Lean Management
A New Approach to Managing Healthcare Organizations

Many organizations are modifying from traditional to modern management approaches, including Lean management

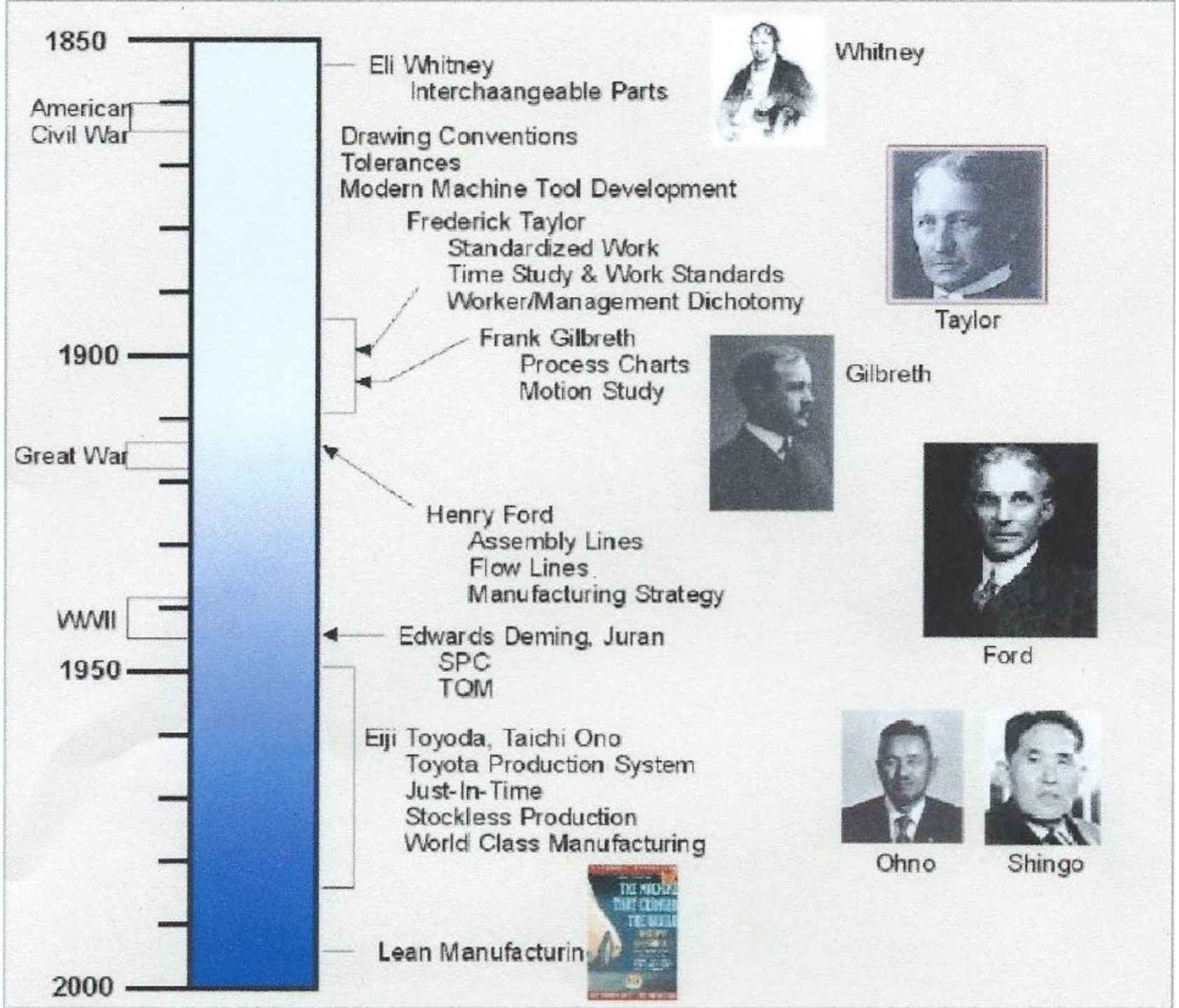
- Loss of focus on the customer
- Failure to achieve efficiency in operations
- Poor quality of products or services
- Low employee morale and high turnover
- Poor coordination of work tasks
- Difficult to change work processes

Lean involves the development of a culture that enables an overall management system to create value for customers by eliminating waste, empowering frontline workers, and solving problems through the daily application of the scientific method in creating standard work

Center for Lean Engagement and Research, UC Berkeley

Lean is the service organization version of the Toyota Production System (TPS) that was developed in the 1950s by the Toyota Automobile manufacturing company

Lean is a management philosophy, a set of practices, and tools to help managers stay *customer focus*ed, *reduce waste*, and *continuously improve quality*.


1850
American Civil War
1900
Great War
WWII
1950
2000
Eli Whitney
Interchaangeable Parts
Drawing Conventions
Tolerances
Modern Machine Tool Development
Frederick Taylor
Standardized Work
Time Study & Work Standards
Worker/Management Dichotomy
Frank Gilbreth
Process Charts
Motion Study
Henry Ford
Assembly Lines
Flow Lines
Manufacturing Strategy
Edwards Deming, Juran
SPC
TQM
Eiji Toyoda, Taichi Ono
Toyota Production System
Just-In-Time
Stockless Production
World Class Manufacturing
Lean Manufacturin
Whitney
Taylor
Gilbreth
Ford
Ohno
Shingo

Dr. W. Edwards Deming
1900 - 1993

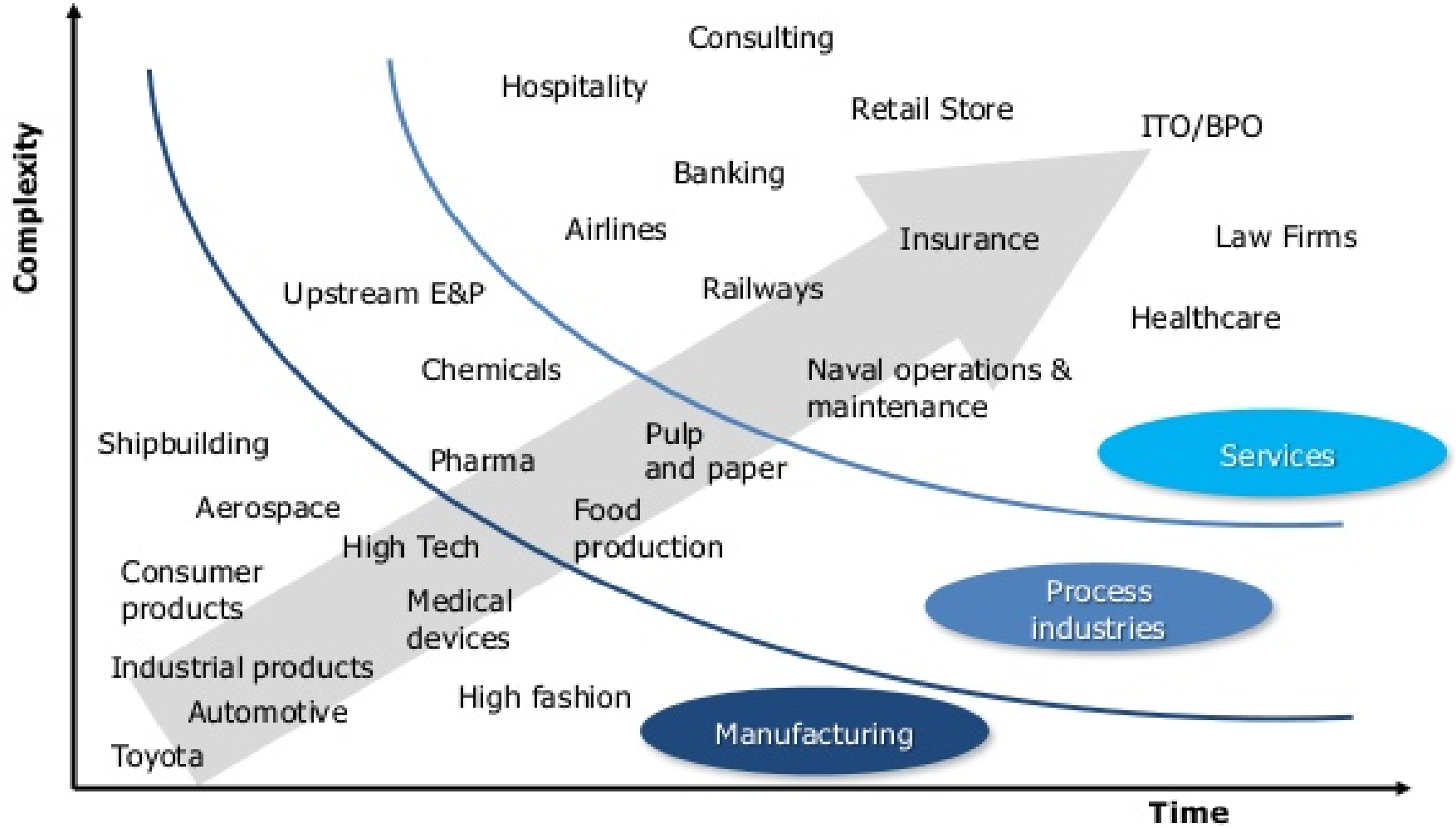
Fayol's 14 Management Principles of Traditional Management

- Division of work
- Authority
- Discipline
- Unity of command
- Unity of directive
- Subordination of individual interests
- Reasonable Remuneration
- Centralization
- Scalar chain
- Orderly use of resources
- Equity (ethical behavior)
- Stability (low turnover)
- Initiative (employee input)
- Morale

Deming's 14 Points for Management

- Create constancy of purpose
- Leadership for change
- Cease dependence on inspection to achieve quality
- Minimize total cost – move toward single supplier for any one item
- Improve constantly
- Institute training on the job
- Institute leadership
- Drive out fear
- Break down barriers between departments
- Eliminate slogans and exhortations asking for more…
- Remove barriers to pride of workmanship
- Institute educational programs
- Transformation is everyone's job

Lean has been adopted in many different environments since its creation

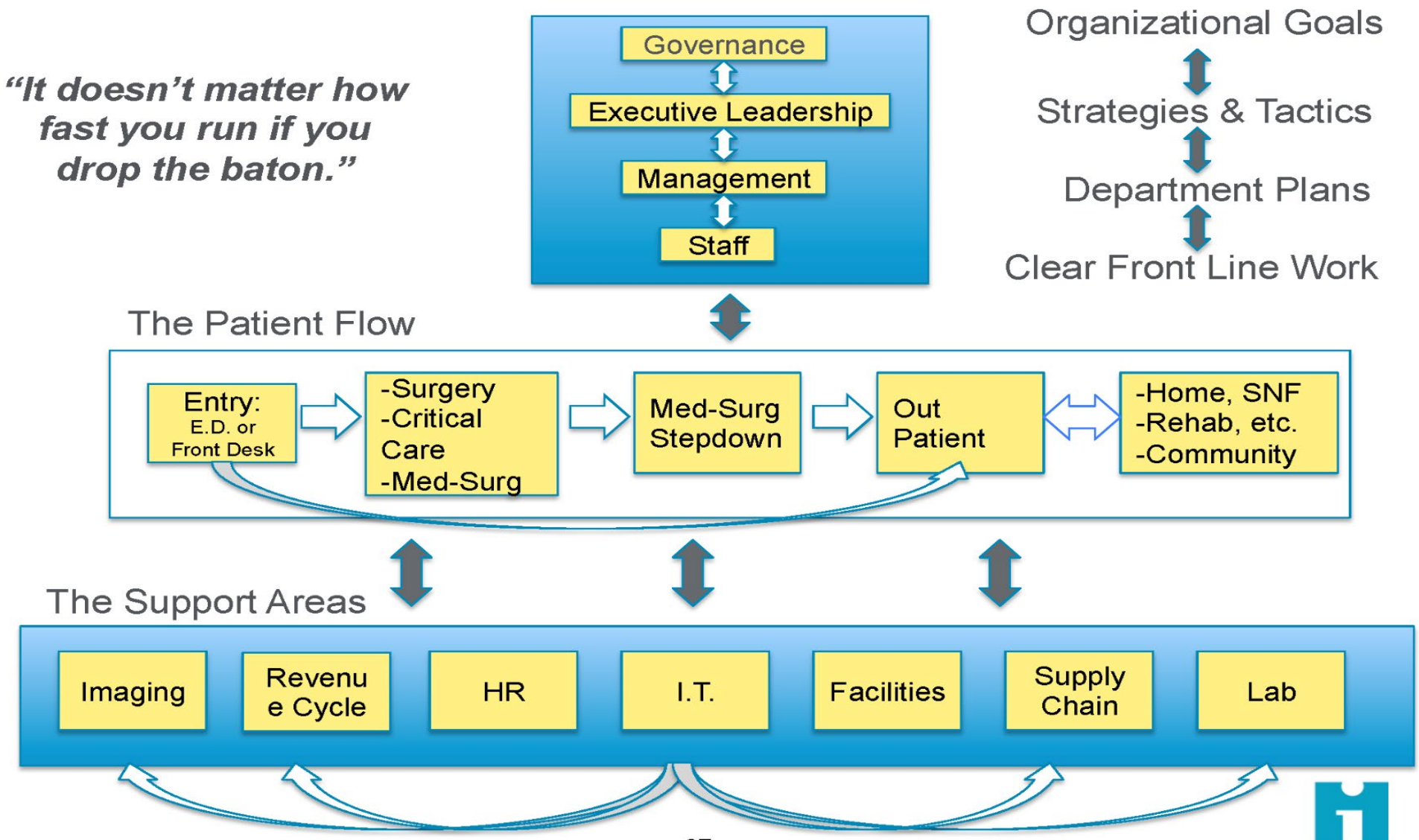


Examples of Healthcare Organizations Using the Lean Management Approach

- Virginia Mason Hospital and Medical Center, Seattle, WA
- Carolinas Healthcare System, Charlotte, NC
- ThedaCare Regional Medical Center, Appleton, WI
- Mayo Clinic, Rochester, MN
- Lancaster Regional medical Center, Lancaster, PA
- Johns Hopkins Hospital, Baltimore, MD
- UCSF Medical Center, San Francisco, CA
- Zuckerberg San Francisco General Hospital, San Francisco, CA
- Kaiser Permanente, Oakland, CA

Systems: Processes and Interactions at all levels

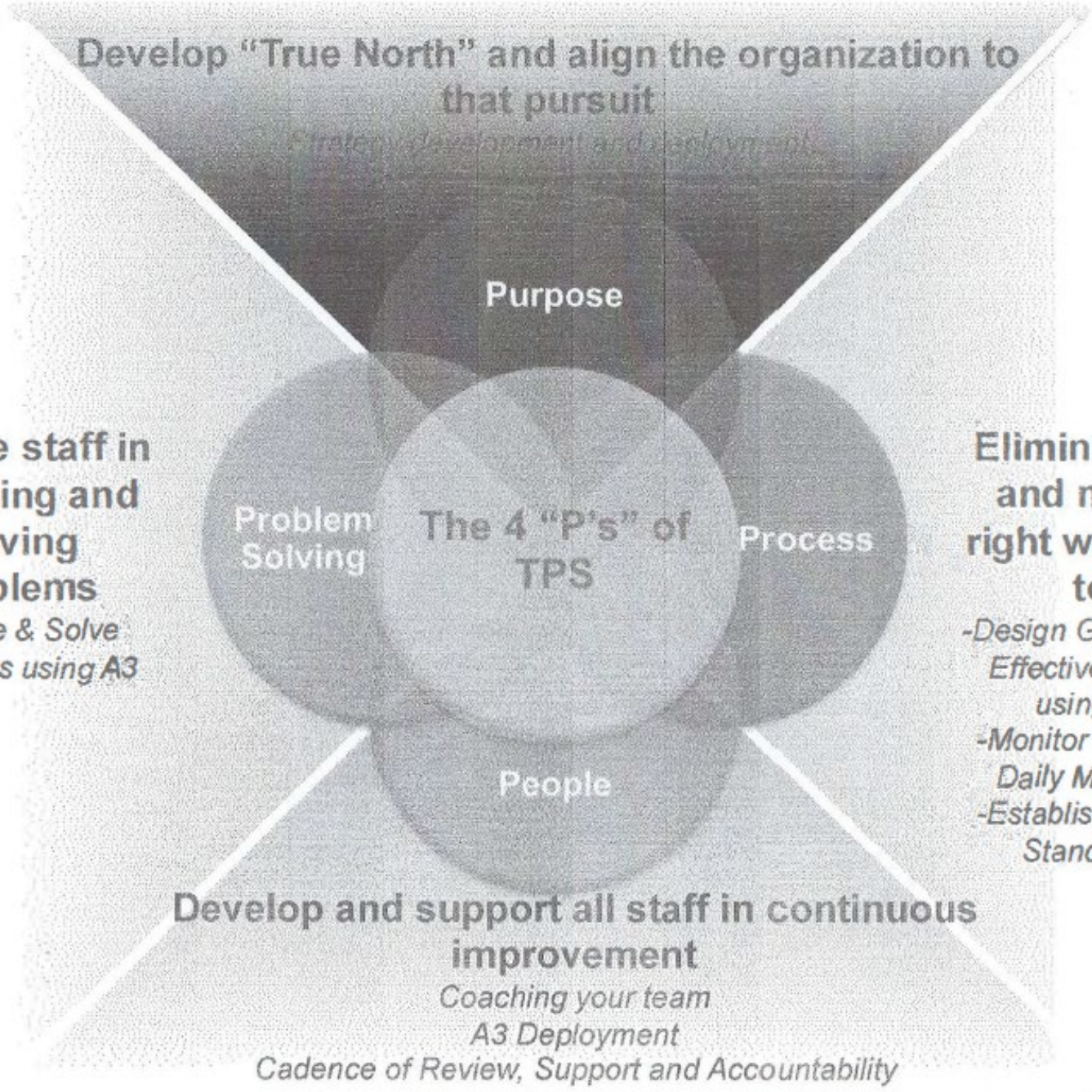
"It doesn't matter how fast you run if you drop the baton."



Lean focuses on work processes to reduce waste and improve quality

Lean Philosophy Core Principles

- Respect for people
  - Employees know the work best
  - Participatory – not a top down approach
- Continuous improvement
  - Strive for zero defects
- Customers (i.e. patients) define value
- Improvements in processes achieved through the scientific method (Plan, Do, Study, Act – PDSA cycles)


Develop "True North" and align the organization to that pursuit
Strategy development and deployment
Purpose
Problem Solving
The 4 "P's" of TPS
Process
People
Engage staff in surfacing and solving problems
Surface & Solve Problems using A3
Eliminate waste and make the right work easier to do
-Design Good, Efficient, Effective Processes using Kaizen
-Monitor with Visual & Daily Management
-Establish Leadership Standard Work
Develop and support all staff in continuous improvement
Coaching your team
A3 Deployment
Cadence of Review, Support and Accountability

Type of waste	Example
Wasted motion	Pharmacy technician spends 20 minutes looking in multiple places for a specific drug
Rework	X-ray technician has to reenter 10–20% of test requests because the wrong side of the body was indicated
Overproduction	7 of the 16 forms in an admissions packet are redundant
Excess inventory	Out-of-date medications are kept on the shelf because excess inventory was ordered
Wasted transportation	25% of patients admitted to one ward are transferred, within 36 hours of admission, to another ward that provides a similar level of care
Excess processing	Nurse has to record a patient's respiratory rate on 4 different forms within the patient's chart
Waiting time	Operating-room team must wait 20 minutes for a procedure to begin and is not free to do other tasks
Wasted intellect	Numerous improvement ideas are lost because no one is interested in them

Lean Practice Examples

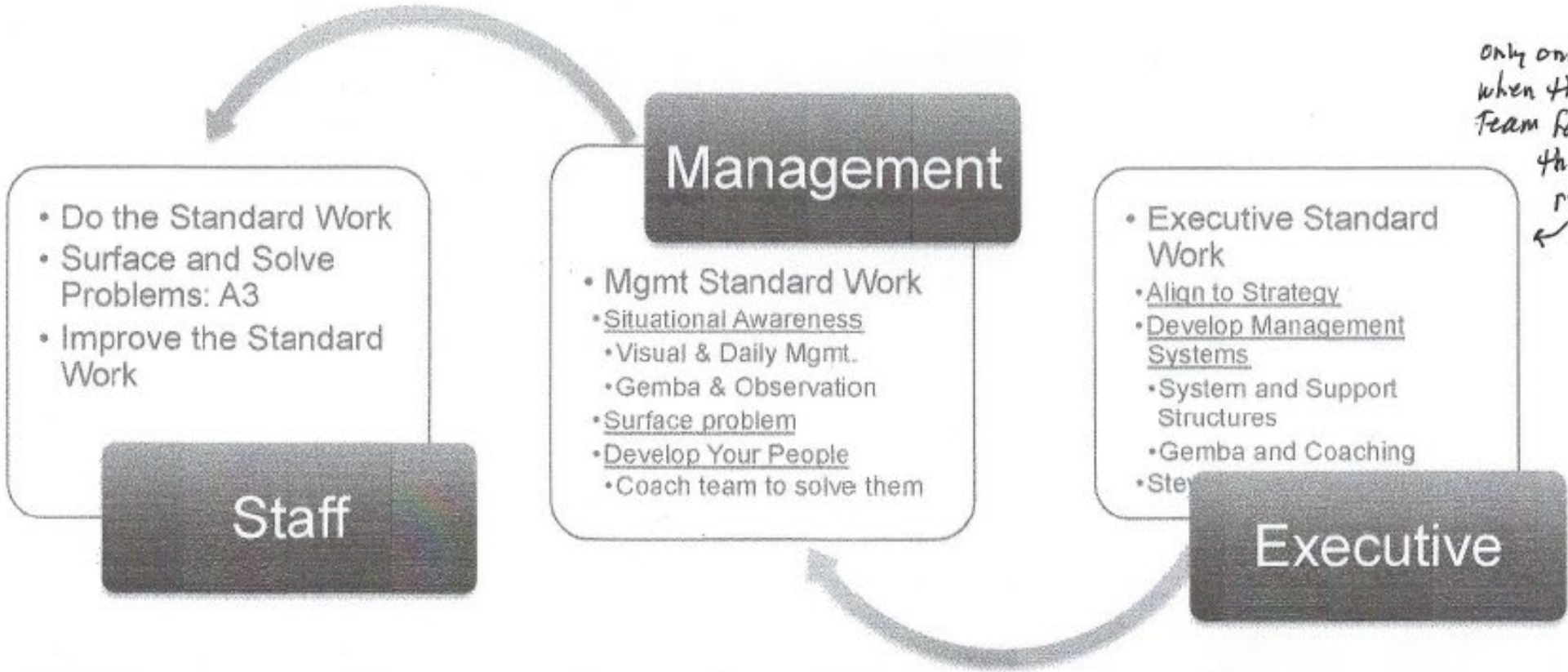
- Senior leaders, employees, and stakeholders Establish *True North* (most important organizational goals)
- Managers walk *Gemba* regularly and “coach” employees
- Employees at the work level conduct *value stream mapping* for key work processes to identify waste from the *customer’s* perspective
- Hold *Kaizen events* with relevant employees to redesign work processes to eliminate as much waste and improve performance as much as possible
- Employees establish new *standard work* processes in writing
- Test the new process using the *PDSA (plan, do, study, act) cycle* to see if waste has been reduced and/or quality improved
- Chart/depict revised processes and measures assessing achievement of performance objectives (waste reduction targets/quality improvement targets) – *visual management* – post on a wall
- *Daily huddles* of relevant managers and staff to review visual charts and progress reports

Lean Tools and Methods Examples

- Value stream process map (spaghetti diagram)
- Fishbone diagram (root cause analysis)
- Lean A3 plan
- Scatter Plots
- Pareto Charts
- Regression analysis
- Kanban cards
- PDSA (plan; do; study; act)
- 5s (sort, straighten, shine, standardize, sustain: redesign of physical workspace to improve efficiency)

The System of Continuous Improvement:

Interlocking Responsibilities and Development



only one failure mode - when the Executive Team fails to perform their work + responsibilities.

Performance Improvement, Decision Support, HR, I.T. Facilities

Improve Process & Performance while Developing People: "Learn by Doing"

MUSINGS FROM A LEAN THINKER

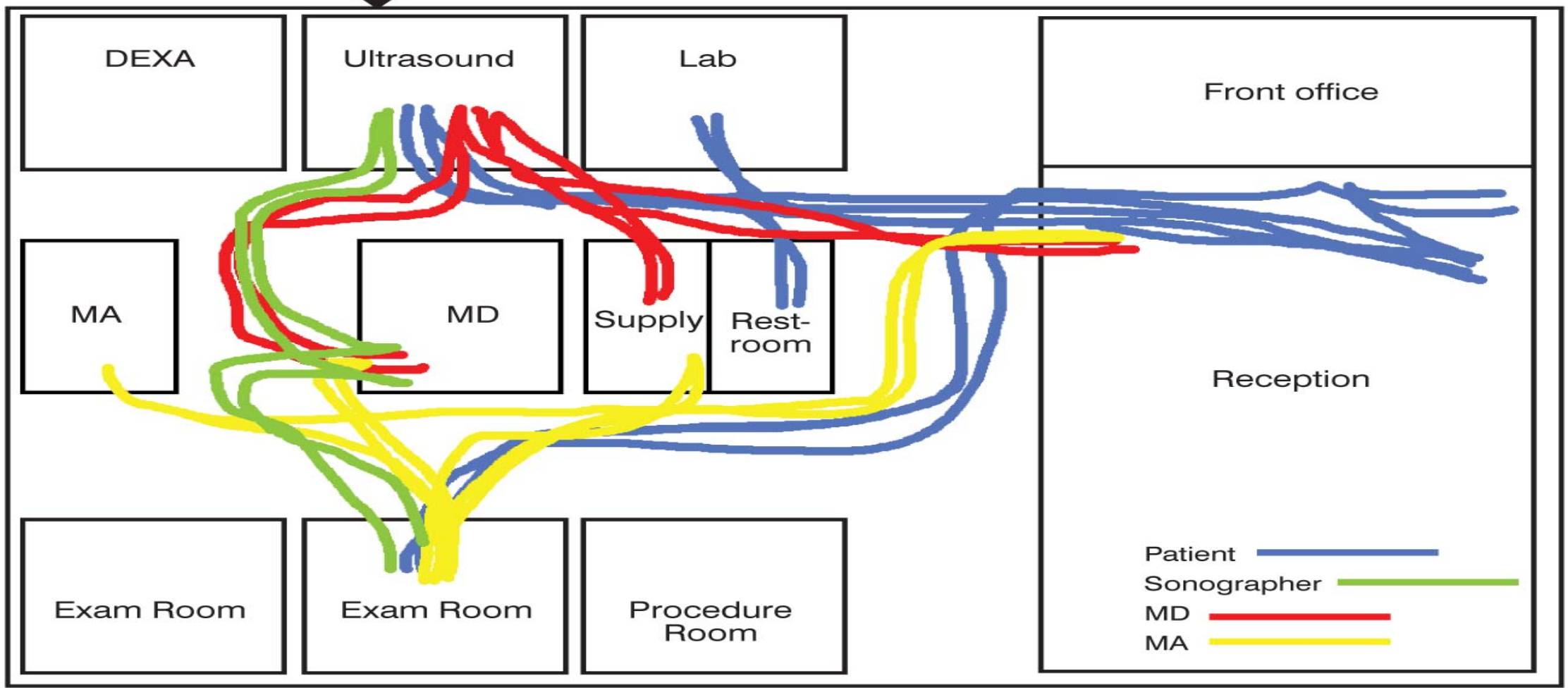
lean.org/leanpost

The Optimist

The Pessimist

The Lean Thinker

FIGURE 3 SPAGHETTI DIAGRAM OF OFFICE VISIT MOVEMENT




Toxic lesbians
Como niños
Diálogos
La intención


DENVER HEALTH
Level One Care for All
VISUAL MANAGEMENT BOARD
PATIENT EXPERIENCE
WORKFORCE ENGAGEMENT
GROWTH
Quality


TEAM
MEMO
REMINDERS
DATE:
6-26-13
PRODUCTION PLAN
Weekly Maintenance week of 6/23/13
Tube Sealers: NOT DONE
centrifuge: DONE
Thermo/cytotherm: Done
DID Someone Finish these?
STAFFING
OUT
6-26-13
EQUIPMENT
TYPE
ID
OUT DATE
PROMISE/ DATE/WHO
5-5-13
6-17-13
6-20-13
6-24-13
6/26/13
IDEAS
PEOPLE
QUALITY
SAFETY
CUSTOMER

Is there evidence that Lean works in healthcare organizations?

TABLE 1
Improvements Seen in Four Projects Using Robust Process Improvement

Problem Addressed	Number and Type of Health Care Organizations	Measure	Before (%)	After (%)	Relative Improvement (%)
Hand hygiene	8 hospitals	Hand hygiene compliance[a]	47.5	81	71 $p = 0.000$
Handoff communication	10 hospitals	Ineffective handoffs at care transitions[b]	41	18	56 $p = 0.007$
Wrong-site surgery risks	5 hospitals, 3 ambulatory surgery centers	Risk of wrong-site surgery[c]			
Scheduling			39	21	46 $p = 0.000$
Preoperative area			52	19	63 $p = 0.000$
Operating room			59	29	51 $p = 0.000$
Colorectal surgical-site infections (SSI)	7 hospitals	Cases with an SSI[d]	15.8	10.7	32 $p = 0.000$

Notes: Robust Process Improvement is a combination of three complementary process improvement methods: lean, six sigma, and change management.
[a]Percentage of times that caregivers cleaned their hands before walking into or out of a patient's room.
[b]Percentage of handoffs that failed to provide complete information necessary to patient care.
[c]Percentage of cases with any risk of wrong-site surgery.
[d]Percentage of colorectal surgery cases with any surgical-site infection.
Source: http://www.centerfortransforminghealthcare.org/projects/projects.aspx.

Source: Mark Chassin and Jerod Loeb, "High Reliability Health Care: Getting There from Here."
The Milbank Quarterly, 2013, 91,(3): 459-490.

Lean: It works if you drink from the fountain of knowledge. Most organizations just gargle.

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Lean interventions in healthcare: do they actually work? A systematic literature review

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Conclusion: While some may strongly believe that Lean interventions lead to quality improvements in healthcare, the evidence to date simply does not support this claim. More rigorous, higher quality and better conducted scientific research is required to definitively ascertain the impact and effectiveness of Lean in healthcare settings.

Saskatchewan Union of Nurses were also analysed and reported separately.
Data extraction: Data on design, methods, interventions and key outcomes were extracted and collated.
Results of data synthesis: Our electronic search identified 22 articles that passed methodological quality review. Among the accepted studies, 4 were exclusively concerned with health outcomes, 3 included both health and process outcomes and 15 included process outcomes. Our study found that Lean interventions have: (i) no statistically significant association with patient satisfaction and health outcomes; (ii) a negative association with financial costs and worker satisfaction and (iii) potential, yet inconsistent, benefits on process outcomes like patient flow and safety.
Conclusion: While some may strongly believe that Lean interventions lead to quality improvements in healthcare, the evidence to date simply does not support this claim. More rigorous, higher quality and better conducted scientific research is required to definitively ascertain the impact and effectiveness of Lean in healthcare settings.

Key words: Lean, Lean thinking, Lean interventions, quality improvement, healthcare

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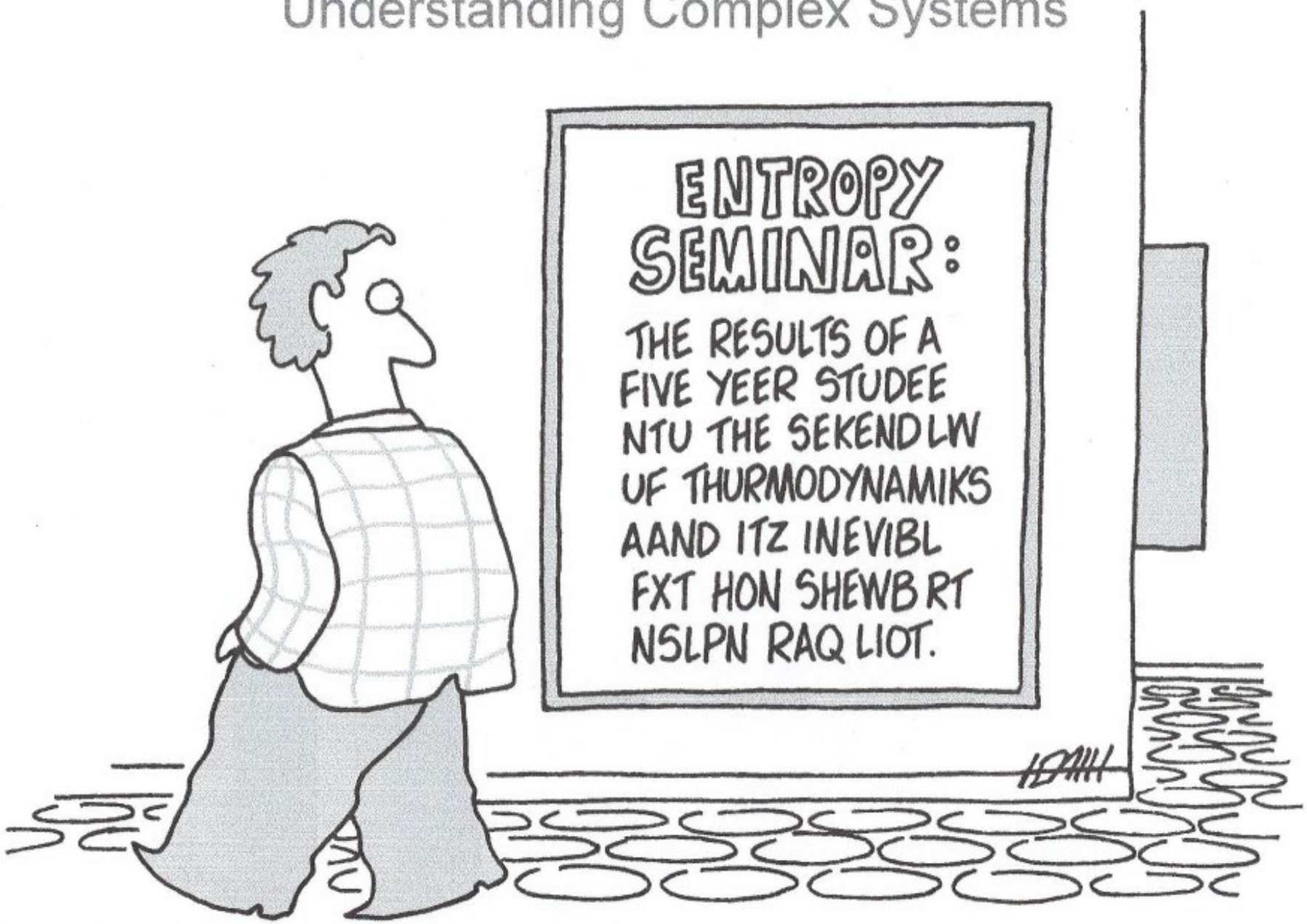
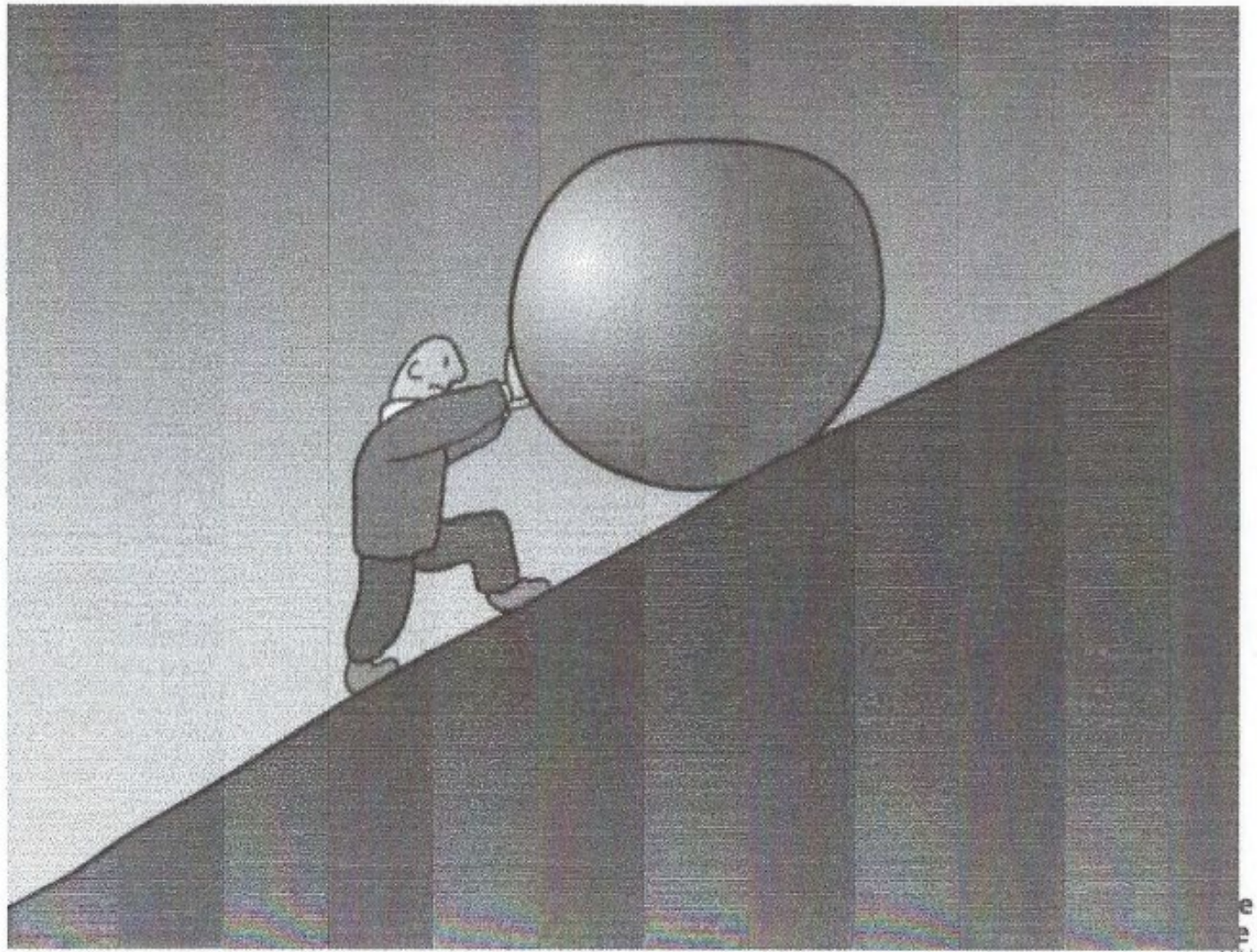
Sustaining Lean Management Over a Long Period of Time is a Challenge

Understanding Complex Systems



How do we prevent slippage in our improvement efforts?



Thank You!

Find out more about Lean Management in Healthcare at

https://clear.berkeley.edu/