Using AI to increase workers' happiness

Hitachi

WBCSD Future of Work case study

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Summary

The happiness of individual workers has been proven to have a significant positive impact on business performance. Hitachi found a way of using Artificial Intelligence (AI) to measure happiness and launched a set of services to advise workers and managers on how to change their work-styles and improve their wellbeing, become happier and be more productive as individuals and teams.

Key figures

- 20 companies are using Hitachi's *AI Technology/H* to improve organizational activation levels.
- Hitachi's *Happiness Planet* app was tested by 1,475 people from 62 organizations.

Company background

Founded in 1910 in Japan, Hitachi Ltd. is a highly diversified engineering and electronics conglomerate counting 307,000 employees worldwide. Almost half of Hitachi's 80 billion USD revenue comes from business activities outside Japan. The company's mission is to contribute to society through innovative technological solutions.

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Future of Work challenge

The widespread habit of working long hours in Japan is not a new phenomenon and was a key driver of Japan's growth between the 1960s and 90s. However, the lifetime employment most workers enjoyed in those years is not a reality anymore, creating a combination of job insecurity and pressure to work overtime that contrasts with the need and increased demand for a healthy work-life balance and the proven correlation between workers' happiness and business performance.

Among the G7 countries, Japan ranks lowest in productivity levels in terms of GDP per hour.[1] In simple words, workers work too many hours for the output they produce. In order to boost economic growth, especially vis-à-vis a rapidly ageing population and increasing social security, healthcare and pension costs, Japan needs to boost its productivity.

With labor shortages a serious concern year over year, finding solutions to productivity shortfalls has been a key issue..

Business case

Beyond the Future of Work related challenges described above, a set of internal and external factors make it attractive for Hitachi to develop and deploy Artificial Intelligence (AI) to transform workstyles.

Internal factors:

- Increase productivity;
- Attract & retain talent by offering a modern work environment and workplace of choice;
- Myriad of use case scenarios for data collected through internet of things (IoT).

External factors:

- Develop tech-products and services for external clients;
- Apply lessons regarding dynamic workplace to future management decisions;
- Extrapolate lessons to other industries, catering to to their needs and wants;
- Comparison across organizations and sectors can contribute to identification of best practices;
- Contributing to workstyle reform policy, as recommended by the Japanese Government.

Hitachi's solution

Using AI to prove a correlation between worker happiness and productivity

In 2006 Hitachi, led by its Fellow, Dr. Kazuo Yano, began exploring the correlation between human workplace behaviors and productivity.

Through the use of wearable devices such as nametags and wristbands, Hitachi collected over 1 million days worth of data on the level of movements of workers and the interactions between them. AI was then used to analyze the data and automatically generate more than a million hypotheses, identifying and proving connections that humans could only assume or not even think of previously. Surveys and questionnaires on workers' happiness and

Photo 1 Wearable nametag to collect activity data. Source: Hitachi

[1] See BBC (2017), The Japan Times (2018), Tokyo Review (2018) and OECD data

wellbeing were used in parallel to compare the data and identify correlations.

> Three happiness and productivity rules identified by Hitachi's research:
>
> 1) Organizations with a high level of happiness also have a high level of productivity.
> 2) Happiness and financial performance are group phenomena.
> 3) Happiness is represented by a single measure, regardless of the type of work or the people involved.

Dr. Yano was able to prove a correlation between the bodily movements and behaviors of employees on the one hand, and the activation level of an organization on the other. As he explains, "We set happiness level as an index for this. Using this metric, based on data from questionnaires and sensors, we succeeded in quantifying the organizational happiness level." In fact, the research revealed that bodily movement patterns as measured by Hitachi's sensors, are the most reliable source of data, making surveys and questionnaires obsolete.

AI-assisted advice on individual workstyles

Building on these results, in 2015 Hitachi developed a new service to collect and analyze data, and use that data to advise employees on workstyle changes that improve their happiness. In 2018 Hitachi launched the beta version of *Happiness Planet*, an interactive app that adds an element of gamification in people's daily life and work experience: Every day, app-users choose a 'work-style challenge' tailored to the changes they want to achieve in their work-related habits.

Covering categories such as health, stress, concentration and communication, the work-style challenges to choose from include stretching during breaks, leaving the office earlier than usual, sharing lunch with colleagues or using positive words. At the end of the day, based on the data collected by wearable devices or the smartphone, the app provides feedback and helps people understand how the behavior change addressed in the day's challenge influenced one's happiness.

A second functionality of *Happiness Planet* is the possibility of competing with other teams in a fun and game-like way. The task is to complete work-style challenges and create a more active and happier workplace, for example by analyzing how time is being used, understand the implications of it, and utilize this knowledge to improve a team's work-style.

Photo 2 The 'Happiness Planet' app allows employees to choose a daily work-style challenge and receive advice. Source: Hitachi

In finding a correlation between unconscious body movement and happiness through data gathered via wearables, management can find innovative and effective solutions to organizational activation as well as improved well-being.

Results

Hitachi departments making greater use of findings from AI, exhibited an increase in organizational activation level and improved business performance, with some of the results including:

- next-quarter order volume targets being surpassed by 11%;
- 34% higher order rates at call centers;
- 15% higher sales in retail stores participating in the experiment.

20 companies are already using Hitachi's *AI Technology/H* to improve organizational activation levels, and 1,475 people from 62 businesses and public offices tested Hitachi's AI-based services.

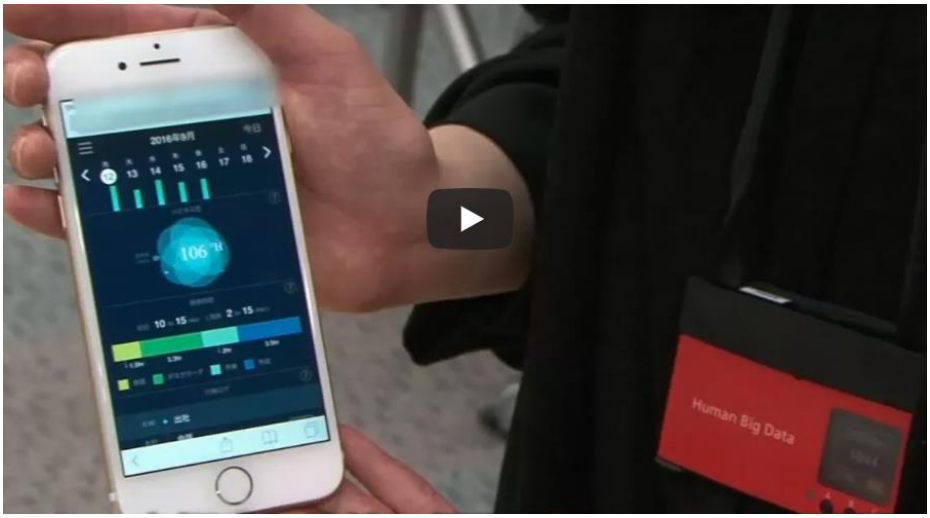
Challenges

The novel aspects of this concept and solution, particularly quantifying happiness and continuously measuring individuals was unfamiliar to most and for many people not easy to understand – at least at first.

However, the desire to be happy being universal, makes basically anyone a potential customer of Hitachi's application. This was crucial in increasing the number of people interested in this solution and willing to understand its value.

Key success factors

Besides the mentioned growth in understanding the potential of such an application, continued leadership and support for the subject and consistent investment in R&D were key success factors for the work carried out by Dr. Yano and his team.



(Click to watch) Hitachi's AI for Happiness approach explained

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