

Raising Motivation on the Factory Floor through Visualization of Results and Challenges

Industry	Manufacturing
No. of employees	145 ^{*1}
Sales revenue	2.01 billion JPY ^{*2}

^{*1}: As of April 1, 2018 ^{*2}: Fiscal year 2017

Issue

before introduction

Lack of effective improvement measures despite apparent uneven operations



Result

after introduction

Led by OTRS, standardized operations resulted in cost cuts of around 70,000 yen/month

Profile

Sun Aqua Toto Co., Ltd.

TOTO

- Established
February 1993
- Headquarter
1-Chome-2-1 Maigaoka, Kokuraminami-ku, Kitakyushu-shi, Fukuoka 802-0823, Japan
- Business Description
 - 1) Assembly of faucet/water supply and drainage fittings, etc.
 - 2) Creation of instruction manuals (DTP)
 - 3) Creation of CAD drawings
 - 4) Others (scanning, input of diverse data, etc.)



Interviewees

Mr.Shunsuke Tomoi

Chief Clerk, Assembly Charge, Assembly Sec, Production Dept.

Mr.Yoshimi Hirohata

Assembly Charge, Assembly Sec, Production Dept.

Mr.Akihito Kubo

Production Engineer, Assembly Sec, Production Dept.

Circumstances and Challenges

SUNAQUA TOTO Wanted to Analyze/Improve Production Unevenness, but Human Resources Were

SUNAQUA TOTO was established in 1993 as a special subsidiary under the third sector (public-private) system, jointly financed by Fukuoka Prefecture, Kitakyushu City and Toto. At SUNAQUA TOTO, 93 employees with disabilities (2/3 of all employees), out of which 47 have severe disabilities, work alongside non-disabled employees (as of April 2018).

"Based on the idea of normalization, we are seeking to increase the work performance and productivity of all employees," says Mr. Tomoi, who is the head of Assembly Charge, Assembly Sec, Production Dept.

Normally, 50 to 60 employees are engaged in the Production Department (Assembly), working on faucet fittings, water supply and drainage fittings and similar products which constitute the company's main line of business.

Although they prepare paper-based procedure documents for production, only the most important procedures are recorded rather than all the series of operations. As a result, operations and postures varied slightly from worker to worker, and fluctuations in production time occurred.

While they wanted to make a quantitative analysis of the situation and take improvement measures, visual analysis of movement requires considerable time and effort, and they were unable to take a first step toward improvement.



Why We Chose OTRS

Seeing the Results of Other Special Subsidiaries Encouraged Them to Try

At that time, their business partners recommended Broadleaf's work analysis and business optimization software OTRS. They learned that a special subsidiary (factory) of a large

manufacturer of home appliances, which, like Sun Aqua Toto, employs many disabled workers, had implemented OTRS with great results. Other decisive factors were watching the demo and seeing functions that could translate what they wanted to do into practice, the know-how of the vendor and the substantial support provided.

"The team in charge of production engineering is a small one covering a lot of tasks, from planning and design to business optimization, so they did not have any margin to watch recorded videos and analyze them thoroughly. However, when we saw the success story of another special subsidiary with similar concerns, we felt encouraged to try." (Mr.Tomoi)

He also claims they were fascinated by the large number of functions and ease of operability.

"During the demonstration, I went from wondering 'Could it do this?' to thinking 'It can do it easily' right away after listening to the simple explanation on how to use the product. I felt that with this product (and Broadleaf) we would have a strong support service and could be at ease after the implementation of the software," (Mr.Tomoi)

The Process of Adopting OTRS

Real Comparison Video and Data Led to Improvements on the Factory Floor

In April of 2018, after seeing the demo, SUNAQUA TOTO introduced the OTRS software. In May, they first analyzed the packaging operations (sealing gaskets, bolts, nuts, etc. in plastic bags) on toilet product parts by 7 workers. The work of 3 out of the 7 workers was videotaped, and a comparative analysis of their manufacturing process was carried out using OTRS.

"The way people worked varied slightly and as a result the total required time (for an average of 4 to 5 cycles) changed considerably, with the best time being 42 seconds and the worst 70 second," says Mr. Hirohata (Assembly Charge, Assembly Sec, Production Dept.).

In the Excel report summarizing the analysis results, the workers with the fastest manufacturing methods are shown in red, with additional explanations about the key to their speed (innovations) displayed in yellow. Feedback can be given to the workers by presenting this material as well as the videos of their work with the best and worst times displayed side by side on OTRS. The company then began implementing standardized operations based on a combination of the manufacturing methods with the best times.



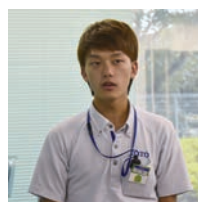
"Everyone thought their own method at the time, learned by trial and error, was the best. So, in many cases they would not accept spoken advice like 'If you do it like this you can finish faster,' and would reply 'No, this method doesn't fit me.' However, by showing them the comparison videos on OTRS, the very same workers were convinced by the persuasiveness of numbers (time measurements) and accepted the advice.

As a result, we were able to smoothly advance to the optimization step," says Mr. Kubo (Production Engineer, Assembly Sec, Production Dept.).

Benefits of Adopting OTRS

Cost Reduction and Definite Response to Factory Floor Awareness Reform

From May to August 2018, they achieved an average reduction of 5 seconds in production time as a result of the standardized operations derived from the analysis of the 3 workers. This brought about a cost reduction of about 70,000 yen per month to the company. Mr. Kubo also says that, while they cannot ignore the benefits of the procedure documents including videos created with OTRS to provide simple instructions to new workers, there was also a more essentially important outcome.



"The awareness of the workers changed a lot by understanding the concept of improvement. Even though we identified that certain workers with intellectual disabilities deviated a little from the standards, they replied, 'I was trying to see if I could do my work better.' We started hearing proposals on the factory floor like 'Let's keep trying this way if it doesn't work that way!' or 'Is it okay if I try to do it like this?' (Mr. Kubo.)

"Everyone wants to increase productivity and contribute to the company, no matter whether they have a disability or not. We could say that introducing a production analysis tool allowing us to visualize our own innovations yielded very good results in terms of igniting the desire to improve the factory floor in a way that feels rewarding." (Mr. Hirohata)

Looking Ahead

Proceeding with company-wide improvement efforts using OTRS

The Production Department of SUNAQUA TOTO works on the assembly of around 300 types of products. Going forward, they plan to expand their use of OTRS to production analysis and standardization for other products, the creation of training manuals and more.

"When I reported to the President on a series of initiatives in August, his response was, 'This seems to be useful for standardization and optimization of operations not only at the Production Department, but also at the Administrative Support Department (which is in charge of scanning, data entry, sealing and sending envelopes, etc.)'. In the future, I would like to take on the challenge of trying advanced uses for OTRS... Like for multi-axis analysis of the muda (waste) of different body parts." (Mr. Tomoi)

With the aim of promoting normalization, SUNAQUA TOTO's initiatives to optimize work regardless of whether employees have disabilities or not are attracting more attention.

Users' Voice

Workers are Making Improvements by Themselves and Their Enjoyment is Evident

I often make my way to the factory floor and asked "How are things going?", but lately, people have started saying "I'm X% faster today!", reporting how much faster they are than the standard time; something that never happened before. I was extremely pleased to learn workers were taking their own initiatives and enjoying their work like never before.



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