



South
Australian
Leaders

Knowledge Workshop

What data should your business collect to make better decisions?

Rohan Bharadwaj, Market Ease Digital

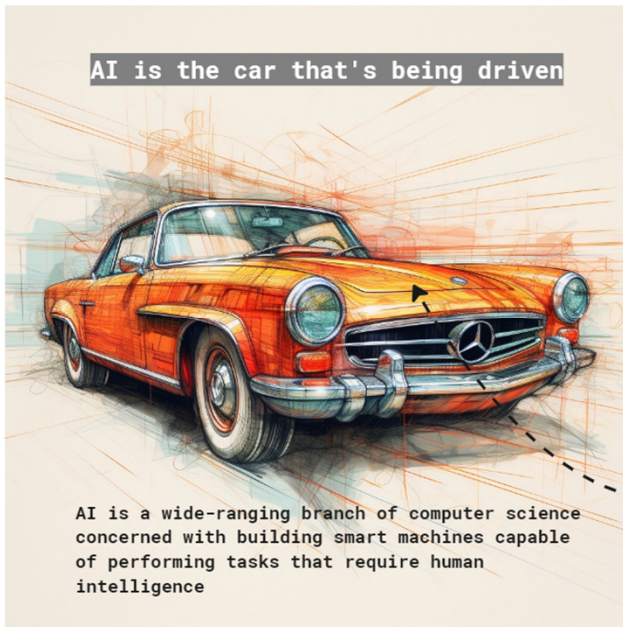
Inspire Leading Companies

An International Leaders Group Company



1

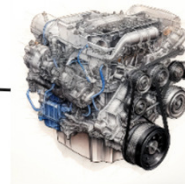
AI is the car that's being driven



AI is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that require human intelligence

Artificial Intelligence and Machine Learning

**ML is the engine inside the car
that powers it and makes it move**



ML is a subset of AI that includes statistical techniques that enable machines to improve at tasks with experience.

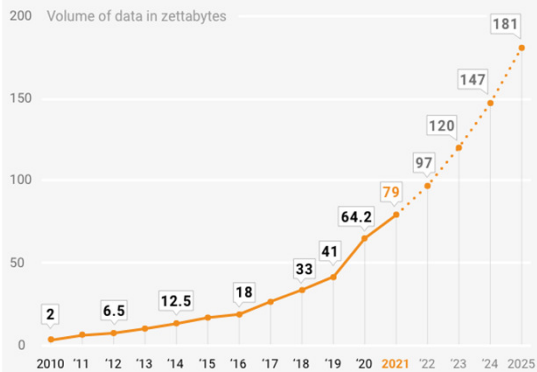
ML is best for identifying patterns in large sets of data

2

Volume of data created, captured, copied, and consumed worldwide



The volume of data generated, consumed, copied, and stored is projected to exceed 180 zettabytes by 2025



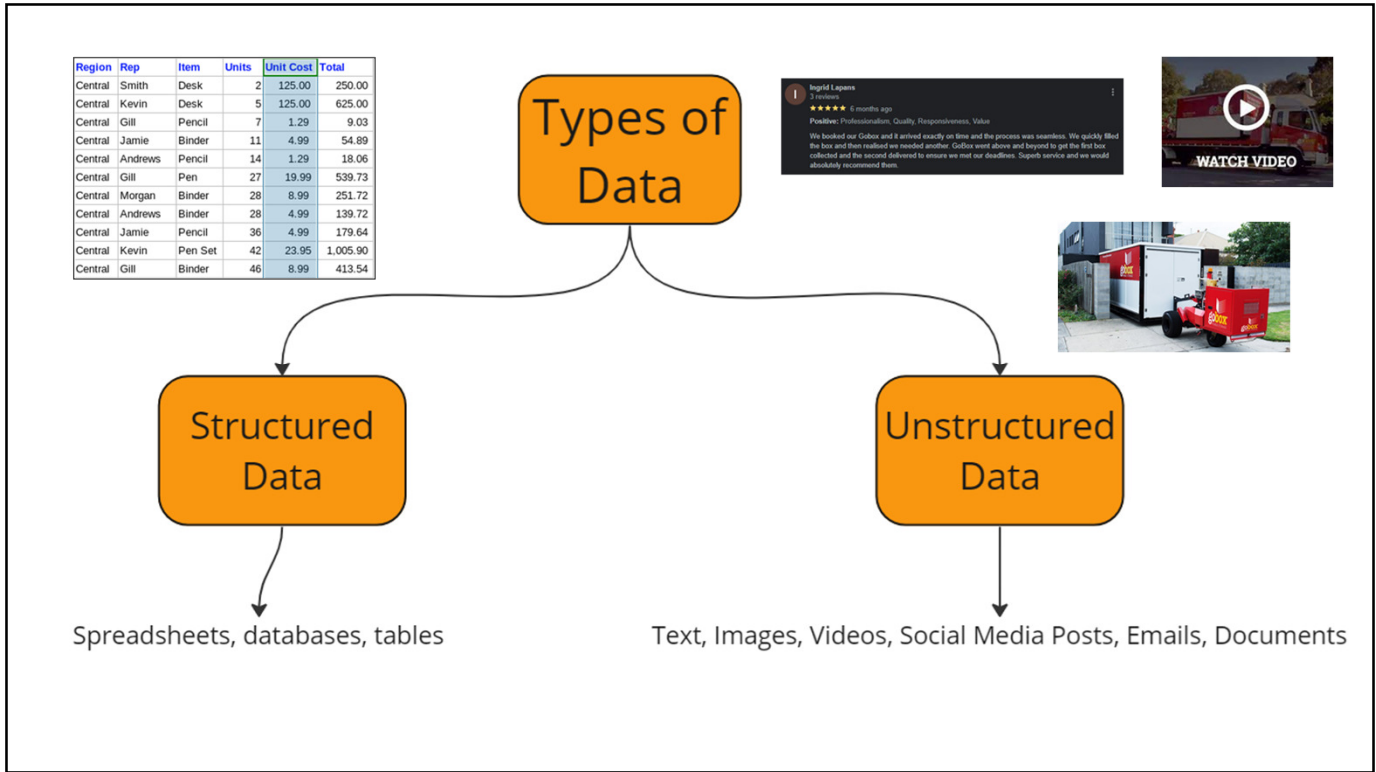
We live in an age of big data...

3

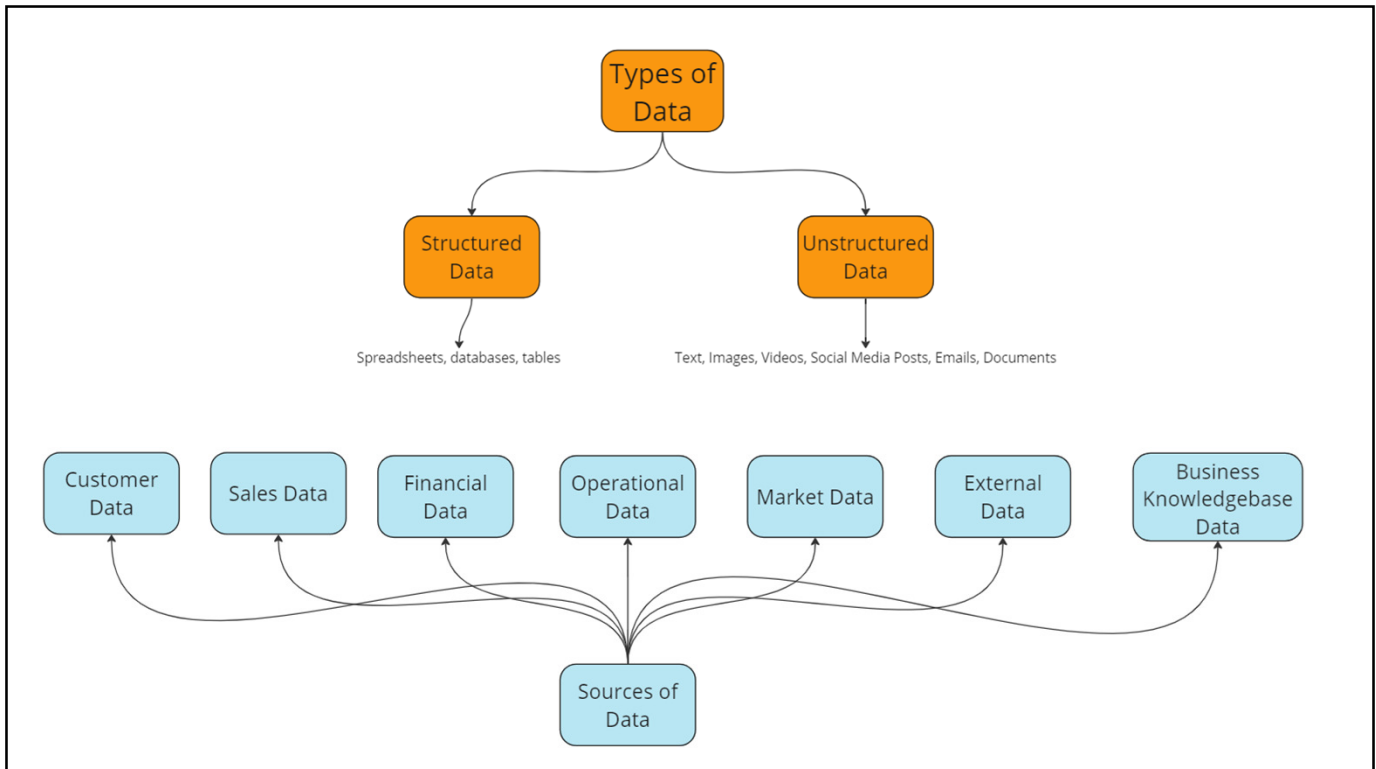


If all the data we have today was in the form of movies, it would take **13 million years** if we were to watch non-stop...

4

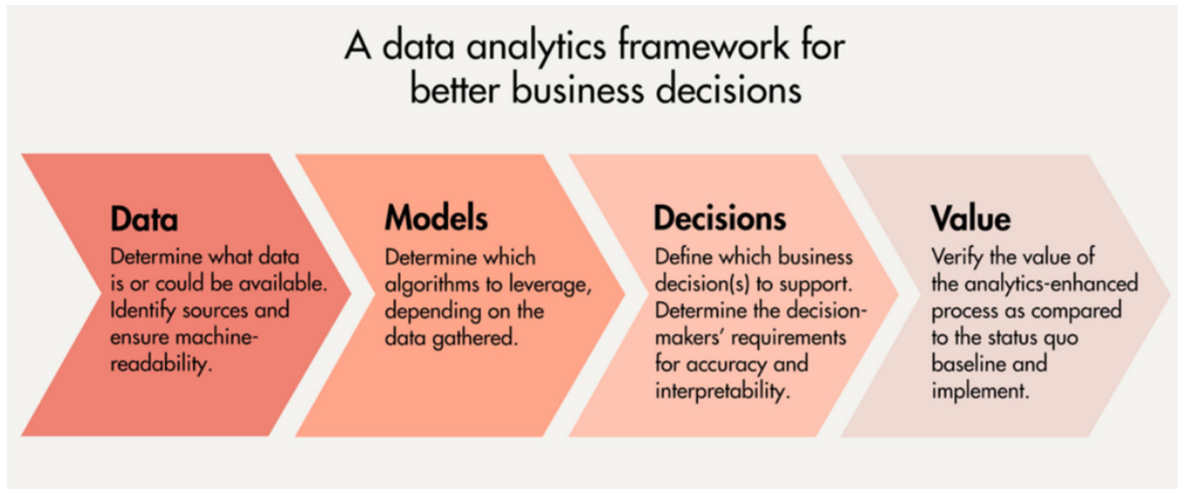


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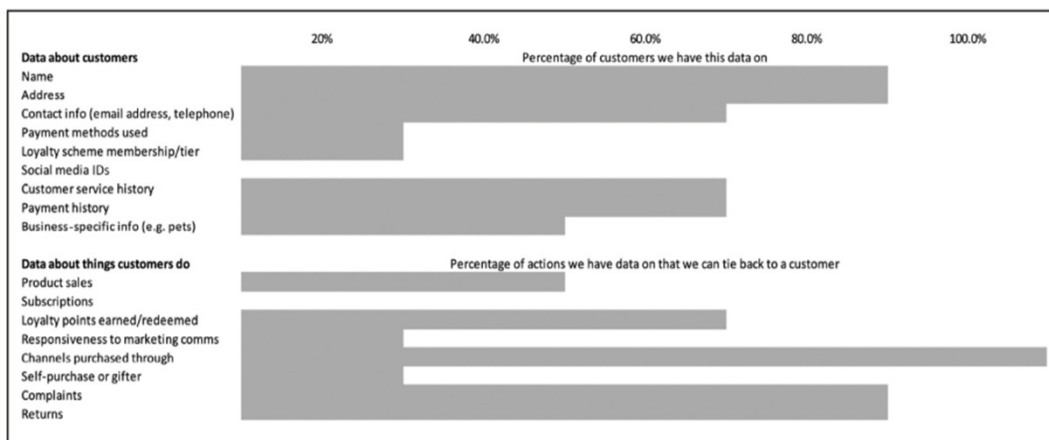
A Standard Data Analytics Framework



7

The Data Audit

What do you actually know about your customers and how complete is that knowledge?



8

Moving from Data Driven to Decision Driven

- Making decisions with data often comes down to finding a purpose for the data at hand.
- Instead of finding a purpose for your data, *find data for a purpose*

Data-Driven Versus Decision-Driven Data Analytics

DATA-DRIVEN DECISION-MAKING	DECISION-DRIVEN DATA ANALYTICS
Anchor on data that is available.	Anchor on a decision to be made.
Find a purpose for data.	Find data for a purpose.
Start from what is known.	Start from what is unknown.

Data Driven: Focus on available data often leads to focusing on wrong questions

Decision Driven: Starts with a proper definition of the decision that needs to be made, frames the problem and the data needed to make the decision.

9

Start with a purpose, then shine a light instead of shining a light and then finding a purpose



A decision-driven mindset treats the **decision** as the focal point instead of data.

10

Framing the Problem - The IWIK (I Wish I Knew) Framework

Ask a simple question - *What do I wish I knew to make the best decision possible?*

Four components of IWIK

1. **Ask** - Get the right people to think about the right questions
2. **Brainstorm** - Optimise the discovery of information
3. **Capture** - Lead IWIK discussions
4. **Deliberate**

11

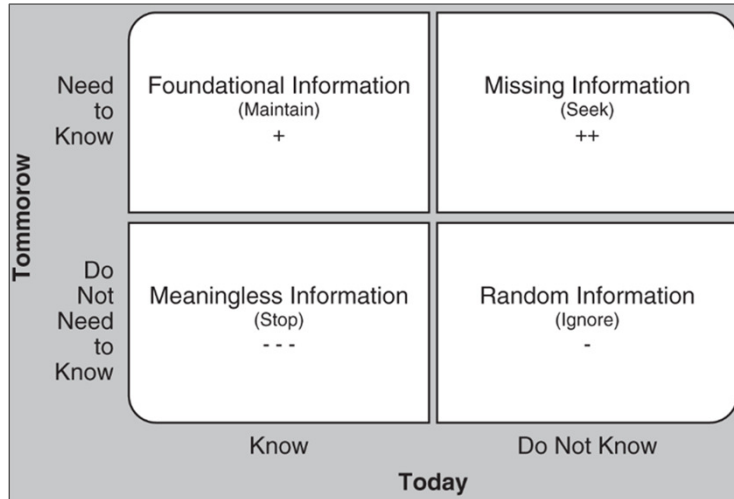
Deliberate - Ordering, Aggregating and Synthesizing IWIKs

Build an IWIK Inventory

Reference No.	Category	IWIK Statement	Person or Team	Have Data (Y/N)	Urgent (must have /nice to have)
1	A	Who are our best customers?	abc	Y	Must Have
2	B	What is the impact of increasing advertising spend on Google?	abc	N	Nice to Have
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx

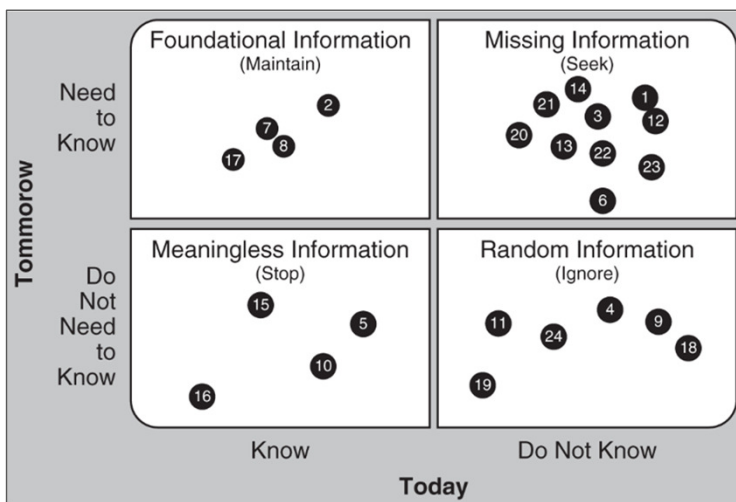
12

Deliberate - Ordering, Aggregating and Synthesizing IWIks



13

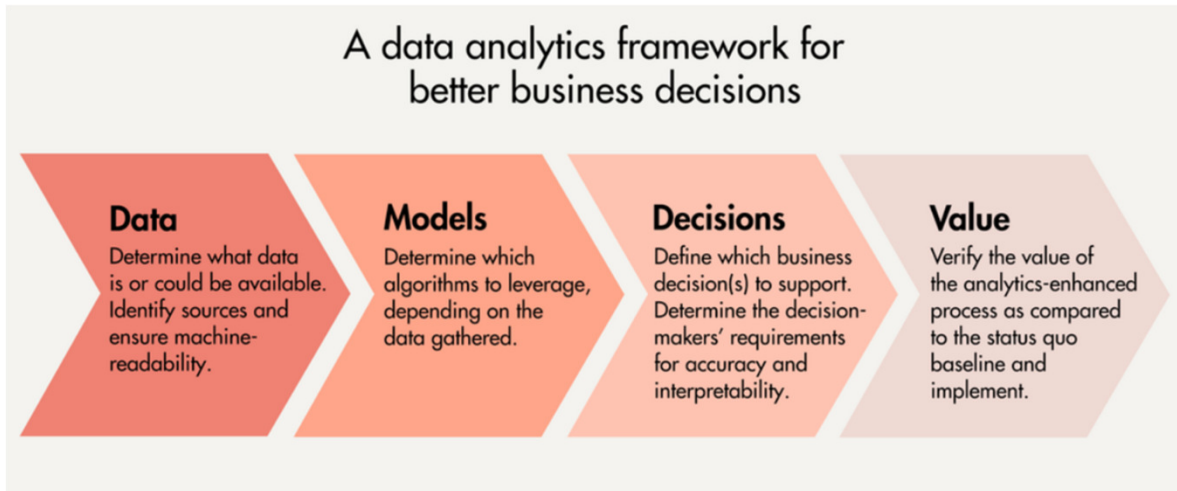
Deliberate - Ordering, Aggregating and Synthesizing IWIks



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1	A	Who are our best customers?	abc	Y	Must Have
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xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx

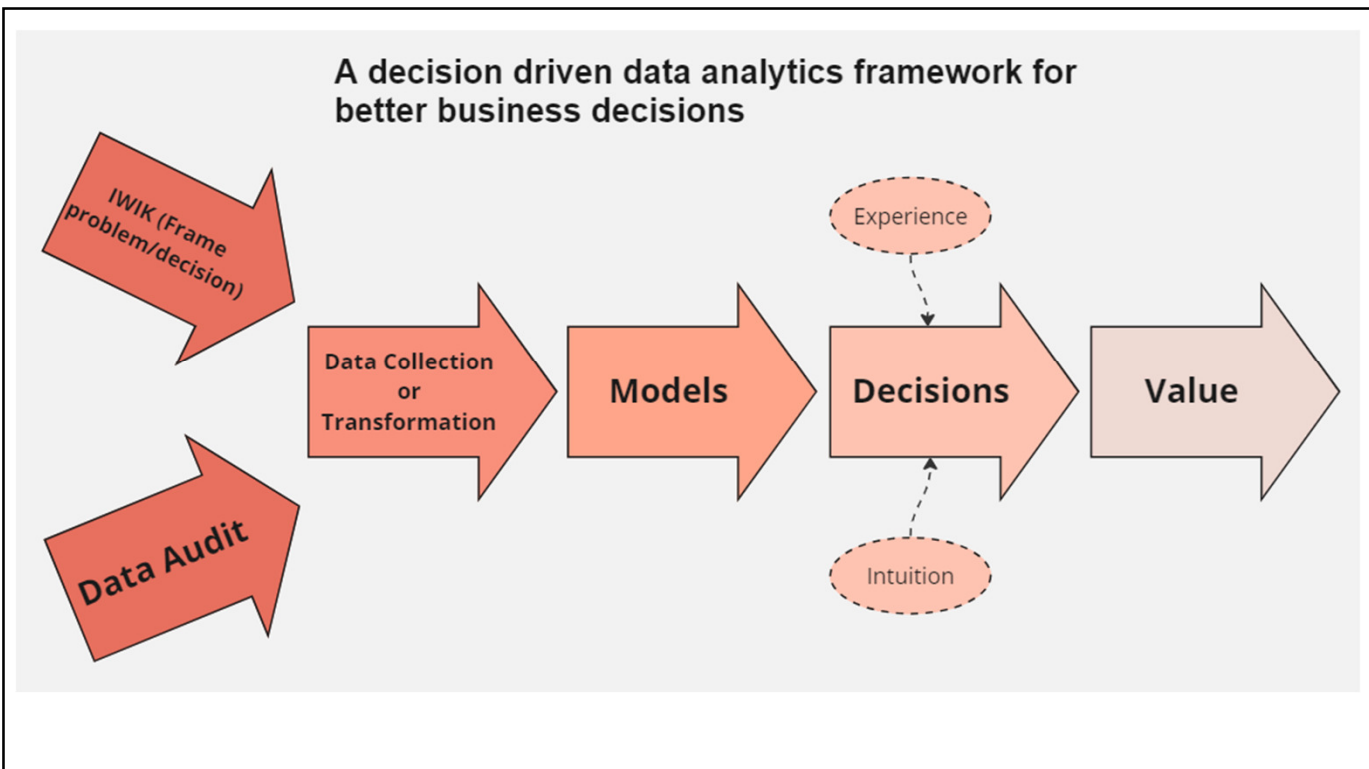
14

Moving from a data driven framework...



15

A decision driven data analytics framework for better business decisions

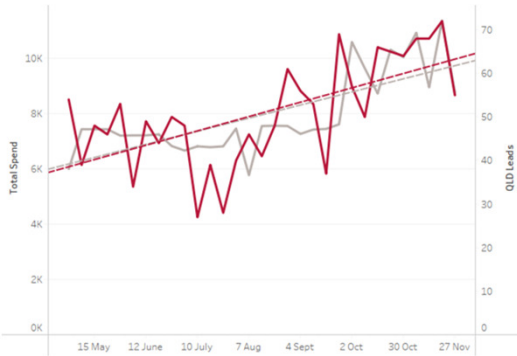


16

Use Cases - Predictive Analytics

IWIK: The impact of Ad Spend in different marketing channels on Lead Volume

Maroon - TV Ad Spend in Queensland
 Grey - Lead Volume in Queensland



Channel	Coefficient * 1000	Coefficient
tv_linear	0.66600	0.00067
bvod	-0.40000	-0.00040
radio	0.43800	0.00044
paid_search_brand	10.14900	0.01015
paid_search_non_brand	7.05600	0.00706
social_facebook	-10.94000	-0.01094
social_organic	0.00000	0.00000
display_prospecting	0.00000	0.00000
display_remarketing	-20.53000	-0.02053
youtube	-3.32000	-0.00332
youtube_trueview	-21.52000	-0.02152
programmatic_playground	2.04200	0.00204
bing_brand	-4.32000	-0.00432
bing_non_brand	23.44600	0.02345
national_radio	0.00000	0.00000
paid_search_performance_max	63.18900	0.06319
out_of_home	0.00000	0.00000
social_linkedin	-471.86000	-0.47186
[Intercept]	40859.25000	40.85925
Total Spend	0.00000	

17

Use Cases - Predictive Analytics

IWIK: The impact of a 1000\$ increase in Ad Spend for each channel

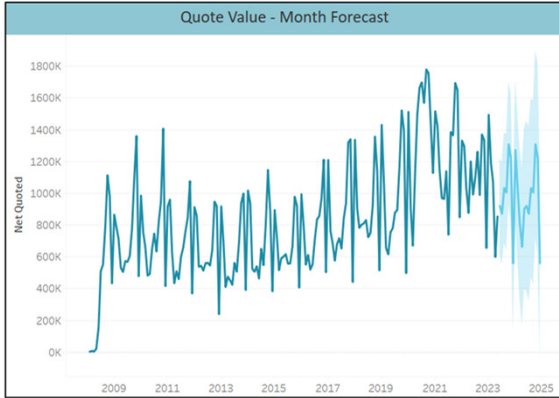
Enter Weekly Ad Spend Increase Per Channel Per State (in \$)

Marketing Channel	SA Expected Lead Volume Increase	VIC Expected Lead Volume Increase	QLD Expected Lead Volume Increase	NSW Expected Lead Volume Increase	WA Expected Lead Volume Increase	Total Weekly Expected Lead Volume Increase
tv_linear	3	1	1	1	2	8
paid_search_brand	9	13	10	8	8	48
paid_search_non_brand	Inconclusive	10	7	10	10	37
paid_search_performance_max	77	58	63	60	Inconclusive	259
bvod	-4	-3	Inconclusive	-2	Inconclusive	-9
radio	Inconclusive	2	Inconclusive	Inconclusive	Inconclusive	2
display_remarketing	-33	-14	-21	-26	-29	-122
youtube_trueview	-19	Inconclusive	Inconclusive	-26	Inconclusive	-45
social_facebook	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
social_organic	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
display_prospecting	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
youtube	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
programmatic_playground	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
bing_brand	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
bing_non_brand	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
national_radio	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
out_of_home	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0
social_linkedin	Inconclusive	Inconclusive	Inconclusive	Inconclusive	Inconclusive	0

18

Use Cases - Predictive Analytics

IWIK: How much revenue my business would generate in the next 2 years?



Month	Actual Revenue	Predicted Revenue	Lower Prediction Interval	Upper Prediction Interval
January 2023	\$1,494,074	-	-	-
February 2023	\$1,189,086	-	-	-
March 2023	\$1,073,197	-	-	-
April 2023	\$599,859	-	-	-
May 2023	\$854,883	-	-	-
June 2023	-	\$921,074	\$622,356	\$1,219,792
July 2023	-	\$871,299	\$548,016	\$1,194,583
August 2023	-	\$1,033,214	\$887,103	\$1,379,325
September 2023	-	\$1,005,791	\$638,268	\$1,373,313
October 2023	-	\$1,309,137	\$921,383	\$1,696,891
November 2023	-	\$1,222,166	\$815,185	\$1,629,147
December 2023	-	\$559,685	\$134,345	\$985,024
Total 2023		\$12,133,465	\$9,577,755	\$14,689,174



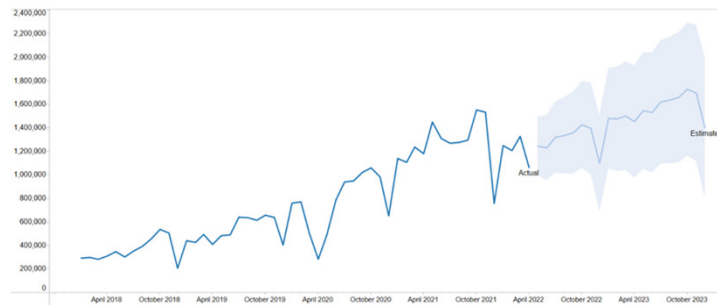
Forecast indicator
■ Actual
■ Estimate

19

Use Cases - Predictive Analytics

Measuring Accuracy

Month	Actual Revenue (\$)	Forecasted Revenue (\$)	% Difference between actual revenue and forecasted revenue	% Difference (Absolute Value)
Apr-22	1,062,649			
May-22	1,298,671	1,245,250	1.05%	1.05%
Jun-22	1,275,647	1,230,401	0.90%	0.90%
Jul-22	1,541,219	1,319,352	3.88%	3.88%
Aug-22	1,817,881	1,335,448	7.65%	7.65%
Sep-22	1,567,875	1,358,682	3.57%	3.57%
Oct-22	1,823,355	1,427,500	6.09%	6.09%
Nov-22	1,678,493	1,395,371	4.61%	4.61%
Dec-22	927,504	1,098,454	-4.22%	4.22%
Jan-23	1,582,084	1,480,053	1.67%	1.67%
Feb-23	1,430,092	1,476,456	-0.80%	0.80%
Mar-23	1,342,635	1,502,043	-2.80%	2.80%
Apr-23	1,172,289	1,454,033	-5.36%	5.36%
May-23	1,291,462	1,546,067	-4.49%	4.49%
Jun-23	1,193,088	1,531,218	-6.21%	6.21%
Jul-23	1,411,094	1,620,169	-3.45%	3.45%
Aug-23	1,449,624	1,636,265	-3.02%	3.02%
Sep-23	1,283,488	1,659,499	-6.39%	6.39%
Oct-23	1,544,229	1,728,317	-2.81%	2.81%
Nov-23	1,437,067	1,696,187	-4.13%	4.13%
		Mean Absolute Error		3.85%



Seasonal Effect		
High	October	5.5%
Low	December	-17.1%

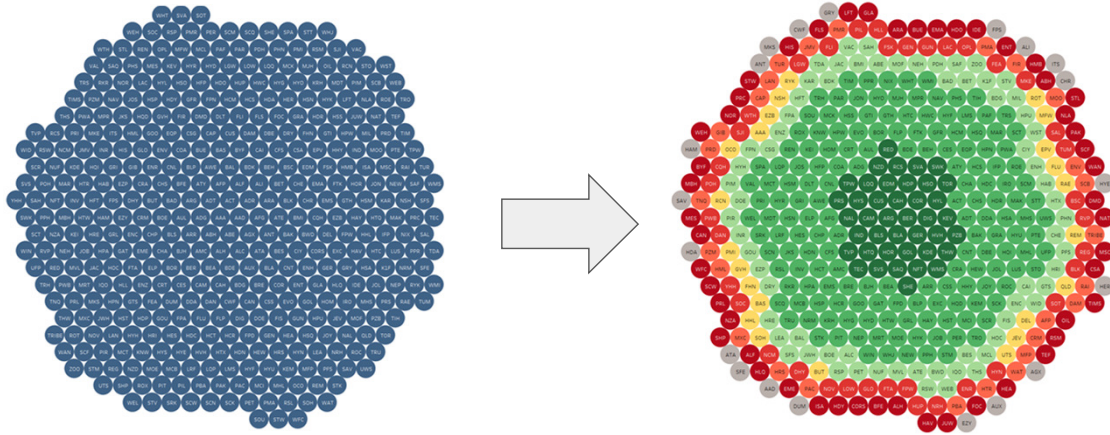
Contribution	
Trend	66.4%
Seasonality	33.6%

Over the last 19 months, our predictions for this client were about **96.2% accurate**

20

Use Cases - Customer Segmentation

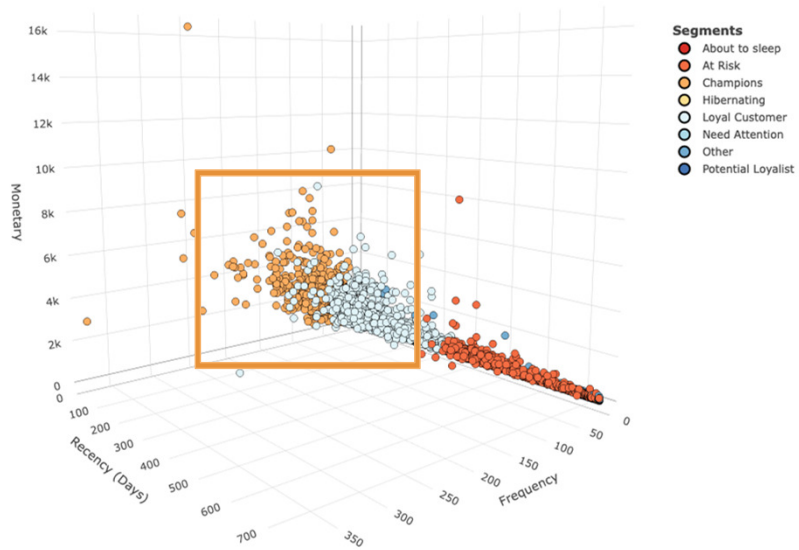
IWIK: Who are my most valuable customers?



21

Use Cases - Customer Segmentation (RFM Modelling)

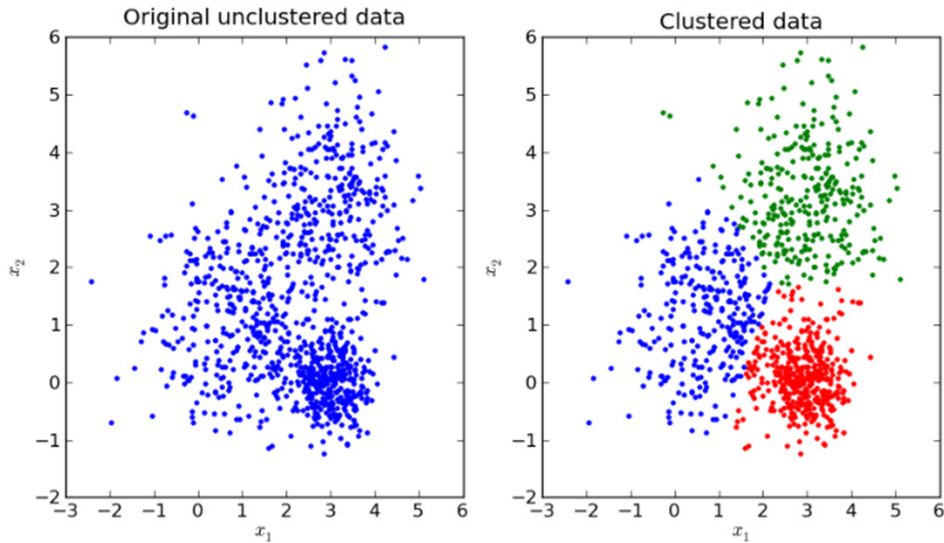
IWIK: Who are my most valuable customers?



22

Use Cases - Customer Segmentation through Machine Learning (Clustering)

IWIK: Who are my most valuable customers?



23

Use Cases - Customer Segmentation through Machine Learning (Clustering)

Clustering = Machine Learning



RFM = Analytics



24

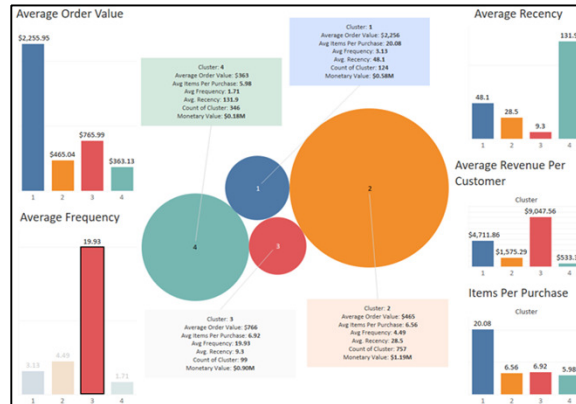
Use Cases - Customer Segmentation through Machine Learning

IWIK: Who are my most valuable customers?

Cluster	Cluster Name	Avg. Recency	Avg. Frequency	Unique Items per Purchase	AOV	Avg. Revenue per Customer	Monetary Value (Total Spent)	Customer Count
1	Bulk Order Plumbers	48.1	3	20	\$2,256	\$4,712	\$580,000	124
2	Average Plumber	28.5	4	7	\$465	\$1,575	\$1,190,000	757
3	Regular Pipeline Patrons	9.3	20	7	\$766	\$9,048	\$900,000	99
4	Inactive Plumbers	132	2	6	\$363	\$533	\$180,000	346

Marketing Campaigns for Each Segment

- Bulk Order Plumbers**
 - Goal:** Increase frequency of engagement with the business
 - Marketing Campaigns:** Rewards/Loyalty Program, Discounts for Bulk Orders
 - Applications:** Lookalike Audiences on FB, Identify common traits of "bulk order plumbing businesses"
- Average Plumber**
 - Goal:** Increase frequency of engagement ; increase AOV
 - Marketing Campaigns:** Bundle Deals, "Spend more, Save more" offers, Bulk Discounts ; Product recommendations based on past product purchases
 - Applications:** Identify other ways to move these customers to more valuable customer segments
- Regular Pipeline Patrons**
 - Goal:** Increase AOV
 - Marketing Campaigns:** Reward regular customers for loyalty, Loyalty program, Bulk Discounts, "Spend more, Save more" offers
 - Applications:** Lookalike Audiences on FB, Identify common traits of regular highly engaged customers
- Inactive Plumbers**
 - Goal:** Increase engagement, increase AOV
 - Marketing Campaigns:** Remarketing/Reengagement campaigns (email/SMS), Product recommendations based on past purchases
 - Applications:** identify common traits of inactive customers



25

Use Cases - Association Rules Learning

IWIK: What products/services are bought most frequently together?



Frequently bought together



This item: 1984:
New Edition of the
Twentieth Centur...
\$22²⁹

Brave New World
\$11⁸⁵ prime

Animal Farm: New
Edition
\$15⁵⁹

26

Use Cases - Association Rules Learning

IWIK: What products/services are bought most frequently together?

Number	InvoiceDate	DueDate	ProductLabel	Journal Items/Product	Journal Iter	Journal Iter	ProductCoc
INV-10024	5/12/2022	5/12/2022	Hose Bib Brass 1/4	[HBBM20] 20mm Mi Hoi product		3	[HBBM20]
INV-10024	5/12/2022	5/12/2022	Gas Ball Valves Fi x	[GBVF15] Gas Ball Valve product		1	[GBVF15]
INV-10024	5/12/2022	5/12/2022	Bayonet and Cap F	[BF15] Bayonet and Cap product		1	[BF15]
INV-10024	5/12/2022	5/12/2022	Washing Machine	[WMS20M] Washing M product		1	[WMS20M]
INV-10024	5/12/2022	5/12/2022	Flexi Flange Cupbc	[FF4060] Flexi Flange Ct product		2	[FF4060]
INV-10024	5/12/2022	5/12/2022	Cover Plate Raised	[CPR9] Cover Plate Rais product		20	[CPR9]
INV-10024	5/12/2022	5/12/2022	HB Fuller Plumber	[S300T] HB Fuller Plum product		1	[S300T]
INV-10024	5/12/2022	5/12/2022	HB Fuller Plumber	[S300W] HB Fuller Plum product		2	[S300W]
INV-10024	5/12/2022	5/12/2022	Hex Nipple DR Br	[HN15] Hex Nipple DR E product		10	[HN15]
INV-10024	5/12/2022	5/12/2022	15mm Stainless St	[FH15150MF] 15mm Sta product		10	[FH15150MF]
INV-10024	5/12/2022	5/12/2022	Keel Seal Rubber St	[KS50B] Keel Seal Rubbe product		2	[KS50B]
INV-10024	5/12/2022	5/12/2022	MIXX Sink Mixer S	[MX225] MIXX Sink Mixi product		1	[MX225]
INV-10014	5/12/2022	5/12/2022	Forge Pressure Rei	[FPR20] 20mm Pressure product		1	[FPR20]
INV-10004	5/12/2022	5/12/2022	Compression Uno	[CLUCBMC200] Compres product		2	[CLUCBMC200]
INV-10004	5/12/2022	5/12/2022	16mm Water Pex-I	[PXW16-50] 16mm Wats product		1	[PXW16-50]
INV-10004	5/12/2022	5/12/2022	eFlex Solar High T	[HTI-13] eFlex Solar Hig product		20	[HTI-13]
INV-10004	5/12/2022	5/12/2022	Forge Pressure Rei	[FPR20] 20mm Pressure product		6	[FPR20]
INV-10004	5/12/2022	5/12/2022	TurboBORE Spade	[TS0822] TurboBORE Sp product		3	[TS0822]
INV-10004	5/12/2022	5/12/2022	TurboBORE Spade	[TS0816] TurboBORE Sp product		3	[TS0816]
INV-10017	5/12/2022	5/12/2022	15mm Stainless St	[FH15150FF] 15mm Stai product		10	[FH15150FF]
INV-10017	5/12/2022	5/12/2022	15mm Stainless St	[FH15225FF] 15mm Stai product		10	[FH15225FF]
INV-10017	5/12/2022	5/12/2022	15mm Stainless St	[FH15300FF] 15mm Stai product		10	[FH15300FF]
INV-10017	5/12/2022	5/12/2022	AVG Tempering Vi	[FTV15HP] AVG Temper product		1	[FTV15HP]
INV-10017	5/12/2022	5/12/2022	FREE - Forge Plum	[NOTEBOOK] FREE - For product		5	[NOTEBOOK]
INV-10017	5/12/2022	5/12/2022	Mini Cistern Stop	[CS15SV] Mini Cistern S product		20	[CS15SV]
INV-10017	5/12/2022	5/12/2022	Dual Isolation Stop	[DSM1520SV] Dual Isola product		4	[DSM1520SV]
INV-10017	5/12/2022	5/12/2022	Flexi Flange Cupbc	[FF0922] Flexi Flange Ct product		2	[FF0922]
INV-10017	5/12/2022	5/12/2022	Flexi Flange Cupbc	[FF4060] Flexi Flange Ct product		2	[FF4060]
INV-10017	5/12/2022	5/12/2022	Dishwasher Cover	[CPPDI] Dishwasher Cov product		3	[CPPDI]
INV-10017	5/12/2022	5/12/2022	Cover Plate Flat St	[CPF15] Cover Plate Flat product		20	[CPF15]
INV-10017	5/12/2022	5/12/2022	Cover Plate Raised	[CPR9] Cover Plate Rais product		20	[CPR9]
INV-10017	5/12/2022	5/12/2022	DWV Pan Connect	[PC100] DWV Pan Conn product		2	[PC100]
INV-10017	5/12/2022	5/12/2022	DWV Pan Connect	[PC10020] DWV Pan Cor product		2	[PC10020]
INV-10017	5/12/2022	5/12/2022	Adaptor Mi x Fi Bri	[AB15] Adaptor Mi x Fi product		6	[AB15]
INV-10017	5/12/2022	5/12/2022	Screwed Plug Hex	[SP15] Screwed Plug He product		10	[SP15]
INV-10017	5/12/2022	5/12/2022	Screwed Cap Hex E	[SC15] Screwed Cap He product		10	[SC15]

27

Use Cases - Association Rules Learning

IWIK: What products/services are bought most frequently together?

	LHS	RHS	Support	Confidence	Coverage	Lift	Count
[1]	{TRUST IBUPROFEN TAB 200MG 96}	{APH PARACETAMOL CAPLET-BLIS 500MG 100}	0.11%	20.20%	0.56%	14.72	77
[2]	{TRUST IBUPROFEN TAB 200MG 96}	{PANAMAX TAB 500MG 100}	0.11%	19.20%	0.56%	8.73	73
[3]	{TRUST IBUPROFEN TAB 200MG 48}	{PANAMAX TAB 500MG 100}	0.06%	17.40%	0.35%	7.92	41
[4]	{NUROFEN CHILD SYRS-12YRS STRWBERRY 200ML}	{PANADOL CHILD LIQ 200ML 5-12YRS S/BRY}	0.05%	21.50%	0.24%	70.02	35
[5]	{PANADOL CHILD LIQ 200ML 5-12YR S/BRY}	{NUROFEN CHILD SYRS-12YRS STRWBERRY 200ML}	0.05%	16.70%	0.31%	70.02	35
[6]	{NANO 3 PLY DISPOSABLE MASK 50PK}	{NANO RAPID H/SANITISER 500ML}	0.04%	15.30%	0.28%	6.93	29
[7]	{TRUST IBUPROFEN TAB 200MG 48}	{APH PARACETAMOL CAPLET-BLIS 500MG 100}	0.04%	11.40%	0.35%	8.33	27
[8]	{EGO QV SKIN LTN 5% 1L}	{EGO QV WASH-GENT 15% 1L}	0.03%	19.10%	0.16%	29.57	21
[9]	{EGO QV GENTLE COND 200G}	{EGO QV GENTLE S/POO 200G}	0.03%	66.70%	0.04%	770.09	20
[10]	{EGO QV GENTLE S/POO 200G}	{EGO QV GENTLE COND 200G}	0.03%	33.90%	0.09%	770.09	20
[11]	{NANO RAPID HAND SANITISER 59ML}	{NANO RAPID H/SANITISER 500ML}	0.03%	12.00%	0.25%	5.44	20
[12]	{DERMAVEEN OATMEAL COND 1L}	{DERMAVEEN OATMEAL S/POO 1L}	0.03%	79.20%	0.04%	1740.47	19
[13]	{DERMAVEEN OATMEAL S/POO 1L}	{DERMAVEEN OATMEAL COND 1L}	0.03%	61.30%	0.05%	1740.47	19
[14]	{TRUST IBUPROFEN TAB 200MG 24}	{APH PARACETAMOL CAPLET-BLIS 500MG 100}	0.02%	11.00%	0.23%	8.04	17
[15]	{TRUST IBUPROFEN TAB 200MG 24}	{PANAMAX TAB 500MG 100}	0.02%	11.00%	0.23%	5.03	17
[16]	{SUNSILK S/POO LONG&STRONG 200ML}	{SUNSILK COND LONG&STRONG 200ML}	0.02%	84.20%	0.03%	2495.3	16
[17]	{SUNSILK COND LONG&STRONG 200ML}	{SUNSILK S/POO LONG&STRONG 200ML}	0.02%	69.60%	0.03%	2495.3	16
[18]	{MASKIT PM2.5 MASK FILTER PK 10}	{MASKIT FACE MASK CLASSIC BLACK}	0.02%	24.60%	0.10%	46.09	16
[19]	{NANO 3 PLY MED GRADE TYPE 2 DISP MASK 50}	{NANO RAPID H/SANITISER 500ML}	0.02%	10.50%	0.22%	4.75	16
[20]	{MOOGOO CREAM COND 500ML}	{MOOGOO MILK S/POO 500ML}	0.02%	51.70%	0.04%	1036.81	15
[21]	{MOOGOO MILK S/POO 500ML}	{MOOGOO CREAM COND 500ML}	0.02%	44.10%	0.05%	1036.81	15
[22]	{EGO QV NOURISH S/POO 200G}	{EGO QV NOURISH COND 200G}	0.02%	50.00%	0.04%	1175.05	15
[23]	{EGO QV NOURISH COND 200G}	{EGO QV NOURISH S/POO 200G}	0.02%	51.70%	0.04%	1175.05	15
[24]	{DONNABAT TAB-BLIS 50}	{GASTRO STOP LOPRAMIDE CAP 20}	0.02%	22.40%	0.10%	62.28	15
[25]	{NUROFEN CHILD SYRS-12YRS ORANGE 200ML}	{PANADOL CHILD LIQ 200ML 5-12YRS ORNGE}	0.02%	16.50%	0.13%	127.66	15
[26]	{PANADOL CHILD LIQ 200ML 5-12YRS ORNGE}	{NUROFEN CHILD SYRS-12YRS ORANGE 200ML}	0.02%	17.00%	0.13%	127.66	15
[27]	{C/CROSS SENE&AMMONIA APF 500ML}	{TRUST DOUBLE ACTION CHESTY COUGH 200ML}	0.02%	10.80%	0.20%	22.49	15
[28]	{DOVE COND HT COL RDNCE 320ML}	{DOVE S/POO HT COL RDNCE 320ML}	0.02%	66.70%	0.03%	1817.41	14
[29]	{DOVE S/POO HT COL RDNCE 320ML}	{DOVE COND HT COL RDNCE 320ML}	0.02%	56.00%	0.04%	1817.41	14
[30]	{DOVE COND HT INTENSE RRR 320ML}	{DOVE S/POO HT INTNSV REP 320ML}	0.02%	60.90%	0.03%	1481.59	14

Customers who buy



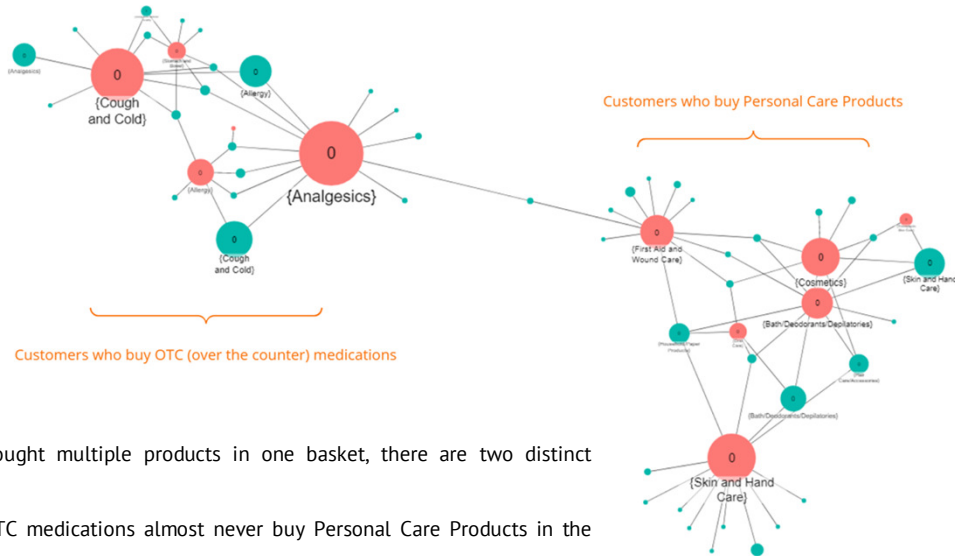
are **14.7 times** more likely to also buy



28

Use Cases - Association Rules Learning

IWIK: What products/services are bought most frequently together?



For customers who bought multiple products in one basket, there are two distinct shopping baskets.

Customers who buy OTC medications almost never buy Personal Care Products in the same basket.

29

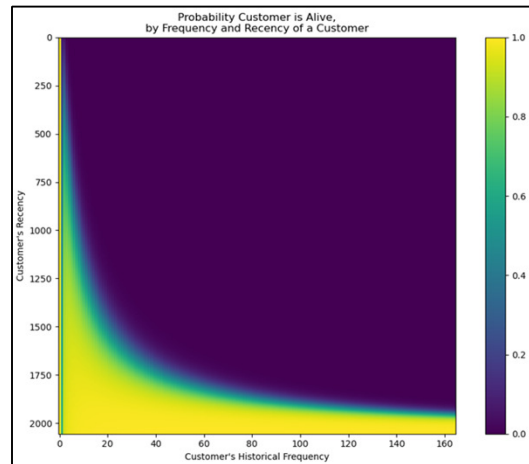
Use Cases - Predictive Analytics

IWIK: Who are my most loyal customers?

Predicting Customer Lifetime Value

email	frequen	recen	monetary_value	predicted_clv	probability_alive
315488	33	754	1726.605758	20775.02747	0.997218937
157957	164	1005	377.4143902	17954.84222	0.999115985
13981	19	895	1705.141053	9567.12784	0.982384825
316395	84	819	316.344881	9107.211159	0.9986015
44417	30	424	506.2311333	8326.983531	0.994907428
145708	36	860	663.6875	7912.922786	0.997626913
271440	14	451	1030.478571	6995.757907	0.978079265
72716	12	391	823.9766667	5661.301436	0.989274786
18495	22	576	635.2572727	5542.196804	0.968300647
285156	29	531	377.878621	5219.002799	0.996525555
126455	1	1	4673.2	4852.972679	0.61325014
361902	3	406	3901.203333	4759.854452	0.908940045
223845	13	261	437.8784615	4266.80911	0.992338253
87554	10	188	499.128	4188.503066	0.983317419
428694	24	699	474.36875	4158.839288	0.986025655
143672	4	164	1534.7875	3904.484535	0.901560147
270995	5	21	496.084	3852.166618	0.979306581
145177	4	28	584.175	3545.086021	0.972099897
133871	54	1281	276.8111111	3543.298869	0.998247015
349627	51	941	214.4984324	3299.308187	0.99576175
187558	15	625	505.9613333	3224.553684	0.994016768

Statistical Probabilistic Models might often be a better choice than ML models at predicting lifetime value of customers for transactional e-commerce data



30

Use Cases - Market Analysis

IWIK: Which countries to expand my business to?

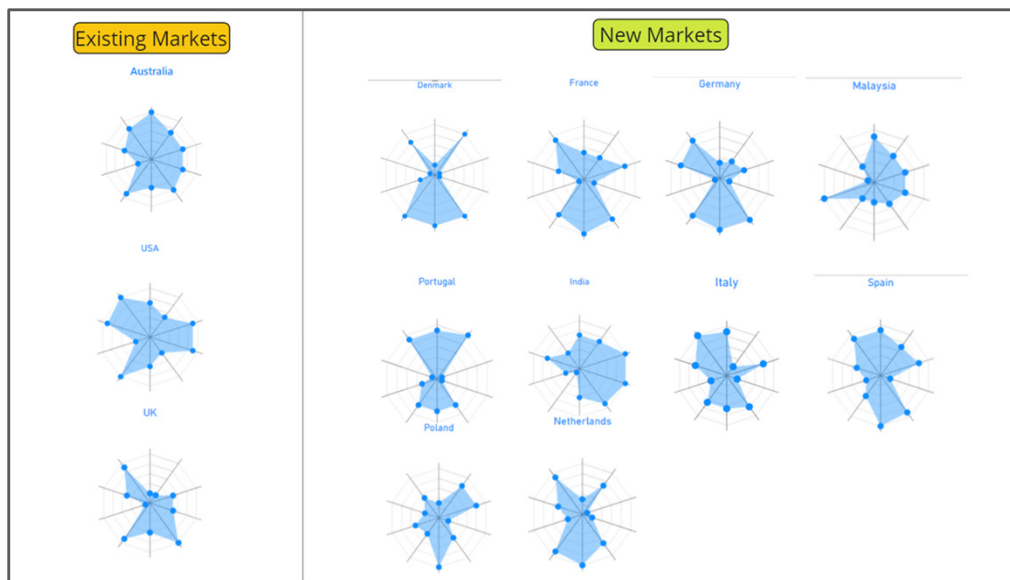
Global Market Analysis

State	Market Rank	Population	Population bar	Avg. Monthly Searches for	Estimated Impressions	Estimated Clicks	Estimated Form Submissions	Estimated Cost	Estimated Cost/Conv	Estimated Avg. Cost per Click (CPC)	Avg.CPC % difference with Texas	Monthly Searches per million	Website Users	Brochure Downloads	Brochure Download Rate	Avg.Session Duration (in min)
Texas	2	29,360,759	<div style="width: 100%;"></div>	880	34,046	1,019	5	\$3,566.50	\$713.30	\$3.50	-	30	-	-	6.13%	1.05
California	1	39,368,078	<div style="width: 133%;"></div>	1,300	50,295	1,505	9	\$5,628.70	\$625.41	\$3.74	▲ 6.9%	33	139	15	9.14%	1.58
North Carolina	3	10,600,823	<div style="width: 36%;"></div>	320	12,380	370	2	\$1,398.60	\$699.30	\$3.78	▲ 8.0%	30	28	0	0%	1.42
Florida	4	21,733,312	<div style="width: 74%;"></div>	590	22,826	683	3	\$2,363.18	\$787.73	\$3.46	▼ -1.1%	27	55	6	7.59%	1.16
Arizona	5	7,421,401	<div style="width: 25%;"></div>	170	6,577	197	1	\$715.11	\$715.11	\$3.63	▲ 3.7%	23	37	6	10.00%	3.45
Nevada	6	3,138,259	<div style="width: 10%;"></div>	50	1,934	58	0	\$228.52	-	\$3.94	▲ 12.5%	16	31	18	32.14%	4.31
New Jersey	7	8,882,371	<div style="width: 30%;"></div>	170	6,577	197	1	\$652.07	\$652.07	\$3.31	▼ -5.4%	19	98	1	0.93%	0.03
Massachusetts	8	6,893,574	<div style="width: 23%;"></div>	170	6,577	197	1	\$766.33	\$766.33	\$3.89	▲ 11.1%	25	16	3	15.00%	1.36
Georgia	9	10,710,017	<div style="width: 36%;"></div>	260	10,059	301	2	\$872.90	\$436.45	\$2.90	▼ -17.1%	24	17	3	12.50%	1.41
New York	10	19,336,776	<div style="width: 66%;"></div>	390	15,088	452	3	\$1,346.96	\$448.99	\$2.98	▼ -14.8%	20	47	0	0%	0.41
Oregon	-	4,241,507	<div style="width: 14%;"></div>	90	3,481	104	1	\$455.52	\$455.52	\$4.38	▲ 25.1%	21	217	7	2.75%	0.06
Idaho	-	1,826,913	<div style="width: 6%;"></div>	50	1,934	58	0	\$245.92	-	\$4.24	▲ 21.1%	28	18	15	57.69%	5.35
New Mexico	-	2,108,319	<div style="width: 7%;"></div>	90	3,481	104	1	\$427.44	\$427.44	\$4.11	▲ 17.4%	43	18	6	31.58%	4.13
Illinois	-	12,587,530	<div style="width: 43%;"></div>	260	10,059	301	2	\$936.11	\$468.06	\$3.11	▼ -11.1%	21	60	7	9.33%	0.55
Missouri	-	6,151,548	<div style="width: 21%;"></div>	90	3,481	104	1	\$465.92	\$465.92	\$4.48	▲ 28.0%	15	28	20	45.45%	4.21
Hawaii	-	1,407,006	<div style="width: 5%;"></div>	50	1,934	58	0	\$209.96	-	\$3.62	▲ 3.4%	36	10	10	52.63%	2.46

31

Use Cases - Market Analysis

IWIK: Which countries to expand my business to?



32

Use Cases - Data Collection using AI Models

IWIK: Which industry segments do my clients/customers belong to?

Client	Industry Group	Postcode
Ability WA	Disability Services	6041
Ballarat Hospice	Health Care Services	3350
Blue Cove Group	Financial services.	2076
Brightt	Retail Trade	3171
Carers Association of SA Inc - Carers SA	Community Services Industry	5041
Directions Disability Support	Disability Services	3020
Enhance Hope Services	Community Services.	2090
Interactive Community Care	Health Care Services	2068
Interchange WA	Retail Trade	6027
IRT	Information Technology	2036
Leisure Networks	Entertainment and Media	3053
Liberty Disability Services	Health Care and Social Assistance	2060
Little Haven Palliative Care Inc	Health Care Services	2099
Mpower	Electricity Generation.	3020
Plan Partners	Financial Services	2060
Retire Australia	Aged Care Services	2065
RSL Queensland	Hospitality and Tourism	4005
Southern Cross Care (Tas) Inc.	Aged Care Services	7109
Telethon Speech and Hearing	Healthcare Services	6065

=AI("Find the industry group in Australia for the business name in "&A2&". Reply in no more than 5 words ")

=AI("Find the post code in Australia for the business name in "&A2&". Reply with the postcode only")

Ballarat Hospice Care Inc.

Website Directions Save

4.0 ★★★★★ 2 Google reviews
Hospice in Alfredton, Victoria

Address: 1836 Sturt St, Alfredton VIC 3350

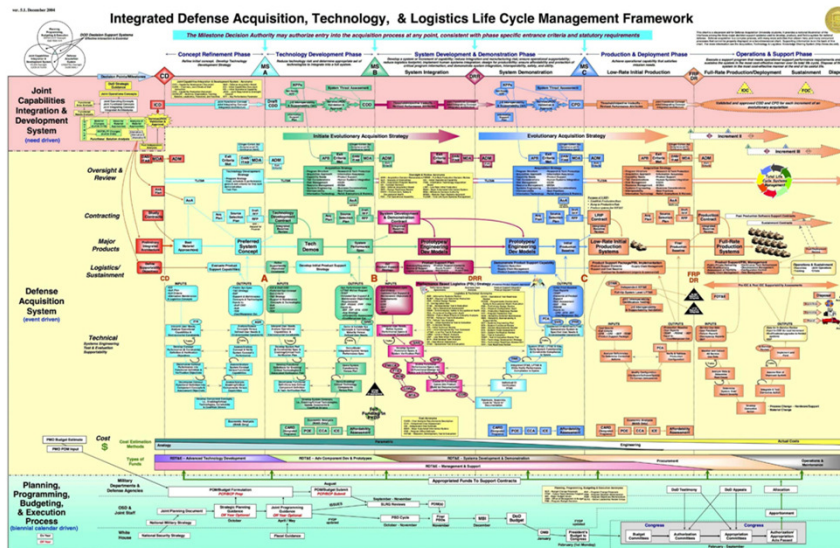
Hours: Open 24 hours ▾

Phone: (03) 5333 1118

33

Use Cases - Image to Text using AI

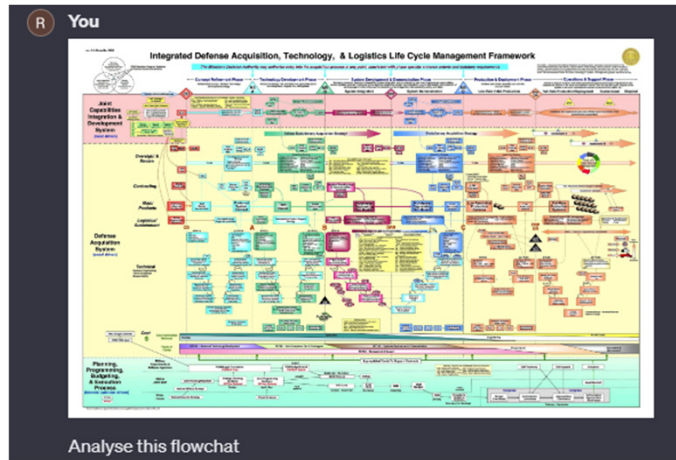
IWIK: How to simplify this complex chart



34

Use Cases - Image to Text using AI

IWIK: How to simplify this complex chart



ChatGPT

The flowchart you've uploaded is a detailed representation of the Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management Framework, likely from the U.S. Department of Defense (DoD). Here's a high-level overview of each part as they are typically structured:

- Joint Capabilities Integration & Development System (JCIDS):** This system ensures that the capabilities required by the joint warfighter are identified correctly and that they are based on a rigorous analysis of the operational needs. It involves determining what capabilities are needed to address various national security scenarios.
- Defense Acquisition System:** This is an event-driven process consisting of several key phases:
 - Concept Refinement Phase:** Early stage where potential solutions to meet the capability needs are assessed.
 - Technology Development Phase:** Technologies necessary to build a new system are developed and matured.
 - System Development & Demonstration Phase:** The system is designed, developed, and tested. This phase also includes system integration and demonstration.
 - Production & Deployment Phase:** The system is produced, delivered, and deployed. This phase may involve low-rate initial production (LRIP) followed by full-rate production (FRP).
 - Operations & Support Phase:** The system is sustained with the necessary logistics and upgrades until it is ultimately disposed of at the end of its useful life.
- Planning, Programming, Budgeting, & Execution (PPBE) Process:** This is a biennial process that allocates resources within the DoD. It is a methodical way to distribute funds to the right programs based on priorities and strategies. It involves stages like:
 - Planning:** Outlining the defense strategy and its implications for future DoD programs.
 - Programming:** Turning plans into detailed, budgeted programs.
 - Budgeting:** Formulating detailed cost estimates and justifying them in budget requests.
 - Execution:** Using the allocated resources to fund the programs, with regular reviews and adjustments as necessary.
- Logistics/Sustainment:** This refers to the ongoing support necessary to maintain and upgrade the systems throughout their operational life cycle. It involves ensuring that the systems are ready and available for use when required.
- Oversight & Review:** Throughout the life cycle, various oversight and review mechanisms are in place to ensure that the programs meet their cost, schedule, and performance objectives. This often involves milestones and decision points where high-level management reviews progress and decides on the continuation or adjustment of the programs.

35

Data Collections and Ethics

Five Principles of Data Ethics

- Ownership
- Transparency
- Privacy
- Intention
- Outcomes

36

Key Takeaways

1. Instead of finding purpose for your data, **find data for a purpose**
2. Utilise the **IWIK** (I Wish I Knew) framework
3. For better business decisions, move to a **decision driven data analytics framework**