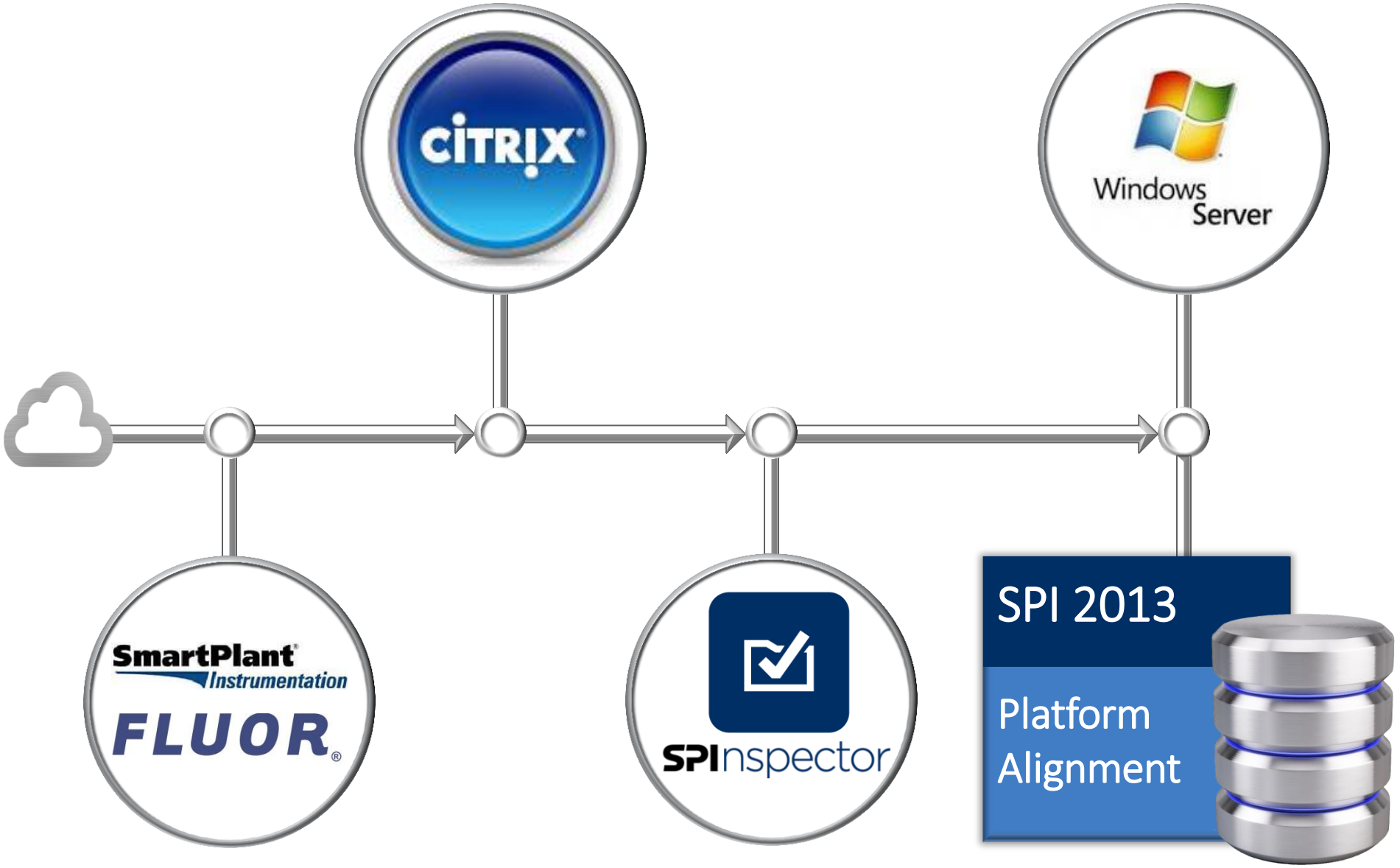


CMPNT_ID	PROJ_ID	SITE_ID	CHG_NUM	PLANT_ID	AREA_ID	UNIT_ID	CHG_STATUS	USER_NAME	CHG_DATE	CMPNT_NAME	CMPNT_SERV	SPEC_ID	CMF
0	1	1145	0	0	0	0	W	INTOOLS	34758			0	0
4150	1	1145	0	4003	4008	4012	W	DBA	36130	101-FE -100	Feed from V-8	3	100
4153	1	1145	0	4003	4008	4012	W	DBA	36130	101-FT -100	Feed from V-8	54	100
4159	1	1145	0	4003	4008	4012	W	DBA	37350	101-FY -100	Feed from V-8	23	100
4165	1	1145	0	4003	4008	4012	W	DBA	37350	101-FV -100	Feed from V-8	6	100
4168	1	1145	0	4003	4008	4012	W	DBA	36130	101-PI -100	Heat exchanger inlet	11	100
4172	1	1145	0	4003	4008	4012	W	DBA	36130	101-PI -102	Heat exchanger outlet	11	102
4185	1	1145	0	4003	4008	4012	W	DBA	36150	101-HY -101	C-101 Bypass	23	101
4192	1	1145	0	4003	4008	4012	W	DBA	36124	101-HV -101	C-101 Bypass	6	101
4196	1	1145	0	4003	4008	4012	W	DBA	36130	101-FE -102	Feed from C-1	3	102
4199	1	1145	0	4003	4008	4012	W	DBA	36130	101-FT -102	Feed from C-1	54	102
4206	1	1145	0	4003	4008	4012	W	DBA	36130	101-PI -101	F-102 Stripper inlet	11	101
4212	1	1145	0	4003	4008	4012	W	DBA	3775	101-TW -203	F-102 Overhead	0	203
4216	1	1145	0	4003	4008	4012	W	DBA	36130	101-TE -203	F-102 Overhead	15	203
4221	1	1145	0	4003	4008	4012	W	DBA	36130	101-PT -208	F-102 Top	41	208
4230	1	1145	0	4003	4008	4012	W	DBA	36130	101-PT -201	F-102 Top	18	201
4233	1	1145	0	4003	4008	4012	W	DBA	36130	101-LT -201	F-102 Middle section	9	201
4239	1	1145	0	4003	4008	4012	W	DBA	36150	101-LY -201	F-102 Middle section	23	201
4245	1	1145	0	4003	4008	4012	W	DBA	36130	101-LT -201	F-102 Middle section	6	201
4249	1	1145	0	4003	4008	4012	W	DBA	36130	101-TE -202	F-102 Top	0	202
4252	1	1145	0	4003	4008	4012	W	DBA	36130	101-TE -202	F-102 Top	4	202

- ✓Analysis on potential impact
- ✓Concise .CSV/.XLS reports
- ✓Plan for remediation
- ✓Confidence

Item	Audit Name	Issue Description	File Name (CSV)	Qty	Fix: Manual or SQL Statements
		SPI reports or browser views. Note: Document numbers are sometimes generated when a document is viewed without the intention of issuing the document. Depending on the site requirement, this might be correct.			
15	CL Relief Valve and no revisions	Relief Valve Calculation Reports with a document number and no revision will limit the user's ability to filter and sort SPI reports or browser views. Note: Document numbers are sometimes generated when a document is viewed without the intention of issuing the document. Depending on the site requirement, this might be correct.	Reports_RV_no_Revs_02-25-15	54 Reports	Manual or SQL

Operating in Dynamic Environments



New Features

New Queries

70 additional new base queries provided by our SPI services and user group .

Automated Audits

Schedule your inspections to run automatically and notify you when they complete.

Project Level Inspection

Inspect your entire as-built database domain or individual projects.

New Features

Increased Customization

Create, run and organize your own SQL queries by user.

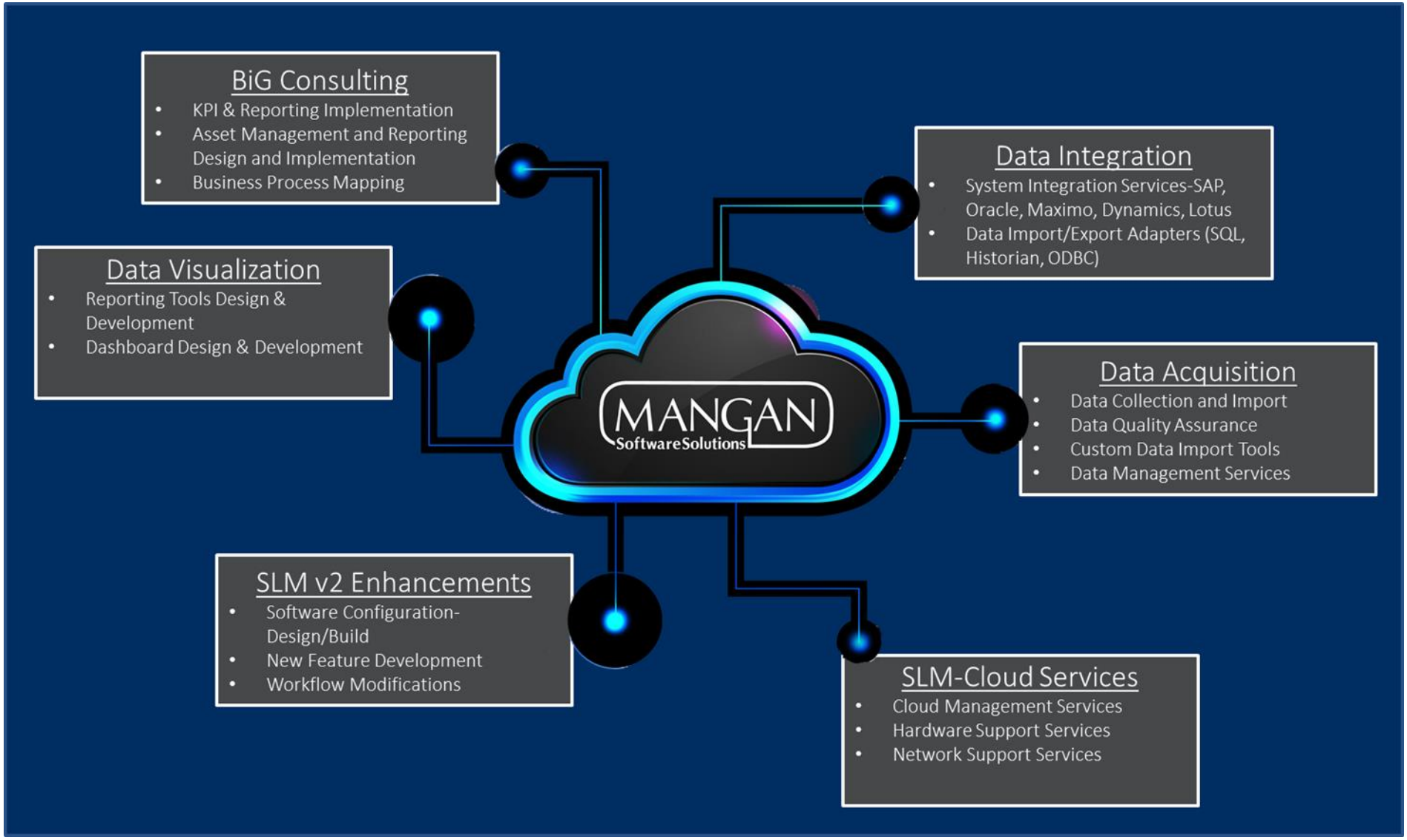
Counts Report

Quickly pull your statistics and troubleshoot by type of query and inspection.

Export & Import Queries

Export and share your SQL queries with other users in your organization.

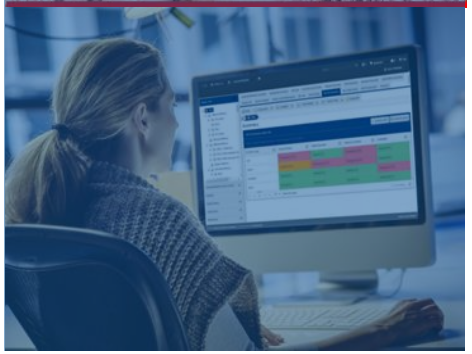
Software Services



For More Information

Joseph O'Dell

- Mangan Software Solutions
- Office (281) 402-2562
- Jodell@manganinc.com
- www.SPInspector.com



THANK YOU!

MANGAN
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