

Discover Why Artificial Intelligence (AI) Is The Future Of Financial Supervision



By SQL Power Group

What this presentation will cover

- 1. Constraints faced by Regulators**
- 2. Progression of Regulatory analytics and Artificial Intelligence (AI)**
- 3. Roadmap to True AI**

A 3D maze with a person standing in a brightly lit path leading to a glowing square symbol.

On the path to effective and efficient regulation,
Resources are the greatest constraint on many regulators as
they look to respond to the **pace of change** and **dynamics of risk**.

Three key regulatory resource constraints

BUDGET



There is never enough money

PEOPLE



People with the right skills and capabilities take time to develop

Scarcity of those people mean the ones we do have are often overwhelmed by demands on their time

TECHNOLOGY



Not only do old technology deployments lack modern functionality

The gaps in the systems between data need, data collection, data collation, and data analysis add to the burden of work

Being future ready means optimizing these three resources

The **right technology** is the first step in this optimization.

Well deployed, it goes from being a burden to an enabler of efficiency and effectiveness.

This shift will **enable regulatory staff to focus on high value work** than on low value; increasing their productivity in less time and effort.



Enable Your People to Add Value and Increase Your Effectiveness

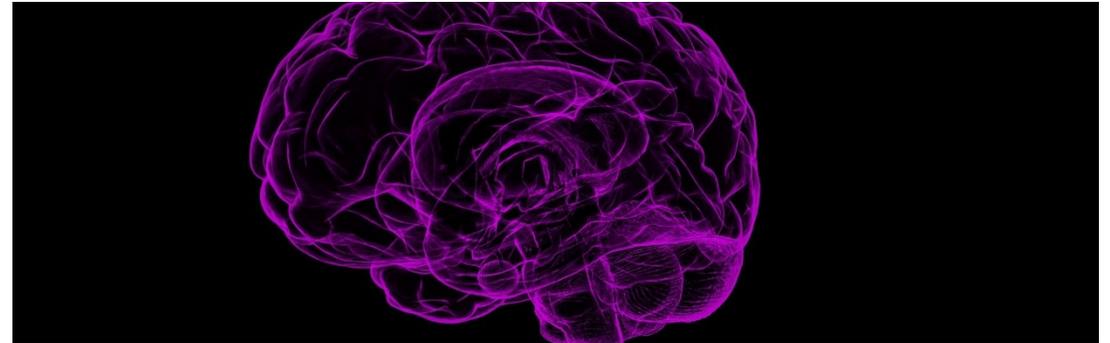
LOW VALUE WORK



Is the physical effort to prepare to do mental work:

- data collection
- correcting data errors and omissions
- spread sheet maintenance
- etc.

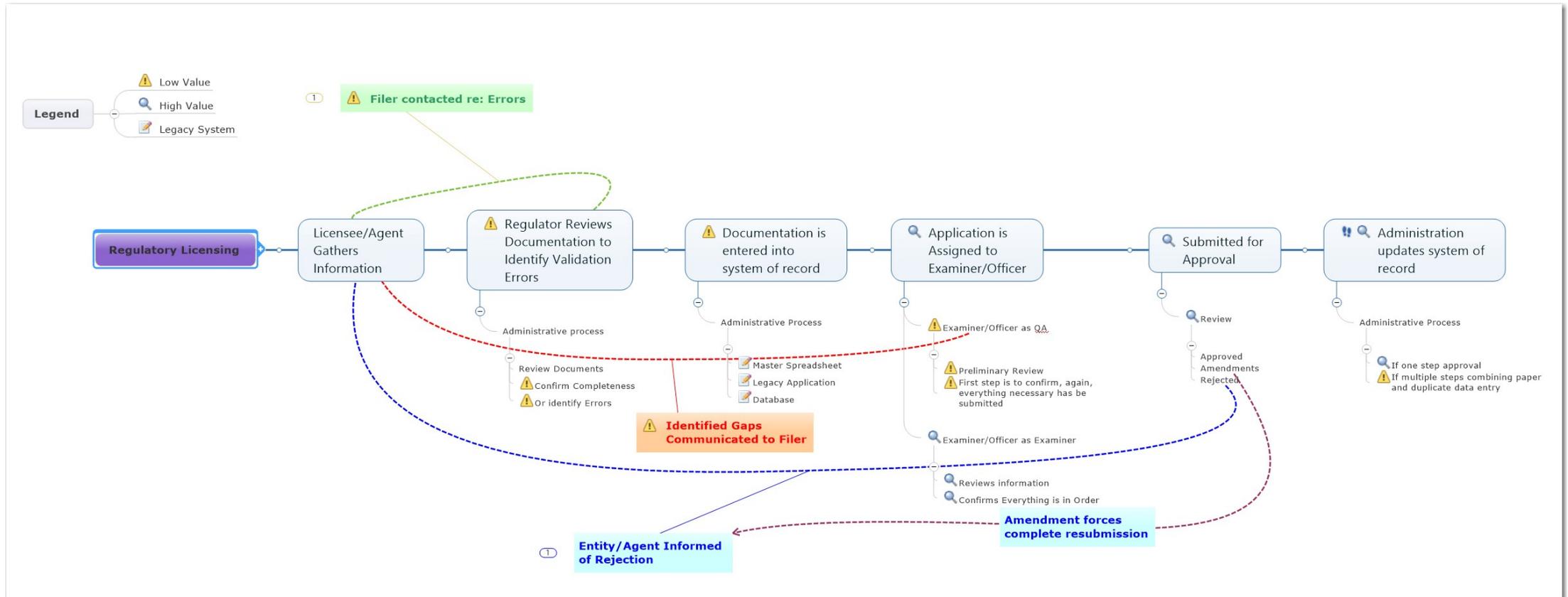
HIGH VALUE WORK



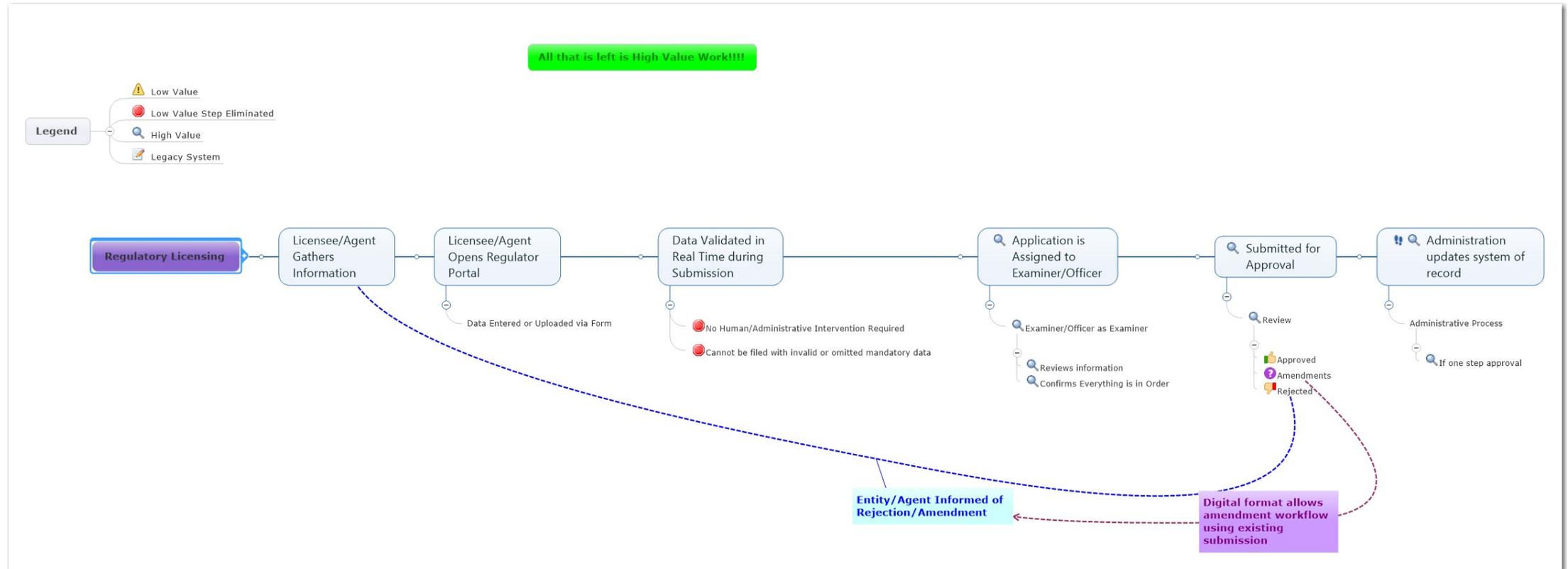
Is mental work:

- creative thinking
- problem solving
- data analysis/interpretation
- timely and accurate decision-making
- networking / people skills
- etc.

Streamlining Workflows: Licensing - Low Value



Streamlining Workflows: Licensing - High Value



Artificial Intelligence (AI) is the key Breakthrough that helps Regulators achieve maximum efficiency



What is Artificial Intelligence (AI)?

Artificial Intelligence is the Science of machine learning from History!

“It is the science of making machines use data to gain insight, draw correlations, establish inference, now reserved for humans, and improve themselves to solve all kind of problems.”



So Why Artificial Intelligence?

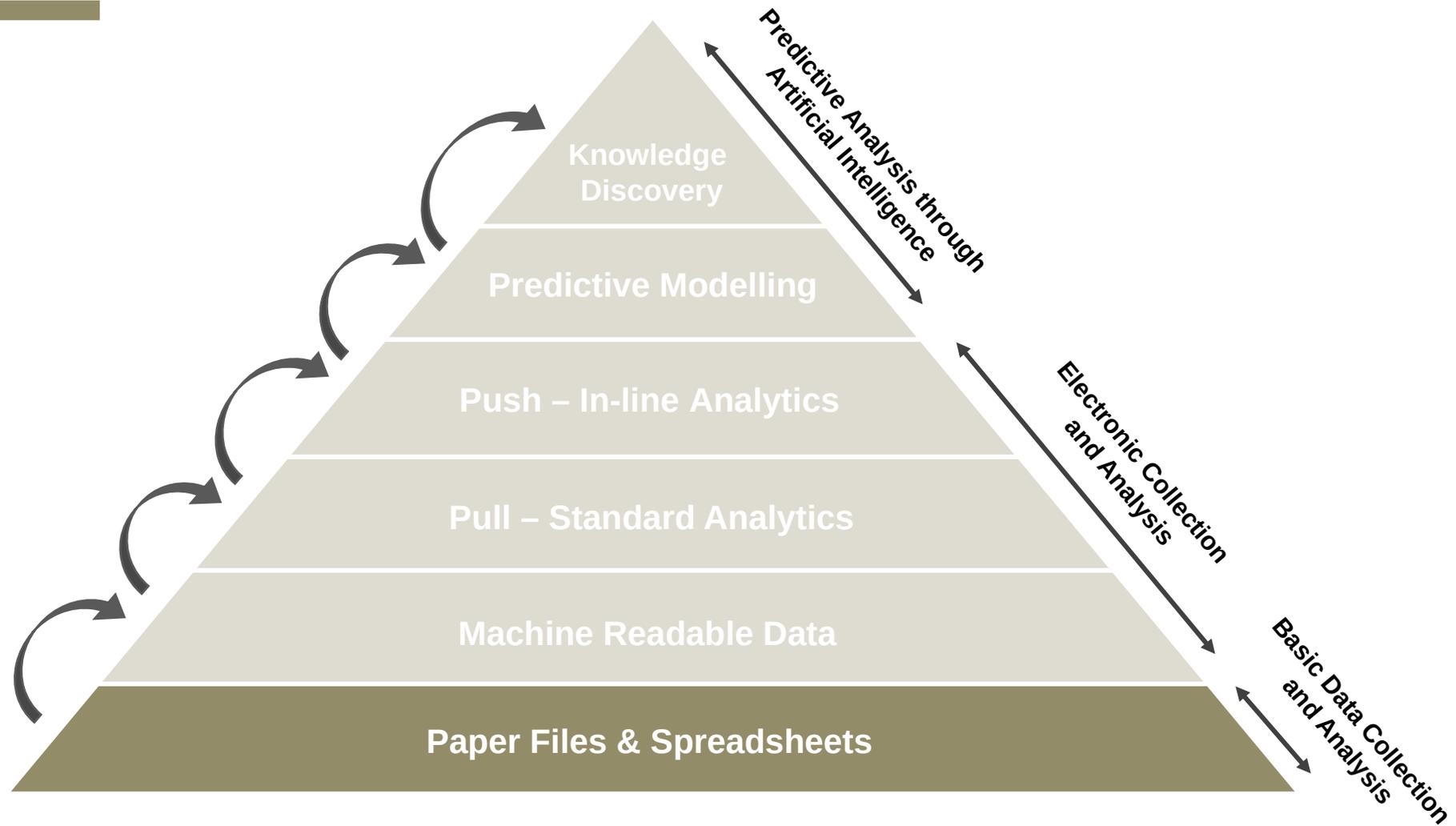
1. Because we need **Proof not Guesses**
2. Because our life experience **isn't** nearly enough
3. Because machines **don't** sleep, tire, get sick, quit or retire
4. Because we **need** to make all of our staff equally proficient
5. Because we **don't** have unlimited budget and resources to meet the increasing volumes and regulatory complexity!



Pre-Requisites to Artificial Intelligence (AI)

1. Machine Readable Data
2. Current & Historic Data and Lots of it
3. Analytical Tools
4. Smart People w/ Ideas and Hypothesis
5. A Data Mining tool to teach and learn from
6. A Problem you need to solve

Progression of Regulatory Analytics through Technology



Paper Files & Spreadsheets

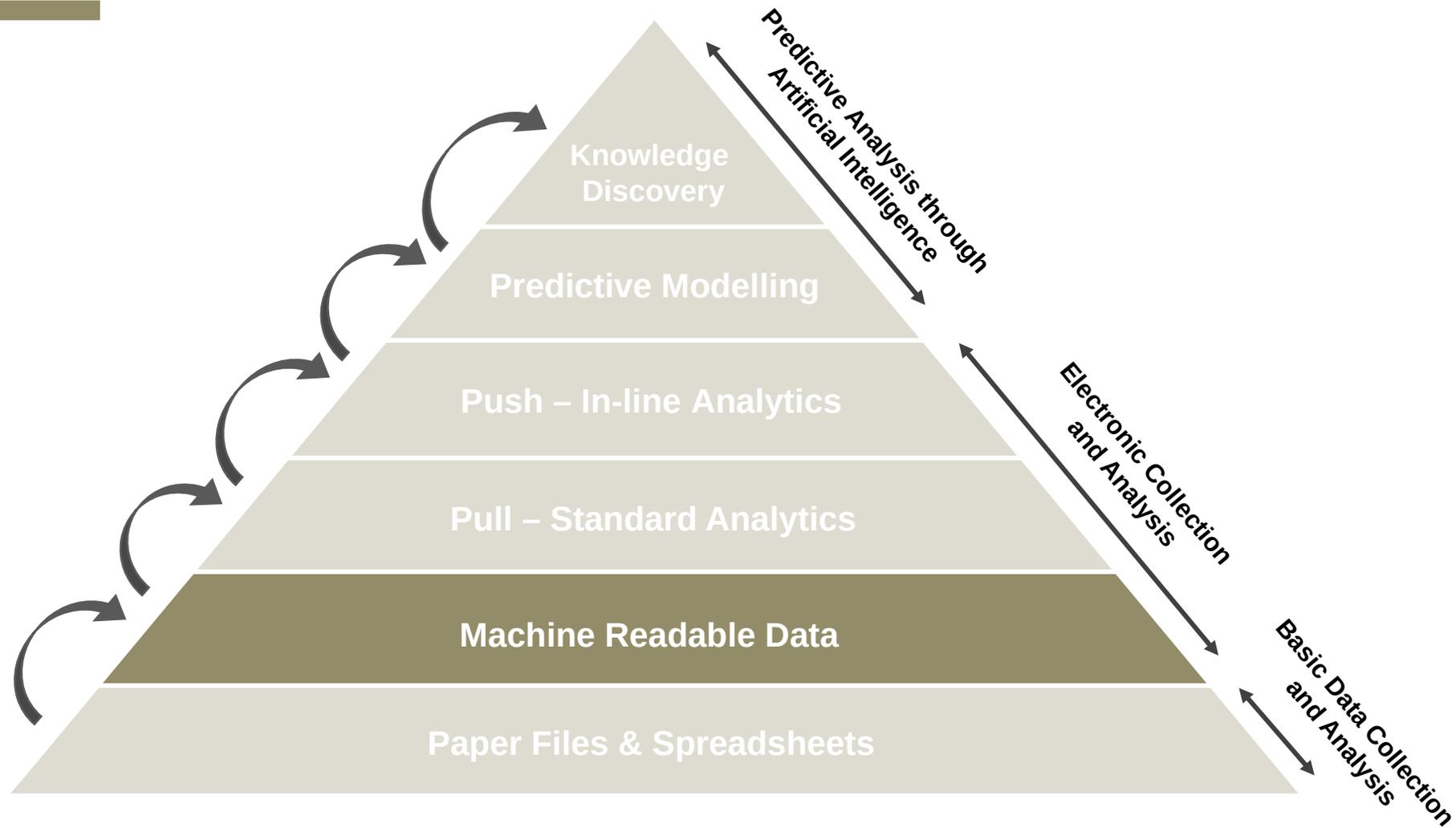


Still used in some jurisdictions for filing information

Inefficient and time consuming to extract timely, accurate and usable data

Can be digitized to create machine readable data

Progression of Regulatory Analytics through Technology

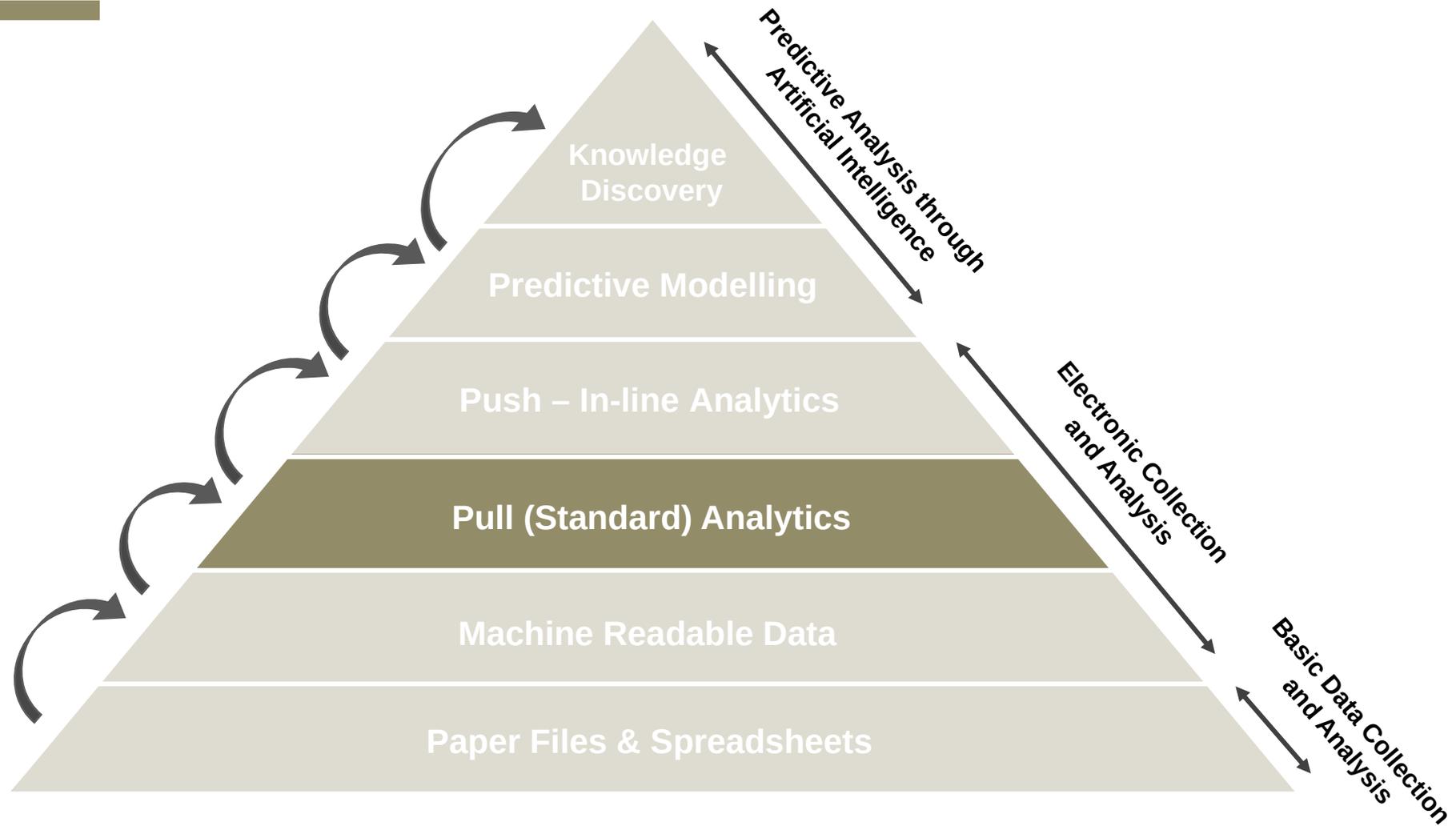


Machine Readable Data

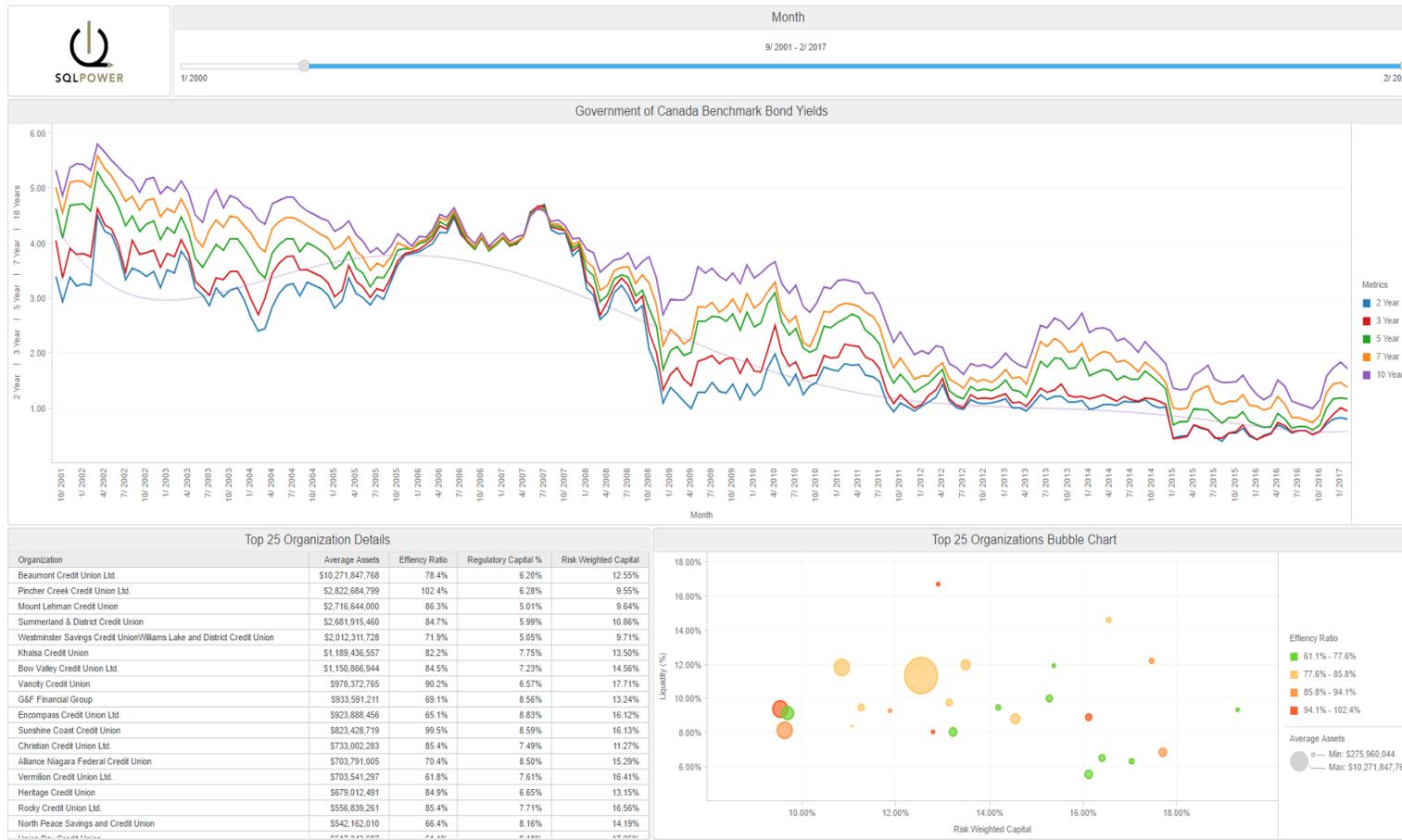
	dat_id	description	estimated_cost ↕	estimated_cost_range	determination_type	ge
1	2010_RD/2012/962/A	Section 82A Review of consent to ...	305,000	b) \$100k - <\$500k	Approved with Conditions	
2	2011_D/2013/30	Change of use of existing terrace f...	206,910	b) \$100k - <\$500k	Approved with Conditions	
3	2011_D/2013/12	Alterations and additions to Unit 4...	46,000	a) \$<100k	Approved with Conditions	
4	2010_D/2011/518/B	S96 (1A) to reconfigure the floor pl...	45,000	a) \$<100k	Approved with Conditions	
5	2015_D/2008/940/C	S96(1A) modification to amend Co...	0	NA	Approved with Conditions	
6	2000_D/2013/24	Install recessed strip lighting to th...	30,000	a) \$<100k	Approved with Conditions	
7	2017_D/2010/2176/F	Section 96(1A) application to chan...	0	NA	Approved with Conditions	
8	2037_D/2011/1234/A	Section 96 (1A) New highlight win...	350,000	b) \$100k - <\$500k	Approved with Conditions	
9	2010_D/2013/2	Unit 58 - internal alterations and e...	60,000	a) \$<100k	Approved with Conditions	
10	2010_RD/2012/957/A	Section 82(A) review of the previo...	200,000	b) \$100k - <\$500k	Approved with Conditions	
11	2016_D/2013/503	Conversion of the existing two sto...	300,000	b) \$100k - <\$500k	Approved with Conditions	
12	2000_D/2009/269/A	Section 96(2) modification of devel...	23,500	a) \$<100k	Approved with Conditions	
13	2007_D/2013/517	Internal works to enlarge existing ...	70,000	a) \$<100k	Approved with Conditions	
14	2010_D/2013/520	Change of use of shop 4 to a cycli...	125,000	b) \$100k - <\$500k	Approved with Conditions	
15	2010_D/2013/495	Rear attic extension, new front do...	48,930	a) \$<100k	Approved with Conditions	
16	2011_D/2013/501	Fit-out of an approved licenced re...	700,000	c) \$500k - <\$1m	Approved with Conditions	
17	2000_D/2013/509	Fitout and use Suite 205 on Level ...	50,000	a) \$<100k	Approved with Conditions	
18	2000_D/2013/502	Alterations to an existing office / d...	100,000	b) \$100k - <\$500k	Approved with Conditions	
19	2042_D/2013/553	Alterations to Newtown Post Offic...	1,801,263	d) \$1m - <\$5m	Court Approved	
20	2011_D/2013/536	Alterations to rear of terrace inclu...	40,000	a) \$<100k	Approved with Conditions	
21	2010_D/2013/546	Refurbishment of existing commu...	4,920,963	d) \$1m - <\$5m	Approved with Conditions	

Machine Readable Data is transmitted in a format that can be easily loaded into an Analytics database without human intervention paving the way for real-time analysis.

Progression of Regulatory Analytics through Technology



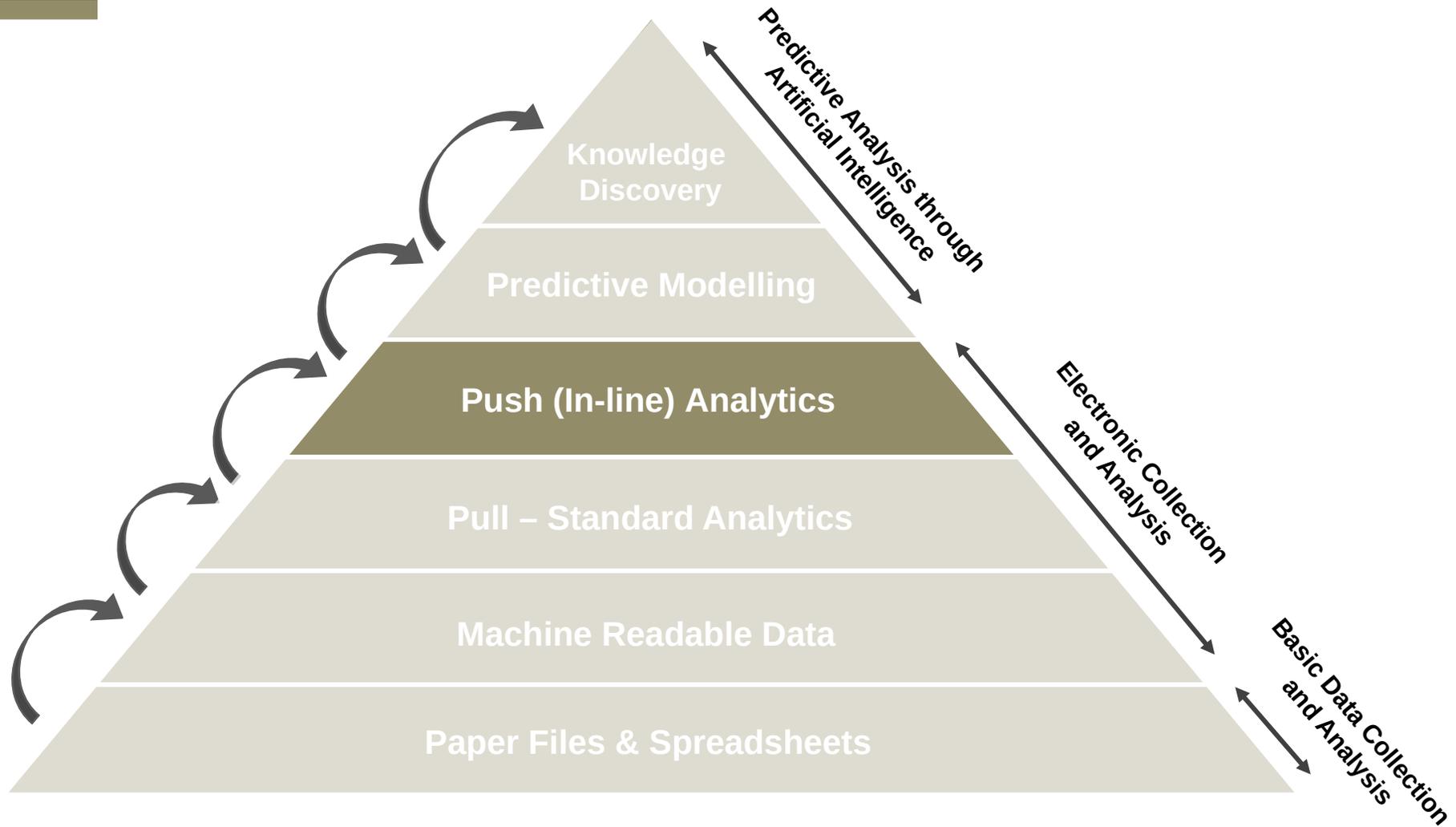
Pull – Standard Analytics



Pull (Standard) Analytics reports and dashboards enable analysts to visualize data in various formats

Key financial metrics, ratios and other indicators are provided in real time against submitted call reports and financial returns

Progression of Regulatory Analytics through Technology



Push – In-Line Analytics

View Submissions

View Submissions

Organization Id Organization Name Return Name Reporting Window Name Analytic Group Name

Actions	Org Id	Org Name	Return Name	Reporting Window Name	Analytic
  	+ 65631	Fairmount State Bank	AnnualReturn-demo2	Annual Fund Return - Feb 2013	●
  	+ 65631	Fairmount State Bank	INC-019-57_demo2	Annual Financial Return - Mar 2013	●
  	+ 65631	Fairmount State Bank	AnnualReturn-demo2	Annual Fund Return - Jan 2013	●
  	+ 65631	Fairmount State Bank	INC-019-57_demo2	Annual Financial Return - Mar 2013	●
  	+ 65631	Fairmount State Bank	AnnualReturn-demo2	Annual Fund Return - Feb 2013	●
  	+ 65631	Fairmount State Bank	INC-019-57_demo2	Annual Financial Return - Mar 2013	●
  	+ 65631	Fairmount State Bank	AnnualReturn-demo2	Annual Fund Return - Jan 2013	●
  	+ 65631	Fairmount State Bank	AnnualReturn-demo2	Annual Fund Return - Jan 2013	●

Push (In-Line) Analytics enable analysts to make real-time decisions within the SQL Power regulatory platform.

Every Submission is assessed in real time and colour-coded based on the existence of Key Metrics that fall outside our acceptable ranges.

Push – In-Line Analytics

Summary Financial Information

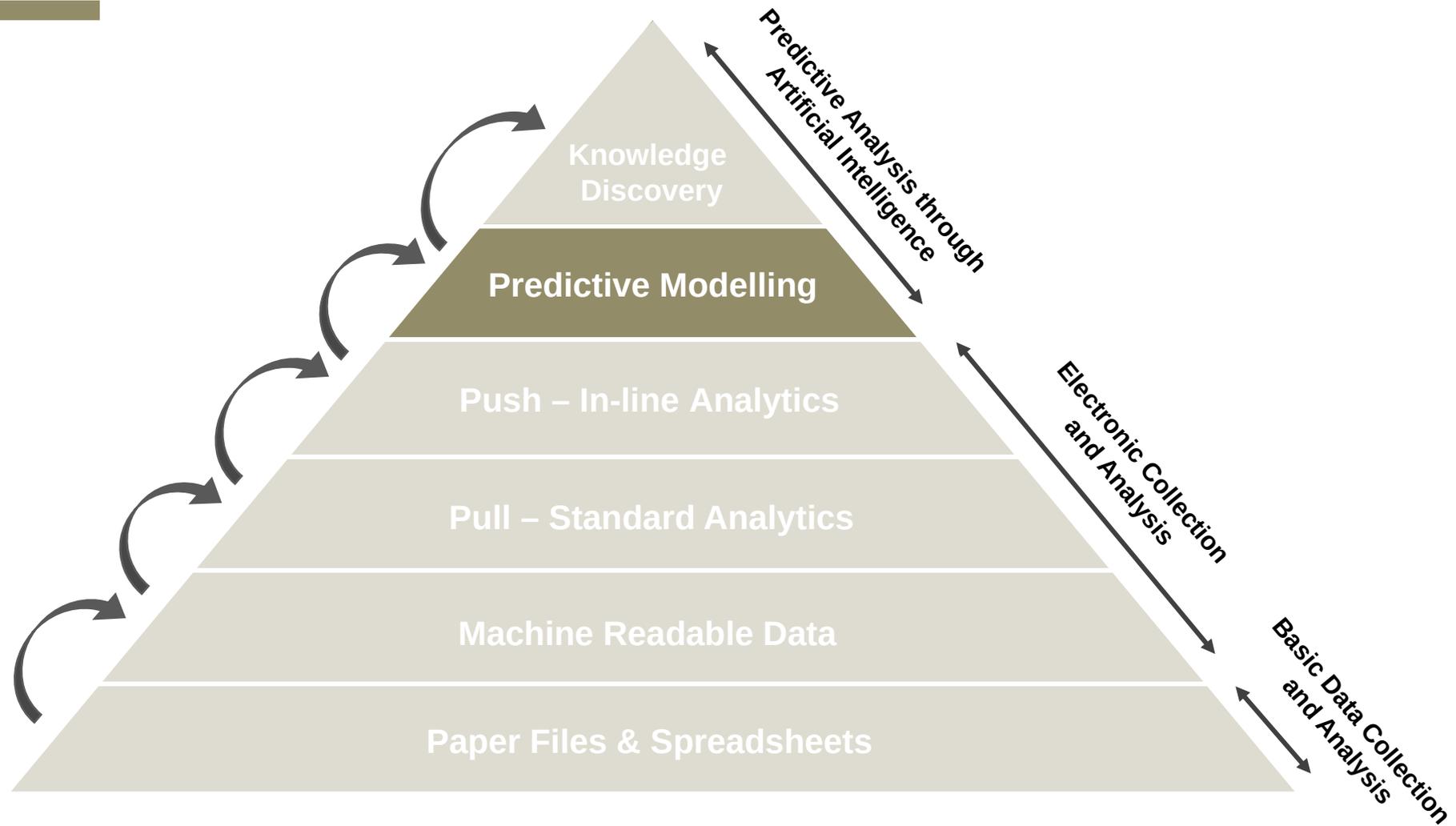
6. Reporting Period			
From	F07.1 ▶	2017-01-01	
To	F07.2 ▶	2017-01-31	
7. Currency			
Reporting Currency	F07.1 ▶	USD US Dollars	
8. Summary Statement of Financial Position			
Total Assets	F08.1 ▶	\$5,632,100	
Beginning Net Asset Value	F08.2 ▶	\$2,732,150	
Total Subscriptions	F08.3 ▶	\$1,545,230	
Total Redemptions	F08.4 ▶	\$700,000	
Total Dividends/Distributions	F08.5 ▶	\$1,000,000	
Net Income / (Net Loss)	F08.6 ▶	\$4,000,299	
Ending Net Asset Value	F08.7 ▶	\$8,577,679 ↓	
9. Asset Allocation			
Investment in Master Fund	F09.1 ▶	\$10,000,000	
Long position equities (assets)	F09.2 ▶	\$3,500,000	
Short position equities (liabilities)	F09.3 ▶	\$500,000	
Debt instruments (assets)	F09.4 ▶	\$2,000,000	
Short position debt instruments (liabilities)	F09.5 ▶	\$8,550,500	
Other funds	F09.6 ▶	\$6,453,990	
Money Market instruments	F09.7 ▶	\$100,000	
Derivatives - assets	F09.8 ▶	\$6,000,000	
Derivatives - liabilities	F09.9 ▶	\$626,789	
Other investments - assets	F09.10 ▶	\$475,000	
Other investments - liabilities	F09.11 ▶	\$250,000	
Return on Assets (%)	F10 ▶	7.00 ↓	
Leverage (%)	F11 ▶	8.00 ↓	

Red Range: 0.00% - 5.00%
 Yellow Range: 5.00% - 10.00%
 Green Range: 10.00% - NULL

 Previous Value: 9.00%
 Change: 2.00%
 % Change: 25.00%

SQL Power In-Line Analytics are assessed in real time upon submission and are pushed to Analysts during the course of their day-to-day activities enabling them to focus on High Value work and to work more efficiently!

Progression of Regulatory Analytics through Technology

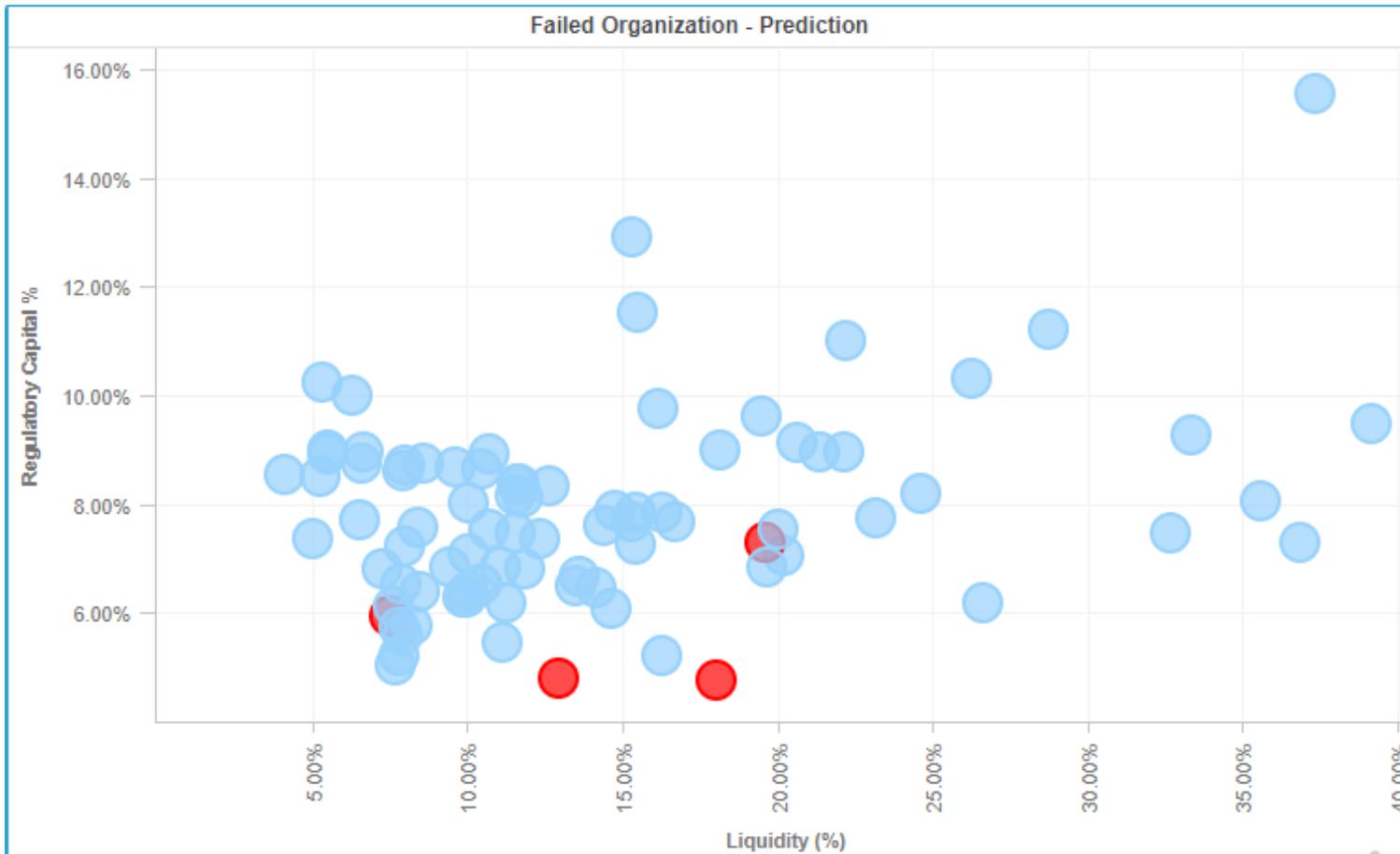


Predictive Modelling

Organization	Regulatory Capital %	Liquidity (%)	Return on Average Assets (ROA)	Efficiency Ratio	Impaired Loans - %	Total Assets	Failed - Prediction
1st Priority Federal Credit Union	6.80%	7.24%	-0.63%	201.3%	3.00%	\$294,898,445	0
Creative Arts	4.81%	12.95%	-0.21%	113.0%	0.00%	\$49,091,229	1
Creston and District Credit Union	9.48%	39.17%	-0.13%	106.0%	0.00%	\$49,490,217	0
Vision Credit Union Ltd.	6.85%	19.64%	-0.03%	101.6%	0.00%	\$491,544,777	0
Alfred Allegany Educational Employees Federal Credit Union	6.18%	26.64%	-0.03%	99.6%	0.00%	\$77,572,994	0
Prospera Credit Union	4.75%	18.02%	0.00%	100.2%	4.03%	\$485,341,845	1
Sunshine Coast Credit Union	8.67%	9.63%	0.01%	98.7%	0.84%	\$2,437,153,641	0
VantageOne Credit Union	7.26%	15.44%	0.04%	95.4%	0.00%	\$330,381,826	0
ABE - American Broadcast Employees - Federal Credit Union	5.21%	16.27%	0.04%	97.5%	0.03%	\$730,622,502	0
Pincher Creek Credit Union Ltd.	6.30%	9.84%	0.05%	93.6%	0.55%	\$11,192,879,956	0
ACMG Federal Credit Union	7.73%	23.16%	0.05%	97.5%	0.00%	\$160,164,667	0

We can now use the Historical Data that we collected over time to confirm our Hypothesis and suspected correlation between certain metrics (leading indicators) and the problem we're trying to solve (a Failed Institution)

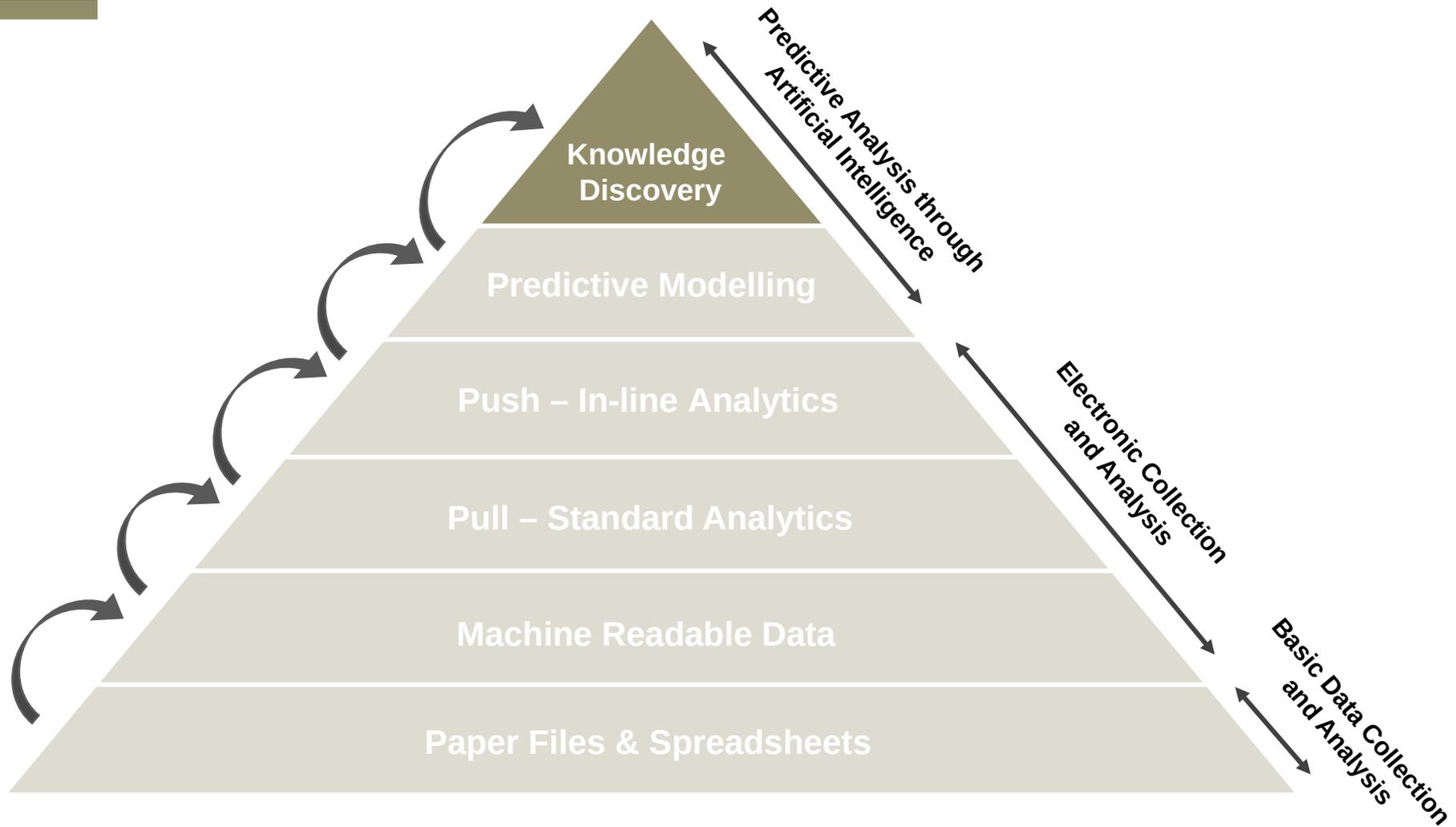
Predictive Modelling



The SQL Power Predictive Modeling tool then generates a predictive model (based on historic data), and this model is used to assess newly collected data to generate a visual chart highlighting which institutions are likely to fail.

Those “Likely to Fail” Institutions can now be the subject of Onsite Inspections to help investigate any root causes and hopefully circumvent their Failure!

Progression of Regulatory Analytics through Technology



Knowledge Discovery



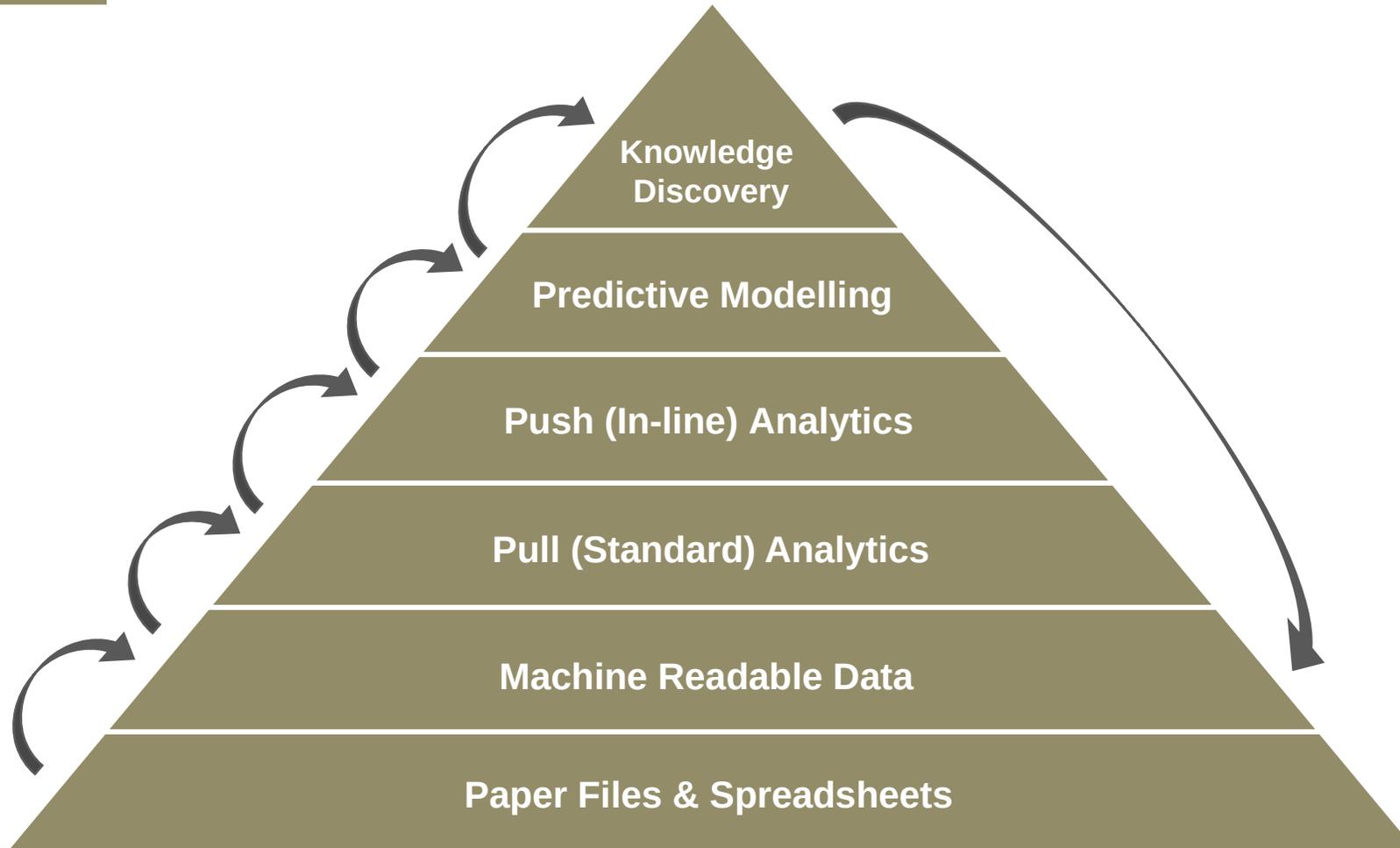
The Promised Land:

Let the Data Mining tool loose on your Current and Historic Data and Have the tool **Discover new trends and new correlations** between leading indicators and desirable outcomes!

Improve Processes:

Track and assign acceptable thresholds to these newly discovered Leading Indicators thus staying ahead of the ever changing Regulated Market!

Progression of Regulatory Analytics through Technology



Roadmap to True Artificial Intelligence (AI) Promised Land!

1. Fully Automate paper-based submissions or legacy systems to capture Machine-Readable Data
2. Store Machine-Readable Data in an Analytics Database for real-time Reporting and Analysis
3. Deploy a Business Intelligence tool to facilitate Pull Analytics and on-demand Analysis
4. Specify acceptable thresholds for every key metric highlighting Push Colour-Coded Analytics to the Analyst upon submission in real time
5. Point a Data Mining tool on the Analytics Database to test various Sr. Management Hypothesis against historical data (likely correlation between suspected Leading Indicators and the likelihood of an institution to fail?)
6. Once the correlation is confirmed use the Data Mining tool (and predictive modelling) to predict likely institution failure based on the latest set of Financial Data.



For more in-depth discussion on how to implement Artificial Intelligence at your Regulatory Organization contact us at info@sqlpower.ca or visit our website www.sqlpower.ca

The 2018 Caribbean FinReg Conference

Learn about the latest on Artificial Intelligence (AI) and how to automate and streamline Regulatory oversight functions from industry-innovating speakers at the 2018 Caribbean FinReg Conference in Miami from November 12th to 14th 2018.

Stay tuned for more details on www.caribfinreg.org





Thank You!

SQL Power Group Inc.

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