



University of  
Massachusetts  
Amherst

## Concurrent Session, Data-Driven Transformative Change For Student Success

Item Type	event;event
Authors	Cid, Carmen R.;Martin, Margaret E.
Download date	2026-06-14 00:50:41
Link to Item	<a href="https://hdl.handle.net/20.500.14394/43987">https://hdl.handle.net/20.500.14394/43987</a>



# DATA-DRIVEN TRANSFORMATIVE CHANGE FOR STUDENT SUCCESS

Carmen Cid, Dean and  
Project Compass Director  
Margaret Martin, Professor and  
Title III Director  
Eastern Connecticut State University

# Our Goals and Agenda

- Describe Eastern's data-driven change model
- Introduce The Education Trust's data assessment rubric
- Discuss institutional resource assessment and mapping
- Outline strategic choices for change
- Generate and share plan for focused change strategies
- Reflect on transformative organizational change


# Eastern's Data-Driven Change Model Steps

- Identify student classifying data collected by all departments before and after admission to the University
- Develop student profiles and math models to determine best predictive variables associated with student success (persistence and academic success)
- Identify stakeholder partners internally and externally

# Eastern's Data-Driven Change Model Steps

- Engage Academic Affairs, Student Affairs, IT, Institutional Advancement, etc. departments, faculty and staff who are interacting with current and past students in discussion of data to develop analysis and implementation plans
- Engage students as “change agents” and faculty as “problem-solvers”
- Discuss results regularly with all units involved in data collection and interacting with students

# Eastern's Data-Driven Change Model Values

- Opportunistic – seek out resources to support change
    - Financial
    - Human
    - Facilities
  - Collaborative
  - Creative
  - Promoting leadership
  - Supportive of risk-taking
- 

# Data-Driven Change Process

## The Education Trust

- Collection
- Analysis
- Transmission
- Evaluation
- Improvement

# Data-Driven Organizational Change

- Impetus for data-driven change:
  - Strategic planning
  - Project Compass
  - Title III
- Efficient use of data – available and needed
- Identify students at risk of non-persistence
- Focus on incoming first-year full-time students

Minority, low-income, first-generation

53% of population

# Foundation Data to Development

- Common values of university culture
  - Access, diversity, student success
  - Evidence-based change
  - Multiple interactive systems
- Recognition of Human Resource Elements
  - Leadership
  - Communication
  - Collaboration and consensus
  - Resources

## First to Second Year Retention Rates: Trends and Gaps – Not the Whole Story

<b>Entry Cohort</b>	<b>All Students</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian-American</b>	<b>Native-American</b>	<b>Minority</b>
Fall 2008	<b>78%</b>	77%	92%	69%	73%	N ≤ 10	87%
Fall 2007	<b>74%</b>	74%	86%	75%	72%	N ≤ 10	80%
Fall 2006	<b>74%</b>	74%	78%	73%	93%	N ≤ 10	76%
Fall 2005	<b>75%</b>	75%	78%	72%	72%	N ≤ 10	74%
Fall 2004	<b>78%</b>	78%	84%	89%	71%	N ≤ 10	84%
Fall 2003	<b>75%</b>	76%	73%	70%	N ≤ 10	N ≤ 10	69%
Fall 2002	<b>75%</b>	75%	73%	68%	N ≤ 10	N ≤ 10	71%

# Four-year Graduation Rates

## Historical Data

<b>Year of Entry/Graduation</b>	<b>All Students</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian-American</b>	<b>Native American</b>	<b>Minority</b>
Fall 2005 / Graduation in 2009	<b>31%</b>	33%	28%	23%	22%	N ≤ 10	25%
Fall 2004 / Graduation in 2008	<b>32%</b>	33%	21%	33%	21%	N ≤ 10	26%
Fall 2003 / Graduation in 2007	<b>31%</b>	33%	22%	16%	N ≤ 10	N ≤ 10	20%
Fall 2002 / Graduation in 2006	<b>23%</b>	24%	10%	23%	N ≤ 10	N ≤ 10	15%
Fall 2001 / Graduation in 2005	<b>25%</b>	26%	21%	9%	N ≤ 10	N ≤ 10	18%
Fall 2000 / Graduation in 2004	<b>20%</b>	22%	12%	13%	23%	N ≤ 10	14%
Fall 1999 / Graduation in 2003	<b>20%</b>	22%	14%	20%	20%	N ≤ 10	16%
Fall 1998 / Graduation in 2002	<b>20%</b>	22%	9%	19%	29%	N ≤ 10	14%
Fall 1997 / Graduation in 2001	<b>20%</b>	21%	14%	20%	15%	N ≤ 10	16%

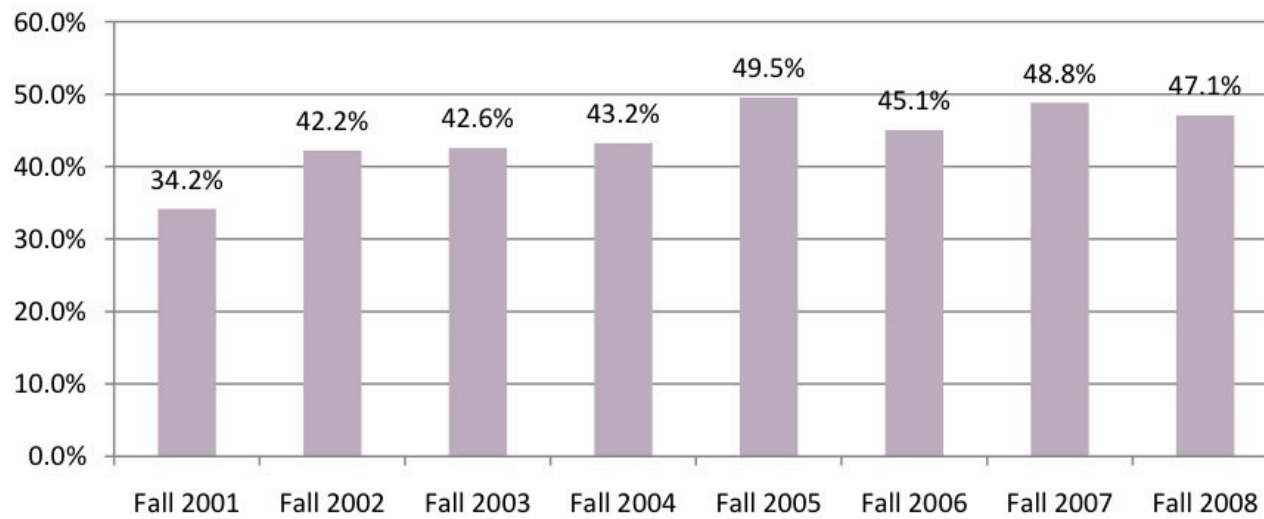
# Multivariate Models For Understanding and Targeted Services – From Admissions Data

Model for Classifying 2011 Cohort into Risk Quintiles, Based on Admissions Data from 2008 and 2009 Cohorts

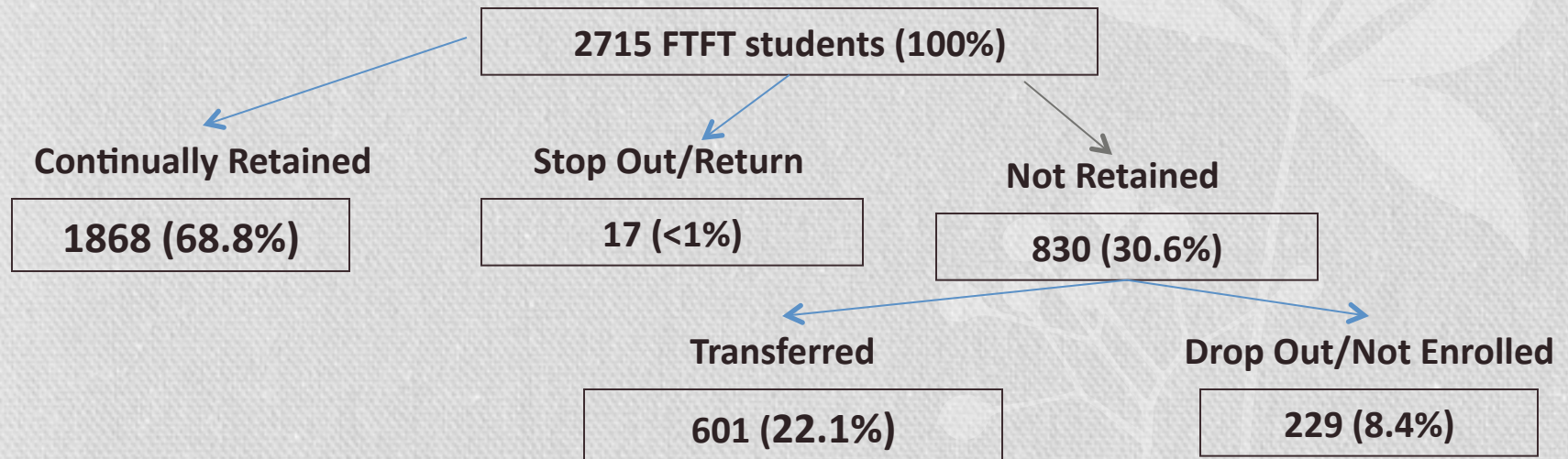
Variable	B	S.E.	Wald	df	Sig.	Exp(B)
male	-.087	.122	.508	1	.476	.917
black	-.723	.278	6.786	1	.009	.485*
hisp	.347	.279	1.540	1	.215	1.414
oth_race	-.674	.274	6.069	1	.014	.510
not_east	.408	.133	9.401	1	.002	1.503
commuter	.497	.211	5.545	1	.019	1.644
Pell_yr1	-.245	.161	2.316	1	.128	.783
first_gen	-.076	.124	.378	1	.539	.927
Athletics	-.647	.218	8.816	1	.003	.524
HsGpa_quint1	.734	.189	15.070	1	.000	2.084
HsGpa_quint2	.242	.184	1.727	1	.189	1.274
HsGpa_quint4	.277	.186	2.228	1	.136	1.319
HsGpa_quint5	.080	.223	.130	1	.719	1.084
admit_rating_le_4	-.057	.160	.125	1	.723	.945
admit_rating_ge_8	-.573	.203	7.985	1	.005	.564
Vsat_quin1	-.069	.184	.140	1	.708	.934
Vsat_quin2	-.320	.180	3.157	1	.076	.726
Vsat_quin4	.191	.173	1.216	1	.270	1.210
Vsat_quin5	.172	.186	.854	1	.356	1.188
Stem	-.036	.177	.042	1	.838	.964
PreEd	-.263	.165	2.536	1	.111	.769
Undec	.121	.132	.837	1	.360	1.129
ERG_none	.484	.201	5.834	1	.016	1.623
ERG_ABC	.164	.151	1.181	1	.277	1.178
ERG_GHI	.269	.153	3.089	1	.079	1.309
got_schol_yr1	-.022	.165	.018	1	.893	.978
got_FedLoan_yr1	-.227	.125	3.326	1	.068	.797
Choice	-.246	.120	4.235	1	.040	.782
Constant	-1.282	.241	28.336	1	.000	.277

# Developing Deeper Understanding

**Table5:**  
**Transferred to/Enrolled in Different Institution**  
(Percentage of Non-Retained Students by Incoming Cohort)



## Enrollment Patterns, Student Engagement Behavior and Characteristics for First Two Years for Fall 2007, Fall 2008, Fall 2009 FTFT Cohorts at Eastern



	<u>(%)</u>
Pell	20.3
URM	15.6
Any offense	24.2
No Library Training	14.7
Complete Training	51.4
Any Club Year 1	8.5
True Vol Service	27.5
Sem 1 GPA > 2.0	89.2
Sem 2 GPA > 2.0	89.8

- 4-yr institutions 12.5%
- CC 9.6%

	<u>(%)</u>
Pell	24.6
URM	20.6
Any offense	28.8
No Library Training	26.0
Complete Training	38.4
Any Club Year 1	3.9
True Vol Service	17.5
Sem 1 GPA > 2.0	43.4
Sem 2 GPA > 2.0	33.5

# First vs. Second Year Retention

- Need to focus on Second to Third Year Persistence

2008 Cohort Variables	First-to-Second Year Retention	Average Credits Earned	Average GPA	Second-to-Third Year Persistence
PCC	79.6%	25.532	2.561	81.35
Not PCC	73.3%	26.377	2.630	87.3%
Minority	81.3%	22.658	2.255	78.6%
Not Minority	75.8%	26.559	2.659	85.1%
First Generation	80.9%	26.048	2.629	82.1%
Not First Gen	73.8%	25.834	2.568	85.4%
Pell	84.5%	24.951	2.499	78.9%
Not Pell	75.0%	26.140	2.614	85.2%

# Targeted Advising Cohorts

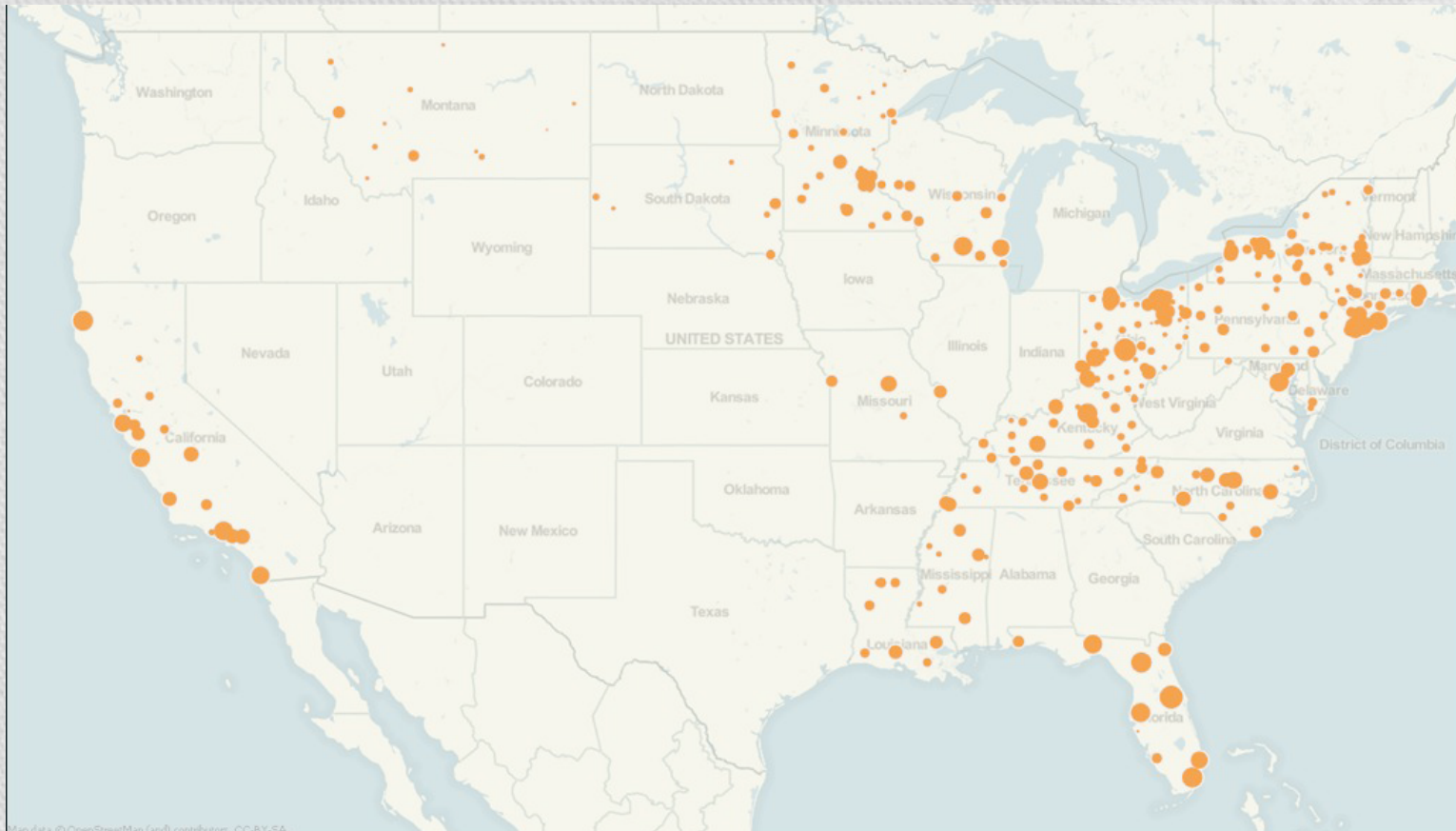
Count		Academic Risk Quintile					Total	
		AQ1	AQ2	AQ3	AQ4	AQ5		
Withdrawal Risk Quintile	Q1YR1	99	57	35	35	24	250	TAC1 = Intensive
	Q2YR1	45	47	39	33	23	187	TAC2 = Tutoring
	Q3YR1	29	49	50	45	45	218	TAC3 = Engaged
	Q4YR4	10	32	30	49	35	156	TAC4 = Monitor
	Q5YR1	2	15	15	26	62	120	
Total		185	200	169	188	189	931	

# Profile of TAC groups

	Mean HS GPA	Mean Verbal SAT	Mean Math SAT	Mean Admissions Rating
TAC <sub>1</sub>	2.51	503.7	502.0	4.3
TAC <sub>2</sub>	2.65	474.2	472.1	4.4
TAC <sub>3</sub>	3.21	520.0	503.5	6.3
TAC <sub>4</sub>	3.35	519.5	518.1	7.3

Academic preparedness broken down by TAC group

# The Education Trust: ACCESS TO SUCCESS A2S



21 Systems, 361 Campuses, 3.77 Million Students

21% of Undergraduates nationwide | 843K URMs | 864K Pell recipients

<http://www.edtrust.org/dc/about/staff/mary-beth-knight>

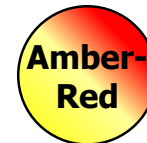
# Education Trust Data Use Rubric



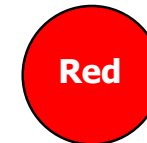
**Green**



**Amber-Green**



**Amber-Red**



**Red**

## Collection

- People working together as a team in a well-planned process
- Robust historical, longitudinal & real-time data available, disaggregated to expose achievement gaps
- Numerous checkpoints and feedback loops in place

- Clear plan for data collection tied to gap-closing goal
- Multiple data sources utilized to better understand barriers to achievement/completion
- Able to promptly identify problems in data

- Some available data may lag; not useful for decision-making
- Problems with validity of operational definitions of variables
- Little error-checking

- Lack of research capacity seriously constrains process
- Collection taking place in isolation on campus
- Procedures not in place to ensure data integrity

## Analysis

- Trends and patterns well-understood through rigorous analysis; ready to act
- Analysis reveals numerous “a-ha” moments, providing new, actionable information
- Pathway analysis used to diagnose root cause of multiple indicators

- Trends identified, but not able to draw conclusions from them all
- Able to relate new data with existing data being analyzed, and to prior knowledge
- Capacity issues limit pathway analysis

- Moderate success with identifying trends and patterns
- Difficult to link trends with other campus data; analysis stagnates
- Some inaccuracies found in analysis

- Little or no identification of trends and patterns in data
- Analysis is superficial; does not identify implications of data
- Not equipped to identify possible inaccuracies in analysis

## Transmission

- Clearly defined, “win-win” routines for sharing data with campus leadership & end users
- Excellent coordination between system and campus
- Elegant visualization of data; story resonates with stakeholders

- Regular routines established to share data, but with limited access to top campus leaders
- Beginning to establish data-driven culture around leading indicators
- Story is built around the data

- Unclear stakeholder views
- Message cannot be captured in succinct data summary slide
- Interactions are mostly transactional, with no sense of values

- Limited set of stakeholders identified
- Communication is not two-way
- Messages are conflicting or do not indicate action steps

# Education Trust Data Use Rubric

## Data use rubric



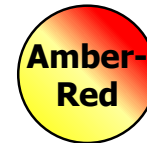
**Green**

- Performance benchmarked against campus history & across system(s)
- Explicit criteria for judging progress includes identifying problems well before key milestones are missed
- Routines to share progress reinforce accountability & serve as learning opportunities



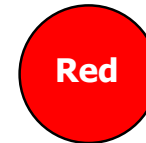
**Amber-Green**

- Campus has identified a basic set of performance monitoring routines across audiences
- Performance comparisons used to identify areas contributing most to target metric
- Faculty and admin routinely evaluate strategies to inform policy & practice



**Amber-Red**

- Inadequate IR capacity to do quality benchmarking
  - Criteria that indicate levels of progress and quality of implementation not well-defined
  - Data and reports not produced frequently enough to adequately sustain action



**Red**

- Difficult to reach agreement on performance benchmarks
  - Data cannot uncover largest contributors to performance against main outcome metrics
  - Performance conversations tense; reinforce blame culture

### Evaluation

### Improvement

- IR staff educates and assists campus personnel to use data for program improvement; tailored approach
- Leading Indicator data already being used to improve teaching and/or advising

- IR staff making general presentations to campus personnel about data-driven practice using Leading Indicators
  - Strategy in place for data-informed practice changes to occur Fall 2011

- Incompatible data systems between IR and AA/SA slow practice change
- Other campus dynamics impede progress on data-driven practice

- Significant resistance to practice change
  - No expectations for implementation of data are established by campus leaders

# Analyze Your Institution's Data Systems for Student Success

Grade your institution then identify data and human resource steps to move up

Data Use / Human Resources	Green	Amber-Green	Amber-Red	Red
Collection				
Human Resources				
Analysis				
Human Resources				

# Analyze Your Institution's Data Systems for Student Success

Data Use / Human Resources	Green	Amber-Green	Amber-Red	Red
Transmission				
Human Resources				
Evaluation				
Human Resources				
Improvement				
Human Resources				

# Report-Compare-Discuss

- Collection
- Analysis
- Transmission
- Evaluation
- Improvement

Thank You