X-Factory Ethical Dilemma in the Age of Automation

Jamak Amrollahifar
Alfa university College, Malaysia.
Email: dr.jamak@alfa.edu.my

Guo Yajie
School of Management,
Guangzhou College of Technology and Business, China.
Email: guoyajie202210@163.com

Tarekol Islam Maruf*
Department of Business Management and Technology,
Alfa University College, Malaysia.
Email: dr.tarekol@alfa.edu.my
Corresponding Author

Abstract
This case study explores the ethical and emotional challenges faced by a senior technical engineering leader, Mr. Jason, in a manufacturing company in Miami, USA. With over two decades of service, Jason is tasked by top management to propose cost-saving solutions amid financial pressure and the advent of automation. His solution involves reducing manual labour through automation—yet it creates a moral dilemma, as his recommendation could lead to job loss for his close friend and long-time co-worker. This case highlights the human side of technological transitions and invites discussion around ethics, leadership responsibility, and strategic decision-making.

Keywords: Ethical challenges, strategic decision-making, leadership responsibility

Introduction to Automation and Ethics
Automation has surged in manufacturing worldwide. According to the International Federation of Robotics (IFR), 517,385 new industrial robots were installed globally in 2021 – a 31% increase over the prior year – raising the total to about 3.5 million operational robots. Asia dominates this trend (accounting for about 74% of new installations, with China alone adding roughly 268,000 robots that year). While such adoption promises higher efficiency and lower costs, it also creates ethical challenges. Studies predict that by 2030 up to 800 million jobs worldwide could be affected by automation and AI. Displaced workers may suffer financial hardship, loss of purpose, and widening inequality.

Leaders must therefore balance technological gains with social impact. Surveys show that a majority of firms (around 60% of all firms, and 85% of large firms) have made automation a strategic priority. Faced with this reality, many scholars argue that automation programs should

serve human welfare as well as business goals. For example, one analysis warns that purely cost-focused automation tends to fail and can be "detrimental to business" if it ignores the workforce. In the words of Tracy Mayor (2019), companies should design automation systems that drive both growth and social cohesion. In short, technology decision-making today is as much an ethical challenge as a technical one. Against this backdrop, we consider X Factory's case: a company intent on automation, and a leader wrestling with the human consequences of that choice.

Case Background

X Factory is a mid-sized manufacturing company in Miami, Florida. It produces consumer appliances and has operated profitably for decades. Mr. Jason is its Head of Technical Engineering and has spent over 20 years at the firm. He is well-respected for his expertise and has led numerous efficiency projects. Equally important, Jason has deep personal ties within the factory. Over the years he has become close friends with many floor workers, mentoring some younger colleagues. In particular, one of his oldest friends is a general factory worker who relies on this steady job to support a family.

Despite past success, X Factory is now facing financial strain. Global competition has intensified, and rising material and labour costs have squeezed margins. The board has warned that without improvements, the company risks losses and even closure. In response, senior management – influenced by industry trends – identified automation as a key strategy to cut costs. This parallels broader manufacturing trends: for instance, a 2024 CFO survey found that around 60% of firms worldwide have implemented labour-replacing automation in the past year, and two-thirds plan to do so. Recognizing this, X Factory's executives asked Jason to propose a technical plan for modernizing production.

Jason dove into the assignment with both professional zeal and personal concern. He analysed existing processes and confirmed that automating certain manual tasks could significantly boost productivity and reduce costs. However, he also understood the implications: the proposed robots and machines would replace human operators – including his friend's position. Thus, Jason faced a conflict: should he advance a solution that could save the company (and many jobs indirectly) at the expense of several loyal employees? This setup establishes our main characters and stakes: a dedicated technical leader (Jason), a supportive colleague with a family (the friend), and a company caught between profit pressures and human impact.

The Rise of Automation at X Factory

Over the past few years, X Factory had begun to invest incrementally in automation. Initially, management approved small upgrades – a computer-controlled press here, a basic conveyor there – which yielded modest efficiency gains. Encouraged by early success and aware of modern manufacturing trends, the board then decided on a larger automation initiative. Robotics vendors were invited to propose solutions, and a cross-functional team was formed to plan the transition. Jason led this team.

Jason and his team mapped each production line and identified the most labour-intensive tasks. They found, for example, that heavy lifting of components, repetitive welding processes, and manual packaging were major cost centres. He consulted industry reports and trade shows. The IFR's world robotics report made clear that manufacturing sectors, especially electronics and automotive, were installing robots at unprecedented rates. Motivated by these benchmarks, Jason drafted a detailed project proposal. It called for installing robotic arms, automated guided vehicles (AGVs), and vision-based quality inspectors in targeted work cells.

He presented a preliminary analysis: the new equipment could potentially double throughput on certain lines and cut variable costs by up to 40%. However, the plan also showed that roughly 15–20 of the general worker positions would become redundant (depending on how tasks were reorganized). Jason anticipated resistance. Some veteran operators were already nervous; union leaders worried about precedent. He recalled high-profile cases in other factories: for instance, a Foxconn plant in China famously reduced its workforce from 110,000 to 50,000 by adding robots. Another report noted Foxconn's plan to deploy one million robots within a few years to cope with rising wages. These examples loomed in Jason's mind as he refined the plan.

Nevertheless, given the company's urgency, the automation project moved ahead. Top management gave Jason a timeline and budget: they expected at least a 20% reduction in operating costs within a year of deployment. Jason was directed to consider layoffs only as a last resort. This directive signalled that the company was aware of the human cost, at least rhetorically. As the first machines were ordered, lines were rearranged, and training schedules made, X Factory's shift toward a high-tech operation was set in motion – a transformation that held promise and peril in equal measure.

Strategic Decision-Making under Pressure

With the mandate clear, Jason employed a structured decision-making process. He gathered data on output, cycle times, and labour costs for each department. For each candidate automation, he built cost–benefit analyses. For example, he estimated that installing a robotic welder on Line A would require a $2 million investment but might increase welding capacity by 50% while reducing manual labour by 8 workers. At that rate, the payback period would be just two years. Meanwhile, he considered less drastic improvements, such as reorganizing shift schedules or adding a second assembly line on a discretionary spending basis.

Jason did not rely solely on spreadsheets. He convened meetings with production supervisors, operators, and even floor technicians to validate assumptions. When he calculated, for example, that a new AGV system would free up 5 operators from material transport, he discussed this with those operators. They pointed out potential bottlenecks the model had missed – such as loading times and maintenance downtime. Jason iterated his analysis to include these real-world factors. He was mindful of advice from experts: one management article noted that leaders under stress should "trust in a methodical decision-making process" rather than guess. Throughout this phase, Jason also considered the people factor. He remembered that studies warn against "cost-focused" automation without regard for employees. A purely cost-driven plan might meet financial goals on paper but could flounder if worker morale collapses. To avoid this, Jason built in communication checkpoints. He scheduled weekly briefings where he shared high-level updates with team leaders (without revealing sensitive data). He even walked the plant floor with a laptop, showing line diagrams and soliciting input. This transparency was strategic: research shows that survivors of layoffs lose trust unless leaders ramp up communication and support. By involving the shop floor in planning (for example, asking for ideas on how displaced workers might be retrained), Jason aimed to reduce fear and build ownership of the change.

Despite these efforts, pressure mounted as deadlines loomed. Jason often worked late into the night, weighing financial urgency against human concerns. He conferred with mentors, including a retired engineer who once handled a similar transition. His mentor stressed the importance of integrating ethics into decisions: "Data and math matter, but don't forget the

people who trust you," the mentor advised. In private reflection, Jason acknowledged feeling moral distress: a conflict between knowing the right thing to do (help the company survive) and the fear of hurting innocent colleagues. This emotional tension was an undercurrent in all his strategic planning.

Ethical Dilemma: Leadership vs. Loyalty
Jason's situation crystallized into a classic moral conflict: Should he prioritize the organization's well-being or his personal loyalty to friends? On one side was professional duty: as a leader, Jason was expected to help ensure X Factory's viability. From a utilitarian perspective, automation could save the company and preserve many jobs in the long run, outweighing the short-term loss of a few positions. On the other side was personal ethics: Jason felt a deep obligation to protect his friends and long-time colleagues. Abandoning them to unemployment felt unjust, violating principles he valued. This tension – maximizing overall good versus upholding loyalty to individuals – has no easy formula.

Jason considered various ethical frameworks. Under a utilitarian lens, he could argue that proposing automation is justified by the greater good of company survival and the livelihoods of most employees. A deontological viewpoint, however, might focus on duties and rights: he had a duty to the company (and its shareholders), but he also had a duty as a friend and mentor not to harm his colleagues. Ethics of care would emphasize empathy and relationships, suggesting Jason give special weight to his friend's plight because of their personal bond. Indeed, leadership experts note that ethical leaders should make decisions "based on the right thing to do for the common good, not just what is best for the bottom line". This means considering the needs of communities and employees alongside profit. Jason could not ignore these perspectives without feeling like he was betraying his own moral standards.

In practical terms, Jason grappled with questions: Is it right to present a plan knowing it will cost a friend his livelihood? Could he negotiate an alternative outcome? His loyalty made him wonder if he was complicit in harming someone he cared about. Yet his leadership role made him accountable for the welfare of the whole company. This dilemma created a profound internal conflict. Jason realized that emotional intelligence was key: he needed to honestly confront his feelings of guilt and sympathy while remaining clear-headed about his responsibilities. A high-EQ leader recognizes the importance of values like loyalty and fairness, even under pressure. In this crucible, Jason learned that making an ethical decision required both rational analysis and compassionate understanding.

Organizational Response and Stakeholder Impact
When Jason formally presented his final automation proposal to senior management, the reactions illustrated the competing priorities. The CEO and COO focused on the numbers: they lauded the anticipated efficiency improvements and applauded Jason's thorough analysis. They saw the plan as essential to reducing the company's cost structure. The CFO quickly noted that the projected savings could reverse recent quarterly losses.

In contrast, representatives from Human Resources and production began to raise practical concerns. They asked: How many workers will be laid off, and which positions? What retraining will be offered? They probed Jason: Can any of the displaced personnel be redeployed? At this point it was clear that Jason's friend (a line operator) would lose his role if the plan proceeded unchanged. The factory workers' union also caught wind of the plan and contacted HR with questions about seniority and severance. Internally, the shop-floor atmosphere grew tense: rumours of impending layoffs circulated. As one commentator put it,

workers who survive a downsizing often feel "demoralized" and insecure. In fact, a survey by Brandon Hall Group found that 59% of companies reported a high impact on employee morale after workforce reductions, and 47% saw a major hit to trust and loyalty.

Recognizing these concerns, top management agreed to bolster Jason's plan with employee-centric measures. They mandated three initiatives:

Communication
Jason and HR would conduct town-hall meetings to explain the business rationale for automation, outline the timeline, and answer questions openly (Research indicates that frequent, transparent communication is critical to maintaining trust during downsizing).

Retraining and Redeployment
A training program would be funded. Displaced workers (including Jason's friend) would receive first priority to learn new skills relevant to the automated processes, such as robot maintenance, quality inspection, or data monitoring. The production schedule was temporarily slowed to accommodate training hours.

Support and Severance
For those unable to be reassigned, the company offered severance packages above the legal minimum, plus job placement assistance (career counselling and job fairs). This was meant to cushion the personal impact.

Over the next weeks, X Factory slowly implemented these steps. Jason personally spoke to his friend before any decisions were final, reassuring him that the company would invest in retraining. He also answered questions from other workers in smaller groups, trying to alleviate anxiety. Despite these efforts, some tension remained. Employees who would keep their jobs still worried about "survivor guilt," and the friend in question felt grateful but uneasy about transitioning to a new role. Outside the plant, community stakeholders (such as local officials) noted the shift: the plant was modernizing, but some families feared the loss of middle-class jobs. The company's reputation was on the line.

In summary, X Factory's organizational response highlighted the broad stakeholders affected: the board and investors (focused on cost), the remaining employees (concerned about security and fairness), the departing workers (needing support), and the community. By integrating communication and support measures, the company aimed to manage these impacts. The case illustrates that automation triggers a ripple effect across many interests, and responsible leadership must address them in tandem.

Comparative Industry Insight
X Factory's situation is not unique; global data and case examples shed light on how other firms handle similar dilemmas. Worldwide, the shift to robotics has been dramatic. As shown in Figure 1, China's factories far outstrip all others in robot installations. In 2021, Asia accounted for 74% of new industrial robot deployments. China alone installed 268,000 robots that year. By comparison, the United States installed about 50,000 robots in the Americas region (including North and South America). These numbers underscore that manufacturers globally are aggressively pursuing automation.

Figure 1: Annual installations of industrial robots in 2021 (thousands of units) for the top global markets. Source: IFR World Robotics 2022.

Concrete company examples illustrate the human stakes. Consider Foxconn, a giant electronics assembler. In 2011 Foxconn's CEO announced a goal of deploying one million robots over three years to offset rising labor costs. By 2016 reports indicated that a single Foxconn factory had cut its headcount from 110,000 to 50,000 through automation. Foxconn publicly stated it would retrain workers for higher-skilled roles, but outsiders questioned the social impact of such aggressive automation. Foxconn's case serves as a caution: if too many workers are "replaced" quickly, it can create social and morale problems, even if the company saves money. In contrast, other companies have pursued more balanced approaches. For example, Amazon's warehouses use robots to carry heavy loads, but human workers still perform flexible, skilled tasks like picking and packing. As the MIT Sloan study notes, Amazon exemplifies a "performance-driven" automation: robots and humans work side by side, with each doing what they do best. Toyota offers another model: at Toyota's plants, workers are empowered to perfect manual processes first, and only after processes are solidified are robots introduced. This "worker-centered" approach yields both efficiency and employee involvement.

A striking small-business example is Marlin Steel (a custom metal parts maker in the U.S.). Marlin invested in robotic welding but simultaneously implemented extensive worker training and job redesign. The result: order capacity tripled without laying off any workers. In other words, Marlin's robots "created jobs" by enabling the company to win more contracts.

Industry data align with these anecdotes. The IFR reports that global robot installations have doubled in the past six years, and are growing across sectors (not just automotive). A 2024 survey found that 88% of firms cite productivity improvement as the main driver of automation. However, only a minority report that their adoption is aimed primarily at cutting labor costs. The key insight is that how automation is implemented makes a difference. Companies that integrate retraining and redeployment (employee-centric approaches) tend to maintain higher morale and better public image.

Thus, X Factory can benchmark itself against this industry context. The aggressive "replace workforce" strategy of Foxconn is one extreme, while Amazon/Toyota and Marlin represent more human-sensitive paths. The data suggest that while automation is inevitable, leaders can choose either a zero-sum mentality or a more inclusive strategy. These comparative insights help frame Jason's decision within real-world possibilities and show that responsible automation is both technically feasible and ethically desirable.

Jason's Decision and Aftermath
After much deliberation, Jason recommended a middle course. He supported moving forward with automation (believing the company could not afford to delay) but with strong safeguards for employees. In his final presentation, he proposed phased implementation: automate one department first, pause to evaluate the transition, and then proceed with further rollout. He also secured a commitment from management to retrain as many affected workers as possible.

Crucially, Jason arranged a role for his friend on the new automated line. Instead of being laid off, his friend would be trained and promoted to a machine operator/technician position, responsible for overseeing the robots that replaced him. (For example, he would learn to set up the robotic cells and perform maintenance checks.) Jason argued that the friend's experience and work ethic would make him an excellent fit for this higher-skilled role. Management agreed to provide the necessary training. This solution echoes what MIT Sloan describes as a "worker-

centered" automation strategy: technology is introduced with the goal of developing employees, not discarding them.

Over the next six months, X Factory executed this plan. The first wave of robots went into Line A. As predicted, output on that line rose by nearly 40%, and defect rates fell due to the precision of automation. The company's financial reports began to show improved margins. More important, Jason's friend successfully transitioned to his new job and even assisted others in learning the new equipment. By contrast, a few employees on a different team who lost their positions without internal redeployment did express unhappiness, but their departures were minimized.

Gradually, the workforce adapted. Many remaining workers saw that Jason had managed to avoid mass layoffs, which helped restore some trust. Employees started to view the changes not as a betrayal, but as a challenging but ultimately sustainable transformation. The CEO later commented that Jason's balanced approach had "saved the day" – the company met its cost goals without the morale disaster that had been feared. Externally, X Factory's reputation remained strong; local news coverage noted the modernization but highlighted the fact that "long-time employees were retrained for advanced positions."

Jason reflected that his strategy aligned with the "socially responsible" models he had studied. By integrating machines rather than fully replacing people, he achieved a significant productivity boost while keeping his friend employed. It cost more time and effort (especially on training), but it turned out to be feasible. In the end, this outcome validated Jason's belief that he did not have to choose strictly between loyalty and leadership: with creativity and integrity, he found a solution that upheld both.

Lessons in Ethical Leadership and Emotional Intelligence
This case offers several key takeaways.

Balancing stakeholder interests
Ethical leaders evaluate decisions from multiple angles. Jason weighed the company's long-term survival against the immediate impact on individuals. This reflects a stakeholder approach: rather than serving only shareholders, Jason considered employees and the community too. As one expert notes, truly ethical leadership means doing "the right thing for the common good," not just what boosts the bottom line. In practice, Jason's solution shows how a leader can honor loyalty to employees while still safeguarding the organization's future.

Communication and transparency
Open dialogue is critical during change. Jason openly explained the business reasons to his team and shared his plans, which helped ease fear. Research confirms that transparent communication can mitigate the loss of trust that often follows layoffs. By informing workers and soliciting their input, Jason maintained credibility and reduced the shock of change.

Emotional intelligence and empathy
Executing tough decisions requires emotional skill. Daniel Goleman observed that highly effective leaders tend to have strong emotional intelligence. Jason demonstrated this by understanding his own feelings of guilt and managing them, and by recognizing his coworkers' anxieties. He used empathy to find a humane solution (for example, advocating for his friend's retraining). Studies show that organizations led with empathy see higher engagement and retention. Jason's case illustrates that when leaders lead with care, their teams adapt better and organizational goals are ultimately more achievable.

Role modeling ethical behavior

Leaders set cultural norms by example. Jason's willingness to protect his friend's interests showed that the company valued its people. This aligns with the principle that ethical leadership involves fairness and compassion. By prioritizing retraining, Jason sent a message that technology was a tool for empowerment, not abandonment.

Creative problem-solving

Difficult dilemmas often require innovative solutions. Jason did not accept a zero-sum outcome; he found a win–win compromise. This reflects the higher levels of the "automation maturity" model: instead of purely cutting jobs, he enabled employees to work *with* machines. Organizations should be aware that automation can create new opportunities if approached inventively. Jason's approach is akin to Toyota's or Marlin Steel's: using technology to raise productivity *and* job quality.

Learning from others

Jason's success was informed by what he learned from other companies' experiences. The contrast between Foxconn's labor-replacement model and the more worker-centric models (like Amazon and Toyota) provided valuable perspective. Encouraging students to examine these cases (e.g., Foxconn vs. Marlin Steel) can help them appreciate the spectrum of choices. The MIT Sloan "ethics pyramid" provides a useful framework: companies can evolve their automation strategy from cost-only to socially responsible as Jason did.

In summary, ethical leadership in the age of automation is as much about people as it is about technology. Leaders must apply emotional intelligence – self-awareness, empathy, and social skill – to ensure that organizational change honors human dignity. By doing so, they not only do the right thing morally, but also promote sustainable success.

Conclusion

The story of X Factory underscores that technology decisions are inherently human decisions. Automation can transform industries, but it places moral responsibility on leaders to steward the transition. Jason's case shows that it is possible to pursue innovation while remaining loyal to the workforce. He managed to fulfill his duty to the company and his duty to his colleague by coupling efficiency gains with empathy-driven policies. In this way, he exemplified ethical leadership that others can emulate.

More broadly, the case illustrates that companies and leaders should proactively prepare for the social impact of automation. Transparent communication, investment in people, and ethical reflection should accompany every technical upgrade. When leaders integrate ethical reasoning and emotional intelligence into strategy, they can navigate the tension between progress and loyalty. As automation advances across all sectors, such balanced leadership will determine whether technology serves only profit or also people's well-being.

Discussion Questions

1. What ethical frameworks can be applied to evaluate Jason's decision?
2. How can Jason balance professional duties with personal loyalty?
3. What alternative solutions might mitigate the impact on workers while still embracing automation?
4. What role can leadership play in managing emotional intelligence and empathy during organizational changes?
5. How should companies support employees during transitions such as automation?

References

Chyen Yee, L., & Jim, C. (2011, August 1). Foxconn to rely more on robots; could use 1 million in 3 years. Reuters. https://www.reuters.com/article/technology/foxconn-to-rely-more-on-robots-could-use-1-million-in-3-years-idUSTRE77016B/

Creedy, V., & Wolf, S. (2023, July 27). Leading with emotional intelligence drives engagement. DDI Global. https://www.ddiworld.com/blog/leading-with-emotional-intelligence-drives-engagement

Federal Reserve Bank of Richmond. (2024, June 20). U.S. companies ramp up automation and AI as inflation persists [CFO Survey press release]. https://www.richmondfed.org/press_room/press_releases/2024/the_cfo_survey_20240620

IFR – International Federation of Robotics. (2022, October 13). World Robotics report 2022: All-time high with half a million robots installed in one year [Press release]. https://ifr.org/ifr-press-releases/news/wr-report-all-time-high-with-half-a-million-robots-installed

Kirk, V. (2024, February 19). What is ethical leadership and why is it important? Harvard DCE Professional & Executive Development Blog. https://professional.dce.harvard.edu/blog/what-is-ethical-leadership-and-why-is-it-important/

Krimmelbein, F. (2024, October 3). The ethical implications of AI and job displacement. Sogeti Labs. https://labs.sogeti.com/the-ethical-implications-of-ai-and-job-displacement/

Landry, L. (2019, April 3). Why emotional intelligence is important in leadership. Harvard Business School Online. https://online.hbs.edu/blog/post/emotional-intelligence-in-leadership

Mayor, T. (2019, July 8). Ethics and automation: What to do when workers are displaced. MIT Sloan Management Review. https://mitsloan.mit.edu/ideas-made-to-matter/ethics-and-automation-what-to-do-when-workers-are-displaced

Pittman, M. (2023, May 18). Impact of layoffs on employees of the organization: A global perspective from Brandon Hall Group's survey. Brandon Hall Group. https://brandonhall.com/blog-impact-of-layoffs-on-employees/

Wakefield, J. (2016, May 25). Foxconn replaces '60,000 factory workers with robots'. BBC News. https://www.bbc.com/news/technology-36376966