

Managing Research and Innovation

Case Analysis: Silicon Graphics, Inc. (A).

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What would I do if I were in Ron Bernal's position?

(To ship or not to ship that is the question.)

If the answer is based on the technology facts, tacit knowledge of the company, financial conditions, competitors, working environments he faced I would make the same decision.

Here are why:

1) Financial Situation - SGI revenue growth and P/E:

SGI was the public trade company (1993), it was critical to satisfy the shareholders (or Fund Managers). Two indicators used in general were revenue growth and P/E ratio. The latest product released by SGI one year ago the sale started to stall (Crimson system with the single R4000 processor). The projected sales of 250 Challenge computer systems (\$200,000 each) would bring in \$50 million dollars for the 3rd quarter ended in March 1993. This would boost not only the revenue of the company but good P.R. for delivering the fastest high-end computers for the impatient customers. This condition maybe outside the scope of this case study, but I feel strongly this should be one of the main reasons that SGI would ship the computers in March 1993. If SGI was a private-held company, the charge to the volume/commercial applications' speed could be a little bit slower allowing more time for commercial applications to be debugged. The reliability is in general more important for banking system (commercial applications) since the users are more interesting in using the applications not how to push the system to perform faster.

2) Competitions:

To stay ahead of all other companies in the same categories (mini-computer market with high processing speed) in deliver this system would woo customers. To ship Challenge on time would create a controllable chaos for this market to fend off all the competitors like HP, DEC, IBM as well as SUN. With this revolutionary product, SGI believed that a new market would be created and to sustain it competitive advantage among its competitors. Without the new Challenge system, the SGI's Crimson system was the worse computer system in its peer group. SGI needed a computer system that outperformed others.

3) Customer perspectives:

With its advertised speed in the trade show, SGI's Challenge did generate huge responses from the traditional scientific communities as well as from other commercial applications (banking, telecommunications) that demanded high data processing speed. SGI business model (R&D and new products) was based on the needs from several selected key customers. These customers worked with SGI's engineers to improve and debug the SGI's products. These customers understood the SGI computer systems and mostly accepted not so perfect delivered SGI's products because they could discuss, correct the problems with the engineers assigned (worked on) the delivered SGI products. While the concerns were there about the commercial applications (the volume as well as the coverage on these applications with engineers), Ron Bernal was taking a calculated risk on these simpler applications because they might produce less software bugs.

4) SGI – on-time new product delivery with unique product development methodology.

This methodology consisted of three main components (a) Customer focus: the culture encouraged direct links between SGI engineers and its users. With these many customers' feedbacks, the enhancements delivered would surely satisfy its users. (b) Flexibility: The projects were driven by experienced engineers that knew how to set the project's feasibility and desirability with the involvement from sub-teams from manufacturing, engineering and marketing. The architecture defined was very flexible in designing of the new product with right boundaries that could accept both positive and negative surprises. (c) Speed: The deadline for SGI's products was fixed with details of the development processes changeable. The willing to pay premium as well as good relationship with its key suppliers also improved its time-to-market process. This no delay tradition could not be broken by an outsider like Ron.

5) Strategy shift

To survive the competition, SGI made a strategy change by announcing the entering of lower priced and high volume computer system business in annual report in 1991. The delivery of the Challenge computer system could signal the new strategy was working and the company was on the right track.

6) First outsider to lead the key project

Ron Bernal was the first outsider hired to lead this key project, he needed to deliver the Challenge computer system on time to prove himself.

With these many reasons, Ron Bernal had no choice but to ship the Challenge computer systems on time (March 1993). I would agree with him given these many facts provided from this case.

Was this SGI business model sustainable?

Now the shipment of the Challenge computer system had decided, but was this business model sustainable? With so many examples on the integral-Modular-Re-integral designs cycles in many different industries that decided what companies to survive while others struggled to exist. By analyzing the design architecture of SGI, we could identify at what stage was the SGI after the shipment of the Challenge computer system. SGI started the company as a niche high speed graphics computer company that outsources not critical components. With the only control on the key components, SGI was not an integral company to start the business, but it could be classified to be the internal modular company that built its own specific components. In the Everest project (Onyx and Challenge), the SGI engineers designed the new bus that improved the old computer systems' performance by 100 times with new architecture design of bus that could access 36 R4000 processors. What interesting was then they turned the specifications out the LSI logic to build this bus module. With the key component's specifications identified, and the measurement methods created and understanding of how the Challenge computer system worked could satisfy the move SGI took to become a modular design company.

Once a company enters the modular phase, it could start to outperform other peer company only if they are the first to the market and applies economies of scope to generate higher revenue with less cost. In the SGI case, that the culture (scientific oriented company), process (unique product development methodology) and value system (scientific customer oriented) in the company couldn't support this fast expansions to the high volume user-oriented computer applications. With the Challenge computer system, SGI was the first to market they could also by outsourcing all the components to gain the economies of scope advantage. But without transformation of their basic process/value system, SGI would have issues to cope with these high volume as well as these diversified commercial applications. The interaction among SGI engineers and the commercial applications users would be a problem for both. With the loss of customer-focus, the SGI won't be as successful and in the long run, other companies could catch up and replace SGI with cheaper cost components. Soon SGI could lose its competitive advantage and outperformed by other company. This business model is not sustainable.