

“Mass Customization and the Technical Engineer”

Ishikawa National College of Technology

Sakura Minami

Asami Chikae

Soichiro Kato

1. Introduction

Hello. We are from Ishikawa National College of Technology.

I'm Asami Chikae, majoring in Electronics and Information Technology.

I'm Soichiro Kato. I'm also studying Electronics and Information Technology.

I'm Sakura Minami, majoring in Architecture.

And now we're going to talk about "Mass Customization". First of all, have you ever heard of Mass Customization? It is probably not a familiar word for most of you. So Ms. Minami will give you an idea of what it is, introducing an emerging process of car production as an example.

When you buy a car, you can choose not only the model but also aspects such as the colors of the body and upholstery, the navigation system, the car stereo components, and even the engine. You can customize the car with many different options. Nowadays there are not only those conventional production systems that produce cars of high quality in large quantities but also new systems that provide personalized cars with customized design, which are targeted at individuals. This system is what we call Mass Customization and we have noticed that the number of these new production supply systems is increasing. At the same time, we wondered why such a change has appeared.

In this presentation, we're first going to explain why the change's appeared, then what kind of results from the change we can see in today's society and finally in the future what we will have to do about the change. Now, Mr. Kato is going to talk about the background of Mass Customization.

2. Background

Take a look at this slide. This is the change of times from a manufacturing system standpoint. Since the Industrial Revolution had expanded to Japan, people had produced and consumed mass quantities of merchandise as a result of rapid

development of manufacturing technology. However, while the economy's size rapidly expanded, this system caused environmental issues as a result of a large amount of consumption of energy, overproduction and what we call a "throwaway custom," which we will explain shortly. Mass production means mass consumption of resources. And various environmental issues such as a large quantity of chemical waste and polluted water resulted from this process. Moreover, the availability to purchase in bulk resulted in this "throwaway custom" in which items could be easily replaced regardless of the need to do so. In the end it became clear that we had to have a new supply system.

3. Mass Customization

To solve the aforementioned problems, a new system is beginning to replace the old one, and the new system is what we call "Mass Customization."

In modern society, the new system is beginning to attract attention as a viable production supply system. Mass Customization is a system in which the production prices for objects are roughly as low as in the case of mass-manufacturing despite their being tailored to fit the needs of the customer.

Maybe the word "Mass Customization" sounds a bit abstract and technological to you but we can see various examples of Mass Customization in today's society. We're going to give you 3 examples of Mass Customization that the three of us have actually found in our daily lives.

4. Example 1 : Google News

First, Google News. Like I said, I'm a student studying technology. Using computers, I always read news online. Google News is a certain kind of newspaper available over the Internet, filled with the latest news from all over the world. On the Google News web site, you can customize the page to fit your needs by changing it to display news about which you are interested in first. Entertainment, Computers and Sports are what make up my own Google newspaper.

Today we can see more and more influences of Mass Customization on the Internet such as the advertisements on Amazon which are targeted at individuals and the offering of words associated with what you're searching for on Internet search engines like Yahoo and Google.

5. Example 2 : Houses

I'm majoring in architecture at my college, and as I learn about today's construction of

houses in Japan, I have noticed that many houses are built by mass customizing systems. These 4 houses have all different styles and proportions but they are all made with standardized materials. When you buy a house, you can select the size, exterior, interior, and other amenities in the kitchen or bathrooms. Like that, you can create your own house within a rather inexpensive budget. Perhaps you are living in one of them.

6. Example 3 : iPod

Moreover, Mass Customization can be seen in electronic devices. I'm studying Electronics and Information Technology, and I love electronic devices. I noticed that iPod, a popular music device, is one example of Mass Customization. Although the number of the iPods' cosmetic designs is limited, you can customize one by installing your favorite music after purchasing it, thus making it unique. This is my iPod. I always bring this wherever I go, not only to listen to my favorite music but also to learn English for example.

Cellphones and electronic dictionaries are also examples of highly customizable electronic devices. By observing your daily life carefully, you can find Mass Customization products all around you.

7. (DELL's) Business tactics

Mass Customization is not only a system that gives you a more convenient life but it's also a new effective business tactic. We are going to show a computer company, DELL, which became No.1 in the U.S and No.2 in the world in only 15 years. How did they do it?

They attempted to satisfy their customer, not depending on only high-technology like other companies but by simply anticipating the change of customers' needs. They had intermediate stocks as parts and assembled them immediately after accepting orders over the Internet. This manufacturing style made it possible to provide customized PCs for individuals at a surprisingly low cost.

What they adopted in response to customers' needs is exactly what we call mass customization. And now it is becoming the key to success in not only the computer industry, but many other industries as well.

8. Summary

We have talked about Mass Customization showing several examples. Here we are going to summarize our presentation.

We must put an end to the system of mass production and mass consumption because they have caused a lot of problems. Now, we need the idea of Mass Customization for the future of industry. As we can see from the examples mentioned, Mass Customization is an effective system not only as a business tactic, but also as a measure to prevent the environment from being harmed.

To adopt effective systems is very important for us, since we are going to be involved in industry's future. In the days ahead, the engineers who are aware of the possibilities of Mass Customization will be required. And we must become such engineers.

9. Observation

We, students at Ishikawa National College of Technology, are working very hard every day to become engineers of the future. Ms. Chikae is working on her graduation thesis entitled "Improvement of Interatomic Potential Function." Mr. Kato is still in the third year but planning to study ways of improving the web application system. And I'm working on restructuring plans for a local museum as a graduation thesis.

I'm sure most of you who are here today are, just like us, trying to become engineers as well. As students, we are supposed to gain a lot of specialized knowledge at college. But having done the research on Mass Customization, we believe we have also come to the place where we have to think about what good technology is in our age and what is needed to be a good engineer for the modern society, no matter what field you are in. Finally, we hope we can participate in creating a better future of industry as engineers with all of you. Thank you.