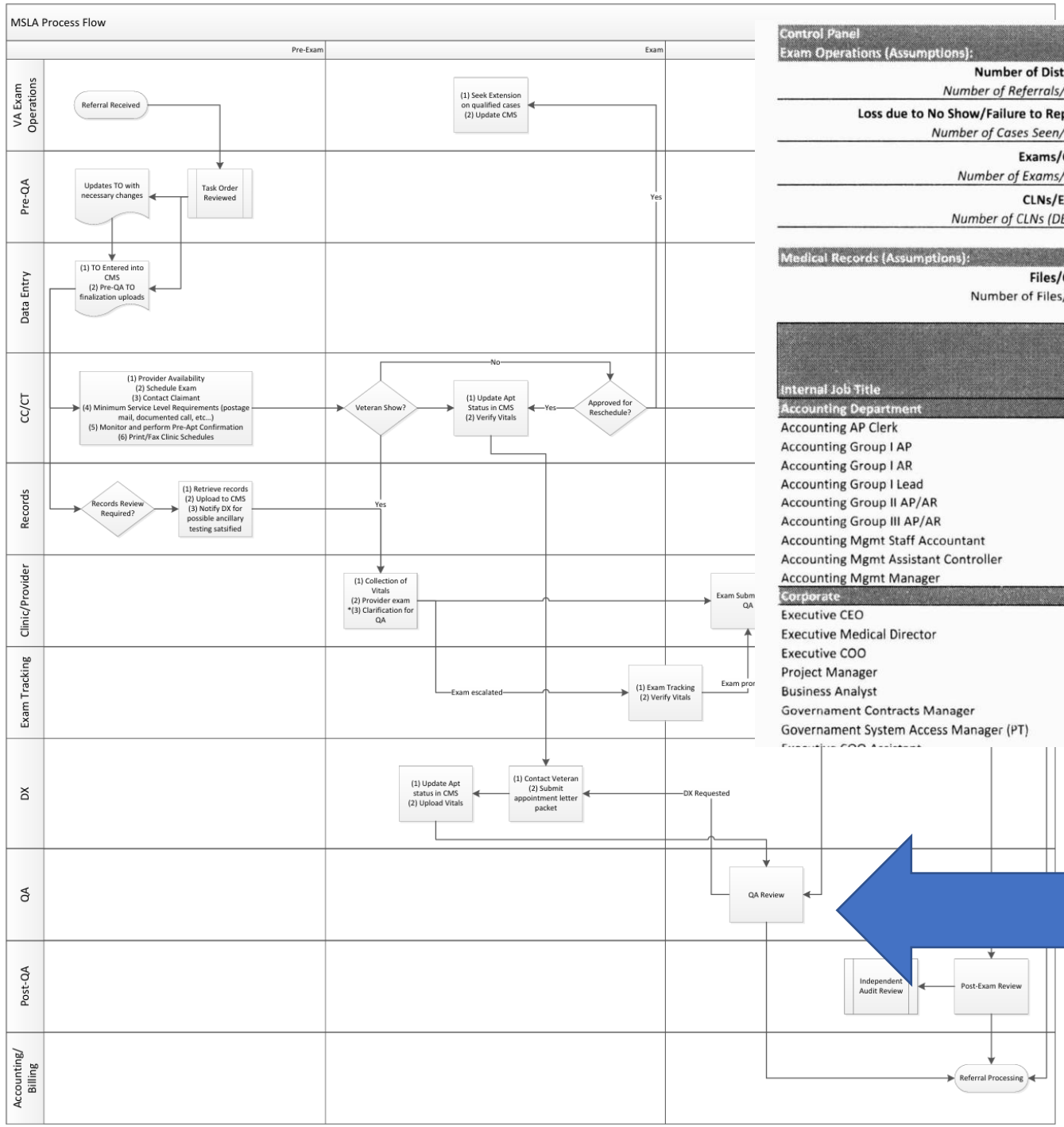
Veterans Affairs Vehicle Contract Contributions

- Optimization of business dynamics
  - Business capture, standardization, reporting and forecasting
- Digital transformation
- Growth opportunities

Samples of my work provided in next few slides



Control Panel Exam Operations (Assumptions):		
Number of Districts	**1**	**4**
Number of Referrals/Day	130	960
Loss due to No Show/Failure to Report	**0.08**	**0.08**
Number of Cases Seen/Day	120	883
Exams/Case	**1.70**	**1.70**
Number of Exams/Day	204	1,501
CLNs/Exam	**2.00**	**2.00**
Number of CLNs (DBQs)	408	3,002
Medical Records (Assumptions):		
Files/Case	**50**	**50**
Number of Files/Day	6,500	48,000

Building a regional (district) cost function with contract-centric KPIs.

Internal Job Title	Regular Temporary (Seasonal)	Productivity Unit	Productivity Rate Per Unit	Annual Salary	Hourly Rate	Current Staff Size (FTEs)	Current Annual Cost	Future Staff Size (Ramped Up) (FTEs)	Upcoming Annual Cost
Accounting Department						10	$ 412,560.00	32	$ 1,078,160.00
Accounting AP Clerk	Regular				$ 16.00	1	$ 33,280.00	1	$ 33,280.00
Accounting Group I AP	Regular	Cases Seen/Day	120		$ 14.00	1	$ 29,120.00	7	$ 203,840.00
Accounting Group I AR	Regular	Cases Seen/Day	60		$ 14.00	2	$ 58,240.00	15	$ 436,800.00
Accounting Group I Lead	Regular	Districts	1		$ 18.00	1	$ 37,440.00	4	$ 149,760.00
Accounting Group II AP/AR	Regular				$ 14.00	1	$ 29,120.00	1	$ 29,120.00
Accounting Group III AP/AR	Regular				$ 17.00	1	$ 35,360.00	1	$ 35,360.00
Accounting Mgmt Staff Accountant	Regular			$ 50,000.00		1	$ 50,000.00	1	$ 50,000.00
Accounting Mgmt Assistant Controller	Regular			$ 60,000.00		1	$ 60,000.00	1	$ 60,000.00
Accounting Mgmt Manager	Regular			$ 80,000.00		1	$ 80,000.00	1	$ 80,000.00
Corporate						7	$ 1,149,080.00	18	$ 1,879,080.00
Executive CEO	Regular			$ 350,000.00		1	$ 350,000.00	1	$ 350,000.00
Executive Medical Director	Regular			$ 350,000.00		1	$ 350,000.00	1	$ 350,000.00
Executive COO	Regular			$ 250,000.00		1	$ 250,000.00	1	$ 250,000.00
Project Manager	Regular			$ 75,000.00		0	$ -	1	$ 75,000.00
Business Analyst	Regular			$ 40,000.00		0	$ -	1	$ 40,000.00
Governament Contracts Manager	Regular			$ 75,000.00		0	$ -	1	$ 75,000.00
Governament System Access Manager (PT)	Regular			$ 35,000.00		0	$ -	1	$ 35,000.00

Mapping the entire contract lifecycle to standardize, measure and report.

U.S. Department of Veterans Affairs

Submitted to the U.S. Department of Veterans Affairs
Solicitation #: VA119A-15-R-0150
Submitted 11/04/2015 by Medical Support Los Angeles, A Medical Corporation

VOLUME I—TECHNICAL APPROACH, DISTRICT 1 (NORTH ATLANTIC)

ORIGINAL

Includes Amendements 1, 2, 3, 4
Valid for 180 Days

Submitted to:

U.S. Department of Veterans Affairs

Submitted by:

MSLA

Blocking GOV contacts

Medical Support Los Angeles, A Medical Corporation
Michael Lambert, CEO
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Technical Approach Table of Contents

Co-authored the technical survey of our RFP response. VA rated this effort "excellent". Our firm won this bid, estimated at US$1.6bn (IDIQ/FFP).

Table 4—MSLA Examination Order Process and Identification of Potential Problems

	Routine Processing of Examination Order	Potential Problem with Process Step & Resolution
Day 1: Receive examination order	• Examination order details from VA uploaded in CMS • CMS sends notice to MSLA Medical Professional (MP) that new case is received	*Order is illegible:* • Urgent communication sent to VA POC through CMS requesting clarification or resend • CMS Milestone set at 24 hours for VA response • Response received—move to routine processing
Day 1–2: Schedule case, send appointment letter (Veteran must receive appointment letter no later than 5 days before the examination)	• CMS activates the scheduling function at the time the examination order is entered • MSLA CC selects from Provider list auto-generated by CMS • CC contacts Providers office to verify details of CMS generated appointment. If Provider has no availability, CC moves down the list of Providers until an appointment can be made • CMS automatically generates appointment letter by exam type and Provider: type of appointment, date/time of appointment, map indicating facility location with door-to-door directions, MSLA contact information, and what to expect at examination • Appointment letters are mailed in envelopes clearly marked "C&P Examination Information Enclosed" • MSLA fulfillment team logs date/time of mailing in CMS • CMS posts appointment letter to its VA POC web-based portal • CMS sends C-File expected notification to VA POC if not already received or made available via VBMS.	*No Provider located within 50 mi. drive (general medical)/100 mi. drive (audio/MH/opto/etc.) from Servicemember/Veteran's address/no Provider is available:* • CMS automatically generates communication and a rationale to the VA POC requesting approval of the extended drive distance • CMS generates an issue notifications and sends them to the Quality Assurance Specialist (QAS) and Provider Development Team (PDT) leader dashboards for action • Resolution requires a reason – is it a sparsely populated area with few Providers needed or is a recruiting push required to fill the gap? • Resolution satisfies issue and is recorded in CMS—proceed to routine processing
Day 1– 2: Verify examination order quality	○ Pre-QA Team reviews claims/established conditions on exam order and compares to DBQ/Worksheets order to: ○ Verify correct exam was ordered ○ Identify possible diagnostic testing and flags C-File/E-File search and case for Provider review.	*Order is incorrect:* • MP sends urgent communication through CMS to VA POC dashboard requesting clarification and/or correction to exams • CMS flags issue as high-severity requiring 24-hour resolution • Clarification received; Pre-QA Team Lead verifies clarification and adjusts case where necessary. Changes create notification to CCs if changes affect current scheduling. • CMS and case file is updated; issue resolved
Day 5–8: Receipt of Claims Folder (C-File/Electronic) within 4 business days of exam request	• Cases requiring C-File review are marked in CMS at time of order entry • Electronic VBMS review moves directly to processing while Hard Copy C-File review is a conditional state, satisfied upon receipt of physical records and moved to processing • Medical records set in CMS based on first date of exam • C-File expectation notice sent to VA POC/MSLA CC & Records Technician dashboards if receipt deadline is approaching • CMS automatically marks VBMS records as received on obtaining records; CMS automatically notifies VAPOC and MSLA staff that C-File was received • Upon receipt, Hard copy C-Files are logged and scanned to CMS; made available to our examiners. Examiners have read-only rights through CMS. CMS does not allow users to download medical records. Searchable (OCR) sections, appropriate to each exam, are indexed and available for review.	*C-File not received:* • Medical Records Manager notifies VARO (four days prior to scheduled appointment) that C-File is missing ○ Coordinates with CC, MSLA Medical Report Review Team and QAS • Exam request may be cancelled if C-File not received within 5 days • Once C-File is received, routine processing begins
	Routine Processing of Examination Order	**Problem Identified with Examination Order**
Day 7–10: Appointment cancellation (48 hrs prior to exam)	• If Provider/VA/Veteran/Servicemember cancels appointment or if Provider/Veteran/Servicemember cancels due to emergency, MSLA CC contacts Veteran/Servicemember to reschedule appointment. CMS restricts reschedules to one per exam type, with additional reschedule requests only authorized by VA POC. • Reschedules/Cancellations tracked--monthly/quarterly reporting • Reason for cancellation is entered in CMS	*Multiple cancellations by a Provider:* • Three or more cancellations by Provider generates an issue notification in CMS • MSLA Provider Team Leader communicates with Provider to determine action plan and resolve issue
Day 8–11: Provide appointment reminder to Veteran	• To minimize no-shows, CMS notifies MSLA CC to confirm appointment with Veteran ○ CMS requires an entry made that Veteran contact was made no less than 48 hrs before appt date ○ Secured email automatically generated by CMS ○ Phone call is entered in CMS as direct contact made ○ Outcome of the appointment confirmation is recorded in CMS	*Indirect contact made by phone:* • CMS documents who received reminder phone call ○ Spouse/other person ○ Left message • CMS sets reminder for a follow-up call

Sample addressing process concerns.

Sample addressing performance requirements and quality targets.

Solicitation #: VA119A-15-R-0150 | Submitted: 11/04/2015
Medical Disability Examinations (MDEs) under Section 504 of the Veterans' Benefits Improvements Act of 1996 (Public Law 104–275; 38 U.S.C. 5101)

continuously analyze errors and insufficient or incomplete responses in individual report sections. By evaluating patterning in the DBQ completion process across Providers and QA personnel, MSLA has the ability to modify guidelines and instructions, which best meet VA expectations, to achieve the most optimum results.

The VA's Performance Requirement Summary is the crux of MSLA's QAP. MSLA acknowledges the critical indicators and associated metrics necessary to control performance and predict the future status of processes used on this contract. The MSLA team will use the metrics provided by VA to help determine when and where a problem is occurring and what type of impact it has or will have on performance. The metrics will be the basis for decisions concerning the implementation of best practices that will ensure quality and reliability in the execution of this program.

Table 7—VA Performance Requirement Summary (PRS)

Areas	Unsatisfactory Performance Standard	Expected Standard of Performance	Exceptional Performance Standard	MSLA's Performance Standards
Timeliness	Greater than 20 calendar days (for DBQ/C&P Exams, other than OCONUS or for Incarcerated Veterans)	20 calendar days (for DBQ/C&P Exams, other than OCONUS or for Incarcerated Veterans)	Less than 20 calendar days (for DBQ/C&P Exams, other than OCONUS or for Incarcerated Veterans)	Maintain current performance of 18 average processing days.
	Greater than 30 calendar days (for BDD, IDES, OCONUS Exams or for Incarcerated Veterans)	30 calendar days (for BDD, IDES, OCONUS Exams or for Incarcerated Veterans)	Less than 30 calendar days (for BDD, IDES, OCONUS Exams or for Incarcerated Veterans)	Maintain current performance of 18 average processing days.
Quality Review	90% or less	92%	94% or greater	98% or greater, maintaining 2% or lower error rate.

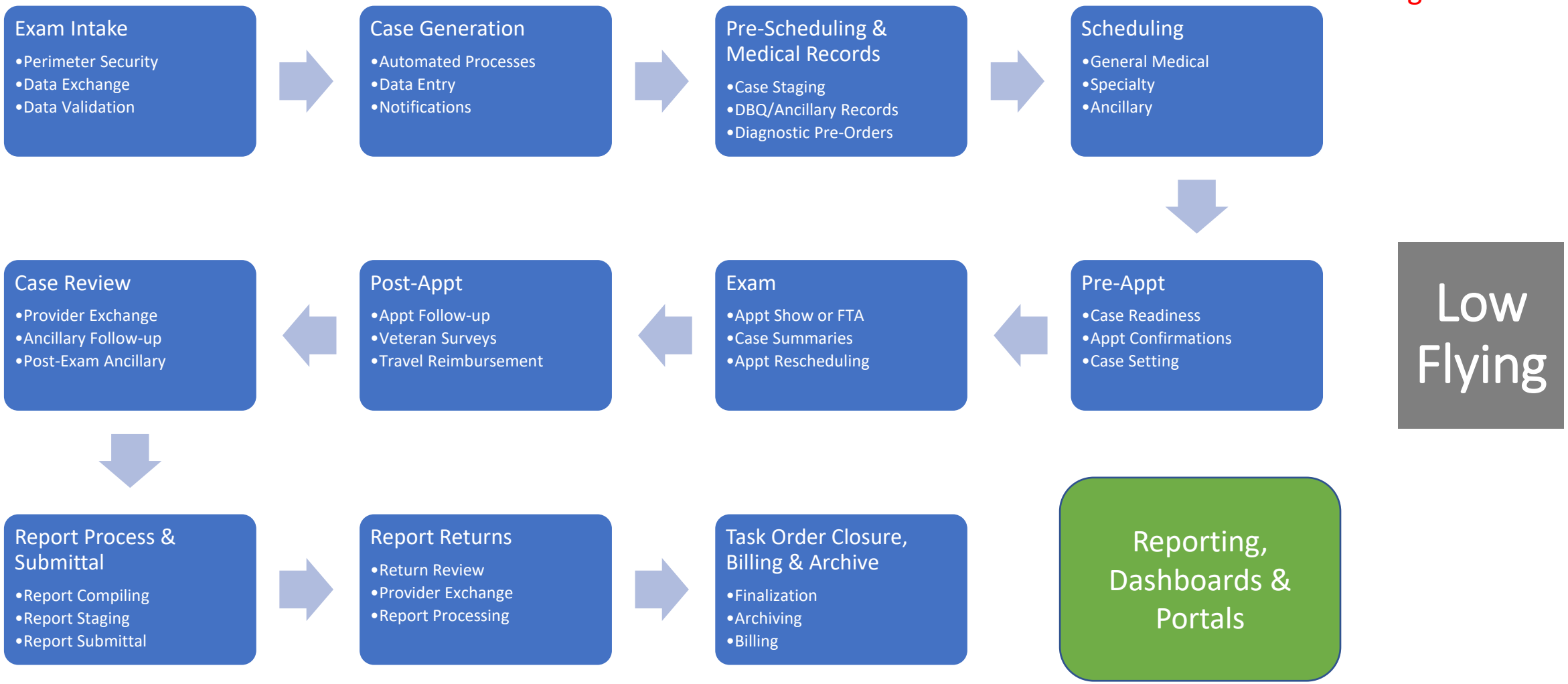
MSLA has a documented track record of exceeding the quality requirements required by previous and current VA contracts. As an example, on our DEM contract, we realize an average delivery time of 18 days, while the contract requirement is 26 days. This has been achieved while maintaining a 97% sufficient and adequate exam rate. A second example is on MSLA's Social Security Administration contract, where we processed more than 4,000 mental health and physical disability exams per month. Our YTD performance metrics for this customer include 97% of medical reports submitted within 10 days from the appointment date, with a 99% sufficient and adequate exam rate.

While the Government's PRS serves as the baseline of our QAP, MSLA also identifies the following quality targets for the VBA MDE program, shown in *Table 8*.

Table 8—MSLA Quality Targets for MDE Program

MSLA Objective	MSLA Performance Threshold	MSLA Control
Appointment Wait Times	**MSLA reduces the wait time for appointments. 95%** of Veterans/Servicemembers seen within 20 minutes of scheduled appointment time, exceeding the 1-hour wait time window per VBA	CMS
Scheduling	**95%** of exams scheduled within **3 days** of authorization receipt, exceeding the 5-day requirement	CMS
Report Reliability	**98%** of examination reports deemed sufficient	CMS; quality
Staff Qualifications	**100%** of records pulled indicate active unrestricted license to practice, credentialing standards for VA and training curriculum records current	CMS
Diagnostic Testing	**100%** of diagnostic tests shall be deemed appropriate	CMS; audit
Communication of Test Results	**100%** of test results communicated to Veteran/servicemember. Abnormal/critical—immediately; Abnormal/not critical—48 hours.	CMS

Sample identifying process critical stages.



Challenges

Exam Intake
- Logical Security
- IS Continuity

Case Generation
- Linear vs. Parallel Operations

Pre-Scheduling & Medical Records
- Ancillary for Diagnosis

Scheduling
- Provider Network/Availability
- Distance Requirements

Pre-Appt
- Medical Records before Exam

Exam
- Fail to Appear (FTA)
- Rescheduling Responsiveness

Post-Appt
- Surveys/Reimbursement

Case Review
- Ancillary for Diagnosis
- Provider Availability for Response

Report Process & Submittal
- Satisfy All Exam Requirements

Report Returns
- Provider Availability for Response

Task Order Closure, Billing & Archive
- Incentives/Disincentives Tracking

Reporting, Dashboards & Portals

Sample identifying process challenges.

Provider Network + Provider Availability = Reports Outbound

Contract Segments	Sub-Segments			Segment Challenge
1. Provider Network	Recruiting	Credentialing	Training	**Fee Schedule**
2. Exam Intake	Perimeter Security	Data Exchange	Data Validation	**Logical Security**
3. Case Generation	Automated Processes	Data Entry	Notifications	**Parallel Operations**
4. Pre-Scheduling/Medical Records	Case Staging	DBQ/Ancillary Records	Diagnostic Pre-Orders	**Ancillary Must Have Justification**
5. Scheduling	General Medical	Specialty	Ancillary	**Provider Network**
6. Pre-Appt	Case Preparation	Appt Confirmations	Case Setting	**Medical Records Before Exam**
7. Examination	Appt Show/FTA	Case Summaries	Appt Rescheduling	**Failure To Appear (FTA)**
8. Post-Appt	Appt Follow-up	Veteran Surveys	Travel Reimbursements	**Surveys/Reimbursements**
9. Case Review	Provider Exchange	Ancillary Follow-up	Post-Exam Ancillary	**Ancillary Required For Diagnosis**
10. Report Processing	Report Compiling	Report Staging	Report Submittal	**Task Order Requests**
11. Report Returns	Return Review	Provider Exchange	Report Processing	**Provider Response**
12. Task Order Closure	Finalization/Archiving	Billing	Reporting	**Retention/Accuracy**

Strength of Performance → Timeliness

Sample summary of process segments, challenges and contract goals.

Providers

- Interactive DBQs
- Indexed Medical Records
- Ancillary Reports
- Chat with QA
- Medical Records Locator Services
- Add'l Exam Requests

Veterans

- Portal Registration
- Notifications
- Exam Details
- Exam Input (e.g., Medical Histories)
- Reimbursement
- Maps

Staff

- Customized by Operational Needs
- Timeliness Priority Mgmt.
- Alerts & Escalations

User Interfaces

Sample summary of User Experience (UX) critical design areas.

VA

- Portal Pre-Registration
- Program Analytics
- Alerts & Escalation Request Services

Mgmt. & Reporting

- Timeliness & Volume Flow Mgmt.
- Program Analytics
- Active Operational Costing
- Notification Monitoring

User Interfaces

Sample summary of User Experience (UX) critical design areas.

Court Contributions

- Optimization of business dynamics
  - Business capture, standardization, reporting and forecasting
- Digital strategy shift
- Quality Management program build

Samples of my work provided in next few slides

Resolving Identified Data Integrity Discoveries

- Key concern from the Governance Committee: Accuracy of data
- Some identified sources
  - Outdated Servers and Server Hang-ups (loss of information)
  - Inaccurate Data Entered/Translated
    - Address, Warrant, State Reporting, Collections, Financial Mgmt., Attorney, Officer, Driver's License, Bond Forfeiture, Document Management, Identity Information
  - Knowledge Gap
  - Unsettled Events (actions performed without case updates/migration)
  - Cases Outside Workflow
  - Negative Balances and Payment Distribution Errors

Phase1 Updates

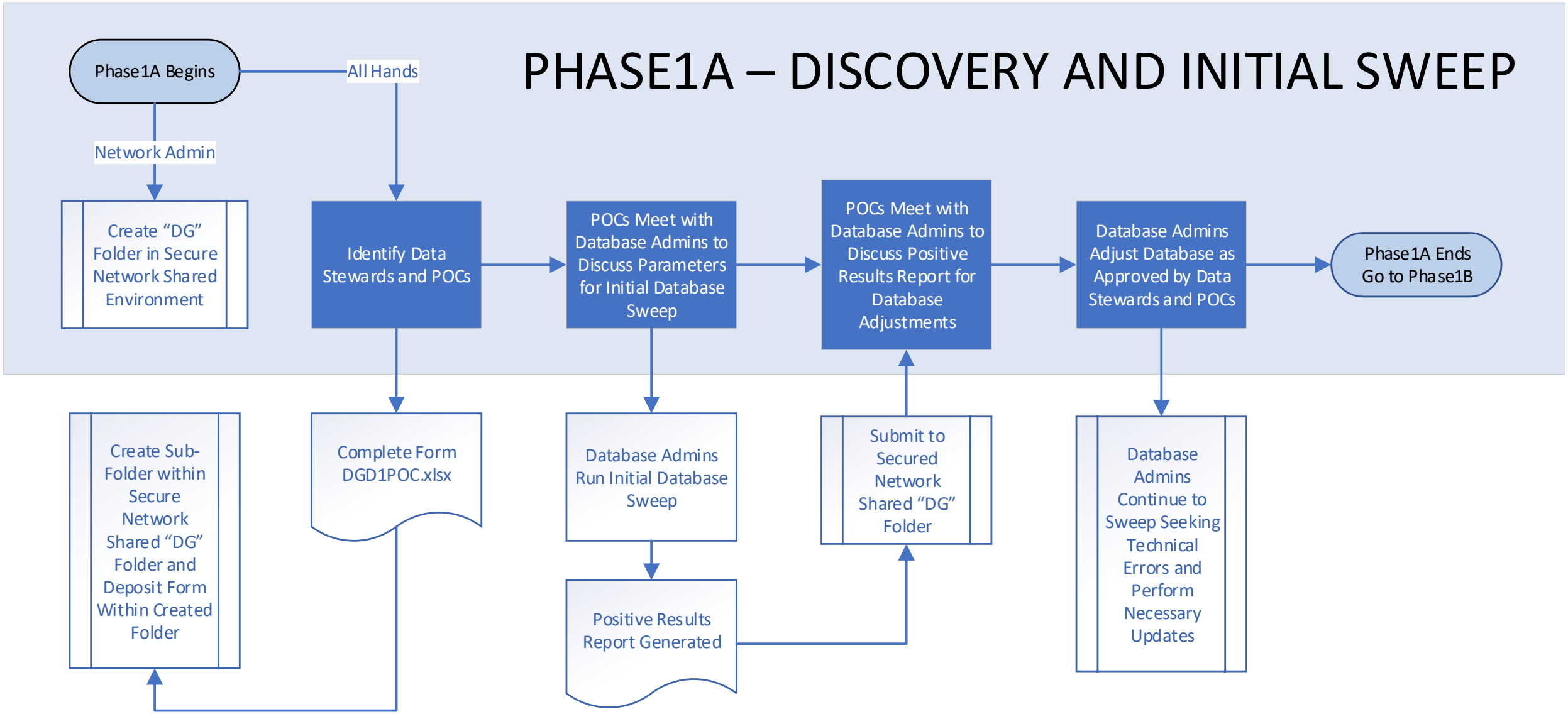
Phase2 Validation Checkpoints & Relational Segments

Phase2 Training Standardization

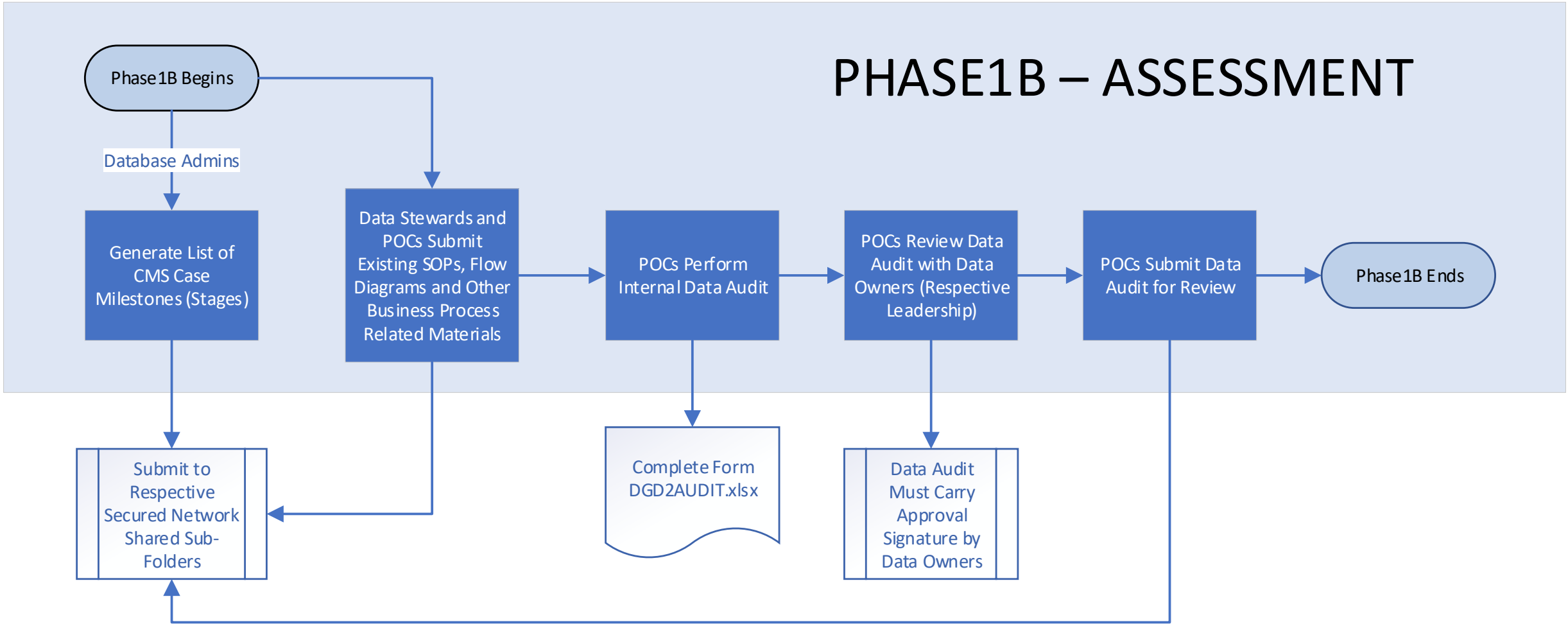
Phase2 Validation Checkpoints & Error Handling

Sample summary of initial IT infrastructure improvement identification.

PHASE1A – DISCOVERY AND INITIAL SWEEP



Sample summary of initial IT infrastructure improvement planning.



Sample summary of initial IT infrastructure improvement planning.

Data Assessment

- Who is involved in data creation/updating (accountability)?
- When is data generated/updated (process triggering)?
- How is data generated/updated (quality parameters)?
- What data is generated/updated (collection)?
- What data should not be modified (duplication)?
- What are the minimum data criteria (validation)?
- Where is the data going (communication)?
  - Where (Who) are the originating/sourcing departments (also describe external sources/targets)?
  - Where is the physical data transferred and stored (also describe external sources/targets)?
- Why is the data necessary (justification)?
- How long is the data needed (archiving)?

Sample summary of initial IT infrastructure improvement planning.

WARRANT FORGIVENESS AND COURT IN THE COMMUNITY

Addressing Inequities?

Two-year research study examining court case mgmt. data to address concerns raised by City Council on defendant demographics and other variables.

Swift, Philip Ph.D. & Hejazifar, Hamid
Philip.swift@fortworthtexas.gov & hamid.hejazifar@fortworthtexas.gov

Contents

```
Call:
glm(formula = compliance ~ defAge + defGender + defRace + numCases +
    caseAgeYrs + owed + numPymts + pymtAgeYrs + wrntActive, family = "binomial",
    data = tpp1Analysis)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-3.5741  -0.4047  -0.0001   0.5100   3.3555

Coefficients:
             Estimate Std. Error z value Pr(>|z|)
(Intercept)  1.156e+00  1.039e+00   1.113  0.26573
defAge       9.709e-03  5.833e-03   1.664  0.09603 .
defGenderM   1.844e-01  1.269e-01   1.454  0.14601
defRaceB    -1.916e-01  1.010e+00  -0.190  0.84962
defRaceH     2.965e-01  1.491e+00   0.199  0.84240
defRaceN     1.910e+00  3.322e+00   0.575  0.56548
defRaceO     7.325e-02  1.048e+00   0.070  0.94430
defRaceW     4.336e-01  1.010e+00   0.429  0.66765
numCases     1.357e-01  4.962e-02   2.735  0.00624 **
caseAgeYrs  -1.861e-01  2.754e-02  -6.758  1.4e-11 ***
owed        -3.453e-03  2.576e-04 -13.406  < 2e-16 ***
numPymts     1.768e-01  1.247e-02  14.175  < 2e-16 ***
pymtAgeYrs  -5.703e-03  3.881e-02  -0.147  0.88320
wrntActive  -1.784e+01  2.966e+02  -0.060  0.95204
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 3034.7  on 2537  degrees of freedom
Residual deviance: 1526.4  on 2524  degrees of freedom
AIC: 1554.4

Number of Fisher Scoring iterations: 18

> PseudoR2(tppLR9unres, c("McFadden", "Nagel"))
  McFadden Nagelkerke
 0.4970241  0.6423550
```

There’s some confidence generated in the above result. Notice the deviance residuals are centered around the median of near zero with approximately symmetrical distribution on both sides. Although logistic regressions do not endorse any specific R-squared (R2) calculation, this study used McFadden and Nagelkerke, where the latter is an adjusted version of Cox & Snell – both popular methods to estimate the OLS R2. The McFadden resulted in ~0.5 and Nagelkerke was 0.64, loosely interpreted as 50%/64% of the variance is explained in the model.

Conclusion

A logistic regression allowed us to examine a dichotomous outcome data set to identify statistical significance between the number of cases, age of cases, amounts owed and number of payments, meaning a unit increase in any of these variables would lead to statistically significant log odds changes in compliance. We also observed joint statistical significance in the demographic data, length of payment period, and warrant activity. The data suggests potential economic clues for the individually significant variables. For example, although the data suggests each unit increase in defendant cases increases the log odds of compliance (i.e., as you increase the number of cases, the log odds of compliance increases – somewhat counterintuitive), the age of case and amounts owed reduce the log odds of compliance, with a stronger statistical significance of $pV < 0.1\%$. This information carries value because it suggests we should perform a second examination using geolocation to include average income per zip code in the model and further understand potential differences between income levels. It’s possible this information may lead towards identifying optimized payment plans and periods that would help defendants improve compliance. Understanding the link between jointly significant variables in defendant demographics, payment period length and warrant activity may also provide clues with deeper analysis.

Logistic Regression study examining various court case mgmt. data to identify statistical relationships.

Figure 5: ARIMA(12,0,12) Model Forecast

Automatic ARIMA Forecasting
Selected dependent variable: CLOSEDCASES
Date: 04/24/22 Time: 22:53
Sample: 1/01/2016 12/31/2019
Included observations: 1290
Forecast length: 182
Model maximums: (12,12)0(0,0)
Regressors: C

Number of estimated ARMA models: 169
Number of non-converged estimations: 1
Selected ARMA model: (8,12)(0,0)
AIC value: 3.4168834356

Figure 6: ARIMA(4,0,4) Model Forecast

Automatic ARIMA Forecasting
Selected dependent variable: CLOSEDCASES
Date: 04/24/22 Time: 22:22
Sample: 1/01/2016 12/31/2019
Included observations: 1290
Forecast length: 0
Model maximums: (4,4)0(0,0)
Regressors: C

Number of estimated ARMA models: 25
Number of non-converged estimations: 0
Selected ARMA model: (3,2)(0,0)
AIC value: 3.42908134972

Figure 3: Correlogram of Cases Closed

Correlogram of CLOSEDCASES
Date: 04/24/22 Time: 22:24
Sample: 1/01/2016 12/31/2019
Included observations: 1290

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.048	0.048	2.9715	0.085
		2	-0.032	-0.035	4.3172	0.115
		3	-0.016	-0.012	4.6287	0.201
		4	-0.009	-0.008	4.7255	0.317
		5	0.039	0.039	6.7251	0.242
		6	0.067	0.062	12.496	0.052
		7	0.084	0.081	21.607	0.003
		8	-0.046	-0.049	24.405	0.002
		9	-0.033	-0.022	25.828	0.002
		10	-0.017	-0.016	26.194	0.003
		11	-0.023	-0.028	26.866	0.005
		12	-0.018	-0.029	27.287	0.007
		13	0.057	0.051	31.554	0.003
		14	0.021	0.016	32.121	0.004
		15	-0.036	-0.023	33.806	0.004
		16	-0.031	-0.021	35.043	0.004
		17	-0.009	-0.003	35.157	0.006
		18	-0.013	-0.015	35.382	0.008
		19	0.006	-0.001	35.437	0.012
		20	0.070	0.058	41.884	0.003
		21	0.011	0.011	42.034	0.004
		22	0.026	0.041	42.900	0.005
		23	0.005	0.008	42.931	0.007
		24	-0.032	-0.030	44.238	0.007

Figure 7: VAR(2) Model Estimation

Vector Autoregression Estimates
Vector Autoregression Estimates
Date: 04/24/22 Time: 22:30
Sample (adjusted): 1/03/2016 12/31/2019
Included observations: 1288 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	CLOSEDCA...	PYMTPLANORDERED
CLOSEDCASES(-1)	0.013005	-0.132267
	(0.03233)	(0.16149)
	[0.40220]	[-0.81902]
CLOSEDCASES(-2)	-0.010928	-0.041255
	(0.03234)	(0.16151)
	[-0.33794]	[-0.25544]
PYMTPLANORDERED(-1)	0.015220	0.128111
	(0.00648)	(0.03237)
	[2.34793]	[3.95713]
PYMTPLANORDERED(-2)	-0.009801	0.027069
	(0.00649)	(0.03243)
	[-1.50957]	[0.83474]
C	0.868931	4.320828
	(0.05535)	(0.27642)
	[15.7000]	[15.6311]

Figure 8: Granger Causality Test for VAR(2)

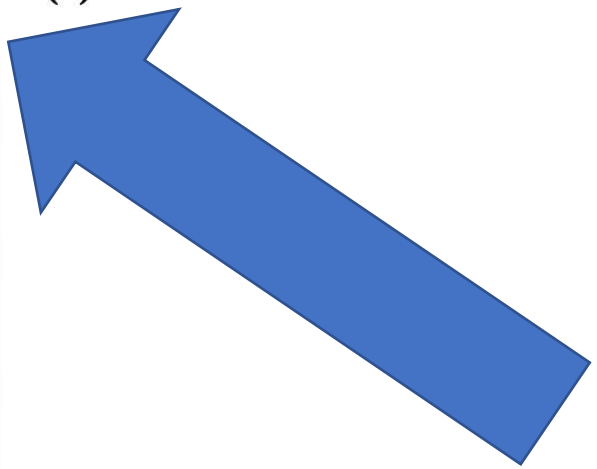
VAR Granger Causality/Block Exogeneity Wald Tests
Date: 04/24/22 Time: 22:33
Sample: 1/01/2016 12/31/2019
Included observations: 1288

Dependent variable: CLOSEDCASES

Excluded	Chi-sq	df	Prob.
PYMTPLANORDERED	7.183158	2	0.0276
All	7.183158	2	0.0276

Dependent variable: PYMTPLANORDERED

Excluded	Chi-sq	df	Prob.
CLOSEDCASES	0.746862	2	0.6884
All	0.746862	2	0.6884



ARIMA/VAR studies examining various court case mgmt. data impacting the closing of a case.

Table 16 Prediction Model and Payment Estimator

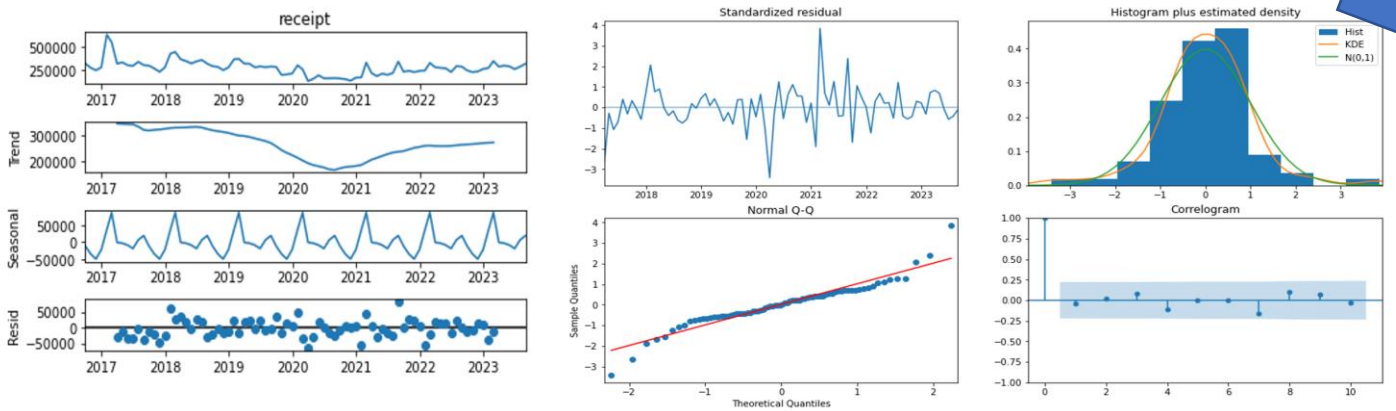
	Intercept	1.156	Asian	Black	Hispanic	Native Am.	Other	White
37.41	defAge	0.009709						
1	defGen*	0.1844						
0.420291667	defRace		0	-0.1916	0.2965	1.91	0.07325	0.4336
5.145	numCases	0.1357						
5.608	caseAgeYrs	-0.1861						
2500	owed	-0.003453						
56	numPymts	0.1768						
4.629629 63	pymtAgeYrs	-0.005703						
0	wrntActive	-17.84						
95.0%	**P(MODEL)**					monthly payment:		$ 45.00

Note: 1=Male 0 = Female

Created the court's first "Judge's Calculator and Payment Estimator" helping to forecast monthly payment completion probabilities based on each defendant's unique case characteristics.

Request 1: FY24 Forecast (SARIMA model)

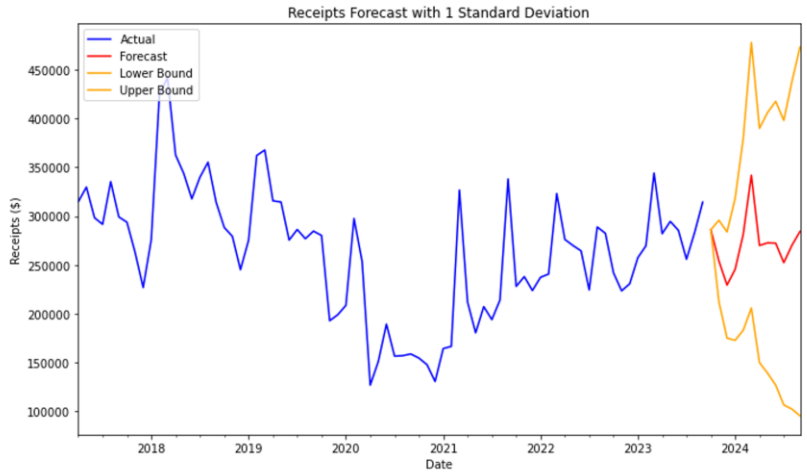
- Upward trend post-COVID with seasonality evidenced and residuals/Q-Q centered around zero/mean, respectively
- Normal distribution and Correlogram shows no non-zero lag



SARIMA and Neural Network budget forecasting.
Both models met new backtesting requirements to be within 3% of actuals.

Request 1: FY24 Forecast (SARIMA model)

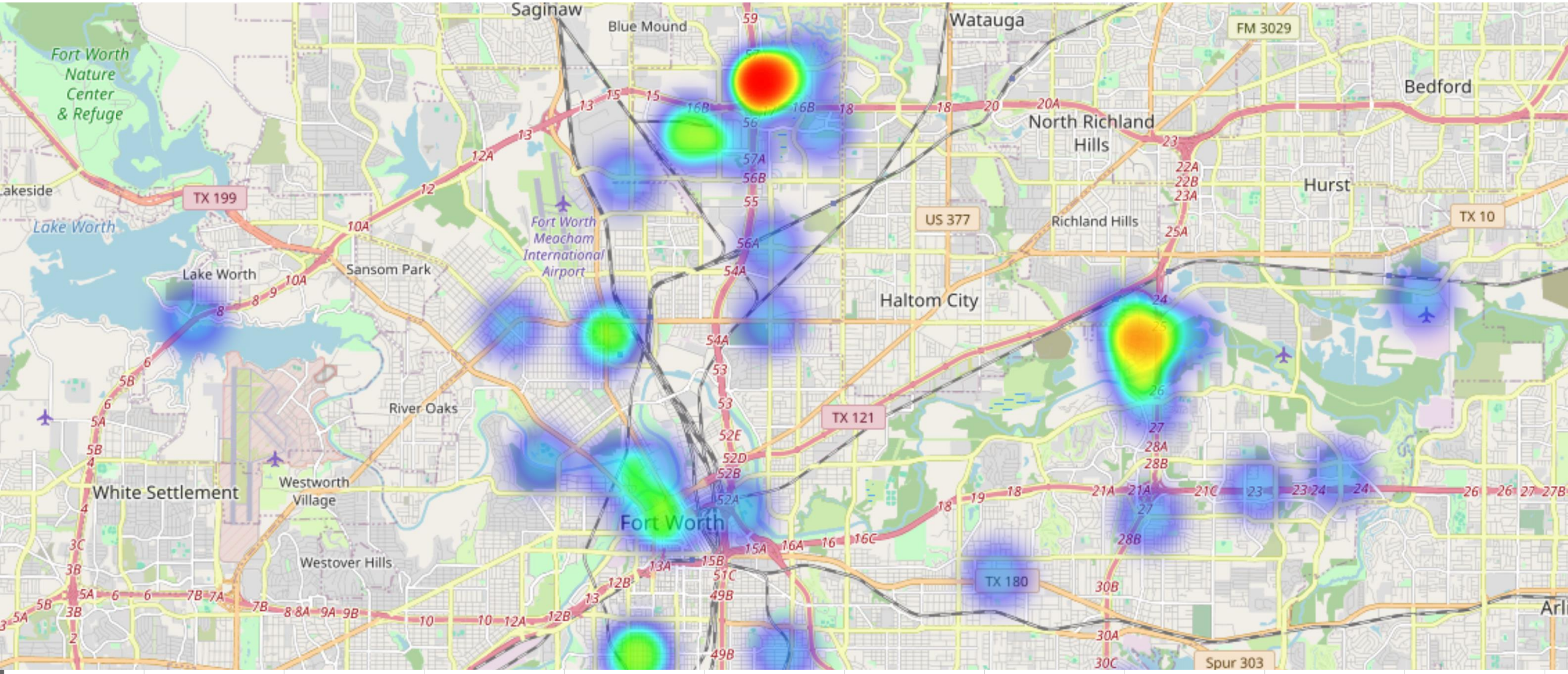
- FY24 Forecast: $3,259,834.11



Request 1: FY24 Forecast (Neural Network model)

- Lookback refers to how many previous data points considered when making a prediction (longer lookback provides more historical context, while a shorter focuses on more recent trends)

- Forecasts for FY24:
  - Lookback 3 months: $3,764,345.99
  - Lookback 12 months: $3,413,888.82
  - Lookback 21 months: $3,073,844.64
- Average of 3/12/21 lookbacks: $3,417,359.82
- Average of 12/21 lookbacks: $3,243,866.73



CaseNumber	OffenseDate	ViolationCode	ViolationDescriptic	DistrictNumber	PrimaryOffenseAdc	PrimaryOffenseAdc	SecondaryOffenseA	SecondaryOffenseA	LAT	LONG
2021 JV 000465	6/23/2021	1202	ENGAGING IN PREF	8	901	NORTH POLY FREE	NULL	NULL	32.75562681	-97.31660566
2021 JV 000611	8/6/2021	1203	SPECTATING AT A S	4	5457	SANDSHELL DRIVE	NULL	NULL	32.84500034	-97.31081514
2021 JV 000612	8/6/2021	1203	SPECTATING AT A S	4	5457	SANDSHELL DRIVE	NULL	NULL	32.84500034	-97.31081514
2021 JV 000614	8/6/202	1203	SPECTATING AT A S	4	5457	SANDSHELL	NULL	NULL	32.84500034	-97.31081514

Utilized City of Fort Worth PD data and machine learning to forecast future speeding hotspots within the city.