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Audit Meets Innovation

NCACPA - Not For Profit Accounting Conference

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Discussion Topics



AI Tools Entering the Industry



Embedded Audit Modules



Data Analytics



Impact of New Technologies and Visions of the Future

AI Tools Entering the Industry

What is “Artificial Intelligence”?

Artificial Intelligence

Any technique that allows computers to mimic human behavior. These behaviors are often predetermined and logical in nature.

Machine Learning

Techniques that allow computers to improve with experience. These methods are normally statistically based (i.e.: training a model)

Deep Learning

Techniques that allow computers to mimic the human neural network and learn in an unsupervised way.

Audit Use Cases for AI

- Text recognition/extraction
- Codified field conversion
- Assessment of full populations
- Anomaly detection
- Risk scoring
- Sample selections
- Many others

AI Tools Entering the Industry

AI Software Providers

Audit

- MindBridge
- AI XPRT
- Auditmap
- OSP
- PwC GL.ai

Accounting

- Blue dot
- Vic.ai
- Indy
- Osome
- Docyt

Important Considerations

- Most audit offerings revolve around discovery/scoping
- Reliance on service providers in an audit
- Vendor due diligence considerations
- Data security
- Data integrity
- Explainability (current vs. future)
- Limitations

Current State

Artificial Intelligence

- Readily available
- Standardized rules
- Easily explained
- Follows human logic
- Opportunities
 - Automation
 - Anomaly detection in static environment

Machine Learning

- Somewhat available
- Rules based
- Explainable with effort
- Born out of human logic
- Opportunities
 - Anomaly detection in changing environment

Deep Learning

- Largely unavailable/unused
- Synthesizes human logic based on neural networks
- Lacks Explainability
- Opportunities:
 - Will be tough to gain comfort/approval under stringent auditing standards

Auditor judgment?

Embedded Audit Modules

Embedded Audit Modules

What are “EAMs”?

Embedded Audit Modules are strands of code built into software applications that are designed to capture information of audit significance in real time.

Auditors can access and review information in real time rather than compressing their review of pertinent information into scheduled fieldwork. EAMs also reduce the time and effort spent by clients pulling information to fulfill request lists.

Continuous Auditing

- Goals of continuous auditing:
 - Smoothed 'busy season'
 - Earlier detection of abnormalities
 - Ability to dig deep on material transactions sooner
- Viable alternatives:
 - Pulling work forward
 - Spreading risky audit areas throughout the year
 - Open lines of communication
 - Open access to accounting records/data

Non-EAM Continuous Audit

External Audit

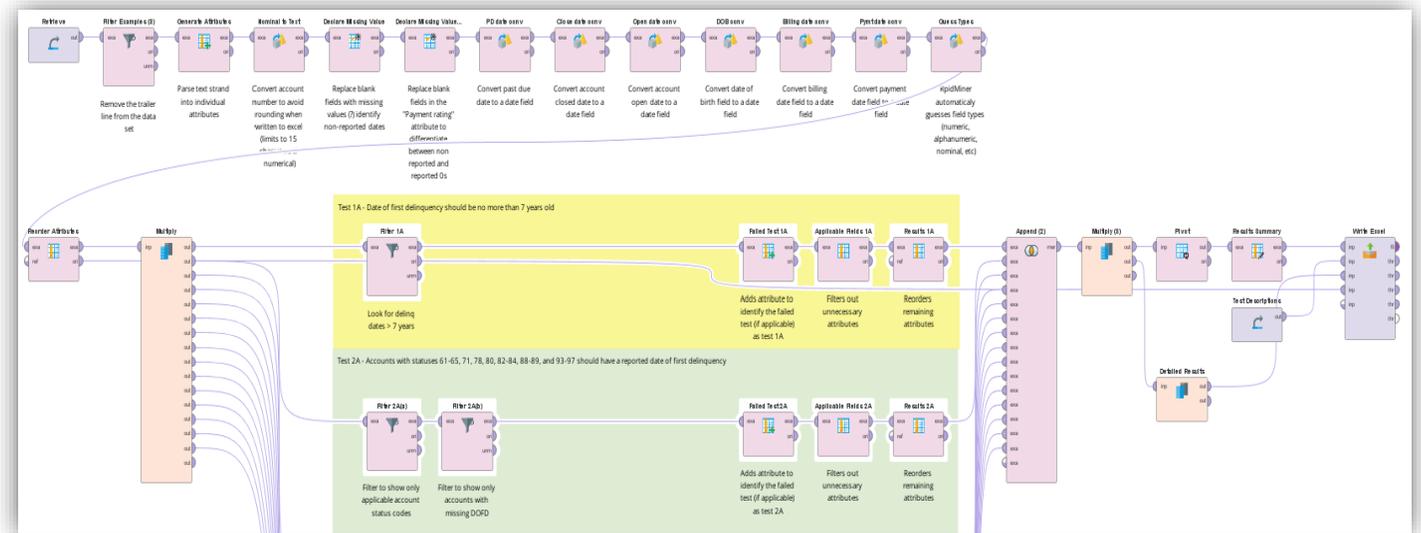
- Quarterly journal entry testing
 - Detailed review of entries meeting risk criteria
 - Rules based triggers that flag transactions

Internal Audit

- Recurring analysis to provide on going monitoring of high-risk areas
- Doesn't have to be based on a 'live' data feed.

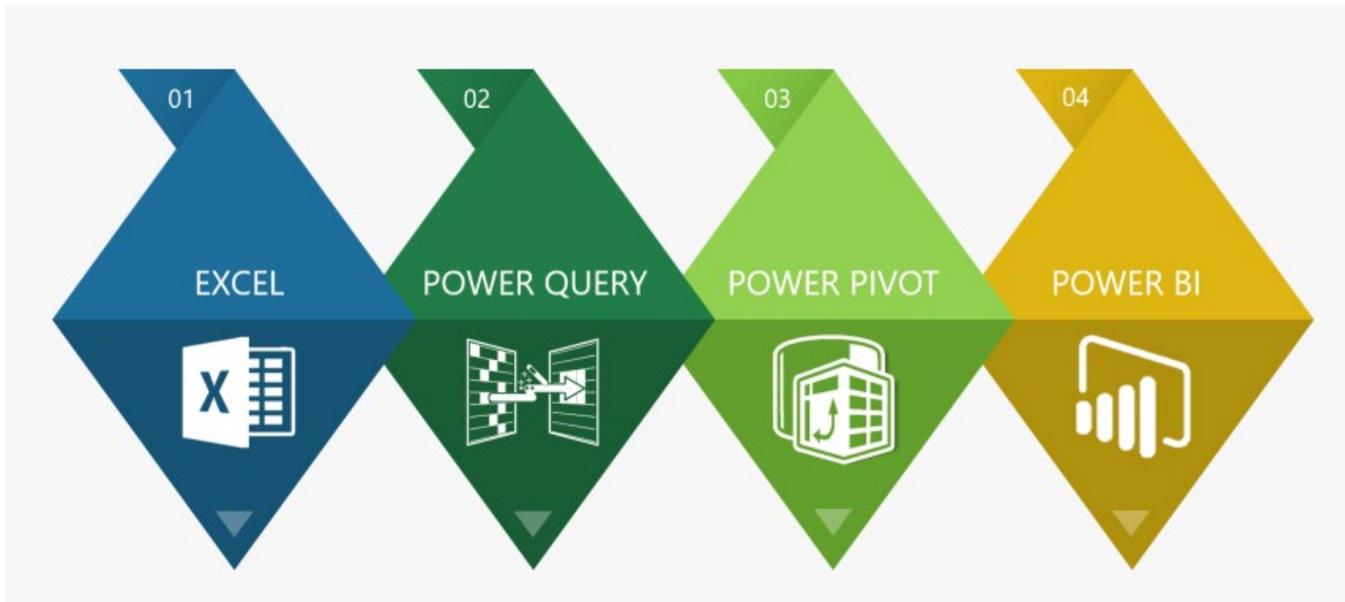
Other Forms of Automation

- Microsoft Excel/Power BI
- Programming languages
- Specialized software
- Robotic Process Automation (RPA)



Automation Solutions

- By building an analytical process in a manner that “stores” procedures, data preparation and analysis can be quickly executed



APPLIED STEPS	
Source	✖
Navigation	✖
Changed Type	
Promoted Headers	✖
Removed Top Rows	✖
Unpivoted Other Columns	
Renamed Columns	
Cleaned Text	
Trimmed Text	
Filtered Rows	✖
Split Column by Delimiter	✖
Removed Columns	
Added Custom6	✖
Replaced Value1	✖

Automation Case Study - Excel

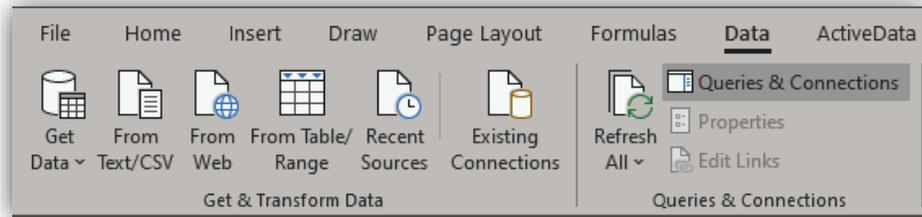
Industry: Packaged Food Manufacturing

Problem Area: Production planning

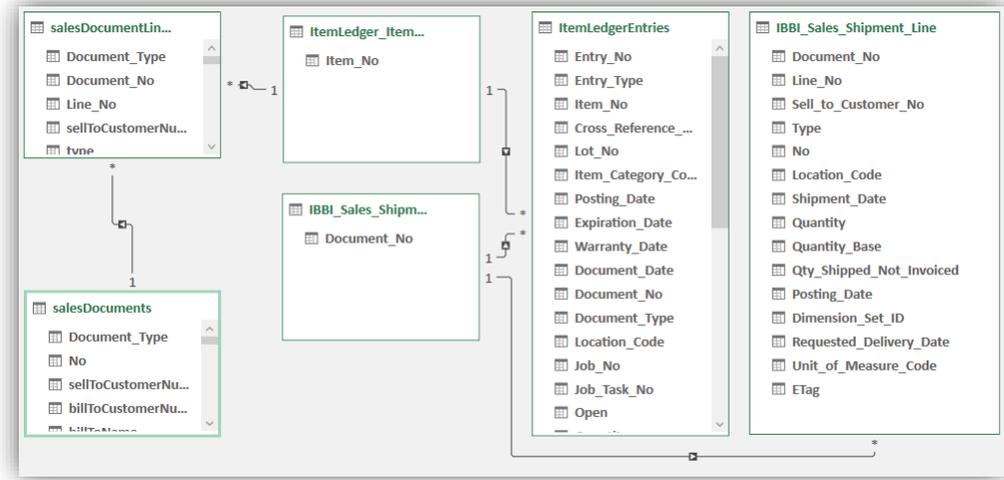
Legacy Process		Automated Process
30+ minutes/refresh	Time (actively spent)	2 minutes/day
Excel	Final File Type	Excel
<ul style="list-style-type: none"> Each morning, the plant manager: <ul style="list-style-type: none"> Pulls up the following reports: (1) Sales Orders (2) Shipments (3) Inventory Filters the reports for applicable information then pastes data into a source tab in the production planning workbook Calculates amounts to be shipped that day (by comparing sales orders to outgoing shipments) Identifies inventory shortages resulting from outstanding sales orders Adjusts production plan as necessary Oversees physical changes in production resulting from adjustments identified 	Process	<ul style="list-style-type: none"> On an ongoing basis the plant manager: <ul style="list-style-type: none"> Reviews inventory shortages automatically flagged by the updated workbook Oversees physical changes in production resulting from adjustments identified
<ul style="list-style-type: none"> Manual (data is <u>pulled</u>) Reactive Updated once daily Versioning control issues 	Problems Advantages	<ul style="list-style-type: none"> Automated (data is <u>pushed</u>) Updated constantly Allows multiple individuals to view and interact with production planning workbook simultaneously

Automation Case Study - Excel

Step 1: Link external data sources in Excel



Step 2: Create a data model to manage relationships



Step 3: Have live data feed pivot tables detailing:

- Cases on order
- Cases shipped
- Cases in inventory

Step 4: Redesign calculations intended to identify inventory shortages and apply conditional formatting for an enhanced user experience

Automation Case Study - Software

Industry: Financial Services

Problem Area: Fair Credit Reporting Act – Metro2 Data Furnishing

Legacy Process		Automated Process
~4 hours	Time (actively spent)	~45 seconds
Sample	Loans Reviewed	Complete Population
5	Tests Performed	47
Manual Excel Review	Method	Automated Software
<ul style="list-style-type: none"> The internal auditor uses the codified Metro2 credit reporting document and selects a sample of loans for testing. Credit reporting information related to that sample is decoded to allow the internal auditor to understand the information being reported. 5-10 high risk data fields are reviewed to ensure information reported to credit bureaus is accurate. 	Process	<ul style="list-style-type: none"> Codified Metro2 submission file is loaded into the established process within the software. The internal auditor presses “play”. Results for 47 unique data validation tests are summarized and documented automatically through the process and provided to the user in an /csv data file.
<ul style="list-style-type: none"> Testing performed on a sample Only high-risk data fields are considered Requires extensive experience to perform Manual documentation of findings required 	Problems Advantages	<ul style="list-style-type: none"> Testing entire population 47 comprehensive tests performed covering more unique and nuanced reporting rules Documentation of findings is automated

Automation Case Study - Excel

Codified data input provided to credit reporting bureaus.

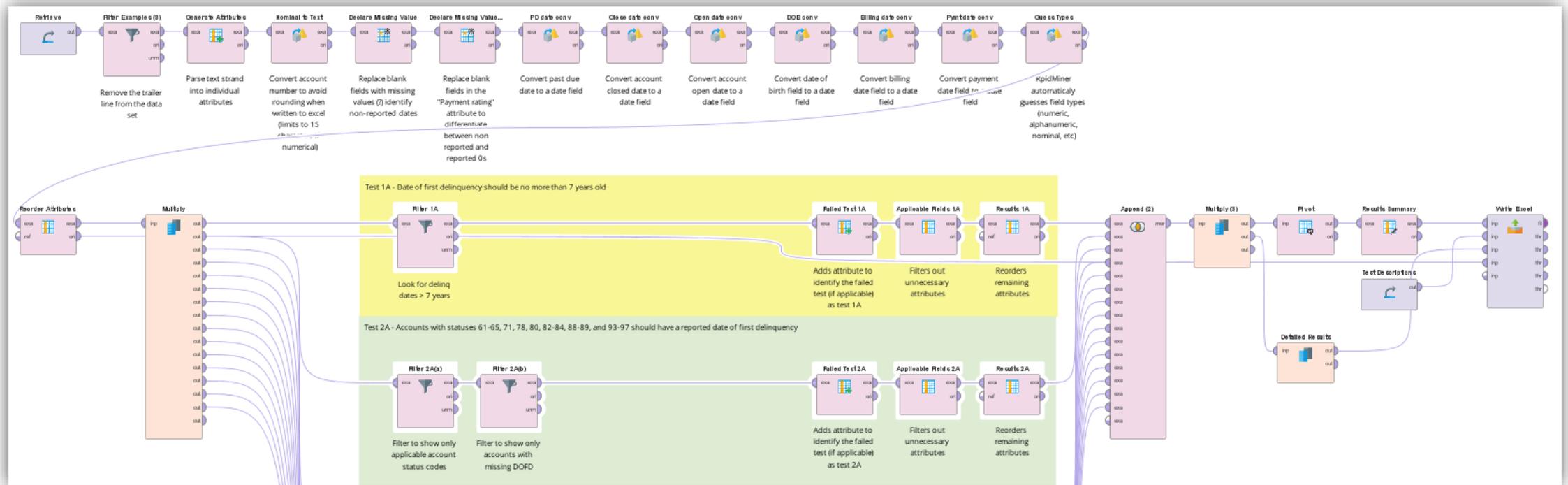
- 426 data fields reporting information from borrower name, to their credit score and 24-month payment history.
- Many institutions rely blindly on the information flowing from their core system into this report.
- Reporting errors could have a direct impact on the borrower's credit score.

00001400852		M2603262002000000000000054553010M0000004450000044511	0000000000000000000000	00001362800000000000000007012020000000000000006	J2
	K4	L1	N1		J2
00001402089		I060601200100000000000057000060M000000000000000097	LLLLLLLLLLLLLLLLLLLLLLLLLLLL	000000498000000498000004980701202006232014000000003	J2
	K4	L1	N1		J2
00001402453		M260729200200000000000124000015M000000000000000013000000000000000000		00000000000000000000000052720200000000527202005	J2
	K4	L1	N1		J2
00001402620		M2611272002000000000006500005M0000004450000044511	0000000000000000000000	00003283300000000000000007012020000000000000006	J2
	K401	11272022000060972 L1	N1		J2
00001402987		I060808200300000000000603000060M0000018050000361011	02211000000000101000100	00012206500000000000000007012020000000000000006	J2
	K4	L1	N1		J2
00001403566		I060929200500000000000104500060M000008110000084011	0000000000000000000000	00003210400000000000000007012020000000000000007	J2

Automation Case Study - Excel

Step 1: Build out automated ETL process that takes the input (codified Metro2) file and translates it into readable data fields

Step 2: Translate reporting rules and requirements into a series of if/then logic statements to run the data through

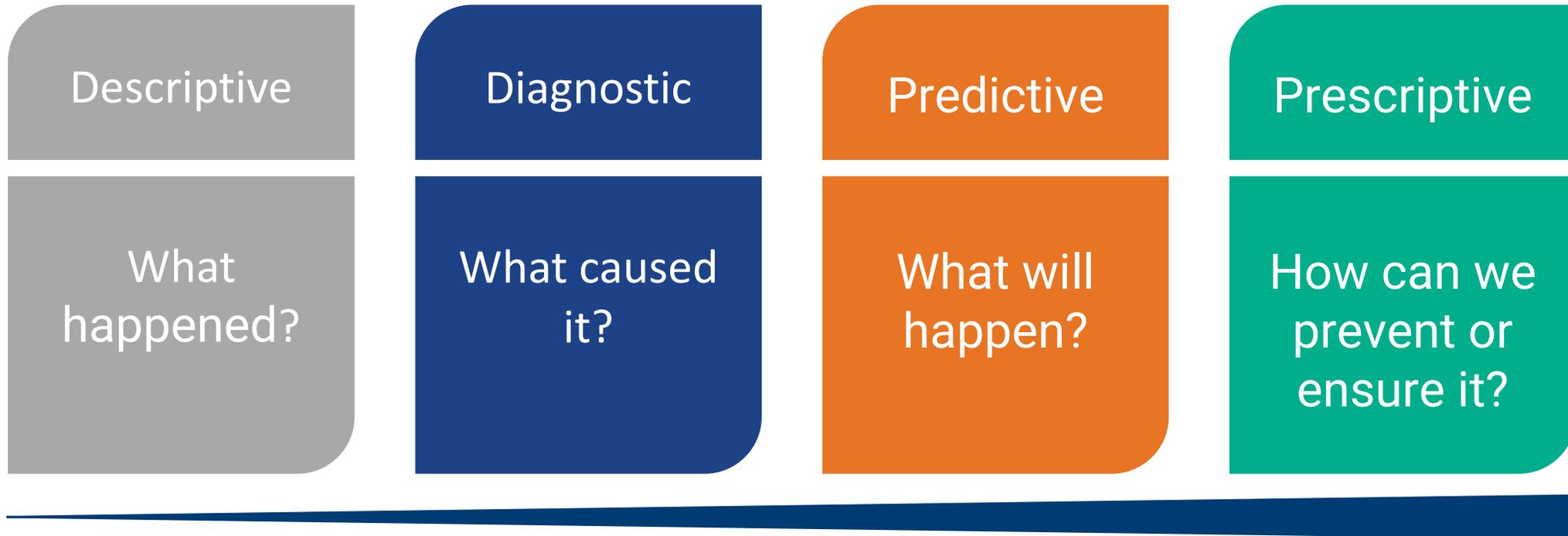


Data Analytics

What is “data analytics”?

A process designed to uncover useful information, inform conclusions and support decision-making through the use of data.

Types of Analytics



Required amount of (1) Data, (2) Literacy, (3) Buy in

Data Analytics

Analysis Frequency



- Single Analysis
- Recurring Analysis

Data Analytics

Single Analysis



- Large value in finding a solution
- Continued evaluation is unnecessary
- Likely a strategic priority
- Examples: major capital projects, investigation of known fraud, etc.

Data Analytics

Recurring/Continuous Analysis



- Continued monitoring provides value
- Upfront “costs” can be spread over several uses
- Can serve as building blocks for an analytically heavy IA/Ops program
- Continued process improvement
- Allows for process automation
- Examples: employee expense review, quarterly ratio review, etc.

Opportunities for Deployment

Finance/HR

- Financial dashboarding
- Peer comparisons
- Historical trends
- Budget v. actual
- Stress testing
- Financial forecasting
- Employee turnover
- Risk tolerance KPIs

Development

- Performance metrics
- Staff efficiency
- New donor conversion
- Donor satisfaction
- Donor turnover
- Marketing analytics
- Geographic Analysis

Compliance/Audit

- Employee expenses
- Anomaly detection
- Fraud detection
- Data quality reviews

Analytics: Financial Examples

Revenue

\$11,182,207

Prior YTD 36.52% ↑ Target 3.27% ↑

Gross Profit

\$4,920,518

% Rev 44.00% Ind. Benchmark 35.90%

Operating Profit

\$3,731,961

% Rev 33.37% Ind. Benchmark 20.00%

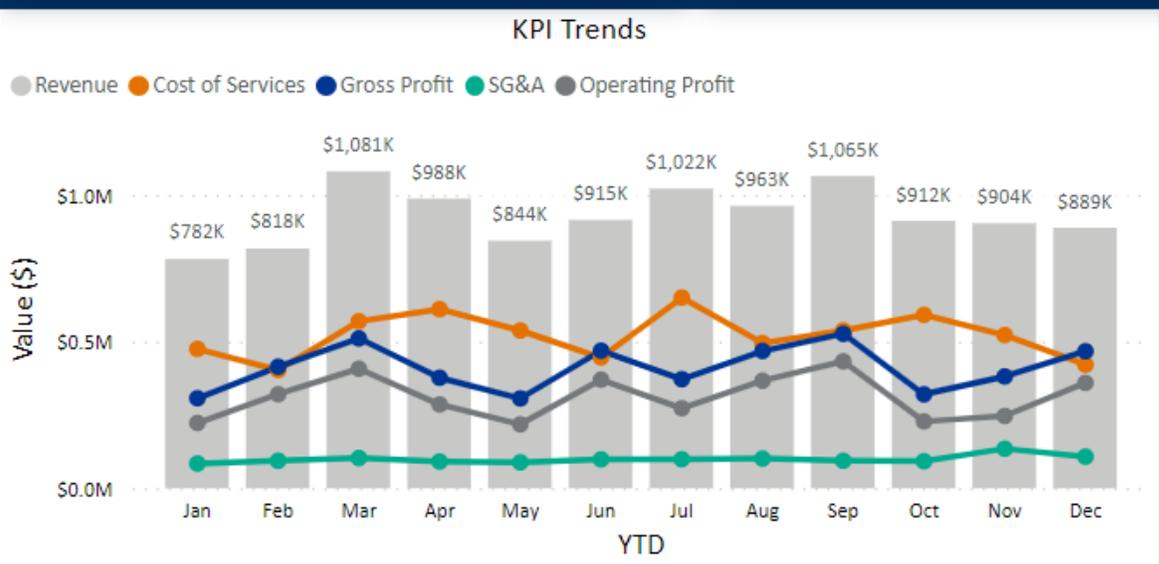
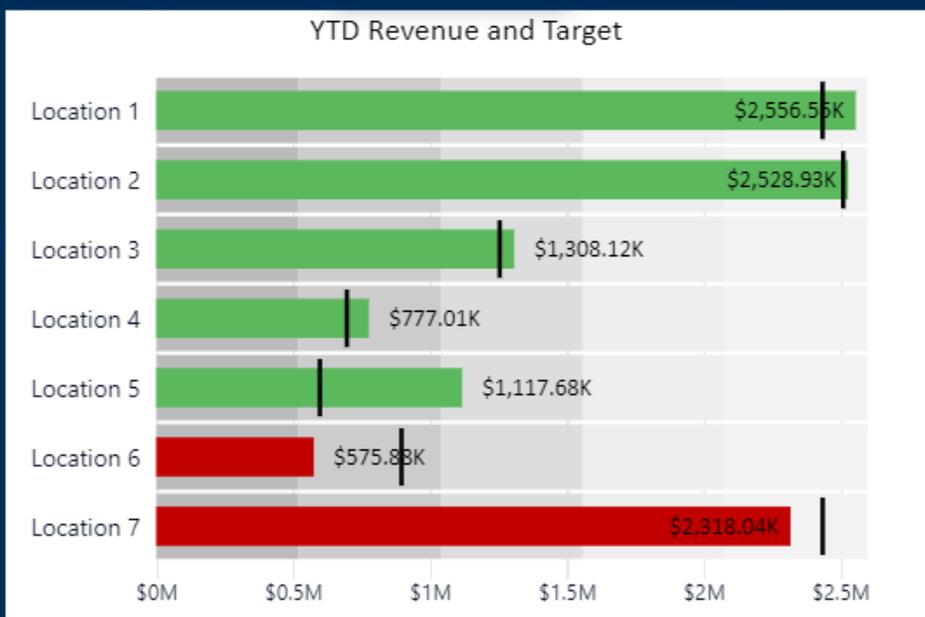
EBITDA

\$3,833,671

Margin % 34.28%

Dec 2021

Location: View: Buffer %:



KPI Overview by Location

Location	Revenue	COS % Rev	GP % Rev	SG&A % Rev	OP % Rev	EBITDA
Location 1	↑ \$2,556,552	62.52%	37.48%	14.87%	↑ 22.60%	22.00%
Location 2	\$2,528,934	↓ 55.49%	↑ 44.51%	↓ 8.12%	↑ 36.39%	41.97%
Location 3	↑ \$1,308,121	↓ 54.54%	↑ 45.46%	↓ 11.12%	↑ 34.33%	35.55%
Location 4	↑ \$777,009	↑ 68.70%	↓ 31.30%	16.28%	↓ 15.02%	13.50%
Location 5	↑ \$1,117,676	↓ 54.80%	↑ 45.20%	↑ 23.42%	21.78%	20.76%
Location 6	↓ \$575,880	↓ 56.90%	↑ 43.10%	↓ 11.38%	↑ 31.71%	28.85%
Location 7	↓ \$2,318,035	↓ 46.27%	↑ 53.73%	↓ 0.16%	↑ 53.57%	53.57%
Total	\$11,182,207	56.00%	44.00%	10.63%	33.37%	34.28%

- Cover
- Financials: Overview
- Financials: Location
- Financials: Expenses
- Financials: KPI Trends
- Operations: Patients & Visits
- Operations: Loc 7 Referrals
- Operations: Visits Analysis
- Operations: Medicaid %
- Operations: CPT

Sales Performance

Center Store Sales

\$9,367,457

Goal: \$8,006,110 (+17%)

Frozen Sales

\$3,766,645

Goal: \$3,240,729 (+16.23%)

Produce Sales

\$711,719

Goal: \$653,872 (+8.85%)

Cafe Sales

\$172,829

Goal: \$130,600 (+32.33%)

Total Sales BvA

\$0M \$18M \$16M

Manager

All



Busines... Location	Center Store Sales				Frozen Sales				Produce Sales				Cafe Sales			
	Actual	PY	Var \$	Var %	Actual	PY	Var \$	Var %	Actual	PY	Var \$	Var %	Actual	PY	Var \$	Var %
100	\$112,691	\$109,706	\$2,984	2.72%	\$56,150	\$48,260	\$7,890	16.35%	\$16,459	\$15,297	\$1,163	7.60%				
101	\$45,330	\$45,634	(\$304)	-0.67%	\$32,715	\$27,472	\$5,243	19.08%	\$497	\$468	\$30	6.38%				
102	\$98,336	\$103,989	(\$5,653)	-5.44%	\$47,396	\$44,934	\$2,461	5.48%	\$12,981	\$12,868	\$114	0.88%				
105	\$53,049	\$53,797	(\$748)	-1.39%	\$20,927	\$18,535	\$2,391	12.90%	\$435	\$458	(\$23)	-5.04%	\$292	\$350	(\$58)	-16.48%
108	\$65,594	\$65,062	\$532	0.82%	\$36,970	\$33,208	\$3,763	11.33%	\$7,382	\$6,890	\$492	7.14%				
110	\$61,827	\$63,737	(\$1,910)	-3.00%	\$33,320	\$28,735	\$4,584	15.95%	\$7,755	\$7,102	\$653	9.20%				
111	\$83,200	\$82,782	\$419	0.51%	\$39,429	\$34,971	\$4,458	12.75%	\$1,563	\$1,316	\$246	18.71%	\$1,386	\$1,668	(\$282)	-16.89%
112	\$79,841	\$75,413	\$4,428	5.87%	\$45,360	\$38,377	\$6,983	18.20%	\$13,236	\$14,042	(\$806)	-5.74%	\$999	\$960	\$39	4.07%
114	\$68,075	\$65,148	\$2,926	4.49%	\$37,186	\$30,259	\$6,927	22.89%	\$2,790	\$2,510	\$280	11.14%				
116	\$34,233	\$33,854	\$379	1.12%	\$25,310	\$24,663	\$647	2.62%	\$6,648	\$6,408	\$240	3.74%				
119	\$138,628	\$148,684	(\$10,056)	-6.76%	\$48,687	\$48,656	\$31	0.06%	\$18,216	\$18,056	\$159	0.88%	\$2,253	\$1,607	\$645	40.16%
120	\$61,681	\$61,144	\$536	0.88%	\$32,140	\$28,287	\$3,853	13.62%	\$2,247	\$2,418	(\$171)	-7.06%	\$1,658	\$1,436	\$223	15.51%
121	\$94,467	\$93,964	\$503	0.54%	\$28,693	\$26,575	\$2,118	7.97%	\$14,036	\$12,435	\$1,601	12.88%				
125	\$104,723	\$113,744	(\$9,021)	-7.93%	\$50,705	\$49,821	\$884	1.77%	\$17,909	\$17,139	\$770	4.49%	\$2,345	\$1,947	\$398	20.42%
126	\$56,409	\$58,580	(\$2,171)	-3.71%	\$42,774	\$37,120	\$5,654	15.23%	\$464	\$552	(\$87)	-15.83%				
127	\$83,915	\$86,981	(\$3,066)	-3.53%	\$46,920	\$42,117	\$4,803	11.41%	\$5,298	\$6,362	(\$1,064)	-16.73%	\$496	\$584	(\$88)	-15.06%
128	\$81,869	\$91,117	(\$9,248)	-10.15%	\$42,031	\$35,554	\$6,477	18.22%	\$8,271	\$6,157	\$2,114	34.33%	\$2,678	\$2,685	(\$8)	-0.28%
130	\$27,115	\$33,075	(\$5,960)	-18.02%	\$13,559	\$16,214	(\$2,654)	-16.37%	\$158	\$282	(\$124)	-44.12%				
131	\$110,568	\$109,544	\$1,024	0.93%	\$48,579	\$43,351	\$5,229	12.06%	\$11,960	\$11,440	\$520	4.54%	\$1,703	\$1,694	\$9	0.56%
133	\$40,212	\$39,574	\$638	1.61%	\$27,415	\$22,321	\$5,094	22.82%	\$805	\$923	(\$118)	-12.80%	\$1,408	\$1,000	\$409	40.89%
134	\$148,521	\$149,135	(\$614)	-0.41%	\$59,824	\$54,641	\$5,183	9.49%	\$19,231	\$19,373	(\$141)	-0.73%	\$1,519	\$1,374	\$145	10.53%
135	\$63,153	\$61,248	\$1,905	3.11%	\$33,810	\$32,478	\$1,332	4.10%	\$6,954	\$6,523	\$431	6.61%	\$1,386	\$992	\$393	39.61%
137	\$67,087	\$62,852	\$4,234	6.74%	\$38,710	\$31,639	\$7,071	22.35%	\$1,758	\$1,951	(\$194)	-9.93%				
138	\$262,879				\$50,017				\$18,768							
140	\$52,099	\$65,812	(\$13,713)	-20.84%	\$30,527	\$28,208	\$2,319	8.22%	\$409	\$446	(\$37)	-8.19%	\$704	\$673	\$30	4.53%
141	\$49,367	\$46,793	\$2,574	5.50%	\$32,797	\$29,529	\$3,268	11.07%	\$631	\$801	(\$169)	-21.15%				
146	\$38,116	\$38,535	(\$419)	-1.09%	\$27,083	\$25,667	\$1,416	5.52%	\$827	\$1,098	(\$271)	-24.65%				
148	\$71,583	\$67,752	\$3,831	5.66%	\$51,948	\$47,708	\$4,240	8.89%	\$2,106	\$2,350	(\$244)	-10.39%				
149	\$96,072	\$106,632	(\$10,561)	-9.90%	\$30,804	\$28,837	\$1,967	6.82%	\$16,961	\$18,081	(\$1,120)	-6.20%	\$1,262	\$1,073	\$189	17.62%
	\$64,353	\$55,738	(\$8,615)	-13.39%	\$37,473	\$33,068	\$4,404	13.32%	\$165	\$137	\$28	20.44%	\$8	\$8	\$0	0%
Total	\$100,462	\$97,125	\$719	0.74%	\$43,215	\$38,287	\$4,769	12.46%	\$8,178	\$7,734	\$211	2.73%	\$2,588	\$2,097	\$300	14.33%

59.22M

YTD Revenue

44.95M

YTD Gross Profit

Period

All



Business Unit

All

8.38M

YTD EBITDA

50.33M

YTD OpEx

Account Type	Date Account Subgroup	1/1/21				2/1/21				3/1/21				4/1/21				5/1/21	
		Actuals	Budgets	Var(\$)	Var(%)	Actuals	Budgets	Var(\$)	Var(%)	Actuals	Budgets	Var(\$)	Var(%)	Actuals	Budgets	Var(\$)	Var(%)	Actuals	Budgets
Revenue	Claims processing	2,047.72	2,089.58	-41.86	-2.00%	1,980.76	2,448.11	-467.35	-19.09%	1,914.28	2,147.20	-232.92	-10.85%	2,224.86	2,244.23	-19.37	-0.86%	2,134.45	2,137.44
	Cloud faxing	259.79	300.53	-40.75	-13.56%	241.09	302.28	-61.19	-20.24%	278.98	304.60	-25.62	-8.41%	267.60	305.77	-38.16	-12.48%	264.85	307.51
	Credit cards	568.24	596.25	-28.02	-4.70%	466.65	475.76	-9.11	-1.92%	469.51	410.11	59.40	14.48%	446.52	480.30	-33.78	-7.03%	403.17	406.31
	Equipment sales	361.00	386.61	-25.62	-6.63%	213.72	416.20	-202.48	-48.65%	460.69	404.45	56.24	13.91%	262.61	399.73	-137.11	-34.30%	138.38	408.82
	eVisits	1,306.63	1,262.43	44.20	3.50%	1,270.20	1,449.56	-179.36	-12.37%	1,204.40	1,305.81	-101.41	-7.77%	1,423.66	1,382.21	41.45	3.00%	1,312.95	1,304.51
	Hardware maintenance	563.67	618.97	-55.30	-8.93%	556.09	616.80	-60.70	-9.84%	531.76	615.01	-83.25	-13.54%	552.39	612.72	-60.32	-9.85%	549.96	610.24
	Installation and training	64.18	81.53	-17.35	-21.28%	56.84	95.41	-38.57	-40.42%	98.17	88.40	9.77	11.06%	53.46	79.63	-26.17	-32.87%	61.40	100.48
	Interest Revenue	-0.01	0.00	-0.01	-	0.00	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00
	Miscellaneous revenue	1.02	21.24	-20.23	-95.21%	5.61	2.41	3.20	133.03%	1.55	8.81	-7.26	-82.43%	3.50	15.21	-11.71	-76.99%	-0.67	6.74
	Other Non-Operating Income	0.26	0.00	0.26	-	0.00	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00	0.00	-	0.00	0.00
	Other transactional	153.43	155.11	-1.68	-1.08%	161.82	170.84	-9.02	-5.28%	226.18	165.05	61.13	37.04%	179.90	165.97	13.93	8.40%	183.59	170.25
	Payment processing	267.45	451.12	-183.67	-40.71%	378.52	598.27	-219.75	-36.73%	421.17	367.98	53.18	14.45%	482.33	487.31	-4.99	-1.02%	708.93	610.73
	Software maintenance	3,299.72	3,562.29	-262.57	-7.37%	3,300.58	3,556.17	-255.58	-7.19%	3,286.34	3,552.22	-265.89	-7.49%	3,255.66	3,545.77	-290.11	-8.18%	3,239.13	3,538.41
	Software sales	386.15	345.40	40.74	11.80%	370.34	431.43	-61.09	-14.16%	491.96	409.15	82.82	20.24%	247.78	336.10	-88.32	-26.28%	371.86	438.15
	Veterinary services	478.72	614.51	-135.79	-22.10%	581.12	612.45	-31.33	-5.12%	521.39	610.34	-88.94	-14.57%	505.00	695.34	-190.34	-27.37%	509.77	693.07
	Total	9,757.97	10,485.60	-727.62	-6.94%	9,583.35	11,175.68	-1,592.33	-14.25%	9,906.39	10,389.13	-482.74	-4.65%	9,905.27	10,750.28	-845.01	-7.86%	9,877.77	10,732.66
Cost of Sales	Cost of Claims Processing	-163.28	-229.20	65.92	-28.76%	-356.82	-268.53	-88.30	32.88%	-139.28	-235.52	96.24	-40.86%	-137.74	-246.16	108.43	-44.05%	-372.85	-234.45
	Cost of Cloud Faxing	-124.58	-146.47	21.89	-14.95%	-118.24	-147.32	29.09	-19.74%	-136.59	-148.45	11.86	-7.99%	-134.23	-149.02	14.79	-9.93%	-132.05	-149.87
	Cost of Credit Cards	-388.60	-475.42	86.82	-18.26%	-554.25	-327.75	-226.51	69.11%	-341.20	-343.22	2.03	-0.59%	-380.95	-409.32	28.37	-6.93%	-325.94	-310.30
	Cost of Equipment	-291.01	-341.93	50.92	-14.89%	-205.63	-368.09	162.46	-44.14%	-287.75	-355.92	68.17	-19.15%	-205.77	-352.45	146.68	-41.62%	-118.62	-359.43
	Cost of eVisits	-801.54	-776.06	-25.48	3.28%	-780.95	-891.10	110.15	-12.36%	-660.63	-802.74	142.10	-17.70%	-829.36	-849.70	20.34	-2.39%	-762.43	-801.93
	Cost of Hardware Maintenance	-170.43	-147.39	-23.04	15.63%	-152.83	-146.84	-5.99	4.08%	-142.79	-146.28	3.49	-2.39%	-111.34	-145.63	34.29	-23.54%	-31.93	-144.86
	Cost of Other Transactional	-17.40	-27.68	10.28	-37.14%	-16.74	-27.02	10.28	-38.06%	-32.66	-27.02	-5.64	20.89%	-22.32	-27.68	5.36	-19.37%	-18.64	-27.02
	Cost of Payment Processing	-160.55	-140.49	-20.06	14.28%	-184.19	-160.97	-23.23	14.43%	-173.10	-158.93	-14.17	8.92%	-207.97	-201.88	-6.09	3.02%	-410.74	-282.93
	Cost of Software	-118.48	-160.15	41.67	-26.02%	-104.80	-164.80	60.00	-36.41%	-247.60	-157.20	-90.40	57.51%	-52.24	-155.93	103.69	-66.50%	-148.87	-155.86

Net Income - Budget to Actual



Analytics: Non-Financial Examples

-170

Customer Δ

8.3%

Attrition Rate

99.6%

YTD Retention



Veterinary Health Technologies



189.29

CLTV (12 mo.)

38.41

CAC (12 mo.)

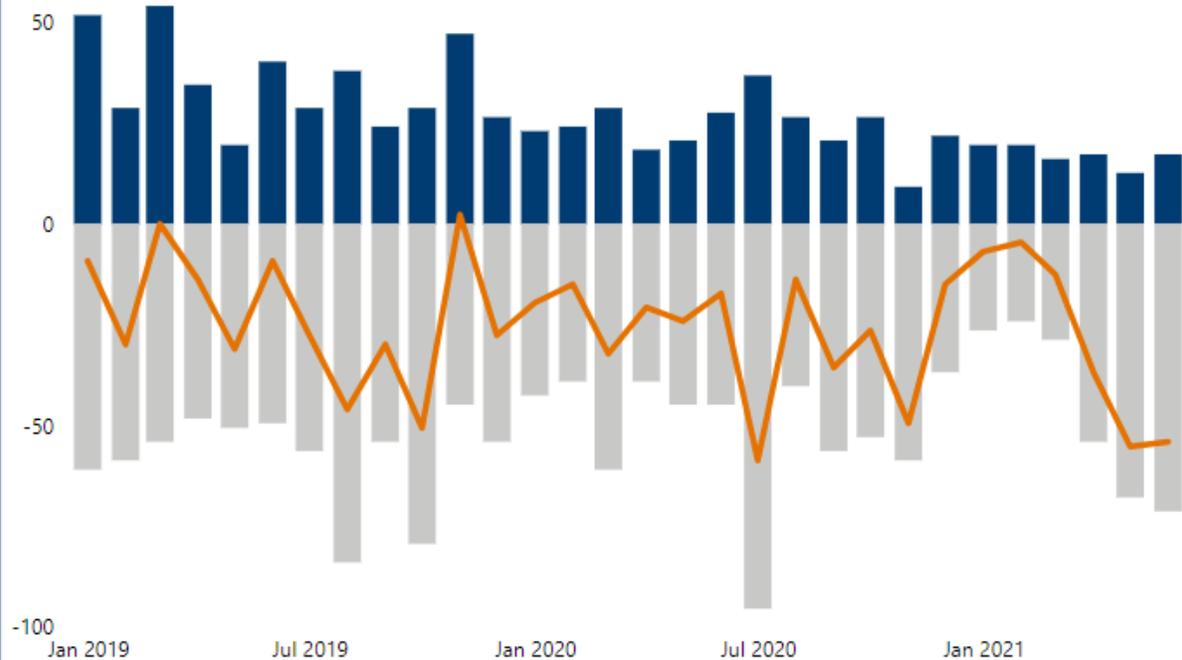
Period

- 2019
- 2020



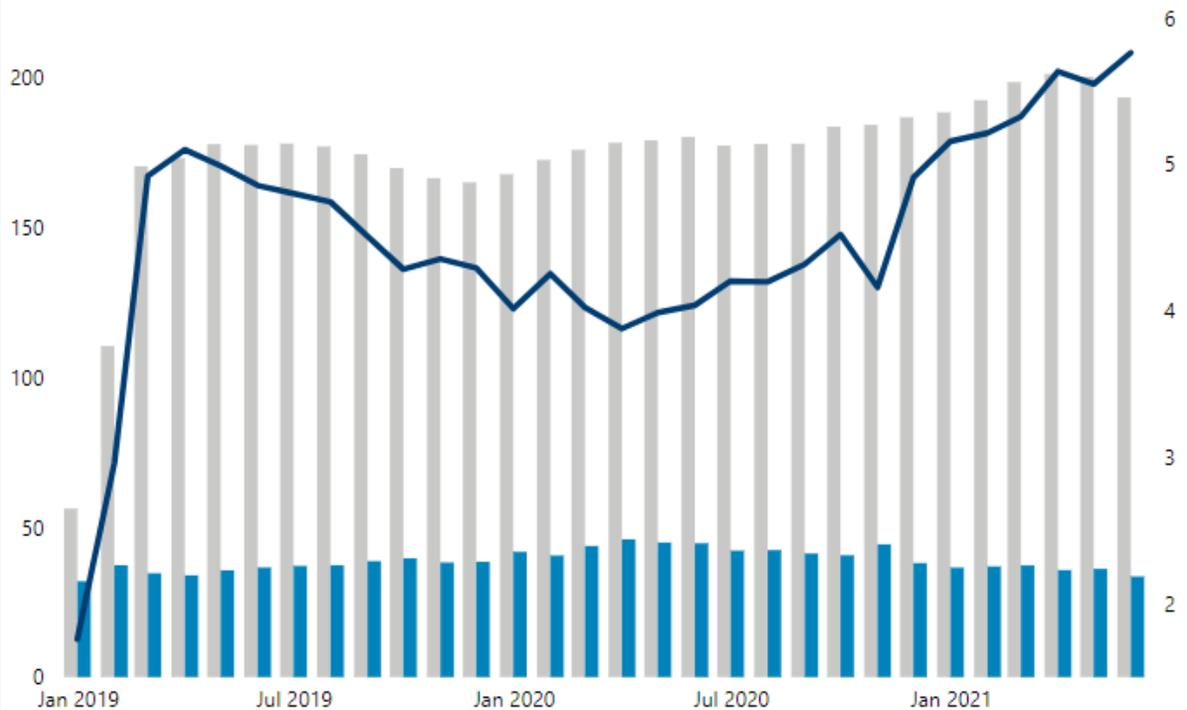
Net Change in Customers

● Additions ● Cancellations ● Net Change



CLTV/CAC Ratio

● CLTV ● CAC ● CLTV/CAC Ratio



Field	1/31/19	2/28/19	3/31/19	4/30/19	5/31/19	6/30/19	7/31/19	8/31/19	9/30/19	10/31/19	11/30/19	12/31/19	1/31/20	2/29/20	3/31/20	4/30/20	5/31/20	6/30/20	7/31/20	8/31/20	9/30/20	10/31/20	11/30/20	12/31
StartCount	7,360	7,351	7,321	7,321	7,307	7,276	7,267	7,239	7,193	7,163	7,113	7,115	7,087	7,068	7,053	7,021	7,000	6,976	6,959	6,900	6,886	6,851	6,824	6,
Additions	52	29	54	35	20	40	29	38	24	29	47	26	23	24	29	18	21	28	37	26	21	26	9	
Losses	61	59	54	48	51	49	56	84	54	79	45	54	43	39	61	39	45	45	95	40	56	53	59	
EndCount	7,351	7,321	7,321	7,307	7,276	7,267	7,239	7,193	7,163	7,113	7,115	7,087	7,068	7,053	7,021	7,000	6,976	6,959	6,900	6,886	6,851	6,824	6,775	6,

1161

Loans (#)

65.58M

Current Balance

Current Balance by Name

Lahousse

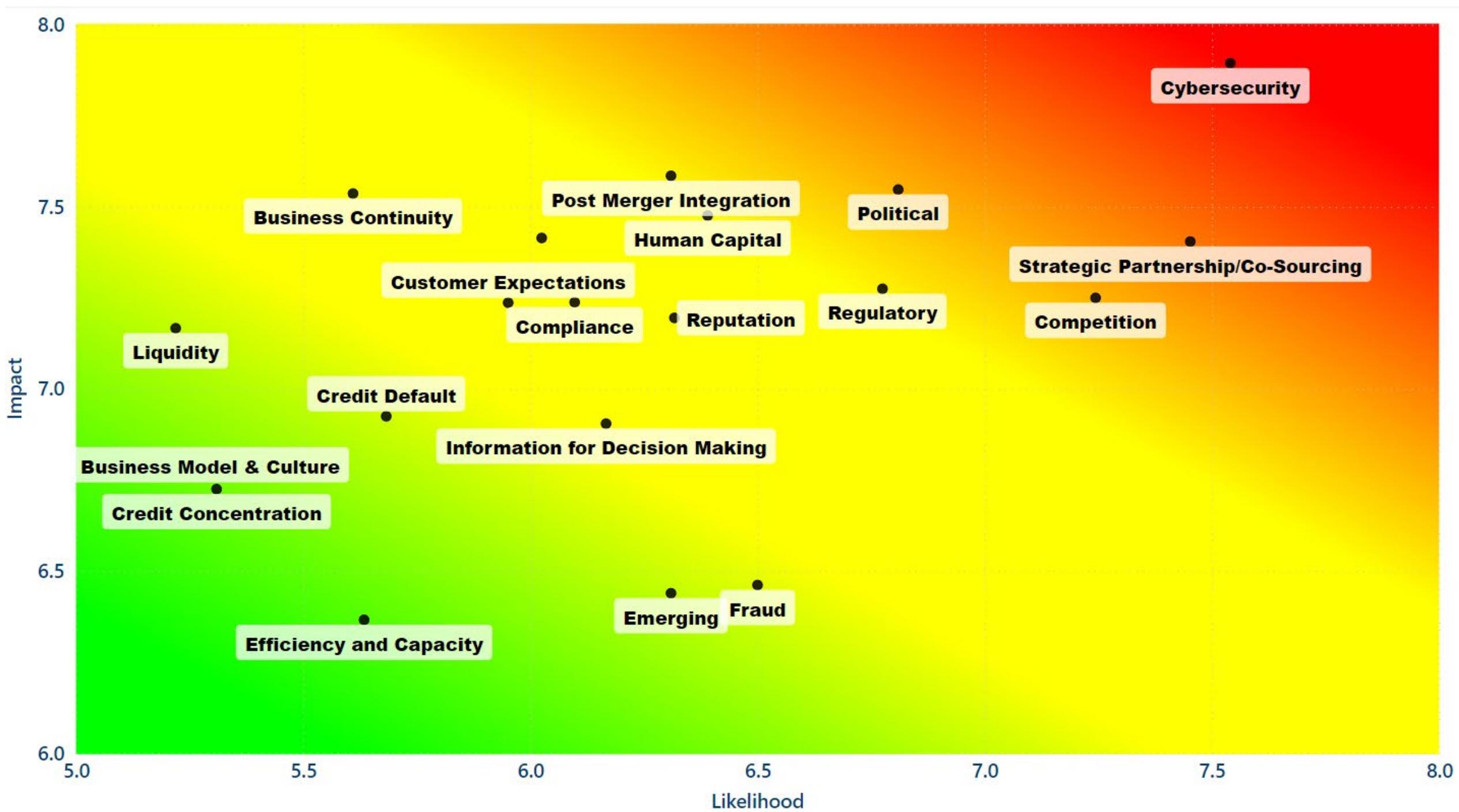
Koth

Koupal

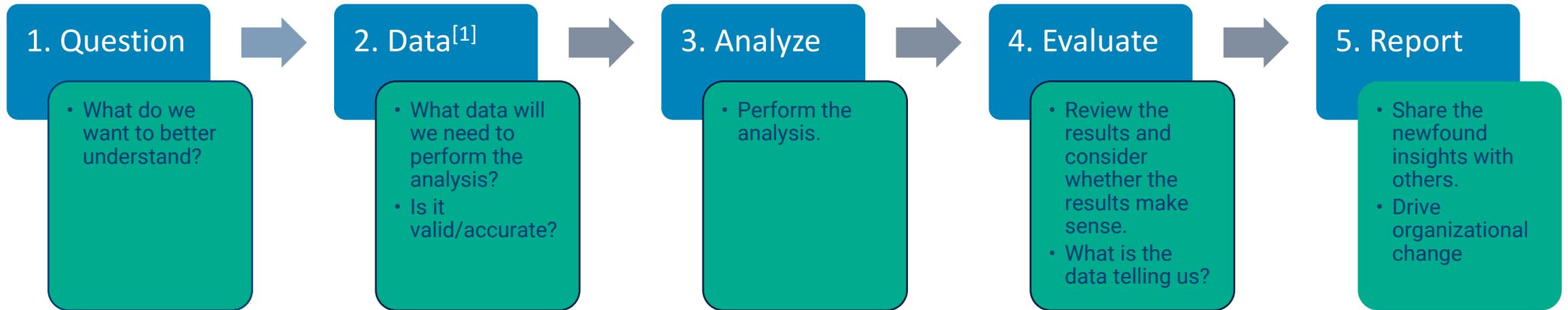
Farmer

Becker

Full Address	Current Balance	Loans to Address	Unique Borrowers
500 EAST MOREHEAD STREET, CHARLOTTE, NC 28202	4,003,830.95	32	1
ELLIOTT DAVIS	4,003,830.95	32	1
929 FINNEY DRIVE, VINTON, VA 24179	32,251.08	18	1
CAHOMESITES.COM	32,251.08	18	1
192 SHADY SQUARE, GALAX, VA 24333	315,454.17	14	14
BERNIE MADOFF	6,475.00	1	1
BERTHA HEYMAN	33,800.00	1	1
CASSIE CHADWICK	12,000.00	1	1
CHARLES PONZI	34,533.33	1	1
DANIEL LEVEY	22,166.67	1	1
DAVID LEMAR	19,500.00	1	1
GEORGE APPO	32,800.00	1	1
GEORGE PARKER	17,812.50	1	1
GINA MARKS	29,100.00	1	1
LOU BLONGER	1,333.33	1	1
MICHAEL SCOTT	19,500.00	1	1
PHILLIP MUSICA	19,000.00	1	1
SOAPY SMITH	35,766.67	1	1
WILLIAM MCCLOUDY	31,666.67	1	1
445 BARRETT RD, ENNICE, NC 28623	1,316,716.05	12	1
1546 TROUTDALE HWY, MOUTH OF WILSON, VA 24363	337,930.00	11	1
714 REDD DRIVE, INDEPENDENCE, VA 24348	209,373.50	10	1
P O BOX 661, INDEPENDENCE, VA 24348-0363	1,407,851.93	10	1
1703 CORNERSTONE RD, INDEPENDENCE, VA 24348	781,887.93	9	1
535 WEST UNION ST, WYTHEVILLE, VA 24382	134,781.46	9	1
65 AUBURN LANE, TROUTDALE, VA 24378	623,476.50	9	1
P O BOX 563, FRIES, VA 24330	153,394.58	9	2
1170 PILGRIM FORK RD, ELK CREEK, VA 24326	403,333.33	8	1
1951 NEW RIVER PKWY, INDEPENDENCE, VA 24348	346,474.54	7	1
203 PENNY LN, INDEPENDENCE, VA 24348	643,946.19	7	2
1292 FIELDVIEW RD, WOODLAWN, VA 24381	133,401.40	6	1
P O BOX 143, INDEPENDENCE, VA 24348-0143	295,900.00	6	1
P O BOX 426, INDEPENDENCE, VA 24348	339,046.67	6	1
115 A LAVENDER RD. MAX MEADOWS. VA 24360	325,214.29	5	3
Total	65,579,093.98	1161	817



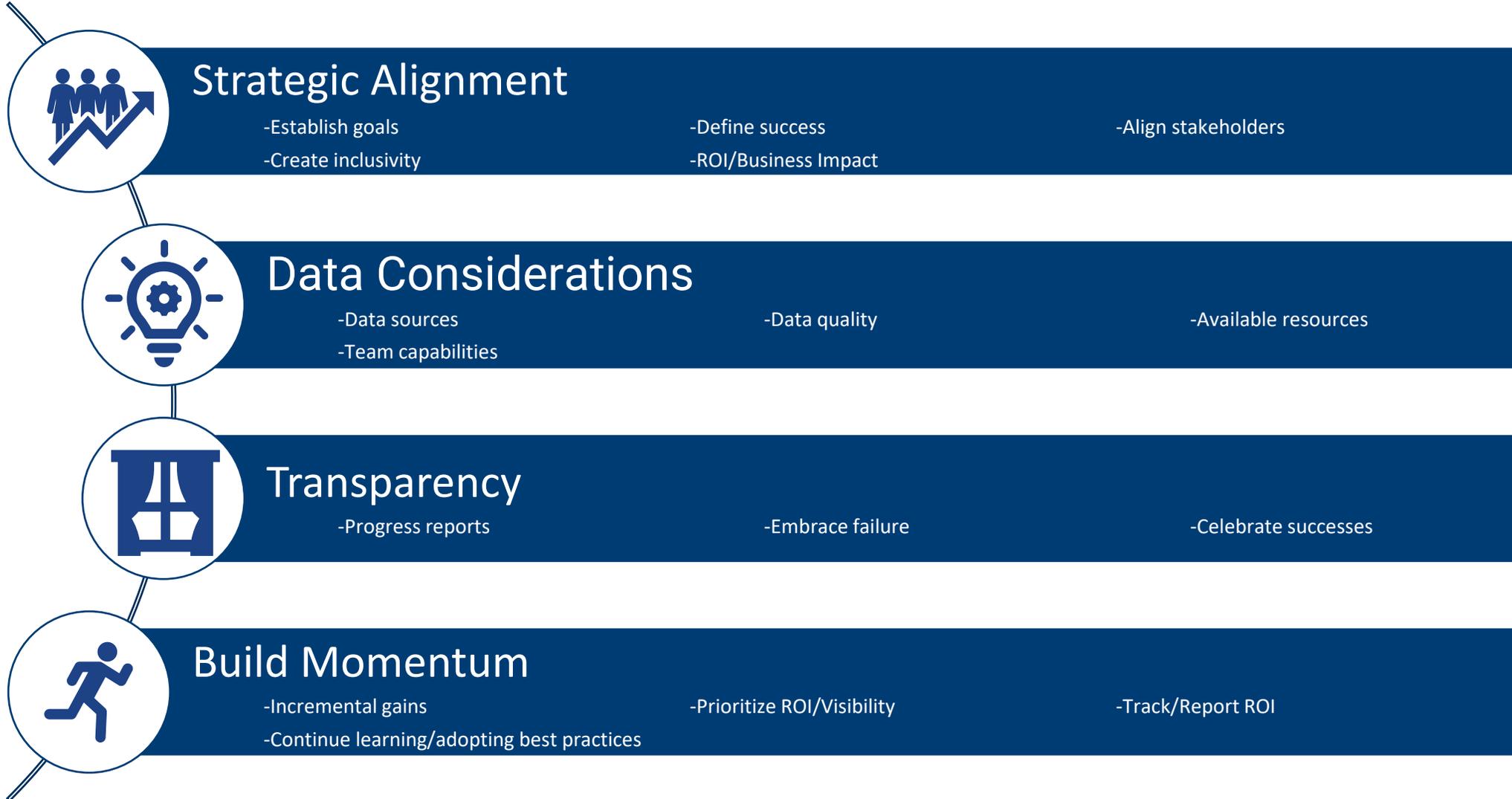
Performing the Analysis



[1] Data considerations:

- Needs to be in a useable format
- Needs to be complete and accurate (reconcile it)
- Keep a copy of the original

Areas of Consideration

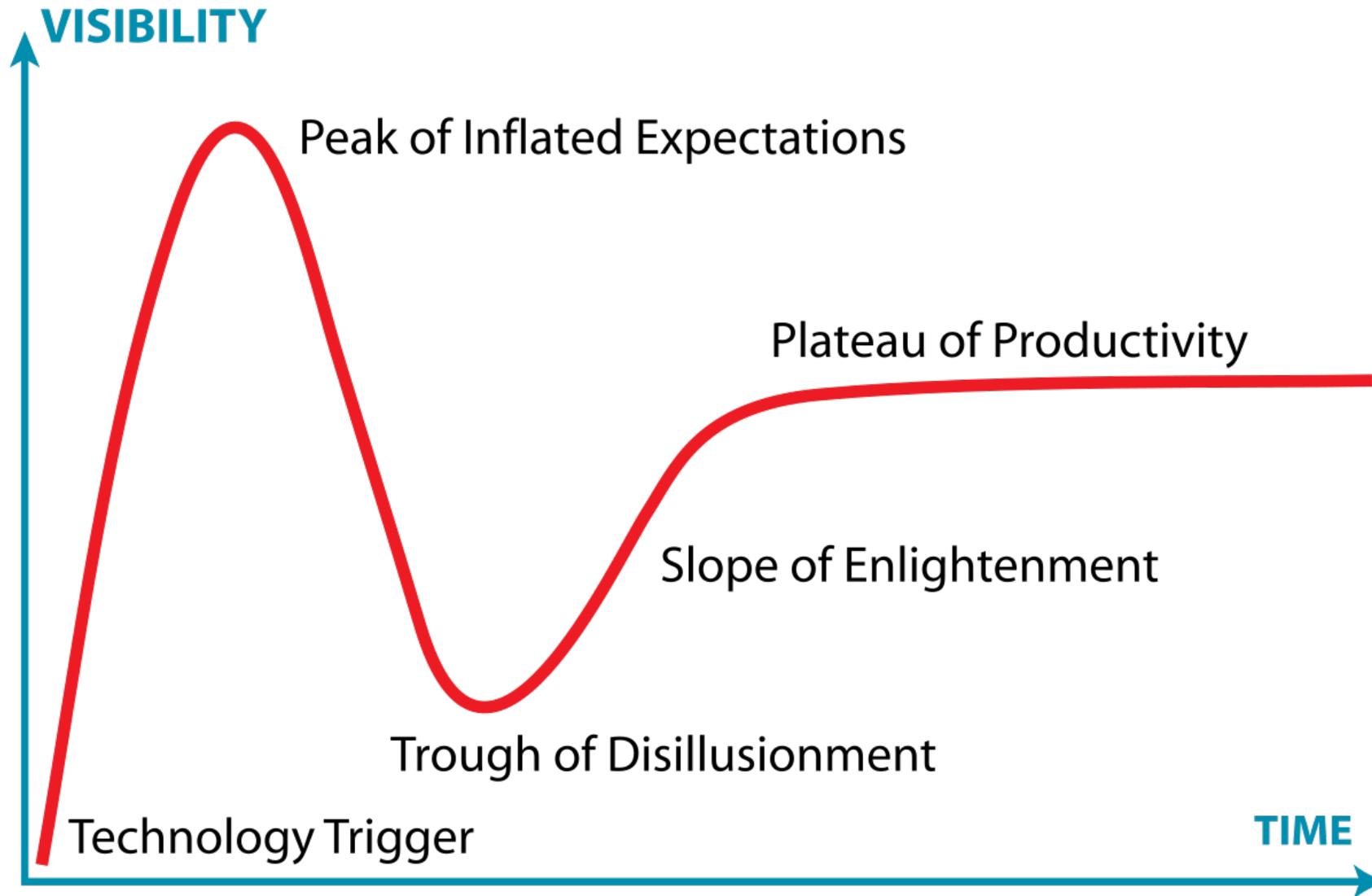


Impact of New Technologies and Visions of the Future

Technologies to Be Aware Of

- Cloud Based Software / Computing
- Blockchain / Decentralized Ledgers
- Smart Contracts
- Automated Accounting Technology
- Artificial Intelligence / Machine Learning

Impact of New Technologies and Visions of the Future



Gartner Hype Cycle

Opinions

- Humans will be tasked with less objective, more subjective, work sets
- Increased automation of repetitive tasks
- Adoption of advanced machine learning techniques will be tempered by understandability
- Smart contracts provide indisputable audit evidence

- Organizations' ability to leverage and adopt new technologies will never surpass individual employees' willingness to accept, understand and engage with said technologies.

Questions

Disclaimer

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STAY IN TOUCH

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