Sufficiency Economy Web Search for Non-IT Literates

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Abstract—Sufficiency economy is a philosophy developed by His Majesty King Bhumibol Adulyadej of Thailand, initially stated in his royal speech given to Thai people in 1974. After the unprecedented economic crisis in 1997, sufficiency economy has seriously been reemphasized by both public and private sectors, with a vast array of knowledge and awareness offered to Thai people via online and printed communication channels. Sufficiency economy has highlighted a balanced way of living along with the conditions of morality and knowledge starting from the level of family, community and nation. In addition, this is applied to foster long-term development for Thailand, particularly in terms of the economic progress, to ensure its ability to move forward with global challenges. This article unveils the use of Web Service technology invented by web search engine of Google to be applied for the development of information systems aiming to highly facilitate the users, obviously referred to Thai people who possess less basic information technology knowledge, to access to today's online information of sufficiency economy more conveniently and efficiently

Index Terms—sufficiency economy, web service, information systems

I. INTRODUCTION

Sufficiency economy is a philosophy developed by His Majesty King Bhumibol Adulyadej of Thailand, initially stated in his royal speech given to Thai people in 1974, which was reemphasized on December 4, 1997 as part of the guidelines to alleviate the economic crisis in the year as well as strive for economic sustainability amid the globalization and various changes. Sufficiency economy has highlighted a balanced way of living along with the conditions of morality and knowledge starting from the level of family, community and nation. This helps encourage Thai people to have greater awareness in the national development and management, particularly by adhering to the middle path in life as the optimal route for personal conduct at all levels of occupation: students, agriculturists, government officials and general public as well as those who belong to business organizations and academic institutions both inside and outside the agricultural sector [1].

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Both public and private sectors have reiterated their intentions to disseminate several information and knowledge on sufficiency economy via online and printed communication channels. Admittedly, online media is considered as the most advanced and rapid communication channel compared to other types of technology. As a result, it is more convenient for people to access to the information provided by the online media.



Figure 1.Information on the use of computer, Internet and mobile phone of the Thai population. [2].

According to the survey and data collection accomplished by the National Statistical Office, it can be said that the household sector's use of information and communication technology is estimated to increase every year as shown in Fig. 1[2] In the second half of 2014, there were approximately 67.9 million mobile phone users in Thailand, in which 44.6 million of the mentioned group are delightfully exposed to the mobile Internet services, with a total number of 94.3 million mobile devices used by Thai people as shown in Fig. 2 [2].

Although the number of computer, Internet and mobile phone users is expected to rise, the National Statistical Office has disclosed the fact that youngsters aged 11-14 are major computer, Internet and mobile phone users [2]. However, using search engines such as Google or Yahoo to seek information is still limited to some people who have insufficient knowledge of information technology as they may encounter difficulties when accessing certain web pages. Therefore, it is vital to gather selected information on sufficiency economy to facilitate those people with easier access to the information. It effectively helps reduce the restriction of access to the sufficiency economy information.



Figure 2.Summary of mobile phone users in the second half of 2014 [2]

II. LITERATURE REVIEW

Web service is known as an effective software application or program designed to support the use of other applications or programs developed in a form of Remote Reduce Call (RPG) with XML language used for the exchange of information [3]. The web service not only helps eliminate difficulties in making access to the information provided by different applications and programs, but it can also be applied to search for both internal and external information required by an organization. Actually, several business firms are attempting to develop their existing information technology systems to work more efficiently with the web service [4], [5], [6],[7].



Figure 3. Web service architecture [9].

Google, for instance, is one of the most popular search engines that feature the web service to support other software applications or programs as shown in Fig. 4[8].



Figure 4. Google web service API protocols [8].

Nowadays, the web service has provided a wide array of significant information [6],[10],[11] In Thailand, the web service is developed to provide information service indeed, with several existing references such as the web service for Thailand's national income in 2001-2008, Thailand's gross domestic product in 1993-2009 and Thailand's regional and provincial commodity in 2001-2008 [12].

III. SUFFICIENCY ECONOMY WEB SEARCH SYSTEM

This system is developed due to inadequate information of sufficiency economy initiated by His Majesty King Bhumibol Adulyadej of Thailand. Both public and private sectors must take into account the importance of promoting the principles of sufficiency economy via the online network to ensure complete understanding and practical application among Thai people. Even though the number of computer, Internet and mobile phone users is expected to rise every year, the ability to make effective use of the search engines is limited to a certain age group as mentioned earlier in this article. Therefore, this new information technology system has been developed to serve as a significant source of knowledge on sufficiency economy promoted in several websites in both Thai and English languages. As this information technology system exists, an information seeker will not be required to rely on the use of any search engine. Fig. 5 unveils the architectural structure of the system.

The architectural structure of the system explains the development of the information system clearly, where software engineering has been applied for the design. For information retrieval, it is required to use the web service belonged to Google, in which all types of command, including Include Google API, Load Module Google Search, Google Load Function On Load, Create Search Control, Search Control Add Searcher, Search Control Draw and Search Control Set Keyword, will be executed via JavaScript. Fig. 6 unveils sample performances of Google Web Search API of this information technology system and explains with flowchart in Fig. 7.



Figure 5. The architecture of sufficiency economy system



Figure 6. Sample performance of Google Web Search API of this system.



Figure 7. Google web search API flowchart.

Basically, to seek information, users will rely on the keyword "INTEGNO The and "Sufficiency Economy" in Thai and English languages, respectively. All acquired information will be structured before being stored in the information technology system's database. Fig. 8 reveals the system's database used for information storage. Fig. 9 explains the addition of commands to be stored in the database and explains with flowchart in Fig. 10 while Fig. 11 displays the screen showing the operations of the system.

	work_economic.project
work_economic.type	<pre>@project_id : int(11)</pre>
stype_id : int(6)	#type_id : int(6)
<pre>@type_name : varchar(30)</pre>	<pre>@project_desc : varchar(255)</pre>
	<pre>@project_title : varchar(255)</pre>
	<pre> project_pic : varchar(100) </pre>
	<pre>@project_url : varchar(255)</pre>
	<pre>@project_province : text</pre>
	project_datetime : datetime

Figure 8. The system's database used for information storage.

<pre>\$html = file get contents curl(\$link);</pre>
<pre>\$doc = new DONDocument();</pre>
\$doc=>loadHTML(\$html);
<pre>\$nodes = \$doc getElementsByTagName('title');</pre>
<pre>\$title = \$nodes > item(0) > nodeValue;</pre>
<pre>\$metas = \$doc - getElementsByTagName('meta');</pre>
for (\$i = 0; \$i < \$metas length; \$i++){
Smeta (# Smetas vitem(Si);
If (Smeta getAttribute('name') == 'Title' or Smeta getAttribute('property') == 'og:Title' o
<pre>\$title = \$meta-getAttribute('content');</pre>
else if (SmetagetAttribute('name') 'Description' or SmetagetAttribute('name') 'desc
<pre>\$description > \$meta > getAttribute('content');</pre>
<pre>slie if(Smeta >getAttribute('name') == 'Keywords' or Smeta >getAttribute('name') == 'keyword Skeywords = Smeta >getAttribute('content');</pre>
<pre>else if(Smeta - getAttribute('property') == 'Image' or Smeta - getAttribute('property') == 'im Simage = Smeta - getAttribute('content');</pre>
<pre>slime (//SectaetAttribute/'nconecty')</pre>
Site name Secta setAtribute('content'):
A STATE AND A STAT
((empty(\$link)) {
db = new db()
//check
<pre>\$duplicate_attr = " project_title = '".addslashes(\$title) "' or project_url = '" \$link."'";</pre>
<pre>\$duplicate results = \$db > findAttr('project', \$duplicate attr) > executeRow();</pre>
<pre>if (Tempty(\$duplicate_results)) {</pre>
<pre>\$id = \$duplicate results[0];</pre>
<pre>\$alert['duplicate'] = 'duplicate';</pre>
)else(
<pre>\$alert['duplicate'] = 'success';</pre>
<pre>\$id = \$db > insert_id('project');</pre>
7/ find province
<pre>\$province = null;</pre>
<pre>\$province_results = \$db findAll('province') execute();</pre>
<pre>if (?empty(\$province_results)) {</pre>
<pre>while (\$province_result = mysgli_fetch_assoc(\$province_results)) {</pre>
<pre>SF (strstr(\$description, \$province_result['province_name'])) {</pre>
<pre>\$province -= \$province_result['province_name'] ", ";</pre>
}
1
//end province
<pre>\$datetime = date('Y-m.d Hiis');</pre>
\$data = array(
<pre>'project_desc' => addslashes(\$description),</pre>
<pre>'project_title' <> addslashes(\$title),</pre>
project_pic => Simage,
project_url => \$link,
project_province' 🔿 \$province,
project_datetime 💓 \$datetime
sprotect update = 3dp update: protect , 3data, project 1d , 31d) execute();

Figure 9. Overall aspects of additional commands to be stored in the database (partial).



Figure 10. Flowchart of overall aspects of additional commands to be stored in the database (partial).



Figure 11. Screen showing the operations of the system.

IV. BENEFITS OF THE SYSTEM

The use of computer and information technology, particularly smart phone and its applications, is anticipated to shift drastically, thanks to the greater efficiency of the Internet that covers wider locations in the country. Consequently, as an easy access of online information is granted, it is playing a significant role in Thai people's daily lives nowadays. However, using search engines such as Google or Yahoo for seeking particular information is still limited to people from occupations, for instance, farmers certain and agriculturists. In fact, public and private agencies have been expected to take greater responsibility in providing the information on sufficiency economy for people at large. Additionally, as Thailand is considered as a country of agriculture, it will be beneficial for farmers and agriculturists to be accessible to the information on sufficiency economy directly and easily without having to rely on the use of any search engines.

Judging from the aforementioned facts, the information on sufficiency economy has been selected to be integrated in one particular source. This also provides greater opportunity for those who are limited to the information technology knowledge to acquire the information on sufficiency economy easily and efficiently.

V. CONCLUSION

As the information technology is greatly advanced, the popularity of online information is expected to shift However, accessing online drastically as well. information is still limited to some groups of people as they have insufficient knowledge of information technology and may encounter difficulties when seeking certain information from web pages or search engines. Several public and private agencies have recognized the importance of His Majesty King Bhumibol Adulyadej's sufficiency economy and therefore determine to promote the acquired knowledge in several online communication channels both in Thai and English language, aiming to encourage Thai people to accurately pursue His Majesty's philosophy. This development of information search technology has been supported by the web service belonged to Google, in which all types of command will

be executed via JavaScript. Consequently, the information on sufficiency economy is integrated in one particular source to highly facilitate all people, whether they are low in technological knowledge or already considered as information technology experts.

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