

University of South Carolina

Case Report: Case of the Killer Robot

Ali Jamil

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Dr. Neema Kanapala

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Case Report 2: Case of the Killer Robot

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1. Ethical Dilemma

The primary issue is that multiple underlying problems contributed to Silicon Techtronics' accident, as a direct result of cost-effectiveness. In jumping through all these hurdles to keep business continuity, we are left with the ethical question of "Who in an organization is implicated when a life-threatening accident occurs?"

2. Role of Information Technology

The role information technology played in this scenario was numerous checks and balances being overlooked, including a programming oversight that led to the death of an employee. Should routine testing have been implemented to accommodate the fact that technology often malfunctions, no lives would have been lost.

3. Critical Stakeholders

1. *Chief Executive Officer.* The CEO has the right to direct and shape the focus of the company. Make decisions impacting overall operations.
2. *Investors and Creditors.* They have the right to receive accurate reporting of the company's financial goals and quotas.
3. *IT Department.* The IT/InfoSec team has the duty of delivering stable infrastructure that functions properly, and ensures compliance through GRC with the state laws and standards.
4. *Business Partner.* Cybernetics Incorporated used Silicon Techtronics as a vendor for their automations. As a consumer of a company, they are protected under the Bill of Rights, stating that they have the right to be informed, the right to choose, the right to safety and the right to have problems corrected. These rights were all infringed.

4. Alternative Courses of Action

1. Implement Prototyping. One of the most detrimental fall throughs of the “killer robot case” was the lack of a proper project method. The selection of the waterfall model out of familiarity instead of efficiency was a direct cause of this, due to an inexperienced project manager (PM) deciding to run this project in his own context. By choosing the necessary prototyping model, robot-operators would have continuous direct interaction with the machine, greatly alleviating the chances of a work site accident. For the CEO and IT department, this measure would most certainly have meant a delayed launch date. The waterfall model is composed of completing tasks and progressing, where prototyping is sheer trial and error. The Robbie CX30 would have little to no chance of a release date of January 1st. However, this would greatly benefit Silicon Techtronics’ investors and business partners, boosting their quality assurance stats denoting a successful product.

2. Properly Conduct Unit-Testing. Directly overseen by Robotics Division Chief Ray Johnson was the unit-testing and integration-testing protocols. As the specialist stated during their memo, unit-testing in software engineering is composed of running individual abstractions and algorithms alike, gauging their outputs and thrown errors. If Johnson properly implemented these audit measures, the error immediately would have been caught and remediated. Instead, he opted for testing the code in a virtual machine (VM), returning close to exact results comparative to the actual client. Clearly, this was not the case as the VM did not catch the malicious code. The CEO and IT department would be most impacted from this, as including these testing measures would certainly push release back by some good months. Seeing as Johnson’s division had been operating in the red for three years before the incident, the most vital part to him was unveiling the product by Q1 of the new year. A project of this size served as a career revival, so any better result would be sacrificed for the time constraint. This would also benefit Silicon Techtronics’ investors and business partners, encouraging more clients to do business with them for achieving great numbers.

3. Integrate Robot-Operation into Training. Committee spokesperson Ruth Witherspoon provided affidavits from Cybernetics Inc. employees confirming that only one day of onsite operating training took place. Witherspoon went on to say that the robot operator certification exam provided by Techtronics was laughable, and not up to par with training. Should the Robotics Division Chief had made more of an effort for this to be implemented into the product, the damage from the robot error could have been mitigated. Training that fails to represent responsibilities and safety concerns on the job is hardly training at all. Primarily this would benefit Techtronics' business partners, seeing as Cybernetics Inc. suffered the loss of an employee for poor training. Should the training have covered contingency plans, the employees would be able to respond accordingly and be protected. The investors would benefit from this, as this measure adds to business continuity and employee safety, which is just what they would like to see. The IT team would hardly suffer a delay from this, as operating training has less to do with data infrastructure and more to do with Division standards and compliance. The CEO would be at a loss for not having the product released as soon as he wanted it.

4. Email Transparency. The Chief Security Officer Max Worthington put out a statement saying that CEO Waterson had him pull employee emails for review, to have some insight into what various internal departments worked on. Many of the emails unearthed heinous shortcuts the managers took to meet deadlines. The CEO being privy to this information has the ultimate say in what happens within the company, per the age old adage "the buck stops here." Waterson easily could have held a meeting to address the many transgressions, but instead continued to surveil. The opportunity to act quickly and correct the offenses worsened and became more tangled up, until multiple individuals have been implicated in the death of Bart Matthews. The decision to tie loose ends from the CEO would negatively impact both the IT department and the CEO. In order to set the tone for the conversation in correcting executives' offenses, Waterson would have to admit that he was surveilling employee emails, including confidential data. California is notably a two-party consent state, and local labor laws state that employers have the right to monitor employee traffic, until given a business reason not to do so. After witnessing with his own eyes that Randy Samuels pinched code from PACKSTAT1-2-3, he was automatically implicated for not reporting it. The investors and business partners would benefit from this transparency, as it contributes to a positive workplace environment.

5. Teleological Perspective

From a teleological perspective, implementing the prototyping model yields the least consequences. The setback for Robbie CX30 was caused by the lack of an adaptable project model. While prototyping would have proved more difficult for the PM to lead and communicate, this would have benefitted the robot-operators and software devs alike, possibly preventing the death. Aside from management struggles, the release date of the product would be pushed back, prototyping consisting of halting progression until all bugs have been remediated.

6. Deontological Perspective

From a deontological perspective, the most “right” choice would foremost be integrating proper operating training for the robot-operator role. Too much evidence supports the fact that the deceased robot-operator demonstrated confusion when the green error screen flashed, and did attempt to apply the emergency code as was taught in the training sessions. With committee spokesperson Witherspoon proclaiming that the Techtronics operating certification “was a joke,” this largely implicates all of the organization. As a robotics company they are required by law to comply with all of California’s local regulations and industry standards. At this point, Techtronics is liable for the damages as an accredited certification should prove that an operator has extensive knowledge on the product and can complete tasks with ease. With a misrepresentative exam, the robot-operators essentially had no experience with the product and what they did know failed to translate into acting during exceptional conditions. Correcting this lapse in learning could have made all the difference in preventing Matthews’ death.

7. Normative Recommendation

My recommendation is that Techtronics hold a mandatory internal meeting with the IT, legal and HR departments including relevant executives, so all affiliated with the incident are on the same page. Considering this incident is not a minor like a data breach, someone must take accountability since an employee did lose their life due to the checks and balances not covering employee safety. The matter worsens upon realizing that this could have happened to anyone in the robot's vicinity. It is worth mentioning that the blame would not fall on the software developer for publishing broken code; unit-testing measures and prototyping was a necessity to the success in examining the Robbie CX30. The responsibility would not even fall on the PM, who easily could've adopted the prototyping model. Instead, those in the legal team that wrote out the specific contingency plans, exceptional conditions and oversaw the robot-operator training would be liable for the death of Matthews. Had these conditions been frequently tested out, the robot's uncontrollable actions could have been contained– even if that meant robot-operators back away from the robot until a manual system override shuts it down. Overall, this is a complete catastrophe for Silicon Techtronics, but it does not matter how you start a job, it matters how you finish it. After the justice process implicates everyone that had a helping hand in the death of Matthews, CEO Waterson will have the opportunity to focus less on cost and more on quality assurance and safety. The fact of the matter is that the incident already happened, and there is no way to bring Matthews and his bereaved family members to high spirits. However, Techtronics now has the power to decide whether or not they will ensure that there is never another case like Matthew's within their company.