

Henry Ford's Universal Code

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**A PROVEN SYSTEM FOR WORLD-
CLASS PERFORMANCE IN ANY
ENTERPRISE**

Overview: What is the Universal Code?

- *An impartial, inarguable, synergistic, and universal triad of natural laws:*
 - **Economic:** recognition that we cannot get something for nothing.
 - **Scientific:** elimination of waste (muda) allows us to get more from what we have.
 - **Behavioral:** buy-in and commitment require a square deal for all stakeholders.

Learning Objectives (1)

1. Quantify, in the language of money, the effectiveness of Henry Ford's universal code.
 - Gain buy-in from the organization and its supply chain
2. Know and apply the economic, scientific, and behavioral aspects of the universal code.

Learning Objectives (2)

3. Gain buy-in from other organizational stakeholders, including supply chain partners.
4. Teach coworkers and supply chain partners how to recognize many forms of waste on sight.

HENRY FORD'S BOTTOM LINE: THE LANGUAGE OF MONEY

Henry Ford's Bottom Line (1)

- Why should modern quality practitioners (and executives) be interested in a 90 year old business model?
- We will answer this question in the language of money.

Henry Ford's Bottom Line (2)

- Investors: 35.2% annual capital gain (not counting dividends)
 - 1903 to 1919, when Ford bought out his stockholders for \$125 on the dollar.
- Labor: 7.18% annual wage growth
 - Reduction of the work week to 5 days and 40 hours
 - No need for collective bargaining

Henry Ford's Bottom Line (3)

- Customers: steadily declining prices and higher quality
- Country: wages and income from the Model T exceeded the wealth of 35 of the country's 48 states.
 - Does not include jobs in railroads, rubber production, oil, or other supporting industries.

Henry Ford's Bottom Line (4)

- *Simultaneous* realization of lower prices, higher wages, and higher profits.
- The Ford Motor Company made the U.S. into the wealthiest and most powerful nation on earth.
 - Productivity was responsible for Allied victory in World War II

Henry Ford's Bottom Line (5)

- The key takeaway from this section is that Ford's methods delivered world-class results, which are quantifiable in the language of money.
- The next step is to understand how he did it.

THE UNIVERSAL CODE

The Universal Code (1)

- "Universal" means exactly that.
 - Emphatically NOT specific to automobiles, or even manufacturing
 - Equally applicable to health care, transportation, and every other conceivable enterprise

Ford demonstrated its effectiveness in health care, mining, and railroads.

The Universal Code (2)

- Impartial and Inarguable
 - All stakeholders (e.g. management, labor, customers, and suppliers) must accept it just like any other law of nature.
 - This (as well as the language of money) gains buy-in.
- Synergistic
 - Its three elements are mutually supporting, whether for good or bad.

The Universal Code (3)

- Three elements:
 - Economic: we cannot get something for nothing.
 - Scientific: we can get more from what we have through the removal of waste or muda.
 - Behavioral: buy-in and engagement require a square deal for all stakeholders.

ECONOMIC LAW

Economic Law (1)

- We cannot have wealth we do not produce.
- Jack Cade's speech in King Henry VI
 - Promised seven half-penny loaves for a penny
 - The three-hooped pot would have ten hoops.
 - A stream would run with claret wine.
 - All would eat and drink at Cade's expense when he became King.
- France (2000) mandated 40 hours of pay for 35 hours of work.

Economic Law (2)

- The effects are (or should be) obvious.
 - Price controls (e.g. for bread) → shortages and/or black markets
 - Employers (and customers) won't pay 40 hours' worth of wages for 35 hours or work—unless somebody can figure out how to do 40 hours' worth of work in 35 hours. → Scientific law

Economic Law (3)

- Speculation in tulip bulbs, stocks, dot-com stocks, mortgage-backed securities, and carbon credits does not produce wealth.
- Kipling's "The Gods of the Copybook Headings" is highly instructive.

Economic Law (4)

- Labor cannot bargain collectively for wealth it does not produce.
 - Jobs will simply move offshore, or disappear.
- Scientific law, however, allows the supply chain to produce more wealth for everybody.

SCIENTIFIC LAW, AND LEAN MANUFACTURING

Scientific Law (1)

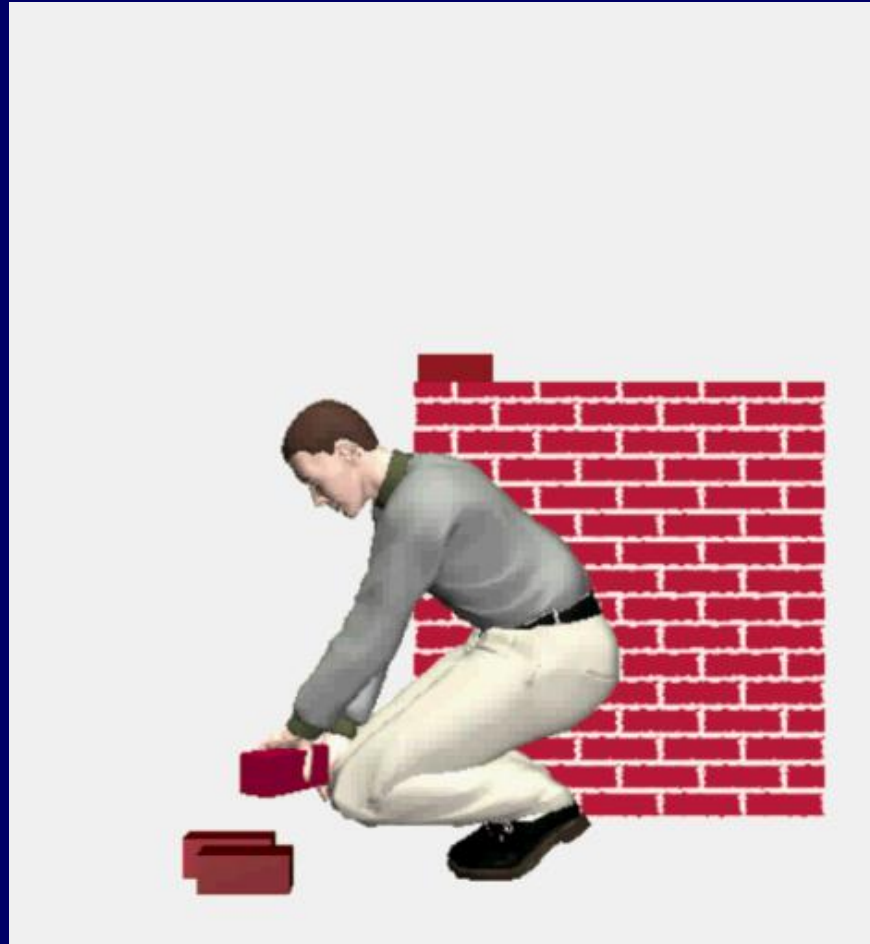
- Most jobs contain enormous amounts of waste (muda).
 - This waste is *asymptomatic* because, unlike poor quality, it causes no organizational pain.
 - Ford: "Time waste differs from material waste in that there can be no salvage. The easiest of all wastes, and the hardest to correct, is this waste of time, because *wasted time does not litter the floor like wasted material.*"

Scientific Law (2)

Consider brick-laying,
one of the world's
oldest trades.

125 bricks per hour

What is wrong with
this picture?



Scientific Law (3)

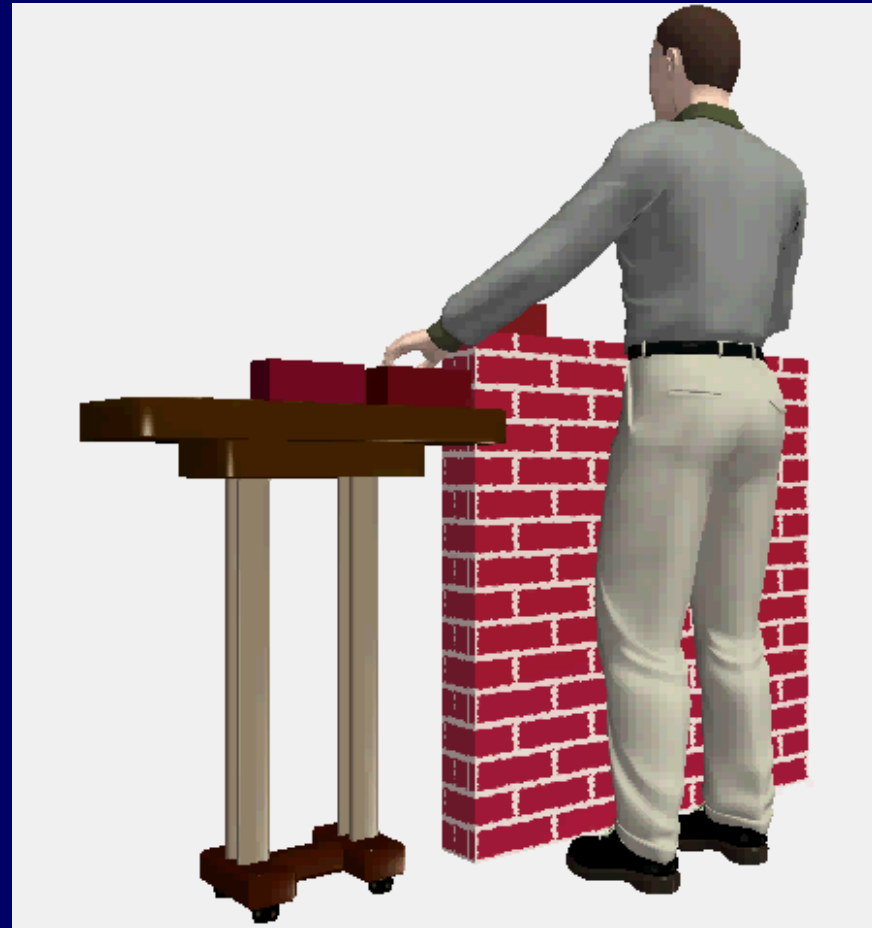
Actual photo
from 1906



Scientific Law (4)

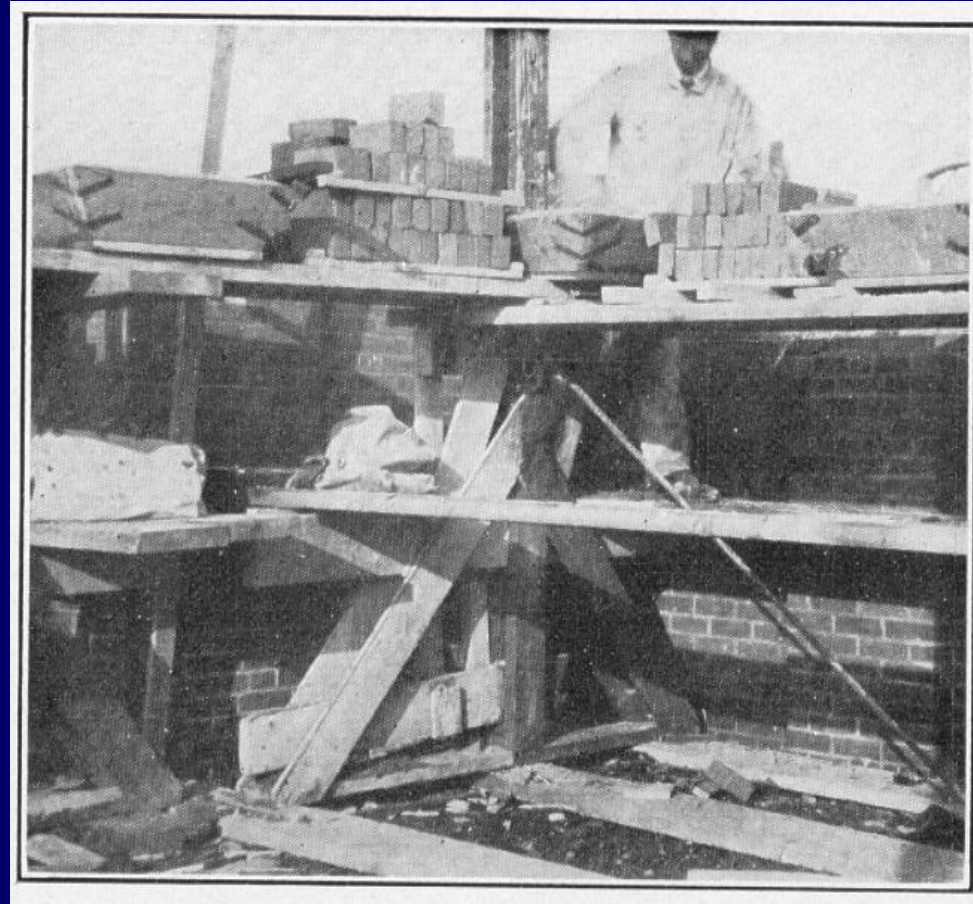
350 bricks per hour,
for far less effort!

This is how the
employer can pay
the worker 2 hours of
wages for 1 hour of
work, while charging
lower prices.



Scientific Law (5)

Actual photo,
Gilbreth's non-
stooping
scaffold



Scientific Law (6)

Fabric folding operation, early 20th century



Ford: Pedestrianism is not a highly paying line of work. Redesign of the job doubled its productivity.

Scientific Law (7)

- Material waste also hides in plain view
 - Metal or wood chips from machining operations
 - Packaging
 - Consumables (e.g. metal cutting fluids)
 - Rust in blast furnace slag

At Ford, however, any of these "worried the men."

Scientific Law (8)

- Ford also practiced "Refuse, reuse, recycle, and reduce" → material conservation
 - Redesign of jobs to reduce machining waste
 - Returnable containers
 - Saleable byproducts from lumber, coal, and blast furnace slag

Scientific Law (9)

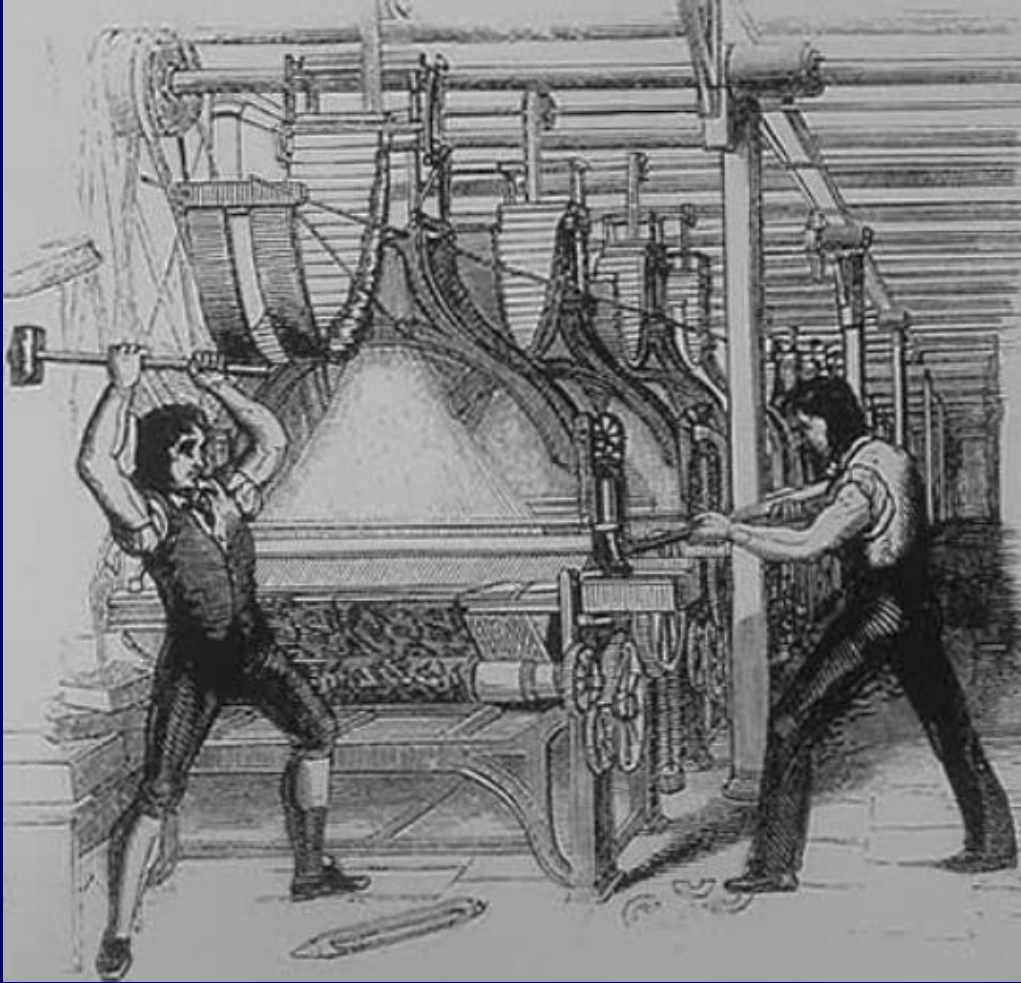
- Distillation of waste wood → \$12,000 per day (money of 1920s)
 - Enough to pay 2000 workers \$6 per day.
- Ford job design: no job to require a worker to take more than one step in any direction, or bend over

Scientific Law (10)

- If these methods worked so well, then why did Ford experience labor relations trouble during the late 1930s?
 - His successors went against the behavioral law, which requires a square deal for all stakeholders including employees.

BEHAVIORAL LAW

Behavioral Law (1)



Who are these men, and why do they want to smash the textile machinery?

Behavioral Law (2)

- Textile industry
 - 100-fold productivity improvements from the power loom and punch-card (Jacquard) loom
 - Benefits were not shared with workers.
 - Workers feared destruction of jobs through automation
 - Result: Luddites

Behavioral Law (3)

- Soldiering (marking time): a non-destructive form of Luddism
- Restrictive work rules whose purpose is to "protect" jobs → more Luddism
- "But ILWU wants to continue entering shipment data by hand instead of scanners. The ILWU hopes to protect jobs from the effects of automation."

Behavioral Law (4)

- Why Luddism?
 - Taylor: "...after a workman has had the price per piece of the work he is doing lowered two or three times as a result of his having worked harder and increased his output, he is likely entirely to lose sight of his employer's side of the case and become imbued with a grim determination to have no more cuts if soldiering can prevent it."

Behavioral Law (5)

- Ford: "If an employer urges men to do their best, and the men learn after a while that their best does not bring any reward, then they naturally drop back into 'getting by.'"
- **Lesson:** Luddites are therefore usually of the employer's own creation.

Behavioral Law (6)

- Ford summarized industrial and labor relations in one sentence:
 - "It ought to be the employer's ambition, as leader, to pay better wages than any similar line of business, and it ought to be the workman's ambition to make this possible."

Behavioral Law (7)

- Shop floor buy-in, therefore, requires:
 - A no-layoff policy (Ford had one; his successors circumvented it.)
 - Productivity improvements show up in workers' paychecks
- The success of the lean program requires elimination of restrictive work rules and other forms of Luddism.

Behavioral Law (8)

- Synergy of the three laws:
 - If labor gets a square deal, it will *support* (via the scientific law) improved productivity, higher profits, and lower customer prices. → win-win
 - If labor does not get a square deal, it will *resist* improved productivity via soldiering, restrictive work rules, and other forms of Luddism. → lose-lose

Behavioral Law (9)

- The square deal must extend to the supply chain.
 - Squeezing suppliers → suppliers cut corners on quality, possibly go out of business
 - Developing suppliers → suppliers offer lower prices but make more money

Behavioral Law (10)

- Supplier Development and Zero Base Pricing (ZBP)
 - C.R. Wilson wanted \$152 per car body.
 - Ford was willing to pay \$72.
 - Wilson: "That's less than it costs me to make them!"
 - Charles Sorensen: "Here is how you can make them for \$50 each."
 - Result: higher profits for Wilson, and higher wages for his workers.

Behavioral Law (11)

- This section has shown how the natural laws of human behavior can work for or against the organization.
 - The economic, scientific, and behavioral laws are *synergistic* rather than independent.

Next: the Universal Code and Social Responsibility

SOCIAL RESPONSIBILITY

Social Responsibility (1)

- If an organization needs a 1-sentence social responsibility policy, one is available off the shelf.
 - "If the public, the employees, and the owners do not find themselves better off because of the undertaking, then there must be something very wrong indeed with the manner in which the undertaking is carried through."

Social Responsibility (2)

- Social responsibility is therefore simply another expression of the universal code's requirement for a square deal for all stakeholders:
 - Customers
 - Suppliers
 - Investors
 - Employees

CONCLUSION

Summary and Conclusion (1)

- Henry Ford's universal code for business leadership consists of a synergistic triad of economic, scientific, and behavioral laws.
 - Proven effectiveness in the language of money → buy-in and acceptance
 - Impartial and inarguable, like the laws of nature → buy-in and acceptance

Summary and Conclusion (2)

- Economic law says we cannot get something for nothing.
 - Legislation, ideology, collective bargaining, and speculation cannot create wealth.
- Scientific law shows we can get far more from what we have.
 - Eliminate all forms of waste (muda)

Summary and Conclusion (3)

- Behavioral law requires a square deal for all stakeholders.
 - Square deal → buy-in and commitment
 - Unfair deal → soldiering, Luddism, and opt-out at the earliest opportunity

Ford's results prove unequivocally that we should choose the first option!

Thank You for Listening

- Questions and Discussion