Sam Reynolds

- **Criticism**: *As the project manager, Reynolds arguably should have ensured that the robot was absolutely safe.*

  Defence: However, the division chief, Johnson, put pressure on Reynolds to release the robot under his "Ivory Snow" philosophy, a view which stated that no software was perfect, so some level of imperfection is tolerable. Johnson believed that the imperfections in the robot design were acceptable because, apparently, the robot could be stopped immediately at any point during user operation. However, it was irresponsible of Johnson to ignore known safety risks on the basis that the safety fall-back mechanism would catch them, should they occur. In fact, based on an email exchange between Johnson and Reynolds, it would seem that Reynolds did indeed object to the premature release of the robot. (Johnson, on the other hand, was arguably simply trying to save the division from closure.)

  Response: Even so, the safety risks must have been larger than initially thought. It was Reynolds' responsibility to understand and oversee the safety of the project.

  Defence: It seems quite clear that Reynolds was unaware of the fraudulent testing. To the best of his knowledge, the system may well have been safe enough. He was already against the premature release of the robot; knowledge about the fraudulent testing would have only sharpened his resolve.

- **Criticism:** *Reynolds was given 20 new programmers to help with the development of the project, yet he deliberately did not integrate them into the project.*

  Defence: It takes time for a programmer to become familiar with a project, and to understand their role therein. Far from speeding up project development, adding many programmers to a project late in development could in fact delay it further, or result in even more bugs in the code.

- **Criticism:** *Reynolds insisted on using the Waterfall model of software development, which arguably was a major detriment to the project. In particular, the use of the Waterfall model affected the design of the user interface, which was supposed to be the project's ultimate safety fall-back.*

  Defence: It is not clear that the malfunction of the robot is owed to the project model; certainly not entirely. The misinterpreted calculations by Samuals, and the fraudulent testing initiated by Johnson, seem equally, if not far more, relevant, and these failures are not straightforwardly attributable to the project model. Samuals should have been more careful, and checked that his interpretation of the note was correct. On the other hand, proper testing should have detected his oversight. And the main motivation for the fraudulent testing was the threat of the closure of the robotics division

  Response: Nevertheless, because of the above factors, the user interface became the safe-guard for the project, yet the waterfall model would not have allowed for adequate testing and integration of the user interface.

  Defence: Reynolds did not have a background in robotics, and was appointed to his current role for his managerial skills. This means that his decisions about the project were limited by his knowledge.

  Response: Reynolds should have been more pro-active in self-educating when he was appointed to his position. He should have been aware that robotics and data-processing are very different, and that his knowledge in the latter would not translate to competence in the former. He should have spent more time acquainting himself with the projects and practices of the former CXxx project manager.

- **Criticism:** *Reynolds fired Anderson for disagreeing with him about the development model.* Reynolds was already in the wrong for not educating himself on robotics generally, and specifically for not educating himself on the previous CXxx projects and which aspects made them successful. This process should have involved feedback from the team that had been working on these projects, because the team is uniquely situated to comment on the aspects of the project management which were successful, and which were not. Which is not to say Reynolds should have done whatever the team recommended: fresh eyes on an environment can see problems old ones cannot. Still, that Anderson was concerned enough to criticise Reynolds should have suggested to Reynolds that he should revisit the project model.

  Defence: It would have been difficult for Reynolds to consider Anderson's criticism even-handedly, given Anderson was so vehement with his delivery. Also, from a managerial point of view, Reynolds may have felt the need to establish himself, and having subordinates defying him so openly and unashamedly would not be tolerated by most managers. Hence, firing Anderson might have seemed necessary from a political standpoint.