



# **Green Belt Six Sigma Project Report Out**

**Data Analytics Assessment Project**

**State of Ohio – Board of Pharmacy**

**July 21, 2016**

# Background

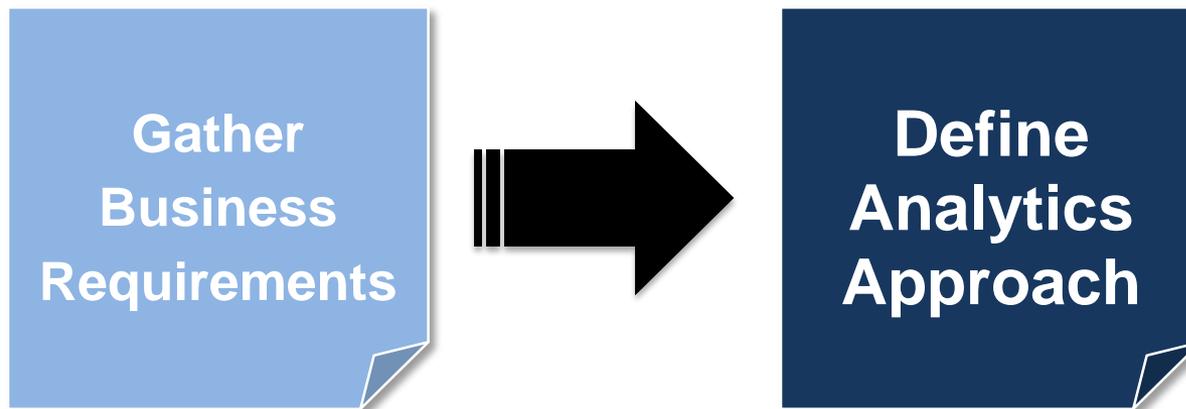
- The State of Ohio Board of Pharmacy is responsible for administering and enforcing laws governing the practice of pharmacy and the legal distribution of prescription drugs.
- The State of Ohio is facing a growing challenge in controlling the misuse of prescription drugs.
  - In 2014, more than 2,400 deaths were reported as unintentional overdose deaths.
- The Board would like to use predictive data analytics to help identify prescribers, pharmacists and individuals whose activities show a pattern of past or potential future misuse.

# Team Members

- Board of Pharmacy
  - Steve Schierholt, Executive Director
  - Chad Garner, IT Manager
- LeanOhio
  - Michael Buerger
- Halcyon
  - Michael Sawczyn
  - Sanjay Dudaney

# Event Scope

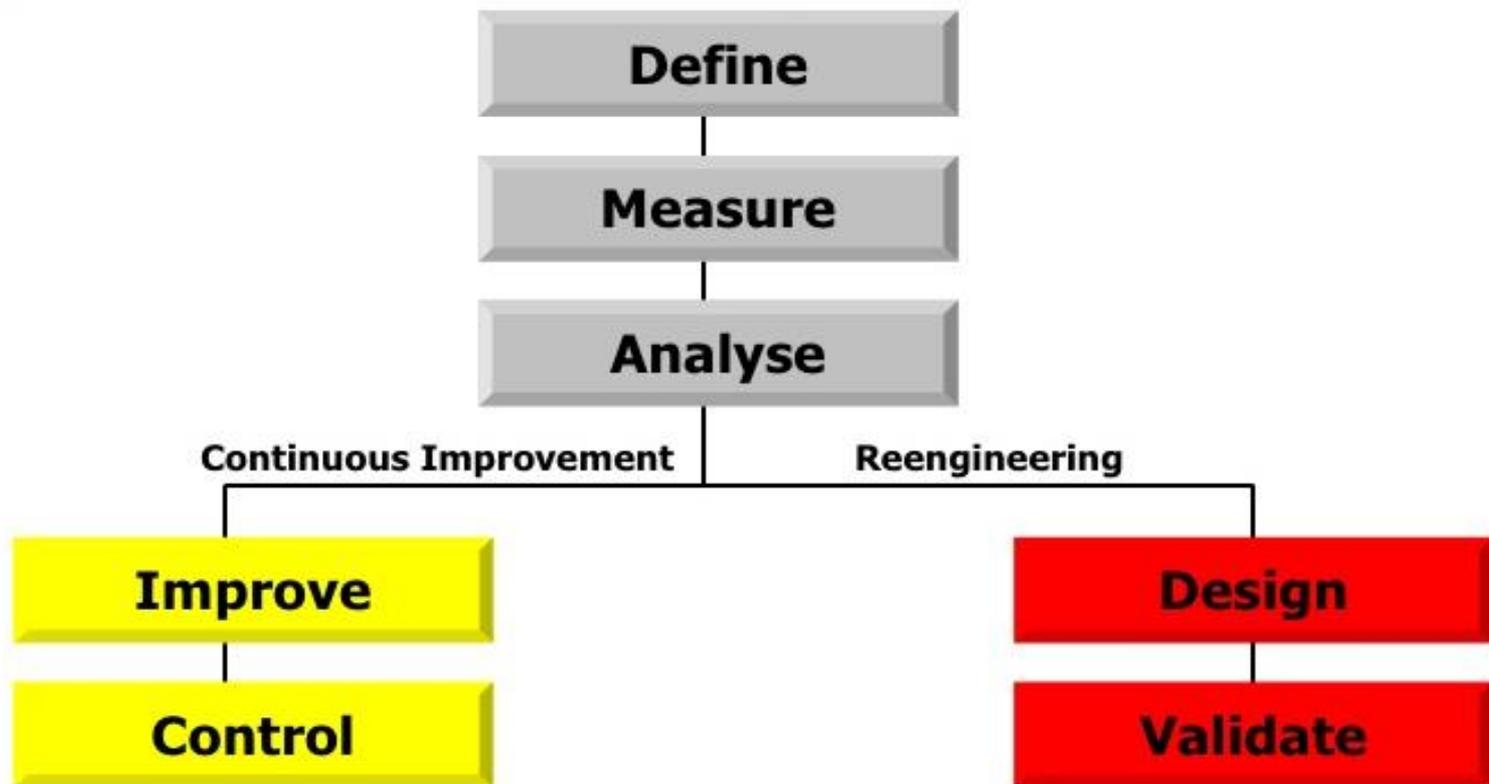
- What is the first step in the process?
  - Gather Business Requirements
- What is the final step in the process?
  - Define Analytics Approach



# Lean Tools

- Brainstorming
- DMADV (not DMAIC)
- Data Collection
- Interviews

# DMADV vs. DMAIC



Should be used when a product or process is in existence at your company but is not meeting customer specification or is not performing adequately.

Should be used when:

- A product or process is not in existence at your company and one needs to be developed
- The existing product or process exists and has been optimized and still does not meet the level of customer specification or Six Sigma level

# Process Improvement Goals (Define)

## Priority 1

- Reduce the number of overdose deaths due to prescription drug abuse in Ohio
- Improve collaboration with other State agencies, law enforcement agencies and other States in this critical public policy area
- Preliminary identification of the target (prescriber, pharmacist or technician) when an investigative case is opened by the Board

## Priority 2

- Early identification of individuals whose pattern of controlled substance use shows a potential for future criminal activity and provide help to them
- Understand emerging trends in substance controlled abuse and be prepared to take action to prevent it from spreading.

## Priority 3

- Use the licensing process and the intelligence available from licensing to predict where and what type of abuse is most likely to occur.
- Perform background investigations on licenses to reduce the possibility of granting licenses to unqualified or ineligible practitioners.

# Information Needs (Measure)

Demographics that are most inclined towards abuse

Patterns that help identify abusers

Triggers and thresholds

Policies (or lack thereof) that are conducive to abuse

Data mined from investigative cases

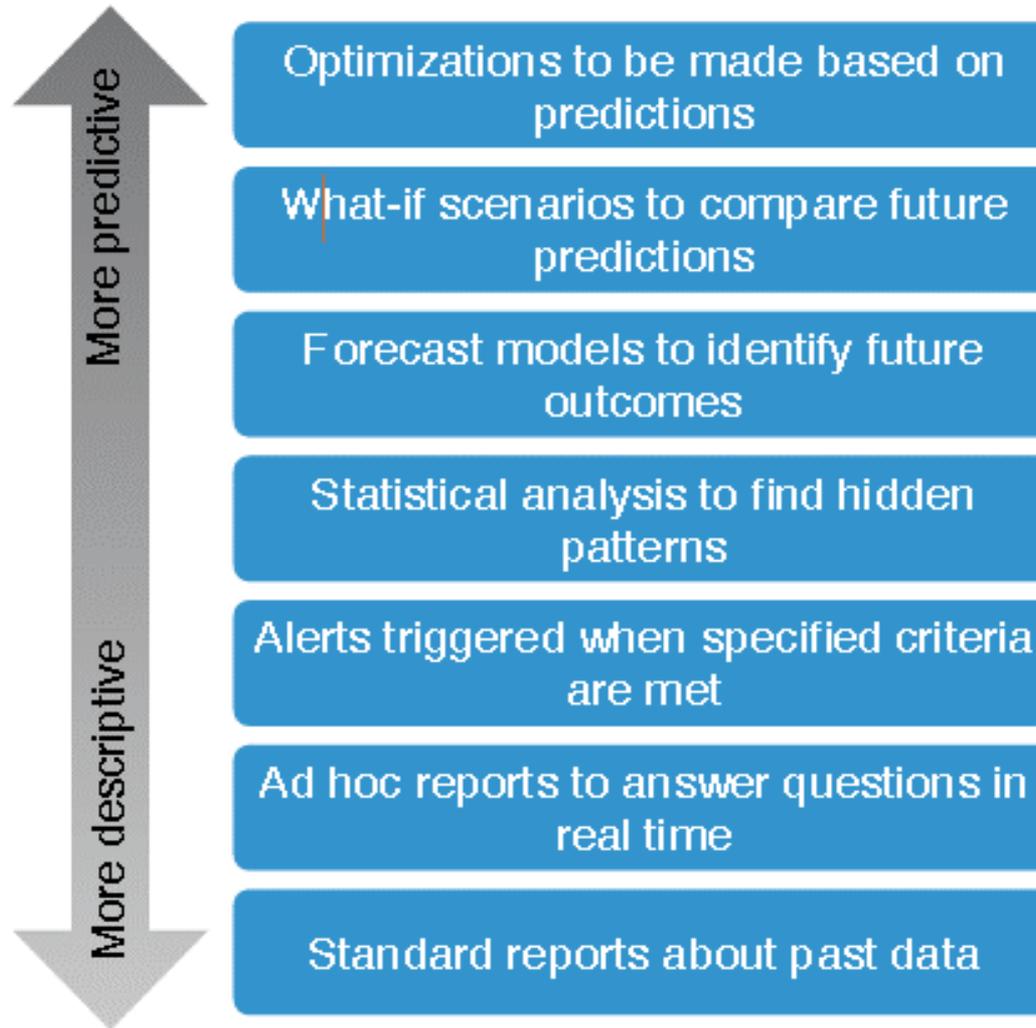
Role of technicians in abuse value chain

Trends in industry such as new drug combinations

Correlation between licensing and types of abuse

Best practices implemented by other states

# Analytics Framework



# Analytics Framework in Action

Priority	Goal/ Objective	Tools							Process	Policy
		Std Rpts	Ad hoc Rpts	Alerts and Triggers	Statistical Analysis	Forecast Models	What-If Scenarios	Optimizations		
Priority #1	Proactively identify prescribers and pharmacists who are intentionally or unintentionally playing a role in controlled substance abuse	SQL Server (SSIS, SSRS) or MS Excel	Real-time or daily batch interface between OARRS and ODH systems combined with ad-hoc reporting tools such as Cognos	Cognos Tableau or PowerBI can be configured with the necessary alerts and triggers	MS SandDance or other Machine Learning tools can be used to identify hidden pattern and correlations	Cognos, Tableau or PowerBI can be used to run predictive forecast models	This level of sophistication may not be required. Besides, the Board may not have the statutory authority to enforce checks and balances that are identified based on what-if scenarios		Real-time Data Interface between OARRS and certain external systems  Define a list of Alerts and Triggers  Design a Response Process to process information provided by Forecast Models	Response process will identify any new policies required to be implemented

# Implementation Plan

- Tools
  - SQL Server (SSIS, SSRS) for Standard Reporting
  - Tableau for Analytics Reporting
  - Microsoft SandDance for Machine Learning
- Process
  - Real-time sharing of data with other State agencies (ODH)
  - Process to define a response upon proactive identification of potential abusers
  - Conduct market research on an ongoing basis on emerging trends in substance controlled abuse
  - Identify targets early in the investigative process based on historical data analysis
  - Research the probability of accessing data from hospitals and treatment centers
  - Combines intelligence gained from eLicensing and Matrix systems
- Policy
  - Implement a policy to require technicians to be licensed

# Special Thanks to...

- Chad Garner – For patiently helping us understand the needs and current systems of Board of Pharmacy
- Michael Buerger – For guidance and coaching through the entire project
- Michael Sawczyn – For lending us his technical expertise in the area of analytics

# Questions or Comments