

● 技術開発者に報いあれ!

世界有数の経済誌である *Forbes* で、*unsung hero* として取り上げられたフラッシュメモリの開発者である舩岡富士夫氏についての英文を読んで、東芝が彼の発明に対してどういう態度を取ったのかなどを読み取ってみましょう。



If you appreciate the convenience and speed with which you use your smartphone, computer, or other electronics, you can thank a whole cast of brilliant engineers. Some of these geniuses stand out more than others. Usually, they get rewarded quite handsomely for their revolutionary innovations. That was not the case of Fujio Masuoka, the inventor of flash memory.

Unfortunately, Toshiba, his employer, was reluctant to support his innovative ideas. Masuoka's main job was developing the DRAM technology. During regular work hours, Masuoka worked on DRAM, while on nights and weekends he worked on his own idea, flash memory. He first patented the idea for flash memory in 1980. In 1984, he was promoted for his work on DRAM. This promotion gave him the authority to go directly to the factory and have semiconductor chips made.

That same year, he drew a lot of attention from American semiconductor companies at the annual International Electron Devices Meeting (IEDM) in San Jose, California. Toshiba did not expect inquiries from many American computer companies as well as automobile companies requesting samples.

Among those companies was Intel, which devoted 500 engineers to work on the flash memory project, while Toshiba allocated only five employees to help Masuoka on a part-time basis. The company instead prioritized DRAM by assigning 60 engineers to assist Masuoka. Although DRAM was earning Toshiba \$500 million a year, Intel had quickly dominated the market for flash memory with \$500 million in sales a year.

In 1987, Masuoka developed a new type of flash memory that was compact enough to be used in mobile phones and other devices. The company didn't recognize his efforts until he was given a newspaper award for invention of the year in 1988. Only then did Toshiba reward him with only a few hundred dollars. Just as the new flash memory went on sale in 1990, Toshiba pressured Masuoka to accept another promotion. He viewed it as a demotion believing he was being punished for not being a team player and doing his own thing without permission.



Maunorng | Dreamstime.com

○ DRAM = Dynamic Random Access Memory
コンピュータなどに使用される半導体メモリの方式の一種。

○ International Electron Devices Meeting
半導体チップの製造技術に関する国際学会(日本語名はないようである)。

○ a newspaper award
具体的には、日刊工業新聞 10大新製品賞を指している。

By 1994, Masuoka quit his job at Toshiba to work at Tohoku University. In December 2001, Toshiba ended its sales of DRAM and focused on flash memory. At the time, Toshiba was earning more than \$1.2 billion a year from memory sales in a market worth \$76 billion. In 2006, Masuoka settled a lawsuit with Toshiba for compensation of the patent for flash memory. He demanded 1 billion yen, but settled with the company for 87 million yen.

This is not the only time that a Japanese company benefitted immensely from an employee's revolutionary creation. Shuji Nakamura, the inventor of the technology that leads to the development of blue LEDs, also ended up in a court battle with his company, Nichia Corporation.

It can be argued that one of the greatest strengths of Japanese industry is teamwork. For some companies, that means individual initiative can be frowned upon and discouraged by upper management. The question is: do the fruits of labor of Japanese employees belong exclusively to the company? At the very least, current and future managers should keep in their memories the history of flash memory.

(527 words)



MarkSwallow/iStockphoto.com

- Shuji Nakamura
中村修二 (1954 -) 2014
年に、赤崎勇氏、天野
浩氏と共同でノーベル
物理学賞を受賞。
- Nichia Corporation
日亜化学工業株式会社



イラスト: 佐々木健一

A 設問に答えなさい。

- 1) 次の語句の日本語の意味を答えなさい。

revolutionary innovation

reward

lawsuit

compensation

patent

- 2) フラッシュメモリ開発に対する Intel と東芝の人員の当て方の違いを日本語で説明しなさい。

- 3) Intel がフラッシュメモリの開発に精力をつぎ込んでいた頃、東芝の状況はどうでしたか。日本語で説明しなさい。

- 4) 舛岡氏が東芝を相手取って訴訟を起こしたのはどうしてですか。日本語で説明しなさい。

- 5) It can be argued that one of the greatest strengths of Japanese industry is teamwork. (1.49-1.50) を日本語に訳しなさい。

B 本文の内容に合うように、次の質問の答えを選びなさい。

- 1) What was Masuoka able to do in 1984 that he could not have done before? _____

- a) To work overtime on nights and weekend.
- b) To continue developing DRAM technology.
- c) To have his semiconductor chip made in the factory.
- d) To transfer to Intel.

- 2) What was Toshiba's priority in 1984? _____

- a) To work with Intel as a partner.
- b) To promote flash memory.
- c) To develop its DRAM product.
- d) To compete with American companies in DRAM technology.

C 本文の内容と一致しているものには T を、一致していないものには F を記入しなさい。

- 1) _____ Masuoka worked on DRAM at night and on weekends.
2) _____ Masuoka worked overtime hours developing flash memory.

- 3) _____ Toshiba had the largest share of the market for flash memory.
- 4) _____ A newspaper gave some money to Masuoka in 1988.
- 5) _____ Masuoka always asked permission to start a new project.
- 6) _____ Masuoka did not get the exact amount of money he requested from Toshiba in the lawsuit.

D 次の各文の () の中に入る語を右から選びなさい。

- 1) It could be () that laws are made by and for men.
- 2) His talents are not fully () in that company.
- 3) The train crash () the news.
- 4) They've () the best man to the job.
- 5) She () that I pay her immediately.

appreciated
assigned
demanded
argued
dominated

E 日本語に合うように与えられた語句を並べかえなさい。

私たちは、いま車を直してもらっているところだ。

our / repaired / we're / car / having

F 英文を聞いて、それぞれの英文の後に続くものを a～c から選び記号で答えなさい。



- 1) Fujio Masuoka was not satisfied with Toshiba because _____.
- 2) The company, Intel, dominated the market _____.
- 3) After Masuoka quit his job at Toshiba, _____.

「発明」や「特許」について学ぼう

舛岡富士夫氏の事例について、どのように感じられたでしょうか。英語本文にも記述がありますが、個人と会社との間で争いになった事例としては、中村修二氏—2014年にノーベル物理学賞を受賞—の件もよく知られています。これを機会に、「職務発明」、「業務発明」、「自由発明」といった発明に関わる用語の違いを調べてみてください。個人と個人の間で、どちらが先に発明したのが問題となる場合もあります。アレクサンダー・グラハム・ベルとエリシャ・グレイの「電話」の発明に関わる話をご存じかもしれませんが、今一度この事例を調べて、同時に「先発明主義」とか「先願主義」という特許に関わる言葉も理解しておきましょう。しかし、学生のみなさんに直接に関わるのは、大学等において学生が寄与した発明の取扱いかもしれません。これについてもインターネットなどで基本的なことを確認してみてください。