The Semiconductor Industry: Changed and Unchanged

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My 40 years in the industry

1977
I joined TEL™
Apple II and Intel 8085 introduced

Apple II
Intel 8085 8-bit Microprocessor
TEL-Thermco Horizontal Diffusion Furnace

## 2017 vs. 1977

<table>
<thead>
<tr>
<th>Category</th>
<th>1977</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>World population</td>
<td>4.2B</td>
<td>7.4B</td>
</tr>
<tr>
<td>WFE</td>
<td>&lt;$2B</td>
<td>$40B</td>
</tr>
<tr>
<td>TEL sales</td>
<td>&lt;¥20B</td>
<td>¥800B*</td>
</tr>
<tr>
<td>Technology node</td>
<td>3μm</td>
<td>10nm</td>
</tr>
<tr>
<td>My age</td>
<td>27</td>
<td>67</td>
</tr>
</tbody>
</table>

*TEL’s FY 2017 ended March 31, 2017*
Assuming 2017-2057 CAGR 7% and 5%

Source: WSTS (1986~2017F), TEL
The singularity in 2027

The biggest paradigm shift in human history
We are now at an inflection point on the way to 2027
Interface: Edge computing

Medical device, smartphone, wearable, sensors, etc.

Experience and Feeling

AR/VR
Intelligence: Fog computing

Autonomous driving
Smart factory

Security and Latency
Infrastructure: Cloud computing

5G Network

Cloud, Datacenter

Cost and Volume
We will observe device & system evolution in computing on the way to 2057
Past: Evolution of semiconductor devices as parts

Already achieved superior performance than human parts individually
Now: Pursue “super integration” in addition to “specialty”

It’s time to make a pizza! = Innovation as a system
“Neumann plus Neuromorphic” will create the true intelligence
It will be in the future, rather than the past, that the semiconductor industry creates the intelligence to extend capability of human beings
My view of the industry

Mission:
Contribute to human & social evolution
Core-competence:
Technology innovation & global care
Shared value:
Venture spirits, competition, collaboration

Healthy competition & global collaboration is the key to success
We know:

Semiconductor is still in a budding stage waiting to bloom. Healthy competition heals dissatisfaction of technology. Collaboration makes innovation.
We know:

We shape the future