

# Apple powerbook case write-up

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After the failed release of Apple's first miniaturized computer, the Portable, the company was faced with the likelihood of losing significant ground in the mobile computing market if it didn't bring a product to market at record speed. Apple had anticipated the Portable would be competitive enough to maintain market share until its longer term "Companion" project was complete. However, thirty-six months remained until Companion would be ready.

Weak sales coupled with Compaq introducing the far superior LTE notebook created intense pressure to bring a product to market in the next 18 months that could serve as a placeholder until the Companion arrived. Bringing a product to market this quickly was no easy task. The new portable needed to be small and compact, yet the short timeline meant only existing technologies would be available. If that was not challenging enough, the company culture was such that most products had a time-to-market of 48 months and involved a slow bureaucratic process with multiple departments needing to sign-on for each decision.

Additionally, Apple still had not fully confronted the notion that their desktop core competencies were not necessarily going to translate into success in mobile computing. Despite these long odds, Apple not only prevailed, but created a revolutionary product called the PowerBook that brought in billions of dollars in revenue and revolutionized the conventional wisdom behind the company's design philosophy. Part of Apple's struggle in mobile computing stemmed from being the pioneer of desktops. The company felt it knew what the market wanted based on its previous success.

It was with the desktop in mind that Apple released the Portable, a mobile computer designed to do everything that a current desktop could do with the added benefit of being able to collapse into a carrying case and be taken on the road. At a staggering 17 pounds and a cost of \$5000, the Portable was met with plenty of skepticism and was doomed for failure. The company had simply failed to take the customer's needs into consideration. Instead of making it smaller and lighter, as the market demanded, Apple focused on functionality and battery life. This contributed to problematic weight and size problems for the machine.

The failure to recognize what consumers demanded wasn't Apple's only development flaw. They also failed to recognize how quickly technological trends and consumer tastes were changing. The company was still developing products on a three to four year cycle and had yet to embrace a time-to-market philosophy. Instead priorities were still "time-to-perfection" with the company maintaining that it would not bring anything to market 'before its time'. Additionally, they still had a desktop mentality, which meant strict design regulations that hindered the development of a sleeker, lighter computer.

It was a combination of these factors that led to the failed release of the Portable and created the immediate need to develop the PowerBook. As Apple scrambled to assemble the PowerBook team, the project objective was clear; get a mobile computer to market at record speed and keep the size and weight to a minimum. The speed of development was a major challenge to overcome and it was mainly due to the organizational structure. Apple

structured its company by functions and departments. And instead of dedicating specific resources for a project, each department supported all projects.

This led to a cumbersome and lengthy decision making process which typically involved project managers struggling to get objectives accomplished. Often times the project manager was relegated in authority and routinely superseded by functional heads with all decisions inevitably at the mercy of the president of Apple Products, John Louis Gasee. Apple realized its current structure lacked the dexterity to meet its time-to-market objective and driven by necessity made several key decisions to secure time-to-market success.

First, Apple made the decision to organize the company into separate divisions: desktop and portable. Second, they decentralized engineering and product marketing, with the immediate goal of building a new portable engineering group. Lastly, although their Product and Industrial Design teams remained centralized, it was agreed that personnel from those teams would co-locate for the PowerBook project to ensure everyone was “breathing the same air and talking the same talk”. Revamping the organization structure was a key step but there were still many missteps and obstacles that nearly derailed the project.

One major issue was the allocation of personnel. Despite the intense pressure and importance of the PowerBook, the company still listed the project very low in terms of priority. All of the “A” talent was dedicated to the Companion project and the PowerBook team was left with either junior

level engineers or employees with only desktop computer experience. Inexperience coupled with intense pressure produced multiple mistakes along the way. Design standards were initially poor and prototype builds revealed several critical errors with manufacturing tolerances.

All together, a list of 150 items was compiled of issues that the team felt needed to be addressed but it looked unlikely that the time and resources were available to make all the changes. Additionally, the PowerBook team had to overcome intense resistance from its manufacturing department. Manufacturing was accustomed to snap-together desktops and had a very difficult time coming to grips with how they could possibly assemble a portable with 47 screws. The initial reaction from manufacturing was “ we can’t build this thing”.

Product verification testing also proved to be treacherous. The deadline was so tight that after the manufacturing process was well underway and thousands of displays were already in inventory the risk was still present that changes may be needed. This would produce a significant waste of resources. Lastly, the PowerBook team was confronted with bringing its new creative, ergonomic design to life, while dealing with size constraints as well as a mechanical engineering team who was on the critical path and working under a “ we’ll do it if we have time” approach.

Despite the long list of reasons why the project should have failed, it didn’t. In the midst of all the missteps, Apple made several key decisions which propelled the project to success. One area where Apple thrived was in staffing. Although the engineers lacked experienced, the management

involved in the project were innovative, creative, passionate, and practical. They worked tirelessly to make the project a reality and cared very deeply about its success. It was their innovation and tireless effort that slowly caused the project to transform.

The team came to the realization that “ a notebook was not a piece of business equipment that someone operated; it was a personal object with which they formed a relationship. ” It was this realization that drove the project’s success. The project became not only about size but about ergonomics and about finding a way to form a connection with the user. It was with this approach that ingenious designs such as the center-mouse trackball and the use of curves took hold.

Slowly the PowerBook was morphed from a product simply meant to catch-up to the market to something that surpassed any other notebook available. The team also made several other key decisions that made the PowerBook a success. One key determination was to include the internal floppy drive. There was much discussion if this was a necessary component yet key members of the project argued for its inclusion and it was later determined the product would not have been nearly as successful without it.

Another key decision was dealing with the 150 issues that were identified after the prototype build. Originally, only 5 to 10 items were going to be changed. However after much discussion, it was determined the PowerBook would not be a success unless they fixed every last issue. To complete such a major overhaul in a short period of time they pulled all resources from the

entire portable organization and were able to complete all the modifications in a reasonable amount of time.

As one project member later admitted, fixing all 150 items turned the PowerBook into “ something that I would be proud of versus a piece of junk”. One final trait that the PowerBook team used to make the project a success was persuasiveness. There was organizational resistance throughout the project. From convincing senior management to embrace the ergonomic design to convincing manufacturing that they had the ability to assemble a computer with 47 screws, the team used persuasiveness throughout the project to eventually turn a vision into reality.

Apple ultimately took a big risk with the PowerBook and it paid tremendous dividends. Along the way they learned a great deal about listening to their customer and designing to their preferences. The company transformed from designing around homogeneous parameters to instead designing to the customer’s specific desires. Consequently, their product line became more flexible and adaptable to the marketplace. Apple also matured operationally during this process.

Prior to the PowerBook, the organization was not designed to be time-to-market, however necessity forced Apple to restructure to keep pace with competition. The company’s human capital also benefited heavily. Mobile computer experience was at a minimum prior to the project, however the process eventually led to a much smoother release of the Companion computer several years later. The PowerBook project was fraught with potential disaster. But inevitably the company overcame many adversities

and released a revolutionary product that redefined the standard of excellence in mobile computing.