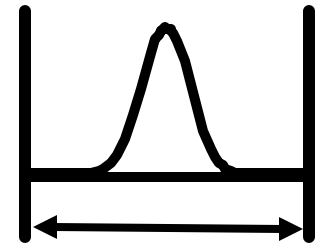
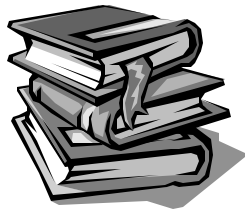


**Applying the  
Six Sigma Methodology  
to Improve the  
Admissions & Financial  
Aid Processes,  
Perceptions and  
Accountability**



# **Presentation Agenda**

- **UMR Overview and Student Market Trends**
- **Problem Statement & Premise of the Research**
- **Review of the Literature**
- **Methodology and Research Format**
- **Applying Six Sigma at the UMR Admissions Office --**  
**Results & Analysis**
  - **Measure**
  - **Analyze**
  - **Improve**
  - **Control**
- **Conclusions**
- **Suggestions for Future Work**
- **Questions & Discussion**

# University of Missouri – Rolla

## A Technological Research University

- 5600 Students: 75% Undergrad, 25% Graduate
- 76% Engineering Majors, 93% STEM Majors
- Average Scores: 27.4 ACT, 1280 SAT
- 75% In-state, 25% Out-of-state
- \$37 million in Sponsored Research
- 13:1 Student Faculty Ratio

# UMR Enrollment Trends

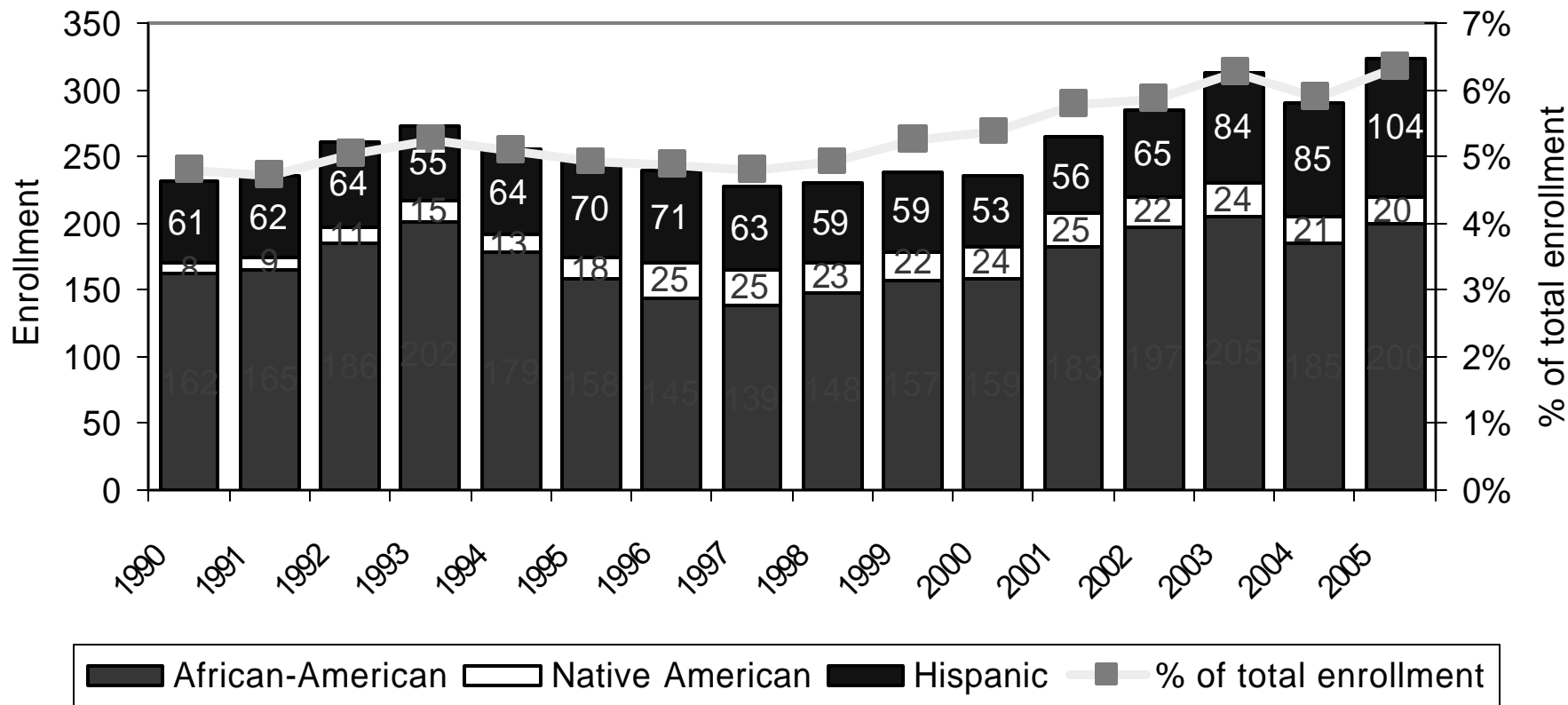
## 2000-2005

**Fall 2005 Total Enrollment:** 5,602

<b><u>Enrollment (4th week after classes begin)</u></b>	<b><u>FS 2000</u></b>	<b><u>FS 2005</u></b>	<b><u>FS 2000 - 2005 (5 yr)</u></b>		<b><u>FS 2005</u></b>
			<b><u>Change</u></b>	<b><u>% Change</u></b>	<b><u>% of Total</u></b>
<b><u>Undergraduate Students:</u></b>					
Freshmen	811	1,122	311	38%	20%
Sophomores	688	881	193	28%	16%
Juniors	755	961	206	27%	17%
Seniors	1,444	1,349	-95	-7%	24%
Total Undergraduates	3,698	4,313	615	17%	77%
<b><u>Graduate Students:</u></b>					
Graduate Certificates		131	131		2%
Masters	647	789	142	22%	14%
Doctoral	281	369	88	31%	7%
Total Graduate Students	928	1,289	361	39%	23%

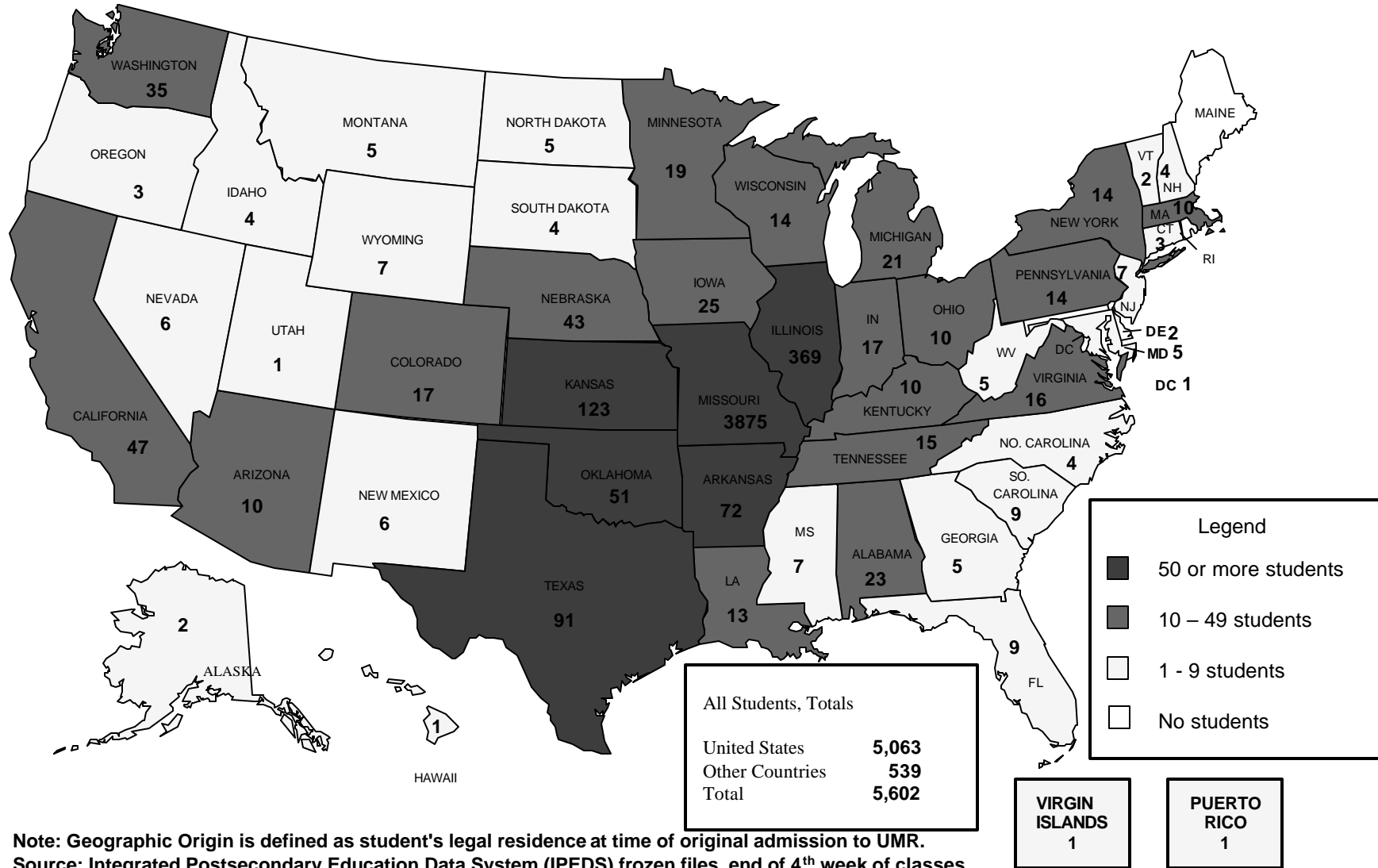
# Diversity Increases

**Total On-Campus Enrollment: Under-represented minorities  
(Undergraduate and Graduate)**



# University of Missouri - Rolla

## Geographic Origin of All Students - Fall 2005



**Note:** Geographic Origin is defined as student's legal residence at time of original admission to UMR.  
**Source:** Integrated Postsecondary Education Data System (IPEDS) frozen files, end of 4<sup>th</sup> week of classes.



# Financial Impact of Enrollment & Retention Growth

- Stronger Understanding of the Relationship between Early Applicant Financial Needs vs. Later Applicants
- Discount Rate lowered 14%
- + \$11 Million in tuition revenue
  
- 1st - 2nd Retention Rate: 87% +4%
- Graduation Rate: 64% +12%

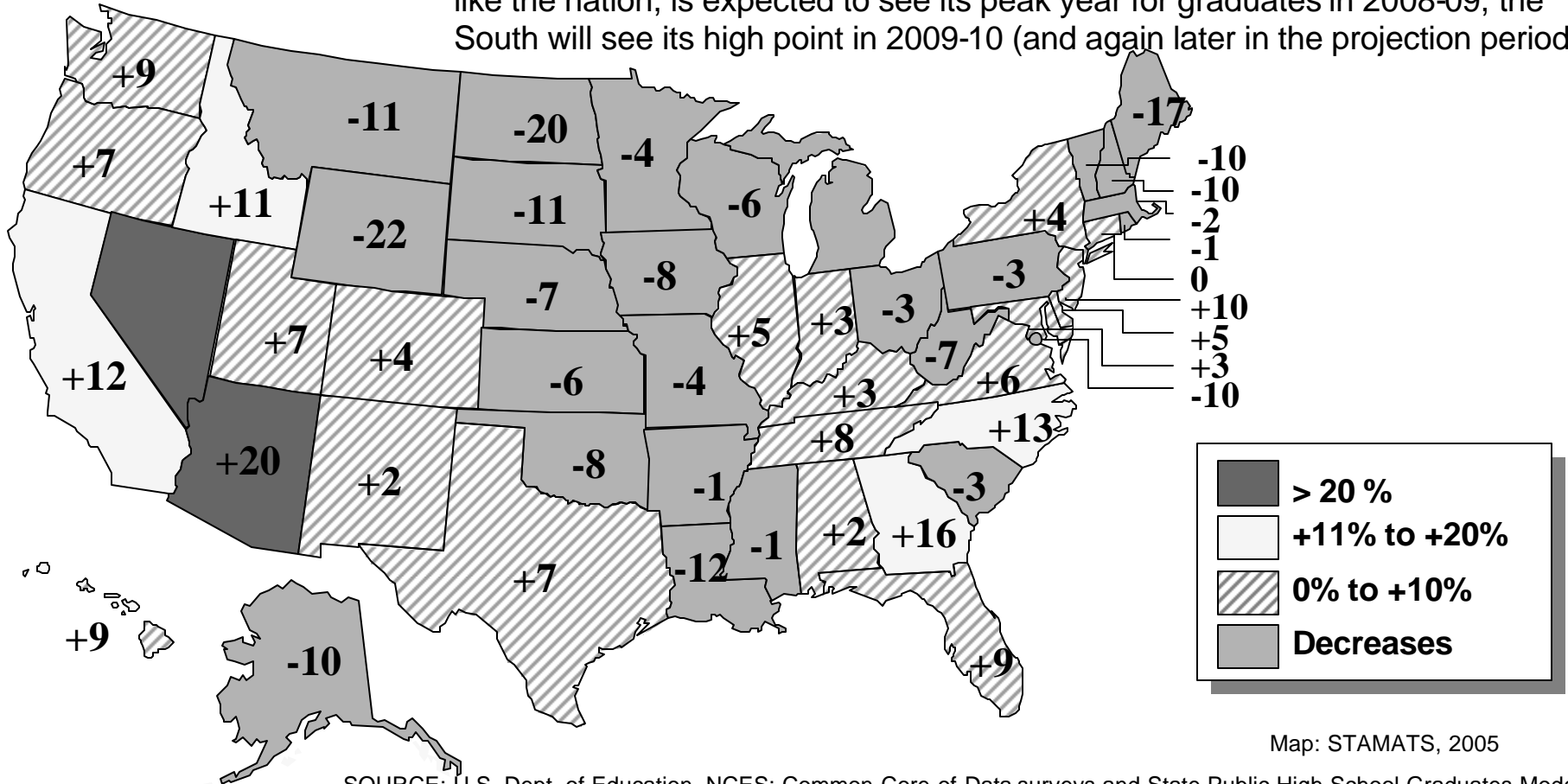


# A New Demand for Top Quality Service at Midwest Colleges

- Decline in traditional Midwest undergraduates 2009-2015.
- Continuing Shrinking of STEM Majors: Addressing the K-12 student interests not matching societal and industry needs.
- Due to the downward traditional student market, schools must focus on stronger undergraduate student retention and emphasize graduate enrollments
- Strong Transfer Programs Needed: due to increasing costs, more students are starting at community colleges.
- Successful recruitment requires a multi-media approach that embraces needs of high-tech, high-touch and highly diverse generation.

# Projected Change in High School Graduates 2002-2012

The Midwest and Northeast are projected to peak in 2007-08. While the West, like the nation, is expected to see its peak year for graduates in 2008-09, the South will see its high point in 2009-10 (and again later in the projection period).

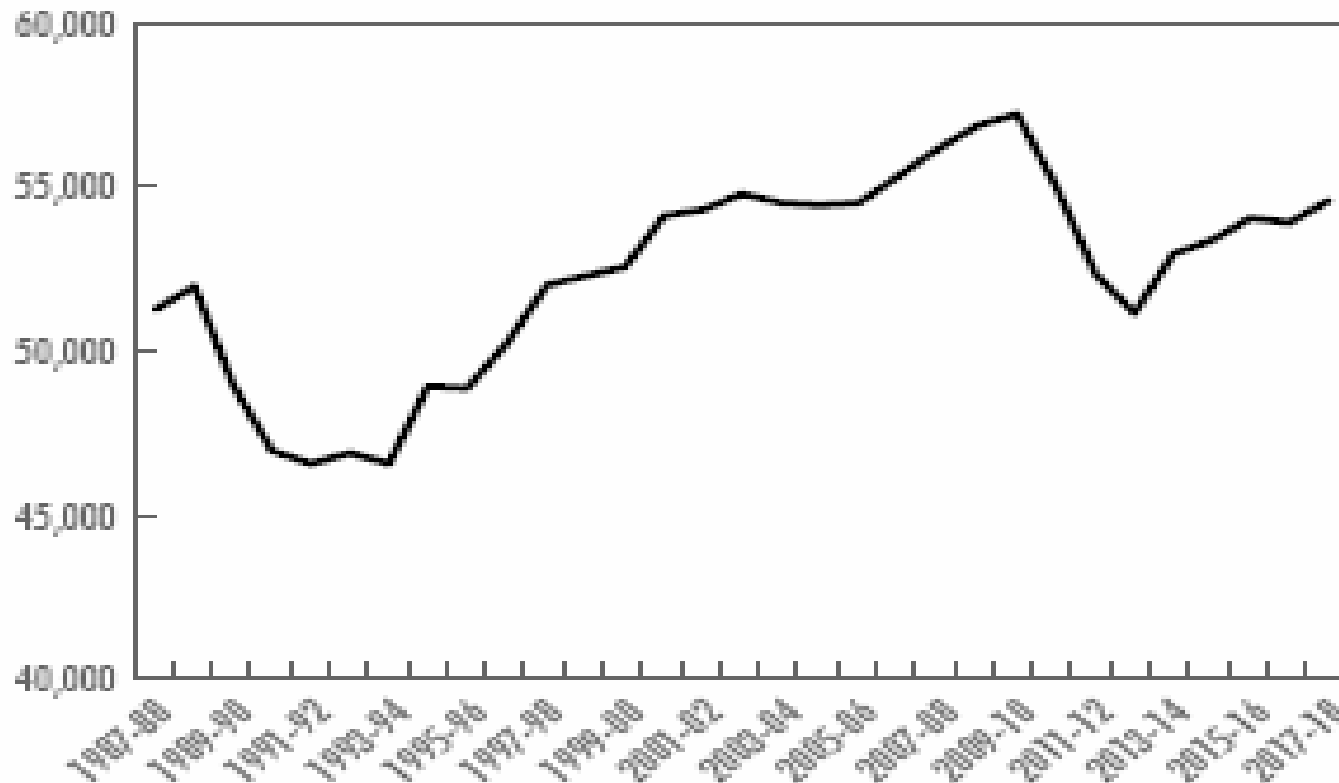


Map: STAMATS, 2005

SOURCE: U.S. Dept. of Education, NCES: [Common Core of Data](#) surveys and State Public High School Graduates Model.

# Missouri Public High School Graduates

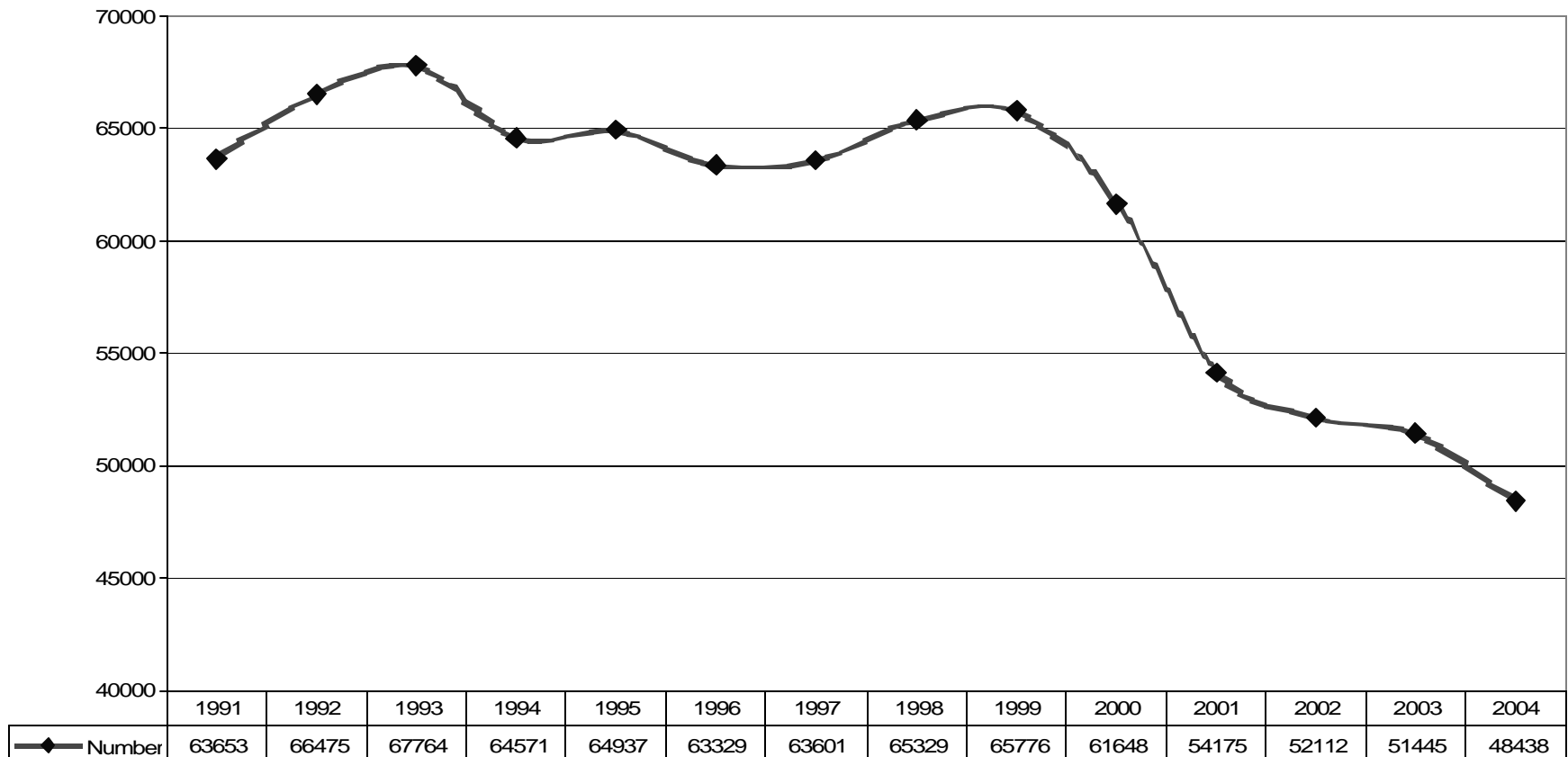
1987-88 to 2001-02 (actual)  
2002-03 to 2017-18 (projected)



SOURCE: WICHE 2004

# Decreases in Engineering Students

Potential Engineering Majors  
All College Bound, ACT Tested Students Interested in Any Engineering Field



# New Student Market Share

	2000	2002	2004	GAIN
Public High School Graduates*	52,852	54,513	57,573	8.9%
UM Campus Freshmen	6,233	6,533	6,880	10.4%
Other Freshmen 4 year public	10,937	10,762	11,190	2.3%
Freshmen 4 year Private	8,729	8,695	9,094	4.2%
TOTAL 2 year Public	25,899	25,990	27,164	4.9%
% of 4 yr Freshmen at UM	24.1%	25.1%	25.3%	
% of 4 yr Public Freshmen at UM	36.3%	37.8%	38.1%	
<b>Freshmen 2 year Public</b>	<b>29,852</b>	<b>32,202</b>	<b>33,399</b>	<b>11.9%</b>
Freshmen 2 year Private	219	238	197	-10.0%
Total College Freshmen in MO	38,800	41,135	42,690	10.0%
% of Freshmen at UM	16.1%	15.9%	16.1%	

\*SOURCES: MO DESE, Annual Report of School Data, web posted Sept. 27, 2004

MO DHE 2004-05 Statistical Summary of Missouri Higher Education; Tables 45, 46

# **Problem Statement**

**Can the Six Sigma  
Methodology be Used to  
Improve the Processes and  
Services in an Academic  
Environment?**

# Premise of the Research

- Six Sigma has been successful in improving both manufacturing and non-manufacturing processes in industry
- Previous quality initiatives have been used to make improvements in an academic environment
- Six Sigma can be successfully applied in an academic setting
  - But some things may be different
  - Some tools may be more helpful than others
  - Factors for success may be different

# Quality in Non-Manufacturing Settings

- Quality initiatives (both TQM and Six Sigma) have evolved to include non-manufacturing and service processes
- Six Sigma has been the primary quality initiative of the last decade with documented successful application improving non-manufacturing processes
- Previous research in the literature indicates large potential benefits (financial and otherwise) can be recognized by improving service, administrative, and other non-manufacturing processes



# Quality in Non-Manufacturing Settings

- GE quotes 2X return in non-manufacturing Six Sigma projects compared to manufacturing projects
- Juran Center for Leadership in Quality: “The most startling opportunities we’ve seen are in service and/or administrative areas.”
- Research shows that the cost of poor quality in service-based businesses is typically as high as 50% of total budget (compared to 10-20 % for manufacturing operations)
- Initial performance for administrative processes starts between 1.5 and 3 sigma (50-90% yields)
- A 1990 survey says 90% of more of the potential for improvement lies within service industries and service jobs in manufacturing industries.

# Quality Initiatives in Higher Education

- Since the late 1980's there have been many documented quality initiatives in Higher Education
- Most are based on TQM or similar philosophies
- Biggest successes have been in business and administrative processes

**No literature examples of a university using the Six Sigma methodology could be found.**

# Success Factors for Six Sigma

***The Right Project***

***The Right People***

***The Right Roadmap & Tools***

***The Right Support***

Additional sources in the literature support the 4 “Rights”

# Methodology and Research Format

- Case-study research format
- 7 member project team worked to improve the business processes at the UMR Admissions office
- The team used the Six Sigma roadmap and tools:

## MEASURE

Process Mapping  
Cause and Effects Matrix  
Measurement System Analysis  
Benchmarking  
Baseline Capability

## ANALYZE

Failure Modes and Effects Analysis  
Multiple-Variable Statistical Analysis

## IMPROVE

## CONTROL

# Project Team & Schedule

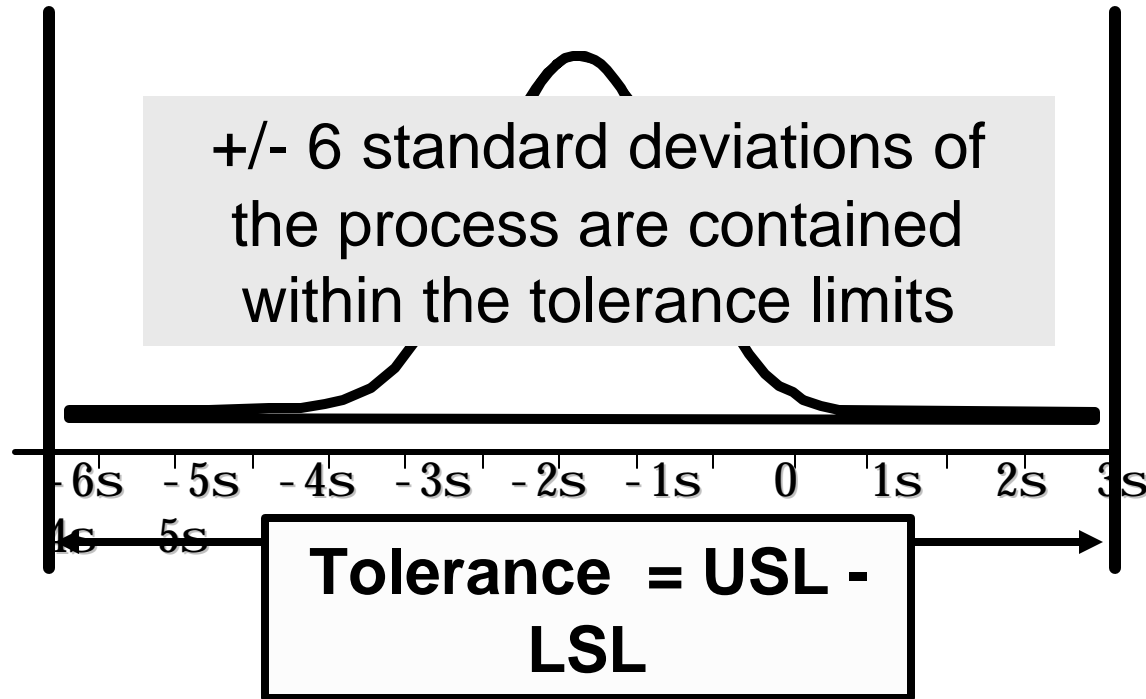
## Project Team:

Kimberly McAdams	-Master's Student & Team Leader (Black Belt)
Jay Goff	-Dean of Enrollment Management
Jennifer Bayless	-Assistant Director for Admissions
Lynn Stichnote	-Director of Admissions
Laura Stoll	-Registrar
Bob Whites	-Assistant Director of Financial Aid
Dr. Dave Spurlock	-Faculty advisor, Dept of Engineering Management
Dr. Gary Gadbury	-Faculty committee, Dept of Math & Statistics
Dr. Steve Raper	-Faculty committee, Dept of Engr Management

## Schedule:

Measurement:	9/4 - 10/31/01
Analysis:	11/1 - 12/31/01
Improvement:	1/1 - 2/28/02
Control:	3/1 - 5/31/02

# Six Sigma - Where it comes from



The goal is to reduce the variation of the process

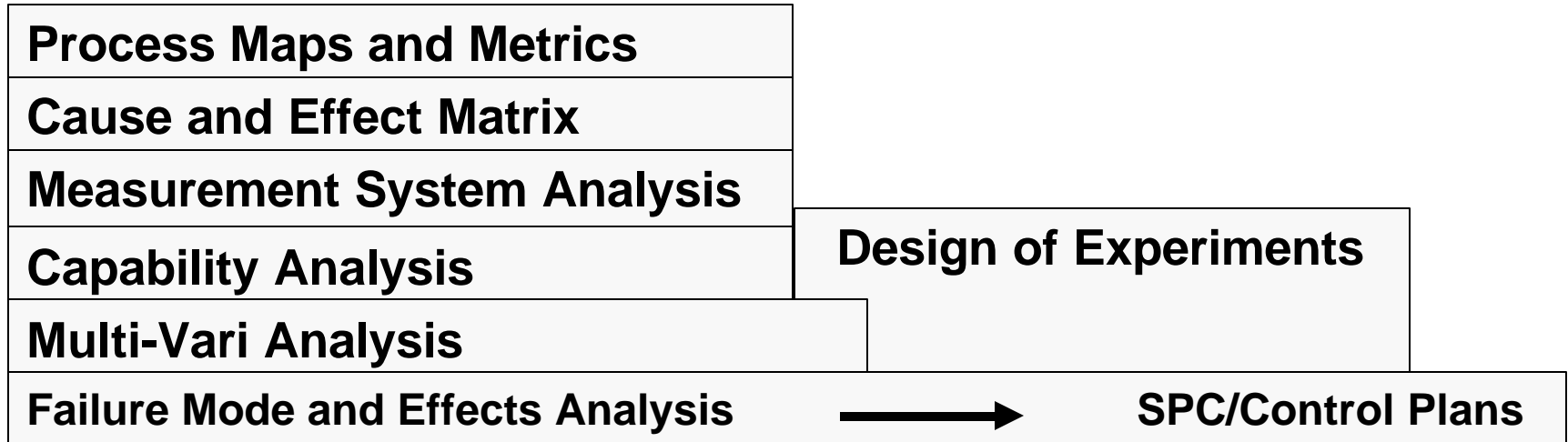
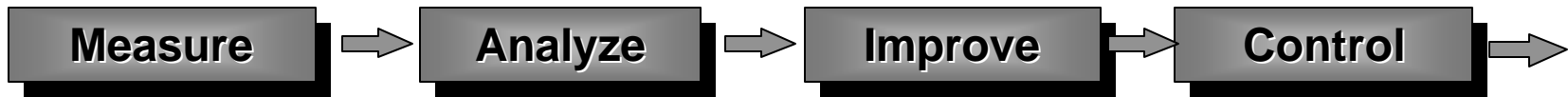
If you are at Six Sigma:

You are producing good “product” 99.999% of the time

There are no more than 3.4 defects per 1 million “units”

The word “Sigma” is a statistical term that measures how far a given process deviates from perfection.

# Intro to Six Sigma - The Methodology



**Process Improvement Methodologyä -- Steve Zinkgraf**

GE: " Globalization and instant access to information, products and services have changed the way our customers conduct business — old business models no longer work. Today's competitive environment leaves no room for error. We must delight our customers and relentlessly look for new ways to exceed their expectations. This is why Six Sigma Quality has become a part of our culture. "

# Six Sigma - What it Is

**Six Sigma is a defined methodology and a set of statistical and quality tools used to improve the performance of a process so that the organization can realize financial benefits.**

GE: " Six Sigma is a highly disciplined process that helps us focus on developing and delivering near-perfect products and services. The central idea behind Six Sigma is that if you can measure how many "defects" you have in a process, you can systematically figure out how to eliminate them and get as close to "zero defects" as possible. Six Sigma has changed the DNA of GE—it is now the way we work—in everything we do and in every product we design.



# Applying Six Sigma at the UMR Admissions Office

## Results & Analysis

# Measure Phase

Project Definition

Process Mapping

Measurement System Analysis

Cause and Effects Matrix

Benchmarking

Baseline Capability

# Project Definition

**Increase the efficiency and  
accuracy of the student inquiry  
and application process for  
UMR admissions**

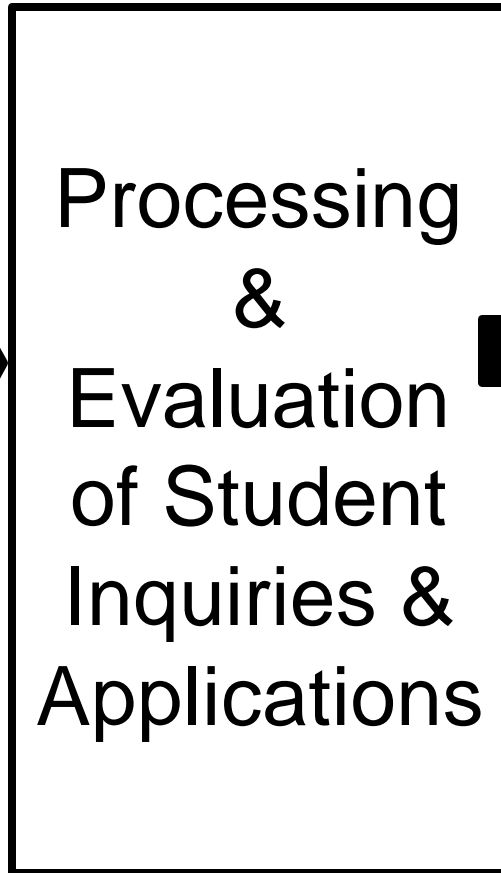
# **Project Benefits**

- **Increased satisfaction with inquiries and applicants**
- **Increased enrollment yield of students that apply**
- **Improved perception, integrity, and accountability of office**
- **Simpler and better defined process for university employees and students**
- **More student-friendly customer service**
- **Improved employee satisfaction resulting in less turnover**
- **Quicker and more accurate view of status of applications**
- **Continued adherence to national & state guidelines and good practices**

# High-Level Process Map

## INPUTS

- Media/method of communication
  - internet/web form
  - email
  - mail (card or letter)
  - hand-carry
  - telephone
  - college fair
  - campus visit
  - other campus contact
- Type of document received
  - inquiry - general
  - inquiry - specific
  - application
  - test scores
  - transcript
  - fee
  - financial statement
  - health forms
  - housing info
  - other support papers
- Person processing
- Degree programs
- Season / time of year



## OUTPUTS

- Response to student (email, letter, call, postcard)
- Material to student (acknowledge, missing, acceptance, brochures...)
- # of applications processed/day/ person
- Time to respond (< 48 hours)
- Operating cost per enrolled student
- # of out files
- # of lost files
- # of customer complaints
- # of reprocessed documents
- # of edit report errors / week

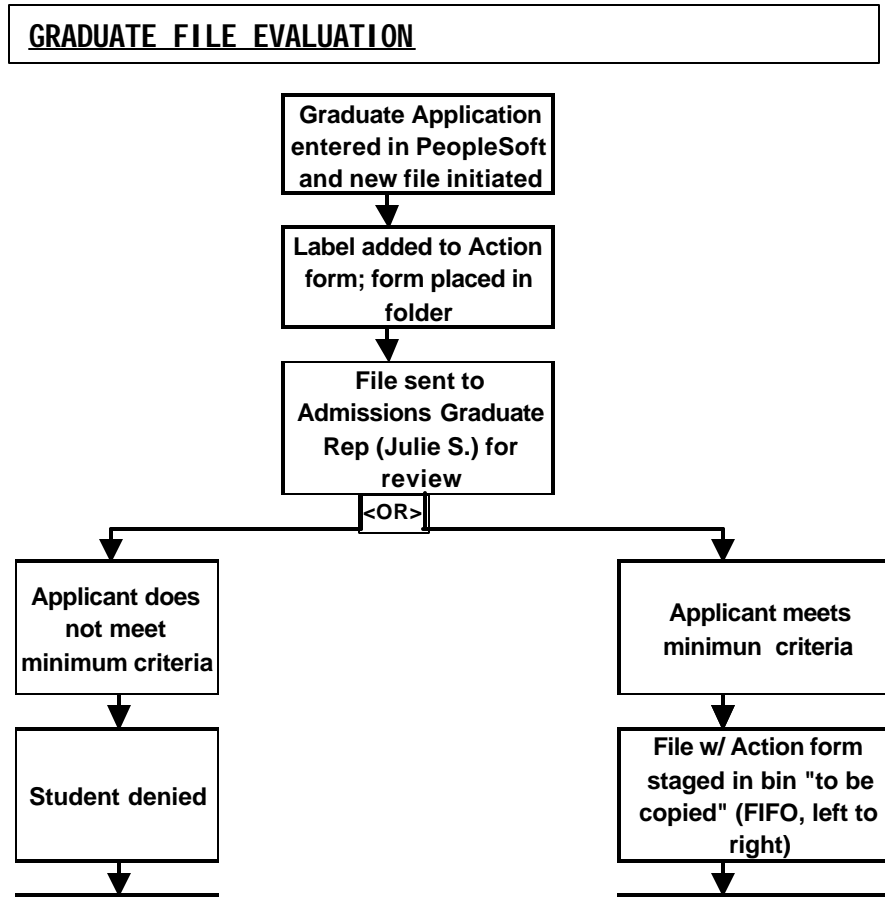
DEFINE OVERALL  
PROCESS & KEY OUTPUTS

# Measurement System Analysis

<i>AREA OF FOCUS</i>	<i>METRIC</i>	
<u>File processing</u>	# of Misplaced Files	<p><b>INCREASE ACCURACY</b></p> <p><b>INCREASE EFFICIENCY</b></p>
	# of “Out” Files	
<u>Data Entry Quality</u>	# Errors / Application	
	# Error Report Errors / Week	
	# Reprocessed Documents	
Processing Efficiency	Time to Respond to Student	
	# Applications / Person / Day	
Resulting Benefit	# of Complaints / Month	
	Operating Cost / Student	

The team defined the metrics that would be used to track performance of the admissions process

# Detailed Process Maps



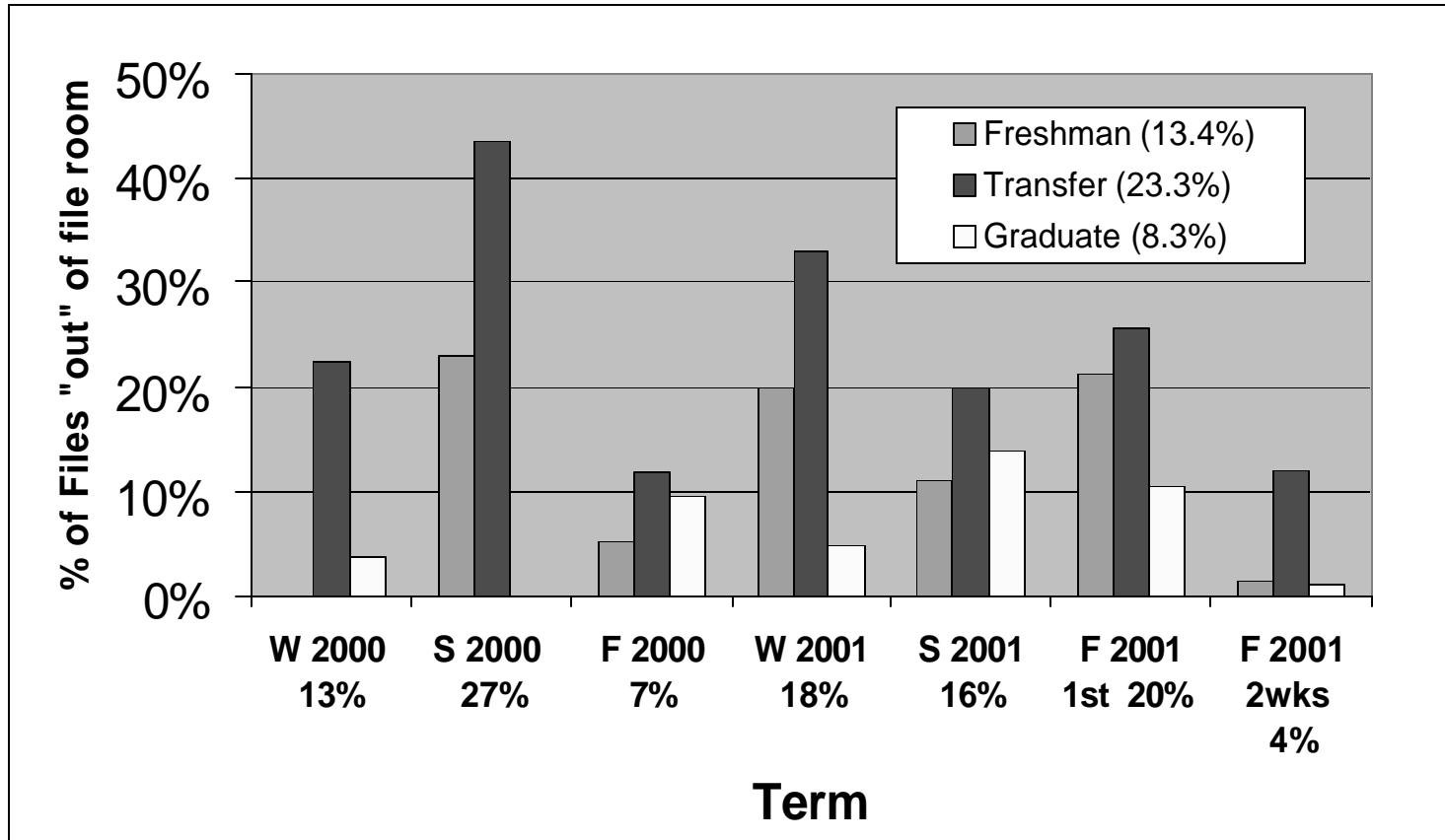
- We mapped the flow of the files, documents, and information
- We found “gaps” or undefined steps
- We found repetitive or “non-value added” steps
- Many benefits are often found in mapping a non-manufacturing process

# Benchmarking

	Date visited	Types of students	# of apps per year	People Soft	How Filed	File Folders	Division of work	Where files end up	Key features
<b>University of Missouri-Rolla (UMR)</b>		Freshman Transfer Graduate International	~6,000	<input checked="" type="checkbox"/>	xfer / fresh / grad; by term; all misc in separate file	colored folders by term; use out cards	ungrad / grad; S.A.'s file and support work	send to registrar	
<b>Saint Louis University (SLU)</b>	9/21	Freshman Transfer International	~6,000	no	xfer / fresh; 4 alpha sections w/in fresh; current/future/last term; misc under each section	pre-printed file envelope (open only on top); no color coding; use out cards	1 person for xfer & intl; 4 people by alpha for freshman	send to SLU101; filed at department	computer system tracks location of file; division of labor by alpha; bins for in/out & tbfled
<b>University of Missouri-Saint Louis (UMSL)</b>	9/21	Freshman Transfer Graduate International	~15,000	no	all files A to Z	colored folder by 3rd letter of last name		keep final folder	
<b>University of Missouri-Kansas City (UMKC)</b>	9/28	Freshman Transfer Graduate	~15,000	no	all files A to Z; divided into 3 alpha sections; all misc in rolling file	printed colored label to 3rd letter of last name; colored label for year & term; no out cards	1 person enters all apps; 2 people (divided by alpha) enter transcripts, scores & complete file	send to registrar; "did not enroll" also sent to registrars	TRAX barcode system; clearly marked bins on each desk & at each filing/mail station; only copies sent from admissions; focus on "staff development" and motivation
<b>Kansas University (KU)</b>	9/28	Freshman Transfer	~15,000	<input checked="" type="checkbox"/>	incomplete / complete / last term; then all A to Z; misc in separate file	colored label to 3rd letter of last name; colored folders; use full size out cards	ATS opens mail, marks & sorts; seasonal workers for Ap Prep; 4 office specialists & 2 mail processors by alpha division of work	keep final folder	clearly defined division of labor; each document marked w/ name, dated, and checked on system; clearly marked file locations



# Baseline Capability - File Processing

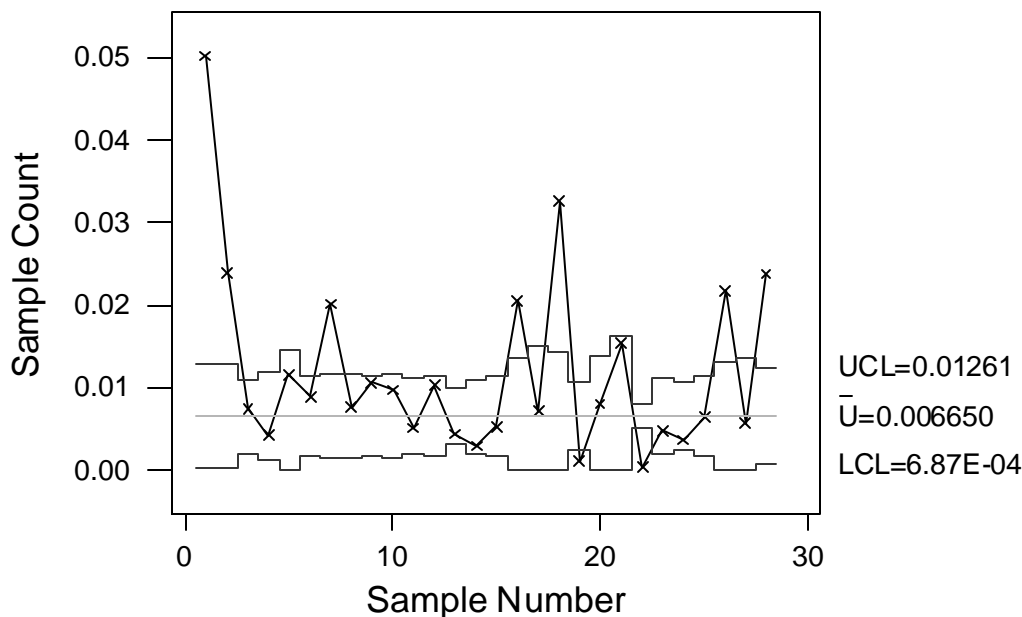


Proportion of files “out” of the file room each semester at the Registrar’s “pull”

Total 14.6% of all files were “out” equating to a 2.6 Sigma process

# Baseline Capability - Data-Entry Quality

U Chart for Total Errors per Week



## Applications:

$\bar{p} = .0086 * 15 *$   
7,500 apps = 970  
Errors / year

## Inquiry Cards:

$\bar{p} = .011 * 5 *$   
14,000 inquiries  
=770 Errors /  
year

Weekly PeopleSoft™ Edit Report errors for Applications & Inquiries

$\bar{U}$  is average errors per application/inquiry card

Process is “Out of Control”

# Analyze Phase

Failure Modes & Effects Analysis

Multiple Variable (Multi-vari) Analysis

# Multi-Vari Analysis - File Processing

Type of Student		Out	In	Total
Freshman	actual	196	1265	1461
	expected	214	1247	
Transfer	actual	174	574	748
	expected	109	639	
Graduate	actual	61	675	736
	expected	108	628	
TOTAL		431	2514	2945

13.4% (next to Freshman actual)

23.3% (circled, next to Transfer actual)

8.3% (next to Graduate actual)

Chi-Sq = 70.032, P-Value = 0.000

Chi-Square Test of Files "Out" by Type of Student

- Chi-square test for Files "out" by Type of Student
- Ho: "Out" files does not depend on Type of Student
- Reject the null hypothesis -- there IS a significant difference
- **Significantly MORE files "out" for Transfer students than would be expected**

# Multi-Vari Analysis - File Processing

Type of Student		Out	In	Total
Winter	actual	70	758	828
	expected	88	740	
Summer	actual	39	217	256
	expected	27	229	
Fall	actual	324	2664	2988
	expected	318	2670	
TOTAL		433	3639	4072

8.5%

15.2%

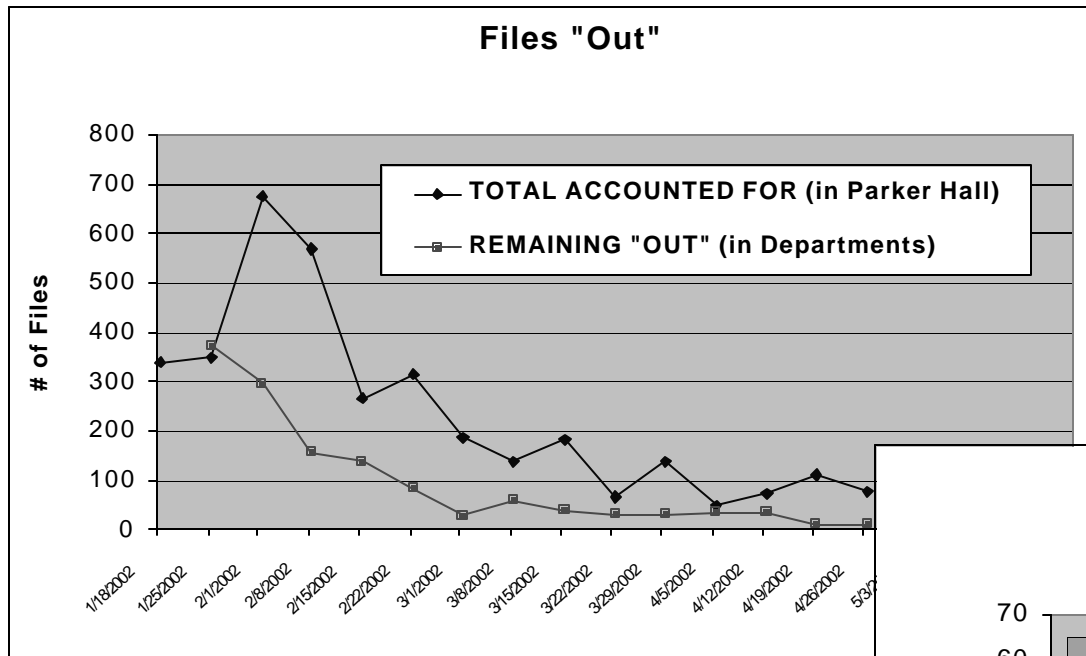
10.8%

Chi-Sq = 9.980, P-Value = 0.007

Chi-Square Test of Files "Out" by Term

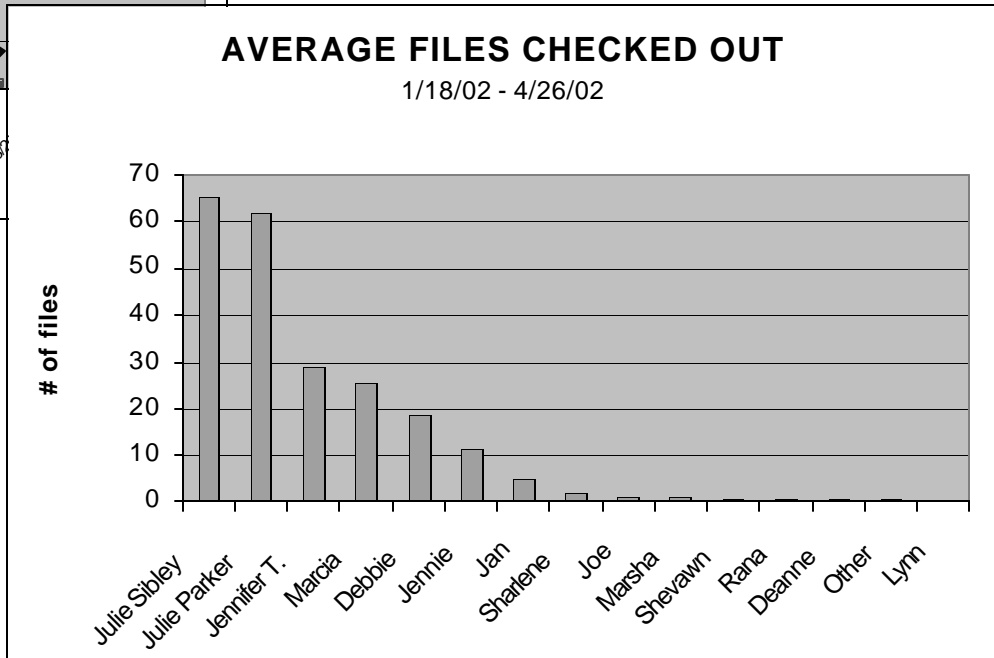
- Chi-square test for Files "out" by Term
- Ho: "Out" files does not depend on Term
- Reject the null hypothesis -- there IS a significant difference
- **Significantly MORE files "out" in the Summer & Fall than would be expected**

# Multi-Vari Analysis - File Processing



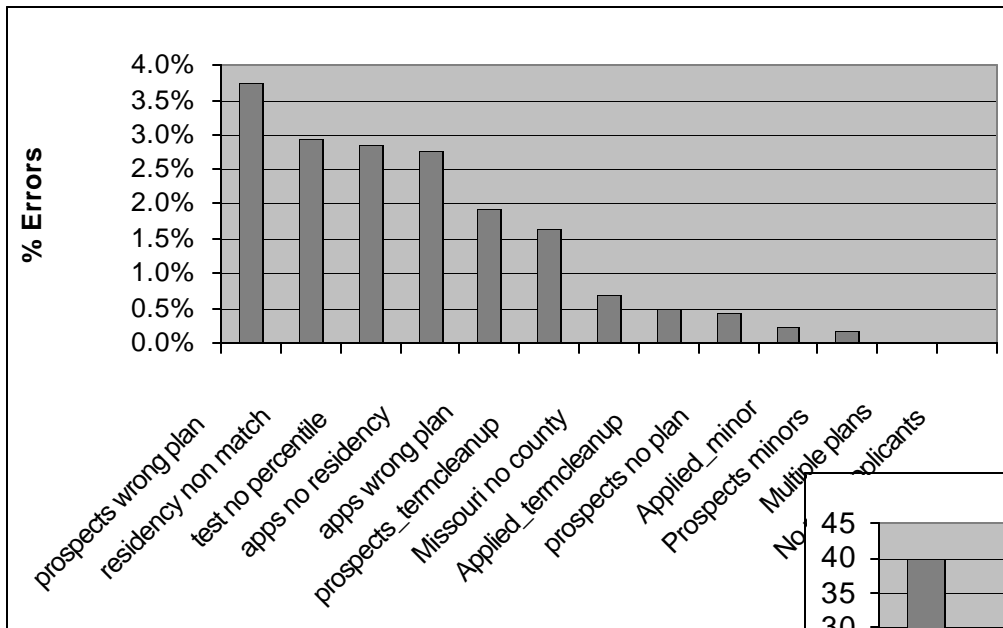
Tracking the # of files out each week and where they were located

Weekly number of Files "Out"



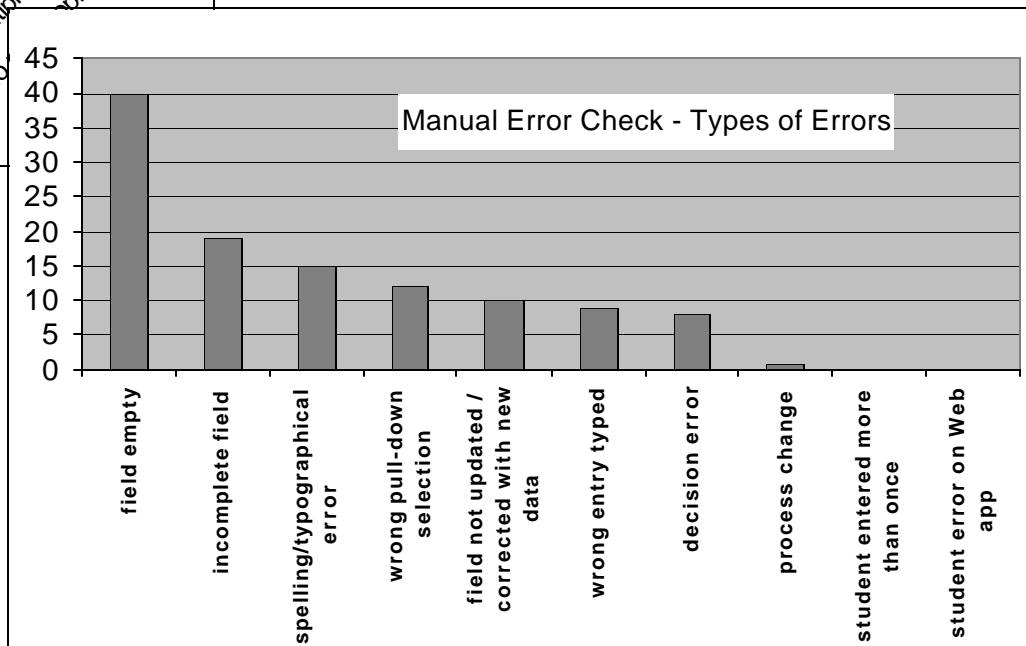
Pareto of the average Files "Out" by Person

# Multi-Vari Analysis - Data-Entry Quality



Tracking number  
and type of  
errors found each  
week

Pareto of Edit Report  
Errors by Type



Pareto of Manual  
Errors by Type

# Multi-Vari Analysis - Data-Entry Quality

Type of Data-Entry		Errors	Fields	Total
Applications	actual	195	22804	22999
	expected	230	22769	
Prospect Cards	actual	402	36409	36811
	expected	367	36444	
TOTAL		597	59213	59810

Chi-Sq = 8.542, P-Value = 0.003

Chi-Square Test of Errors by Type

- Chi-square test for Errors by Type of Data Input
- Ho: Errors do not depend on Type of Data Input
- Reject the null hypothesis -- there IS a significant difference
- **Significantly MORE errors inputting Prospect Cards**
- **Need to inform & better train student employees**



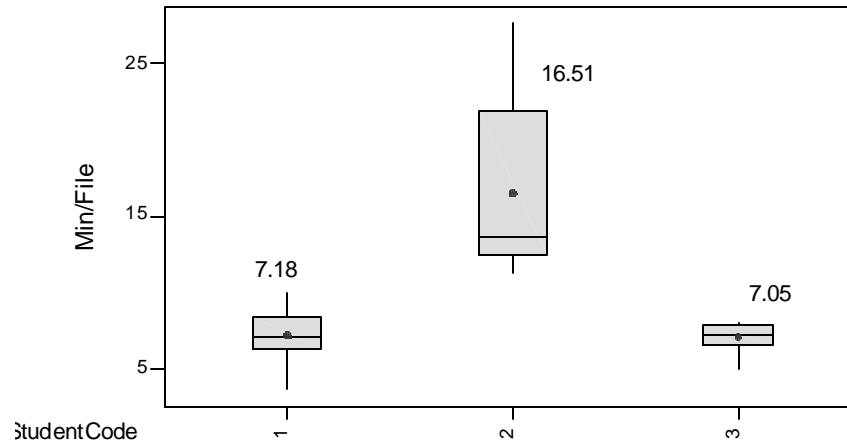
# Multi-Vari Analysis - Data-Entry Quality

Error report	Errors	Total Records	Percent	Frequency	Severity	TOTAL
residency non match (A)	51	1735	2.9%	8	9	72
apps no residency (A)	45	1630	2.8%	8	9	72
test no percentile (A)	16	561	2.9%	8	6	48
prospects wrong plan (P)	84	2243	3.7%	10	4	40
prospects_termcleanup (P)	49	3005	1.6%	5	7	35
apps wrong plan (A)	8	418	1.9%	5	4	20
Applied_termcleanup (A)	8	1630	0.5%	2	7	14
Missouri no county (A)	7	1008	0.7%	3	3	9
prospects no plan (P)	13	3005	0.4%	2	4	8
Applied_minor (A)	1	478	0.2%	1	4	4
Prospects minors (P)	5	3005	0.2%	1	4	4
Multiple plans (A)	0	1008	0.0%	0	4	0
No plan applicants (A)	0	1008	0.0%	0	4	0

- Modified FMEA for Edit Report Errors summing:
  - *Frequency* that the error occurs
  - *Severity* of the impact if the error occurs
- **Conclusion: Need to focus on Residency**

# Multi-Vari Analysis - Processing Efficiency

Boxplots of Min/File by Student  
(means are indicated by solid circles)



<u>Analysis of Variance for Min/File</u>					
Source	DF	SS	MS	F	P
Student	2	398.0	199.0	18.57	0.000
Error	21	225.0	10.7		
Total	23	623.0			

- ANOVA for Time to Copy by Student
- $H_0: \mu_1 = \mu_2 = \mu_3$  (mean time to copy is independent of student)
- Reject the null hypothesis -- there IS a significant difference
- **Different workers (mostly students) took significantly more time to copy documents**
- **Conclusion: Need consistent training for ALL workers**

# **Improve Phase**

Experiments

Process Changes

Mistake-Proofing Methods

# Initial Improvement Proposal

**1-Filing Proposal**

**2-Division of Office Work Activities**

**3-Office Organization**

**4-Office Personnel Development**

**5-File Management Guidelines**

Initial changes based on benchmarking and process mapping

# (1) Filing Proposal



2002

WS

- File everything A to Z
- Color-coded labels for 1<sup>st</sup> three letters of student's last name
- Color-coded label for year
- All folders the same color

WS02

NGE

GRAD

07/27/2000

12345

MCADAMS, KIMBERLY KIRKHAM

M

C

A

## (2) Division of Work Activities

- Division of activities first split by graduate & undergraduate
- Then an alphabet split among 4.5 data entry specialists

example:

<u>Graduate</u>	<u>Undergraduate</u>
(A-D) - Sharlene 1/2	(A-M) - Carolyn
(E-S) - Marsha	(N-Z) - Rana
(T-Z) - Connie	

- All application-related work for each student is processed by the same data entry specialist
  - Applications
  - Test Scores
  - Transcripts
  - Letters and financial statements
  - Specific phone calls & emails

### Benefits



- **Specialist becomes familiar with student (especially helpful with problems & questions)**
- **Specialist has ownership of student's file and documents**
- **Students and people outside office know who to go to with a question about a student's file**
- **Each specialist does all aspects of job**
  - automatic cross-training
  - reduces repetition
- **More balanced division of work**
- **Better loading of seasonal work**

# (3) Office Organization Suggestions

- Office organization of mail and files

- Bins for file r
- Bin for "Need
- Bins to Regist
- Signs for data
- Signs for all b
- Mail sorter fo

Clear identification of  
location and status of files  
and documents

- Desk organization of

- Marcia, Julie
  - Clear "in
- Data Entry Specialists
  - Clear "inbox", "in-process", "labels", "completes", and "to be filed"

# (4) Office Development

- Student focus
- Positive Attitude
- Motivation Tools
- Morale Boosters
- Continued Training
- Best-practices

posters  
signs  
office meetings  
lunch-n-learns  
"stars"  
????????

"Organization Development"  
"Assistant Director of Customer Service"

## (5) File Management Guidelines

No misplaced files!!

No misplaced documents

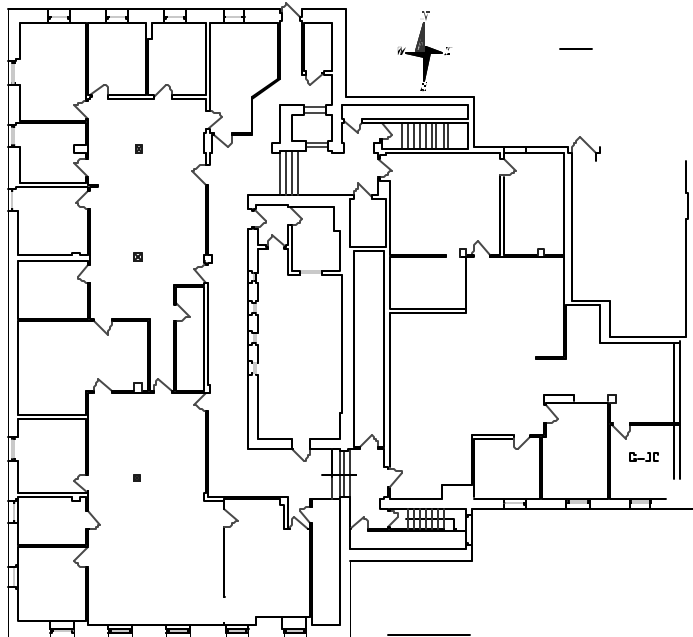
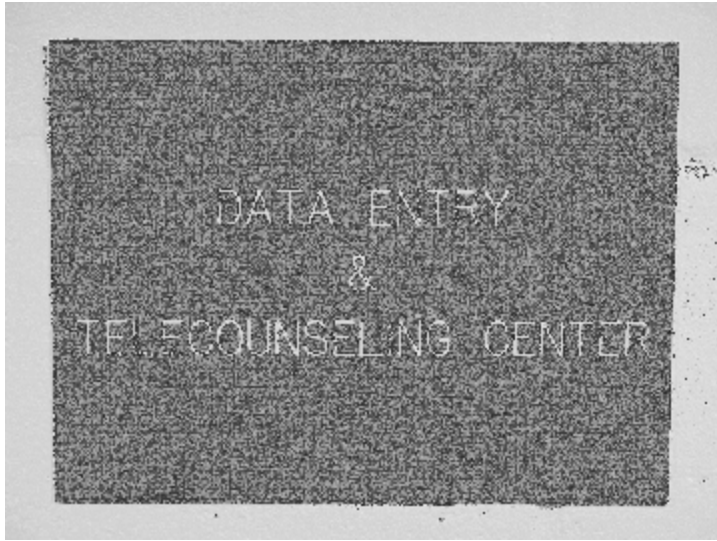
- Fewer files out of file room for less time
- Take immediate / timely action on file
- Use and update “out cards” --> color card & date
- All files returned to file room each week
- Weekly count of “out” files and follow-up action
- Original documents stay within Parker Hall
- Documented and clearly communicated file management process and system
- Continuous improvement meetings
- Work towards a paperless system



# Other Improvements

- Process Change so that *No Original Documents* leave Parker Hall
- Other *Process Modifications* to elimination steps and simplify the process flow
- *Data-entry Quality Improvements*
  - Immediate Feedback & Awareness of Errors
  - Permanent PeopleSoft™ software changes
- *Workspace Redesigned*
  - Space coordinated according to work processes
  - Better desk space and file coordination
  - Organized to accommodate imaging system

# Workspace Redesign Improvements



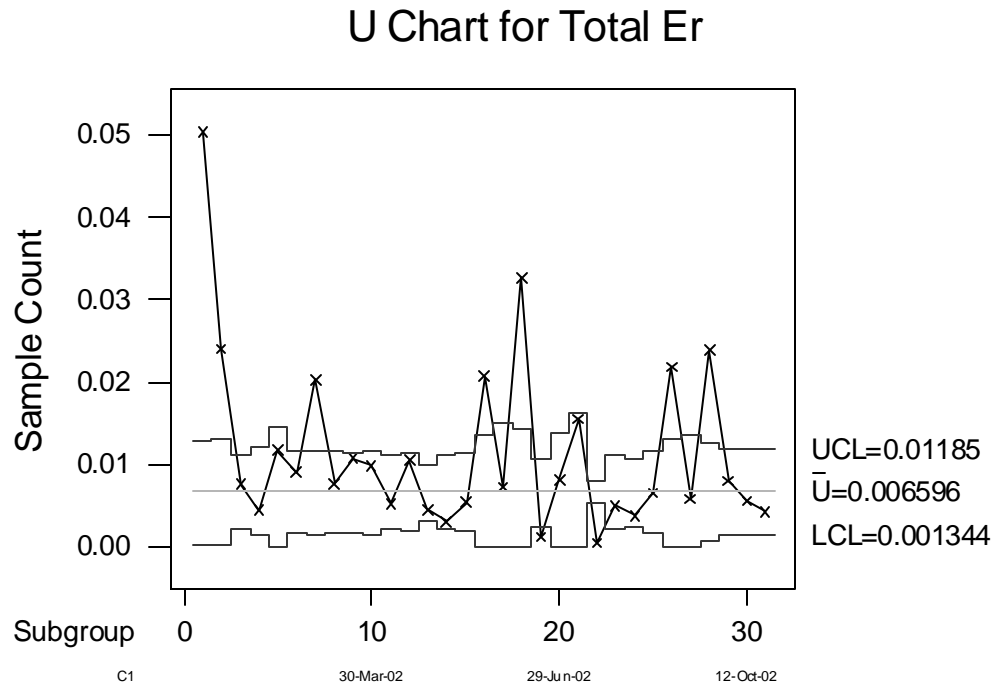
# Workspace Redesign Improvements

TRANSFER & GRADUATE  
ADMISSIONS OFFICE



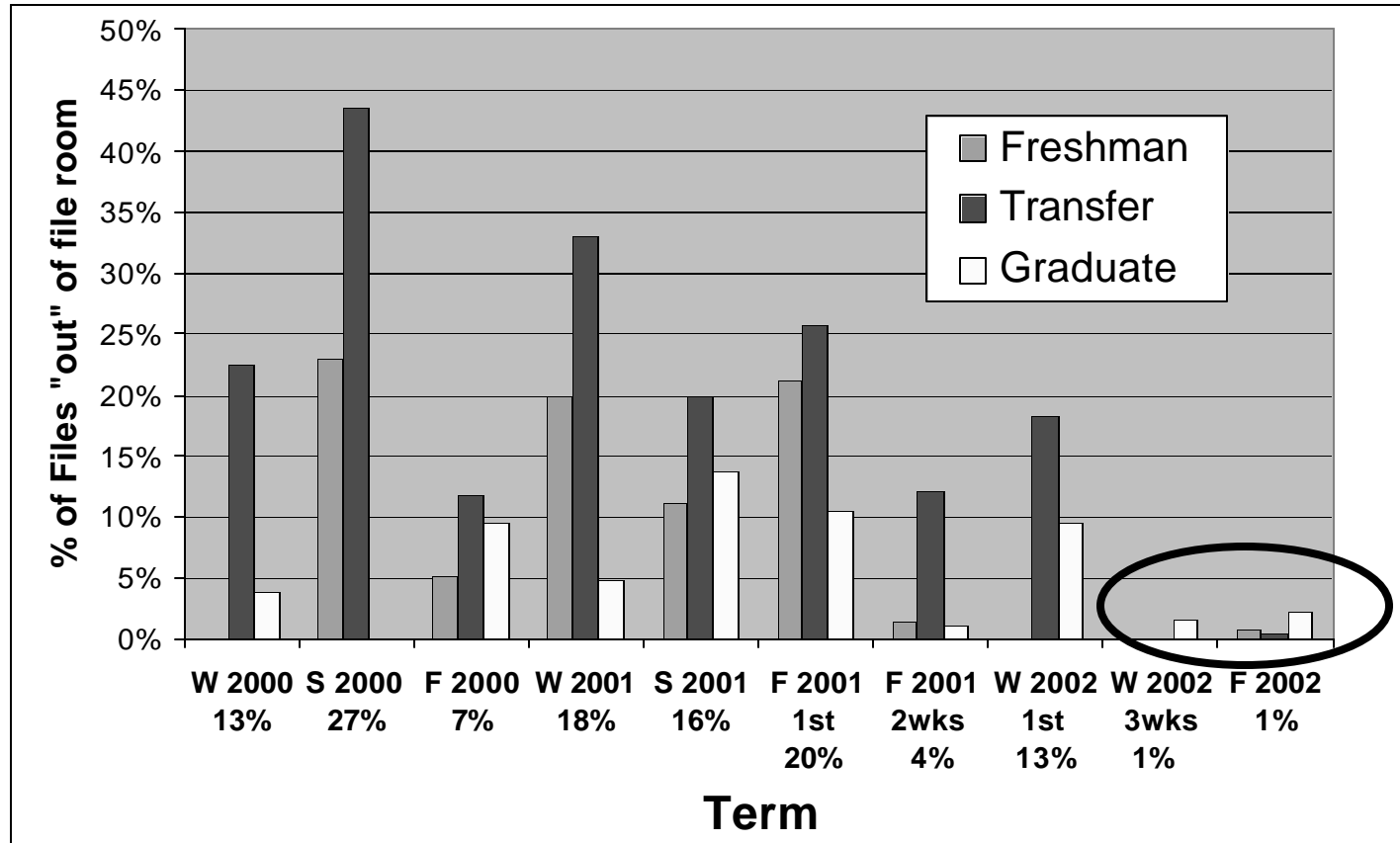
# Measured Improvements for Errors

## Temporary Action: Spot Checking Files



- Can not claim any measured improvements here due to the fact that we did not start tracking data until January 2002, which was over 4 months into the project.
- Long term look for “Mistake Proofing” fixes: software modifications were made to limited data entry options (i.e. pull down menus, zip coding checking by city/state abbreviation) and daily automated data edit checks were installed.

# Measured Improvements



- There has been a significant change in the number of files out of the file room
- 13 out of 1,320 files were not found for the Fall2002 semester

# Measured Improvements

TERMS		Out	In	Total
W2000 - F2001	actual	431	3738	4169
	expected	323	3846	
W2002 & F2002	actual	15	1566	1581
	expected	123	1458	
TOTAL		446	5304	5750

## Test and CI for Two Proportions

Sample	X	N	Sample p
1	3738	4169	0.896618
2	1566	1581	0.990512

Estimate for  $p(1) - p(2)$ : -0.0938944

95% CI for  $p(1) - p(2)$ : (-0.104299, -0.0834903)

Test for  $p(1) - p(2) = 0$  (vs not = 0): Z = -17.69 P-Value = 0.000

There has been a significant change in the number of files out of the file room

# Measured Improvements



# Faster Admission Processing

- Achieved goal of 48 hour First Review of Apps
  - Undergraduate Apps Completed 17% Faster than in 2000
  - Graduate Apps Completed 24% Faster than in 2000



# Control Phase

Hand-off

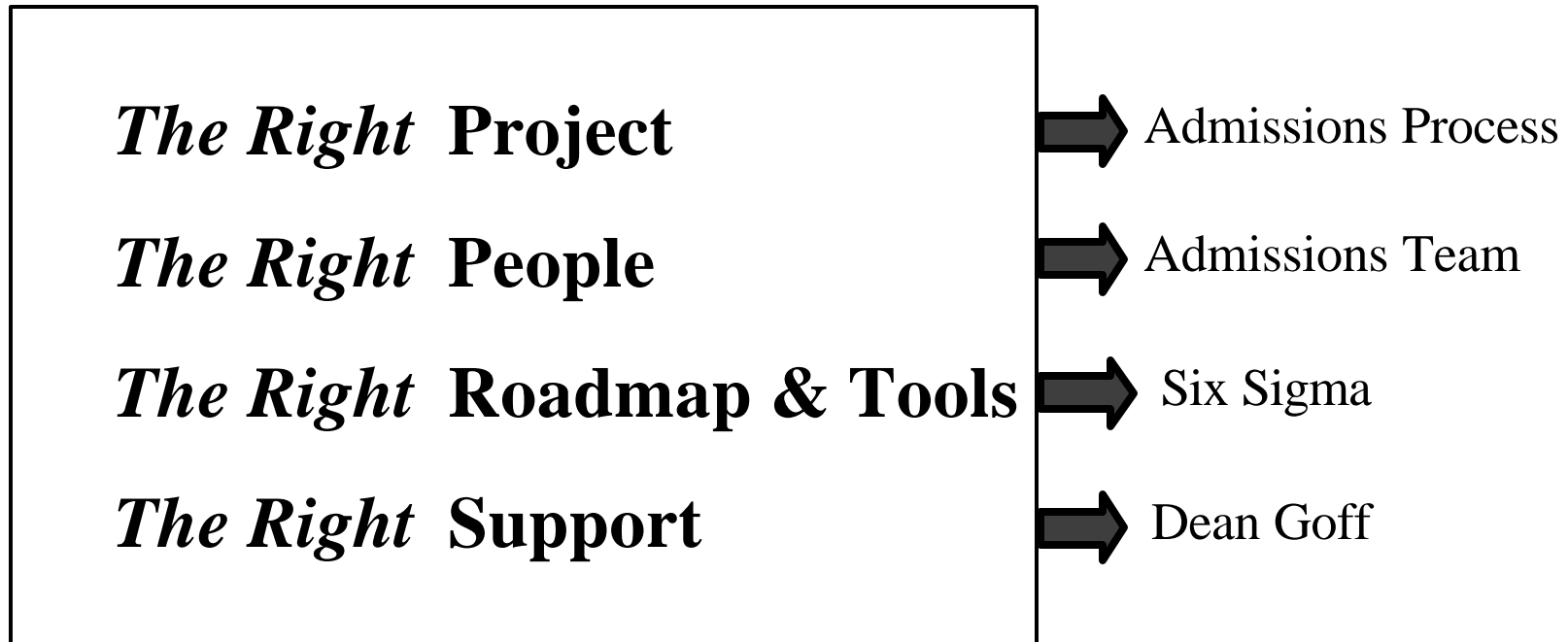
Processing Monitoring

Reaction Plan

# Control – Implementing the Changes

- Hand-off to process owner, Assistant Director for Admissions
- Some of the effort is complete; much needs to be maintained
- Enrollment Management team to review metrics monthly
  - File Processing metrics
  - Data-entry Quality metrics
- Data-Entry specialists to meet once a month
  - Review File Processing metrics
  - Review Data-entry Quality metrics
  - Discuss Process Issues, Changes, & Improvements
- Keep Process Maps Updated

# Analysis of Success Factors



- Overall, the team met the 4 factors for success
- Some notes:
  - The project scope was large
  - The team needed early representation from the process operators
  - C&E Matrix & FMEA would have helped to narrow the scope

# Key Conclusions

- The Six Sigma team improved the accuracy, reliability and efficiency of the student application evaluation and data processing in the UMR admissions office
- In general, the application of the Six Sigma methodology in this academic setting was no different than would be seen in industry
- Some tools were more useful than others
  - Defined meaningful metrics and goals
  - Process Mapping & Benchmarking were foundation
  - C&E Matrix and FMEA should have been better applied
  - Data analysis directed team as to where to focus effort
- Six Sigma was a useful framework for the improvement efforts

# Suggestions for Future Work

- Additional Six Sigma work at the Enrollment Management Office
  - Time for Admissions office to respond to students
  - On-line application
  - Registrars
  - Financial Aid
  - *Voice of the customer* to insure the goals of the office align with the needs and wishes of both students and the university
- Other Potential Areas to Apply Six Sigma at UMR

Purchasing	Food service
Financial aid service	Facilities management
Marketing & Promotions	Faculty & staff hiring
Travel	Student housing
Grant application	Accounting & payroll
Enrollment and registration	Classroom evaluation
Printing/copying/mail services	Library services

# Follow-up to Study

- Data Points have not been regularly reviewed and discussed with management and the data entry team.
- 6 Sigma updates need to be built into the agenda of every monthly team meeting.
- Progress Charts need to be posted in the office

# Summary

This research has demonstrated that the Six Sigma methodology, which has been so effective in industry, can be successfully applied to improve the business processes in an academic setting

Although the UMR Admissions unit experienced immediate and consistent improvements, the monitoring and active review of the data points must be regularly reviewed and discussed on a bi-weekly basis.

# Questions?

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