

Introduction

In the absence of foundational knowledge¹ with which the content of Lean thinking can be explained and extended to address new situations, the Lean community turns to the Toyota Motor Corporation's practices. In this sense, Toyota functions as their "Rosetta Stone." It is used to decipher what is and is not "Lean thinking."

As we work to improve the Lean Enterprise model and close the gaps in Lean thinking, many of us may seek to use Toyota as our solution guide. There are problems, however, in using a case example, such as the Toyota Motor Corporation, as your guide for resolving issues with the Lean Enterprise model. First, every individual demonstrates variation in his or her behavior across situations and over time. When one studies a large, international organization, the problem of variation is greatly magnified by the numbers of people, work settings, and geographical locations in which the company operates. Second, people are sensitive to how they are perceived. We all have an image of ourselves, but few of us have an "objective image"—i.e., one based solely on empirical facts verified from multiple perspectives. Commercial organizations are especially sensitive about their image, as public perceptions can affect their commercial success. Hence, self-report is subject to bias. That bias may be quite unintentional, yet real. Third, if you have worked at the executive level within large corporations, you are aware that there are levels of decision-making and action that are kept confidential. The record of these discussions is not publicly available. Hence, not all the facts about a company are available for review. Fourth, there are almost always gaps between written policy and action. Within the Human Resource function, for example, compensation rules may be relaxed for specific individuals, usually executive level employees. These decisions are made on a case-by-case basis and their record, if one exists, is also not publicly available. As another example, take the comparative compensation between male and female employees. When studied empirically, compensation paid to males is discovered to be higher than the compensation paid to females performing the same work, at the same level of proficiency. The senior author has done such employee compensation studies and documented the male-female discrepancy. In every such study, the existing, written compensation policy was 'sex neutral.' Never did they direct unequal pay.

To derive usable information about the actual behavior of an institution, therefore, one must employ a sophisticated sampling strategy that draws facts from multiple perspectives, controls for confounding variables, and uses objective records. The sampling must include observations from all the different levels of the organization, across its various departments and locations, and across time. The researcher must have access to the non-public aspects of the organizational decisions and actions taken by the subject institution. Even at its best, the image of conduct derived is only probable, not certain. Once assembled, the information must be categorized and

¹ Foundational knowledge refers to the set of concepts, principles, and relations used to explain the "why" underlying observed facts or the set of assumptions from which the judgments and directives of a deductive knowledge systems are deduced.

systematically assessed to discover what if any trends in conduct may be properly asserted as being typical of an organization.

Finally, even when you have implemented such a well designed naturalistic study, you are only left with verified conduct and its apparent results—not with knowledge that explains why the conduct and results correspond. One could use such findings to generate hypotheses about the causes that might explain of the correspondence between observed behavior and results, With these hypotheses, one could undertake controlled experiments to validate them. To our knowledge, the Lean community has not done this. At best, therefore, one can only imitate what has been documented. With regard to Lean thinking, however, knowledge is expected to drive behavior, not imitation.

A Real World Example of the Limits of Observation

In monograph, *The Incompleteness of the Lean Enterprise Model*, Vitalo and Bujak (2019) identify a number of market strategies that capitalist business use and ask whether a Lean enterprise can us them. Here, we address three such business strategies: externalizing costs, withholding negative information from the public, and deception. If you use Toyota's behavior as your reference for deciding this question and picked a point in history when otherwise hidden information became revealed, you would find that Toyota has indeed used these methods to advance its profits. Specifically, it withheld information and released inaccurate information about company actions and product defects from customers and government regulators in order to protect its profits. Revealing that information would have provoked a vehicle recall and exposed them to liability claims. Thus, Toyota externalized the cost of poor quality to its customers who were left to pay for repairs of the defect and any other damages it might have caused.

Based on public records, we can say that Toyota practiced these strategies during the period of 1995 through 2010. The first example concerns Toyota's handling of a steering mechanism problem with their Hilux Surfs and 4Runner vehicles in the 1990s. The second example concerns how it addressed unintended acceleration problem of some of its vehicles and two related problems with gas pedals installed in various models in the 2000s.

Steering Mechanism Problem—Hilux Surfs and 4Runners

The Hilux Surfs and 4Runner's steering mechanism problem became public in Japan in 2004. Its exposure was the result of a police investigation into the crash of an out-of-control Hilux Surf. The crash caused serious injury to five people. The police investigation into this accident triggered a scandal that provoked Toyota to acknowledge the problem and recall 330,000 affected Hilux Surfs and 4Runners in Japan.

While this public revelation occurred in 2004, facts make clear that Toyota was aware of the problem with the Hilux Surfs and 4Runners from the beginning of 1996. They also reveal that the problem extended backwards to earlier models. In 1996, "Toyota engineers discovered that a

crucial steering mechanism could fracture on the Hilux Surf, which was sold as the 4Runner in the United States” (Kanter, Maynard, and Tabuchi 2010). While it corrected the flaw in 1996 models, Toyota took *no action* to alert the owners of the 1995 and earlier models of the danger. After Toyota received a rebuke from the Japanese government in 2004, it executed the recall in Japan *but not* in the U.S. for its 4Runner model (Kanter, Maynard, and Tabuchi 2010). Thus, it left its American customers at risk of harm and bearing the cost of repair for the defect and any damage or harm its failure caused.

Further, other Toyota truck models sold in the U.S. (e.g., Toyota 4x4 and T100 pickups) used the very same linkage, a steering relay rod, that was found defective in Japan. Rather than recall these vehicles, Toyota told the U.S. National Highway Traffic Safety Administration (NHTSA) in October 2004 that it would not conduct a recall in the U.S. because it had not received information here indicating a problem with the part. This was a lie. As later reported in the Los Angeles Times, “Documents entered into four lawsuits filed in Los Angeles ... revealed that Toyota had received numerous consumer complaints dating from 2000” about linkage problems with its Toyota 4x4 and T100 pickups (Bensinger and Vartabedian 2009).

Unintended Vehicle Acceleration and Gas Pedal Problems

As to unintended sudden acceleration and gas pedal problems, the first instance was uncovered in 2003. Internal Toyota documents, discovered during a court case filed against Toyota, revealed that earlier in that year a company technician described a case of sudden, unintended acceleration in a Toyota model. According to a court document filed in U.S. District Court in California in 2010, the technician, in 2003, “requested immediate action due to the ‘extreme dangerous problem’ and [said] ‘we are also much afraid of [the] frequency on [sic] this problem in the near future’” (Whoriskey 2010).

Later in 2003, routine testing revealed that the Sienna minivan had a problem with a part which could come loose causing the gas pedal to stick, potentially causing unintended acceleration. It affected both current and previous year models. Toyota redesigned the part and installed it in 2004 models, but chose once again not to tell owners who bought Sienna's before 2004. In 2009, when investigations revealed what Toyota had done, it explained its action on the basis that “a safety recall was not justified” and the corrected part was simply “an added safety measure” (Bensinger and Vartabedian, 2009).

Yet another problem with gas pedals was uncovered in 2008 in Europe. Toyota responded by making a design change in the summer of 2009 in the manufacturing of cars in Europe going forward, *but did not* make the change to the same models produced elsewhere. Also, it did not recall the already sold cars in Europe because the company considered the problem a “consumer satisfaction” issue. Then, almost a year later, after the problem was publicly exposed in the U.S., a recall was issued.

As to the U.S. recall, Toyota claimed that it did not issue it earlier because *it just discovered* the gas pedal problem in the U.S. This statement was made despite records that showed it modified the same pedal to address the same problem in Europe the year earlier (Kanter, Maynard, and Tabuchi 2010).

Across these actions to address unintended acceleration and gas pedal problems, Toyota externalized the cost of defects in its cars by off-loading it to customers in terms of risk, injury, and personally funded repairs. It controlled the information flow about the problem in various countries until it was 'outed.' And, on several occasions, it appeared to deceive government regulators and the public. Why? Clearly, recalls are costly and potentially impact sales thereby deflating profit. This suggests that maintaining or increasing its profits outweighed concern for customers.

Pure speculation? Then consider the July 2009 presentation by Toyota staff to Yoshimi Inaba, then Executive Vice President, Member of the Board and Chief Officer of the North America Operations Group. The presentation was entitled, "Wins for Toyota -- Safety Group." In the presentation, U.S. Toyota executive's "boasted of saving hundreds of millions of dollars by getting the federal highway safety regulators to limit the scope of recalls" for floor mats in some Toyota and Lexus vehicles (Maynard 2010; CNBC 2010). The floor mats could cause unintended acceleration (Valdes-Dapena 2010). In Mr. Inaba's 2010 testimony to the U.S. House Oversight and Government Reform Committee, he implicitly admitted that he was briefed on the Safety Group's "successes" when he stated that he could not remember the meeting where he was briefed on the memo "with any depth" (Bensinger and Vartabedian 2010).

Other "wins for Toyota" lauded in the same presentation were a \$124 million savings reaped by winning a phase-in to new safety regulations for side air bags and an \$11 million savings reaped by delaying a rule for tougher door locks (Thomas 2010). Also credited as wins were: "Avoided investigation on 'Tacoma rust' and helping win delays in various new federal safety regulations" (Valdes-Dapena 2010).

In response to the facts of this presentation, a Toyota spokesperson said, "Our first priority is the safety of our customers and to conclude otherwise on the basis of one internal presentation is wrong. Our values have always been to put the customer first and ensure the highest levels of safety and quality" (Thomas 2010). The conflict between the facts of this internal presentation and the spokesperson's assertions were not explained. No one asked how, given this unassailable ethic, such a presentation could be made to an executive officer and member of the board of Toyota (Yoshimi Inaba) without the least concern for reprimand for being unaligned with Toyota's "first priority."

Aberration or Clearer Image of the Toyota Motor Corporation?

To answer the question of whether the handling of the Hilux Surfs and 4Runners steering mechanism problems and the separate issue of unintended acceleration were aberrations, consider the

findings of a deeper analysis of the Toyota Motor Corporation's conduct during the period 1995–2010 (see Exhibit A1, beginning on the page 6). This period offers an unusual window into Toyota's actual executive practices because of a significant increase in investigative news coverage of the company. Also, the discovery processes of a number of lawsuits against Toyota became public and facts previously unrevealed were available for scrutiny. As a result, many revelations emerged about executive actions that hitherto had not been reported.

Both before and after this period, news coverage reverted to reporting traditional business performance information. Thus, we have no way to assess whether conduct similar to that reported in Exhibit A1 existed before 1995 or after 2010. Nonetheless, 15 years is a long period of performance. The factual occurrences revealed are many and the pattern of conduct in relation to customers, employees, and the community at large appears highly consistent yet thoroughly inconsistent with Toyota's publicly asserted ethic.

Given its length of occurrence and the consistency of performance that significantly deviates from the declared values and practices of the company, it seems highly unlikely that this pattern of conduct emerged *de novo* in 1995. Indeed, all the major Toyota actors in this historical record had long and significant careers in the Toyota Motor Corporation prior to 1995.

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010	
Year	Event
1995	Hiroshi Okuda is named chief executive officer (CEO). He is one of three “professional managers” who reportedly seek to neutralize the influence of the Toyoda family as they chart what they considered a new and improved direction for the company (Shirouzu 2010). These managers included Mr. Okuda and Toyota’s next two CEOs—Fujio Cho and Katsuaki Watanabe.
1996	<ul style="list-style-type: none"> ■ Mr. Okuda and aides unveil a new strategy dubbed the "2005 Vision." It focuses on financial achievement—growing rapidly while relying less on exports and more on factories producing locally in target markets (Shirouzu 2010). The Vision also pushes Toyota “to implement kakushin, or revolutionary innovations, in vehicle design and manufacturing.” It includes “efficiency drives to reduce costs, not only through conventional means, such as simplifying designs and using cheaper materials, but also by changing the way cars are engineered. For example, engineers [are] pushed to combine functions into fewer parts and systems. Their aim: cut the number of components in a car by half” (Shirouzu 2010). ■ A “Global Profit Management Plan” is adopted by top executives. It assigns to sales executives around the world specific profitability goals (Shirouzu 2010). As part of their implementation of this plan and the subsequent Vision 2010, the succession of nonfamily CEOs later acknowledge that they hired a large number of inexperienced contract engineers across a 10-year period as a means to cut cost and support their rapid growth agenda (Shirouzu 2010). ■ Toyota engineers discover that a crucial steering mechanism component could fail on the model it sold as Hilux Surfs in Japan and 4Runner in the U.S. It corrected the flaw in future models but took no action to alert owners of prior year models that had the same dangerous flaw.
1998	<ul style="list-style-type: none"> ■ Design-to-market is sped up. A “newly designed auto can be on the market in 18 months” (Clark 1998). According to Peter Boardman of UBS Securities, Ltd., one reason for Okuda’s success is that he set results targets for employees and motivates upper management to realize them by giving them stock options contingent on realizing their targets. Using ‘carrot and stick’ motivating methods is not usually considered part of the Toyota Way. Also, focusing solely on results and not equally on process from which learning can be derived is a significant deviation from the Toyota Way (Imai 1986; Liker 2004). ■ Mr. Okuda characterizes himself as “always interested in changing the systems—in destroying.” Later, when asked to define his own personality, he reportedly responds, “Destructive isn’t it? Because I am always destroying the existing order or existing systems. I don’t want to stay in the same place. That applies to myself and to Toyota” (Clark 1998).
1999	<ul style="list-style-type: none"> ■ Fujio Cho becomes Toyota’s new CEO. Mr. Okuda becomes chairman and president of Toyota Motor Corporation. Mr. Cho is later credited with accelerating the growth thrust initiated by Mr. Okuda (Lewis 2010). ■ Cho names Yoshimi Inaba as president and CEO of Toyota Motor Sales (TMS), U.S.A., Inc. Mr. Inaba is described as “blunt-spoken.” He is “a marketer, not an engineer; under Mr. Inaba, the American Toyota was slowly moving away from consensus management and toward more rapid decision making” (Lewis 2010). (‘More rapid decision making’ is sometimes a euphemism for unilateral decision making.)

Continued ...

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)	
Year	Event
2000	<ul style="list-style-type: none"> ■ Mr. Okuda, then chairman and president of Toyota Motor Corporation, publicly shares his belief that Toyota needs to move beyond the Toyodas. He tells the Wall Street Journal in a 2000 interview, “The Toyoda family will eventually become a ‘shrine’ to the company’s foundation, to which we will pay respect once a year” (Shirouzu 2010). Asked about the future prospects for Akio Toyoda, then a 43-year-old general manager, Mr. Okuda states: ‘Nepotism just doesn’t belong in our future.’ He elaborated: <i>‘Akio- class talents are rolling around all over Toyota, like so many potatoes’</i> [italics added] (Shirouzu 2010). No one asked Mr. Okuda how such an attitude aligned with Toyota’s fundamental principle of “respect for people.” ■ Toyota begins phenomenal period of sales growth adding 600,000 new car sales per year (Shirouzu, 2010). But quality begins to flag. Toyota brand ranks fourth in quality rankings by new car owners while its Lexus model is ranked first by <i>used car owners</i> (Shirouzu 2010). As well, Toyota begins a phenomenal period of increasing worldwide automobile recalls. 2001 has three times more recalls than 2000. (Shirouzu 2010). ■ A Missouri state judge sanctions Toyota for failing to disclose results of five rear-impact tests of Corollas “despite numerous discovery requests” (Bensingler and Vartabedian 2009).
2001	<p>Katsuaki Watanabe, Toyota’s next CEO and current head of purchasing, begins an effort to squeeze one trillion yen out of its parts purchasing. “With two colleagues, he pushed Toyota and its parts suppliers to tweak the way they designed and made 173 components and systems to make them simpler and less expensive without affecting quality. The initiative was dubbed ‘Construction of Cost Competitiveness for the 21st Century.’” Mr. Watanabe reported that his effort was provoked by a benchmarking activity that revealed, paradoxically, that Toyota paid less than its competitors for slightly more than 50% of its purchased components. Yet, Mr. Watanabe considered this result as “outright humiliating” and launched his cost cutting initiative (Shirouzu 2006).</p>
2002	<p>“Starting around 2002, Mr. Watanabe and his colleagues began pushing the company’s powerful manufacturing gurus to re-think Toyota’s much-admired ‘Lean production’” (Shirouzu 2006a). This was an extension of the effort begun in 1996 with Mr. Okuda’s introduction of Vision 2005. That strategy pushed Toyota to implement <i>kakushin</i>, meaning innovation or reform as in radical redesign (Miller 2006). This shift stands in dramatic opposition to Toyota’s tradition of <i>kaizen</i>. Mr. Watanabe’s push is said to have been a reaction to discovering that many of Toyota’s manufacturing machines were “too big, clunky, and slow” (Shirouzu 2006a). No one asked why the action was not based on a root cause analysis of why TPS’ long tradition of “right sizing” machines had ceased to be implemented or how this waste went undetected.</p> <p>One example of the application of <i>kakushin</i> is the radical redesign Toyota’s car painting approach at two new plants, one in Guangzhou, China, and the other in San Antonio, Texas. In an odd comment, Mr. Watanabe states that the issue of the long paint line (some three miles long) used in existing plants seemed to “escape the attention of engineers” and then muses that he noticed the issue, wondered why it was so, <i>but never asked the question or pointed out the issue to the engineers in the plant he managed.</i></p> <p style="text-align: right;"><i>Continued ...</i></p>

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)	
Year	Event
2002 cont'd	<p>"To replace the process of slowly dragging a car through a 115-foot-long bath of anticorrosion undercoating, Toyota engineers say they have come up with a process they analogized to eating fondue. A car body is 'swished' like a chunk of bread in the paint pool to make the paint stick, eliminating the need for the long pool. A Toyota spokesman says the goal is to halve the length of the paint line. The new paint idea is being installed under strict secrecy and is so advanced that Toyota hasn't shown it to any outsider" (Shirouzu 2006a). A later evaluation of the intended improvement found that "the new system costs roughly four times as much to set up as the traditional process, while producing ... minimal improvements in the quality of the paint job and its efficiency" (Shirouzu and Murphy 2009).</p> <ul style="list-style-type: none"> ■ Fujio Cho extends Vision 2005's financial focus and priorities with the introduction of 2010 Vision. It sets a global market share target of 15% (Shirouzu 2010). "To cut costs, Toyota 'dramatically reduces' crash testing of new car models, according to Koji Endo, a longtime car analyst and managing director of Advanced Research Japan" (Harden 2010). Endo explains, "They do virtual testing using computer models ... [but] from time to time there are real-world problems that the computer models do not account for" (Harden 2010).
2003	<ul style="list-style-type: none"> ■ Toyota first becomes aware of a problem with sudden, unintended acceleration through a field report from a company technician. The technician describes a case of sudden, unintended acceleration in a Toyota model. According to a court document filed in U.S. District Court in California, the "author requested immediate action due to the 'extreme dangerous problem' and [said] 'we are also much afraid of frequency on [sic] this problem in the near future'" (Whoriskey 2010). ■ Routine testing reveals that the Sienna minivan had a problem with a part which could come loose causing the gas pedal to stick. Toyota redesigned the part and installed it in 2004 models, but chose not to tell owners who bought earlier versions of the vehicle that had the same problem. In 2009, when investigations revealed what Toyota had done, it explained its action on the basis that "a safety recall was not justified" and the corrected part was simply "an added safety measure" (Bensinger and Vartabedian 2009).
2004	<ul style="list-style-type: none"> ■ Fujio Cho uses a 'fear-based strategy' to spur the drive for greater sales. In a Financial Times interview he warns of potential disaster unless Toyota reinvents itself. "Steady success is good, but it can foster serious weaknesses. Complacency sets in, customer focus declines, creative ideas dry up and before you know it, you are in trouble" (Levine 2004). Cho observes. No one asks why complacency would set in within a company whose people are committed to continuous improvement, have a 50-plus year record of living that commitment, and the highest level of employee participation in contributing improvement ideas worldwide. Nor did they ask how the goals he defines (increase sales of Prius—he seeks a 300,000 unit sales increase by 2005, a five-fold increase as compared to Toyota's 2003 level)—represent intensified customer focus. Cho continued, "The sense of crisis we feel, despite increasing sales and profits, stems from our fear that we have not kept up." <p style="text-align: right;"><i>Continued ...</i></p>

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)	
Year	Event
2004 cont'd	<p>No one asks whether Mr. Cho has applied Toyota’s famed A3 problem solving method to uncover the reasons for their failure to ‘keep up.’ Nor did anyone ask how keeping up with others was a core concern in the Toyota approach to business success.</p> <ul style="list-style-type: none"> ■ In an interview with Forbes magazine, Cho states, “The challenge for Toyota is to achieve more meaningful growth.” What does meaningful growth mean? “By meaningful growth, I don’t mean bigger numbers. I mean, growing Toyota into a company that truly matters – to our customers, our employees, our suppliers and to the societies where we live. Our biggest challenge is not to grow larger, but to grow better. We want to make better cars that sell for even lower prices; we want to make all our stakeholders feel good about being associated with Toyota; and we want to recycle some of our profits back into society” (Levine 2004). The interviewer did not think to ask why all the company’s priority goals under Mr. Cho were in financial terms (sales, market share, profitability, cost reduction, seeking “bigger numbers”) when what truly matters is “meaningful growth.” ■ Toyota recalls 330,000 pre-1996 Hilux Surfs and 4Runners in Japan for dangerous steering mechanisms after an out-of-control Hilux Surf crashes causing serious injury to five people. The recall was provoked by a police investigation into the accident. The defect was discovered by Toyota in 1996. Toyota received a rebuke from the Japanese government and was ordered to revamped its recall system (Kanter, Maynard, and Tabuchi 2010). Although other truck models sold in the U.S. used the same problematic part, Toyota told the National Highway Traffic Safety Administration (NHTSA) in October 2004 that it would not conduct a recall in the U.S. because it had not received information here indicating a problem with the part. As reported in the Los Angeles Times, “Documents entered into four lawsuits filed in Los Angeles [in 2009], however, revealed that Toyota had received numerous consumer complaints dating from 2000” (Bensinger and Vartabedian 2009). ■ Katsuaki Watanabe’s push to squeeze one trillion yen out of Toyota’s parts purchasing, begun in 2000, realizes its cost reduction goal and is declared a success (Shirouzu, 2006b). The requirement that quality not suffer seems to have failed based on 10-fold increase in yearly auto recalls since 2000. This failure, however, is not noted in the declaration of success. Recalls in 2004 were in excess of 50% of all new cars sold in 2004, approximately 1.1 million recalls (Shirouzu 2006). ■ In June, “the National Highway Traffic Safety Administration (NHTSA) sends Toyota a chart showing that Toyota Camrys with electronic throttle controls had over 400% more ‘vehicle speed’ complaints than Camrys with manual controls” (Waxman and Stupak 2010). There is no report of any action taken. <p style="text-align: right;"><i>Continued ...</i></p>

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)	
Year	Event
2005	<ul style="list-style-type: none"> ■ Katsuaki Watanabe is named CEO to succeed Fujio Cho. He sets two trillion yen in operating profits as the company’s target and pushes for its achievement. ■ Quality reaches a new nadir. Toyota’s worldwide automobile recalls climb to approximately 4.5 million vehicles, some 45 times more than 2000 (Shirouzu 2010). In the U.S. alone, its recalls reach 2.38 million, more than the 2.26 million new cars sold in the U.S. during 2005 (Shirouzu 2006).
2006	<ul style="list-style-type: none"> ■ At the June annual meeting, “outgoing chairman Hiroshi Okuda, its new chairman, Fujio Cho, and its chief executive Katsuaki Watanabe, all vowed ... that the quality issue would be addressed” (Maynard and Fackler 2006). They are reported as “considering” slowing the company’s growth pace in response to escalating recalls and quality issues (Shirouzu 2006). Subsequent actions with regard to goals and the drive on growth seem to indicate that the “consideration” was rejected. As noted in an August 2006 news article, “Toyota’s quality issues do not seem to be dampening its operations either in Japan or the United States Nor is it affecting Toyota’s net income, which climbed 39.2 percent during the second quarter to \$3.2 billion” (Maynard and Fackler 2006). ■ Akio Toyoda and Shinichi Sasaki are placed in charge of Toyota’s effort to improve its quality problems. In a speech to company engineers, Mr. Toyoda urges them to change their mindsets from producing volume to engineering quality. Apart from Aikio’s personal urging, however, company goals, plans, and incentives remain unchanged (Shirouzu 2010). ■ A senior Toyota engineer is quoted as stating that the company has made “a clear and conscious change” in the way it handles recalls. “We used to do quiet recalls called ‘service campaigns’ to deal with many defects, but we’re not going to hide anything anymore” (Shirouzu 2006). The assertion was made in response to recent vehicle defect scandals in Japan that involved Mitsubishi Motors and also Toyota. Subsequent events (see below) suggest that the engineer’s pronouncement of change may not have been well informed. ■ In response to the Japanese government’s dissatisfaction with Toyota’s unresponsiveness to customer complaints and its slow action on recalls, Toyota promises to create “a new computer database to obtain information more quickly from dealers on repairs and complaints” (Maynard and Fackler 2006). ■ Toyota’s “quality problem” emerged in parallel to Toyota’s drive on cost reductions and increased profits to fund global growth and the achievement of the top position in sales and revenue among automobile manufacturers. In analyzing the reasons for the problem, observers offer an number of ideas. For example, as part of that strategy, engineers have been pressed to pump out more new models faster. “Product development bosses kept engineers on tight launch schedules. Toyota used virtual testing to replace hands-on driver testing “to radically compress vehicle-development times” and cut costs by slashing the number of prototypes needed from 60 to just 20 (Shirouzu 2006). Consistent with this analysis, a senior Toyota engineer reported that the fast pace of new model launches and <p style="text-align: right;"><i>Continued ...</i></p>

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)	
Year	Event
2006 cont'd	<p>pressure to maintain schedules has given rise to “bonehead” mistakes (Shirouzu 2006). Executives and engineers also reported that another cause was the pressure “to use the same components in a wider range of vehicles to save costs.”</p> <p>Later, in 2010, it was also acknowledged that the hiring of a large number of inexperienced contract engineers across a 10-year period as a means to cut cost and support the company’s rapid growth agenda was yet another causal factor (Shirouzu 2010).</p> <ul style="list-style-type: none"> ■ Also in 2006, Mr. Watanabe, in a Wall Street Journal interview, “groused” that “Toyota’s factories and engineering practices aren’t efficient enough. Within the company, he even questioned a core tenet of Toyota’s corporate culture -- kaizen, the relentless focus on incremental improvement” (Shirouzu 2006a). In the interview he also characterizes his executive style. “I am told a CEO should worry about big-picture stuff and shouldn’t be concerned about minute details,” he says. “I am obsessed with details, I will be an irritant, and I am persistent. I am going to grumble if the shop floor is cluttered or too greasy” (Shirouzu 2006a).
2007	<p>The California Court of Appeal finds “that ‘Toyota had intentionally violated two orders compelling discovery’ of stability testing results in a case involving a Toyota-made forklift that tipped over and killed a worker.” The court fined Toyota \$138,984.33 and ordered a new trial (Bensinger and Vartabedian 2009).</p>
2008	<ul style="list-style-type: none"> ■ Toyota’s operating profit reaches an industry high 8.6% (1.76 trillion yen). It unseats General Motors as the worlds biggest auto maker in terms of unit sales (Shirouzu , 2010 Shirouzu and Murphy 2009). ■ CEO Watanabe breaks with Toyota protocol “by single-handedly deciding what vehicles would be built at a factory under construction in Mississippi ... without first consulting other executives” (Shirouzu and Murphy 2009). ■ Toyota executives seek greater profit by pushing up prices “for an array of models including the redesigned Corolla” despite dealer feedback that the new pricing was too high from a consumer perspective. The price increases of about \$1,000 to \$1,500 were implemented. “Not surprisingly, sales were weak. Toyota sold 21,000 Corollas in February 2008 down 25% from a year earlier” (Shirouzu and Murphy 2009). ■ Toyota receives reports of a sticking gas pedal problem in December 2008 (Kanter, Maynard, and Tabuchi 2010). No corrective action is taken.
2009	<ul style="list-style-type: none"> ■ In April, Toyota warns engineers in the U.S. of a sticky gas pedal problem it had previously identified in December of 2008. No action was taken (Maynard 2010). ■ Toyota Motor Corporation names Akio Toyoda as its new president on June 23, 2009. Along with Toyoda, Toyota names a new management team that includes four new executive vice presidents and eight new board members. “In a move seen as an attempt to balance the newly promoted with seasoned veterans, Toyota brings back Yoshimi Inaba, an outspoken heavyweight who left as executive vice president in 2007 to head an airport that Toyota helped build. Inaba returns as a director and will take charge of Toyota’s North American <p style="text-align: right;"><i>Continued ...</i></p>

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)

Year	Event
2009 cont'd	<p>operations, the company's largest and, until recently, most profitable market. Inaba, fluent in English, headed Toyota Motor Sales U.S.A., the California-based sales arm, from 1999 to 2003” (Kubo and Kim 2009).</p> <ul style="list-style-type: none"> ■ In July, a presentation of achievements was made by Toyota staff to Yoshimi Inaba, Executive Vice President, Member of the Board and Chief Officer of the North America Operations Group. On a slide entitled, "Wins for Toyota -- Safety Group," U.S. Toyota executive’s “boasted of saving hundreds of millions of dollars by getting the federal highway safety regulators to limit the scope of recalls” for floor mats in some Toyota and Lexus vehicles (Maynard 2010; CNBC 2010). The floor mats could cause unintended acceleration (Valdes-Dapena 2010). In 2010 testimony, Mr. Inaba tacitly admitted that he was briefed on the Safety Group’s success when he stated that he could not remember the meeting where he was briefed on the memo “with any depth” (Bensinger and Vartabedian 2010). Other “wins for Toyota” lauded in the same presentation were a savings of \$124 million reaped by winning a phase-in to new safety regulations for side air bags and an \$11 million savings reaped by delaying a rule for tougher door locks (Thomas 2010). Also credited as wins were: “Avoided investigation on Tacoma rust’ and helping win delays in various new federal safety regulations” (Valdes-Dapena 2010). <p>In response to the facts of this presentation, a Toyota spokesperson said, “Our first priority is the safety of our customers and to conclude otherwise on the basis of one internal presentation is wrong. Our values have always been to put the customer first and ensure the highest levels of safety and quality” (Thomas 2010). The conflict between the facts of this internal presentation and the spokesperson’s assertions were not explained. No one asked how, given this unassailable ethic, such a presentation could made to an executive officer and member of the board of Toyota (Yoshimi Inaba) without the least concern for reprimand for being unaligned with Toyota’s “first priority.”</p> <ul style="list-style-type: none"> ■ “In August, the month following the presentation of “Safety Wins” in which the executive boasted of saving \$100 million over a full recall, a family of four was killed in a Lexus with its gas pedal stuck under a floor mat” (Valdes-Dapena 2010). ■ In September, “Toyota told dealers in European countries that it was changing the way it would build cars sold there, and outlined the repair procedures the dealers should follow in the event of sticking gas pedals, sudden engine surges or unexpected acceleration” (Maynard 2010). ■ On Oct. 7, five days after an email exchange between Transport Canada and Toyota, the Canadian equivalent to the U.S.’s NHTSA, Toyota issued a massive recall that included Camrys, Corollas and Highlanders, because of problems with sliding floor mats potentially jamming the gas pedals (McKie 2010). <p>In the U.S., however, Toyota stalled implementing a recall claiming to the NHTSA that it needed time to pin down the cause of the problem and devise an appropriate fix. Given its action in Canada, this was not true. Nonetheless, it convinced the NHTSA to allow it to just issue a safety advisory to owners to remove the floor mats (Maynard 2010).</p> <p style="text-align: right;"><i>Continued ...</i></p>

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)	
Year	Event
2009 cont'd	<ul style="list-style-type: none"> ■ Ignorant of the Canadian recall, NHTSA'S spokesperson, Rae Tyson, expresses sympathy for Toyota's position stating, "I think Toyota is going to have a challenge on its hands to come up with a remedy that is going to address the problem" (Krisher and Strumpf 2009). Mr. Tyson sympathy seemed misplaced since Toyota had a solution that it had already implemented in Canada. The company chose not to correct Mr. Tyson's ignorance. ■ After three years of reductions in recalls, Toyota's worldwide automobile recalls reach a new record level of over 7 million cars. The Toyota brand drops to sixth place in quality rankings by new car owners. Its Lexus brand falls from top position in the luxury car quality rankings to third behind Buick and Jaguar. ■ Toyota's sudden, unintended acceleration in various models reaches public attention.
2010	<ul style="list-style-type: none"> ■ In a January email message to another Toyota staff member, Irving A. Miller, then a group vice president for Toyota Motor Sales USA, states, "I hate to break this to you, but we have a tendency for mechanical failure in accelerator pedals of a certain manufacturer on certain models." He adds, "The time to hide on this one is over. We need to come clean" (Maynard 2010). His recommendation for 'truth saying' <i>now</i> suggests that 'hiding' was okay in the past. No mention is made of the duty owed to customers. Also, no clarification is made as to whether it remains okay to "hide" on other issues, if secrecy can be sustained. ■ On January 16, Toyota informs the NHTSA that some of its models may have a sticking gas pedal problem. Three days later, in a face-to-face meeting, Toyota executives claim that it was the first time they were aware of the problem (Maynard 2010). [Note that documents reveal that Toyota was first aware of the problem in December 2008.] ■ On January 21, Toyota orders a recall for the pedal problem, but states that it does not yet have an answer as to how to fix it. In response to why the recall took so long to occur despite hundreds of complaints, Toyota stated that it had only discovered the gas pedal problem in October of 2009. Later, Toyota testifies in a Congressional committee meeting on January 27 that it "first learned of this problem through reports of sticking pedals in vehicles in England and Ireland in the spring of 2009." This statement also proved inaccurate as Toyota later acknowledged it had received reports of the problem "as early as December 2008" (Kanter, Maynard, and Tabuchi 2010). On January 28, Toyota announces its fix. <i>It is the same fix it applied in Canada three months earlier</i> (Maynard 2010). ■ Toyota stops production and sales of eight models for the gas pedal problem (RAV4, Highlander, Sequoia, Corolla, Camry, Avalon, Matrix, and Tundra trucks). The eight models represent 65% of the sales of Toyota vehicles in the U.S. and almost half the sales of the Toyota Motor Corporation (Mufson and Haynes 2010).

Continued ...

Exhibit A1. Toyota's Executive Actions and Related Events 1995–2010 (continued)	
Year	Event
2010 cont'd	<ul style="list-style-type: none"> ■ In February, James E. Lentz III, Toyota Motor Sales U.S.A’s chief operating officer, reports that he did not know of the sticky gas pedal problem until January 2010. He is not asked about documented evidence that engineers in the U.S. were warned about the pedal problem in December 2008 (Maynard 2010; Mufson and Haynes 2010). ■ Also in February, Shinichi Sasaki, Toyota’s vice president for quality, acknowledges three sources for Toyota’s quality problems—lack of thoroughness of testing of new cars and car parts; failure to gather information from customer complaints, specifically their complaints about new cars; and failure to analyze and act on customer complaints (Harden, 2010). <p>No mention is made of the effects of the cost reduction drives of the three previous CEOs on executive decision-making with regard to modifying design processes, engineering staffing and development, executive incentives, the push to kakushin, the failure to problem solve the 8-year increase in recalls, or other related actions and non-actions.</p> <p>No one asks how the problem of gathering customer complaint information could exist given Toyota’s promise in 2006 to build a database specifically to correct this problem (Maynard and Fackler 2006).</p> <ul style="list-style-type: none"> ■ In December, NHTSA fines Toyota 32.425 million dollars, the maximum fine allowable, for its poor response to safety issues (U.S. Department of Transportation 2010). Prior to the fine, Transportation Secretary Ray LaHood repeatedly calls Toyota "safety deaf" (Maynard 2010). In his announcement that Department of Transportation was seeking maximum civil penalties, La Hood states, "We now have proof that Toyota failed to live up to its legal obligations. Worse yet, they knowingly hid a dangerous defect for months from U.S. officials and did not take action to protect millions of drivers and their families. For those reasons, we are seeking the maximum penalty possible under current laws" (U.S. Department of Transportation 2010a). ■ Gordon (2014) reports that Toyota admitted that it redesigned critical parts related to its sticky gas pedal problem "without changing the part numbers." Correct practice is to change a part’s number whenever it is retooled. Gordon further reports that "Toyota admitted in documents in its recent court settlement that it did so to prevent regulators from learning about a problem with 'sticky' gas pedals." As well, that step "made it more difficult for ... private litigants to identify the problem." ■ In an apparent confirmation of the direction the three nonfamily CEOs took Toyota and their continued contempt for Akio Toyoda, they are reported to say that "Mr. Toyoda never publicly opposed their profit-growth strategy when the company was widely praised for making big money and surpassing General Motors Corporation to become the world's No. 1 auto maker." Hiroshi Okuda, in particular, "has told at least two associates since the recalls of cars involved in sudden acceleration incidents earlier this year: 'Akio needs to go'" (Shirouzu, 2010). None of these former leaders of Toyota ever uttered a statement that came close to acknowledging how grievous a violation of the supposed "Toyota Way" were the actions taken under their direction of the company.

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