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RESULTS
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Using Data Analytics to Improve Outcomes: State and Federal Examples

*Washington Lean Transformation Conference
October 17, 2017 – 12:45 p.m. - Ballroom D*

Presenters: Scott Harra & Robert Shea

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Data Analytics in Government

- ✓ How the use of data has matured in government
- ✓ Practical uses in managing organizations
- ✓ Moving to a predictive analytics state
- ✓ How expectations are changing

Evolution of Data in Government

- ✓ Not collected
- ✓ Collected, but not analyzed
- ✓ Fear that “data will be used against us”
- ✓ Used to manage core processes
- ✓ Used to identify problems & to take corrective action – continuous improvement
- ✓ Used as a predictive analytical tool

Running an organization without data is like:



Running an organization without data is like:



Running an organization without data is like:



Running an organization without data is like:



Journey to Data Maturity Fundamentals Map



FOUNDATIONS

KEY GOALS



OREGON YOUTH AUTHORITY
PERFORMANCE MANAGEMENT SYSTEM
FUNDAMENTALS MAP

January 1, 2016

CORE PROCESSES

PROCESS OWNERS

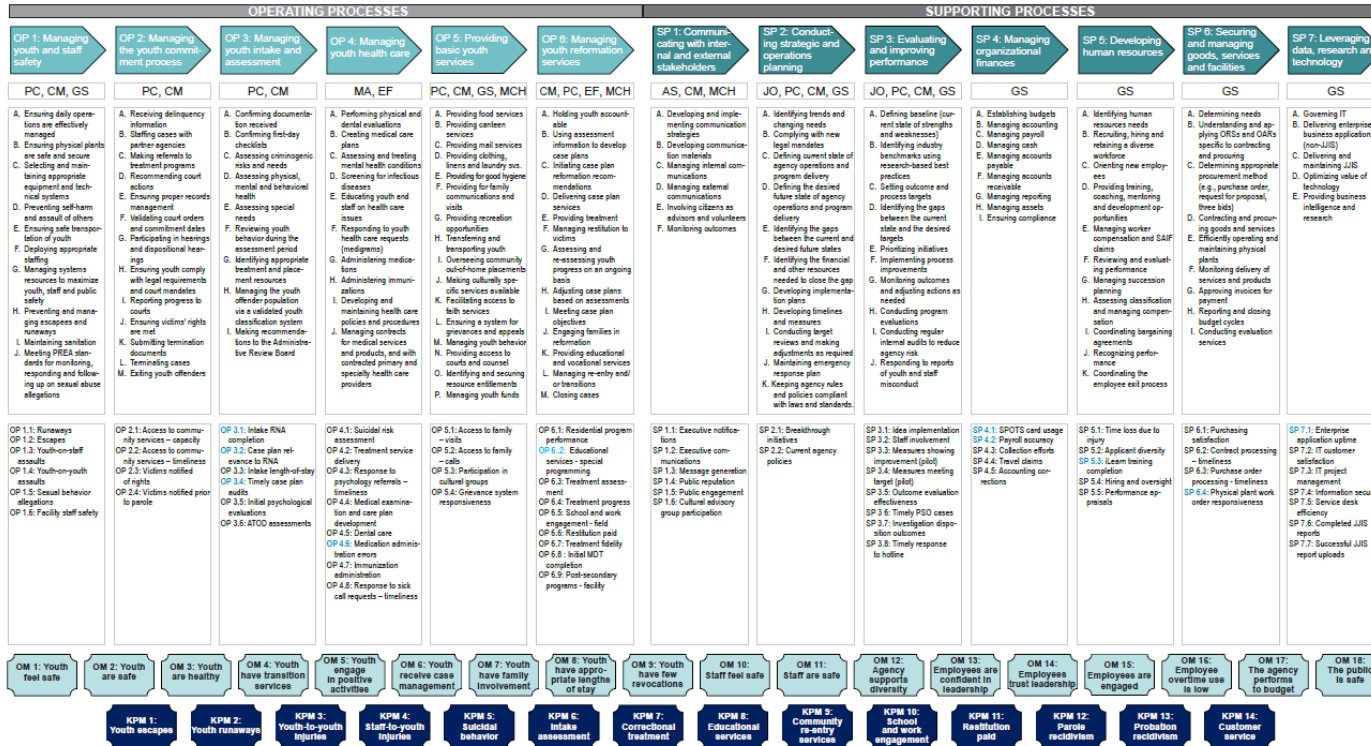
SUB PROCESSES

PROCESS MEASURES

Blue indicates measures with sub-measures

OUTCOME MEASURES

KEY PERFORMANCE MEASURES



Journey to Data Maturity Scorecards

OYA Agency-Wide - All Measures: Q1 2016
Data collection through 3/31/2016

ID	Measure	Definition	Red	Yellow	Green	Desired Direction	Data collection period												Trend	Owner
							Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016		
OP 2.3	Victims notified of rights	Percent of identified victims that receive notice of rights within 30 days of an OYA youth's commitment to a YCF.	< 91	91 to 97	>= 97	↑	--	83	68	82	80	91	84	83	99	95	95	97	✓	Cox
Note:			Updated: Q1, Q2, Q3, Q4												Current target: 85.					
OP 2.4	Victims notified prior to parole	Percent of OYA youth's victims with requested rights that receive notification of parole prior to a dual parole date.	< 91	91 to 97	>= 97	↑	--	80	73	79	70	62	21	57	83	50	81	100	✓	Cox
Note:			Updated: Q1, Q2, Q3, Q4												Current target: 85.					
OP 3.0 Managing youth intake and assessment																				
OP 3.1a	Intake RNA completion - facility	Percent of facility youth whose RNA assessments are completed within 30 days of commitment (KPI# 6).	< 85	85 to 90	>= 90	↑	99.8	100	100	95.2	95.9	88	92.5	7.8	85.7	96.4	100	96.7	✓	McClellan
Note: 58 of 60 completed on time			Updated: Q1, Q2, Q3, Q4												Current target: 95.					
OP 3.1b	Intake RNA completion - probation	Percent of probation youth whose RNA assessments are completed within 30 days of commitment (KPI# 6).	< 85	85 to 90	>= 90	↑	89.9	88.9	82.8	91.7	86.5	77.3	85.7	84.7	87.5	85.5	81	82.1	✓	Cox
Note: 51 of 62 completed on time			Updated: Q1, Q2, Q3, Q4												Current target: 90.					
OP 3.2a	Case plan relevance to RNA (facilities)	Percent of audited case plans which reflect risk needs assessment.	< 85	85 to 90	>= 90	↑	94.7	97.2	97.2	91.3	100	100	100	92	100	96.9	97.6	100	✓	McClellan
Note: 31 of 31 were relevant			Updated: Q1, Q2, Q3, Q4												Current target: 100.					
OP 3.2b	Case plan relevance to RNA (field)	Percent of audited case plans which reflect risk needs assessment.	< 85	85 to 95	>= 95	↑	95.4	97.4	98.8	94.1	98.5	98.6	97.6	100	100	100	100	98.4	✓	Cox
Note: 62 of 63 were relevant			Updated: Q1, Q2, Q3, Q4												Current target: 98.					
OP 3.3	Intake length-of-stay	Average LOS during facility intake process.	> 60	60 to 45	<= 45	↓	33.3	33	30.5	23.6	25.3	29.9	47.1	36.8	28.7	24.4	29.4	38.3	✓	McClellan
Note:			Updated: Q1, Q2, Q3, Q4												Current target: 35.					
OP 3.4a	Timely case plan audits - facilities	Percent of case plan audits due that were completed during the quarter.	< 85	85 to 90	>= 90	↑	80.9	75	81.8	92	81	53.1	58	62.5	56.1	62.5	74.5	58.5	✓	McClellan
Note: 31 of 53 were timely			Updated: Q1, Q2, Q3, Q4												Current target: 80.					
OP 3.4b	Timely case plan audits - field	Percent of case plan audits due that were completed during the quarter.	< 85	85 to 95	>= 95	↑	95.6	100	94.4	97.7	93.1	97.3	94.3	100	91.7	94.4	100	98.5	✓	Cox
Note: 64 of 65 were timely			Updated: Q1, Q2, Q3, Q4												Current target: 95.					
OP 3.5	Initial psychological evaluations	Percent of youth receiving an initial psychological evaluation within 30 days of admission.	< 85	85 to 89	>= 89	↑	--	87	82	98	100	98	96	100	99	98	94	85	✓	Fuimaono
Note: 114 of 134 were timely. Performance dip due to staffing level at OCYCF, which has been resolved.			Updated: Q1, Q2, Q3, Q4												Current target: 95.					
OP 3.6	ATOD assessments	Percent of youth receiving ATOD assessment within 30 days of admission to a certified OYA facility ATOD program.	< 70	70 to 80	>= 80	↑	--	--	--	--	54	60.5	66	68	75.27	71.6	77.33	84.3	✓	Fuimaono
Note: 86 of 102 assessments completing within 30 days.			Updated: Q1, Q2, Q3, Q4												Current target: 80.					

Building up the Scorecards

Connecting the Organization

UNIT SCORECARD

FUNDAMENTALS				BREAKTHROUGHS			
OUTCOME MEASURES	STATUS	TREND	STRATEGIC	STATUS	TREND	VALUE	TREND
O1 Revenue	Red	Down	S1	Green	Up		
O2 Total Return to Shareholders	Red	Down	S2	Green	Up		
O3 Top Quartile EBITDA	Yellow	Flat	S3	Green	Up		
O4 Cash on Hand	Green	Up	S4	Green	Up		
O5 Ideas Implemented Per EE	Green	Up	S5	Green	Up		
O6 Customer Retention	Green	Up	S6	Green	Up		
O7 New Product Revenue	Green	Up	S7	Green	Up		
O8 Volunteer Hours	Green	Up	S8	Green	Up		
O9 Turnover	Green	Up	S9	Green	Up		
O10 Engaged Workforce	Green	Up	S10	Green	Up		

DIVISION SCORECARD

FUNDAMENTALS				BREAKTHROUGHS			
OUTCOME MEASURES	STATUS	TREND	STRATEGIC	STATUS	TREND	VALUE	TREND
O1 Revenue	Red	Down	S1	Green	Up		
O2 Total Return to Shareholders	Red	Down	S2	Green	Up		
O3 Top Quartile EBITDA	Yellow	Flat	S3	Green	Up		
O4 Cash on Hand	Green	Up	S4	Green	Up		
O5 Ideas Implemented Per EE	Green	Up	S5	Green	Up		
O6 Customer Retention	Green	Up	S6	Green	Up		
O7 New Product Revenue	Green	Up	S7	Green	Up		
O8 Volunteer Hours	Green	Up	S8	Green	Up		
O9 Turnover	Green	Up	S9	Green	Up		
O10 Engaged Workforce	Green	Up	S10	Green	Up		

AGENCY SCORECARD

FUNDAMENTALS				BREAKTHROUGHS			
OUTCOME MEASURES	STATUS	TREND	STRATEGIC	STATUS	TREND	VALUE	TREND
O1 Revenue	Red	Down	S1	Green	Up		
O2 Total Return to Shareholders	Red	Down	S2	Green	Up		
O3 Top Quartile EBITDA	Yellow	Flat	S3	Green	Up		
O4 Cash on Hand	Green	Up	S4	Green	Up		
O5 Ideas Implemented Per EE	Green	Up	S5	Green	Up		
O6 Customer Retention	Green	Up	S6	Green	Up		
O7 New Product Revenue	Green	Up	S7	Green	Up		
O8 Volunteer Hours	Green	Up	S8	Green	Up		
O9 Turnover	Green	Up	S9	Green	Up		
O10 Engaged Workforce	Green	Up	S10	Green	Up		

Creating Capacity to Implement Change

**If we can
reduce the
time we need
to spend on
the ROUTINE
work of the
business...**



**...We can
spend more
time on the
work that
delivers new
value to our
customers**

Using Data, Research, and Predictive Analytics to Inform Decisions and Improve Outcomes

Credit goes to

- ✓ Colette S. Peters – former Director of the Oregon Youth Authority and current director of the Oregon Department of Corrections
- ✓ Fariborz Pakseresht – former Director of the Oregon Youth Authority and current director of the Oregon Department of Human Services
- ✓ Paul Bellatty – Manager of the Research Unit at Oregon Youth Authority

Driving Questions for the Oregon Youth Authority

- ✓ Are we bringing the right youth into the system and placing them in the right environment?
- ✓ What should the length of stay be in each part of the continuum?
- ✓ What interventions do youth need to maximize their opportunities to be successful?
- ✓ How do we know our investments are effective and achieving desired results?



ORRA

OYA Recidivism Risk Assessment: predicts the likelihood a youth will recidivate with a felony conviction or adjudication within 36 months of commitment to probation or release from OYA close custody.

ORRA-V

OYA Recidivism Risk Assessment - Violent Crime: predicts the likelihood a youth will recidivate with a violent* felony conviction or adjudication within 36 months of commitment to probation or release from OYA close custody.

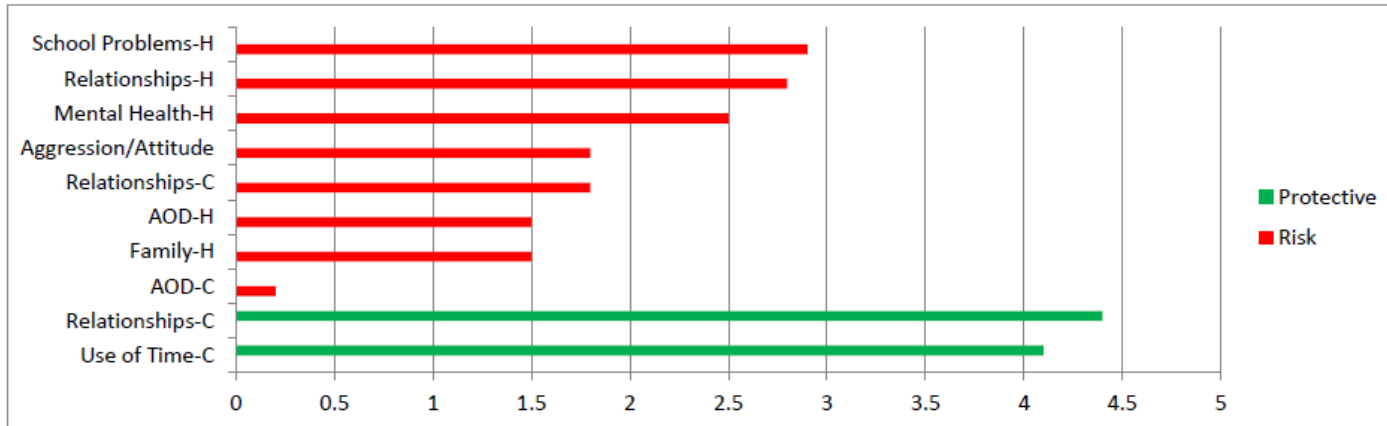
*Violent felonies include, but are not limited to assault, murder, rape, and robbery.

Typologies: Groups of youth based on need and protective factors to inform assessment considerations, case planning, and treatment considerations.

- For males, there are 6 typologies that inform the treatment decisions made by the staff at the Oregon Youth Authority
- For females, there are 4 typologies

Typologies

TYPOLGY E - MALE

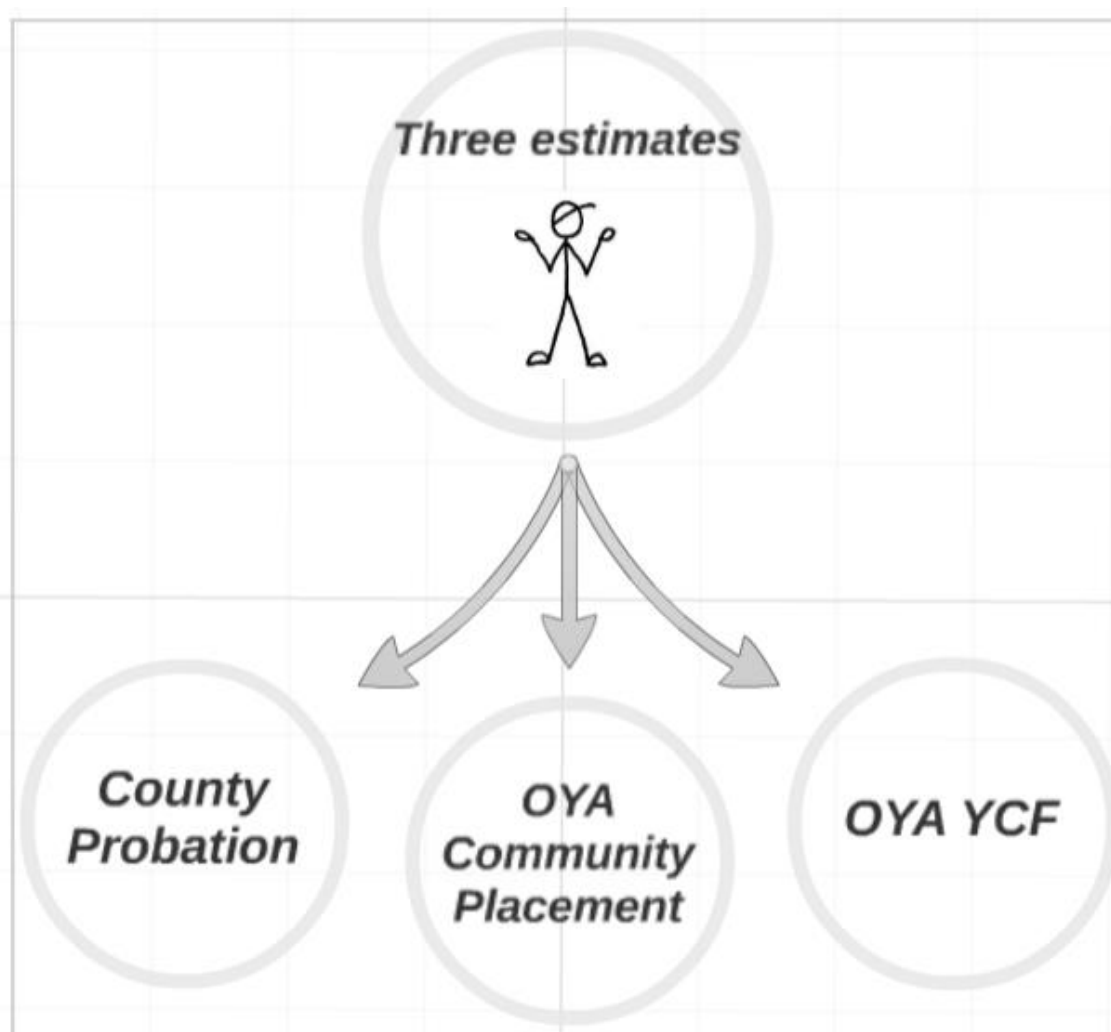


ASSESSMENT CONSIDERATIONS: Many of these youth struggle academically for various reasons, which indicates the need for further assessment to determine sources of academic struggles. Such assessment may include behavioral functioning, cognitive functioning, potential learning disabilities, visual and/or hearing deficits, ability to focus, language barriers, etc. Educational assessment should be coordinated with clinical assessments focusing on behavioral or physical health to ensure a holistic perspective on the youth's needs.

CASE PLAN ESSENTIALS: Case planning should focus on use of the youth's strengths, including positive relationships and engagement in prosocial activities, to assist the youth in developing and generalizing his skills in areas of need. Especially for youth in this typology, ensuring appropriate services are provided is independent of location or type of placement. When considering placement options, priority should be given to placing the youth where he will be able to receive appropriate services while maintaining a high level of continuity with existing support systems and prosocial activities. Failure to meet identified expectations (including case plans, treatment plans, and probation/parole agreements) should be understood by the youth's team as an indication that current services are not adequately addressing the treatment need and should not be automatically viewed as noncompliance or deliberate on the part of the youth. Any such failure to meet identified expectations should be reviewed to determine what additional supports need to be provided to reestablish positive behavioral change.

TREATMENT APPROACH: Given these youth's protective factors, it is especially important to take steps to preserve positive, ongoing relationships and supports as they will assist in the successful implementation of treatment interventions. Regardless of living environment, maintaining supportive contact with these individuals, and continued participation in the youth's current interests and activities, is critical to their ability to progress and succeed in treatment.

Predicted Success Rates: The likelihood that a youth will be successful in each of three environments.



Interpreting Scores

Each youth will receive three scores between 0-100 (one for each environment)

Closer the score is to 100 the more "successful" they are likely to be in that environment

- **Defining "success"**: NOT recidivating with a felony conviction or adjudication within 36 months of commitment to probation or release from OYA close custody.
- Success does not mean engagement in treatment and/or school, working, good behavior, etc.

Scenario: Matt

Matt is a 13 year old who received his first referral for Sex Abuse 1.

- His victim was his younger cousin who does not live in the same household as him.
- He is living with his paternal aunt and uncle who adopted him at the age of 3.
- His biological parents have severe drug dependencies and Matt tested positive for drugs at birth.
- Matt is very attached to his aunt and uncle who are very supportive of his treatment process.
- Matt is engaged at school and attends school on a regular basis.

Scenario: Matt

Typology: **E**
 RNA: **High**

ORRA: **6**
 ORRA-V: **6**

<i>Predicted Success Rates</i>			
County Probation	OYA Community Placement	OYA YCF	
87	92	79	
<i>Escalation to OYA</i>			
Raw: New Crime	Percentile Rank: New Crime	Raw: Probation Violation	Percentile Rank: Probation Violation
4	1	35	90

Next on the Horizon

Early Warning System

- ✓ Grant Thornton and Mass Ingenuity are working together using predictive analytics to develop an Early Warning System for state agencies
- ✓ Pilot case study is Arizona Department of Corrections
- ✓ How to predict prison disturbances before they happen

Early Warning System

- ✓ Talking to subject matter experts, we have learned there are indicators we can use to predict a disturbance before it occurs
 - Contraband volume
 - Inmate work/program involvement
 - Detention bed utilization
 - Higher than average meal attendance
 - Increased commissary purchases

Early Warning System

- ✓ Predictive analytics will allow state agencies to head off problems before they occur
- ✓ Saving human and financial costs

The Nurse-Family Partnership

The Nurse-Family Partnership program provides nurse home visits to pregnant women with no previous live births, most of whom are:

- i. low-income
- ii. unmarried, and
- iii. teenagers.

The nurses visit the women approximately once per month during their pregnancy and the first two years of their children's lives.

Nurse-Family Partnership

Three randomized controlled trials – each carried out in a different population and setting – found the program to produce sizable, sustained effects on important mother and child outcomes.

The specific types of effects differed across the three trials, possibly due to differences in the populations treated. Effects found in two or more trials include:

- i. reductions in child abuse/neglect and injuries (20-50%)
- ii. reduction in mothers' subsequent births (10-20%) during their late teens and early twenties;
- iii. improvement in cognitive/educational outcomes for children of mothers with low mental health/confidence/intelligence (e.g., 6 percentile point increase in grade 1-6 reading/math achievement).

The importance of rigorous evidence

Evaluations show social programs produce modest or no impacts on the problems they were meant to address.

But too few are evaluated.

Commission on Evidence-based Policymaking

The result of discussions on **opportunities for better using evidence** to inform decision-making

Created by legislation **co-sponsored by Speaker Paul Ryan and Senator Patty Murray**, enacted March 30, 2016 (P.L. 114-140)

Members appointed by President, Speaker of the House, House Minority Leader, and Senate Majority and Minority Leaders (1/3 on privacy; 2/3 experts on program administration, data, or research)

Report submitted on **September 7, 2017**

Commission on Evidence-based Policymaking

Major Themes:

- ✓ Improved Access to Data
- ✓ Stronger Privacy Protections
- ✓ Greater Capacity

Commission on Evidence-based Policymaking

Improved Access to Data –

- Establish National Secure Data Service

- Address inconsistencies and barriers in law for better use of existing data

- Streamline process by which researchers access data

Stronger Privacy Protections –

- Conduct and disclose comprehensive risk assessments

- Improve protections with better technology and greater coordination

- Strengthen OMB's existing guidance on maintaining public trust by codifying SPD1

Greater Capacity –

- Align capacity for statistics, evaluation, and policy research within and across departments

- Better coordinate these efforts and consider strategies to prioritize evidence building within OMB

Contact Information



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