INTRODUCTION ***Before You Begin This Book***	
International Motor Vehicle Program (IMVP)	➢ A program born at Massachusetts Institute of Technology (MIT) in 1984/5 which is responsible for the material presented in this book ➢ Cooperated with MIT's ***Center of Technology, Policy and Industrial Development*** • Chartered to go beyond conventional research & explore mechanisms for industry-government-university interaction to improve international industrial policy making ➢ Undertook a detailed study of Japanese lean-production techniques in comparison to Western mass-production techniques in the automobile industry ➢ *Concluded that lean principles can be applied in every industry around the globe*
Chapter 1 – The Industry of Industries in Transition	
Automobile Industry	➢ Automobile Manufacturing is still the worlds largest manufacturing activity • 50 million new cars produced annually ➢ In the 20th century, the industry has twice changed fundamental ideas about mfg • ***Craft to Mass Production***: Post WWI via Henry Ford (Ford) & Alfred Sloan (GM) • ***Mass to Lean Production***: Post WWII via Taiichi Ohno (Toyota)
Craft Production	➢ Makes exactly what the customer orders – one item at a time • Uses highly skilled workers (who find work challenging) & simple/flexible tools • Builds custom-made products that suit each individual customer • A very expensive method of production
Mass Production	➢ Makes standardized products in very high volume • Uses narrowly skilled professionals in design, unskilled or semi-skilled workers in production (who find work boring), and expensive, single-purpose machines • Builds standard products that meet most customer needs • An inexpensive method of production
Lean Production	➢ Combines the advantages of craft and mass production • Uses teams of multi-skilled workers at all levels using flexible, automated machines • Builds a variety of products that give customers more choices than mass production • An inexpensive method of production – improves mass production by reducing waste in inventory, work area, tooling, engineering hours, and defective material ➢ Lean production is a term coined by IMVP researcher John Krafcik
THE ORIGINS OF LEAN PRODUCTION ***Chapter 2 – The Rise & Fall of Mass Production***	
Craft Production of Automobiles (begins circa 1880)	➢ Example: Panhard et Levassor (France, 1887) • Could not make identical automobiles since suppliers used different gauges for parts and the oven hardening process for parts caused them to warp out of shape • Skilled fitters individually worked parts until they fit perfectly, causing what is know as "dimension creep" – vehicles built to the same blueprint often differed • Limited volume meant no one producer could dominate the market ➢ Example: Austin Martin (England, 1980s) • Has produced fewer than 10,000 cars over past 65 years - currently makes 1 car/day • Has had to ally itself with larger firms (Ford) to gain technological expertise ➢ <u>Craft production characteristics</u> • *Workforce*: highly skilled in design, machine operations, and fitting • *Organization*: decentralized supplier chain concentrated in a single city • *Tools*: general purpose machine tools • *Products*: high variety but low volume: many models but <1,000 cars/year ➢ <u>Weaknesses of craft production</u> • *Cost*: High costs that did not fall as production increased (as in mass production) • *Quality*: Poor…each car was basically a proto-type with no consistency/reliability • *Technology*: individual craftsmen did not have the resources to pursue innovation

Mass Production of Automobiles (begins circa 1914)	➢ Example: Ford (U.S.A., 1903) • 1903-1908: Henry Ford refined Model A to the Model T…a car w/2 characteristics: – *Designed for Manufacturability*: interchangeable parts because of same gauging and improvements that allowed machining on pre-hardened metals – *User-friendly*: easy to repair without the need of a chauffeur or mechanic • 1914: Only after solving above problems could Ford implement a moving production line & simplify assembly tasks in order to increase volume and cut cost – Reduced the time each worker spent on each vehicle from 514 min to 2.3 min – Work became specialized & monotonous with little career growth ➢ Example: General Motors (U.S.A., 1920s) • Alfred Sloan expanded the Ford system of mass production in the conglomerate – Implemented a decentralized management system based on making your numbers – Created a five-model product range; cheap to expensive (Chevy to Cadillac) – Further divided labor in professional workforce: finance, marketing, engineering ➢ Companies in nearly all other industries adopted mass production by mid 1950s • Craft firms remained only in niche markets ➢ Mass production characteristics • *Workforce*: division of labor in both skilled and unskilled workers • *Organization*: vertical integration of all tasks in one company to improve control • *Tools*: specialized tools to ensure high volume with infrequent set-up changes • *Products*: Few models, but high volume to keep costs low ➢ Weaknesses of mass production • *Quality*: Production quotas kept the moving line moving…causing lots of rework • *Product Variety*: once everyone had a car, people wanted more variety • *Labor*: specialized tasks made work boring and limited career growth...unions grew
Chapter 3 – The Rise of Lean	
Lean Production of Automobiles (begins circa 1950)	➢ Example: Toyota (Japan, 1950) • After WWII, Toyota wanted to go into full-scale car and truck manufacturing, but concluded mass production could never work in Japan since demand was smaller – The domestic market was tiny and demanded a wide range of vehicles – The Japanese workforce demanded more job security…no immigrant labor – Post-war Japan was starved for capital…technology and investment was scarce – Foreign automobile producers wanted to expand to Japan • Toyota, under Taiichi Ohno, developed techniques to reduce batch sizes by devising ways to complete quick set-up and frequent change-over – Small lots also made quality critical…workers took an interest in improvements ➢ Lean production characteristics (see items below) • *Workforce*: team based, flexible work assignments…participation in improvements • *Organization*: cooperative relationships with suppliers promotes improvement • *Products*: a wide variety of reliable products that meet changing customer demand
Lean Workforce Lean Production: Final Assembly Plant	➢ Mass Production workers are specialized to perform small tasks over and over again • Assembly work is considered the least valuable – jobs are simple and boring • Forman and other specialists are needed to supervise, yet add no value to the car ➢ Mass Production focused on two criteria: *yield* (the number of cars produced vs. the plan) & *quality* (out-the-door quality, not in-process quality) • Falling behind production targets was a bigger problem than in-process quality, so managers kept the line running at all costs: defects were fixed later in rework areas ➢ Lean production workers have flexible work assignments and are grouped into teams • Ohno felt the assembly worker was only employee actually adding value to the car • Work assignments were expanded to eliminate specialists & made work rewarding ➢ Lean production focuses on the elimination of all defects…in-process & out-the-door • Cords were placed above each worker so they could stop the line if defects occurred • Root cause analysis using the "five why's" uncovered and resolved problems

Lean Organization Lean Production: ▪ The Supply Chain ▪ Product Development & Engineering	➢ A typical automobile company manufactures only 15% of the total vehicle, so the organization of the supply chain is critical to success ➢ Mass producers have vertically integrated supply chains and are focused on short-term price, quality, and delivery reliability • Suppliers are either separate divisions of the company (pseudo profit centers) or completely independent supplier: both have mixed loyalties to the parent company • Relationships are short-term: suppliers have little incentive to recommend changes ➢ Mass production suppliers are provided blueprints with little input to design • Suppliers are pitted against each other in search of the lowest short-term costs • Suppliers guard improvement ideas to prevent losing the work to other suppliers • Suppliers hold large quantities of inventory to ensure a parts are always available ➢ Lean producers have supply chains organized into functional tiers that work together to reduce costs, improve quality, and ensure delivery • Toyota took up equity stakes and financed equipment for supplier firms – These firms were still independent profit centers with outside business interests, but the system ensured close ties to Toyota • Relationships are longer-term: employees are even shared with suppliers ➢ Lean production suppliers cooperate to improve the system • More permanent relationships are developed to encourage long-term benefits • Suppliers are encouraged to cross-talk to improve the design process • Kanbans coordinate production, eliminating the need for excess inventory
Lean Products Lean Production: ▪ Changing Customer Demand ▪ Dealing with the Customer ▪ The Future of Lean Production	➢ By the 1960s, cars and light trucks were increasingly a part of every day life in developed countries, and cars became too complex for the average user to repair • Reliability became a key feature for customers • Customers wanted more variety in their automobile purchases ➢ Japan's lean producers, led by Toyota, gained an advantage in both areas by 1980 ➢ U.S. automobile firms (mass producers) had narrow, inflexible product lines • Engineering and production costs limited models and extended product lives • Assembly plants focused on only producing one product • Automobile producers created distant relationships with dealerships and built cars well in advance of actual customer demand – Dealerships kept a vast inventory of automobiles that served as a shock absorber for variations in customer demand ➢ Japanese automobile firms (lean producers) had broad, flexible product lines • Lower engineering & production costs allowed more models for customer needs • Flexible assembly plants allowed mixed-model production • Toyota's close relationships with dealerships ensured they became part of the Toyota Production System, serving as the first step in the kanban system • Toyota developed extensive customer databases and focused on repeat buyers
THE ELEMENTS OF LEAN PRODUCTION	
The Lean Enterprise	➢ The Lean Enterprise encompasses all of the steps required to coordinate the complex activities that are required to build an automobile in harmony on a global scale • To properly understand lean production, one must look at all the steps from product design and engineering to the customer
Chapter 4 – Running the Factory	
The Assembly Plant	➢ The automobile assembly plant involves about 15% of the effort in making the car ➢ Three factors convinced the authors to focus the factory study on the assembly plant • A large part of the work in the auto industry involves assembly • Assembly plants all over the world do almost exactly the same thing • Japanese efforts to spread lean production abroad focused on the assembly plant

Mass vs. Lean Assembly – Plant Comparisons

- Classic Mass Production – GM Assembly Plant (Framingham, Mass)
  - Many indirect workers (machine repairers, housekeepers, inventory runners, etc.)
  - Unequal distribution of work: some people working hard while others waited
  - Rework areas at the end of the production line
  - Large buffers of inventory between process steps
  - A dispirited work force caused by redundant tasks with no input to improvements
- Classic Lean Production – Toyota Assembly Plant (Takaoka, Toyota City)
  - Nearly all employees adding value to the car
  - Little space between workers to improve communication
  - No rework areas and root cause analysis (the 5 whys) conducted on defective parts
  - Little inventory between process steps
  - High work force morale as a result of challenging work with input to improvements
- New Lean Production – New United Motor Mfg Inc. Assembly Plant (Fremont, CA)
  - Joint venture between GM and Toyota to apply lean techniques in the U.S.
  - Used a GM Plant built in the 1960s to assemble GM cars/trucks for west coast
  - United Auto Workers Union cooperated: 2 job classifications (assemblers/techs)

	GM Framingham	Toyota Takaoka	NUMMI Fremont
Assembly Hrs/Car – Gross	40.7	18.0	-
Assembly Hrs/Car – Adjusted	31	16	19
Assembly Defects/100 Cars	130	45	45
Assembly Space/Car	8.1	4.8	7.0
Inventories of Parts (avg.)	2 weeks	2 hours	2 days

Mass vs. Lean Assembly – World Survey

- The author compares assembly plants in different regions of the world in both productivity & quality (see graphs on pp 85 & 86) as of 1989
  - The areas studied were Japan, U.S./North America (US/NA), Europe, and Newly Industrialized Countries (NIC)
  - The authors' final conclusion is that lean had spread to the best plants in all regions, so one should stop equating "Japanese" with "lean" and "Western" with "mass"
- Overall, the best plants are in Japan, then the US/NA, EU, and NIC, but there is a wide range of productivity variation between plants within each region
- The best plants in each region are better than the worst plants in any region
- The findings were the same when the author looked at luxury cars (pp 89 & 90)
- The survey showed Japanese companies, on average, required less work area, less inventory, and had better employee statistics than U.S. and EU counterparts (p 92)
- The survey showed no correlation between productivity & quality, dispelling the myth that a company must sacrifice productivity to achieve high quality (p 93)
- The survey showed that automation improved productivity, but that there were still wide variations between the best and worst plants at any level of automation (p 95)
  - The author concluded that poorly organized high-tech plants added more indirect workers (repair techs) and had more breakdowns, which negated improvements
- The survey suggested manufacturability led to high performance in the factory (p 97)
- The survey showed no correlation between product variety & productivity/quality

Lean Organization at Plant Level

- There are two key organizational features of the truly lean plant
  - Workers who add value car are given the most tasks & greatest responsibility
  - Systems exist to detect defects and trace them to their root cause
- The above two features are achieved through teamwork and an information systems that allow everyone in the plant to quickly respond to a problem
  - Info such as daily production targets, cars produced so far each day, equipment breakdowns, personnel shortages, overtime requirements is displayed to everyone

Is Lean Production Humanly Fulfilling?	➢ Some question whether a lean production system adds stress as workers continually remove waste and slack time in a process • ***Neocraftsmanship*** is a competing methodology (Volvo) that allows work teams to work at their own pace as long as they complete four cars/day – Similar to craft production; a stationary 10 person team build cars completely – Automated material-handling devices delivers material to the team ➢ The authors argue that lean production replaces the frustration/monotony of mass production with 'creative tension' & satisfaction as workers address challenges • Neocraftsmanship assumes that doing all tasks on a vehicle improves worker satisfaction (this may not be true) and is still an inefficient way to produce
Chapter 5 – Designing the Car	
Automobile Design	➢ Automobile firms (mass production or lean) face a basic problem in developing a new cars: many functional departments must collaborate over an extended period of time • The simple solution is to create a project team for the entire life of the car model, but this solution is impractical since many components are shared between models • Most companies develop a matrix structure between functional and project roles ➢ Example: GM's GM-10 (Mass Production Product Development) • A project team was formed from employees temporarily assigned from functional departments under a poorly empowered project leader – Since the emphasis was on functional ties, employee loyalty remained there and the project ran two-years over deadline ➢ Example: Honda Accord (Lean Production Product Development) • A project team was formed from employees with stronger ties to the project team – The project was completed on schedule and in half of the time of the GM-10
Mass vs. Lean Design	➢ There are four basic differences between Mass & Lean design • *Leadership*: Lean producers use a strong project team leader (***susha***) with greater influence than functional heads and properly empowered to complete the project • *Teamwork*: The project team is clearly assigned to and evaluated by the success of the project…functional ties are present but less important than the team assignment • *Communication*: Mass producers fail to resolve critical design trade-offs until late in the project…lean producers sign formal pledges to do what has been agreed to • *Simultaneous Development*: Critical tasks are done in parallel, and close coordination with the project team ensures risks are minimized ➢ The author compares design in Japan, America, and Europe in the 80s (pp 118-126) • Lean design expends less engineering hours and develops wider variety of products more quickly with less shared parts (p 118) • Lean offers a wider variety of products & replaces them more often (p 120-26) • Faster design makes lean producers better at handling changes in customer demand
Innovation	➢ Mass producers like GM isolated R&D employees from daily work ➢ Lean producers rotate R&D employees through functional departments and even the assembly line to ensure they are tied to market activities • This system allowed employees to quickly adapted 4 cylinder engines (designed for fuel efficiency) to high power engines once fuel prices dropped in the 90s. ➢ As a result, lean producers spend less on R&D and have more patents (p 133-4)
Chapter 6 – Coordinating the Supply Chain	
Automotive Supply Chain	➢ The modern car is very complex – comprised of more than 10,000 parts ➢ Automobile producers have taken different approaches to dealing with complexity • Henry Ford (Ford, 1910s): Vertically integrate & do it all yourself in one company • Alfred Sloan (GM, 1920s): Vertically integrate but set up decentralized divisions • Henry Ford II (Ford, 1950s): Create an extensive supply chain to supply parts ➢ None of these approaches ('in house' or 'arms-length' supply) is important • What is important is how closely the firm works w/suppliers; internal or external

Mass vs. Lean Supply	➢ Mass Production Supply • Assemblers bid out components and sub-components to many suppliers who have little direct contact w/each other = poor coordination • Suppliers are brought in late to the design process & have little input • Short-term relationships: price, quality, delivery & contract length are key – Low price usually wins the bid: suppliers "buy the business" & make $$ later • Defects are covered up by safety stocks: when a defect occurs the supplier simply sends another part as a replacement • Suppliers jealously guard production info and new ideas to prevent losing business – Improvement ideas become the sphere of professional associations in the U.S. ➢ Lean Production Supply • Lean assemblers bid out major components to a few key 'first tier' suppliers, and the first tier suppliers manage and coordinate with second & third tier suppliers • First tier suppliers assign engineers to the design team 2-3 years before production • Long-term relationships: assemblers learn all they can about the supplier's process – ***Value Engineering*** (see below) requires suppliers to share information, but ensures fair profits for the supplier & a declining price curve for the assembler • Suppliers work without safety nets (just-in-time): defects are not an option, so root cause analysis on all defects is done with the assembler to prevent defects • Suppliers meet w/other suppliers & assemblers to share process improvement ideas – Supplier performance is graded using scorecards – When a supplier is substandard, volume is modified before supplier is dropped
Value Engineering	➢ A 'market price minus' system vs. a 'cost plus' system • Establishes target price & works back to meet price with a reasonable profit for all ➢ Breaks down the costs of different component features to determine trade-offs • ***Value Analysis*** identifies cost improvement opportunities & ***Lean Accounting*** allows more timely information for process improvement decisions
Heijunka	➢ Keeps the total volume the assembler manufactures as constant as possible • Prevents sudden changes in variation and allows suppliers to work w/o buffers • A commitment by assemblers to share both the good times & the bad
Reforming Mass Production Supply	➢ Mass Production supply systems do not truly exist anymore in their pure form • Improvements have been made, but Japanese firms lead AM and EU firms (p.157) • Western mass-producers are on their way to better supply systems; consisting of larger first-tier suppliers for entire components, higher quality, lower costs – But reforms have simply improved traditional systems vs. fundamental changes ➢ There are several ways to continue to improve supply chains • Reduce the number of suppliers (use first-tier suppliers, reduce parts, sole source) • Improve supplier quality using scorecards and SPC techniques to monitor supply • Share cost & production info with suppliers (GE pioneered this technique in 1947) • Improve delivery schedules: deliver smaller lots more frequently (just in time) • Improve relationships with suppliers & develop long-term goals vs. bargaining
Chapter 7 – Dealing with Customers	
Henry Ford's Dealer Relationships	➢ Henry Ford demanded exclusive contracts with dealerships to sell only Fords ➢ Dealers bought from Ford in advance of sales, providing a buffer vs. actual demand • A self-financing system: Ford got money from dealers before it paid suppliers ➢ In the late 1940s, the Supreme Court outlawed exclusive selling clauses in contracts • Eventually paved the way for imports to develop access to U.S. dealerships ➢ The Ford system set a precedent: the factory's production needs come 1st and the dealer and customer are expected to accommodate the needs of production

Mass Distribution System	➢ The current U.S. automobile distribution system is similar to the Ford system • Dealerships in the U.S. have decreased because of increased cost to service cars • Dealers still carry large amounts of finished goods inventory (cars) ➢ Salespeople's relationships with customers are short-term, one time events • Salespeople know little about the cars they are selling: there is little training – Salespeople compete against each other and make a commission on each sale • Customers must haggle to obtain the best price (a process customers hate) and are pushed to take a car off the lot (vs. a special order car that meets their needs) • Car companies get little immediate feedback from dealers about customer needs ➢ The European distribution system resembles the U.S. system: but is 30 years behind • The number of dealerships has actually increased in recent years • European assemblers can still enforce exclusive contracts with dealerships
Lean Distribution System	➢ The Japanese distribution system is not ideal, but points to lean systems of the future • Companies have a fixed number of distribution channels for different types of cars • Members of the distribution channel participate in the car development process • Must continue to evolve: salespeople sell 4 cars/month vs. 10 cars/month in U.S. ➢ Salespeople develop long-term relationships with customers • Salespeople, many who are college grads, are intensively trained on the product – Salespeople are grouped into teams and are paid based on group commissions • Salespeople go door-to-door to understand customer needs and make sales to each individual: built to order and no haggling on price • Personal relationships promote customer feedback and brand loyalty ➢ The 'lean' dealership is becoming more important in Japan vs. door-to-door selling • Retains the build-to-order mentality and team vs. individual sales incentives • Increasingly using information systems to improve productivity
Lean v. Mass Distribution Summary	➢ Three key differences between lean distribution and mass distribution • Lean = active selling (going to the customer); Mass = passive selling • Lean puts the buyers needs first; Mass puts the production needs first • Lean distribution creates less finished goods inventory and builds cars to order ➢ Advantages of the lean distribution system • Customers are the 1st step in product developmt (customers help fine-tune products) • The system dramatically reduces finished goods inventory and smoothes production • The system instills brand loyalty and helps deny market share to competitors
Chapter 8 – Managing the Lean Enterprise	
Lean Finance	➢ ***Ziabatsu*** (post Meiji Restoration in 1870): family owned holding companies that controlled and provided finance to smaller companies in each major industry sector ➢ ***Keiretsu*** (post WWII): groups of ~20 companies in major industries that hold stock in other keiretsu companies and provide each other low interest financing & assistance • Although shares are publicly traded, the system is really closely held private equity • Protects against hostile take-over and sales to foreign interests ➢ The keiretsu system provided better assistance to Japanese companies in distress (e.g. Mazda) than government bailouts of Western firms (e.g. Chrysler, British Leyland) ➢ The keiretsu system is patient, long-term, well informed, and highly critical of member firms as opposed to Western public equity that is short-term & uninformed
Lean Careers	➢ Employees work in teams & problem solving is the most important activity of any job ➢ Managers take various assignments within the supply chain to gain broad experience
Lean Geographic Spread	➢ Lean production achieves its highest efficiency, quality, and flexibility when all activities from design to assembly occur in the same place (within a day's drive) ➢ Creating a lean production system in each of the world market provides 5 benefits • *Protection from Trade Barriers & Currency Shifts* • *Product Diversity*: markets have different needs but products can be shared globally • *Sophisticated Management Development*: thru exposure to global environments • *Protection Against Cyclical Markets*: all markets do not have the same cycle • *Denies Competitors Unchallenged Markets*

Managing the Global Lean Enterprise	➢ Ford was the first company to pursue a global manufacturing strategy • Henry Ford initiated globalization to avoid shipping costs and tariffs, in 1961 independent design teams were established, and global coordination began in 1979 ➢ Honda became a Japanese leader in globalization because it was less popular at home ➢ None of the three current models for globalization are adequate • *Centralization*: decisions made at the HQ in the home country; poor globalization • *Decentralization*: decisions decentralized to foreign countries; poor coordination • *Strategic Alliances*: decisions about how to coordinate are largely unanswered ➢ Proposed solution for a Lean Enterprise • An integrated global personnel system that promotes as if nationality didn't exist • Mechanisms for continuous horizontal information flow in mfg, design, supply, etc. • Mechanisms for coordinating new product development for regional & global sale
DIFFUSING LEAN PRODUCTION ***Chapter 9 – Confusion about Diffusion***	
Transition from Craft to Mass Production	➢ The transition from Craft to Mass Production took 50 years • Transition was quick w/in the U.S. as craftsmen were still needed by Ford & GM • Transition was much slower from the U.S. to Europe – Different cultures & fear of U.S. domination slowed Ford's transition to Europe – European 'pilgrims' trained in U.S. had difficulty exporting mass production
Transition from Mass to Lean Production	➢ The transition from Mass to Lean will more difficult as Craft to Mass, but much faster • Fear of foreign domination by Japan will be just as great as that of U.S. domination • In contrast to mass production that created jobs, lean production removes jobs • However, Japanese firms are avoiding barriers with new plants, better results than domestic plants, avoiding UAW control, and by creating a new supply chain ➢ U.S. & European companies are learning about lean slowly • The West initially attributed Japanese success to three causes: lower wages, government protection, and automation (all three were true in part) • Ford was in crisis in the 1980s, so it learned about lean from its JV with Mazda • Chrysler failed to learn thru a similar equity tie with Mitsubishi • GM learned lean at NUMMI, but couldn't spread the knowledge to other plants • European plants have found it as difficult as Chrysler & GM to adopt lean ➢ Japanese firms will drive some of the transition, but it is naïve to assume that they will drive it all: U.S. firms are getting better and will continue to improve ➢ Several challenges must still be overcome if U.S. companies are to quickly adopt lean • Industry & government must address the cyclical nature of the U.S. auto market • Americans must change their notions of careers: job hopping doesn't help lean • The public and politicians must be willing to accept change
Chapter 10 – Completing the Transition	
Three Obstacles to Lean	➢ *Obstacle 1: The Western Mass-Producers* • Mass producers are the greatest obstacle to lean: creative solutions are needed – *Clear Examples of Lean Benefits*: a lean producer across the street – *A Better System of Finance*: one that demands improvement but supplies large $$ – *A Creative Crisis*: A crisis that will clearly show the need for change ➢ *Obstacle2: Outdated Thinking About the World Economy* • Many think the normal world economy moves standard, low-priced products to mass production facilities in newly industrializing countries (low wage) – Examples show low cost country mass producers can't compete with lean firms ➢ *Obstacle 3 Inward Focus of the Japanese Lean Producers* • The final obstacle to lean is the Japanese lean producers themselves who lack the ability to think and act globally rather than nationally • Japanese lean expansion is hindered by their threat to domestic firms (nationalism) & the favoritism Japanese firms show to their own employees and suppliers