

Driving Student Success With Analytics

Russ Little – Director of Product Management & Chief Innovation Officer



Our Way Forward



Align Resources to Where
They are Needed Most



Manage Interventions and Track
Outcomes, Tactically and Strategically



Identify Actionable Areas of Risk at the Student,
Course & Program Levels



Drive Action Based
on Data and Evidence



Predictive Analytics and Benchmarking



Common Data
Definitions



Benchmarking



Descriptive
Analytics



Predictive
Analytics

HOBSONS

The right tool for the job...

PAR Tools

Descriptive Analytics

Benchmarks

- Credits Earned
- Credit Ratio
- Retention
- Credentialing

Student Success Matrix

- Inventory of Interventions
- Classified by Analytics Factors

A / B Comparisons

- Direct Comparisons
- Segment Measurement

Predictive Analytics

Student Explorer

- Credit Ratio
- GPA
- Retention
- Velocity
- Student Risk to Success Factor Mapping

Course Explorer

- Obstacle Courses
- Course Pass, Withdraw, Retention, Repeat Rates
- Program & Course Comparisons



1

Align Resources to Where they
are Needed Most



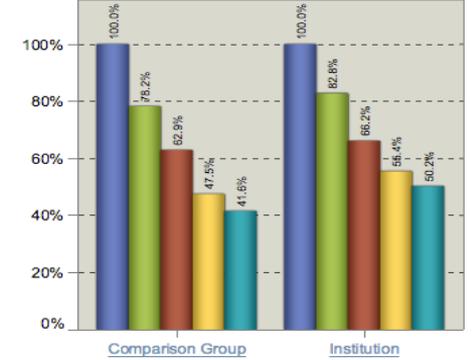
Understand

Making comparisons...

Understand: Benchmark Reports

Retention - Survival View

UNFILTERED
% Retained 0-3mo / % Retained 3-6mo / % Retained...



WITH FILTERS APPLIED
% Retained 0-3mo / % Retained 3-6mo / % Retaine...



% Retained 0-3mo % Retained 3-6mo
 % Retained 6-12mo % Retained 12-18mo
 % Retained 18-24mo

Selected Gro...	N Retained 0-3mo	N Retained 3-6mo	N Retained 6-12mo	N Retained 12-18mo	N Retained 18-24mo
Institution	186	129	88	74	57

Race

American Indian or Alaska Native
 Asian
 Black or African American

Degree Sought at Entry

Associates
 Bachelors
 Certificate

Age at Entry Age at Entry
Gender Gender

Military/Reservist At Entry Military/Res. At Entry
Veteran At Entry Veteran At Entry

Ever Pell Ever Pell
GED Status GED Status

Any Prior Credits Any Prior Credits

Prior Credits Colleges 0 61

Delivery Mode

All Others
 Fully Onground
 Fully Online

Program (2-digit CIP) at Entry Major

Ever Dev Yes

Full/Part Time Part Time

Credits Attempted First 6 Months 0 45

Prior Credits Other 0 61



2

Manage Interventions and Track Outcomes,
Tactically and Strategically

Inventory of interventions...

Understand: Student Success Matrix



Understand

Predictor Categories	Drafts	Connection	Entry	Progress	Completion
<u>LEARNER CHARACTERISTICS</u> 35 Interventions	35	10	26	11	4
<u>LEARNER BEHAVIORS</u> 15 Interventions	15	3	11	6	1
<u>FIT/LEARNER PERCEPTIONS OF BELONGING</u> 28 Interventions	28	9	16	13	5
<u>OTHER LEARNER SUPPORTS</u> 13 Interventions					
<u>COURSE/PROGRAM CHARACTERISTICS</u> 32 Interventions					
<u>INSTRUCTOR BEHAVIOR/CHARACTERISTICS</u> 4 Interventions					
<u>Uncategorized</u> 1 Interventions					

Intervention	Connection	Entry	Progress	Completion
5-Week DevEd Math	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Behavioral Intervention Team	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bridge Program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dual Enrollment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Early Alert-Central, North, West Campus	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Early Alert-East Campus	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Elimination of Late Registration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comparative Measurement...

Measure: A/B Reporting

Compare Retention Compare Credits Earned Compare Credit Ratio Compare Credentials Earned 12 Month Performance

University of Hawaii - CC

Hawaii A/B Mockup

2011-2012

Season

A

Retention - Survival View A/B Comparison

B

Program (2-digit CPI) at Entry
Major

Full/Part Time
Full/Part Time

Gender
Gender

Pell First 6 Mo
Pell First 6 Mo

Dev Ed First 6 Mo
Dev Ed First 6 Mo

Age at Entry
Age at Entry

GED Status
GED Status

Any Prior Credits
Any Prior Credits

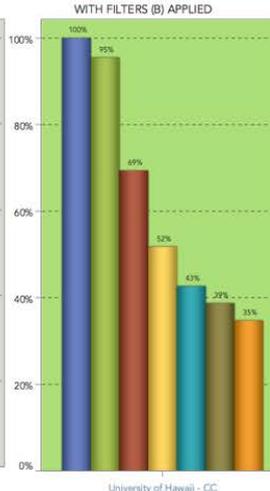
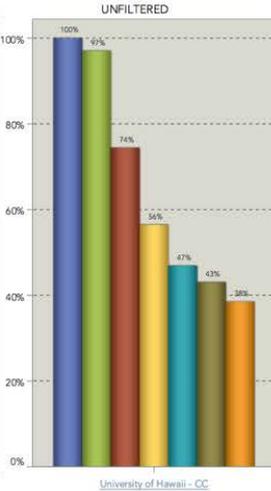
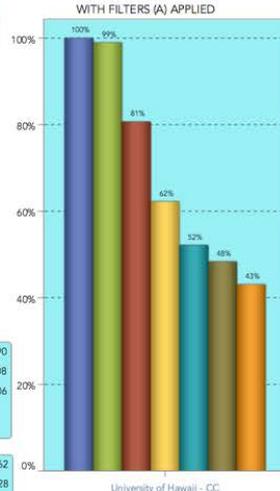
Mil/Reserv at Entry
Military/Res. At Entry

Delivery Mode

- All Others 2,490
- Fully Onground 16,708
- Fully Online 706

Race

- American Indian or Alaska Native 62
- Asian 4,928
- Black or African American 350
- Hispanics of any race 2,494
- Native Hawaiian or Other Pacific Islander 1,970
- Nonresident Alien 742
- Race and Ethnicity Unknown 194
- Two or more races 6,118
- White 3,046



Program (2-digit CPI) at Entry
Major

Full/Part Time
Full/Part Time

Gender
Gender

Pell First 6 Mo
Pell First 6 Mo

Dev Ed First 6 Mo
Dev Ed First 6 Mo

Age at Entry
Age at Entry

GED Status
GED Status

Any Prior Credits
Any Prior Credits

Mil/Reserv at Entry
Military/Res. At Entry

Delivery Mode

- All Others 2,490
- Fully Onground 16,708
- Fully Online 706

Race

- American Indian or Alaska Native 62
- Asian 4,928
- Black or African American 350
- Hispanics of any race 2,494
- Native Hawaiian or Other Pacific Islander 1,970
- Nonresident Alien 742
- Race and Ethnicity Unknown 194
- Two or more races 6,118
- White 3,046

Segments

- Math in First 6 Months 8,886
- No Math in First 6 Months 11,018

Segments

- Math in First 6 Months 8,886
- No Math in First 6 Months 11,018

Segments

- Math in First 6 Months 8,886
- No Math in First 6 Months 11,018



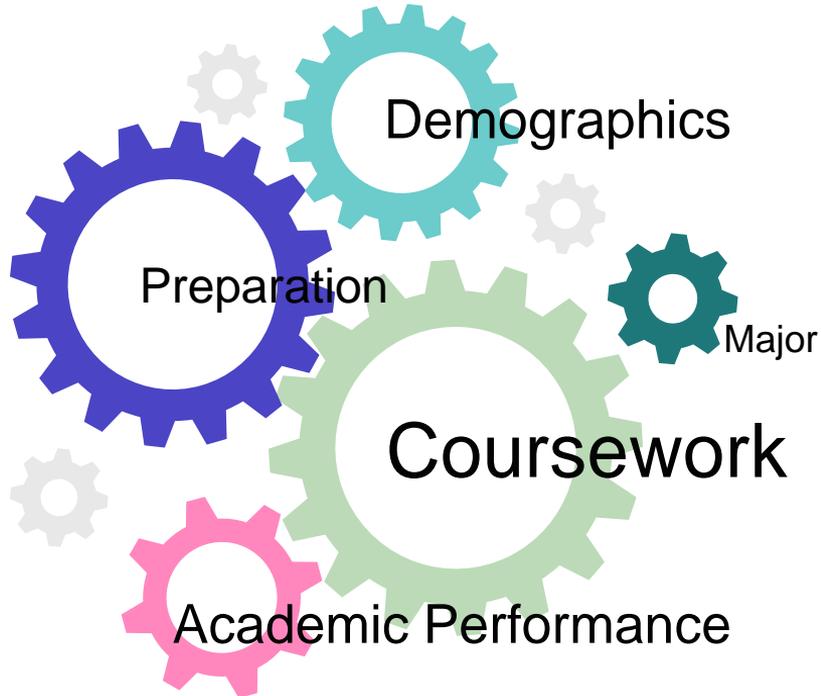
3

Identify Areas of Risk at the Student,
Course & Program Levels



Identify

Attributes Work Together



PAR takes historical data and considers the behavior of students that have come before: those that were successful and those that were not. From this historical data a computer model is built that encodes the narrative of the past. This model is applied to current students to supply a narrative of a future that *might* be.

Machine Learning

- Use the past to predict the future
- Which characteristics lead to success?
- To a lack of success?
- Who do we help and how?



Identify

Student Risk Populations...

Identify: Student Explorer





Identify

Factor Score to Intervention Mapping...

Identify: Connect Population Risks to Resources

5% 100%
5% 100%

Credential Level Credential Pursued Program (2-Digit CIP) Years at Institution Institution Name

Overview SSMx Predictors Watchlist Quick Sort

0% 100% 16.0 79.0
0% 100% 17.0 70.0

Pell Student Type At-Entry Gender Race

Total # Students	Avg Retention Score	Avg GPA	Avg Credit Ratio	Avg Velocity Score
6854	78%	3.04	85%	93%

SSMx Predictors (Marked when retention score is significantly different at 95% level)

SSMx Predictor	# Students	Retention Score	GPA	Credit Ratio	Velocity Score	Earned Cr per 6 Mo	Earned Cr	Total C
Age, nontraditional (>= 25)*	2,688	71%	3.10	83%	70%	10.3	40	121
Age, traditional (<25)*	12,201	79%	3.02	85%	98%	14.6	63	81
Associates student*	137	68%	2.79	85%	91%	12.2	39	67
Bachelors student*	14,288	78%	3.03	85%	93%	13.8	59	88
Certificate student*	34	84%	3.26	90%	87%	11.3	47	132
Course withdrawals >1(more than 3 cred...)	4,675	71%	2.69	72%	78%	11.7	69	90
Course withdrawals=0*	7,632	82%	3.27	93%	102%	15.1	52	89
Course withdrawals=1(up to 3 credits)*	2,582	77%	2.95	83%	93%	13.9	61	86
DevEd attempted <100% pass*	245	72%	2.57	74%	80%	12.0	68	76
DevEd attempted 0% pass*	409	62%	2.42	64%	70%	10.4	49	60
DevEd attempted 100% pass*	1,305	81%	2.94	86%	98%	14.5	70	80



Identify

Individual Student Watchlist...

Identify: Connect Individual Student Risk to Resources

Student Watchlist

PAR Student ID	Retention Score	GPA	Credit Ratio	Velocity Score	Earned Cr per 6 Mo	Earned Cr	Total Cr
00004a6c1589f09...	97%	3.16	100%	111%	16.3	122	125
000b46adc28a0e...	85%	2.85	80%	67%	9.8	93	111
000c3401040ef8e...	97%	3.18	100%	118%	17.3	95	98
001100bd5f8c27...	86%	4.00	100%	72%	9.6	8	36
0011236d99faf4c...	43%	1.56	40%	44%	6.7	37	44
00118c36039e0e...	64%	2.38	60%	81%	12.0	18	80
00165c6b10d158...	27%	1.02	25%	25%	3.7	13	42
0018222e887b2d...	83%	3.19	100%	86%	13.1	72	72
001a925910c559...	90%	3.33	100%	103%	14.9	52	52
0025d331c4164d...	97%	3.41	96%	138%	20.3	152	165
002d2df3d8f310d...	86%	3.19	100%	113%	15.7	118	122
0033e3e6aa4dab...	85%	2.61	87%	87%	12.9	60	101
003440e00fa53c1...	75%	2.44	64%	34%	5.0	56	81
0034f9...f4d593a9	70%	4.00	100%	29%	4.5	3	70

SSMx Predictors

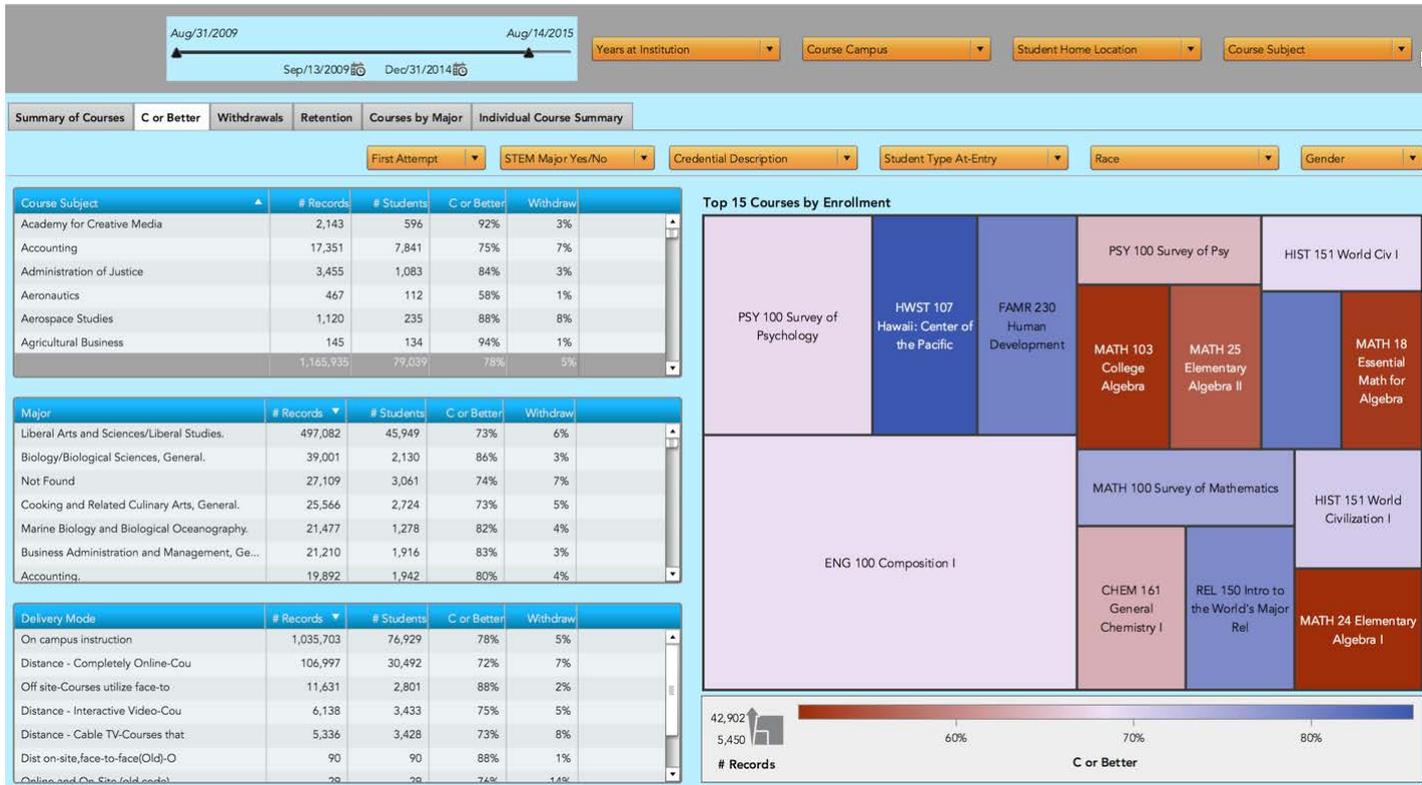
SSMx Predictor	Avg Retent...
Low ongoing GPA (<2)*	44%
Low credit ratio*	58%
Low velocity*	69%
Medium HS GPA (2 to 3)*	69%
Course withdrawals >1(more tha...	71%
Enter with no prior credits*	76%
Transfers credits brought in after...	77%
Bachelors student*	78%
No DevEd taken*	78%
Not STEM major*	78%
Race-White*	79%
Q3 start (July-Sep)*	79%
Not Pell eligible*	79%
Age_traditional (<25)*	79%



Identify

Obstacle courses and pathway risks...

Identify: Course Explorer





Identify

Obstacle courses and pathway risks...

Identify: Course Explorer



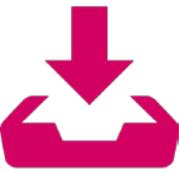


4

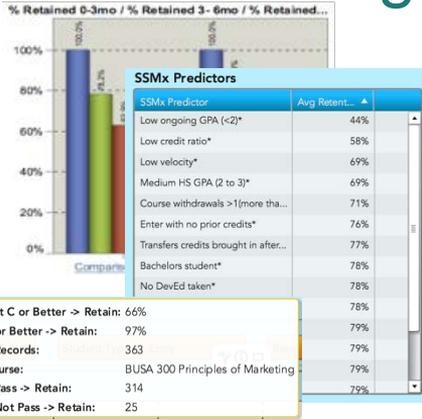
Drive Action Based on Data and Evidence

Harness Analytics for Operations...

Act: Driving Interventions



Act



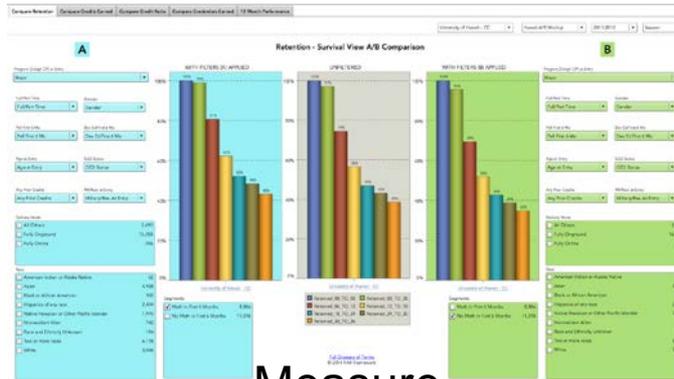
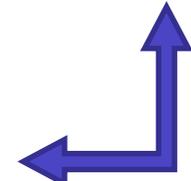
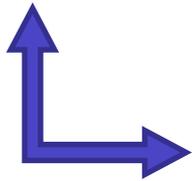
Understand

Intervention	Connection	Entry	Progress	Completion
2 to 4 Week Traditional Format Math Dev Ed (North Campus)	✓	✓	✓	✓
5-Week DevEd Math	✓	✓	✓	✓
Academic Foundation Tutoring	✓	✓	✓	✓
Academic Resource Centers/College & Career Readiness Centers	✓	✓	✓	✓
Accelerated English Composition(ACA 297)	✓	✓	✓	✓
Achieving the Dream: Math Programs	✓	✓	✓	✓
Admissions Presence at Community Events	✓	✓	✓	✓
Admissions Processing/Counseling	✓	✓	✓	✓
Advising Templates for Degree Planning	✓	✓	✓	✓

Act



- Onboarding
- Student Support
- Interventions
- Curricular
- Procedure
- Policy



Measure



Utilize risk scores in Starfish...

Act: Driving Interventions



Act

Rachel Lands



- Flag
- Referral
- To-Do
- Kudos
- Success Plan
- Message
- Note
- Appointment
- File
- Intake

Overview

- Info
- Success Plans
- Academic Planning
- Courses
- Tracking
- Meetings
- Notes
- Network

Student Information

+	Class Level
✓	On Financial Aid since 1/9/2016
✓	Academic Probation since 1/9/2016
✓	Current GPA: 3.67
✓	Click here to search
✓	Starfish
+	Deans List

Success Plans

+

Getting off on the Right Foot (Status: In Progress)

Student Files

📄 **CSI Example File** (pending virus scan)

Course Averages

Average of course grades for the active term

📘 FERPA standards protect student data.



66 ↓

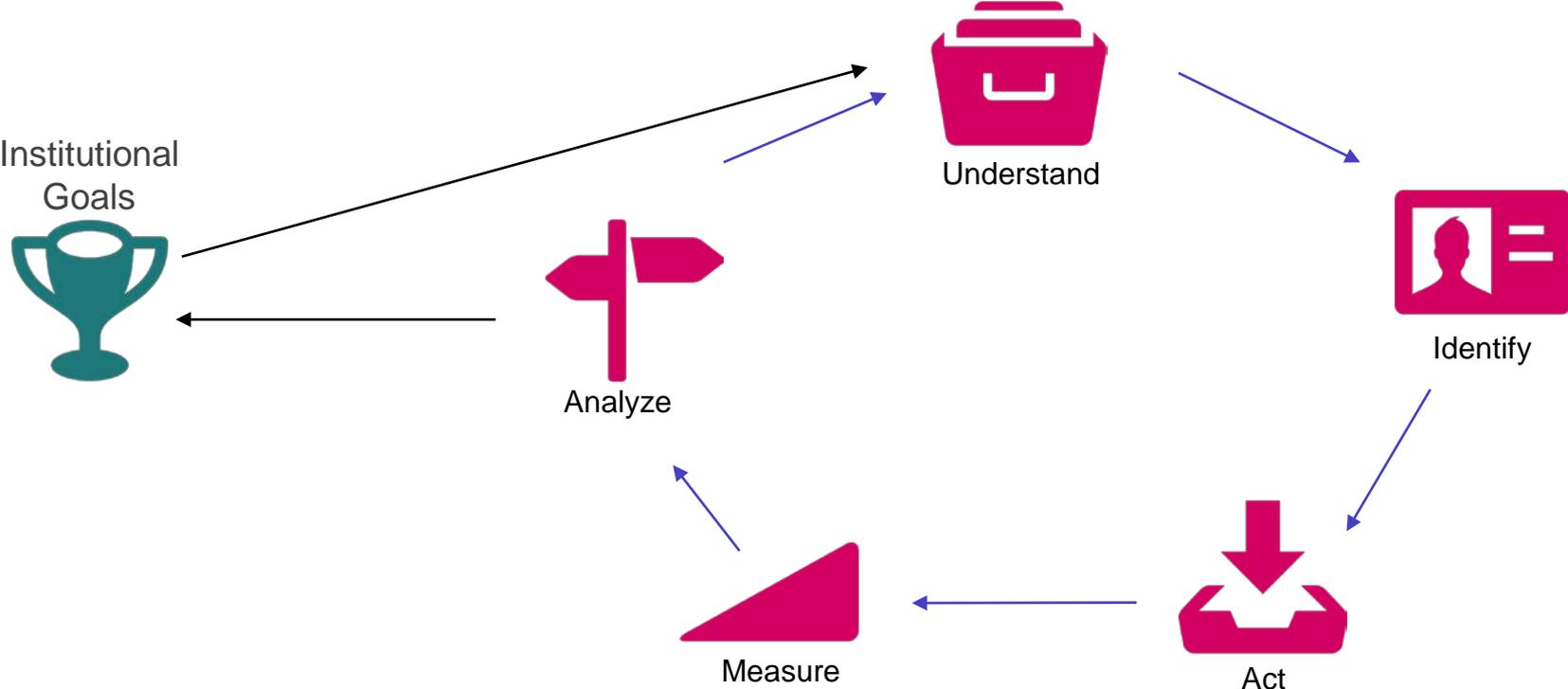
Ok Since: 01-10-2016

🔄 📈 🔄

👤 rlands6767
✉ Rachel.Lands@starfishcollege...
✉ test@starfishcollege.edu
☎ [\(757\) 622-4487](tel:(757)622-4487)

How it all comes together...

Analytics Driving Student Success





Discussion / Q&A
