

# *Leading in a Lean and Six Sigma World*

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**CARNEGIE-MELLON UNIVERSITY**  
**Heinz College of Public Policy and Management**

**Managing the Customer Experience**  
**Summer 2024**

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# Leading in a Lean and Six Sigma World

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## Course Description

This course provides participants with an understanding of the principles associated with **leading** in a lean and six sigma world. The leadership skills and tools associated with Lean and Six Sigma to reduce cost and drive customer and employee engagement are a key component of the course content. Students will have the opportunity to learn and experiment with Lean and Six Sigma methods along with the analytic and leadership skills associated with managing the customer experience and engagement and product and service quality, while formulating personal approaches to their application in the work environment.

No prior familiarity with the theory or practice of Lean and Six Sigma, customer and employee engagement or quality management/improvement are required as a prerequisite for this course; students who have been exposed to these principles and practices will benefit from the opportunity to place these experiences into an integrated context. The course is designed to be intellectually stimulating and professionally useful for students at any phase of their career development.

## Course Overview

Although the state of the US economy has changed substantially since 2,000, the thinking behind the customer experience and employee engagement has not. It is no longer good enough to have satisfied customers and employees. When used effectively, Lean and Six Sigma methods can have a positive impact on customer and employee engagement and can provide a vital competitive advantage for the US and organizations that survive in the new customer experience environment.

There are three areas of focus for organizational change in this course:

### Strategy:

- External: focus on the customer experience and Brand, and the competitive and regulatory environment
- Internal: builds a strategy for culture change and quality and service delivery

### Quality and Service Delivery

- Product Quality: exceeds customer expectations and error free
- Service Quality: manages service recovery and is helpful in solving problems
- Predictive Analytics: use of data and tools/analytic techniques to improve the customer experience and engagement

### Culture:

- Mission, vision and values
- Customer and Employee Engagement
- Leadership and managing cultural change

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Participants in this course will have the opportunity, during each week of the semester, to review a theoretical principle behind Lean and Six Sigma, analyze and apply those principles, to design and delivery of an enhanced customer experience.

Students will have the opportunity to test theoretical principles in class exercises and outside assignments. Brief written reports on these experiences will represent a major contribution to the assessment of student achievement.

### **Faculty Background**

Joseph J. Balestreire is a forward-thinking and results-driven executive, with demonstrated expertise in performance improvement, organizational development, education, customer and employee engagement, and quality planning and implementation. As Senior Vice President and Manager, Retail Bank Quality and Service Delivery at PNC Bank, Mr. Balestreire led the retail bank quality and service delivery strategy, driving problem reduction and improving problem handling, resulting in increased customer and employee satisfaction and engagement. He oversaw multiple cross-functional work groups in all retail product, channel, and operations areas charged with facilitating changes, resulting in improvement from the customer viewpoint.

Mr. Balestreire received his MS in Education from the University of Pittsburgh in 1976. He has over 30 years' experience in Management and Organization Development in both Finance and Health Care and eight years teaching in public education. He has been an adjunct faculty member at the Heinz College for Public Policy and Management since 1994. He is a past examiner for the Pennsylvania Quality Leadership Award and has presented nationally at the Institute for Healthcare Improvement National Forum and local quality conferences, and has consulted with several Health Care Systems.

### **Learning Contract**

The attached outline reviews the overall approach to the educational dynamic of this course; it is designed to be highly interactive, with substantial student engagement in and out of the classroom.

Learning objectives have been established for each class session; students should be familiar with these expectations, and guide their personal preparation efforts to achieve those objectives.

Reading assignments are specified for each class meeting, with the assumption that students will have read the materials and be prepared to critically analyze them in class, as well as to apply the principles in practical exercises. Students are encouraged to contribute suggestions concerning relevant readings during the conduct of the course.

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Course participants are expected to attend each class; if class attendance is not possible, it is the responsibility of the student to notify the instructor and obtain from other students, lecture notes, discussion materials and handouts from the class.

Course participants are expected to participate constructively in class discussions, contributing to the learning of others through the sharing of relevant insights from professional experience and readings.

The instructor's primary responsibility lies in obtaining and structuring learning materials for the personal growth of each participant. The instructor is also responsible for evaluating each student's progress toward the attainment of the specified learning objectives. This evaluation will be conducted collaborative with the student, with frequent opportunities for constructive feedback on student progress. Primary sources for evaluation of student performance will be written project reports, and the quality of class participation. Grades of A (+/-) will be awarded only for superior performance.

Students are referred to the University policy on cheating and plagiarism. It will be the policy in this course to discourage cheating; in fairness to all, cheating will be treated severely wherever it occurs. Because a large part of the learning experience comes from interaction with peers, students are encouraged to discuss assignments with each other. Materials submitted for grading must, however, be the product of individual effort.

### **Student Assignments**

#### **Discussion Questions**

Each week you will be assigned readings in the core texts and articles for the course. You are expected to prepare answers to several discussion questions based on those reading, prior to class. You will use your prepared answers as reference during class discussion and then turn them in at the end of class. Following are guidelines for preparing these answers:

- ❑ Prepare clear and succinct answers; use an outline form if you wish, so long as the key concepts are conveyed
- ❑ Implement critical thinking; analyze the readings
- ❑ Prepare answers on one page only
- ❑ Do not use a cover sheet

#### **Required Articles:**

*Manage Your Human Sigma*  
Harvard Business Review – Reprint R0507J  
John H. Fleming, Curt Coffman, and James K. Harter

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*Your Customer Experience is Superficial unless you have the “Q”.*

Ricardo Saltz Gulko – October 2017, published on Eglobalis

*Defining the Differences for LeanSix Sigma in the Services Environment – White Paper*

Six Sigma Qualtec

*The Essential Six Sigma*

Quality Progress

*Lean and Six Sigma A One-Two Punch*

Quality Progress

*Lessons from the Leading Edge of Customer Experience Management*

Harvard Business Review Analytic Services

Sponsored by SAS

*Why Spock would reject NPS. So we can live long and prosper*

Linkedin” Mark Edujee

*Primer on Quality*

Roberts – Reprint 99509

*Your Employees Don’t Get Your Brand*

Gallup Business Journal

*The Business Impact of Customer Experience*

Forrester Research, Inc.: Maxie Schmidt-Subramanian

*Reinvent the Customer Experience*

Forrester Research, Inc.: Rick Parrish

CX Blog: How to Build an Experience Map

Nial O’Connor

**Suggested Readings:** Buckingham, Coffman: [First Break All The Rules](#)  
ISBN: 0-684-85286-1

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Senge: The Fifth Discipline: The Art and Practice of a Learning Organization  
ISBN: 0-385-26095-4

Hsieh: Delivering Happiness: A Path to Profits, Passion, and Purpose  
ISBN: 978-0-446-56304-8

Blanchard, Bowles Raving Fans  
ISBN: 0-688-12316-3

### Project Report

During the course, each student will submit an individually developed analysis of the application of a quality, customer or employee engagement techniques in an actual work environment to study and how it applies to improving the overall customer experience. Each student will choose a concept, principle or technique, which has been review in class, and apply it in a real situation in work or school. The project report will have two elements, as describe below.

Students are encouraged to identify a technique and a process early in the semester and submit a **one-paragraph project prospectus by June 12, 2024**.

**Final Project Experience due no later than end of day July 24, 2024.**

### Project/Experience Elements

#### Descriptive:

- The key customer
- The setting/environment in which the customer experience/improvement opportunity takes place
- The analysis (technique(s) and/or process applied
- The process used to introduce and apply the technique
- The outcomes of applying the technique

#### Analytical:

- The effect the technique had on customer engagement and/or employee engagement
- The impact the technique or process has on the overall customer experience
- What you learned about the technique and/or process and its application

**Note:** the application of the technique does not have to be successful; if it is not, explain what impeded it effectiveness, and what might have been done to improve it implementation.

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## COURSE OUTLINE

Session	Date	Content
Week 1	5/15	Lecture Topic: Purpose and Content Customer experience evolution and trends in management theory Course requirements and expectations Process Technique: Group roles/simulation
<b>Quality and Service Delivery</b>		
Week 2	5/22	Lecture Topic: Relationship between Business Processes and the Customer Experience Analytic Skill: Understanding the customer experience Process Technique: Customer Journey Mapping and Root Cause Analysis Reading: Group Process Process/Multi-voting <i>Your Customer Experience is Superficial unless you have the "Q"</i> Richardo Saltz Gulko
Week 3	5/29	Lecture Topic: Understanding Customer and Process Outcomes Analytic Skill: Key Quality Indicators Process Technique: Data Analysis: analytic tools (RPB) Reading: <i>Lean and Six Sigma A One-Two Punch</i> Quality Progress <i>CX Blog: How to build an Experience map</i> Niall O'Connor
Week 4	6/5	Lecture Topic: Managing Process and Customer Experience Analytic Skill: Leveraging analytic tools to focus on what is driving customer engagement and loyalty Process Technique: Analytic tools: Pareto Analysis and Scatter Diagrams Reading: <i>Defining the Differences for Lean Six Sigma in the Services Environment</i> White paper, Six Sigma Qualtec  Roberts: <i>A Primer on Personal Quality</i>

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Week 5	6/12	Lecture Topic:	Managing Process Capability
		Analytic Skill:	Predictive analytics
		Process Technique:	Applied statistics: Histogram and Control Charts
			Deming: process outcomes and service quality (Blue Beads)
		Reading:	<i>Why Spock would reject NPS</i> Mark Edujee

### Project Prospectus Due

### Culture and Strategy: Purpose, Brand and Leadership

Week 6	6/19	Lecture Topic:	The Learning Organization Organizational Values and Behaviors
		Analytic Skill:	Purpose: Mission, Vision and Values Net Promoter Score – week 7
		Process Technique:	Deep Dive: Vision and Values Exercises
		Reading:	Pausch “Last Lecture” YouTube <a href="https://www.youtube.com/watch?v=ji5_MqicxSo">https://www.youtube.com/watch?v=ji5_MqicxSo</a> 1 hour 16 minutes
Week 7	6/26	Lecture Topic Cont.	The Learning Organization Organizational Values and Behaviors
		Analytic Skill:	Purpose: Mission, Vision and Values
		Process Technique:	Force Field Analysis
		Reading:	<i>Lessons from the Leading Edge of Customer Experience Management</i> Harvard Business Review Analytic Services Sponsored by SAS
Week 8	7/3	Lecture Topic:	Surfacing Conflict for Positive Change
		Analytic Skill:	Attitude toward change
		Process Technique:	Left Hand Exercise The Abilene Paradox Inquiry and Advocacy
		Reading:	<i>Your Employees Don't Get Your Brand</i> Gallup Business Journal

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### Customer Engagement, Employee Engagement and the Customer Experience

Week 9	7/10	Lecture Topic:	Delivering Value through the Customer Experience Loyalty and Customer Retention
		Analytic Skill	ROE: Return on Experience
		Process Technique:	Employee and customer encounter
		Reading:	HBR: <i>Manage Your Human Sigma</i>

Weeks 10/11	7/17 & 24	Lecture Topic:	Understanding the Organization as a System
		Analytic Skill:	Systems Thinking tools and templates
		Process Technique:	Systems templates and case study Developing System Archetypes

**7/24 Final Project Experience due not later than the end of day Wednesday July 24 in class or by email.**

### Bringing it all together

Week 12	7/31	Lecture Topic:	Synthesis/Project Review and Summary
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**Week 1:**     **Purpose and Content**  
                  **Customer experience evolution and trends in management theory**  
                  **Course requirements and expectations**

**Required Reading:**

None

**Session Objectives:**

1. Identify major trends in customer experience management theory.
2. Identify continuities of these trends with customer experience strategies and quality improvement strategies.
3. Identify principles and characteristics of a culture that drives success using customer and employee engagement and quality improvement and its foundation.
4. Understand the value of team/group dynamics, communication and decision-making

**Additional References/Resources:**

Synergistic Decision-Making

**Process Technique:**

Group Simulation: Medicine Wheel

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## **Week 2: The Relationship between Business Processes and Customer Experience**

### **Required Reading:**

*Your Customer Experience is Superficial unless you have the “Q”*  
Richardo Saltz Gulko

### **Study Questions:**

1. According to Ricardo Saltz Gulko “No customer experience, however well designed can make up for a lack of quality.” The article cites Samsung, United and Volkswagen as examples of poor quality that impact the customer experience and the bottom line. Do you agree with Ricardo and if so, provide examples that support or refute his thinking?
2. The article states the quality, culture and strategy all impact the overall customer experience. Provide examples from your work or CMU experience where one or more of these elements have impacted your customer experience.
3. The Galaxy S20, S20+ and S20 Ultra 5G is now available to purchase. Knowing what you know about the flaws in Samsung’s processes, would you still buy it? If so, what has Samsung done to regain your trust?
4. Who is your primary customer and what do they want, need or expect from you?

### **Session Objectives:**

1. Defining the relationship between business processes and the customer experience.
2. Identify managements responsibilities in design and implementing customer experience and quality improvement strategies
3. Develop a journey map to illustrate process steps and analyze the cost of poor quality in the customer experience
4. Understanding root cause analysis
5. Identify methods of enhancing interactive participation in small groups

**Additional References/Resources:** Samples of process flows and journey maps

**Analytical Skills Exercise:** Understand, develop and analyze a journey map and its impact on customer and employee engagement

**Process Technique:** Use nominal group process and multi-voting to obtain group consensus

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## **Week 3: Understanding Customer and Process Outcomes**

### **Required Reading:**

*Lean and Six Sigma A One-Two Punch*  
Quality Progress

*CX Blog: How to build an Experience map*  
Niall O'Connor

### **Study Questions:**

1. Based on the *article Lean and Six Sigma – A One-Two Punch*, what are some of the advantages and disadvantages of a Lean approach to improvement and a Six Sigma approach to improvement?
2. The Quality Progress article is based on two manufacturing case studies. In what ways can Lean and Six Sigma apply in a service environment? Support your response with examples.

### **Session Objectives:**

1. Identify key quality indicators
2. Develop a cause and effect diagram to identify variation in processes and the customer experience
3. Identify methods of arraying and presenting data
4. Use run, pie and bar charts to visually organize and analyze data

**Additional References/Resources:** Samples of cause and effect diagrams and run, pie and bar charts and their impact on customer and employee engagement.

### **Analytical Skills Exercise:**

1. Review journey map assignment – learning perspective
2. Array a set of data in the most appropriate display
3. Synthesize data analysis with a short fact

### **Process Technique:**

Complete an opportunity statement regarding the education process at CMU. Apply root cause analysis principles using the 5 why process.

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## **Week 4: Managing Process and Customer Experience**

### **Required Reading:**

*A Primer on Personal Quality*  
Roberts

*Defining the Differences for Lean Six Sigma in the Services Environment*  
White Paper, Six Sigma Qualtec

### **Study Questions:**

1. The Six Sigma Qualtec article states that Lean Six Sigma is different in a service environment because of the human factor vs. machine factor. Do you agree or disagree with their thinking and why?
2. What are some of the unique factors that need to be taken into consideration when applying Lean Six Sigma in a service environment?
3. In what ways can “decisions by humans” be managed using Lean/Six Sigma methods/approaches?

### **Session Objectives:**

1. Apply data collection techniques and analysis to work processes
2. Apply the principles of Pareto analysis in problem identification
3. Develop a scatter diagram using a prepared case study
4. Draw conclusions based on data analysis
5. Identify opportunities to improve the customer experience using Pareto and scatter diagrams.

### **Additional References/Resources:**

Sample Pareto charts and Scatter diagrams and their impact on the customer experience.

### **Analytical Skills Exercise:**

1. Develop a Pareto charts and Scatter diagrams using a prepared case study
2. Draw conclusions based on data analysis – impact on the customer experience
3. Identify opportunities for the application in real work.

### **Process Technique: Case studies**

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## **Week 5: Managing Process Capability**

### **Required Reading:**

*Why Spock would reject NPS*  
Mark Edujee

### **Study Questions:**

1. *What is your perspective on the relevancy of NPS (Net Promoter Score) and customer loyalty and are they still relevant?*
2. *Are there alternatives to NPS and Loyalty?*

### **Project Prospectus Due**

### **Session Objectives:**

1. Identify the use of the scientific method as the structure for problem solving
2. Apply the three strategic questions to analyze improvement efforts
3. Using Histograms to show relationship between similar data elements
4. Apply the theory and control chart techniques to situation data
5. Predictive analytics and Big Data.

### **Additional References/Resources:**

Nolan T. and Batalden, MD: *Knowledge for the Leadership of Continual Improvement in Healthcare*  
Langley, K. Nolan and T. Nolan: *Foundation for Improvement* (Part 1 and 2)

### **Analytical Skills Exercise:**

1. Use a histograms diagram to show relationships between similar data elements
2. Apply the theory and control chart techniques to situational data and its impact on customer and employee engagement

### **Process Technique:**

Using Deming's Blue Bead simulation to illustrate how we can bridge data, management and cultural to improve customer and employee engagement.

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## **Week 6: The Learning Organization**

**Assignment: View Randy Pausch “Last Lecture” YouTube video**

[https://www.youtube.com/watch?v=ji5\\_MqicxSo](https://www.youtube.com/watch?v=ji5_MqicxSo)

**1 hour; 16 minuets**

### **Study Questions:**

1. What messages or lessons can be taken from the “Last Lecture”?
2. How can these messages or lessons be applied in your organization, your work, your life, our nation, ...?

### **Session Objectives:**

1. Identify the qualities and characteristics of a Learning Organization
2. Identify the role of mission, vision and values in defining organization purpose and alignment
3. Apply the concept of vision to establish the foundation of continuous improvement, customer engagement and employee engagement
4. Understand the impact of values on organizational behavior
5. Apply the for field analysis technique for planning and implementing change

### **Additional References/Resources:**

Joel Barker: *The Power of Vision*

### **Analytical Skills Exercise:**

Use and apply various models for change.

### **Process Technique:**

Vision Exercises  
Values Exercises  
Force Field Analysis

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## **Week 7: The Learning Organization**

### **Required Reading:**

*Harvard Business Review: Lessons from the Leading Edge of Customer Experience Management*

### **Study Questions:**

1. What are some of the best practices that you feel have the most impact on understanding and improving the customer experience?
2. What advantages/disadvantages do you see in tying customer experience to corporate rewards?
3. Why is customer experience “hard” and what challenges need to be addressed in order to be successful in improving the customer experiences?

### **Session Objectives:**

1. Identify the qualities and characteristics of a Learning Organization
2. Identify the role of mission, vision and values in defining organization purpose and alignment
3. Apply the concept of vision to establish the foundation of continuous improvement, customer engagement and employee engagement
4. Understand the impact of values on organizational behavior
5. Apply the for field analysis technique for planning and implementing change

### **Additional References/Resources:**

Joel Barker: *The Power of Vision*

### **Analytical Skills Exercise:**

Use and apply various models for change.

### **Process Technique:**

Vision Exercises  
Values Exercises  
Force Field Analysis



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## **Week 8: Surfacing Conflict for Positive Changes**

### **Required Reading:**

Gallup Business Journal: *Your Employees Don't Get Your Brand*

### **Study Questions:**

1. Differentiate between Brand Alignment and Vision. Are these implemented in your workplace or environment? (Describe)

### **Session Objectives:**

1. Identify and apply the “ladder of inference” that make up our perceptions and beliefs
2. Surface individual perceptions using the left hand exercise
3. Understand the principles being the “Abilene Paradox”
4. Practice using the principles of Advocacy and Inquiry to resolve conflict

### **Additional References/Resources:**

Jerry Harvey: Harvard Business Review *The Abilene Paradox*

### **Analytical Skills Exercise:**

- Left Hand Column Exercise
- Inquiry and Advocacy

### **Process Technique:**

- Exploring the use of the “left hand exercise” to surface perceptions

### **Additional References/Resources:**

Senge: The Fifth Discipline  
Agris: The Defensive Organization  
Boehm: On Dialogue

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## **Week 9: Delivering Value through the Customer Experience**

### **Required Reading:**

Fleming, Coffman, and Harter: *Manage Your Human Sigma*

### **Study Questions:**

*Harvard Business Review: Manage Your Human Sigma*

1. According to the authors, an infrastructure is needed to holistically manage Human Sigma. In your opinion, what are the key components of this infrastructure and the keys to successful implementation of Human Sigma?
2. What are the advantages and disadvantages of measuring the customer encounter at the local level?

### **Session Objectives:**

1. Understanding impact of customer and employee engagement on the organization.
2. Understanding the role of management as it relates to the Human Sigma operating model.
3. Long Term Value and Business Impact associated with the Customer Experience
4. ROE: Return on Experience

### **Additional References/Resources:**

Keifer, Senge: *The Metanoic Organizations: Experiments in Organizational Innovation*  
Senge: *Leadership in Metanoic Organizations*

### **Analytical Skills Exercise:**

- Long Term Value and Attrition
- Customer Experience financial impact models

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**Weeks 10/11:      Systems Thinking**

**Project Experience Due: end of Day July 27**

**Session Objectives:**

1. Identify the elements that comprise the organization as a system
2. Apply system thinking tools and methods using a simulated learning experience
3. Apply system archetypes to school/work related problems

**Additional References/Resources:**

Senge: The Fifth Discipline

Senge, Kleiner, Roberts, Ross and Smith: The Fifth Discipline Fieldbook

Innovation Associates: System Thinking

Application of system thinking tools and methods: case study, Zorg's Cave

**Analytical Skills Exercise:**

Apply of and understand the system thinking tools

**Process Technique:**

Explore the use of system thinking tools through direct application

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## **Week 12: Synthesis/Project Review and Summary**

### **Session Objectives:**

1. Use of team learning as part of completion of project assignments
2. Provide examples of skills and techniques that are most applicable at each stage of the quality improvement process
3. Clarify major questions or concerns regarding the principles and application of quality improvement
4. Recognize achievements by course participants
5. Evaluate the course and identify improvements for future offerings