MEDIA RELEASE

A*STAR DEEPENS TECHNOLOGY ADOPTION FOR SMES THROUGH NEW INITIATIVES

*A*STAR announces joint initiatives with SPRING Singapore and signs two MoUs with Singapore Productivity Centre and NTUC Health.*

Singapore – A*STAR's annual SME Day saw a continued drive to deepen technology adoption through new partnerships with SPRING Singapore, and the signing of two Memoranda of Understanding (MoU) with Singapore Productivity Centre and NTUC Health. The event was graced by Guest of Honour, Minister S. Iswaran, Minister in Prime Minister's Office, and Second Minister for Home Affairs and Trade & Industry.

Recognising the important role of SMEs in Singapore's economy, A*STAR continues with its efforts to drive technology transfer and adoption to SMEs. This is done through key initiatives such as Growing Enterprises through Technology Upgrade (GET-Up) and the Technology Adoption Programme (TAP**),** and simplified licensing for SMEs to help with commercialisation and increased speed to market. Details of GET-Up and TAP are available in **Annex A**.

Mr Lim Chuan Poh, Chairman of A*STAR, said: "A*STAR will continue to work closely with the SME community to help them achieve innovation and productivity driven growth and to remain competitive. To date, more than 900 SMEs have benefited from A*STAR's Technology Adoption Programme, launched only two years ago, with an average productivity gain of over 20 per cent. At the same time, the GET-Up programme has helped over 490 companies with more than 550 researchers and scientists seconded to local enterprises. We will intensify our efforts to support SMEs and help them maintain a competitive edge."

Whole-of-Government Approach: A*STAR partners SPRING Singapore to support SMEs

As part of a Whole-of-Government initiative, A*STAR is collaborating with SPRING Singapore to drive wider adoption of A*STAR's Ready-to-Go (RTG) technology platforms, which will help SMEs achieve overall innovation and productivity gains. Through this collaboration, A*STAR and SPRING Singapore will work with local

private System Integrators[1] to customise selected RTG technologies into meaningful solutions according to industry needs and deploy them to SMEs. A*STAR will license its RTG technologies or provide technical expertise through its secondment of researchers or project collaborations to SMEs, while SPRING Singapore will provide funding support for SMEs to adopt these solutions.

This private-public partnership approach allows private sector System Integrators to further customise these technologies for wider adoption by SMEs with a multiplier effect. The intended result will be an increase in the deployment of technological solutions among SMEs across multiple sectors for better productivity.

SPRING Singapore and A*STAR's Data Storage Institute (DSI) also launched a pilot project to strengthen the business performance of the Testing, Inspection and Calibration (TIC) industry. Known for its data-driven business nature, the industry requires intensive collection and analyses of data before generating test results for customers. To raise productivity in carrying out these processes, DSI has been developing smart information management systems for nine local SMEs by leveraging its information system integration technologies under the year-long pilot project. More information about the pilot project is available in **Annex B**.

SMEs using these smart information management systems will be able to save 30 per cent of time originally spent on data management. The project's aim is to develop secure, scalable productivity solutions for SMEs to process and manage test data, and develop reports for their customers. Some of these SMEs include those involved in calibration services, non-destructive testing, food microbiological and chemical testing. A case study of a company that implemented the smart information management system is available in **Annex C.**

Encouraging more technology adoption in the Food, Hotel and Retail industry

To boost the adoption of technology of SMEs within the Food, Hotel and Retail sectors, A*STAR inked a Memorandum of Understanding with the Singapore Productivity Centre (SPC). The MoU encourages more technology adoption and addresses industry-wide technology gaps within the retail, food and hotel sectors with A*STAR's Ready-to-Go (RTG) technologies. This partnership will also leverage on SPC's expertise in conducting gap analysis and feasibility studies to help companies diagnose productivity gaps.

[1] A systems integrator is a person or company that specializes in bringing together component subsystems into a whole and ensuring that those subsystems function together, a practice known as system integration.

Signing of MoU with NTUC Health

A*STAR also inked another Memorandum of Understanding with NTUC Health today. The purpose of this MoU is to explore possible research and development collaboration activities between A*STAR and NTUC Health. The partnership aims to increase the productivity of healthcare professionals, bring innovative technology into the healthcare sector and levelling up the standards of healthcare provided to the elderly.

T-UP Excellence Awards: Researchers Awarded for R&D that Contributes to SME Industry Growth

To help SMEs use R&D to grow their business, the GET-Up programme seconds researchers to industry to help develop new innovative processes or products. This year, three researchers, were conferred the T-UP Excellence Award for their exceptional R&D contributions to local companies. They are: Mr Lim Wei Yi, Dr Guo Hong Chen and Dr Meng Yusong. The winners' profiles and their respective industry projects are listed in **Annex D.**

Enclosed:
Annex A – A*STAR SME Initiatives
Annex B – Information on DSI-SPRING Joint Partnership for Smart Information Management Systems
Annex C – Success Story: Admaterials Technologies' implementation of the Smart Information Management System
Annex D – T-Up Excellence Award Winners: Biographies and Projects

ANNEX A

A*STAR SME Initiatives

1. Growing Enterprises with Technology Upgrade (GET-Up)

GET-Up is a pro-active integrated approach aimed at boosting the global competitiveness of local technology-intensive enterprises to equip them for the knowledge-based economy. Since it was established in 2003, GET-Up has benefited over **491** SMEs with about **551** researchers and scientists seconded to local enterprises. Under GET-Up, three assistance schemes are available:

- Technology for Enterprise Capability Upgrading (T-UP): A*STAR researchers are seconded to SMEs for up to two years to provide them with R&D and technology expertise to help them improve their production process or develop products
- Operation and Technology Roadmapping (OTR): A*STAR researchers work with SMEs to help them develop their long-term plan to provide or enhance its products or services to meet the needs of businesses and markets
- Technical Advisor (TA) Scheme: A*STAR researchers provide in-depth technical consultancy to SMEs on technology related matters and other business challenges

2. Technology Adoption Programme (TAP)

Announced during Budget 2013, TAP has seen over **1,300** technology adoptions to date, benefiting more than **900** companies and all adoptions achieving more than 20 per cent productivity improvement.

TAP was piloted in six sectors: Aerospace, Construction, Food Manufacturing, Marine, Precision Engineering and Retail, and has since expanded to include Food Services, Healthcare, Infocomm & Media, and Logistics.

The Technology Adoption Programme (TAP**)** aims to improve the accessibility of technology enhancement for local companies, especially SMEs. TAP collaborates with technology providers such as A*STAR Research Institutes, Institutes of Higher Learning and Private System Integrators, to transfer technology solutions which improve productivity via readily adoptable packages to address the needs of local businesses.

For solutions that are not yet available or suitable for companies, A*STAR's technology intermediaries will work with technology developers from public institutions, such as A*STAR's Research Institutes, Centres of Innovation and

Universities, Polytechnics and other public institutes to identify and translate novel technological platforms to deployment-ready stage for companies to adopt.

3. Simplified Licensing Initiative

A*STAR's technology transfer arm, Exploit Technologies Pte Ltd (ETPL), launched the "Simplified Licensing" initiative to address SMEs' main concerns in closing licensing deals, such as perceived high royalties, complex licensing terms and indemnification clause. The soft launch was in July 2013.

Simplified licensing aims to help SMEs by standardising and simplifying licensing agreements for better clarity with business-friendly terms and faster deal closure to accelerate time-to-market. For example, licensing agreements are now much shorter and drafted using simpler language. This allows both parties to focus the discussion on the transfer of the technology rather than the contract.

Under this Simplified Licensing initiative, there are 2 options:

- A*STAR has generated a portfolio of technology solutions that are ready for immediate adoption and SMEs can license them through our express licensing process, with no negotiation needed. A simple 2-3 page license agreement with standard terms is all that is needed to be executed.

- For licensing of technologies that require further development and customization into products/services, the licensing agreement has also been simplified to 3-5 pages compared to the previous 15-17 pages, with improved clarity and licensing terms made friendly to our local SMEs, such as the removal of the indemnity clause.

These licensing schemes support the Government's aim of making various schemes more readily accessible to SMEs.

To date, 160 SMEs have benefited from these schemes since the soft launch.

Annex B

DSI-SPRING Joint Partnership for Smart Information Management Systems

About the DSI-SPRING Joint Partnership

- To raise productivity in the Testing, Inspection and Calibration (TIC) industry, A*STAR's Data Storage Institute (DSI) and SPRING Singapore jointly launched a pilot project in August 2014.
- In the TIC industry, services have to **ensure safety conformance, quantity and quality assurance, and facilitate commercial trades.**
- Processes in the data-driven TIC industry require intensive collection, testing and analyses of data before test results can be generated for customers.
- **SPRING has been working closely with DSI to develop customised smart information management systems for nine participating local SMEs. These systems help make the time-consuming processes more productive and effective.**

Objective of Pilot Project

- The aim of the project is for DSI to develop **secure, smart and scalable productivity solutions for SMEs** to process and manage test data, and develop reports for their customers, efficiently and effectively. Some of these SMEs include those involved in calibration services, non-destructive testing, food microbiological and chemical testing.

Industry Impact

As a whole, the smart information management system enhances the business performance of the TIC industry in these ways:

1) **Productivity improvement:**

   The information management system will allow participating companies to **save at least 30 per cent of time originally spent on data management** so that they can deploy their skilled manpower more efficiently. **Solutions are customised** based on each company's business processes and the industry it serves.

2) **Data Security:**

   DSI's data security technology will be licensed to the companies to protect

data. With this technology, participating companies are now able to safely **leverage cloud-based technologies to speed up operations and engage customers through the web**. This was not possible previously as the industry has not been open to the use of such technologies due to security concerns.

3) **Business Scalability:**

The new IT architecture setup, comprising cloud infrastructure and data security technologies, creates **a robust system to handle large volumes of testing and inspection works**. This allows companies to effectively support key industries and enable them to scale up their operations within and beyond Singapore.

Stages involved

- The smart information management system project is carried out in three stages over a year:

1. The first stage involves identifying and diagnosing company-specific pain points by SPRING and DSI, and developing technology roadmaps to roll out customised solutions by DSI.
2. The second stage is the full-fledged implementation of proposed recommendations by DSI through its data integration and cloud computing technologies.
3. The third stage is about carrying out a performance tracking study to quantify the impact.

Areas Covered

- The smart information management system solution covers the following five broad areas:

(i) **Data integrity** *which ensures that there is no duplicate of data throughout the process.*

(ii) **Data traceability** *which allows customers to log in to track a job status.*

(iii) **Data reliability** *which ensures the accuracy of data and matches the right testing sample to the right customer.*

(iv) **Data security** *which ensures that data is secured and encrypted in cloud computing.*

(v) **Data analytics** *which creates useful insights from the collected and analysed data.*

Target Outcomes of the Pilot Project

Depending on the specific needs of each participating company, the smart information management system brings about various outcomes such as those below:

(i) **Enhanced security.** Data is encrypted and protected from cyber security threats which may confront a TIC company whose business directly depends on reliable data.

(ii) **Improved customer satisfaction.** Customers can log in to the web-based system to check a job status without the need to continuously contact the TIC companies for progress updates. This reduces communication fatigue of TIC staff.

(iii) **Availability of analytics and improved knowledge retention.** By building up a digital repertoire of test results, TIC companies can easily identify industry trends. Knowledge retention for future training of staff becomes as easy an action as the click of a button.

(iv) **Higher productivity.** The smart information management system significantly reduces lead time in data processing by at least 30%, allowing companies to respond more promptly to meet industry needs. TIC companies can then accommodate greater test volumes, hence catalysing the up-scaling of business.

(v) **Higher value-adding services.** Non value-adding tasks in processing data can be minimised, allowing engineers and technicians to engage in greater revenue-driving activities and focus on developing new techniques.

(vi) **Reduced costs for backups and recovery.** Data recovery and maintenance costs can be reduced significantly by more than 50%.

(vii) **Maximised deployment efficiency.** The smart information management system's job matching module allows TIC companies to assign the right personnel possessing relevant skill sets to the right job, maximising staff efficiency.

ANNEX C

Success Story: Admaterials Technologies' implementation of the Smart Information Management System

Admaterials Technologies Pte Ltd, an advanced materials testing laboratory for the construction industry, has implemented this smart information management system to automate its concrete cube test data processing. Concrete cubes[2] must pass safety and quality checks before they can be used as materials of construction. Since Admaterials Technologies started automating these tests in 2014, the company has been able to carry out 7.5 times more tests than before and increase its sales by at least five times. The system automatically monitors and warns users about the occurrence of errors.

Mr Lu Jin Ping, Managing Director of Admaterials Technologies, said, "Using the new system has drastically changed the way we conduct our business as the system gives us great flexibility. Our staff can not only access the system anywhere and anytime now but also save time on performing tedious and time-consuming data management tasks. With this system, our customers can receive their reports more promptly than before, allowing them to complete construction in a timely manner."

[2] Concrete is used in the construction industry mostly for structural purposes, such as foundations, columns, beams and floors, and therefore must be able to take loads applied. Carrying out a concrete cube test is one of the ways of checking whether a concrete cube is fit for its purpose and can take the required design strength.

ANNEX D

T-UP EXCELLENCE AWARD WINNERS: BIOGRAPHIES AND PROJECTS

1. Mr Lim Wei Yi

Mr Lim Wei Yi graduated from Nanyang Technological University (NTU) with a Bachelor in Electrical and Electronic Engineering in 2010. Upon graduation, he joined the Institute of Microelectronics (IME) as a Research Engineer with the Integrated Circuits and Systems (ICS) Laboratory. His research interest lies in the 3D simulation of passive components. Wei Yi was seconded to BeCe Pte Ltd from September 2013 to March 2014 to work on WL Vertical BECE Test Probes for high frequency and high speed applications. He is currently working on interconnect modelling for high speed applications with a leading information and communications technology (ICT) solutions provider.

T-Up Project: WL Vertical BECE Test Probe Electrical Test (Phase II)

Wei Yi was seconded to BeCe Pte Ltd, a company that specialises in the production of high performance test sockets for various applications in the semiconductor industry. Wei Yi's efforts led to the improvement of its high performance test sockets that can tolerate heat stress up to a frequency of 40 GHz, an increase of 160% compared to the previous maximum of 25 GHz. High frequency and low resistance solutions are necessary for next generation electronic devices, which are more compact and power-efficient.

With Wei Yi's expertise, BeCe was able to achieve product realisation in a much shorter time – a reduction of 30% of the time needed compared to the previous process. They have also successfully expanded their product range with the development of more than five new products. The launch of the company's new High Frequency test sockets in the American and European regions secured more than half a million dollars' worth of orders, representing a 100% increase in sales compared to 20

2. Dr. Guo Hong Chen

Dr Guo Hongchen is currently a Research Scientist in the Department of Materials Analysis and Characterisation in A*STAR's Institute of Materials Research and Engineering (IMRE). He obtained his PhD in 2007 from the Department of Physics at the National University of Singapore (NUS). Prior to that, he worked as a research assistant in the Nanoscience and Nanotechnology Initiative in NUS. His research focus pertains to the surface and interface physics and chemistry, advanced coating technology development, and light-matter interactions. He currently has more than 30 publications in international refereed journals.

T-Up Project: Vacuum-based Coating for HDD Application

Dr. Guo was seconded to SOLVES Innovative Technology Pte Ltd (SOLVES), a machine design house primarily involved in the hard disk industry.

During his secondment, he devised a technique to confer a thin layer of hybrid materials on complex miniature objects – like screws and fasteners – such that they refract light to give a very vivid and identifiable colour. The deposited layer is so thin and precisely controlled that it does not affect the dimensional tolerance of the object. Because no pigments and dyes are involved, this technique meets the stringent standards of exceptional cleanliness adopted by the hard disk industry.

This trademarked method passed Seagate's cleanliness test in its US Headquarters in San Jose in January this year. Furthermore, the company has signed non-disclosure agreements with two fastener makers locally and in America. Three patents have also been filed in relation to Dr Guo's contributions.

3. Dr. Meng Yusong

Dr. Meng Yusong received his B.Eng. (Hons.) and Ph.D. degrees in Electrical and Electronic Engineering from Nanyang Technological University, Singapore, in 2005 and 2010 respectively.

He joined the Agency for Science, Technology and Research's (A*STAR) Institute for Infocomm Research in 2009, and later transferred to A*STAR's National Metrology Centre (NMC) in 2011. From November 2012 to October 2014, he was seconded to Psiber Data Pte Ltd for metrological development and assurance of a handheld cable analyser under a national Technology for Enterprise Capability Upgrading (T-UP) scheme of Singapore. He is currently appointed as a Scientist II at A*STAR's National Metrology Centre. His research interests include electromagnetic metrology, electromagnetic measurements and standards, and electromagnetic-wave propagations. To date, he has authored and co-authored more than 60 peer-reviewed papers in these areas.

T-Up Project: Handheld Cable Analyser

Dr. Meng was seconded to Psiber Data Pte Ltd, a technology and product development company providing test and measurement solutions for the Communications Infrastructure market.

With his expertise, the company became the first in the world to design and produce an instrument capable of certifying 40 Gbps and 100 Gbps Ethernet copper cabling systems. This instrument developed by Dr Meng, a handheld network analyser (also known as "WireXpert"), allows cable manufacturers to test the functionality and accuracy of their cables. Quality network cables are important for service providers such as data centres to provide reliable and quality service to users.

As a result, Psiber Data obtained the US Electronics Testing Laboratory (ETL) certification in recognition of their performance results globally. The number of Psiber Data's technical staff has also grown from 7 to 13 to support its R&D activities.