

TAIYO YUDEN



Investment Proposal

Team Quantotsubashi

Hitotsubashi ICS Class of 2019

Beng

Bharat

Sai

Wilson

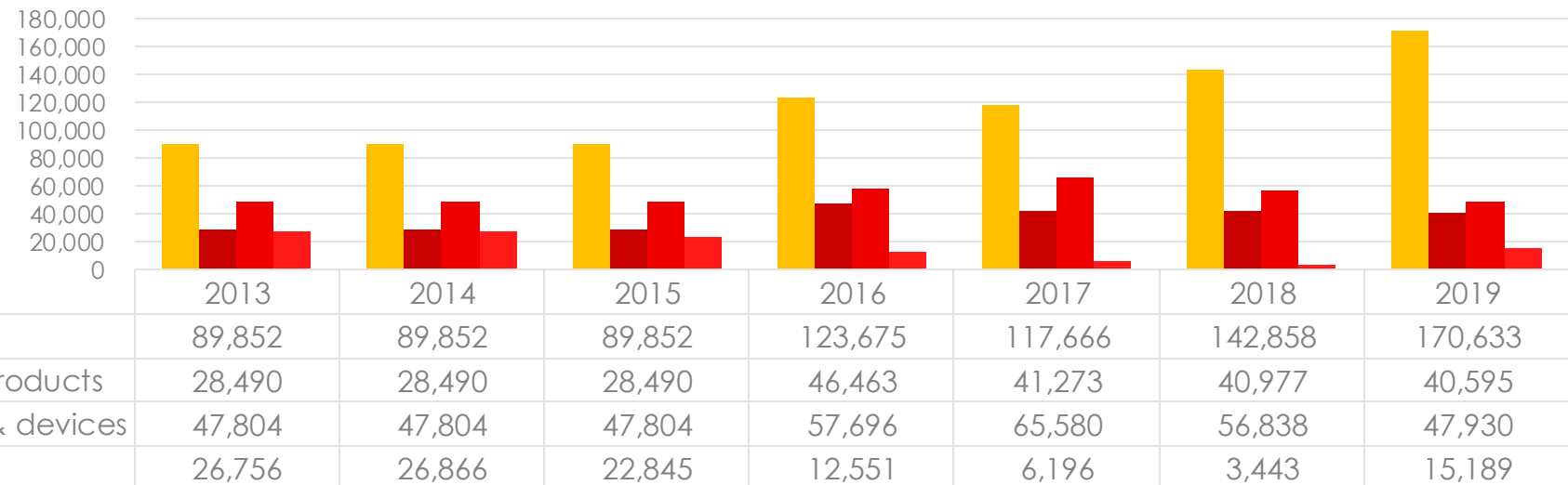
The Company-TAIYO YUDEN



Continued growth in demand as a result of greater electronics use

The company's main products are passive components based on ceramic capacitors and ceramic resistors, and assembly parts that are assembled with high-density technology using electronic components. The company's ceramic capacitors for personal computers and mobile phones have the world's second market share.

Sales by Products



Change in automobile landscape has become the key growth driver of TAIYO YUDEN

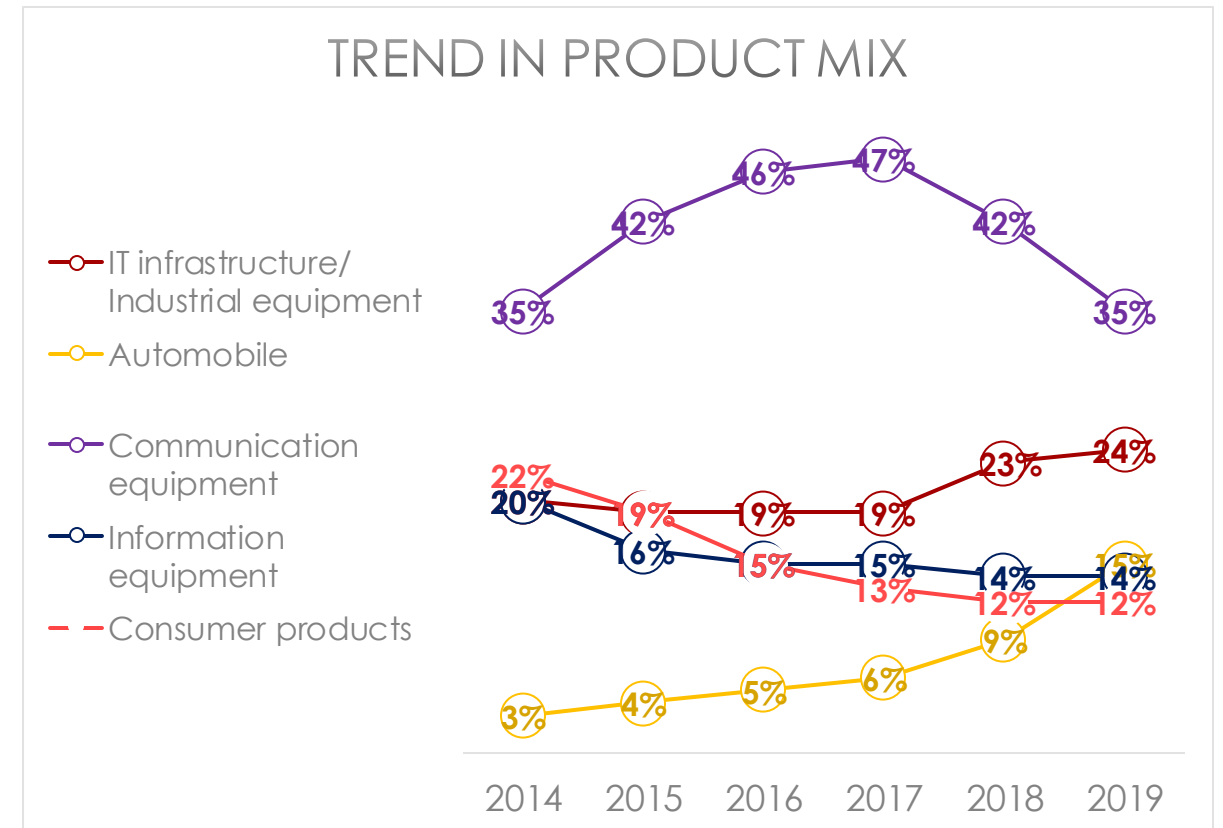
The impact of the embargo on Huawei's mobile phone has led to a significant decline in smartphone-side MLCC shipments, from 42% to 35%. However, the transformation of the automotive industry is bringing new growth momentum for passive component. Aside from new energy and self-driving vehicles, the increase in electronic applications to traditional vehicles will drive the shipment of high-end automotive MLCC, which is doubled its contribution to the total sales.

Growth in vehicle sales remain at low 2.1% according to IHS market. But the increase in autonomous cars will drive up the demand in high-end MLCCs, which were mainly dominated by Japanese vendors. Murata will be the most benefited, but as Taiyo has more potential for growth consider its current scale.

From the perspective of MLCC products, the number of smartphones used is 800, the number of laptops used is 800, the number of tablets used is 600, and the number of cars used is 5000-8000. From the point of view of usage, it is obvious that the demand for MLCC in the automotive field is more vigorous.

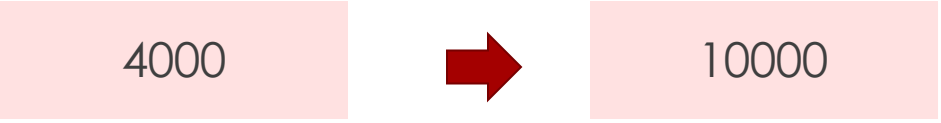
In early 2019, Taiyo Yuden decided to invest around 1.37 bn USD to expand its capacity, which is going to increase by 40%.

Source: Taiyo Yuden 2019 Financial Report



Greater use of electronics in the automobiles

MLCCs per Vehicle



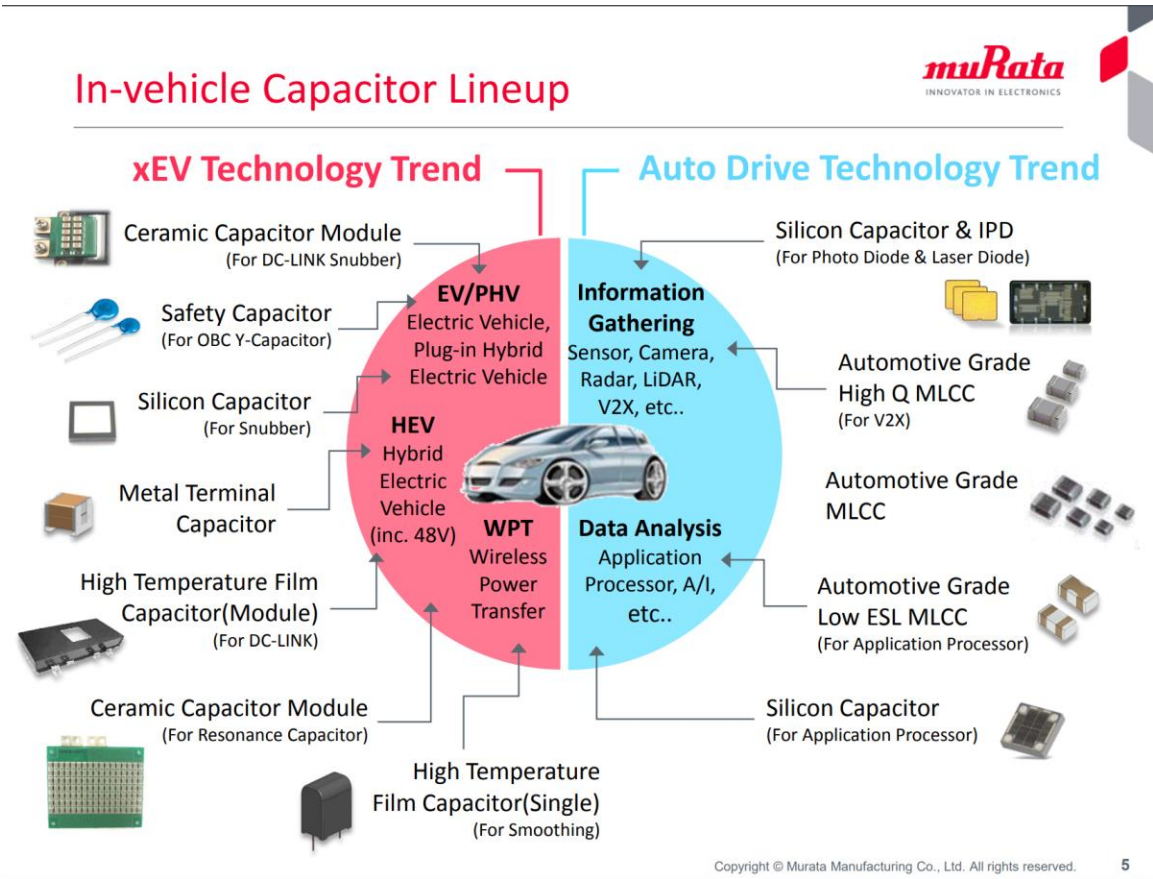
The power control engine, steering engine, idle stop, regenerative braking, engine drive and other electronic control circuits are all using the vehicle standard MLCC. The more control modules equipped to upgrade the traditional vehicle, the larger the number of MLCCs required. The current average is about **4,000 MLCCs per vehicle**.

In addition, the penetration rate of new energy vehicles is increasing rapidly.

Compared with traditional fuel vehicles, hybrid vehicles have added **control modules** such as hybrid/plug-in hybrid, micro-hybrid, and smart fuel-saving, greatly increasing the demand for high-capacity MLCCs. The demand for **MLCC is around 10,000**.

Source: ICHUNT.com,
" The car electronics +5G MLCC plant see big profit next year!"

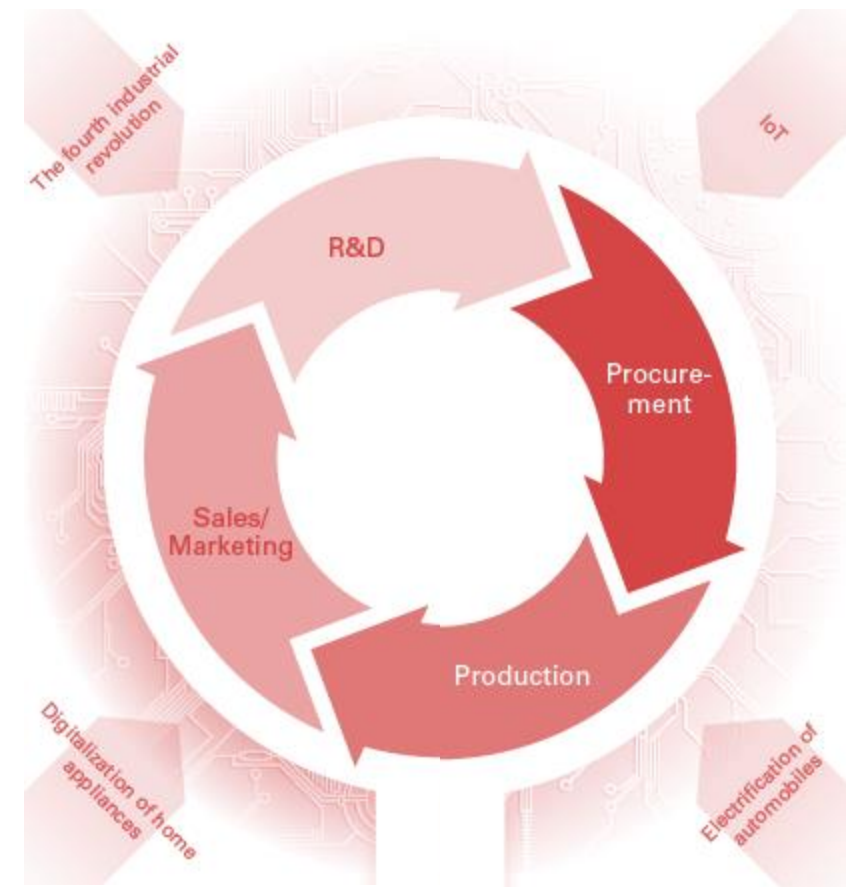
Key component for vehicles:



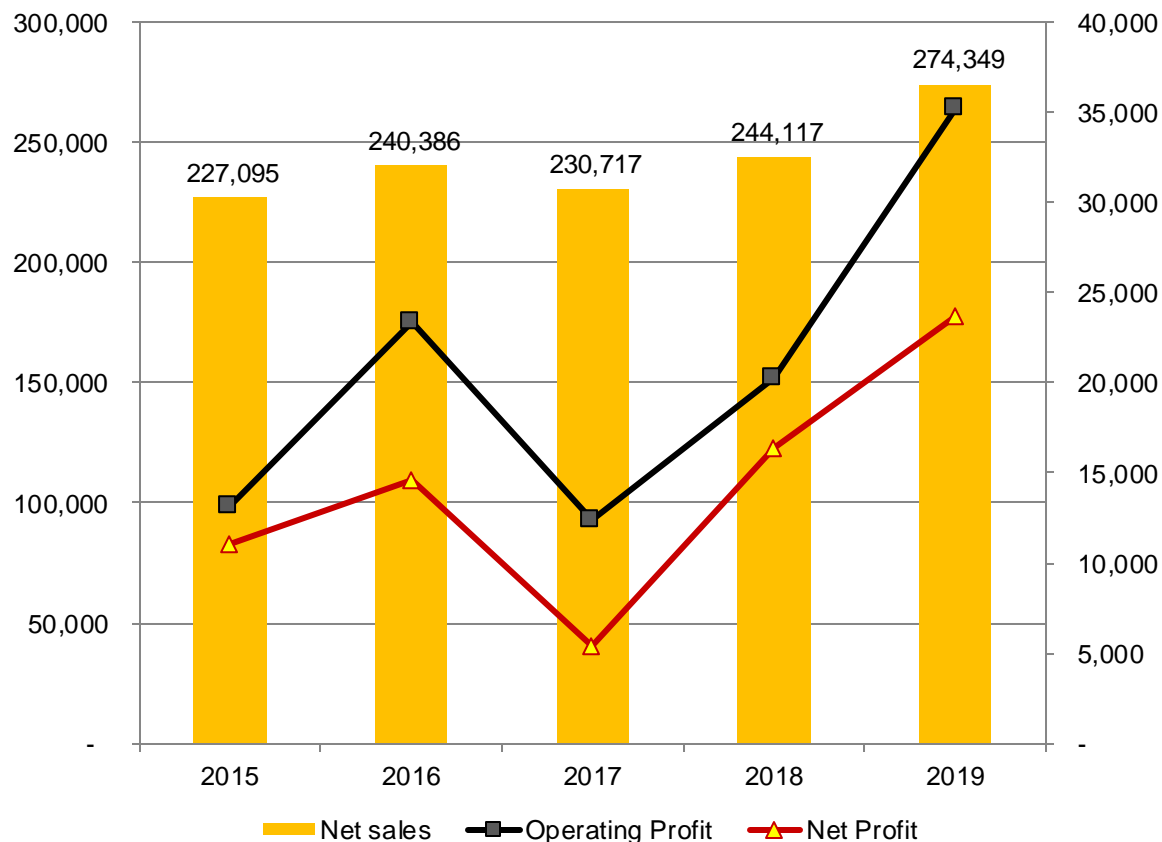
Source: Murata 2018 Stockholders' meeting slides

Key competitive advantage

- Taiyo Yuden strength is the technological Knowhow
- Using the strength of its knowledge it has built world-leading innovative products
- From the founding years Taiyo Yuden has followed a credo of starting from material development to complete end products
- Their research and development have been producing numerous worlds first innovations
- Taiyo Yuden has expanded to 15 countries
- Now the company is stepping up the production abroad to utilize its foreign bases

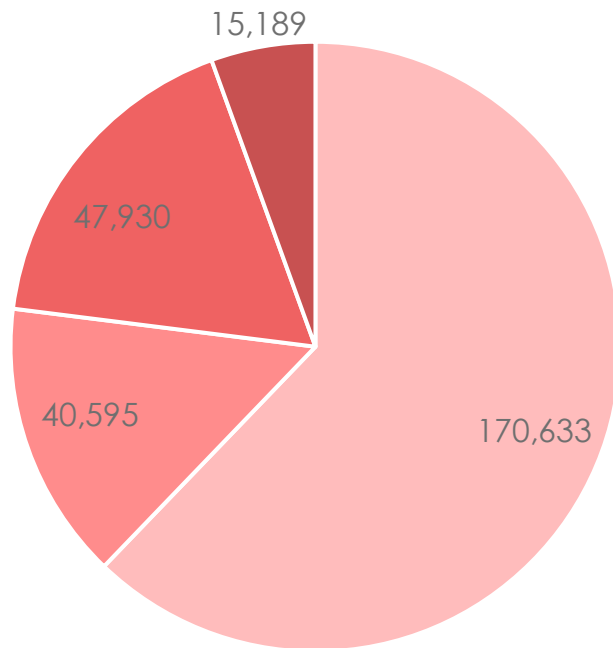


HISTORICAL GROWTH TRAJECTORY



- In 2019, net sales grew by 12% YOY due to the growth of the company's Capacitor Sales
- In 2017, drop in net sales coupled with execution of structural reform efforts caused the decline in net income
- In response to the company's forecast of an increase in demand for electronic components brought about by advances in IoT, it developed and implemented its smart.E Project which is meant to improve yields by eliminating inconsistencies in equipment and personnel with a goal of having zero defects by uncovering reasons for faults and malfunction and implementing immediate and proper corrective actions
- Net Profit CAGR surged by 21% from 2015 to 2019

2019 NET SALES COMPOSITION



■ Capacitors ■ Ferrite and applied products
■ Integrated modules & devices ■ Others

- Medium term strategy is built around its expectations on potential impact of an imminent IoT era where a wide variety of equipment is connected to the internet
- The company is positioning itself ahead of the huge demand for electronic components and data centers
- Important sectors where there could be reliance of potential sales include automobile, industrial equipment, smartphone and tablet devices, healthcare, environmental and energy sectors

ESG-Environmental Activities

Committed to Solving Social Issues

The International community came together at the United Nations Summit in 2015 to adopt and call on companies to work toward achieving 17 Sustainable Development Goals (SDGs).

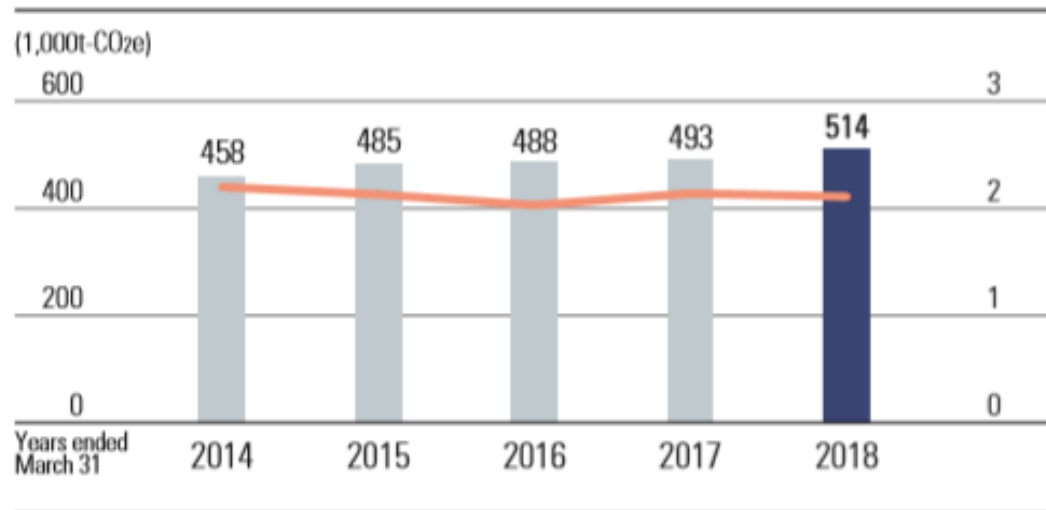
Reduce environmental impact:

From product research, development and design to materials procurement, manufacturing, sales, to after-sales service, etc.

Control objectives:

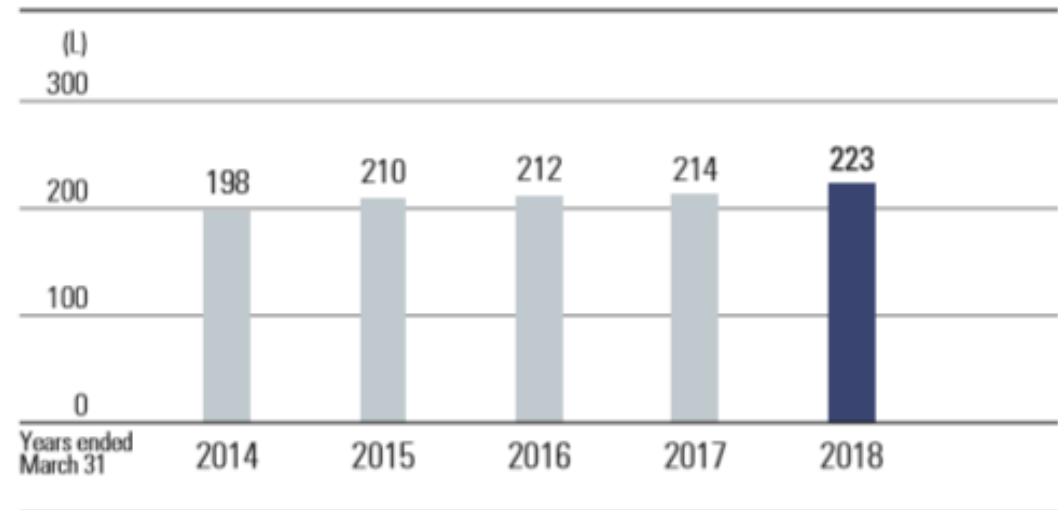
Reduce greenhouse gas emissions (based on reductions in output units).
Improve energy efficiency (based on energy savings in output units).

■ Greenhouse gas emissions (calculated from total energy consumption)



■ Emissions (left scale)
— Emissions per sales unit (right scale)

■ Energy Consumption (crude oil equivalent)



SOURCE: <https://www.yuden.co.jp/en/ir/2018ar/download/>

ESG-Health and Safety Activities

Based on the principle of safety and health, Taiyo Yuden Group is committed to eliminating work-related accidents and reducing significant risks.

“To achieve the new medium-term occupational health and safety goals as of March 31, 2019, we are proceeding to improve according to plan. 5M (human, machine, method, material, and measurement) project-level measures eliminate unstable conditions and unsafe behavior, leading to work accidents”

■ New Medium-term Occupational Health and Safety Targets

Results and Targets		5Ms for Medium-term Targets	
Incidence rate of injuries and illness Year ending March 31, 2019 Targets Less than 0.04		Man	Creation of “safe workplace” culture
Year ended March 31, 2018 Results 0.028		Machine	Bringing safety equipment activities to the world level (ISO, IEC)
		Method	Standardization of procedures for safe work
		Material	Minimization of toxicity and danger of chemical substances
		Measurement	Strengthening of checking system

SOURCE: <https://www.yuden.co.jp/en/ir/2018ar/download/>

ESG-SDGs Initiatives

SDGs (Briefed)	Effort
Promote quality education and lifelong learning	Workshop for students to develop an interest in science. Donation for the welfare fund for orphans and scholarships
Achieve gender equality	Promotion of women's participation and advancement
Sustainable management of water and sanitation	1. Used water treatment 2. Using recycling water
Access to affordable and sustainable energy	Providing solutions to improve photovoltaics efficiency using PV Micro Converter and monitoring system Generation of electricity with photovoltaic power plant to promote utilization of sustainable energy
Promote sustainable economic growth; Productive employment and decent work	Enhancement of safety working environment
Resilient infrastructure Sustainable industrialization	For enhancement of energy efficiency, development and supply the Lithium Ion Capacitor; long life and high capacity
Ensure sustainable consumption and production	Effective Use of Natural Resources 3R activities (Reduce, Reuse, Recycle) of waste and water resources considering biodiversity and coexistence between humans and nature Reduction of energy use to curb global warming Annual reporting on sustainability activity
Promote peaceful and inclusive societies for sustainable development	Identification and assessment of conflict minerals, and sourcing responsible minerals

SOURCE: <https://www.yuden.co.jp/en/ir/2018ar/download/>

Long-term Competitive Advantage through Human Resource Strategy

Recognizing people diversity by providing an environment for continuous learning and self-growth without fear of failure

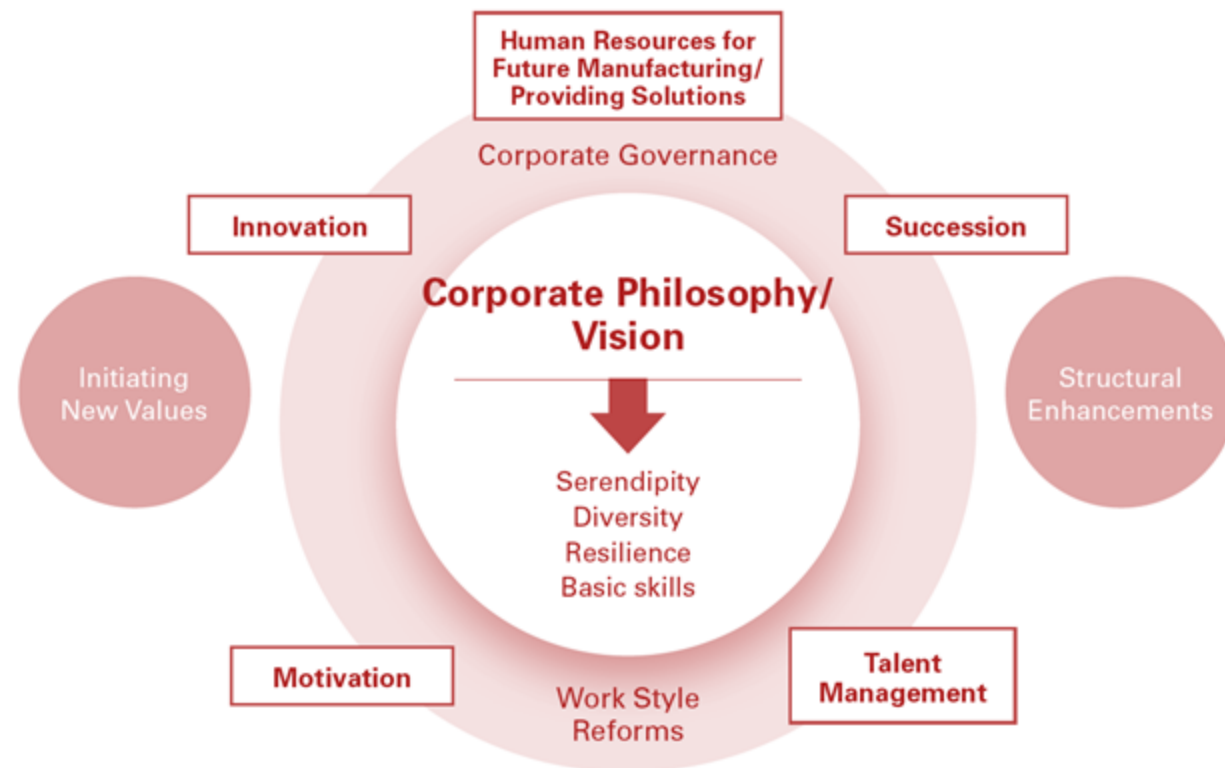
Analysis of Taiyo Yuden Group's HR policies shows solid vision and a keen foresight of future economic and social trends

Taiyo Yuden Group's HR strategy is forward-looking and aligned to its long-term vision for success

- Global workforce able to perform in a variety of cultural settings
- Promotion of women in the workforce through active marketing, educational programs and proactive acceptance of female interns
- Failure-friendly culture aimed to build resilience in employees
- Educational environment for continuous learning

Case studies of success include:

1. Developing Next Generation of Leaders through Executive Coaching
2. Global Human Resources Development
3. Manufacturing Personnel Training



DCF VALUATION

	2018	2019E	2020E	2021E	2022E	2023E
Net sales	244,117	274,349	311,977	327,576	343,955	361,153
Cost of sales	(182,165)	(192,084)	(215,264)	(222,752)	(230,450)	(241,972)
Gross margin	61,952	82,265	96,713	104,824	113,505	119,180
SG&A	(41,731)	(47,026)	(53,036)	(55,688)	(58,472)	(61,396)
Operating margin	20,221	35,239	43,677	49,136	55,033	57,784
Other expenses	(3,866)	(11,551)	(4,173)	(4,173)	(4,173)	(4,173)
Net profit	16,355	23,688	39,504	44,963	50,860	53,611
NP%	7%	9%	13%	14%	15%	15%

FCFF	2018	2019E	2020E	2021E	2022E	2023E
Net Profit	16,355	23,687	39,504	44,963	50,860	53,611
Depreciation	25,589	26,547	27,874	29,268	30,731	32,268
WC changes	(7,418)	(4,416)	(4,637)	(4,869)	(5,112)	(5,368)
CAPEX	(24,549)	(38,570)	(40,000)	(40,000)	(40,000)	(40,000)
FCFF	9,977	7,248	22,741	29,363	36,479	40,512

Gearing	0.12
Cost of Debt	1.23%
Beta	1.62
Cost of Equity	12.32%
WACC	12.24%
3Y DCF	69,374
Discounted Terminal Value	406,476
Total Value	475,850
No. of Shares	130
Value per share	3,654

- We target a 28% increase in share price from JPY2,861 (November 1, 2019 close) to JPY3,654 using Discounted Cash Flow method
- Gearing ratio as of March 2019 was used in determining the weights of long-term capital
- Cost of debt is assumed to be at 1.23% while cost of equity is projected at 12.32%
- We chose a beta of 1.62 to reflect recent volatility
- Equity risk premium is at 7.59%
- Risk-free rate of return was set at -0.22% which is within range of current 10Y Government Bond
- We also made certain assumptions such as continuous increase in Net Sales on the back of stronger demand of “Focus Markets” that may leverage on IoT and full deployment and implementation of smart.E Project which may have an impact on reduction of costs

Thank You