

The Future of Green Industry from Luxury Niche Market of Crocodile Leather to Major Industry Using AI Deep Learning and Virtual Reality: An Empirical Study in Thailand During Covid-19 Era

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It has been ten years since the term Industry 4.0 was first publicly introduced to enhance the German competitiveness in manufacturing industry. After that, Industry 4.0 related (e.g. Big Data, Internet of Things etc.) are used in many different ways with pros and cons [1]. Networking of wireless hardware and software from 3G until recently 5G are integrated together in factory within supply chain that are controlled in real time autonomously and intelligently ready for decision making.

Additionally, Green concepts are promoted and legislated [2] ranging from various industries to many more (even at KMUTNB: as Green University Awarded). Green Smart Industry is a cyber-physical network of minimizing resources through human craftsmanship via virtual environment to create "Virtual World of Working Together". There is, for example, from a niche market of making a genuine farmed crocodile leather for bags that required a craftsmanship to minimize amount of leather for cost controlling.

Figure 1 below is an example of a luxury genuine leather farmed crocodile industry, which is ready to make a bag. Since the beginning of its business, manual craftsmanship is in controlled of a handful of very high skill staff. Until recently, Green Smart Industry emerged the company to initially apply Deep Learning Artificial Intelligence Analysis, as it has the ability to learn and re-programmed by itself in virtual world for optimal operations, instead of using human craftsmanship.

During 2020, the great danger of COVID-19 caused ad-hoc to the entire industries around the globe. Those who cannot adapt with the new normal may hardly survive. Measures are launched and varied country by country e.g. social distancing, work from home,

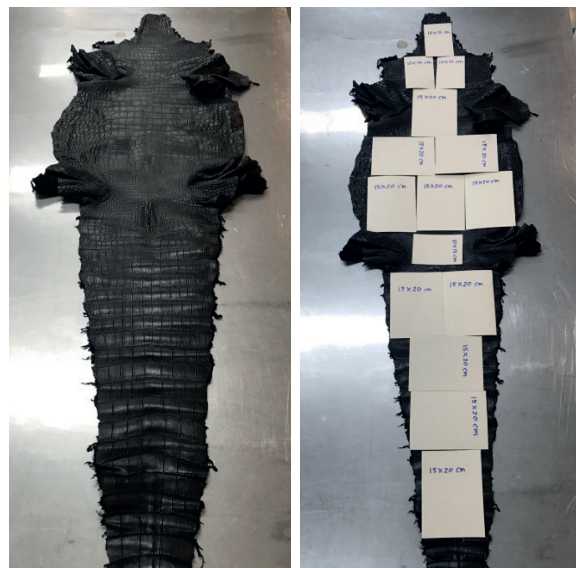


Figure 1: An example of a luxury genuine leather farmed crocodile industry, separated manually in parts ready to make a bag.

lockdown, area restriction etc., are just examples.

Industries in Thailand are also badly hit, causing negative growth in a number of economic indicators. It is also the time that industries realize how vulnerable they are. This forces them to look for advanced technology for helping them in which Deep Learning Artificial Intelligence is amongst the top list. Lucrative Industries ranging from niche market (e.g. luxury farmed crocodile leather etc.) to large market (e.g. Electric Vehicle using smart battery etc.) are aiming for Green Smart Product. Zero Carbon grid, moving faster and longer [3] including socializing with COVID worried free are a must for an immediate coming future.

To be able to ready for the Future of Thailand, education bodies such as King Mongkut's University of Technology North Bangkok (KMUTNB) and research centres together with closed collaboration with industry partners fully committed to invent and innovate research for the prosperity of Thailand.

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