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Lean Thinking for Knowledge Work

by **Matthew May**

It's 1982, the year of the "Where's the Beef?" campaign and Jordache jeans. The General Motors' (GM) plant in Fremont, CA, is plagued by multiple strikes and sickouts by the United Auto Workers, absenteeism topping 20%, rampant substance abuse and four drug related murders. It's GM's worst plant in terms of quality and productivity. Eventually, the factory closes.

Enter Toyota, looking to test its production system on U.S. soil. Toyota and GM form a joint partnership

in 1983 and reopen the Fremont line, naming it New United Motor Manufacturing Inc. (NUMMI). Same workers, same union, same facilities.

Operations begin in 1984, and within two years, NUMMI has the highest quality and productivity of any GM plant, and absenteeism is down to 3%. Worker satisfaction and engagement reach record levels. Operational improvement and innovation are on the rise.¹ By the early 1990s, the Toyota Production System (TPS) is being heralded as the world-class standard for manufacturing operations.²

For Toyota Motor Sales USA Inc., the domestic marketing arm of Toyota, the journey had just begun. Knowing the real opportunity for breakthrough productivity gains was on the distribution side of the equation, the company needed to figure out how to decode and apply TPS principles to nonproduction environments—to knowledge work.

The Dilemma

Peter Drucker coined the term "knowledge work" in the 1960s when describing management challenges of what he called the emerging knowledge society, in which a significant percentage of the workforce would be engaged in the primary task of managing information.³ Today, most in the corporate world are knowledge workers. We don't really make anything; we simply create information

In 50 Words Or Less

- **Service sector productivity trails manufacturing by a wide margin.**
- **Does the vaunted Toyota Production System have applications beyond manufacturing? Can lean thinking be transferred to knowledge work?**
- **The short answer is yes, but the translation may surprise you.**

LEAN

from data and reconfigure it to yield knowledge that allows our businesses to advance. Unfortunately, we're not very good at it. In fact, service sector productivity trails manufacturing by a wide margin.⁴

Toyota was facing these same challenges and looked to apply its production system to nonproduction work. The project initially backfired in the corporate environment due to a "we're not the factory" mind-set. That's when the University of Toyota stepped in and used lean thinking, a term popularized by James Womack and Daniel Jones in their book of the same name, to convey the essence of TPS.⁵

After nearly a decade, the approach has proved successful. The key lies in understanding that leveraging lean thinking principles does not entail

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a literal application, but rather a conceptual one. Knowledge work is different from manufacturing work. It's more like chess than checkers—while both are played on the same board with the same number of pieces, chess demands strategic thinking and deeper problem solving. Knowledge work is dynamic and complex. It requires things like multitasking, collaboration, innovation and cross functional relationships. It's messy.

These differences become irrelevant if we keep two things in mind. First, attempting to go lean by employing neat algorithms and toolbox techniques just doesn't work. A much more human centered approach is required. Second, information is the primary basis of value in knowledge work, and it must flow to the right person in the right form at the right time at the lowest cost with the highest quality possible.

Less Is More

TPS principles were born out of severe resource constraints in postwar Japan. The founders of TPS

had to do more with less, and this has become the guiding spirit and overarching philosophy behind lean thinking the Toyota way.⁶

Lean thinking at Toyota looks nothing like most oversimplified, rule centered and expert driven corporate improvement programs. There is no one best way, no 10-step model, no *sensei* (teacher or master) and no multiphase implementation plan. Instead, lean thinking conveys a higher viewpoint that empowers knowledge workers to become independent goal seekers who leverage deeper problem solving skills and critical thinking capabilities in service to customers.

So, what does lean thinking mean in the context of knowledge work? Let's start with the word "thinking." For our purposes, thinking is defined as "going beyond the given information." This new view requires a constant effort to push beyond obvious symptoms and quick solutions to accurately assess underlying causes and fight the workaday tendency to employ guesswork as a strategy. Too often we focus on the surface issues that grab our immediate attention (the faucet is leaking) and fail to solve the root cause (the high water pressure is not being regulated). "Thinking" also suggests an active state of mindfulness in which we remain open to new information and willing to look at the world from a different point of view.

The less intuitive "lean" term refers to a basic absence of waste. This remains a central theme in TPS, in which the ultimate goal is to achieve the highest quality at the lowest cost. Waste increases cost without adding value, so it becomes the key target. Forms of waste include delays, needless activity, overprocessing, storage and rework.⁷

Waste is just as present in knowledge work, so its elimination remains an important consideration, but it's not the direct target. Because waste is largely invisible in knowledge work, the focus shifts to adding value (see "The Value-to-Waste Ratio"). Value added thinking leads us to lean knowledge work. In addition to adding value, two other fundamental goals are associated with lean knowledge work: creating flow and achieving mastery.

Adding value. This is the defining concept of lean knowledge work. It moves the conventional, economic view of value that focuses primarily on the tangible, transactional deliverables of a customer experience to a much broader perspective.



This view of value includes the transformational or intangible aspects of building collaborative and engaging relationships with customers.

Adding value is the fundamental belief that individuals and organizations exist to create value for society through their interaction with suppliers, customers, employees, stockholders and communities. It is also the ongoing effort to fully align purpose, strategy and people around the transforming nature of serving others.

Creating flow. This is the effective and efficient movement of tangibles (products and services) as well as intangibles (information and knowledge). It embraces the notion of purposeful engagement for both employees and customers, where fully involved employees work together in a collaborative fashion to proactively engage customers in understanding and serving their needs.

At the core of employee engagement, leaders continually align employees to the work that drives customer value. This requires the managerial ability to match talent to task, build shared values among team members and continually develop the full potential of individuals. Creating flow emphasizes the internal operations of the organization,

such as delivering value, eliminating waste and pursuing optimum performance.

Achieving mastery. This element focuses on the foundational needs of the human spirit—the personal drive for meaningful growth and progress. It is hallmarked by a personal and passionate quest to reach one’s full potential by continually striving for personal best performance and centers on the personal management of knowledge and continuous learning.

When we fail to be purposeful in shaping and directing our knowledge, we fail to leverage the full power of our personal resources. By proactively managing our mastery of new knowledge, we create opportunities to increase our personal resources, build resilience in the face of challenges and refine our thinking and reflection skills.

Benefits of Lean Knowledge Work

The benefits of lean knowledge work accrue in five areas of organizational impact:

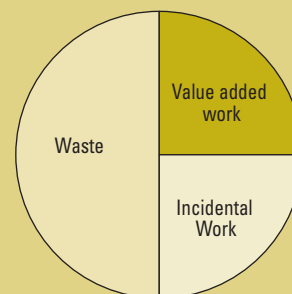
1. **Culture transformation:** Focusing on value and people is a transformational quality that elevates the human spirit.

The Value-to-Waste Ratio

Taiichi Ohno, the industrial engineer considered to be the father of the Toyota Production System, believed only one-fourth of all traditional work activity actually adds value for the customer (see Figure 1). The rest is considered waste or incidental.¹ In the quest to become lean, companies must focus on improving the value-to-waste ratio.

In production work, the goal is to achieve the highest quality at the lowest cost. The focus here is to eliminate waste and reduce incidental or nonvalue adding work. In knowledge work, however, waste and incidental work are much harder to see so the focus shifts to increasing value added work. Creating flow and achieving mastery are the key supporting goals.

FIGURE 1 Traditional Work Activity



REFERENCE

1. Taiichi Ohno, *Toyota Production System: Beyond Large Scale Production*, Productivity Press, 1988.

LEAN

2. **Strategy focus:** Organizational purpose and strategy achieve higher levels of focus due to central positioning of the customer.
3. **Process design:** Business processes better align to the strategy and become more effective and efficient.
4. **Problem solving:** A problem solving ethic pervades the organization, creating purposeful and high energy interactions.
5. **People development:** People see themselves as central to the organization's success, making it easier to subordinate individual gain to the overall good of the organization.

Table 1 shows the broader framework against which the lean knowledge work principles are applied. To help you better understand these ideas and see how they might work in an organization, imagine two fictional airline companies called JumboJet and ValuFlite. JumboJet is a traditional, nonlean company, and ValuFlite is a lean thinking company.

Adding Value

Value proposition: At JumboJet, the key business departments and functional experts, such as marketing, strategic planning and customer service, meet regularly to decide which products, services and routes will be offered to customers, based on historical data and market research. Terminal expansion plans figure centrally, as do aircraft amenities and technological features. Key agenda items include retail floor planning in terminals, upgraded premi-

um flight membership, in-flight offerings and carrier replacement.

At ValuFlite, the customer defines value. ValuFlite knows its customers well. Understanding the ease and convenience of travel is its number one concern. ValuFlite understands the value proposition for its customers is unique: They are all fairly sensitive to price and convenience and don't need all the fancy bells and whistles, such as in-seat DVD viewing, gourmet meals or designer shops in the terminal. They want a low priced, no hassle way to get from point A to point B.

At JumboJet, the customer service department monitors satisfaction through regular measurement and offers financial incentives to improve customer satisfaction survey scores. For example, JumboJet introduces a new customer satisfaction goal each quarter, supported by a new incentive program.

ValuFlite does whatever it takes to ensure its customers don't suffer inconvenience. For example, it offers a turnkey online reservation system that provides customized options such as scheduling front-door shuttle service, "no check in" auto rental and reservations with partner hotel chains. Customers can configure their entire itinerary on the ValuFlite website.

Business strategy: In response to pressure to show growth in revenue and profit, senior executive meetings at JumboJet focus predominantly on corporate financial goals for the immediate fiscal quarter. Topics on the agenda include current revenue,

TABLE 1 Framework of Lean Knowledge Principles

Value Becoming customer centered	Value proposition What is the compelling value of what you offer to customers?	Business strategy How does the value proposition align to the business strategy?	Compelling purpose How well is the value proposition embedded in the mission?
Flow Engaging people around lean processes	Value delivery How has the value proposition been translated into value added activities?	Value cycles How are the value adding activities linked to optimize quality, cost and speed?	Full engagement To what degree is there employee engagement and ownership over the work?
Mastery Continuously improving and innovating	Accountability What are the goals and expectations for individuals and teams?	People development What is the overall strategy for leveraging individual strengths?	Learning cycles What disciplines exist for improving things on a continuous basis?



profit and loss and operating income. Competitive figures—pricing, routes and capital acquisitions—always provide a focus of attention, as do ways to generate higher revenue through additional services.

Senior executive meetings at ValuFlite focus predominantly on operational improvement goals that aim to help customers solve their transportation problems more effectively. As a result, more attention is devoted to looking at strategic opportunities to improve the customer value proposition, such as alternative airport transportation, more convenient airport parking and an improved terminal layout to enhance the ease of check-in and boarding.

Compelling purpose: JumboJet is a traditional full-service airline in terms of revenue, routes and fleet of aircraft. Its slogan, “Fly high, fly proud,” calls attention to its continuously upgraded, state of the art fleet of aircraft. It has had its share of highs and lows with respect to profitability and loyalty. JumboJet’s mission is to provide the highest quality service in the airline industry to ensure shareholder value. As a result, it focuses on acquiring the best and most advanced fleet of aircraft and constantly expanding its upgraded, mall-like terminals.

ValuFlite is a relatively new carrier, concentrating on providing a total door-to-door air travel solution. Its slogan is “More care, less fare.” It has been growing steadily since its inception and continues to realize increasingly high levels of profitability and loyalty. ValuFlite’s purpose is to help people get where they need to go quickly, conveniently and inexpensively. As a result, it focuses its energy on removing the headaches of air travel, working to ease and simplify the door-to-door experience of flying for its customers.

Creating Flow

Value delivery: JumboJet boasts the most elaborate terminals in the industry, with high profile food vendors and high-end retailers proliferating what many describe as a terminal mall. JumboJet long ago recognized flight delays and extended waiting periods presented a problem for customers and chose to install homelike amenities in its terminals to put travelers at ease and allow them to use their waiting time in an enjoyable consumer experience.

ValuFlite configured its terminals in an effort to create “one-piece flow.” Constructed to eliminate waste in conveyance, the terminals are not fancy,

but they are extremely functional and are usually in the round instead of in linear hallways. Ticketing has been eliminated, bags are checked by ground transportation drivers or at the curb, and seating is unassigned.

ValuFlite has ground crews of four—one-third the industry standard of 12. It needs only two gate agents vs. the usual three, and turnaround times

They want a low priced, no hassle way to get from point A to point B.

are 15 minutes vs. the industry standard of 40. Pilots have unionized independently so they can fly more. Other workers have flexible contracts that enable them to jump in and help out, regardless of task. The labor/management relationship is highly cooperative.

Value cycles: JumboJet spends a great deal of time on the booking process, looking to shorten the duration of a reservation call. It does this by constantly upgrading its reservation system and training. All transactions are counted and timed, and performance targets center on improving the telephone exchange. Knowing it is evaluated by marketing companies based on departures and arrivals, JumboJet now uses a group seating methodology, which has been studied and proven to reduce seating time. To encourage customers to use electronic ticketing procedures, JumboJet charges travelers for issuing and mailing paper tickets.

ValuFlite seeks to elevate the entire door-to-door travel experience. On its website, customers can not only book flights, but also reserve cars, hotels and curb-to-curb service. Through strategic partnerships, ValuFlite offers reduced rates on most travel services.

It prides itself in the claim that its passengers never have to touch their luggage. If they wish, they’ll be picked up at home for a cost less than market rates, their bags checked in at the airport

LEAN

and handled and packed in a rental car at their destination. ValuFlite piloted this program to overwhelmingly positive response and now offers it to all passengers. ValuFlite has also developed a unified electronic itinerary, accompanied by a single bill for all travel arrangements, if desired.

JumboJet uses its strategic planning and forecasting department to determine the optimal fleet portfolio based on budget parameters. Recommendations for aircraft acquisition and retirement are approved by the executive committee. Once capacity in a fiscal year is determined, the marketing department constructs promotional ticket programs, new luxury

Believing management talent is a key competitive advantage, JumboJet prides itself on hiring the best and brightest at the highest salaries, recruiting heavily at top business schools.

amenities and special rate reductions to fill seats. This is done largely through competitive pricing schemes, with JumboJet marketing experts undercutting competitors' prices for limited times on the most profitable routes.

ValuFlite conducts weekly cross functional meetings to review current market conditions and key leading performance indicators. It figures the lowest possible price and drives out costly waste. On any given day, ValuFlite executives know exactly what their customers are willing to pay for a ticket. Promotional programs center on value adding ideas such as "friends fly free" and "take along a companion." ValuFlite purchases new aircraft only when on-board occupancy reaches predetermined need levels. It buys only one type of aircraft to enable lower vol-

ume pricing, reduce maintenance costs and nearly eliminate high pilot and mechanic training costs.

Full engagement: JumboJet administers yearly in-depth employee attitude surveys to monitor employee satisfaction. Results are tabulated and reported by key departments, which then review the numbers with key staff members. Action is taken on the lowest scoring factors, usually through a new company program. The HR department has instituted a number of benefits programs for employees and their families, such as tuition reimbursement and counseling services. Believing management talent is a key competitive advantage, JumboJet prides itself on hiring the best and brightest at the highest salaries, recruiting heavily at top business schools.

ValuFlite is one of *Fortune* magazine's "Top 10 Companies To Work For." It's not uncommon to find the CEO serving ice water on a crowded flight, participate in impromptu in-flight contests or hear employees recognized over the intercom during a flight. ValuFlite's culture is one of hard work, high energy, fun, local autonomy and creativity.

ValuFlite hires for attitude and aptitude, using peer hiring—pilots hire pilots, and gate agents hire gate agents. It initiated the industry's first profit sharing plan, offering more than 10% of salary in profits each year, tax deferred.

Achieving Mastery

Accountability: JumboJet rotates key managers through all functional departments to build a broad base of knowledge and skill in all critical operational areas. Frontline personnel start as reservationists, progress to ticketing agents and eventually move into supervisory roles. With additional education, supervisors can advance to management staff positions.

ValuFlite will only hire people it believes have talents and abilities that are well matched to the job, preferring to build deep bench strength in key positions. Horizontal advancement is the mechanism by which employees develop toward mastery. For example, reservationists remain reservationists and are compensated based on work output, not seniority. As expertise is gained, more responsibility is granted.

People development: JumboJet regularly sends potential managers to executive education programs



to encourage the acquisition of new knowledge and enhance their career track. Lower level employees receive regular skills based training, especially when new systems come on line or new services are offered. Each employee has a required level of training to complete each year as part of his or her overall performance development plan and review process.

ValuFlite's University of People focuses its attention on learning experiences that offer employees a chance to gain deeper levels of knowledge with respect to their personal talents, values and goals, with connections to serving customers built into all structured classes. Most classroom education focuses on building the company culture. A wide range of opportunities exists for all levels of employees to expand their jobs through proposing improvement projects. Employees regularly and informally meet to share customer experiences, techniques and lessons learned.

Learning cycles: JumboJet retains a number of consultants to aid in recommending strategies and solutions to difficult problems, including suggestions for operational improvements and technological innovations. Employees who independently take the initiative to solve a problem or improve a key activity are rewarded with a promotional or financial gift.

ValuFlite employees are empowered to improve any area of work within their realm of expertise and are schooled in methods to conduct a structured, systematic problem solving cycle that results in root cause analysis and intelligent solutions. Continuous improvement teams are used to engage in group problem solving. ValuFlite's now benchmark home-to-terminal transportation arose out of a number of customer comments to gate agents, eventually leading to a pilot study and trial run.

The Bottom Line

While the names have been changed and creative license taken, our two imaginary companies represent actual airline industry dynamics characterized by large but troubled airlines in one corner and secondary but flourishing airlines in the other. The JumboJets struggle to stay in the air, relying on governmental bailouts and merger activity to keep them going. Escalating costs, inefficient operations, strained labor relations and plummeting customer

satisfaction help explain their disappearing customer base. At the same time, the ValuFlites are experiencing growing profits, added routes, continuously improving schedule performance and rising employee and customer satisfaction.

In the automotive industry, the proof of lean thinking is undisputed. Toyota's market value is greater than Ford's, GM's, DaimlerChrysler's and Honda's combined.⁸ Toyota products accounted for more than half the 10 top selling automobiles in the United States in 2004,⁹ with Toyota's fiscal 2004 operating profit surpassing that of Ford, GM and DaimlerChrysler combined.¹⁰ Toyota factories regularly win J.D. Power and Associates quality awards, and its Lexus models regularly rank at or near the top of the J.D. Power and Associates customer satisfaction index.¹¹ *Fortune* magazine rates Toyota as the world's most respected automotive company and puts it in the top 10 of all companies worldwide.¹²

Lean knowledge work is about producing extraordinary results through learning—results that go well beyond what could be predicted given current experience and business as usual. Learning is not about classrooms, teachers, events, theories or methods. It is a capability that requires skills at the individual level and process at the organizational level. Learning to learn precedes performance improvement because people and companies must learn before they can get better at anything. Failure to recognize this is perhaps the biggest reason most corporate performance improvement initiatives fail.

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LEAN

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