Old Wine in a New Bottle? Why Innovation Must Start From Within

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World's first driverless taxi trial kicks off in Singapore

The service was part of an ongoing trial by nuTonomy, which was started by MIT Technology researchers now based in Singapore.

With that, the start-up won bragging rights as offering the first commercial rides to the public in the world. Giants such as Uber which will trial a fleet of driverless cars in Pittsburgh in June, are yet to win official approval.

It now has just one driverless car - a Mitsubishi i-MiEV - that has been approved by regulators. Another - a Renault Zoe - is pending approval, and four other Zoes are being prepared to be driven autonomously. The fleet will eventually expand to 75 by 2018.
A*Star to launch Singapore first open innovation lab

The first-of-its-kind A*STAR Central, which will be formally launched on Sept 21, already has 10

By Jacqueline Cheok
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FOR six months now, a first-of-its-kind “open innovation lab” and tech incubator in Singapore has been quietly in play, wooing startups in the medtech and biotech sectors.

A*STAR Central was opened in March by ETP, the commercialisation arm of government science and research agency A*Star. The 980 sq metre facility will officially be launched on Sept 21 as part of the inaugural Singapore Week of Innovation & TeChNology (SWITCH).

Sidney Yee, executive vice-president of A*Star’s incubation and startup management division, said that A*STAR Central has since its March opening been focused on building a critical mass. It seeks to kickstart the growth of the nascent medtech and biotech sectors here, and the big goal is to foster a robust, sophisticated medtech and biotech community.

In a recent interview with The Business Times, Dr Yee said that for now, the government will take the lead in encouraging startup activity in these two sectors. The private sector is unlikely to jump in, given the high costs and uncertainties involved.

She said: “The investment (into the medtech and biotech sectors) is not trivial. The private sector is not going to invest and ‘see how’. Government agencies are thinking the same thing – they don’t want a white elephant. But if we don’t do this, (growth in the two sectors) will never happen.”

Now is a good time, she added, as there is a timeline of A*Star spin-offs.

A*STAR Central, sited in Block 79 at the JTC LaunchPad @ one-north, can incubate up to 25 startups, in which it will take no equity, only membership fees. The 10 on board now comprise medtech, biotech and Internet startups. Dr Yee said the mix can inspire “managed serendipity”. This is because when different technolog-

Mondelez International to expand R&D centre in Jurong

By Nisha Ramchander
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FOOD and beverage group Mondelez International is expanding its research and development (R&D) centre in Jurong, in line with plans to build a network of nine big centres worldwide to foster growth and innovation.

The company is investing S$10 million towards overhauling the centre. Mondelez will break ground on the Singapore facility in November, and it is expected to contribute US$30 million to group revenues, which total around US$30 billion.

In all, Mondelez is investing US$65 million to build a network of nine big strategic technical centres, of which three are located in the Asia Pacific, underscoring the region’s importance to the group.

Besides Singapore, the other two will be in Thame, India, and Suzhou, China. Trevor Kerle, director of R&D for the confectionery category at Mondelez, will oversee this initiative.

S’pore, Switzerland to enhance cooperation on fintech

THE Monetary Authority of Singapore (MAS) and the Swiss Financial Market Supervisory Authority (Finma) have linked a cooperation agreement to work more closely together on fintech.

The cooperation pact between MAS and Finma provides a framework for innovative fintech companies in both countries to expedite initial discussions on introducing new fintech solutions in each other’s market and understand regulatory requirements. MAS said in a release on Monday.

This will help to curb regulatory uncertainty and the time to market for new fintech solutions.

The agreement will help to develop opportunities for fintech companies from Singapore and Switzerland to expand into each other’s markets. Finma and MAS have also committed to share information about emerging fintech trends and regulatory issues related to innovation.

The initiative was launched at the second financial dialogue between MAS and Switzerland’s State Secretariat for International Financial Services (SIF). The annual dialogue aims to deepen bilateral cooperation and exchange views on domestic and international financial market developments and policies.

The dialogue was led by ambassador René Weber, head of the markets division in SIF, with representatives from Finma and the Swiss National Bank. Jacqueline Loh, deputy managing director of MAS, headed the Singapore delegation.

The dialogue covered current trends in the global economic and financial markets, international financial regulatory reforms as well as financial industry developments.
Singtel unit launches 2nd instalment of startup programme

By Amit Roy Choudhury

SINGTEL Innov8, the wholly owned corporate venture capital fund of Singapore Telecommunications Group, announced on Tuesday the second instalment of its Innov8 Connect programme that brings startups in contact with companies within the ambit of the tech group.

The objective is to create innovative solutions for business challenges, according to a spokesperson of Singtel. The fund has a fund size of $250 million and is one of the largest in the Asia-Pacific region.

Talking about the programme, Singtel Group's chief technology officer, Mr. Yeo Siew Chong said that Innov8 Connect started as a 'win-win platform' to help startups develop viable business solutions while allowing the Singtel Group to gain ideas that could be used in their operations.

Singtel's latest round of startups is designed to focus on potential use cases for 5G, blockchain, and artificial intelligence.

Mr. Chong added: "We look forward to working together on the connectivity challenges and solutions that startups bring to the table." He also expressed his hope that startups would help Singtel Group to stay ahead of the curve in terms of technology and innovation.

Selected startups will be provided with $100,000 seed fund and will work closely with Singtel's partners across the globe.

Accelerator set up for aerospace start-ups here

Paris-based Starburst wants to make Singapore its gateway to Asia

Chia Yan Min

Economics Correspondent

Singapore's first accelerator for aerospace start-ups will take wing next week at a major tech industry event.

Paris-based aerospace accelerator, he told The Straits Times. "We are opening the doors to more people so more people can come and play in this industry.

Starburst has offices in Paris, Munich and Los Angeles, and intends for Singapore to become its gateway to the rest of Asia as it expands its operations in this region. "The next big thing in the aviation industry is the rise of the unmanned aerial vehicles (UAVs)," said Mr. Martin Enlil, a serial entrepreneur who started his first firm here in the hydrogen fuel cell industry in 2003.

The company intends to expand globally from its base in Singapore. It has set up a unit in Austin, Texas, in February to focus on startups in the US.

Investor firms Hera Capital and DSG Consumer Partners will take up undisclosed minority stake

SaladStop! plans healthy growth with $5m raised

M.S. Foty is developing online and mobile platforms to "abate the waste of customer's experience," which will only be able to tap your phone when you need it. "If you're only going to use it once or twice, it will remain an investment. We've got to keep it simple and in the Philippines, our signs are out there for you to open up. We have three new outlet chains each year for the past few years, it has helped to make the products available across more distribution points, such as food centres and offices. Outside of the Republic, Salad Stop is slated to open in about 11 countries by the end of 2018. The company expects to have 60 outlets across Asia by the end of 2018, and plans to introduce its products to more countries in the near future.

SaladStop was founded by Mr. David Wall and his wife, Lin Yee, in 2005. The family-owned company, which employs more than 100 staff here, has seen double-digit growth every year since the opening of its first outlet in Marina Square.

SaladStop's founder, Mr. David Wall, said: "Two or three years ago, the Singapore market was already getting saturated, and those were the same challenges that exist now. That is something that is pushed up to a new level. For SaladStop, we have to think outside the box.

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- Panasonic vertical indoor farms grows 30 different crop varieties in Singapore.
- Production time is halved – lettuce production takes 30 days.
- Improved shelf-life for products (up to 2 months)
- Uses 60% amount of energy resources as conventional farming
- Utilizes soil-based and hydroponics
- Intense R&D on light exposure, soil patterns, etc.
Uses simple design innovations in their urban vertical farm

- 95% lesser water,
- 10x more yield;
- 75% less input,
- $0.05 of electricity per kg of vegetables
- 40w of energy 12L per kg
Where are the challenges?
## Singapore’s Manufacturing Sector

### Global Manufacturing Competitiveness Index: Country rankings

**Table 1: Global CEO survey: 2016 Global Manufacturing Competitiveness Index rankings by country**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>2016 (Current)</th>
<th>Index score (100=High) (10 = Low)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td></td>
<td>100.0</td>
</tr>
<tr>
<td>2</td>
<td>United States</td>
<td></td>
<td>99.5</td>
</tr>
<tr>
<td>3</td>
<td>Germany</td>
<td></td>
<td>93.9</td>
</tr>
<tr>
<td>4</td>
<td>Japan</td>
<td></td>
<td>80.4</td>
</tr>
<tr>
<td>5</td>
<td>South Korea</td>
<td></td>
<td>76.7</td>
</tr>
<tr>
<td>6</td>
<td>United Kingdom</td>
<td></td>
<td>75.8</td>
</tr>
<tr>
<td>7</td>
<td>Taiwan</td>
<td></td>
<td>72.9</td>
</tr>
<tr>
<td>8</td>
<td>Mexico</td>
<td></td>
<td>69.5</td>
</tr>
<tr>
<td>9</td>
<td>Canada</td>
<td></td>
<td>68.7</td>
</tr>
<tr>
<td>10</td>
<td>Singapore</td>
<td></td>
<td>68.4</td>
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</table>

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>2016 vs. 2020</th>
<th>Country</th>
<th>Index score (100=High) (10 = Low)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(▲ +1)</td>
<td>United States</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>(▼ -1)</td>
<td>China</td>
<td>93.5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(⇔)</td>
<td>Germany</td>
<td>90.8</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>(⇔)</td>
<td>Japan</td>
<td>78.0</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>(▲ +6)</td>
<td>India</td>
<td>77.5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>(▼ -1)</td>
<td>South Korea</td>
<td>77.0</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(▲ +1)</td>
<td>Mexico</td>
<td>75.9</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>(▼ -2)</td>
<td>United Kingdom</td>
<td>73.8</td>
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<tr>
<td>9</td>
<td>(▼ -2)</td>
<td>Taiwan</td>
<td>72.1</td>
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<tr>
<td>10</td>
<td>(▼ -1)</td>
<td>Canada</td>
<td>68.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Deloitte Touche Tohmatsu Limited and US Council on Competitiveness, 2016 Global Manufacturing Competitiveness Index
Examining the drivers of global manufacturing competitiveness

Figure 6: Global CEO survey: Drivers of global manufacturing competitiveness

Market forces:
- Talent
- Cost competitiveness
- Workforce productivity
- Supplier network
- Legal and regulatory system
- Education infrastructure
- Physical infrastructure
- Economic, trade, financial and tax system
- Innovation policy and infrastructure
- Energy policy
- Local market attractiveness
- Healthcare system

Source: Deloitte Touche Tohmatsu Limited and US Council on Competitiveness, 2016 Global Manufacturing Competitiveness Index
## P&I Benchmark Findings (215+ SMEs)

<table>
<thead>
<tr>
<th>Category</th>
<th>Technology &amp; Capital Utilisation</th>
<th>Pay &amp; Performance Management</th>
<th>Training &amp; Development</th>
<th>Innovation Culture</th>
<th>Government Policy &amp; Regulation</th>
<th>Leadership &amp; Management Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers &amp; Electronics</td>
<td>4.2</td>
<td>4.6</td>
<td>5.7</td>
<td>7</td>
<td>5.6</td>
<td>5.4</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>4.2</td>
<td>4.8</td>
<td>6.2</td>
<td>7.4</td>
<td>5.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Chemicals &amp; Chemical Products</td>
<td>3.9</td>
<td>4.6</td>
<td>5.6</td>
<td>6.9</td>
<td>5.2</td>
<td>5.6</td>
</tr>
<tr>
<td>Machinery &amp; Equipment</td>
<td>3.9</td>
<td>4.6</td>
<td>5.3</td>
<td>6.8</td>
<td>5.2</td>
<td>5.4</td>
</tr>
<tr>
<td>F &amp; B</td>
<td>3.7</td>
<td>5.2</td>
<td>5.9</td>
<td>7.4</td>
<td>5.3</td>
<td>4.8</td>
</tr>
<tr>
<td>Fabricated Metal Products</td>
<td>4.1</td>
<td>4.4</td>
<td>5.4</td>
<td>6.6</td>
<td>4.8</td>
<td>5.3</td>
</tr>
</tbody>
</table>
Finding 1: Firms are supportive of employee level involvement on a problem-basis. There is lesser empowerment to take initiative and seek innovative solutions at the process or product/service level.
Finding 2: Employees are encouraged to seek new markets for existing products and services, but have little or no say when it comes to process or product/service improvement – innovation, in simple.
Finding 3: Firm-level communication with employees is a concern given the low primary mode of communication avenues that exist between employees and management and the poor use of secondary communication avenues. This is in contradiction to (1) wherein firm leaders say employees are encouraged to innovate; yet, the modes of such communication are unclear.
Finding 4: Firms tend to be problem-oriented with poor internal communication mechanisms, limited investment in effort that is research and development oriented and collaborative; and, to a large extent exhibit behaviour that is inconsistent with open innovation.
Finding 5: A very small proportion of firms are risk takers with an overwhelming majority of firms still being cautious about innovation. This cautious nature can also be a result of a risk-averse and poor-communication firm culture.
Finding 6: With challenges to traditional business models and the technological advancements that have become available, such poor uptake of technological tools and even poorer application of automation technologies is resulting in the poor productivity of the sector.
Finding 7: Such firm-level practices, with regard to new technology assessment and uptake, is causing Singapore’s manufacturing sector to be less than cutting-edge when compared to other advanced economies.
Finding 8: Despite these beliefs, the empowerment and encouragement of employees to take initiative is limited; firm level collaboration with R&D activities is poor and despite the availability of state-of-the-art technology in Singapore, firms do not spend time to assess and invest in such advancements.
(one) Conclusion

Mismatch between organisational rhetoric (idea) and action (implementation) resulting in a less than optimum firm-level innovation culture which inhibits value co-creation

- communication, employee empowerment & discretion, limited emphasis on R&D, limited tolerance towards risk taking, technology adoption, benchmarking firm level practices.
To-Do’s

1. Make time for innovation

2. Create an enabling work culture

3. Get ready to unlearn and re-learn