FRAUD ANALYTICS FOR A MULTICHANNEL VIDEO PROGRAMMING DISTRIBUTOR

ABOUT THE CLIENT

Client is a multichannel video programming distributor in the U.S with 15M+ subscriber base

SITUATION

- Client suspected that a **significant number of fraudulent work orders were created on vendor's end** given inconsistency in their financials. So, they wanted to identify the quantum of these fraudulent work orders and the associated commission total amount paid to the vendor.
- Merilytics partnered with the client to identify the fraudulent work orders and associated commissions which will be used as evidence to summarize the fraud issue to the Auditors and get the fraudulent commission paid reverted back from the vendors.

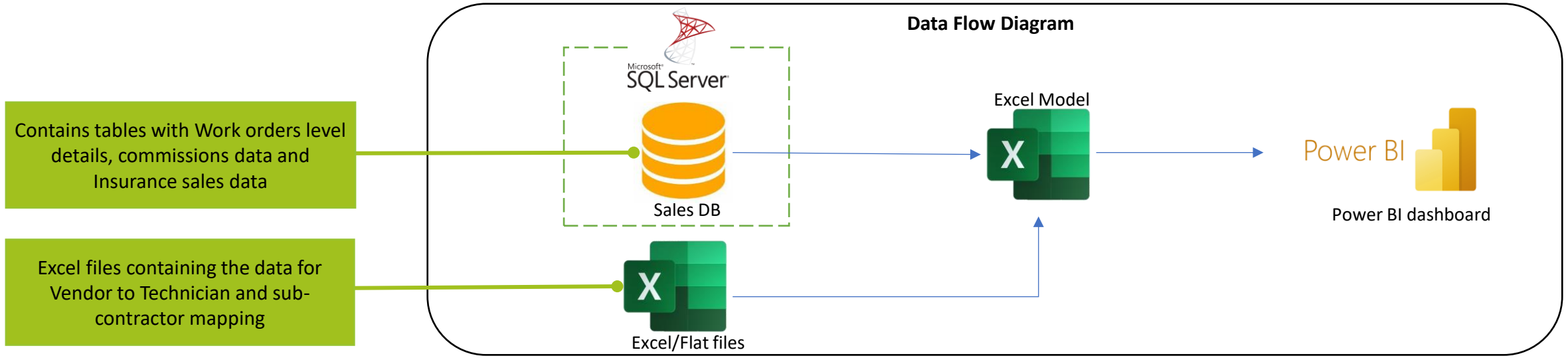
VALUE ADDITION

- Finalized the methodology for identifying fraudulent work orders (WO) based on the TAT for the WO (same day closure) and the time duration gap between the previous WO
- Combined data from multiple data sources including Work orders, Commissions, Technician details, sub-contractor, Insurance plans, WO location and built a data model for Power BI dashboard.
- Built a dashboard providing visibility into the # fraudulent WOs and commissions paid along with the functionality to adjust the criteria for fraudulent work orders if required. Also, allowing the users to deep dive into these work orders based on technician, location, sub-contractor etc.

IMPACT

- Identified evidence of fraudulent work orders allowing the client to **charge back ~12M USD to the vendor**
- Provided visibility **into ~40K fraudulent work orders** allowing the client to act on specific technician, location or sub-contractor related to WOs. The dashboard also provided insights into the process gaps behind these fraudulent WOs, thus helping the client avoid similar frauds in future.

METHODOLOGY/ APPROACH



1. Identified the Fraudulent WOs

Using the database table capturing WOs, we filtered out the WOs satisfying following conditions -

- Created within 3 days of closure of previous WO for same account
- Created and closed on same day
- Closed installation or equipment upgrade Work order

2. Mapped the commissions for the WOs

For ~40K WOs identified in step-1 mapped the commissions from a different source. There are 2 types of commissions.

- **Fulfilment commission**: Referring to commission paid to vendor for installation and upgrade (~12M USD)
- **Insurance commission:** Referring to commission paid to vendor for sale of Protection plans. (~20K USD)

3. Mapped other attributed to the WOs

Additional deep dive into the attributes contributing to the Fraudulent WOs including -

- Technician ID
- Sub contractor name
- Zip code (location)
- If Protection plan was purchased

4. Built a Power BI dashboard for Fraudulent WOs

Built a Power BI dashboard for visualizing the data related to the Fraudulent WOs for -

- Total # Fraud WOs and $ commissions
- Tracking Fraud WOs and commissions by day and month
- Deep dive into different attributes allowing the client to act on specific technician, location or sub-contractor

EXHIBIT #1 – SUMMARY OF FRAUDULENT WORK ORDERS AND ASSOCIATED COMMISSIONS

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ILLUSTRATIVE

Prior WO refers to previous WO created on same account number

Insurance comm. Refers to commission paid to vendor for sale of Protection plan to customer

Fulfilment (FF) comm. refers to commission paid to vendor for equipment install, upgrade or repair

1. This tab allowed the users to view exact quantum of WOs and related commissions in the selected period **fitting the criteria for fraudulent WOs.**
2. Also, provided visibility into the trend of fraudulent WOs over time.

Tech ID	Vendor	Vendor Sub-Contractor	Time since prior WO	Protection Plan sold?	State
All	All	All	All	All	All

4,070 Total Work Orders	$3,900,000 FF Commissions ($)	$1,980,000 Prior WO FF Com. ($)	$11,000 Insurance Comm. ($)	$35,000 Prior Ins. Comm. ($)

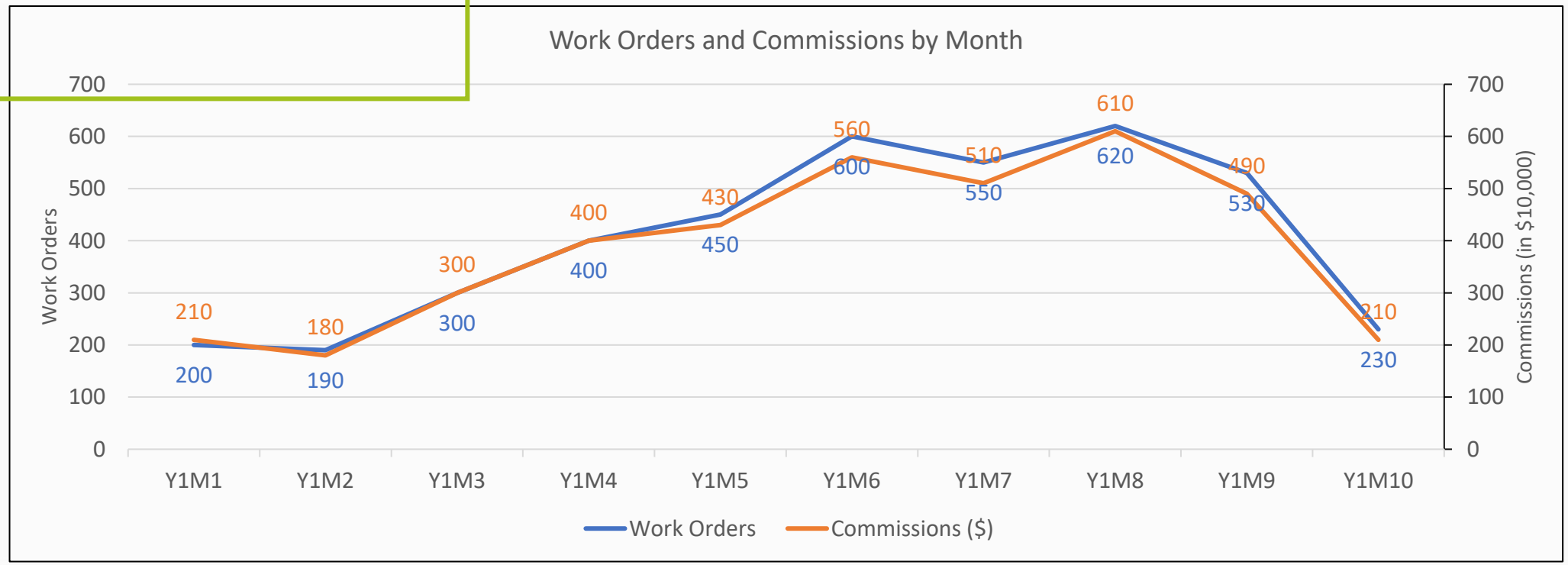

EXHIBIT #2a – DEEP DIVING INTO WORK ORDERS FOR SELECTED TECHNICIAN (1/3)

ILLUSTRATIVE

Slicers to deep dive into Technician, Vendors, vendor sub-contractors, state etc.

Filtered the WOs that were created within 3 days of closure of previous WO on same account

Selected Technician (Tech-8)

1. Tracking the work orders for selected Technician (Tech-8 in this case), to identify the suspicious activity
2. There was a sudden spike in Work orders meeting the fraud criteria from Y1M4

Tech ID	Vendor	Vendor Sub-Contractor	Time since prior WO	Protection Plan sold?	State
All	All	All	0, 1, 2, 3	All	All

350	$320,000	$102,000	$200	$500
Total Work Orders	FF Commissions ($)	Prior WO FF Com. ($)	Insurance Comm. ($)	Prior Ins. Comm. ($)

Technician ID	Work Orders	%Work Orders	Commissions (in $)
Tech-8	350	22.43%	$320,000
Tech-5	320	20.51%	$290,000
Tech-6	220	14.10%	$250,000
Tech-4	200	12.82%	$210,000
Tech-3	160	10.26%	$170,000
Tech-1	130	8.33%	$120,000
Tech-2	100	6.41%	$105,000
Tech-5	80	5.14%	$90,000

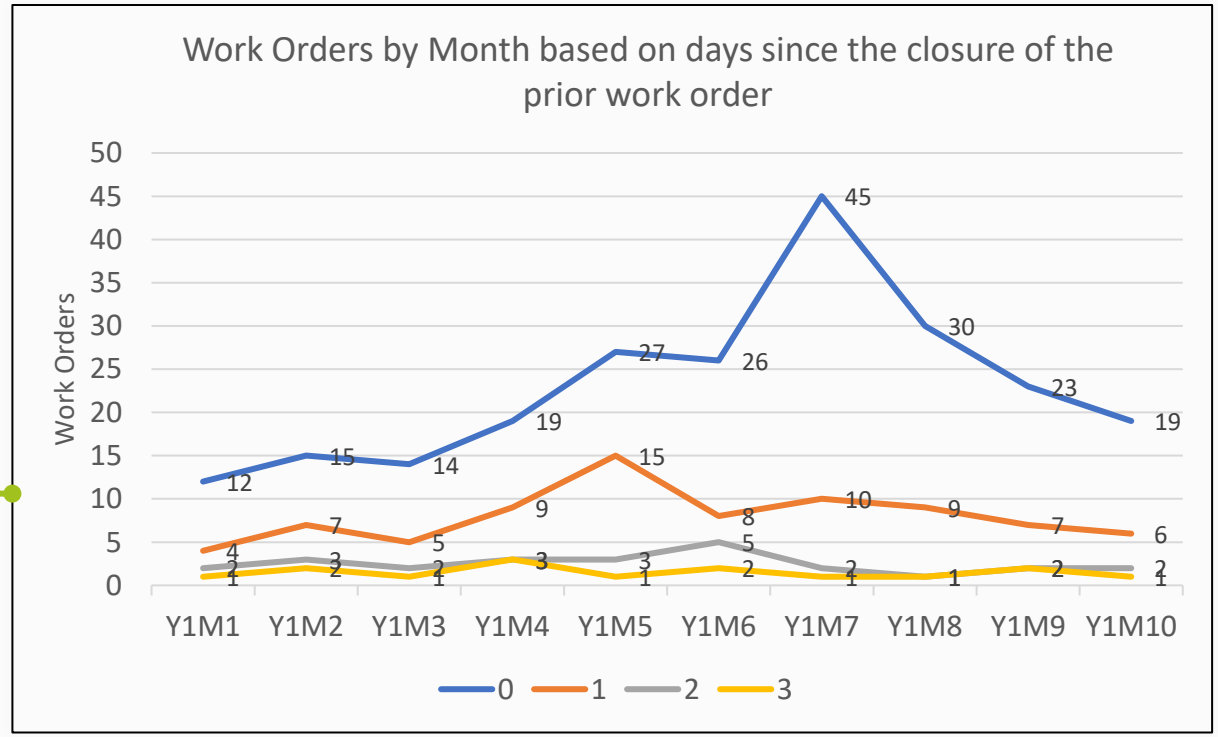

EXHIBIT #2b – DEEP DIVING INTO WORK ORDERS FOR SELECTED TECHNICIAN (2/3)

ILLUSTRATIVE

Slicers to deep dive into Technician, Vendors, vendor sub-contractors, state etc.

Tech ID	Vendor	Vendor Sub-Contractor	Time since prior WO	Protection Plan sold?	State
All	All	All	0, 1, 2, 3	All	All

350 Total Work Orders	$320,000 FF Commissions ($)	$102,000 Prior WO FF Com. ($)	$200 Insurance Comm. ($)	$500 Prior Ins. Comm. ($)

Selected Technician (Tech-8)

Technician ID	Work Orders	%Work Orders	Commissions (in $)
Tech-8	350	22.43%	$320,000
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Tech-1	130	8.33%	$120,000
Tech-2	100	6.41%	$105,000
Tech-5	80	5.14%	$90,000

1. Tracking the work orders commissions for selected Technician (Tech-8 in this case), to identify the suspicious activity
2. There was a sudden spike in commissions for Work orders meeting the fraud criteria from Y1M4

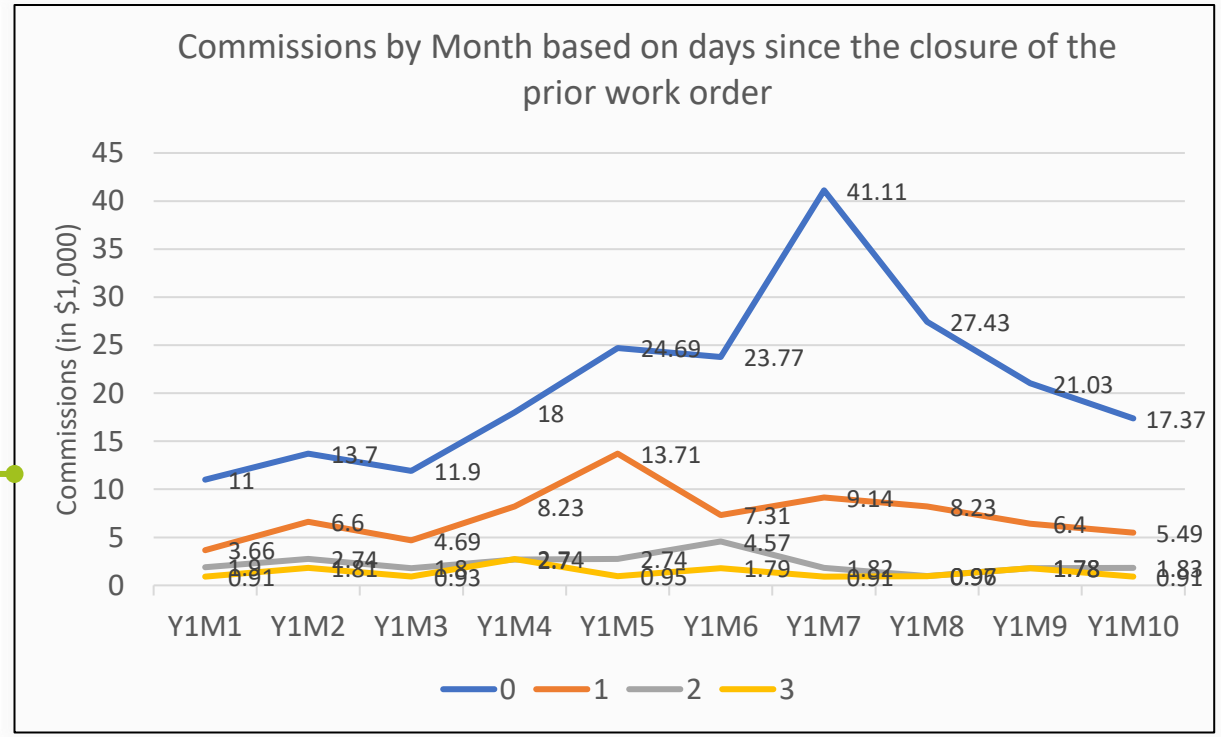

EXHIBIT #2c – DEEP DIVING INTO WORK ORDERS FOR SELECTED TECHNICIAN (3/3)

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ILLUSTRATIVE

Slicers to deep dive into Technician, Vendors, vendor sub-contractors, state etc.

Tech ID	Vendor	Vendor Sub-Contractor	Time since prior WO	Protection Plan sold?	State
All	All	All	0, 1, 2, 3	All	All

350 Total Work Orders	$320,000 FF Commissions ($)	$102,000 Prior WO FF Com. ($)	$200 Insurance Comm. ($)	$500 Prior Ins. Comm. ($)

Selected Technician (Tech-8)

Technician ID	Work Orders	%Work Orders	Commissions (in $)
Tech-8	350	22.43%	$320,000
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Work Order ID	City	BAN	Commissions (in $)
WO 1	City 1	Account 1	$2,500
WO 2	City 1	Account 2	$2,100
WO 3	City 1	Account 3	$1,950
WO 4	City 1	Account 4	$1,900
WO 5	City 1	Account 5	$1,800
WO 6	City 1	Account 6	$1,680
WO 7	City 1	Account 7	$1,620
WO 8	City 1	Account 8	$1,570
WO 9	City 1	Account 9	$1,500
WO 10	City 1	Account 10	$1,480

1. Referring to Exhibit – 2 and 3 we were able to identify a sudden spike in work orders meeting the fraud criteria for Tech-8
2. Provided client visibility into exact work orders for a technician, allowing them to take required action against the fraud

LEARNINGS

- Able to improve our understanding on different type of frauds possible on the vendor end and different methods in which we can identify these frauds
- Better understanding of the Vendor management processes used by client including the way in which the work orders and metrics associated with it are tracked in the databases