ANNEX E

June 2014

FACTSHEET
Game Science and Technology

Background

As Singapore pushes towards becoming the world's first Smart Nation, an important focus is on creating new opportunities to innovate. To achieve this objective, one area of development is to advance research, knowledge and innovations tapping on Game Science and Technology.

The benefits and transformative powers of using game thinking and game mechanics in non-game contexts have been well documented. Games provide real-time feedback that reinforces good behaviours in users. It also encourages goal setting and self-directed learning by providing constant goals and creating a sense of progress to keep engagement levels high and encourage the intrinsic desire to learn. Games also provide intuitive user experience designs. No user manual is needed for games; players learn how to play from within the game through tutorials and they continue exploring the game themselves. With the use of games, we will be able to create solutions that are engaging and intuitive to use, increasing the effectiveness of technology in sectors such as healthcare, education and the government.

Benefits of Game Science and Technology

The game industry is strong in "humanising" technologies and driving a high rate of adoption. The industry showcases the possibilities of new game technologies and encourages us to develop their potential in other solutions to be used in non-game scenarios, such as rehabilitation games for elderly and stroke patients as well as educational enhancements. Games help to turn fantasies into reality. For instance, Mattel, a games company, made brain-computer interface (BCI) technology relatable to people by creating Mindflex™, a toy that allowed players to control the game pieces with their brainwaves.

In recent years, doctors, educators and governments are turning to the science and technology behind the creation of games to treat, teach, and make better decisions. Notable success stories include Foldit, where researchers created a protein-folding game to help solve the structure of an enzyme critical to AIDs virus reproduction. The feat was accomplished by a group of gamers in 3 weeks, and helped to overcome a decade-long problem that has been stumping the scientists.

Benefits to the Nation

At IDA, we intend to grow efforts to promote game-based solutions by tapping on game science and technology in Singapore with potential benefits outlined below:

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- Games push technology innovation and development of softwares and hardwares into a ready open market, such as advanced gesture control and real space virtual reality. The huge gaming market also provides a large test bed for testing out the usefulness of a new technology which researchers can tap on before commercialising their products in other sectors.

- Game Science and Technology has enabled scientific breakthroughs and creation of new products. By applying game thinking into sectors such as healthcare and education, innovative products and Intellectual Properties can be developed to address the needs of these sectors.

- Games can excite students in technology. Game programmers require strong maths and physics foundation. This will develop strong computational skills and encourage students to be more interested in a technology career.

Proposed Plans

IDA is looking at a series of initiatives targeted to excite students and the public in technology, grow high technology companies, and inspire innovations within the Singapore technology industry.

We will begin by first, working with the industry to launch the "IDA Labs on Wheels," an educational bus that will feature Game Technology targeted at students to seed their interest and excite them in technology. This bus will travel to schools and conduct fun activities such as coding a game in an hour, tinkering with gadgets, making high technology devices and programming a robot. This will expose students to the expansive possibilities that can be created with technology, with the aim that they pursue their studies or career in this field in the long run.

The educational bus will be launched later this year and besides the schools, it will be roving to public places in the community to excite the public in technology as well.

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