

Enabling Data-driven Decisions

Topics:

- Information Value
- Insight from Data
- Data Analytics
- Data Analytics Platform
- Power BI
- Data Dashboards
- Resources

Data → Information → Insight

raw → meaning → understanding

**9 → 90 c → 90 c
temp after storm
in Calgary, in Aug.**



Fuzeium's Mission

Enable others



**to solve problems &
find opportunities**

**through
data analytics**



Data Analytics

*The **qualitative** and **quantitative** techniques and processes used to enhance productivity and business gain.*

Types of Data Analytics



What should we
do about it?

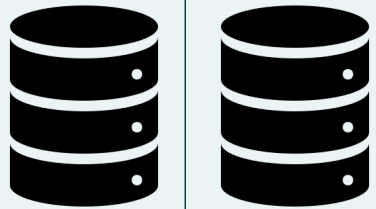
What will happen?

Why?

What's going on?

Busting Silos With Data

Data Analytics Platform

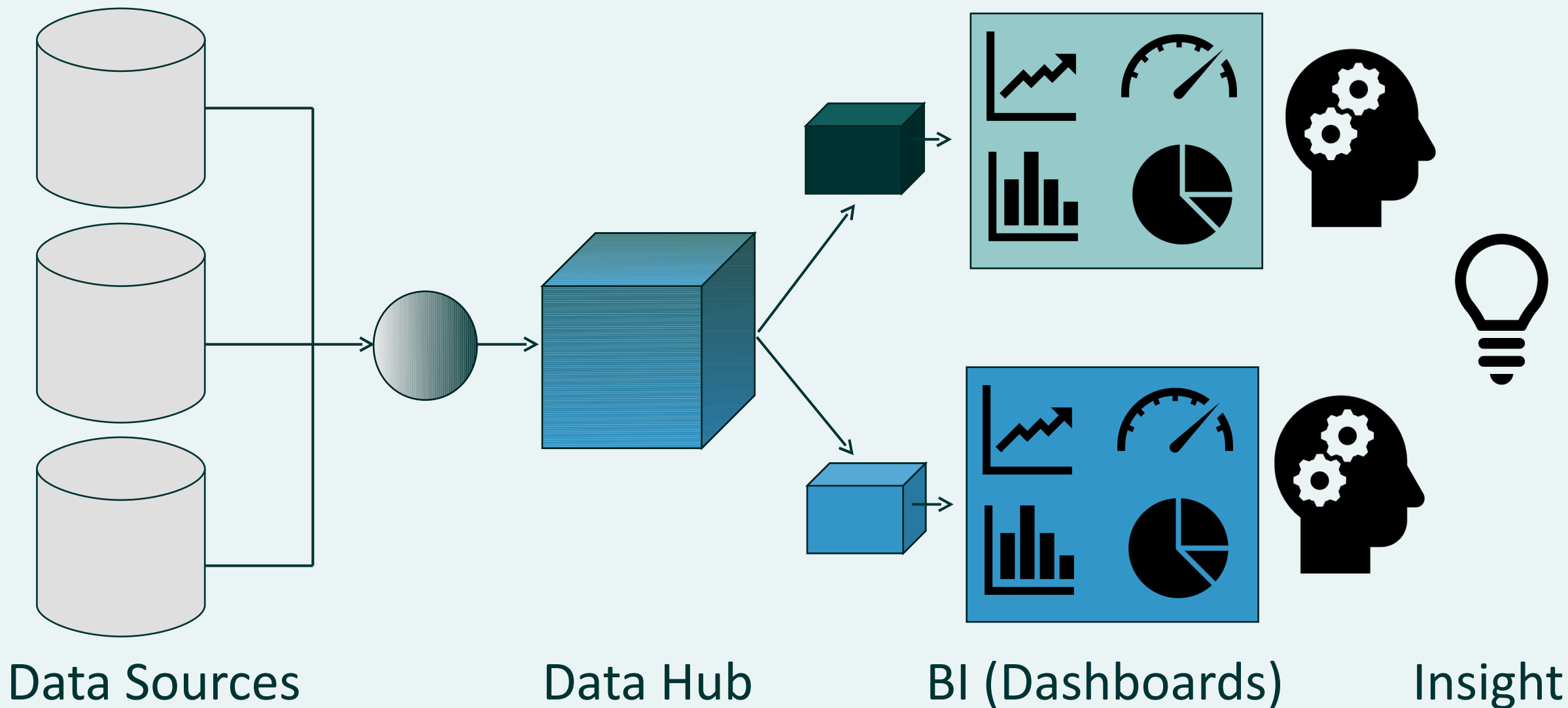




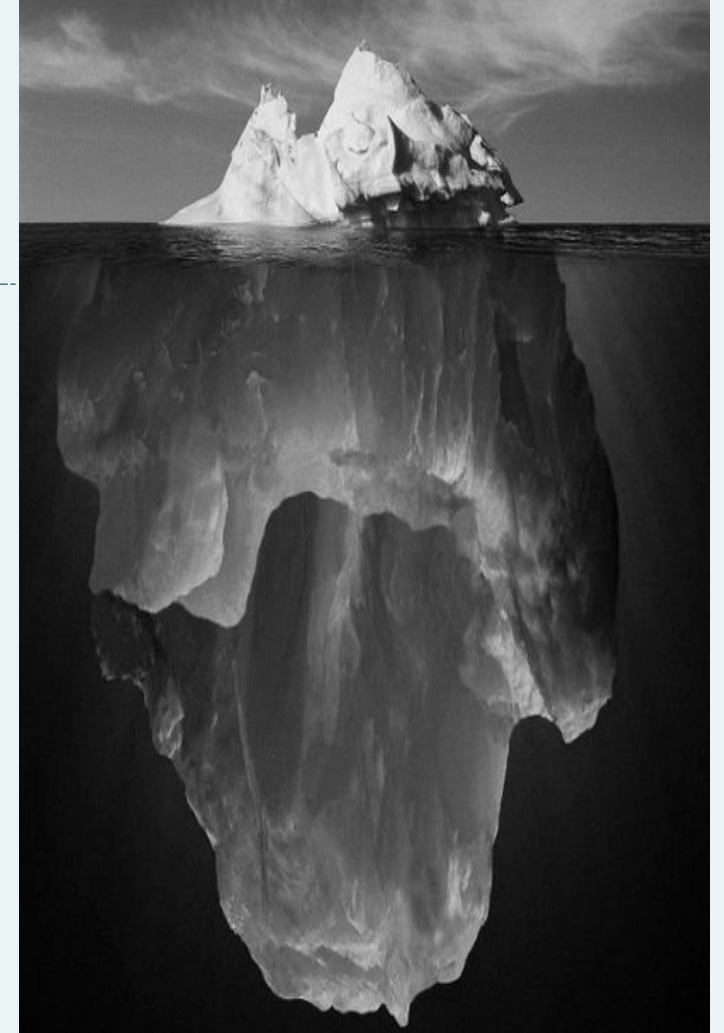
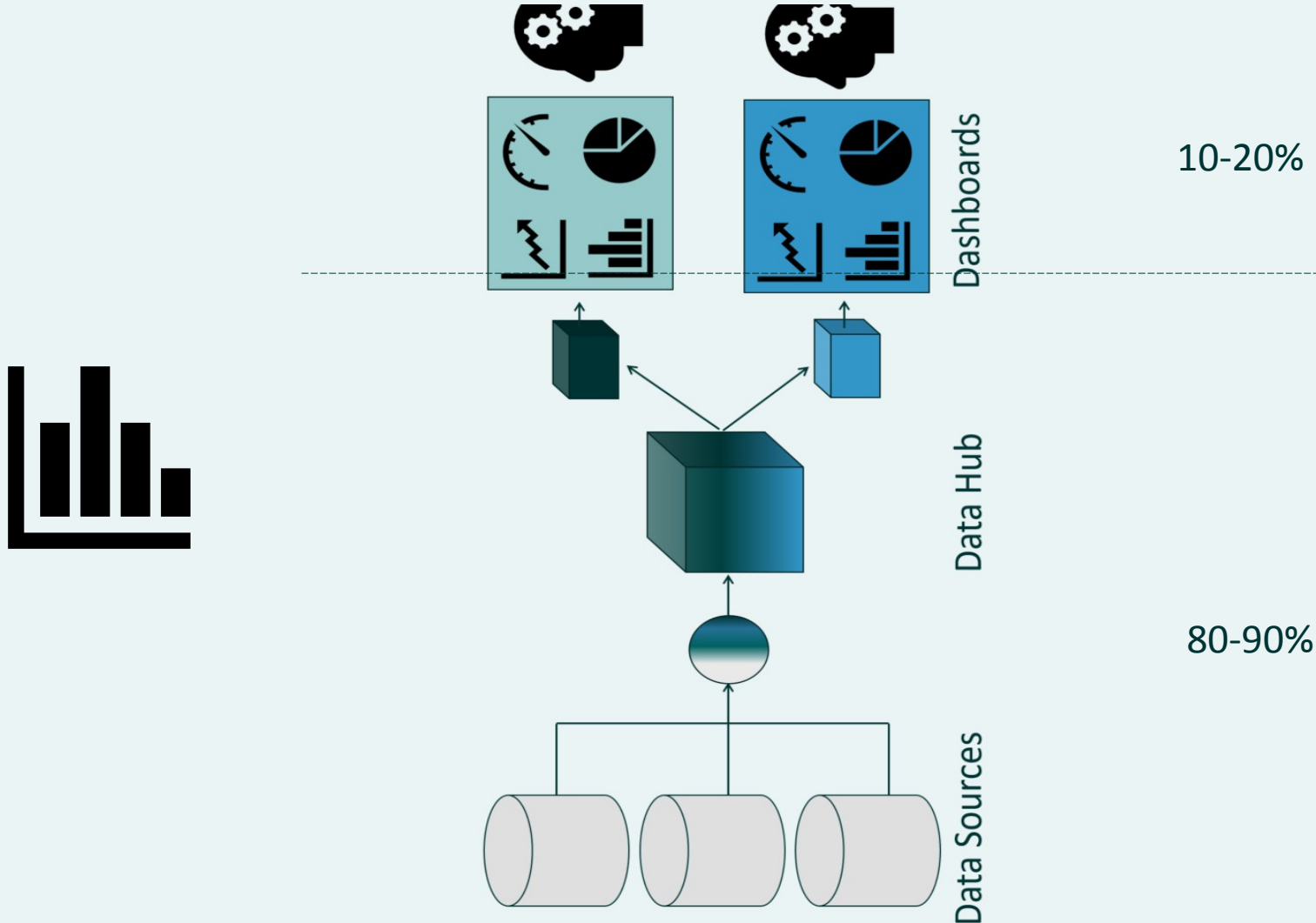
Data Analytics Platforms

Platforms and BI tools are now allowing Data Analytics to become accessible to everyone, and not just on-demand

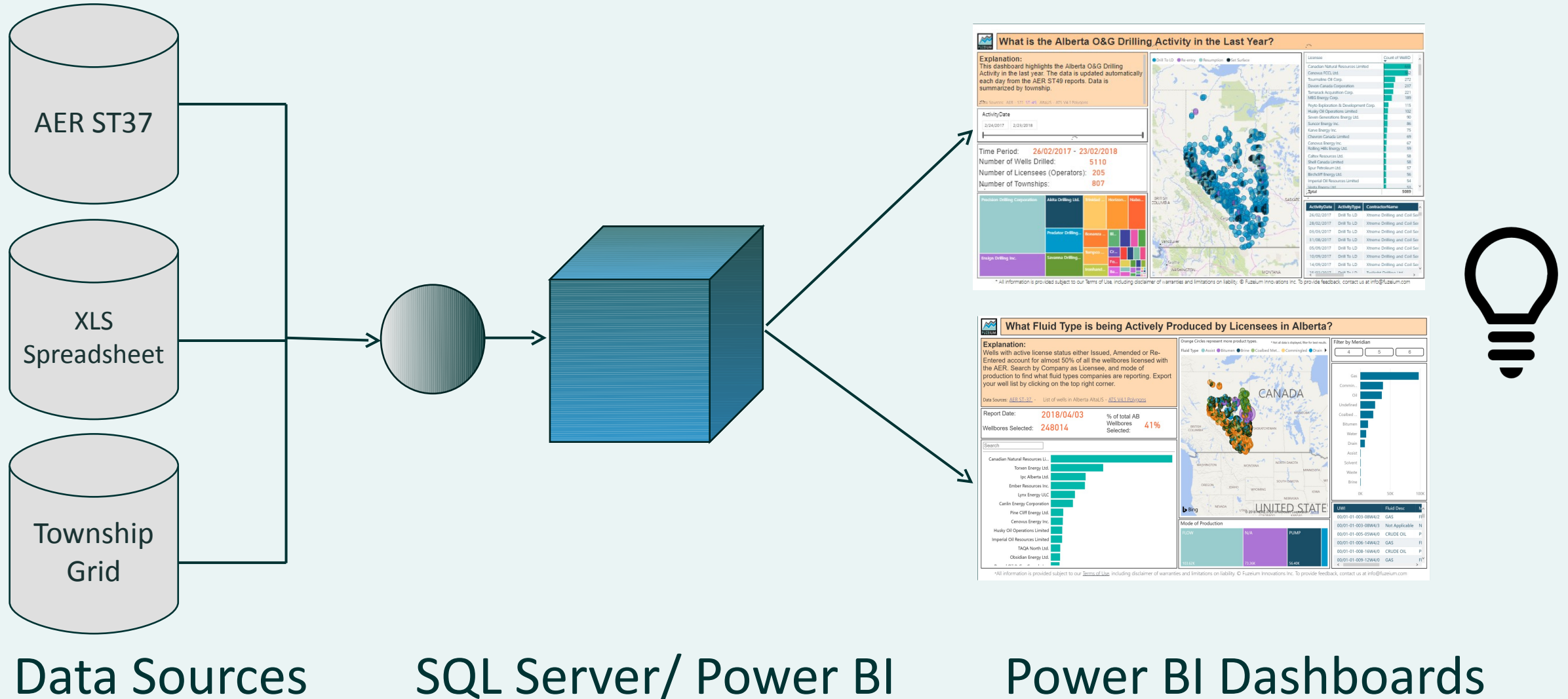
Data Analytics Platform



Applied Data Analytics – % of Effort



Architecture using Microsoft Power BI



Dashboard: Market Intelligence

Example: Alberta Oil & Gas Well Activity

From This...

Data

Report Number: ST-49
Run Date: 26 Feb 2018

Alberta Energy Regulator
DAILY DRILLING ACTIVITY LIST
For the Notification Period 25 Feb 2018 1

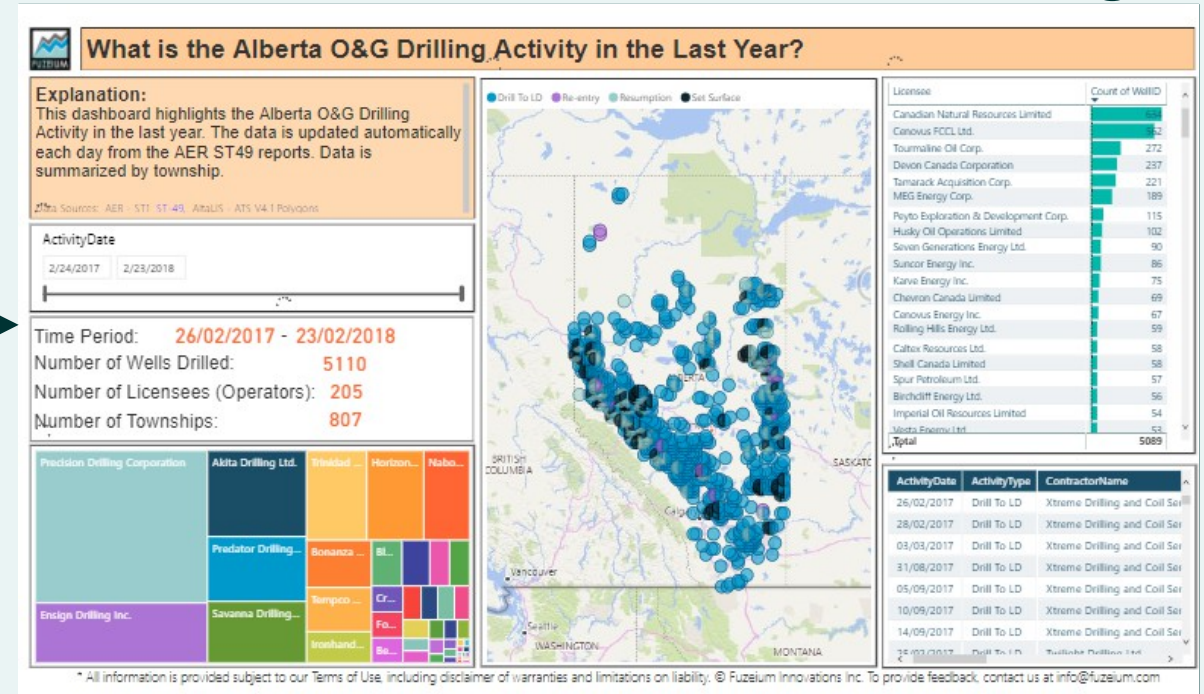
WELL ID	WELL NAME	LICENCE	BA ID	CONTRACTOR NAME	RIG NUMBER	ACTIV
00/08-24-041-02W4/0	ROCKEAST HZ 100 HAYTER 8-24-41-2	0484988	A6NZ	Lasso Drilling Corporation	3	26 Feb 201
00/13-02-043-08W5/0	PENN WEST 100 WILLGR 13-2-43-8	0485376	A6PR	Nabors Drilling Canada Limited	26	26 Feb 201
00/04-03-045-11W5/0	VEI HZ PEMBINA 4-3-45-11	0487872	A2EN	Ironhand Drilling Inc.	5	26 Feb 201
02/15-26-062-24W5/0	CHEVRON 102 HZ WAHIGAN 15-26-62-24	0476601	0241	Ensign Drilling Inc.	785	26 Feb 201
02/05-14-064-10W5/0	CPEC HZ SWANHS 5-14-64-10	0486605	A0KC	Horizon Drilling Inc.	19	26 Feb 201
04/07-09-064-04W6/0	7GEN HZ 104 KAKWA 7-9-64-4	0487645	A0F8	Patterson-UTI Drilling Co. Canada	16	26 Feb 201
08/09-09-064-04W6/0	7GEN HZ 108 KAKWA 9-9-64-4	0487647	A6PR	Nabors Drilling Canada Limited	120	26 Feb 201
03/05-34-067-04W6/0	HHR 103 HZ ELM 5-34-67-4	0488082	A6PR	Nabors Drilling Canada Limited	6	25 Feb 201
AA/01-09-070-06W4/0	CVE FCCL A1 FISHER 1-9-70-6	0486950	A08C	Savanna Drilling Corp.	401	25 Feb 201
AC/02-36-073-08W4/0	CNRL 1AC KIRBY 2-36-73-8	0487113	A57H	Predator Drilling Inc.	27	26 Feb 201
03/13-32-073-24W4/0	SPL 11-29 HZ 103 MARTENH 13-32-73-24	0487035	06E9	Tempco Drilling Company Inc.	7	26 Feb 201
06/01-34-075-06W4/0	CVE FCCL J17P02 KIRBY 1-34-75-6	0484722	0Y55	Akita Drilling Ltd.	57	26 Feb 201
04/04-35-075-06W4/0	CVE FCCL J17P04 KIRBY 4-35-75-6	0484724	0Y55	Akita Drilling Ltd.	57	24 Feb 201
AB/09-28-076-05W4/0	CVE FCCL A9-28 A9 HARDY 9-28-76-5	0486404	0Y52	Precision Drilling Corporation	180	26 Feb 201
AC/08-25-076-06W4/0	CVE FCCL C8 HARDY 8-25-76-6	0486365	0Y55	Akita Drilling Ltd.	12	26 Feb 201
AE/05-07-077-04W4/0	MEG HARDY 5-7-77-4	0486986	A57H	Predator Drilling Inc.	8	25 Feb 201
AE/08-12-077-05W4/0	MEG HARDY 8-12-77-5	0487124	A57H	Predator Drilling Inc.	8	26 Feb 201
03/04-13-077-05W4/0	MEG DB4I HARDY 4-13-77-5	0486133	0Y55	Akita Drilling Ltd.	27	26 Feb 201
00/04-23-077-05W4/0	MEG DB3I HARDY 4-23-77-5	0486132	0Y55	Akita Drilling Ltd.	27	26 Feb 201
AA/05-29-077-05W4/0	MEG HARDY 5-29-77-5	0487005	A57H	Predator Drilling Inc.	4	26 Feb 201

TOTAL - Drill To LD - Drilling to Licensed Depth
TOTAL - Re-entry - Re-entry of an Abandoned Well
TOTAL - Resumption - Resumption of Drilling of a M
TOTAL - Set Surface - Drilling to Set Surface Casin

TOTAL NUMBER OF WELLS LISTED =
*** END OF REPORT ***

To That...

Insight



fuzeium.com/learn

Power BI Sources

Data Sources



Get Data

All

File

Database

Azure

Online Services

Other

All

Planview Projectplace (Beta)

QuickBooks Online (Beta)

Smartsheet

SparkPost (Beta)

Stripe (Beta)

SweetIQ (Beta)

Planview Enterprise One - CMT (Beta)

Twilio (Beta)

tyGraph (Beta)

Webtrends (Beta)

Zendesk (Beta)

Web

SharePoint list

OData Feed

Active Directory

Microsoft Exchange

[Certified Connectors](#)

Connect

Cancel



ST49: Drilling Activity

Updated daily

Report Number: ST-49
Page 1 of 1
Run Date: 22 May 2018

Alberta Energy Regulator

DAILY DRILLING ACTIVITY LIST
For the Notification Period 21 May 2018 To 22 May 2018

WELL ID	WELL NAME	LICENCE	CONTRACTOR	RIG	ACTIVITY DATE	FIELD CENTRE
ID	LICENSEE	NEW PROJECTED ACTIVITY	BA ID	NAME	NUMBER	
TOTAL DEPTH	TYPE					
00/01-19-034-03W4/0 RHE PROVOST 1-19-34-3	Rolling Hills Energy Ltd.	Set Surface	0488859 A57H	Predator Drilling Inc.	8 22 May 2018 12:00:00 PM	Wainwright
02/12-15-034-08W4/0 TAC 2-21 HZ 102 PROVOST 12-15-34-8	Tamarack Acquisition Corp.	Set Surface	0489037 A57H	Predator Drilling Inc.	27 22 May 2018 11:30:00 AM	Wainwright
00/04-15-044-20W4/0 SHACKLETON HZ EDBERG 4-15-44-20	Shackleton Exploration Ltd.	Drill To LD	0488633 0Y52	Precision Drilling Corporation	190 21 May 2018 04:00:00 PM	St. Albert
14/04-33-068-04W4/0 CNRL 5A72 PRIMROSE 4-33-68-4	Canadian Natural Resources Limited	Resumption	0488277 A6PR	Nabors Drilling Canada Limited	59 22 May 2018 12:00:00 PM	Bonnyville

TOTAL - Drill To LD - Drilling to Licensed Depth = 1
TOTAL - Re-entry - Re-entry of an Abandoned Well = 0
TOTAL - Resumption - Resumption of Drilling of a Non-abandoned Well = 1
TOTAL - Set Surface - Drilling to Set Surface Casing Only = 2

TOTAL NUMBER OF WELLS LISTED = 4
*** END OF REPORT ***



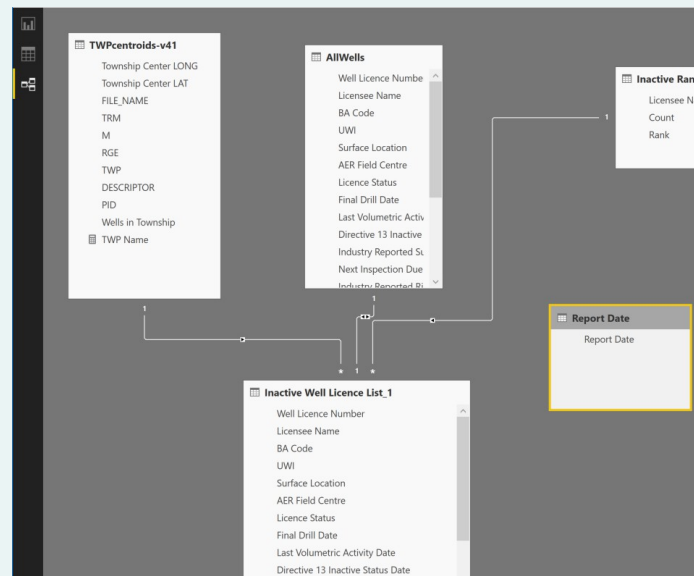
Power BI Desktop

DATA and QUERIES

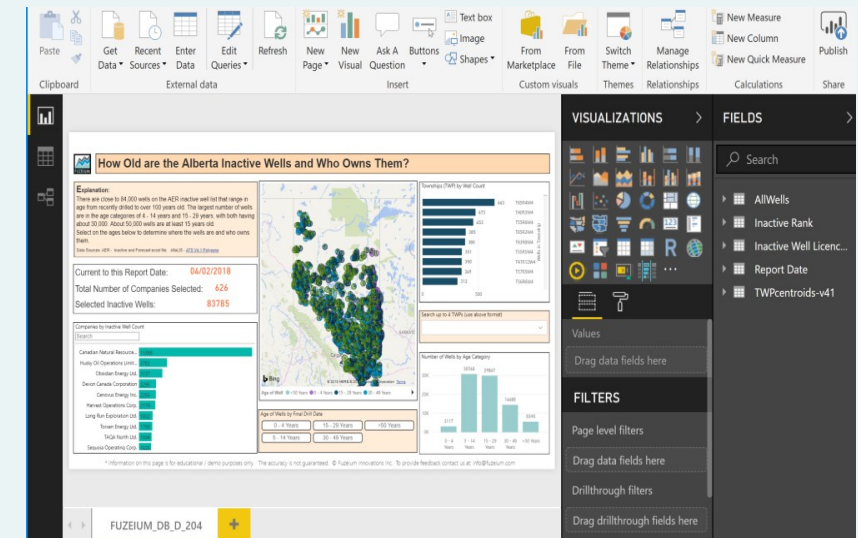
Table.RenameColumns(*"dbo"."TWPENG-V4R1-centroids\$"

1.2 Township Center LONG	1.2 Township Center LAT	1.2 FILE_NAME	1.2 TRM
-111.5653483	57.68603991	410100	100104
-115.5610231	57.68639471	510100	100105
-119.5597254	57.68601281	610100	100106
-111.7295078	57.68603155	411100	100114
-115.7251215	57.68639122	511100	100115
-119.7237899	57.68600848	611100	100116
-111.8936544	57.68601992	412100	100124
-115.8892014	57.68638328	512100	100125
-119.8878302	57.68599575	612100	100126
-112.0578129	57.68600962	413100	100134
-116.05327	57.6863768	513100	100135
-120.0456107	57.68663665	613100	100136
-112.2219508	57.68599761	414100	100144
-116.2173539	57.68637138	514100	100145
-112.3860774	57.68598815	415100	100154
-116.3814597	57.68636885	515100	100155
-119.6091979	57.68600114	616100	100164

DATA MODELS



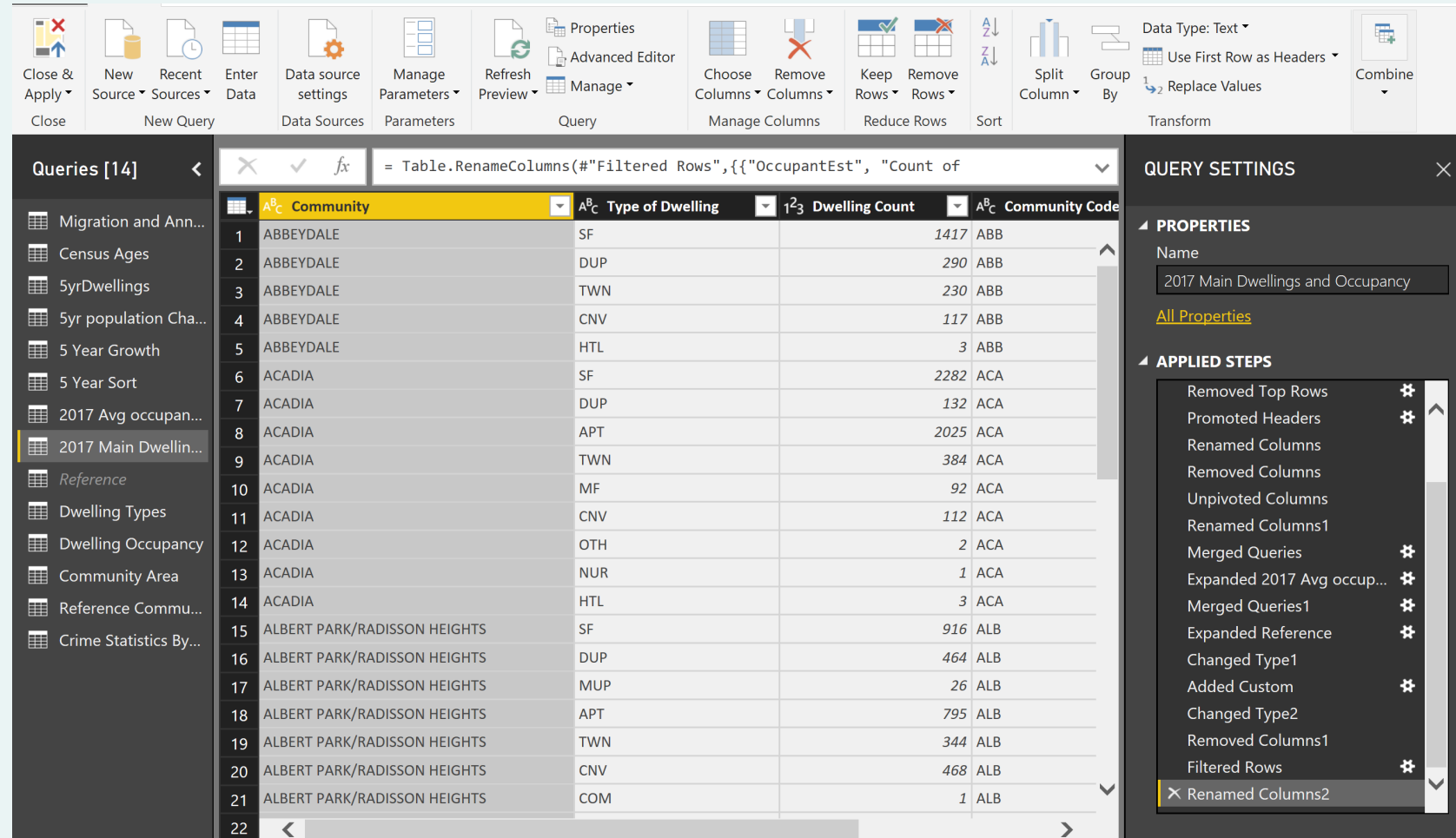
REPORT/ VISUALIZATION



DATA and QUERIES

DATA SHAPING AND MANIPULATION

- Configure Data Types
- Rename or remove columns
- Create Columns
- Split Columns
- Sort, Group, Merge
- Un-Pivot
- Filter
- Replace Values
- Remove Duplicates



The screenshot displays the Power BI Desktop interface. The top ribbon shows the 'Data Source' tab with various options like 'Close & Apply', 'New Source', 'Recent Sources', 'Enter Data', 'Data source settings', 'Manage Parameters', 'Refresh Preview', 'Properties', 'Advanced Editor', 'Manage', 'Choose Columns', 'Remove Columns', 'Keep Rows', 'Remove Rows', 'Sort', 'Split Column', 'Group By', 'Data Type: Text', 'Use First Row as Headers', 'Replace Values', and 'Combine'.

The 'Queries' list on the left shows several queries, with '2017 Main Dwelling...' selected. The main data table displays the following data:

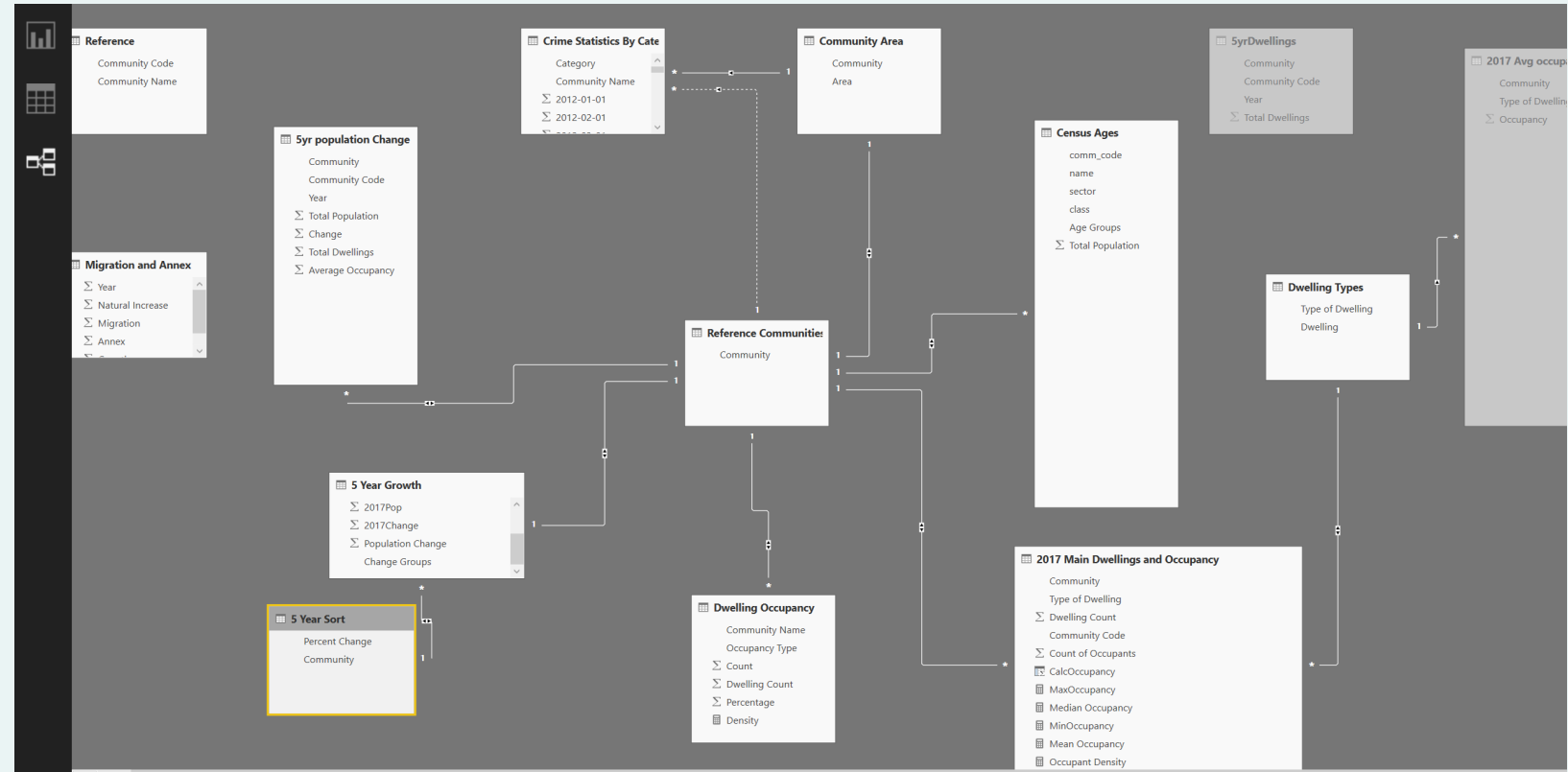
Community	Type of Dwelling	Dwelling Count	Community Code
1 ABBEYDALE	SF	1417	ABB
2 ABBEYDALE	DUP	290	ABB
3 ABBEYDALE	TWN	230	ABB
4 ABBEYDALE	CNV	117	ABB
5 ABBEYDALE	HTL	3	ABB
6 ACADIA	SF	2282	ACA
7 ACADIA	DUP	132	ACA
8 ACADIA	APT	2025	ACA
9 ACADIA	TWN	384	ACA
10 ACADIA	MF	92	ACA
11 ACADIA	CNV	112	ACA
12 ACADIA	OTH	2	ACA
13 ACADIA	NUR	1	ACA
14 ACADIA	HTL	3	ACA
15 ALBERT PARK/RADISSON HEIGHTS	SF	916	ALB
16 ALBERT PARK/RADISSON HEIGHTS	DUP	464	ALB
17 ALBERT PARK/RADISSON HEIGHTS	MUP	26	ALB
18 ALBERT PARK/RADISSON HEIGHTS	APT	795	ALB
19 ALBERT PARK/RADISSON HEIGHTS	TWN	344	ALB
20 ALBERT PARK/RADISSON HEIGHTS	CNV	468	ALB
21 ALBERT PARK/RADISSON HEIGHTS	COM	1	ALB
22			

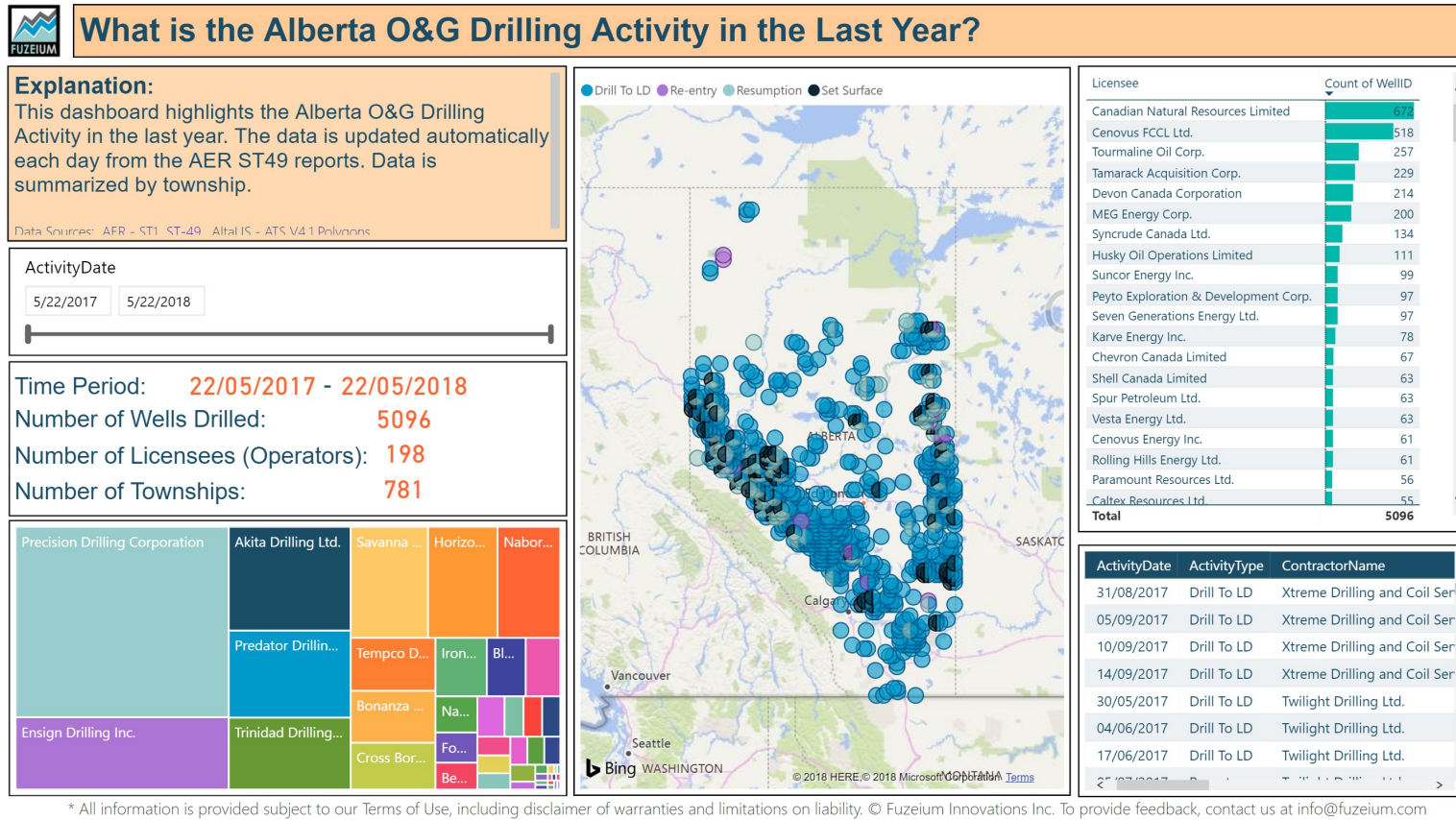
The 'Query Settings' pane on the right shows the 'PROPERTIES' section with the query name '2017 Main Dwellings and Occupancy' and the 'APPLIED STEPS' section listing various transformations applied to the query, including 'Removed Top Rows', 'Promoted Headers', 'Renamed Columns', 'Removed Columns', 'Unpivoted Columns', 'Renamed Columns1', 'Merged Queries', 'Expanded 2017 Avg occup...', 'Merged Queries1', 'Expanded Reference', 'Changed Type1', 'Added Custom', 'Changed Type2', 'Removed Columns1', 'Filtered Rows', and 'Renamed Columns2'.

DATA MODELS

RELATIONSHIPS

- Create and manage multi-directional or single direct relationships between tables
- View, tables, columns and relationships in your report
- Hide tables, columns



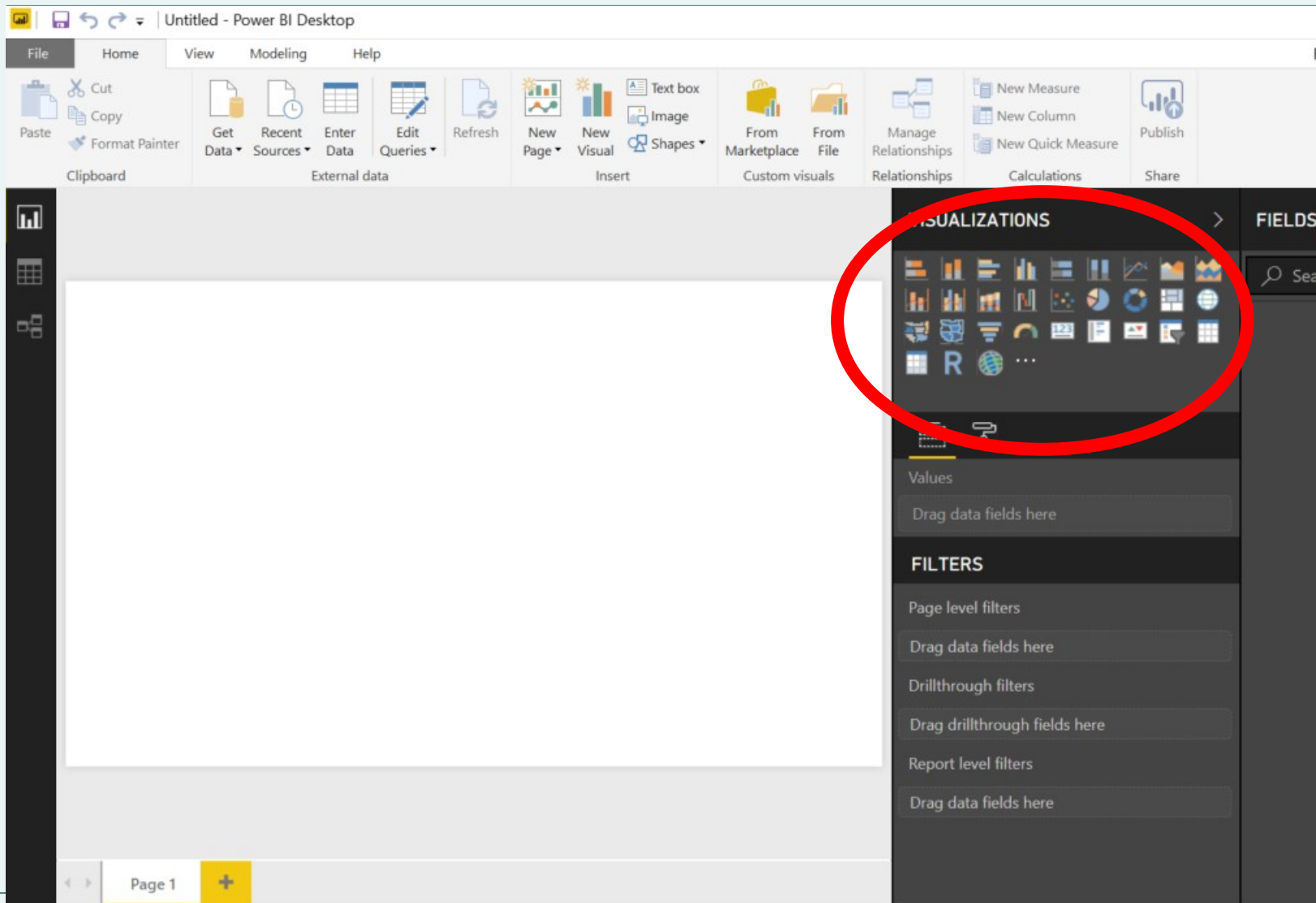


REPORT/ VISUALIZATION

DASHBOARDS

- Create interactive visualizations
- Create a variety of report pages.
- Copy, paste, merge, bookmark
- Refresh Data
- Publish

Microsoft Power BI - Design



Fuzeium's Dashboard Design

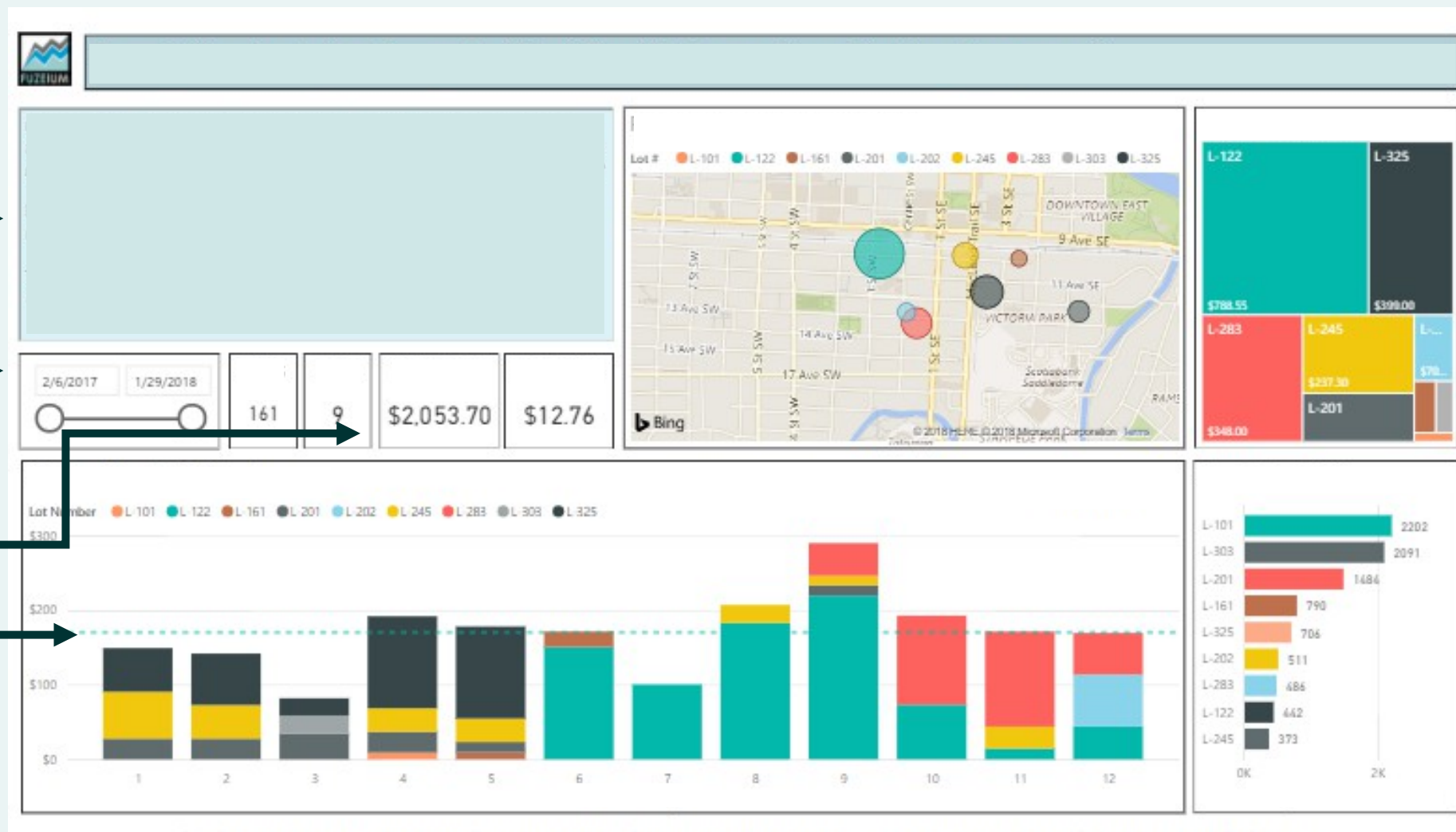
Question →

Explanation →

Filters →

Metrics (KPI)

Categories →





“In economics,
information has value if
you would **make a
different decision**
based on that information.”

Matthew E. Kahn
Economist



Learning Resources

Fuzeium's Approach Emphasizes Microsoft's Tools*.
Why? They are pervasive and they enable our mission.
Here are a few online resources to explore:

- I just want to work with Microsoft Excel (for free)
- I just want to learn about Microsoft Power BI (for free)
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* There are many other great tools and companies. There are also countless resources, courses, certificates, diplomas, and degrees in the areas of data science, data analytics, business intelligence. Just Google to find out!



Enabling Data-driven Decisions

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Suite 2000, 125 9 Ave SE,
Calgary, AB, Canada T2G 0P6

Dashboard: Metric Comparison

Example: Emergency Department Length of Stay (LoS)

From This...

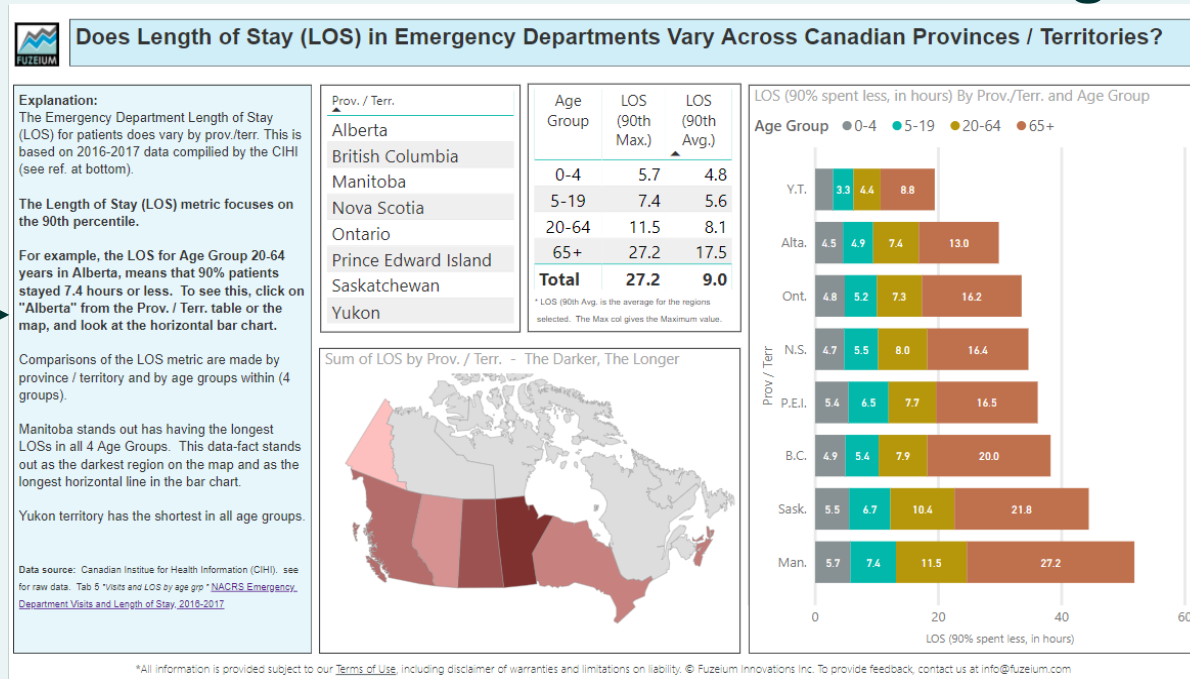
Data

To That...

Insight

Table 5 Number of ED visits and length of stay (LOS) in ED by age group, participating provinces/territories, NACRS, 2016–2017

Province/territory†	Age group‡	Overall		Non-admitted		
		Number of ED visits	ED LOS (90% spent less, in hours)	Number of ED visits	Percentage of ED visits	ED LOS (90% spent less, in hours)
P.E.I. §	0–4	1,806	5.4	1,647	91.2	5.3
	5–19	3,373	6.5	3,213	95.3	6.2
	20–64	12,678	7.7	11,872	93.6	6.6
	65+	6,000	16.5	4,858	81.0	7.5
N.S. §	0–4	25,513	4.7	24,302	95.3	4.5
	5–19	43,033	5.5	41,510	96.5	5.3
	20–64	173,434	8.0	164,021	94.6	7.1
	65+	71,933	16.4	59,907	83.3	9.6
Ont.	0–4	492,683	4.8	471,244	95.6	4.4
	5–19	864,528	5.2	830,574	96.1	4.8
	20–64	3,515,312	7.3	3,275,128	93.2	6.1
	65+	1,439,203	16.2	1,116,109	77.6	7.7
Man. §	0–4	30,444	5.7	28,542	93.8	4.9
	5–19	45,839	7.4	43,390	94.7	6.6
	20–64	186,421	11.5	172,725	92.7	9.3
	65+	66,228	27.2	50,295	75.9	16.8
Sask. §	0–4	26,989	5.5	24,605	91.2	4.9
	5–19	39,294	6.7	36,071	91.8	6.0
	20–64	170,091	10.4	148,719	87.4	7.7
	65+	56,635	21.8	36,871	65.1	9.1
Alta.	0–4	219,355	4.5	211,404	96.4	4.2
	5–19	348,416	4.9	337,869	97.0	4.5
	20–64	1,317,309	7.4	1,229,783	93.4	6.2



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Dashboard: Less-Than-Ideal Data

Example: University Scholarship Trends

From This...

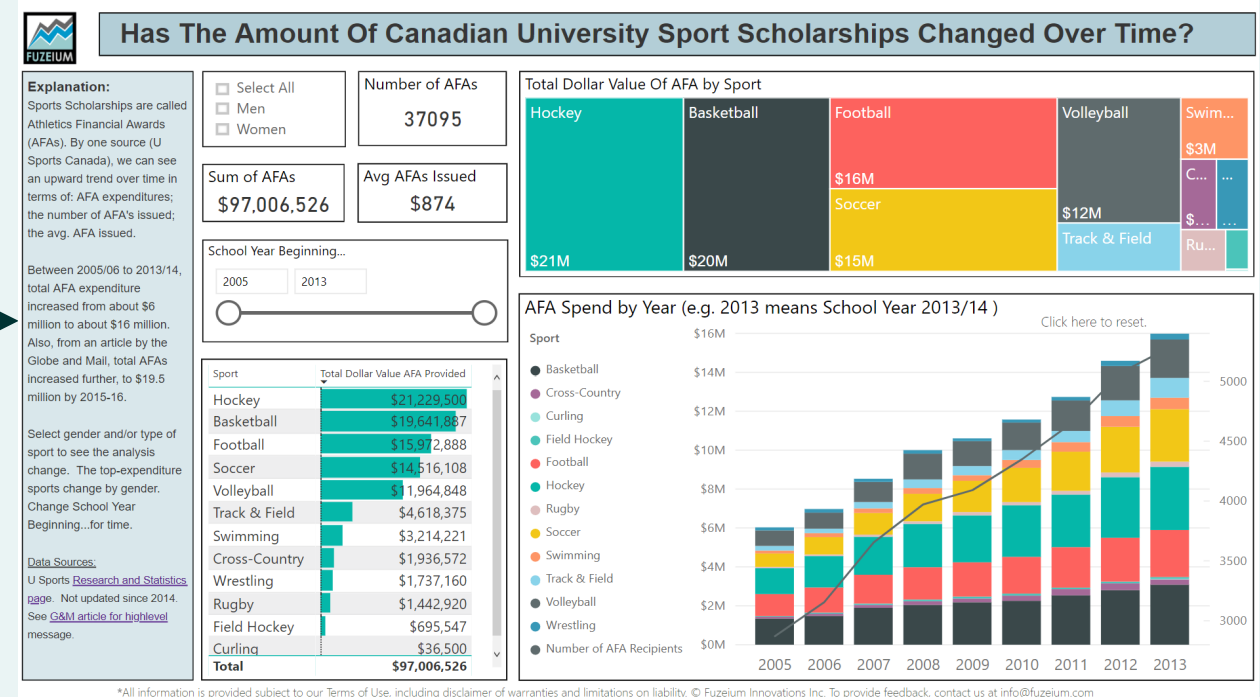
Data

To That...

Insight

2013-14 AFA REPORT- BY SPORT								
2013-14 CIS Sport	Gender	Number of Athletes	Number of AFA Recipients	% of Athletes Receiving an AFA	Total Dollar Value AFA Provided	Average Award Value to AFA Recipients	Total AFA Equivalency Provided	Average AFA Equivalency to AFA Recipients
basketball	female	596	414	69.5%	\$1,507,468	\$3,641	260.9	0.63
soccer	female	1124	572	50.9%	\$1,496,235	\$2,616	257.2	0.45
hockey	female	742	438	59.0%	\$1,222,227	\$2,790	221.1	0.50
volleyball	female	538	359	66.7%	\$1,135,486	\$3,163	195.9	0.55
track & field	female	606	189	31.2%	\$502,145	\$2,657	71.3	0.38
swimming	female	425	142	33.4%	\$286,142	\$2,015	55.5	0.39
rugby	female	775	184	23.7%	\$270,350	\$1,469	49.4	0.27
cross-country	female	363	99	27.3%	\$163,704	\$1,654	29.2	0.29
wrestling	female	135	54	40.0%	\$148,553	\$2,751	24.8	0.46
field hockey	female	219	41	18.7%	\$88,332	\$2,154	15.8	0.39
curling	female	70	6	8.6%	\$14,000	\$2,333	2.3	0.39

football	male	1581	813	51.4%	\$2,416,235	\$2,972	482.1	0.59
hockey	male	921	506	54.9%	\$2,022,381	\$3,997	334.1	0.66
basketball	male	619	339	54.8%	\$1,577,314	\$4,653	239.2	0.71
soccer	male	1084	409	37.7%	\$1,198,263	\$2,930	201.3	0.49
volleyball	male	425	262	61.6%	\$835,505	\$3,189	135.0	0.52
track & field	male	667	181	27.1%	\$514,328	\$2,842	75.1	0.41
swimming	male	409	148	36.2%	\$304,229	\$2,056	54.8	0.37
cross-country	male	350	63	18.0%	\$104,767	\$1,663	19.4	0.31
wrestling	male	193	56	29.0%	\$151,025	\$2,697	24.2	0.43
curling	male	78	10	12.8%	\$22,500	\$2,250	3.4	0.34



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Dashboard: Better Context

Example: Operational Expenses - Parking

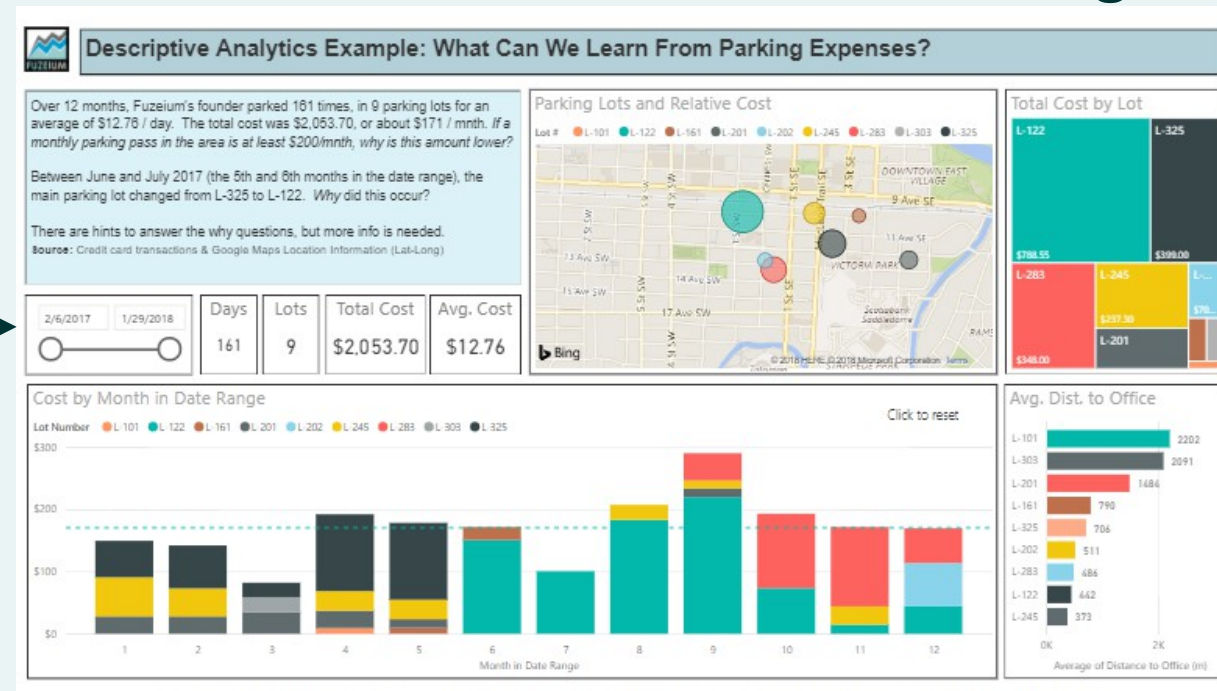
From This...

Data

Feb 22, 2018	INDIGO - MT ROYAL HOUSE CALGARY, AB 4500*****7367	-\$14.70
Feb 22, 2018	INDIGO - PAY BY PHONE CAL CALGARY, AB 4500*****7466	-\$13.35
Feb 21, 2018	PRECISE PARKLINK INC TORONTO, ON 4500*****7474	-\$10.00
Feb 21, 2018	INDIGO - MT ROYAL HOUSE CALGARY, AB 4500*****7367	-\$14.70
Feb 21, 2018	INDIGO - PAY BY PHONE CAL CALGARY, AB 4500*****7466	-\$14.35
Feb 18, 2018	THE HOME DEPOT #7063 CALGARY, AB 4500*****7367	-\$83.97
Feb 17, 2018	MSFT * MSFT AZURE, ON 4500*****7367	-\$7.63

To That...

Insight



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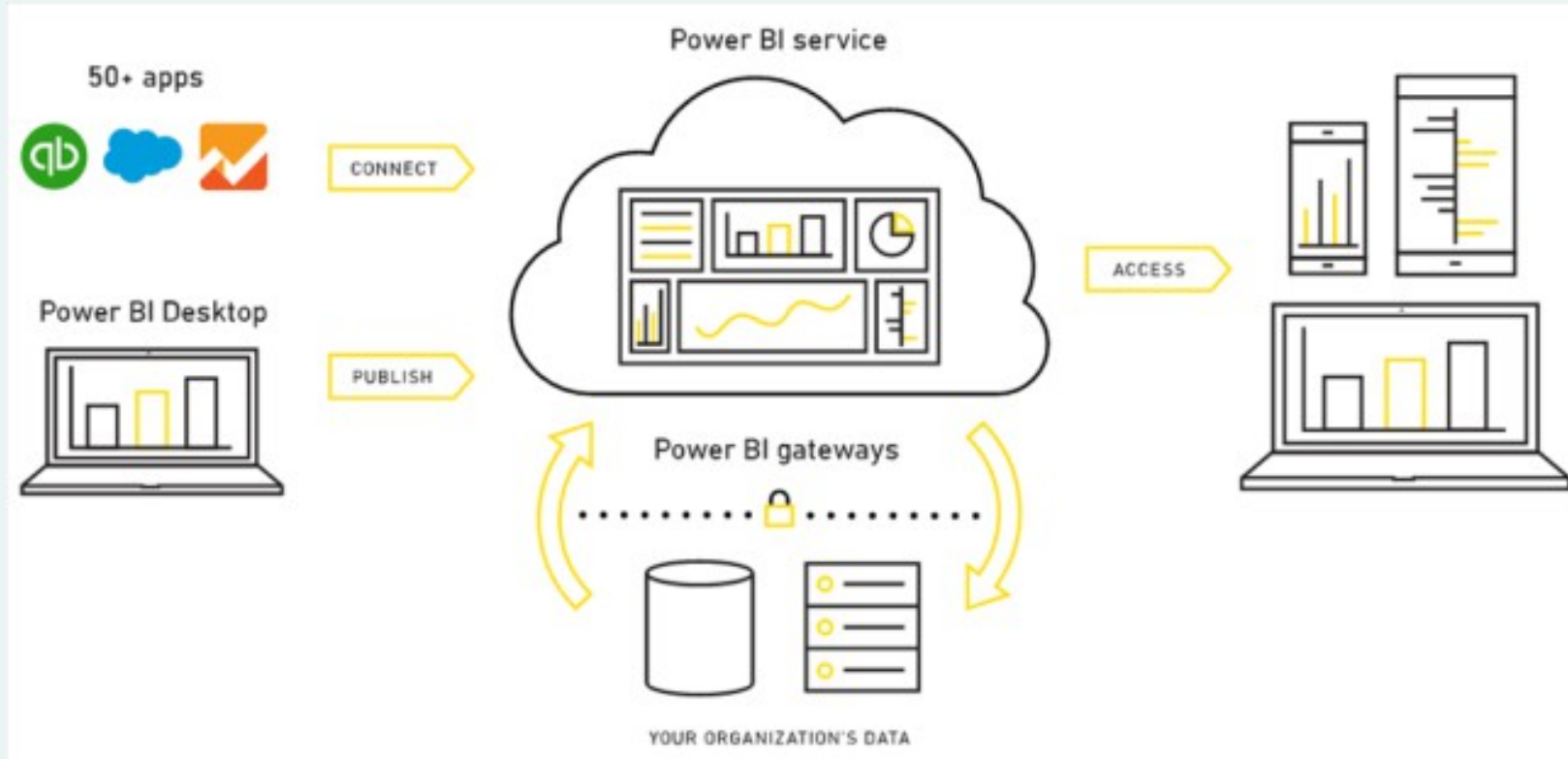
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Microsoft Power BI Architecture Basics



See blog with images and explanation on the subject