



Comparing the Toyota Way and the Theory of Constraints

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www.leanontoc.com

Overview

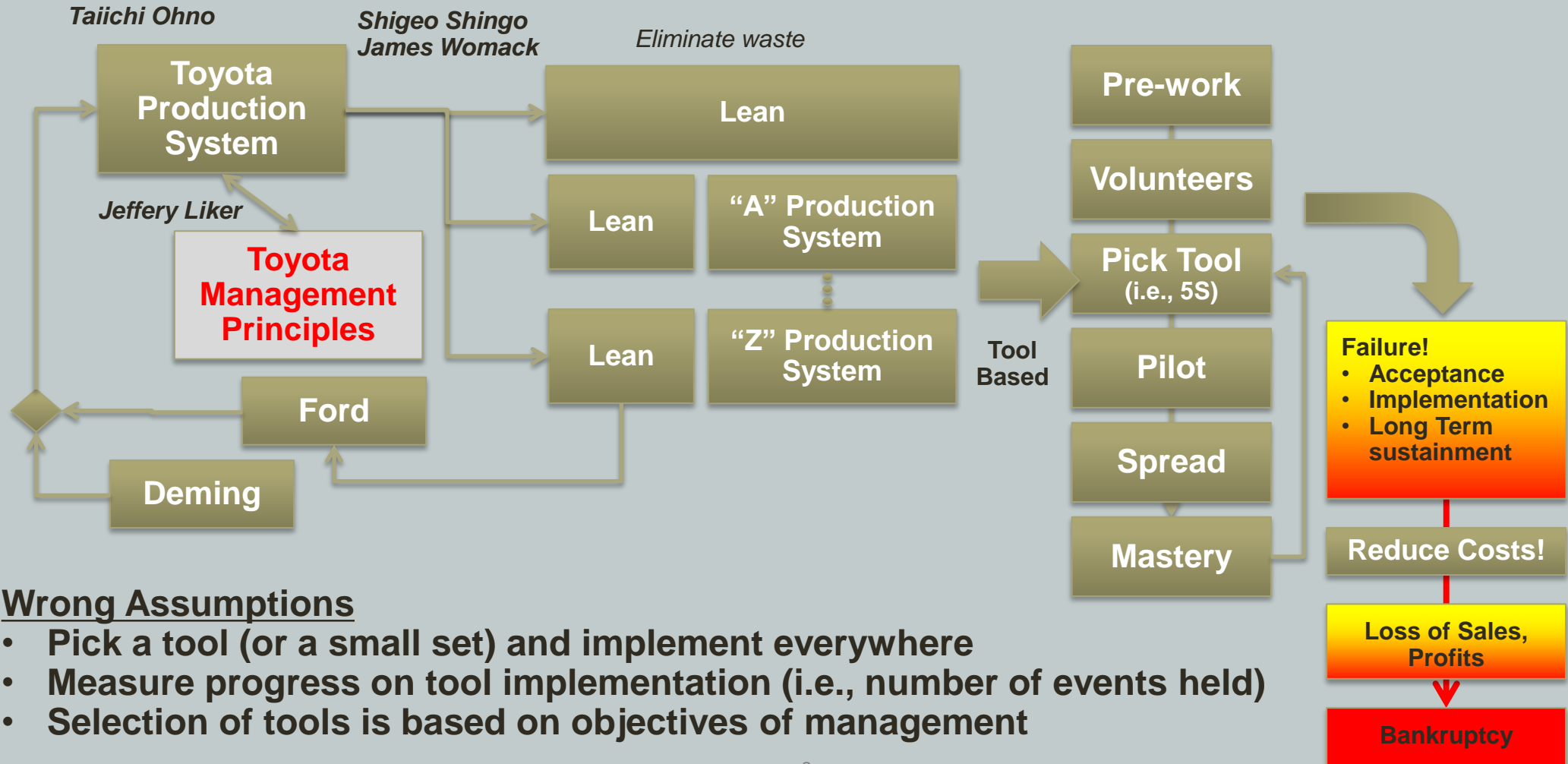
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- **Historical Perspective**
- **The 14 Key Management Principles of the Toyota Way**
 - Compare a select few to compare to the Theory of Constraints
- **Key Points from Standing on the Shoulders**
- **What can we learn from The Toyota Way to help improve TOC?**
- **Leveraging Benefits**
- **Avoiding Pitfalls**

TPS & Lean Historical Perspective

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Increase flow through the elimination of waste at Toyota



The Toyota Way

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Right Process
Right Results

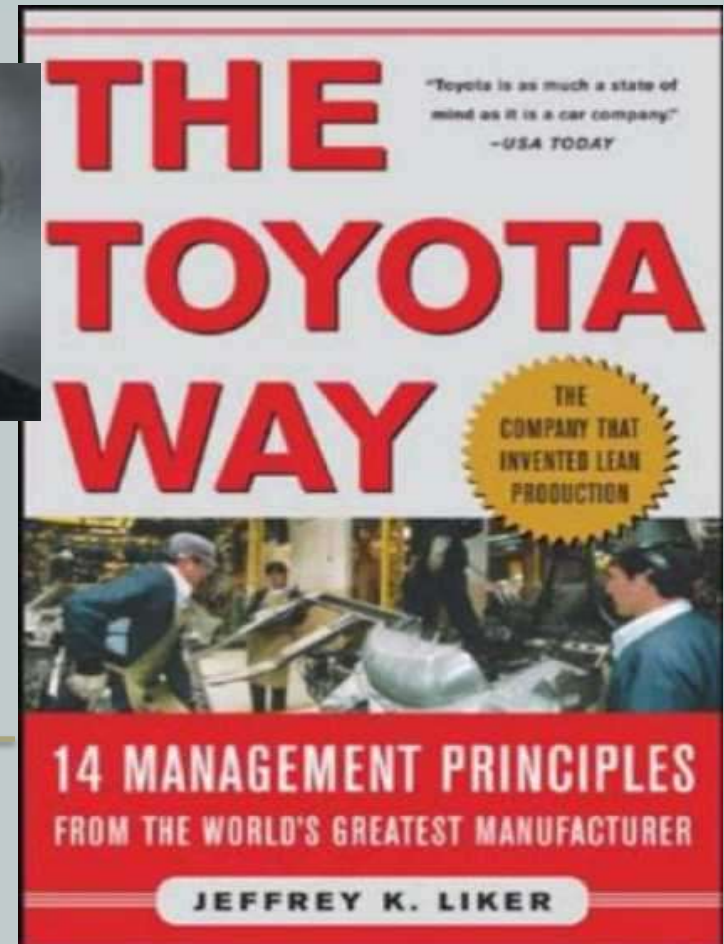
1. Long-Term Philosophy
2. Create Continuous Flow
3. Use Pull Systems
4. Level the Workload
5. Quality In Station
6. Standard Work
7. Visual Control
8. Use Only Reliable Technology

People
Development

9. Grow Your Own Leaders
10. Develop Exceptional People
11. Respect your Suppliers and Partners

Organization
Learning

12. Go See for Yourself
13. Take time to Get Buy in
14. Reflect and Improve



The Toyota Way Point of View

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- The U.S. has been exposed to TPS for at least two decades. The basic concepts and tools are not new.
- U.S. companies have embraced lean tools but do not understand what makes them work together in a system.
- But they do not understand the power behind true TPS: the continuous improvement **culture** needed to sustain the principles of the Toyota Way.
- The improvements they make will not have the **heart and intelligence** behind them to make them sustainable throughout the company.



Toyota Success

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- “The continued success at implementing these tools stems from a deeper business philosophy based on its **understanding of people and human motivation**. Its success is ultimately based on its ability to cultivate leadership, teams, and culture, to devise strategy, to build supplier relationships, and to maintain a learning organization.”

- *The Toyota Way*, Jeffery Liker

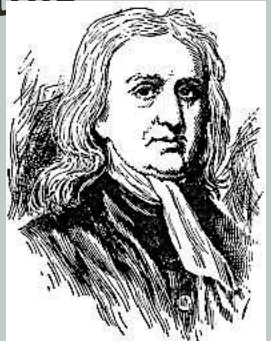


Standing on the Shoulders of Giants (SSG)

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- In the 2008 *paper Standing on the Shoulders of Giants*, Eli Goldratt concluded that the Failure of Lean Implementation is due to the **fundamental difference in the production environments**.
 - Lack of Stability
 - Product life, demand over time per product, resource loading.
- Goldratt examined:
 - The fundamental concepts of supply chains.
 - A generic application of these concepts that can be used in a much wider spectrum of environments.
 - The impressive results Hitachi Tool Engineering achieved with this broader application.

Standing on the Shoulders of Giants
Production concepts versus production applications
The Hitachi Tool Engineering example
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The Toyota Way

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- In the 2003 book, *The Toyota Way*, Jeffery Liker concluded that the the Failure of Lean Implementation is due to a tool focus rather than a deeper business philosophy based on its **understanding of people and human motivation**.
- Liker examined:
 - The principles behind the Four P's:
 - Long Term Philosophy.
 - The Right Process will produce the Right Results.
 - Add Value to the Organization by Developing Your People and Partners.
 - Continuously Solving Root Problems Drives Organizational Learning.

Environment & Concepts

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- **Environment**
 - Short Product Life
 - Demand over time per product
 - Overloading – model mix
- **The concepts of supply chain:**
 - Improving flow (or equivalently lead time) is a primary objective of operations.
 - This primary objective should be translated into a practical mechanism that guides the operation when not to produce (prevents overproduction).
 - Local efficiencies must be abolished.
 - A focusing process to balance flow must be in place.



Four Concepts

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- **Environment**
 - Short Product Life **(Principle 3)**
 - Demand over time per product **(Principle 2)**
 - Overloading – model mix **(Principle 4)**
- **The concepts of supply chain:**
 - Improving flow (or equivalently lead time) is a primary objective of operations. **(Principle 2)**
 - This primary objective should be translated into a practical mechanism that guides the operation when not to produce (prevents overproduction). **(Principle 3)**
 - Local efficiencies must be abolished. **(Principle 2)**
 - A focusing process to balance flow must be in place. **(Principle 4)**



Who is Right?

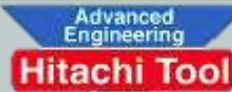
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- Both Goldratt & Liker agree, for different reasons, that Lean and TPS will not work well in different environments.
- Both TOC & The Toyota Way have a track record of success.*
- Goldratt made it clear how DBR is a superior application that was implemented at Hitachi Tool Engineering.
- But did it suffer the same fate as foretold in The Toyota Way?
 - “The Failure of *DBR* Implementation is due to a tool focus rather than a deeper business philosophy based on its understanding of people and human motivation.”

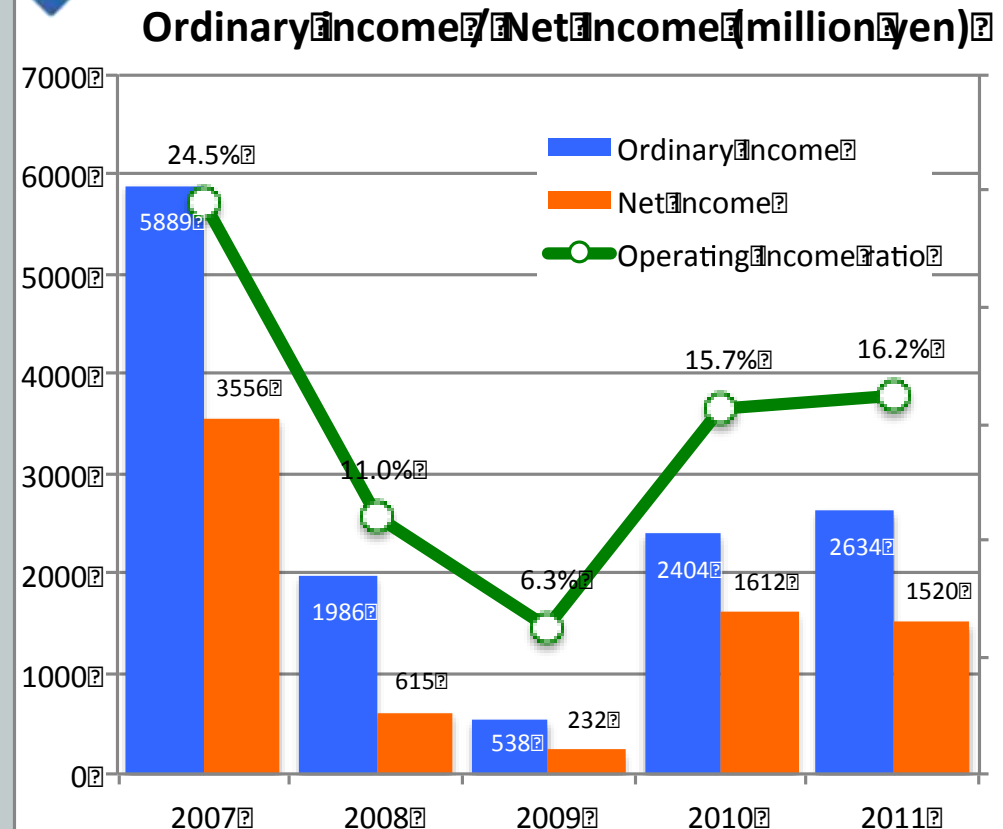
* - *The Toyota Way to Continuous Improvement* – Jeffery Liker & James Franz

Hitachi Tool Engineering Success?

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- Hitachi Tool Engineering Ltd increased from 1.1 billion yen in the fiscal year ending March 2002 to 5.3 billion yen in the year ending March 2007
 - A fivefold increase in net profit in five years.
- The profit ratio of Hitachi Tool Engineering Ltd increased from 7.2% in 2002 to 21.9% in 2007, the highest ratio ever reported in this type of industry.
- *Standing on the Shoulders of Giants* – Eli Goldratt



Long-Term Philosophy

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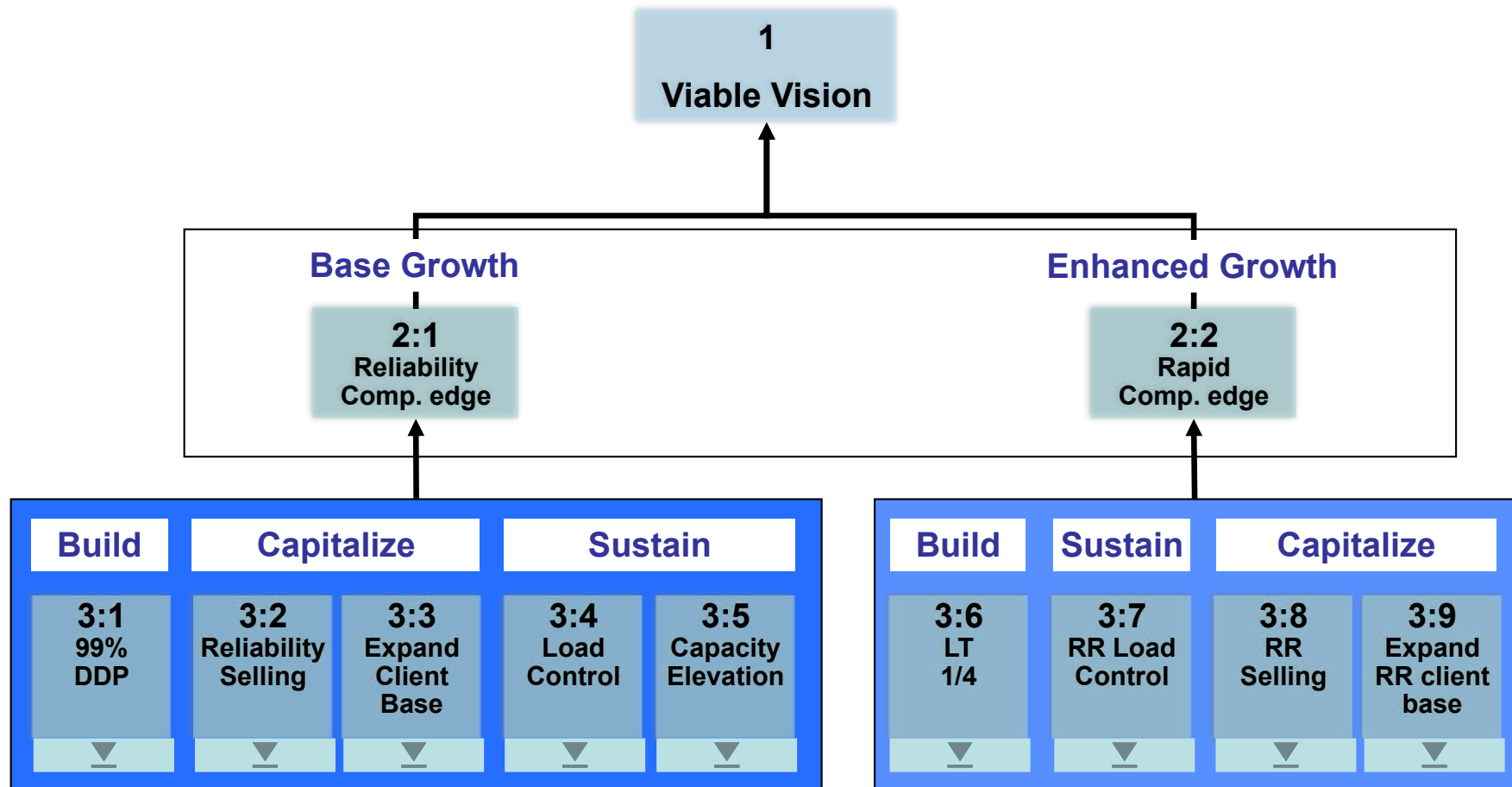
- Principle 1. Base your management decisions on a **long-term philosophy**, even at the expense of short-term financial goals.
 - Have a philosophical sense of purpose that supersedes any short-term decision-making. Work, grow, and align the whole organization toward a common purpose that is **bigger than making money**.
 - Generate value for the customer, society, and the economy—it is your starting point.
 - Be responsible. Strive to decide your own fate.

Long-Term Philosophy

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Reliable Rapid Response S&T

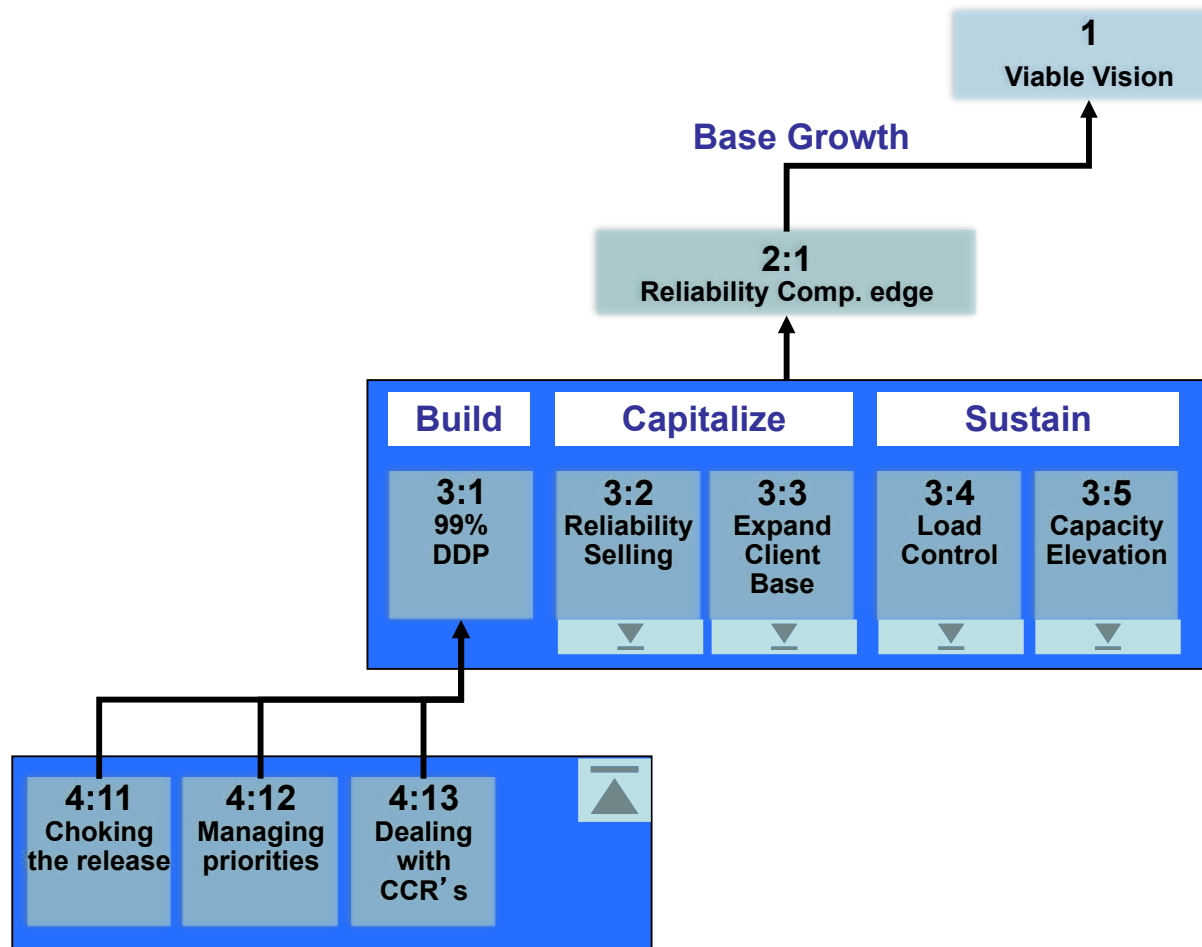


Long-Term Philosophy

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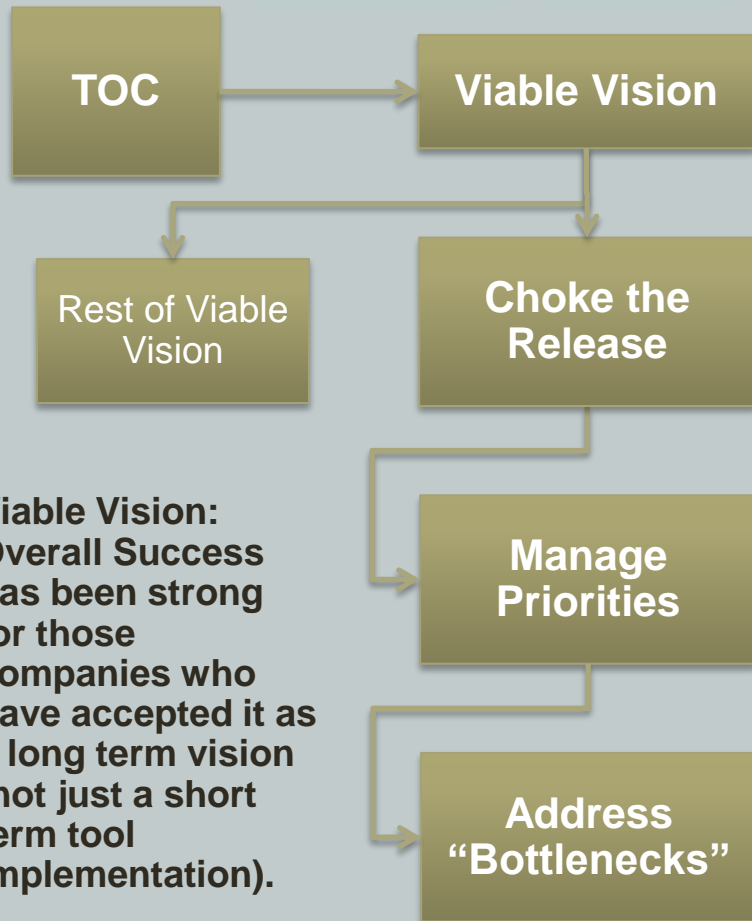


Reliable Rapid Response S&T



High Level TOC Overview

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Viable Vision:
Overall Success
has been strong
for those
companies who
have accepted it as
a long term vision
(not just a short
term tool
implementation).

- Creates a “long” term plan.
- Used for quick wins and to expose bottleneck.
- Drum Buffer Rope, Buffer Management.
- Use Throughput Accounting (TA) for priority setting.
- Address Harmful Management Policies & Measures.
- Implement a “Throughput Improvement Process.”
- Use TPS tools to address the bottleneck.

Create Continuous Flow

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- Principle 2. Create a continuous process flow to bring problems to the surface.
 - Redesign work processes to achieve high value-added, continuous flow.
 - Create flow to move **material** and **information fast**.
 - Make flow evident throughout your organizational culture. **It is the key to a true continuous improvement process.**

TOC & Throughput

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- Improve the **Throughput** of the system by identifying and improving the constraint.
 - CCR's (Capacity Constrained Resource)
 - Prioritization that provides focus, ability to say “No.”
 - Buffers are installed in the right place and right size.
 - Choose the right measures – Throughput (dollars), Operating Expense, Inventory.
 - Keep track of improvements.
 - “Over Manage” the Constraint.

Use Pull Systems

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- Principle 3. Use “pull” systems to avoid overproduction.
 - Provide your down stream customers in the production process with what they **want** “just-in-time.”
 - Minimize your work in process by stocking small amounts of each product and frequently restocking based on what the customer **actually** takes away.
 - Be **responsive** to the day-by-day shifts in customer demand.

Use Drum Buffer Rope

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- Use Drum-Buffer-Rope as an **effective** and **fast** system-wide mechanism for Pull.
 - Simple Drum-Buffer-Rope.
 - Demand Driven MRP.
 - Tie demand to production.
 - Viable Vision link -- “Choking the Release.”
- **Buffer Management** ensures demand is met, and production can react quickly with high Due Date Performance.



Level the Workload

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- Principle 4. Level out the workload (heijunka).
(Work like the tortoise, not the hare.)
 - Eliminating waste is **just** one-third of the equation for making lean successful. Eliminating **overburden** and eliminating **unevenness** in the production schedule are just as important.
 - Work to level out the workload of all manufacturing and service processes as an alternative to the stop/start approach of working on projects in batches that is typical at most companies.



Where is the Opportunity?

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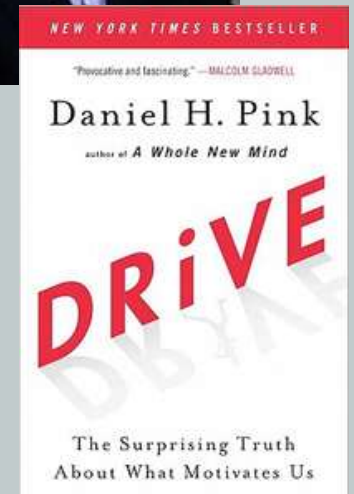
- TOC can improve its implementation **by improving it's understanding of people and human motivation.**
 - *Clouds & Overcoming Resistance to Change* certainly begin that journey.
- What is a simple guide for human motivation?
- How does it relate to the Toyota Way?
 - The Toyota Management Principles have half their principles devote to people and human motivation!
- How can this help TOC?



Human Motivation

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- In a non-survival situation, Daniel Pink presents the scientific evidence that true motivation comes from three elements:
- **Autonomy**
 - The desire to direct our own lives.
- **Mastery**
 - The desire to continually improve something that matters.
- **Purpose**
 - The desire to do things in service of something larger than ourselves.

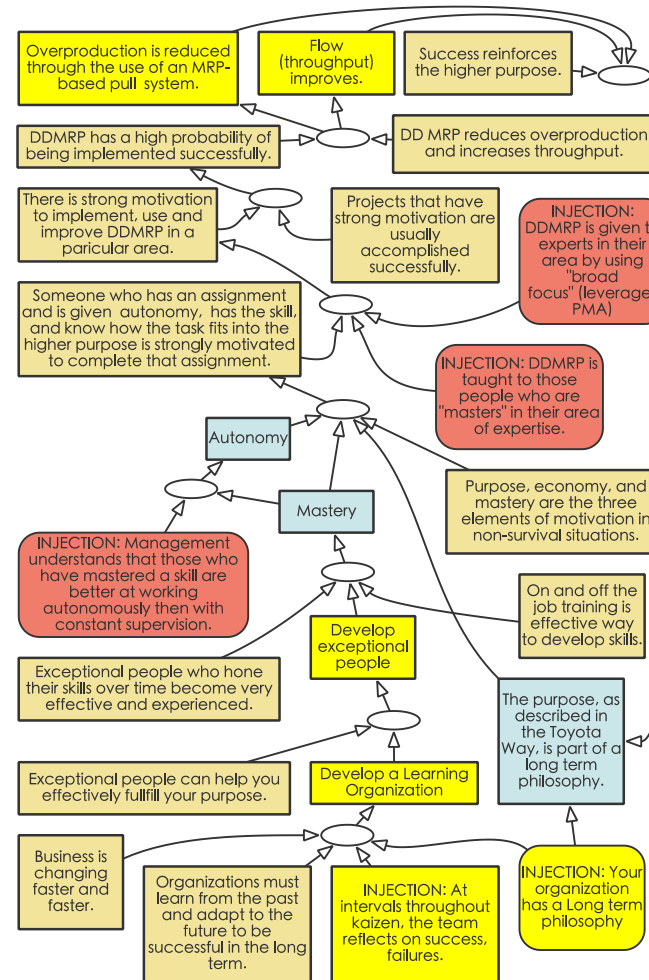
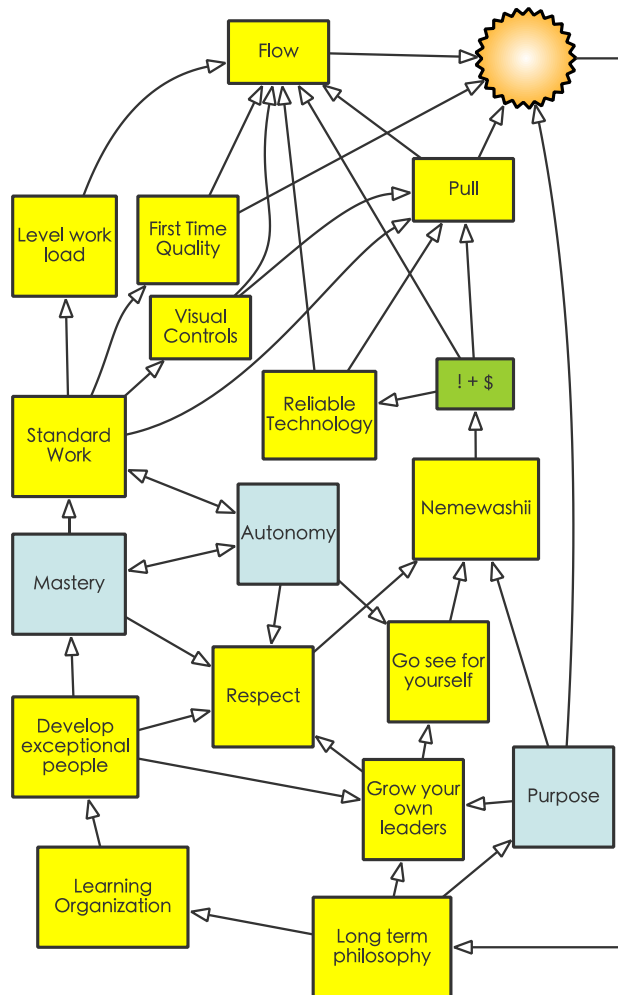


- He warns that traditional carrot-and-stick methods, in which companies use a particular incentive -- often money -- as a contingent reward for a task, are not only **ineffective** for motivating employees, but potentially **harmful**.
 - Could this be a concern for any reward-based Viable Vision step?
- “Now That” rewards vs. “If-Then” rewards
 - Example of “**Broad Focus**”
 - "I need you to redesign a Web site. Here's what we need to accomplish, and I'm here to give you guidance and provide any tools."



Motivation Elements & Toyota Way

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- The elements of motivation can be related to the 14 principles.
- A simple relationship diagram shows how they are interconnected (left).
- They should be considered as possible elements in trees to help understand current & future realities (right).



Principles & Motivators

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9. Grow Your Own Leaders

- Develop **masters** that learn how to pursue a higher **purpose**.
- They must be able to communicate and teach the Long Term Philosophy.

10. Develop Exceptional People

- Purpose and beliefs are shared, create Toyota Way **masters**.
- Leaders will be drawn from this group.

11. Respect your Suppliers and Partners

- Work together to improve the process (**mastery**).
- Work together to achieve your **purpose**.



Principles & Motivators

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12. Go See for Yourself

- Going out to the problem area improves your **mastery**, shows your commitment to the **purpose**, and provides **non-contingent rewards**.

13. Take time to Get Buy in

- Those involved with making the decisions have the Respect of their peers, because of their **mastery** of their role and their ability to perform it with little or no direction (**Autonomy**).
- Have them understand the **purpose** and their role in achieving it.

14. Reflect and Improve – Learning Organization

- Improve your **mastery** through reflection (hansei).



Improving TOC

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- Improve TOC by **leveraging the science** behind human motivation and how it has been used at Toyota.
 - Current: Look at a past failure and a past success, and see if the elements of motivation played a role in either case.
 - Review your conclusions with trusted friends.
 - Future: Look at implementation steps in the future that requires a change in behavior.
 - What motivation exists to cause this change?
 - Where is **“Carrot and the Stick”** and “If-Then” being used?
 - Can the use of the three elements of motivation help create a more positive motivation for implementation of TOC?
 - Does it become part of the tactics used to ensure success?



Improving TOC

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- Look at your motivation, especially as it relates to TOC.
 - What is your Higher Purpose?
 - How are you going to improve your Mastery?
 - Are you going to be a “Carrot and a Stick” leader?
 - How are you going to promote the autonomy of your employees, partners, and students?
 - Is it worth your time to increase your skill at motivation?



COMMON PITFALLS

Common Pitfalls

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- **Copying tools is not a great motivator.**
 - “This will help us cut costs and reduce headcount!”
 - “I don’t really care about what you know. It hasn’t helped so far!”
 - You ARE going to do this, or else! We’ll be checking on you to make sure you are doing it right.”
- **Avoid Dictating** the solution – take time to gain agreement.
 - Those who can help, and those than can hinder.
- Not taking time to “Hansei” or reflect on what you did right and what you did wrong.



Common Pitfalls

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- **Don't fall on your sword** – move on to another opportunity instead of forcing someone to see you are right.
- **Use Throughput Accounting**
 - Higher Purposes will still have a **necessary condition** of “making money.”
 - **Poor** financial decisions can derail the entire improvement process.
 - Not used at the start - Lack of a financial **baseline**.
 - Overcome the inertia of the budget and headcount focus.
 - Be ready to train and retrain.
- **Not keeping up because YOU are too busy.**
 - Don't avoid the process of learning and discovery.



LEVERAGE BENEFITS

Leverage Benefits

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- Demonstrate how TOC has the **right** processes that create the **right** results.
- Understand how each key step in an improvement process will motivate your customers.
 - Help them understand how their job supports the **higher purpose**.
 - Show them how they will become **masters** of each step (VV).
 - Give the tools and knowledge for them to “**do it without you**”.
- Emphasize **Continuous Improvement** of the **Continuous Improvement Process**.



Leverage Benefits

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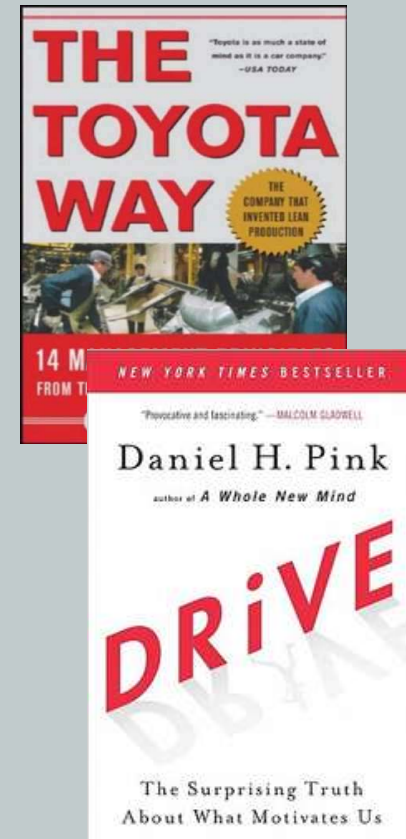
- Consultants (**especially** in this room) must respect and leverage each others knowledge and tools.
- Use *The Toyota Way* as a “back drop” for key principles.
- Practice “Broad Focus”:
 - “ I need you to help the company limit overproduction. It hurts us financially and causes late orders to our customers. We are going to provide a tool called DBR to help us accomplish this task. We need you to help us successfully install this tool in the Pump Assembly Line. These consultants are here to provide guidance and teach you DBR tools. I’m here to remove roadblocks.”



Recommendations

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- Read *The Toyota Way & Drive*
 - Understand the three elements of motivation and the 14 management principles
 - Understand how your current and future efforts are aligned with human motivation.
 - Look for the motivation factors in everyday life.
 - Develop ways to help motivate the use of TOC.



Summary

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- Both TOC and The Toyota way agree that the typical methods of implementing Lean are not effective, although for different reasons.
- TOC provides proven processes that generate the right results in a wide array of environments.
- The Toyota Way concentrates more on people and understanding motivation than tools.
 - Three elements of motivation are Purpose, Autonomy and Mastery.
- It's important to TOC's future to learn how to understand people and human motivation to improvement acceptance, implementation, and long-term success.

The Six Step to SSG

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1. Identify a “giant”, not a chupchick

- Continuous improvement methods, such as Lean and TOC:
 - Struggle to gain acceptance
 - Often fail to be implemented successfully
 - Fail to maintain success in the long-term

2. Identify the enormity of the area addressed by the giant

- The failure of CI methods drives management to resort to a “reliable” method – cost cutting.
 - Leads to a reduction of profits and a death spiral
 - Toyota’s success vs. GM’s failure

3. Get on the shoulders – historical perspective

- Goldratt, Ohno, Lean Leaders (Womack & Shook), Liker, Pink

The Six Step to SSG

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- 4. Identify the conceptual difference between reality that was improved so dramatically by the giant and the areas untouched.**
 - Toyota improvement was the result of its Management Principles more than the its Production system.
 - Copying TPS tools without understanding the need for human motivation ultimately will lead to failure.
- 5. Identify the wrong assumption**
 - Implement tools that have been successful at Toyota.
 - Use “carrot and stick” as the primary method of motivation
- 6. Conduct the full analysis to determine the core problem & solution**
 - Problem: Human motivation and overall management principles are ignored as part of the solution
 - Solution: Understand the science behind human motivation and include elements of motivation as part of your solution.

QUESTIONS? & ANSWERS!

BACK UP

Final Thought

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Who here would pursue the challenge presented below for “free?”

“Possible” TOCICO challenge:

- **“We need you to be part of a small team focusing on improving TOC. This team will examine human motivation as outlined in The Toyota Way and Drive, and will generate ideas that hold promise. TOCICO will provide guidance and provide any tools you need to be successful.”**

What should we Learn About Next?

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- What companies (outside of Toyota) have been successful with a management process that has survived management succession?
 - Safety Improvement at Alcoa through management focus.
 - Profitability at Southwest Airlines through Servant Leadership.
 - Coldstone Creamery -- Good to Great characteristics.
 - Leverage Crisis and Opportunity.
 - Ability to adapt with rapid (technical) change.
 - Understanding and using “The Power of Habit.”

Web Links

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Wall Street Journal article on Drive

<http://online.wsj.com/article/SB10001424052748704152804574628230428869074.html>



YouTube Video on Drive

<http://www.youtube.com/watch?v=u6XAPnuFjJc>



Toyota Way at Amazon

http://www.amazon.com/s/ref=nb_sb_ss_i_1_4?url=search-alias%3Dstripbooks&field-keywords=toyota+way&srefix=toyo%2Cstripbooks%2C289



Drive at Amazon

http://www.amazon.com/Drive-Surprising-Truth-About-Motivates/dp/1594484805/ref=sr_1_1?ie=UTF8&qid=1335651845&sr=8-1

