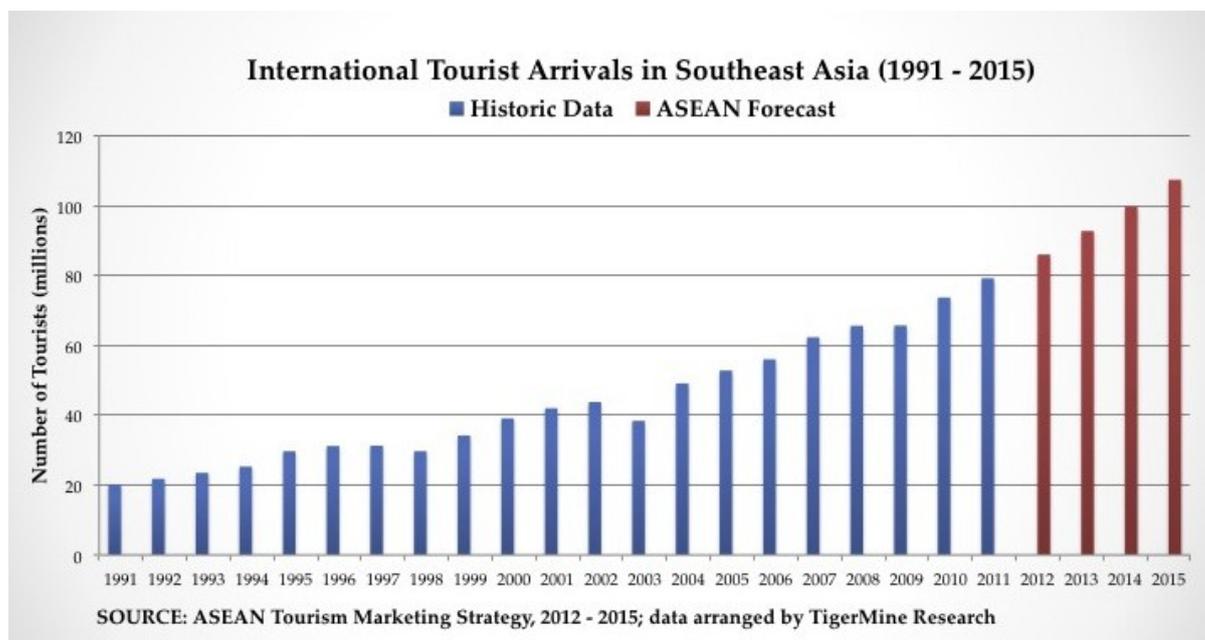# The usage of Augmented reality technology in Southeast asia as interactive tourism information media to achieve sustainable tourism development

Tourism Condition in Southeast asia

Before talking further about tourism in Southeast Asia, It is Important to know the definition of tourism. The World tourism organization defines tourism more generally, in terms which go "beyond the common perception of tourism as being limited to holiday activity only, as people traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes also called as tourism" (WTO,1995) .

Based on definition above, it can be seen that tourism is covers all activity outside their usual environment, when people go outsdie their usual environment we call it as tourism. With that definition we can calculate the total volume of cross border tourism activity in 2012 is around 1.035 billion people or around 14% world population (WTO,2013).

One of tourism destination around the world with high growth visitor is Southeast Asia. Southeast asia is one region in asia continent that contain 10 countries have huge diversity and different uniqueness in culture,religion,language and history in each country. With it uniqueness many visitors come to Southeast asia to enjoy the exoctism this area offered. With uniqueness from this area make the number of visitors come to this area every year always increase.

International Tourist Arrivals in Southeast Asia (1991 - 2015)
SOURCE: ASEAN Tourism Marketing Strategy, 2012 - 2015; data arranged by TigerMine Research

From the data arranged by TigerMine research, the total tourist come to Southeast Asia at 1991 only 20 million people per year and it increase 400% at 2011 become 80 million people and they believe at 2015 it will increase 100 million visitors. From that graph it tell us about the huge potential from tourism sector to increase

economics, tourism also become important sector that contribute for GDP in every country in this region.

SOUTH EAST ASIA: TOTAL CONTRIBUTION OF TRAVEL & TOURISM TO GDP
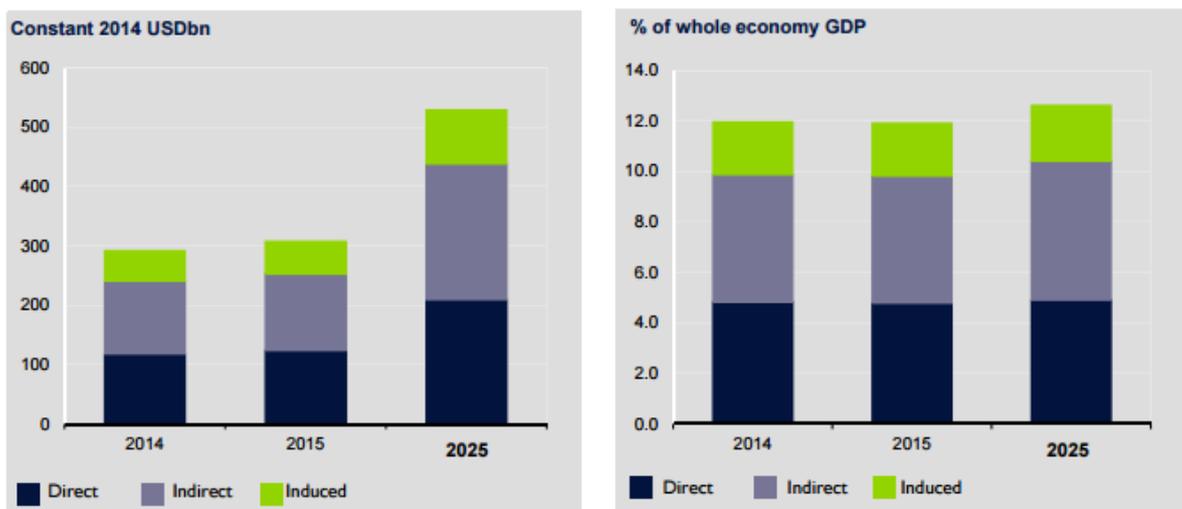
SOUTH EAST ASIA: TOTAL CONTRIBUTION OF TRAVEL & TOURISM TO EMPLOYMENT
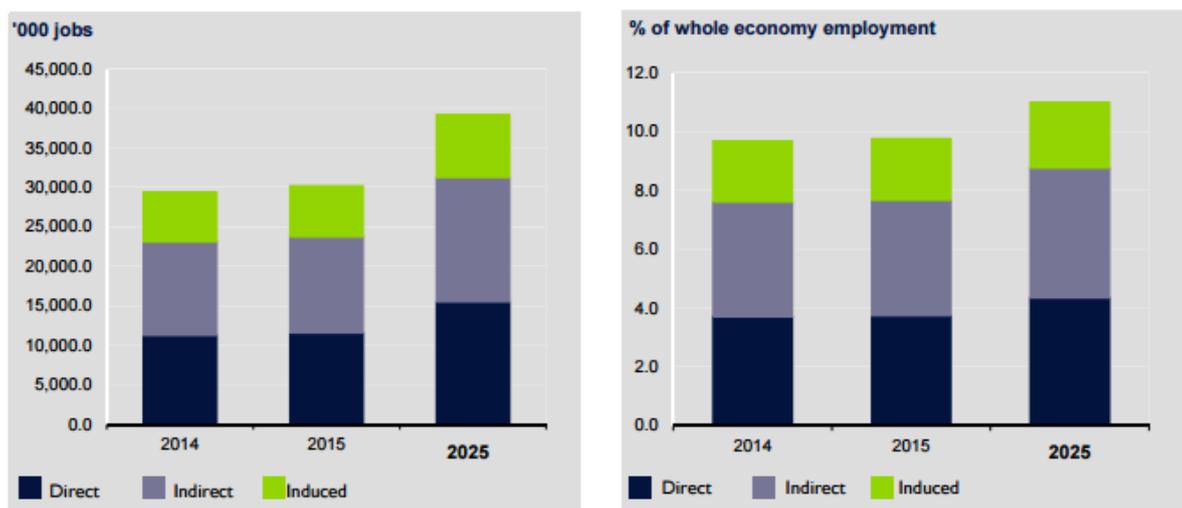
The data from world travel & tourism council also tell about the total GDP at 2014 from tourism and travel sector contribute around USD291.8 Billion or 12% total GDP in Southeast Asia and it will increase to USD528.7 Billion in 2025. This sector also contribute of Travel & Tourism to employment, including jobs indirectly supported by the industry, was 9.7% of total employment (29,358,000 jobs) in 2014. This is expected to rise by 2.9% in 2015 to 30,196,000 jobs and rise by 2.7% pa to 39,227,000 jobs in 2025 (11.0% of total)(WTTC, 2014).

With all the data, it tell that tourism can become one important sector to increase the growth rate in this area. But with high growth in tourism it also have negative effect occurs in this region like increases in CO_2 because the transportation usage increase and it will increase the global warming, the other negative effect is pollution because the increases of waste from visitor. And the last consideration from the negative effect is the social factor. Most of investor will come to southeast asia because the interested with potential from this area, they will build big attraction and leisure to improve the tourism activity in this region but it will have negative effect to the local businessman that also run business in this sector wil small scale, and if the goverment not pay attention in this it will ruin they business, and it wil bad for society.

All the negative effects happen because all the tourism activity just consider the business factor and not calculate the environment and social factor. If they let this happen the tourism site will also destroy because the environment and society not supported suitable for tourism anymore. Thats why this area need sustainable tourism concept that will balance all factor like economic, social and environment.

Sustainable tourism is the concept of visiting a place as a tourist and trying to make only a positive impact on the environment, society and economy(USA TODAY, 2015). The objective of sustainable tourism is to retain the economic and social advantages of tourism development while reducing or mitigating any undesirable impacts on the natural, historic, cultural or social environment. This is achieved by balancing the needs of tourists with those of the destination.

There are several aspects in sustainable tourism like ecotourism, social sustainability and focus on tourist.

1. Ecotourism

Ecotourism is the act of visiting a location and leaving very little impact. Conservation of an area's resources, such as energy and water, and preservation of the land and wildlife are important aspects of ecotourism. While natural ecosystems such as forests, waterways and deserts are often focuses when discussing ecotourism, the concept extends to all of an area's environment, including cities and area attractions. The resources that were available to the locals when you entered the location should still be available in exactly the same condition they were when you leave.

2. Social Sustainability

The social aspect of sustainable tourism pays special attention to human rights and increasing the opportunities for all members of a society. While economic sustainability promotes the idea that tourism profits be kept within the local community, social sustainability deals with the distribution of these profits. The emphasis is on preventing the exploitation of one group of a society for the financial gain of another.

3. Focus on Tourists

While the majority of sustainable tourism's aspects are focused on local sustainability, they should not overshadow the concept of tourist satisfaction. Many locations rely heavily on the tourism industry, so providing tourists with a rewarding experience is essential to economic success. As long as guests visit with the intention of leaving natural resources and local customs intact, the location is left with the resources to provide future tourists with the same enjoyable experience.

To achieve 3 aspects in sustainable tourism, i propose to use augmented reality technology as interactive tourism information media.

How Augmented Reality can help to achieve sustainable tourism

Augmented reality is a live direct or indirect view of a physical, real-world environment whose elements are *augmented* (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data. It is related to a more general concept called mediated reality, in which a view of reality is modified (possibly even diminished rather than augmented) by a computer. As a result, the technology functions by enhancing one's current perception of reality. There are two type of augmented reality: marker-based/image recognition andlocation (or GPS)-based apps.

The example of augmented reality for information usage

Marker-based applications overlay the marker/image with some content or information. In order to do so, these applications use a camera to recognize a marker or an image from the real world, and this way they calculate its position and orientation to augment the reality. Markers recognise a particular pattern (such as a code) when a camera points to it, and overlay a digital image at that point on the screen. For example, if you scan a QR code with your phone's camera, you can get additional information (so, AR) on your screen. If the image is 3D or animated, you get a digital experience unfolding on the surface upon which the pattern is printed.

On the other hand, location-based applications use the GPS tools in your device and use its position to find relevant data around your location, such as restaurants nearby, maps, help you get directions or present you the name of stars and constellations in the sky.

From the definition, there is one important question that is why we must make new interactive tourism information media using augmented reality? There are several consideration that make interactive tourism information can achieve sustaiable tourism

- Most of waste of tourism come from visitors, because of different culture and lower facilities of the trash can make visitors always littering in tourism site also most of tourism information brochure in southeast asia tourism site made from paper, this brochure made from paper can increase amount of waste produce by tourism site. Thats why by use interactive tourism information media which is an handphone application will not increase amount of waste and will reduce it.

- Interactive tourism information media by augmented reality it will make local businessman to have same posibilities with the investor, because with this media it can be new tools for people to marketing their own product and because this is a new tools all people will have same chance to marketing their product

- Augmented reality will make visitor have different experience every time they coming to tourism site. With augmented reality when visitor come to tourism site like museum or historical site all the explanation will be explain using augmented reality, if we compare our current tourism technology and augmented reality, the current technology like video or sound can just interact in one way but with augmented technology visitor can interact not just one way but in both way and with that interactive way it will never make visitor get bored. Augmented reality will provide them with story, explanation also information about tourism site in 3D on their phone.

From all the points augmented reality can help to achieve 3 aspects of sustainable tourism, for the first aspects of ecotourism augmented reality can help to reduce the waste of paper that usage as information brochure. Second aspects is social sustainability, augemnted reality will make all local businessman and investor have equal chances to market their product. Finally the last aspect is focus on tourists, with augmented reality technology, it will help to make new experience for visitors when they visit the tourism site with 3D explanation and story just by using their phone.

Conclusion

Augmented reality will become an innovative way to achieve sustainable tourism because it fulfill all 3 aspects like environment, social and economics also with southeast asia condition that have high growth of tourism and their economic depend on tourism sector, it need a new way to face competition in tourism sector and also a way that can maintain all tourism site for the future, that's why one of the answer by using augmented reality as interactive tourism information media that can hep to achieve the concept of sustainable tourism development.

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