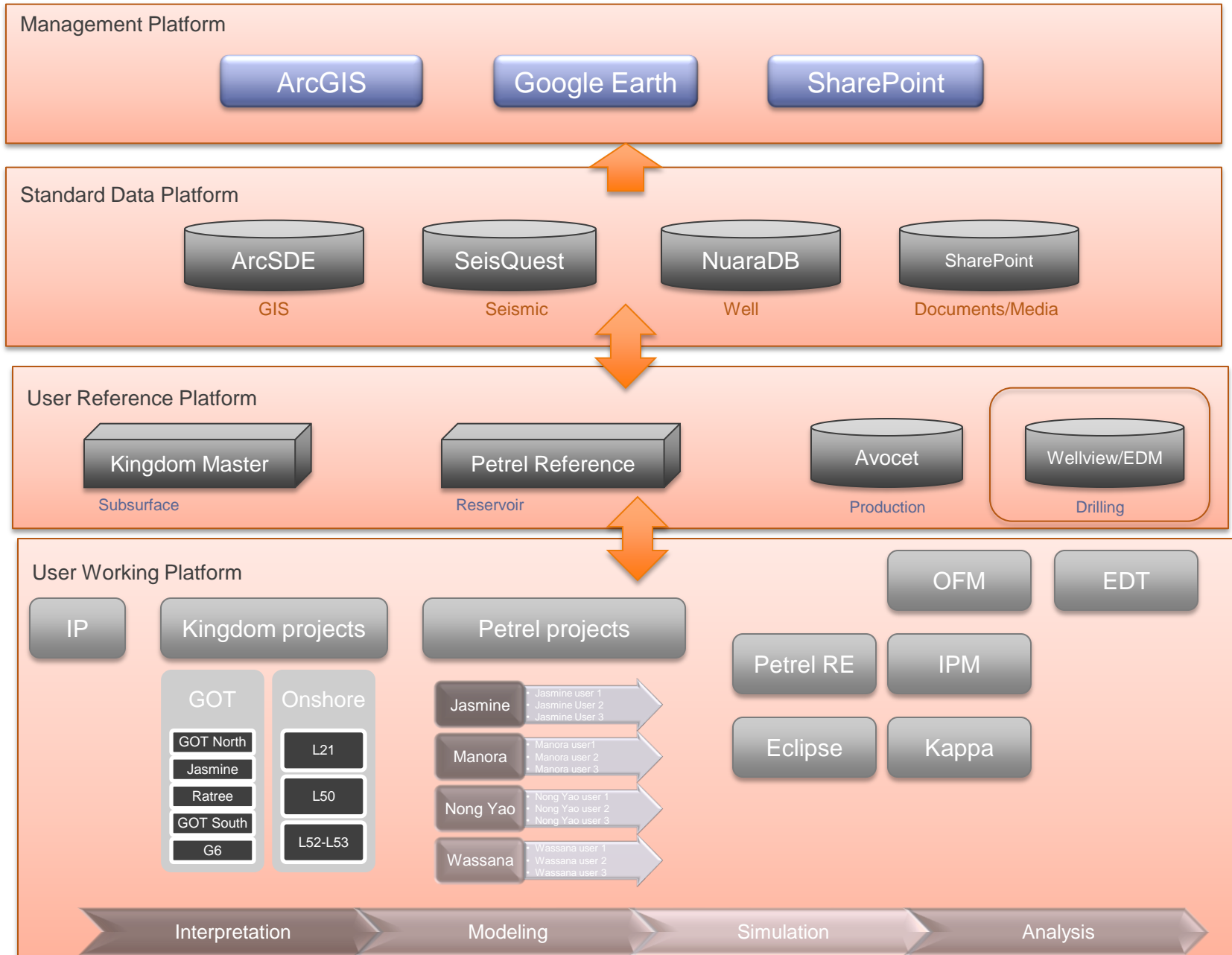




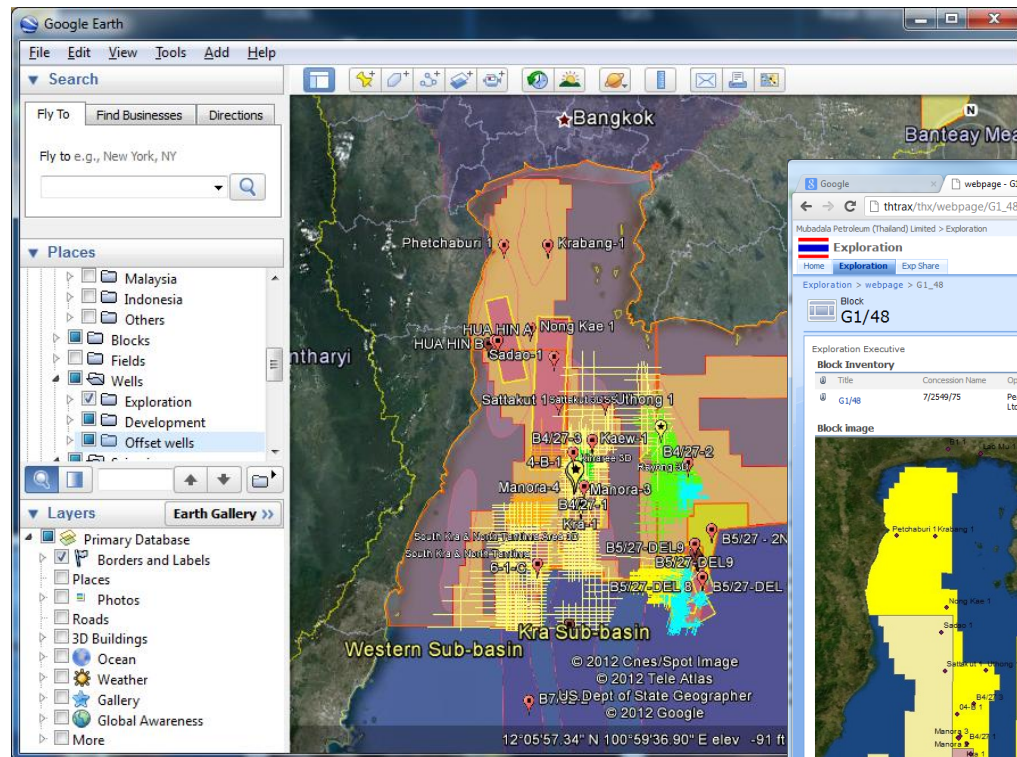
Integration of Drilling Data

Jess Kozman – EPAIM SEA Mgr - Oct 2012

Designed Platform



Data Delivery



Google

webpage - G1_48

thtrax/thx/webpage/G1_48.aspx

Mubadala Petroleum (Thailand) Limited > Exploration

Home Exploration Exp Share

Exploration > webpage > G1_48

Block

G1/48

Exploration Executive

Block Inventory

Title	Concession Name	Operator Name	Award Date	Area (km2)	Area Type	Last Relinquishment Date	Development Asset	Production Area (sq.km.)	Working interest	Partner	Act
G1/48	7/25/97/75	Pearl Oil (Anata) Ltd.	12/4/2006	8,807.17	Offshore	12/8/2010	Manora		60%	Northern Gulf	Yes

Block image

Seismic Inventory

Count = 3	Block	Survey Type	Acquisition Year	Acquisition contractor	Processing Contractor	Data Processed Products	3D Area sq/MI	3D Length KM
Sattakut 3D	G1/48	3D	2011	WesternGeco	WesternGeco	PSTM	1,715.00	
Kinnaree 3D	G1/48	3D	2010	Fugro	PGS (PL)	R.STK:Angle STKF:STK:PSTM	292.30	
G1/48 2D	G1/48	2D	2007	SMWG	CGG/veritas		393.00	

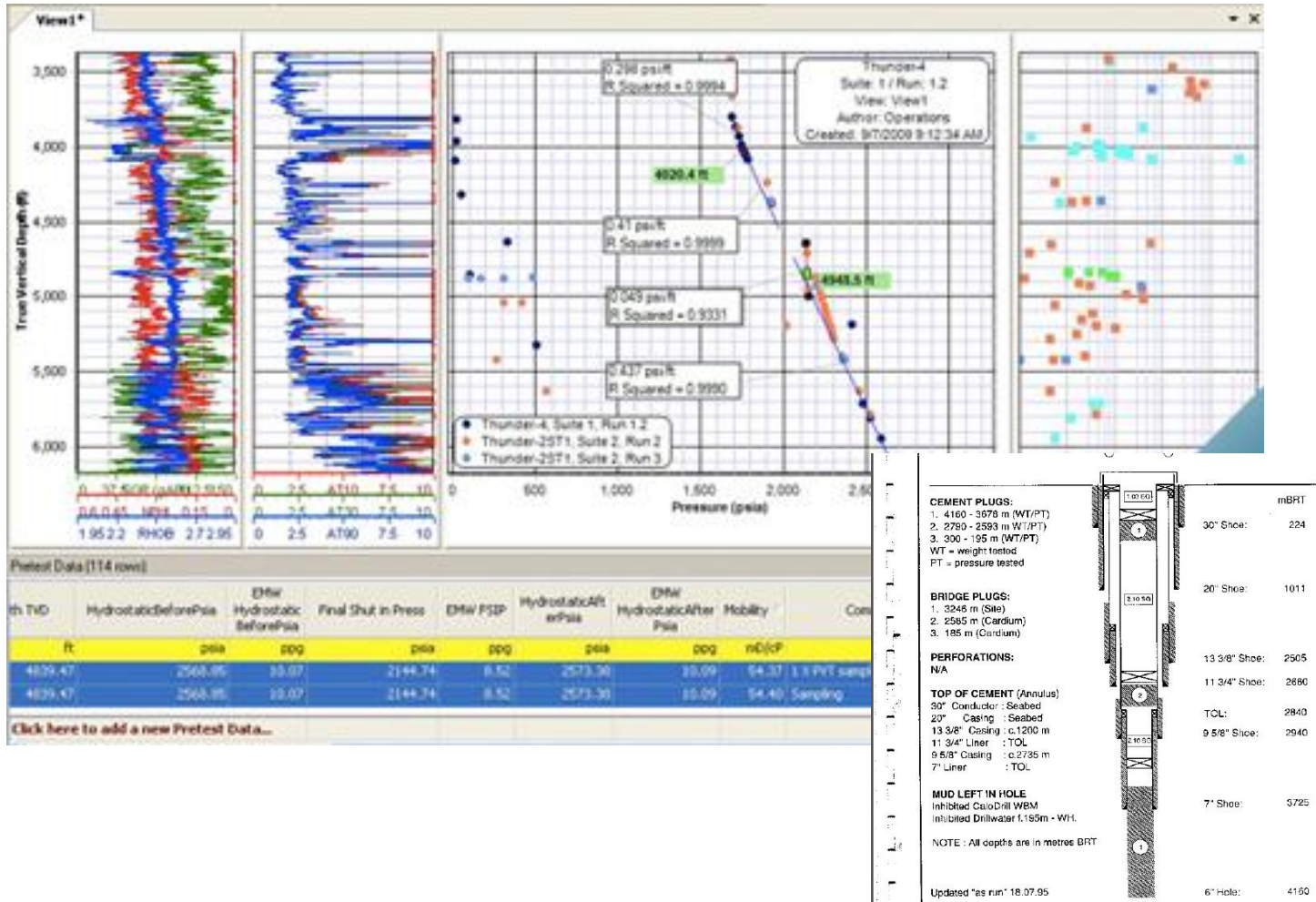
Well Inventory

Title	Result	Spud Date	Well Type	Total Depth MD (ft)	Rig	Operator	Original Block	Log Wireline
Well Type : Exploration (4)								
Manora-4	DRY	10/14/2010	Exploration	11,401.00	Emerald Driller	Pearl		PEX-ESC-ALT/BOH Scanner (Coring)
Manora-3	OIL	6/28/2010	Exploration	9,998.00	Emerald Driller	Pearl		PEX Sonic scanner - ATT/MOT/VIS/USCT P
Manora-2	OIL	6/14/2010	Exploration	7,850.00	Emerald Driller	Pearl		PEX/MOT/VIS/USCT P
Manora-1	OIL	10/22/2009	Exploration	8,618.00	Emerald Driller	Pearl		PEX-BHC/VSP/MOT/ECI
Well Type : Offset (7)								
Uthong-1	DRY	4/25/1994	Offset	6,088.00		Thaitex	B4/32	
B4/27-3	DRY	5/15/1988	Offset	5,577.00	Maersk Venturer	BP	B4/27	
B4/27-1	OIL	2/3/1988	Offset	11,401.00	Maersk Venturer	BP	B4/27	
Nong Kae-1	DRY	4/5/1982	Offset	3,622.00		Pecten	B2/38	
Krabang-1	GAS	3/26/1982	Offset	3,622.00		Pecten	B2/38	
Phetchaburi-1	DRY	1/10/1982	Offset	11,007.00		Pecten	B2/38	
4-1	DRY	12/24/1974	Offset	4,230.00	Gettysburg	BP	Block4	

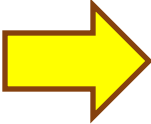
G1/48 Documents

- Traditionally G&G centric
- Map based
- Links to drilling documents
- Some use of SharePoint & Network Drives
- Three levels of target users: petrotechnical, geo-assistant, management
- Desktop tools for ease of use

Integration of Drilling Data



Energistics Data Streams:

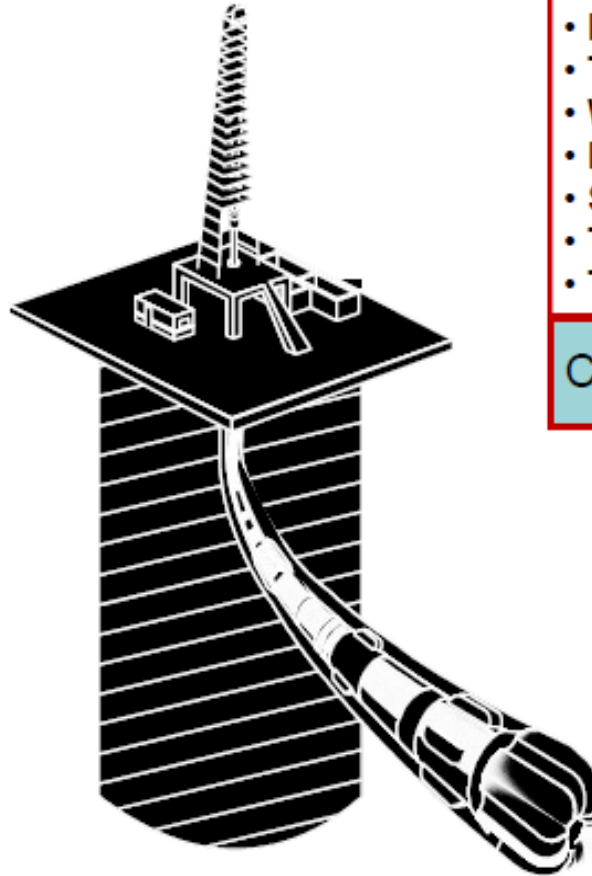
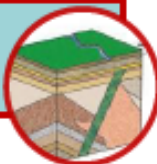
- 
- Cement Job
 - Frac / Stimulation
 - Fluids
 - **Drilling**
 - Operations

Reporting



- Log
- Mudlog
- Formation Marker
- Core
- Risk

Subsurface



- Well & Wellbore
- CRS
- Rig / Rig Equipment
- Tubular / string
- Wellbore Geometry
- BHA Run
- Survey Program
- Target
- Trajectory & Tool Error

Contextual



- Message
- Attachment
- Change log
- Object Group

General



Capability Maturity Model

PROMT Facets with Weighting from CDA Study

BUSINESS INTELLIGENCE MANAGEMENT MATURITY MATRIX MODEL (BI-M⁴)

Process 15%	Counter-productive data processes imposed by management	Ad-hoc manual processes not standardized across locations or between individuals	Stakeholder from disciplines develop their own processes	Collaboration between business and data owners on implementation requirements	Corporate support and recognition for role of data governance	Continuous data management process improvement is reported at corporate level
Resources 30%	Deliberate creation of restrictive data fiefdoms	Capable individuals and heroic efforts	Data ownership roles and responsibilities defined	Best performers are selected from teams for governance roles	Data managers are embedded with asset teams	Data management included in performance KPI's
Organization 20%	Failure to deploy or support technology	Use of data management base on individual interest	Decentralized use of data management in obvious business processes	Data is used consistently in diverse business processes	Corporate structure includes centralized data management	Data management strategy is aligned with corporate strategy
Metrics 20%	Data management effort is penalized	Data management seen as a cost	Anecdotal evidence of value is collected	Value of data management is calculated from cost savings	Data management contribution to operational efficiency tracked	Benefit of data management on decision quality measured
Technology 15%	General purpose tools	Desktop and end-user controlled applications	Point solutions, data management in application projects	Integrated workflow solutions	Automated decision support and business intelligence	Data mining and expert systems
	Level 0 Obstructive	Level I Base	Level II Aware / Emerging	Level III Systematic / Reactive	Level IV Dynamic / Proactive	Level V Optimized

After: Finkelstein, 1992; D'Angelo & Troy, 2000; Makela et. al., 2009; Odho & Ord, 2009; Dougherty et. al., 2010.

Dimension I – Capability Maturity

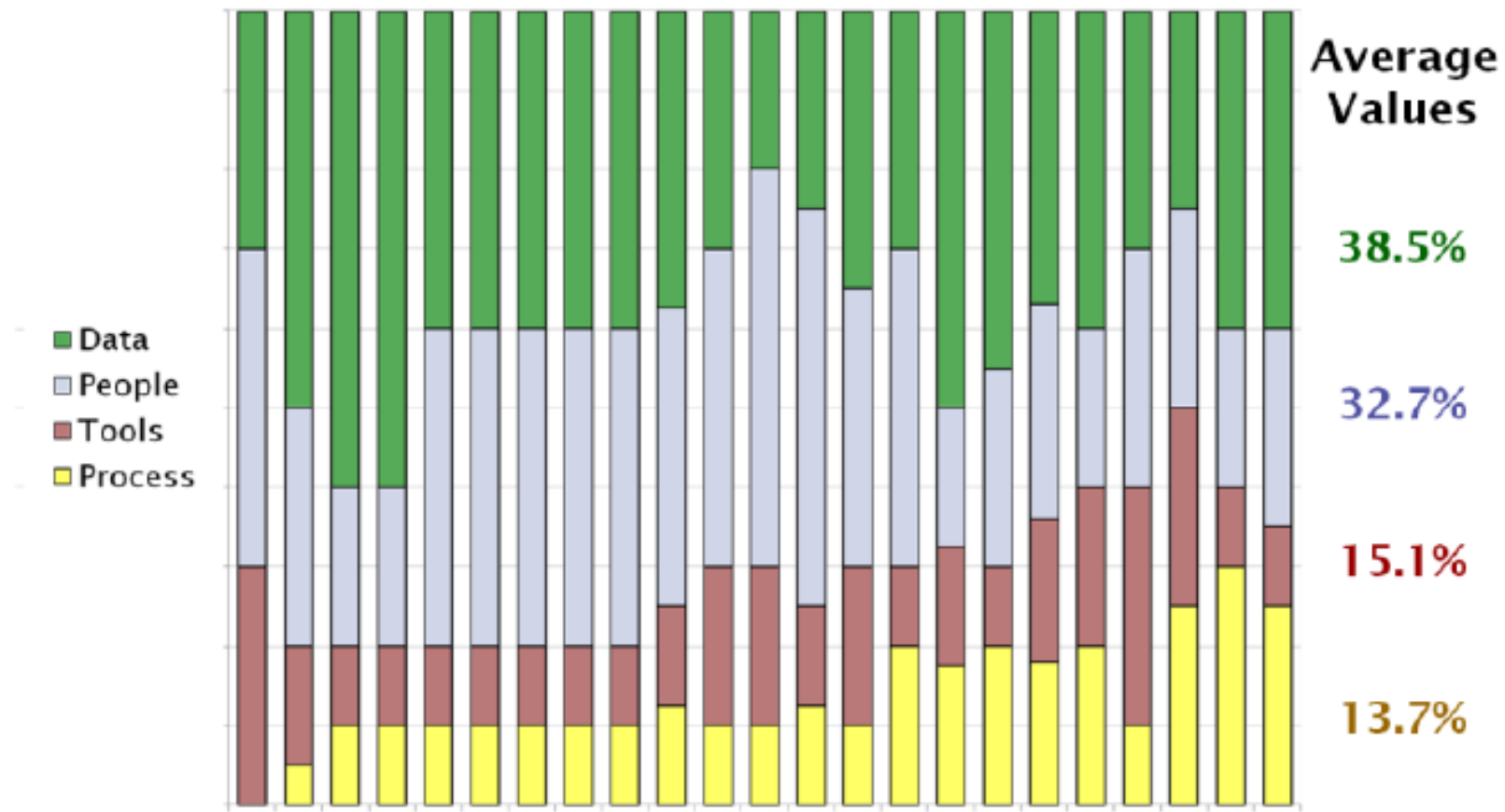
PROMT Facets with Weighting from CDA Study

BUSINESS INTELLIGENCE MANAGEMENT MATURITY MATRIX MODEL (BI-M⁴)

Process 15%	Counter-productive data processes imposed by management	Ad-hoc manual processes spanning locations or between individuals Reporting	Stakeholder from their own processes Subsurface	Collaboration and requirements General Contextual	Corporate support and recognition for role of data governance	Continuous data management process improvement is reported at corporate level
Resources 30%	Deliberate creation of restrictive data fiefdoms	Capable individuals and human efforts Subsurface	Data ownership not well defined Reporting Contextual	Best performers are selected for governance General	Data managers are embedded with asset teams	Data management included in performance KPI's
Organization 20%	Failure to deploy or support technology	Use of data management based on individual General Subsurface	Centralized use of data management in business processes Reporting	Data is used consistently in business processes Contextual	Corporate structure includes centralized data management	Data management strategy is aligned with corporate strategy
Metrics 20%	Data management effort is penalized	Data management effort is not tracked General Contextual	Anecdotal evidence collected Subsurface	Value of data management is not related from cost savings Reporting Contextual	Data management efficiency tracked Reporting	Benefit of data management on decision quality measured
Technology 15%	General purpose tools	Desktop and end-user controlled applications	Point solutions, data application projects General	Integrating data Reporting Contextual	Automated decision support and business intelligence Subsurface	Data mining and

Level 0 Obstructive	Level I Base	Level II Aware / Emerging	Level III Systematic / Reactive	Level IV Dynamic / Proactive	Level V Optimized
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Capability Facets



Perception of the contribution of each element of the capability maturity level to understanding of the subsurface

Dimension I – Capability Maturity

PROMT Facets with Weighting from CDA Study

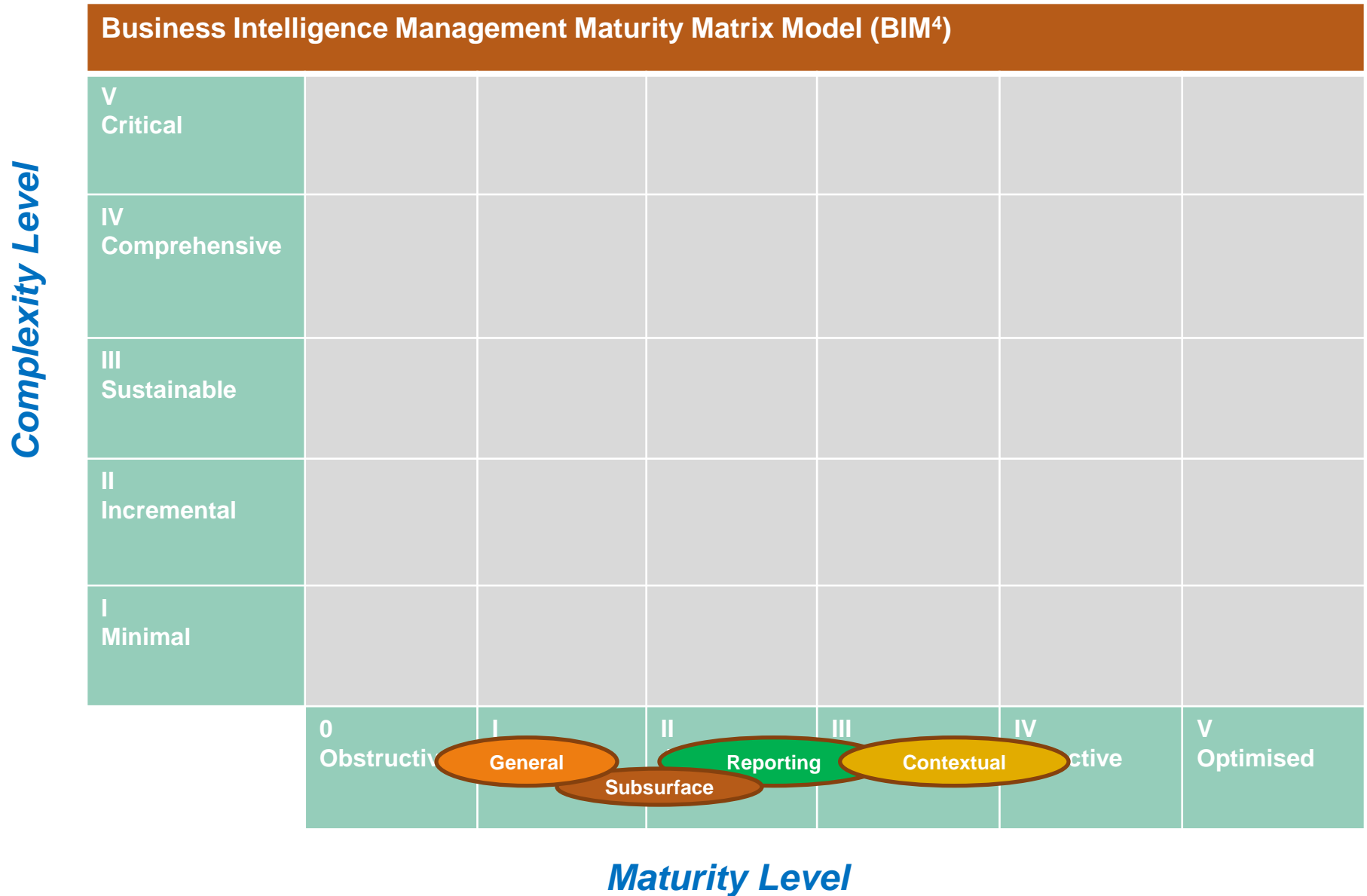
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**Weighted
Average**

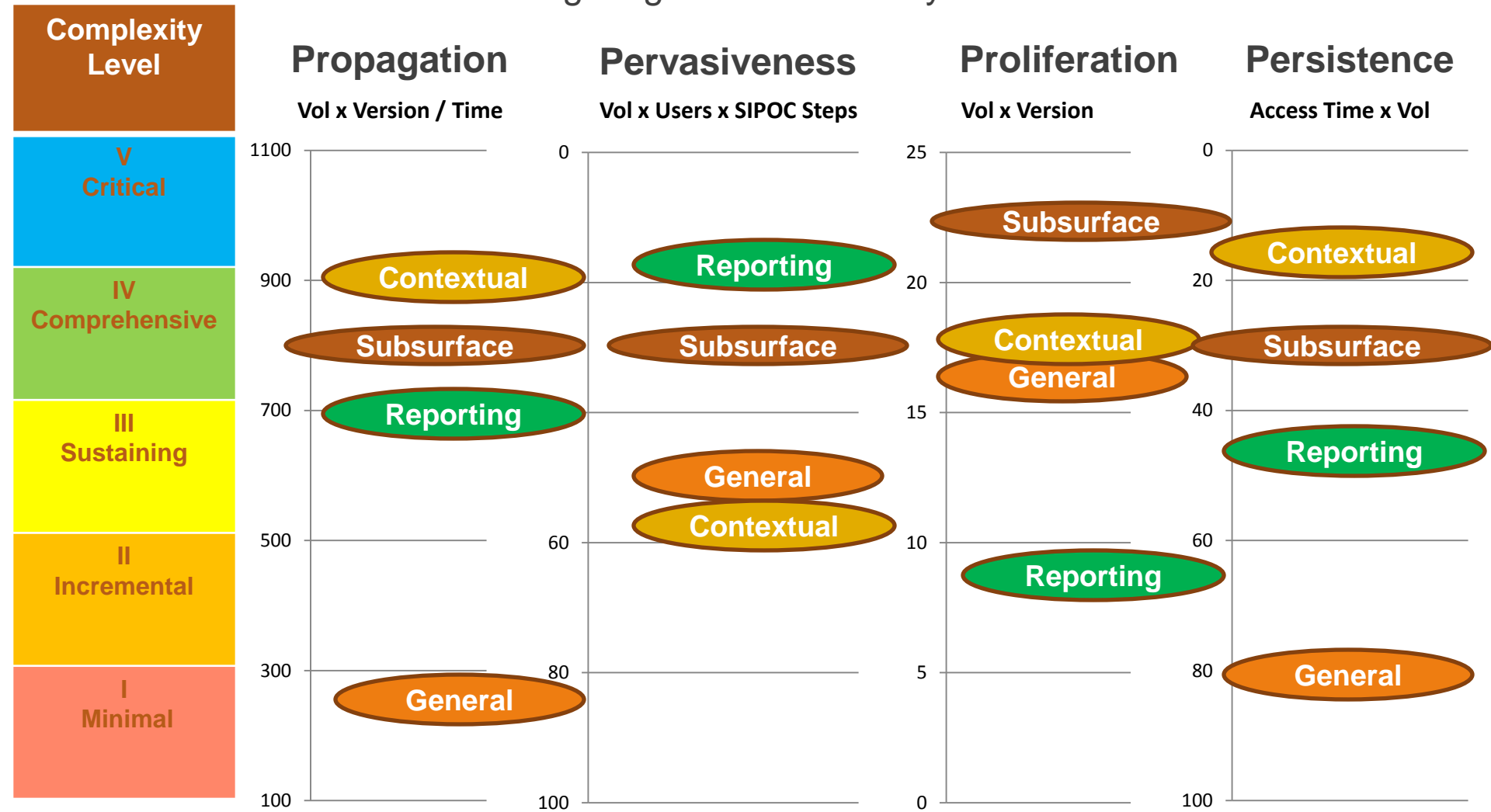
Level 0 Obstructive	General Base	I Subsurface	Reporting Systematic / Reactive	Contextual Dynamic / Proactive	Level IV	Level V Optimized
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Matrix Placement by Data Stream



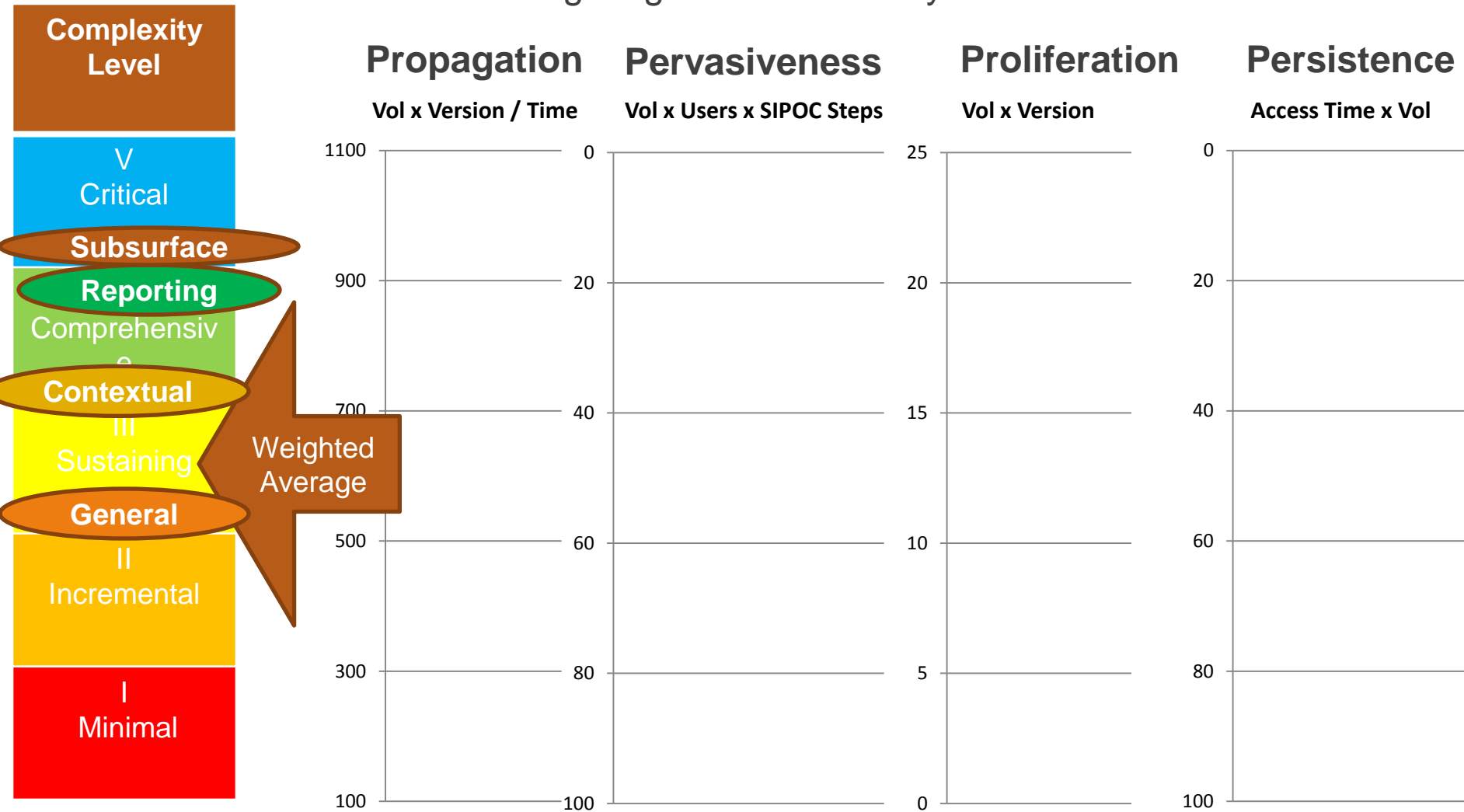
Dimension II – Data Complexity

Facets with Weighting from Peer Study

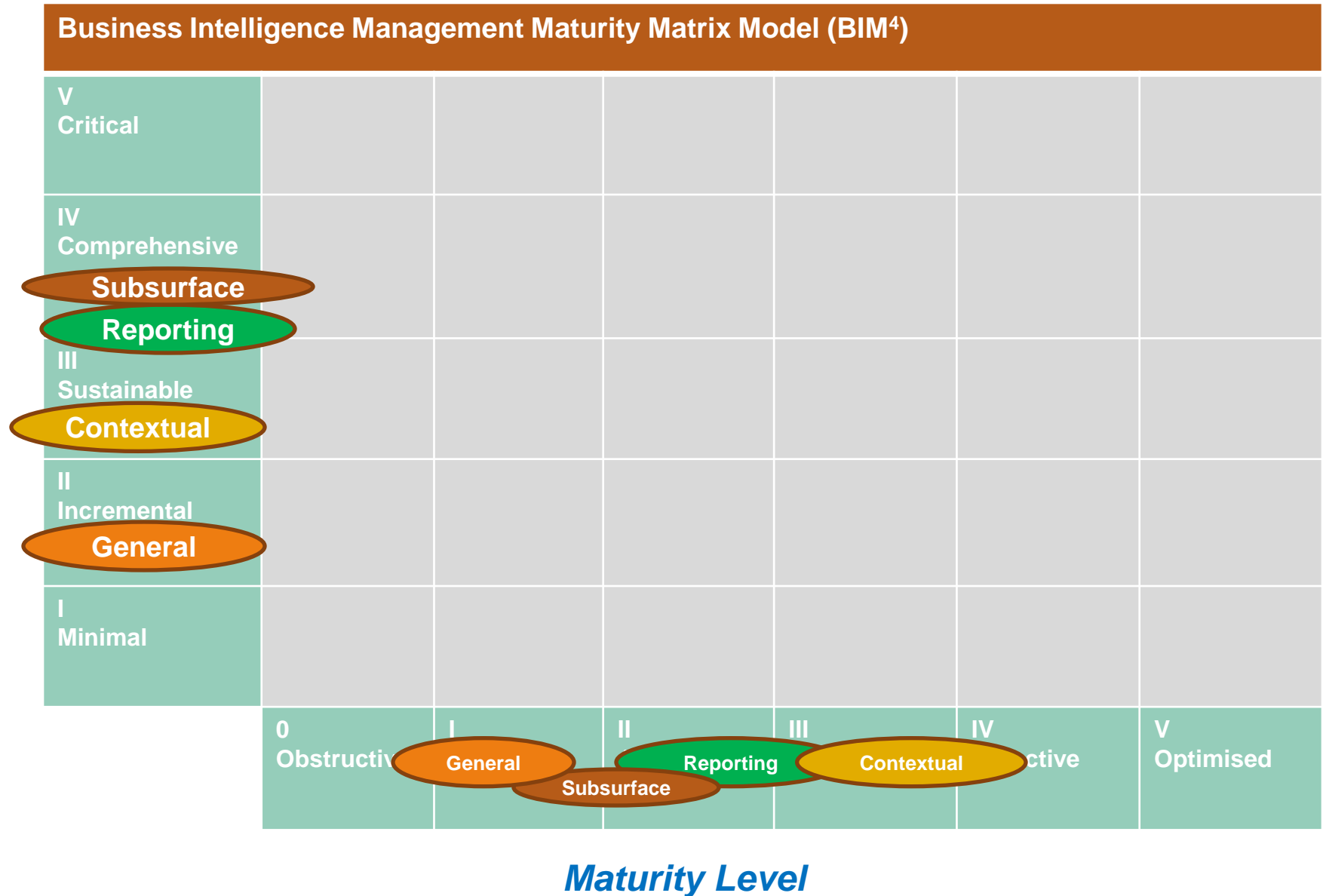


Dimension II – Data Complexity

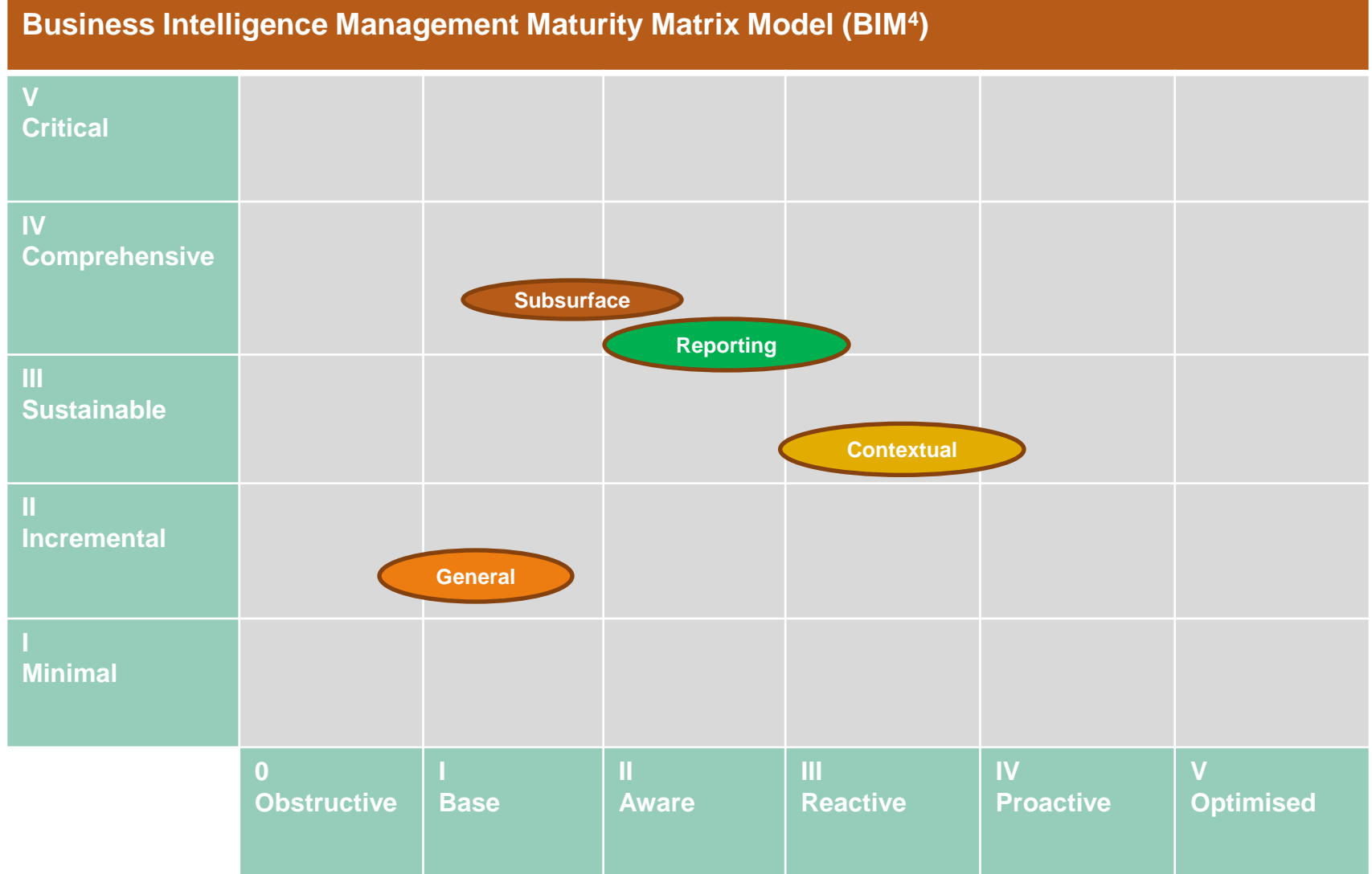
Facets with Weighting from Peer Study



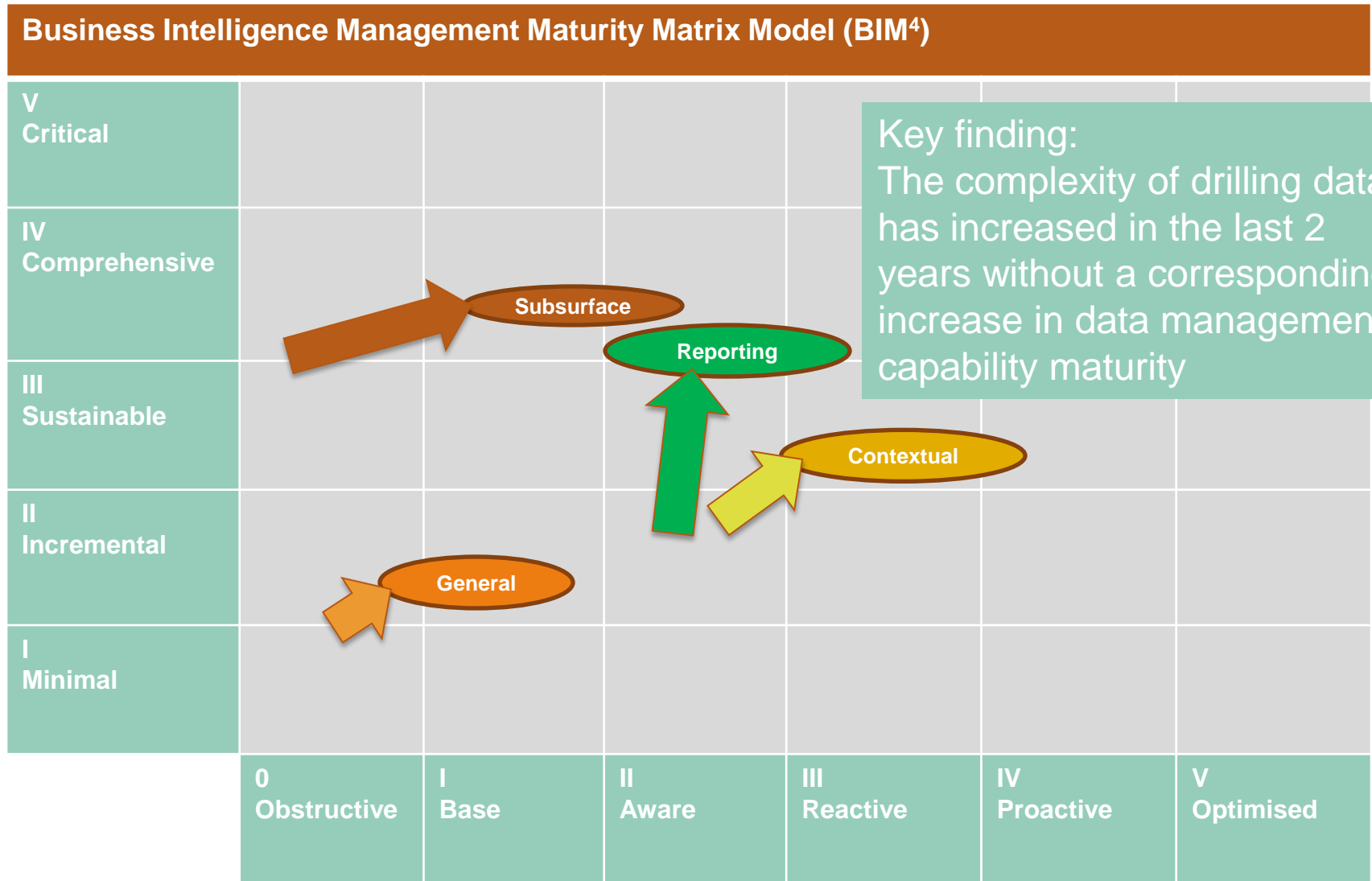
Matrix Placement by Data Stream



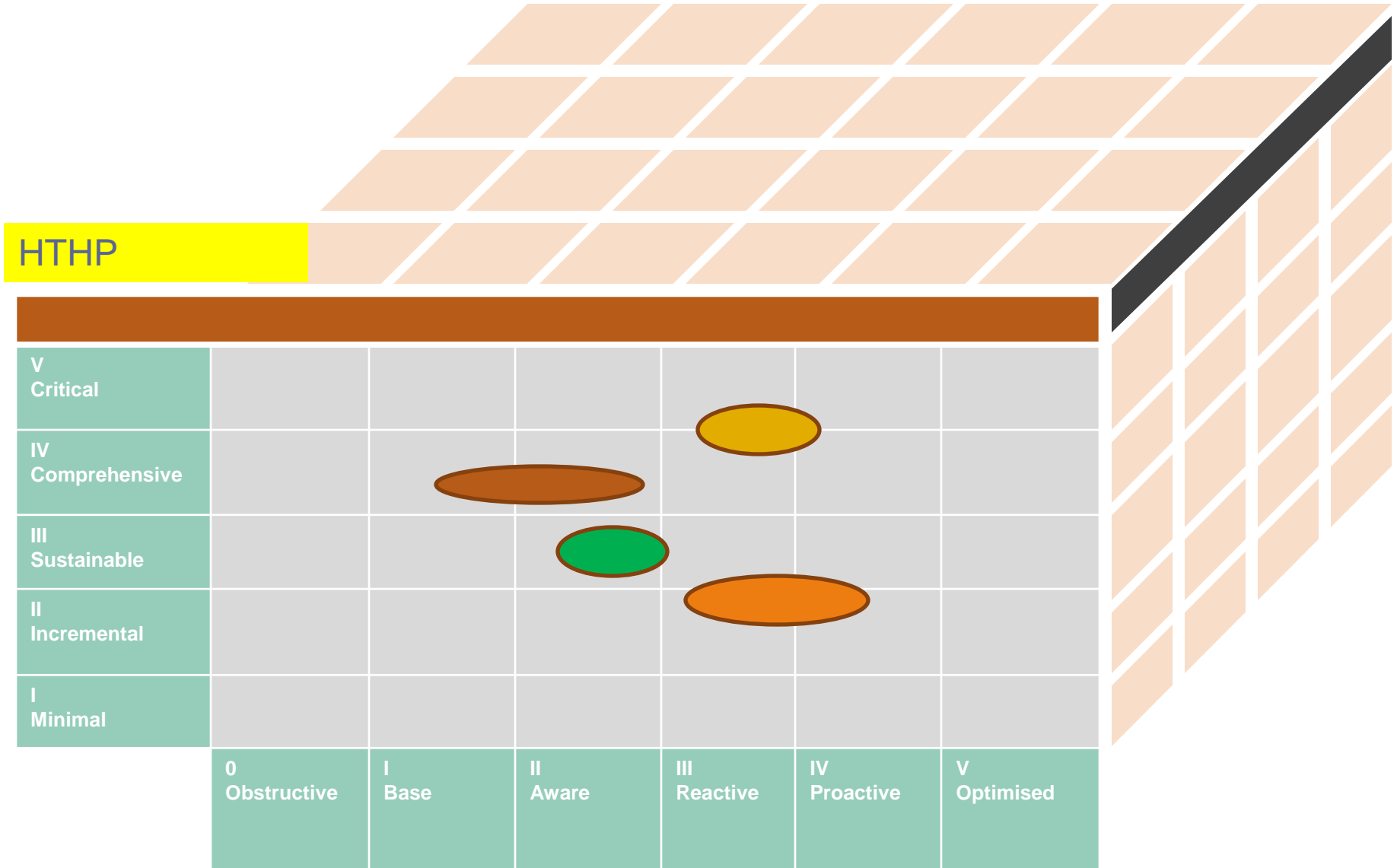
Matrix Placement by Data Stream



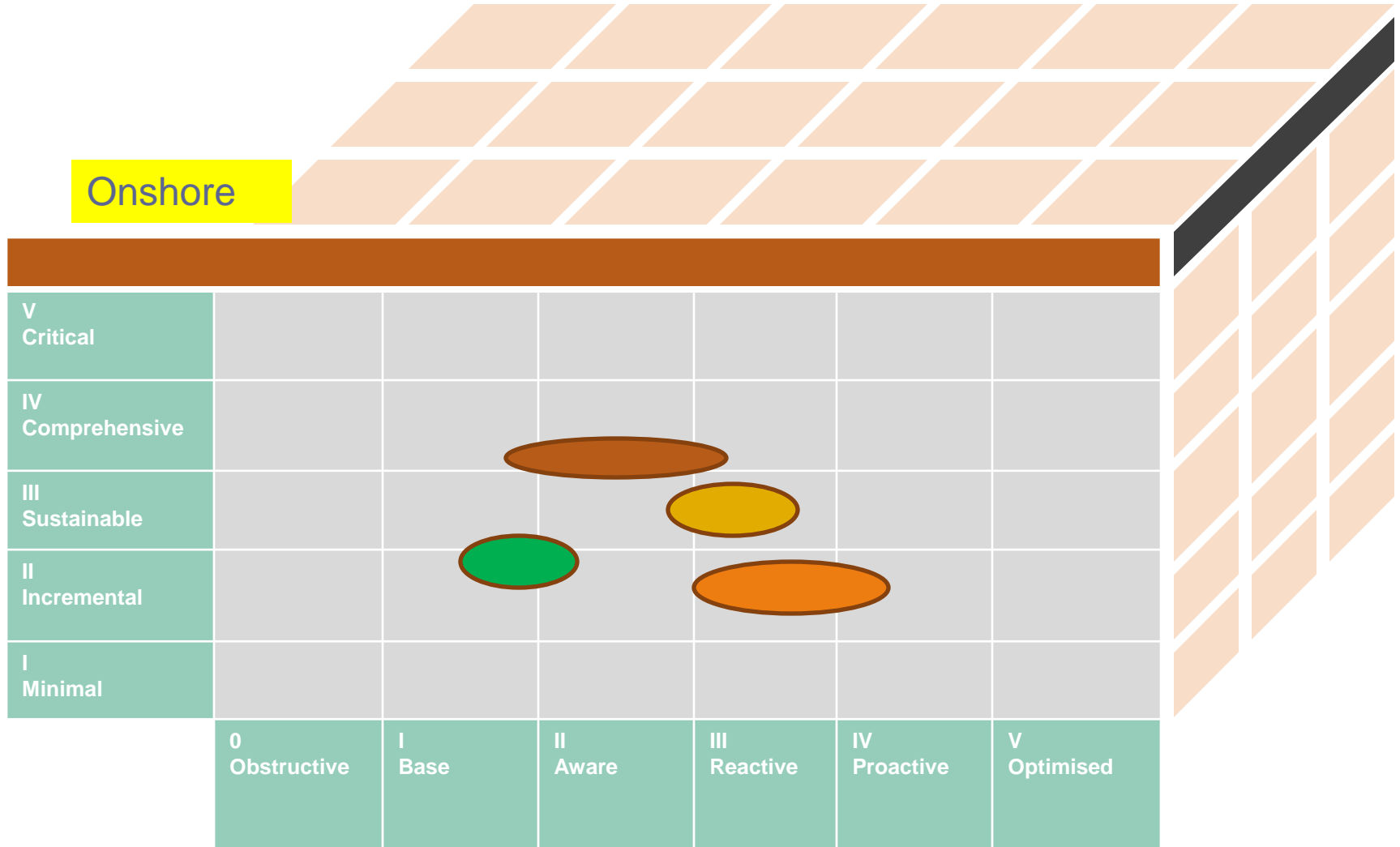
Matrix Movement by Data Stream



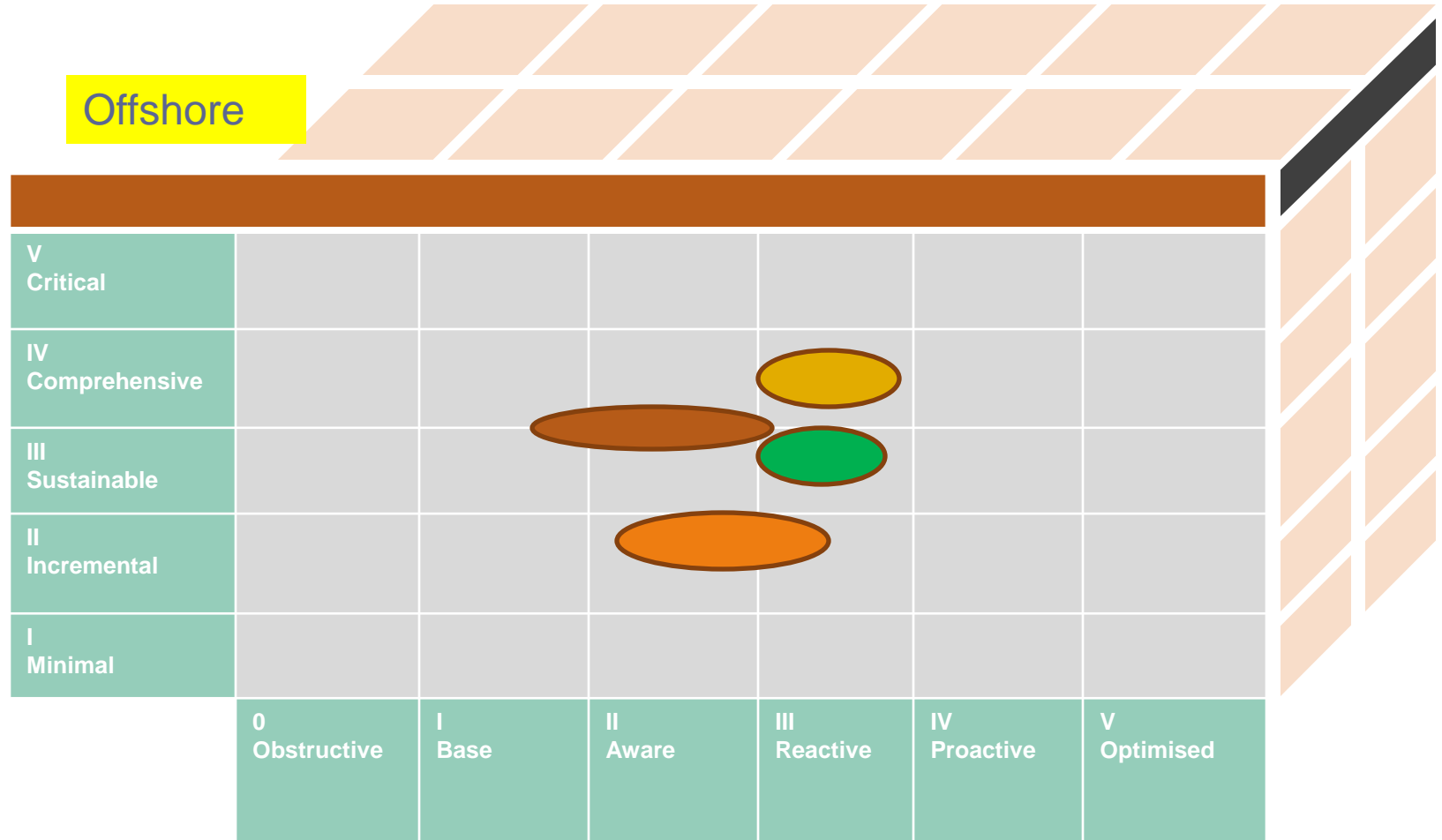
Matrix by Drilling Type



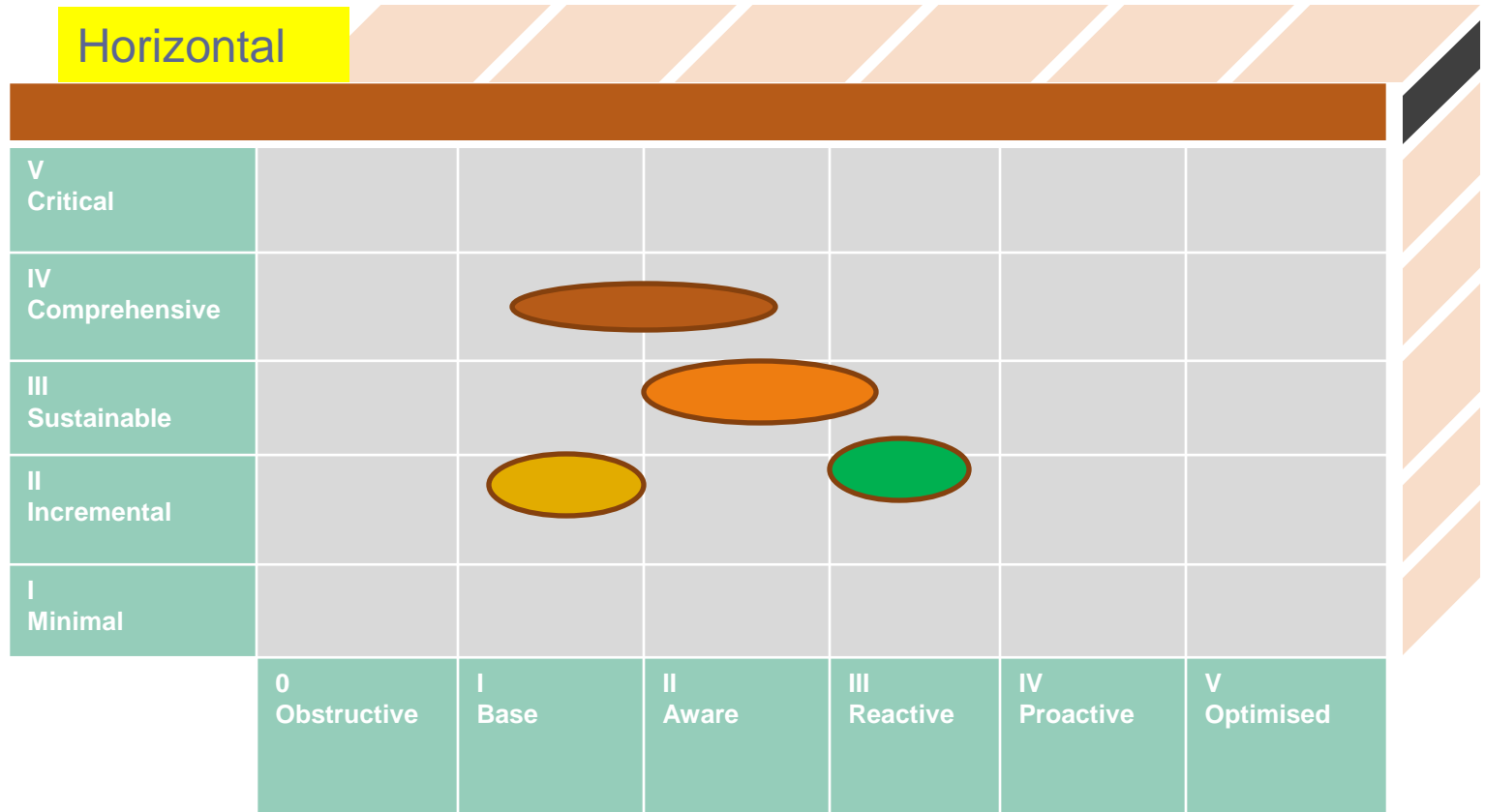
Matrix by Drilling Type



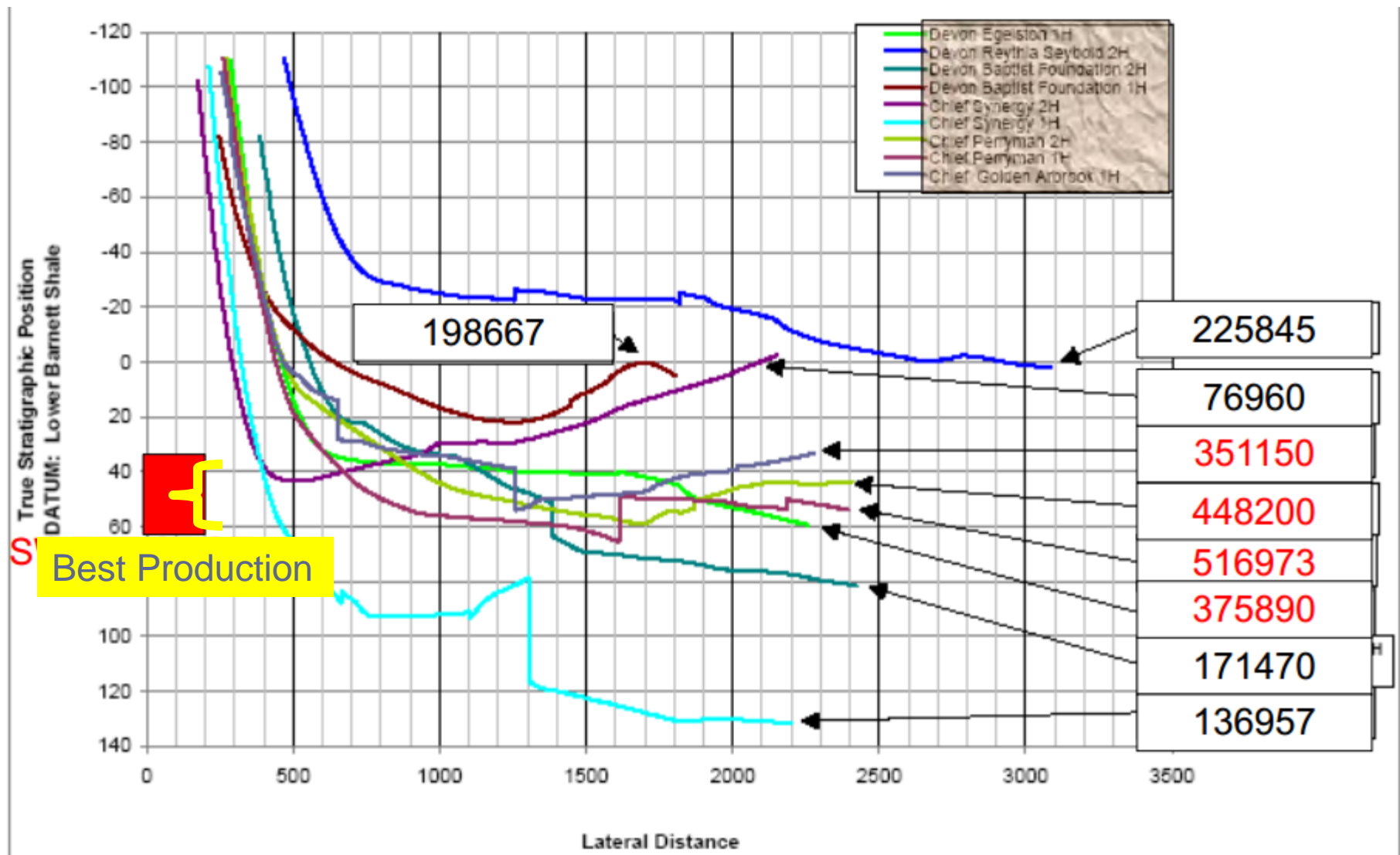
Matrix by Drilling Type



Matrix by Drilling Type



Drilling Information in the Decision Process



Drilling Business Intelligence

