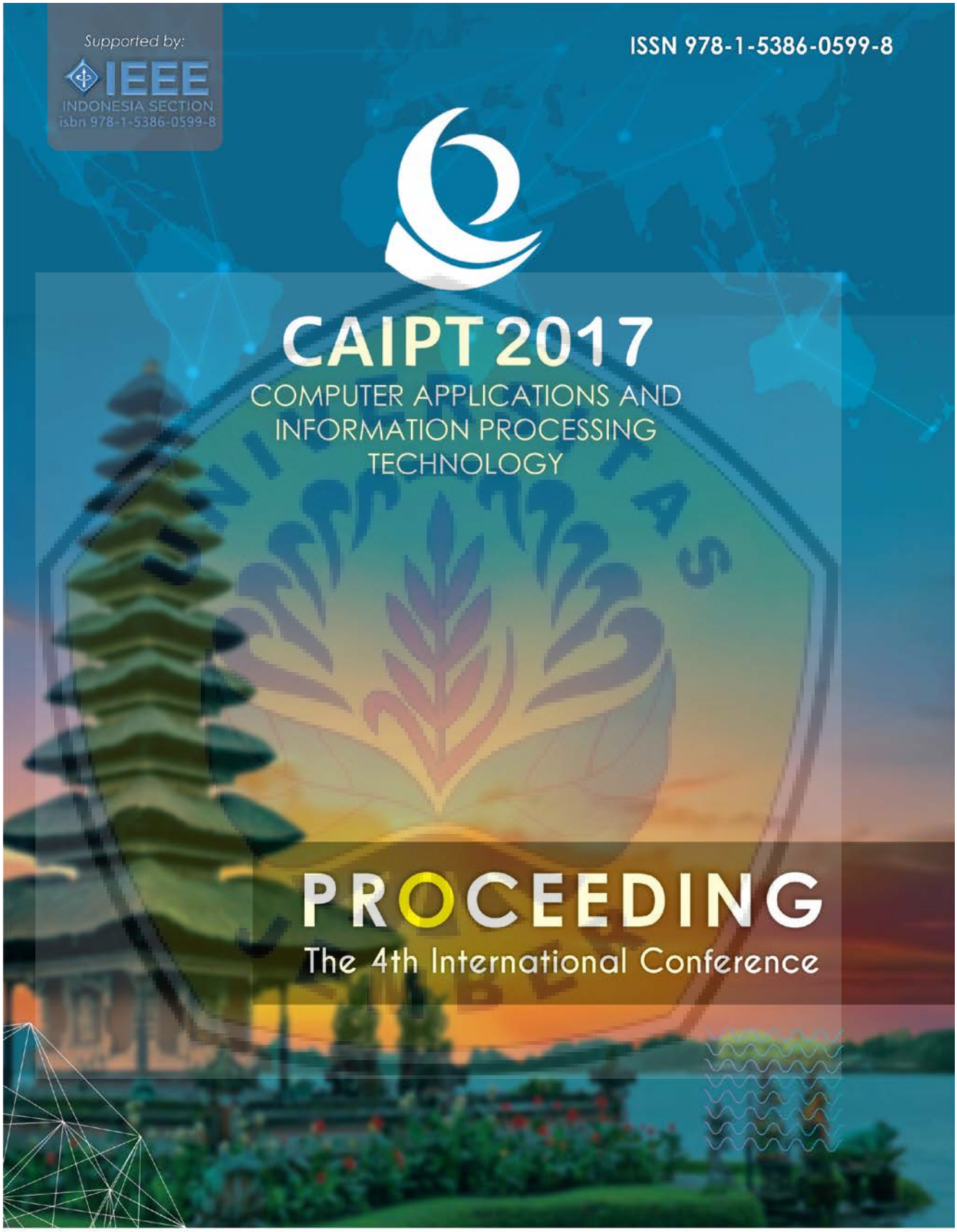

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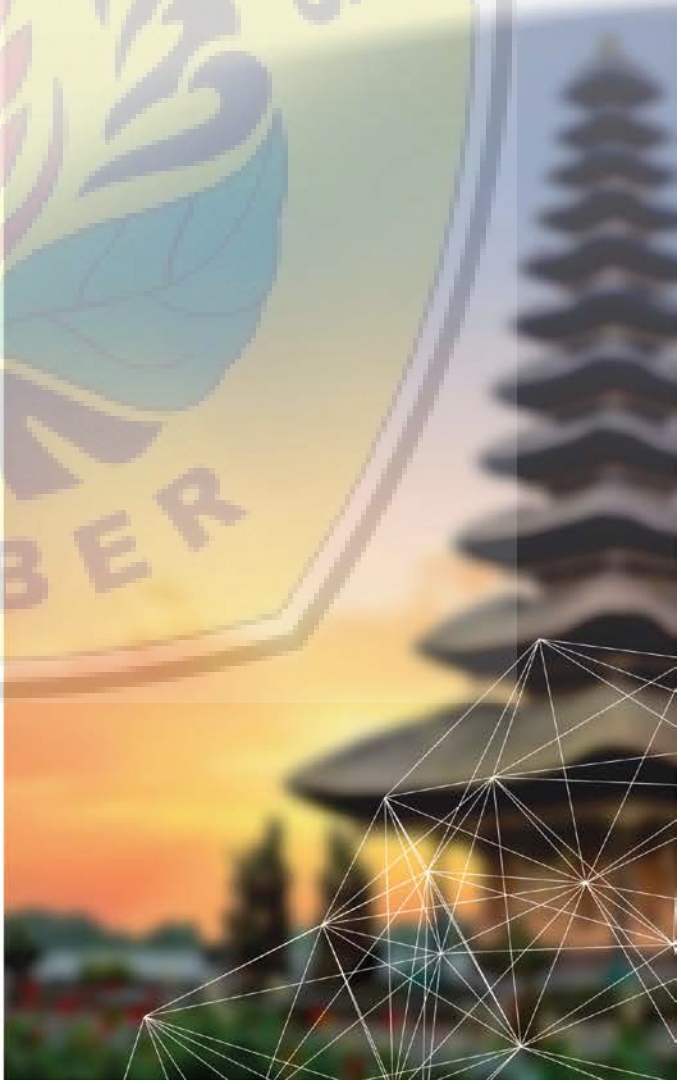

Welcome Message from CAIPT 2017 Honorary Chair

It is our great pleasure to welcome you to the 4th International Conference on Computer Applications and Information Processing Technology(CAIPT 2017), which is held in the historically rich and naturally beautiful city, Bali, Indonesia on August, 8-10, 2017.

CAIPT 2017 is Organized by Korea Information Processing Society (KIPS) and Hosted by Association of Higher Education in Informatics and Computer (APTIKOM).

CAIPT 2017 will focus on various important aspects of advances in ubiquitous information technologies and applications and will provide an opportunity for researchers and practitioners in academia and industry to discuss the state-of-art issues, research results, and progress in ubiquitous information technologies and applications. We expect that the conference and its publications will stimulate related research and technology improvements on this important subject.

We would like to thank the Program Committee members for their contributions to build up an excellent technical program.

We would like to sincerely thank the following speakers who kindly accepted our invitations, and, in this way, helped to meet the objectives of the conference: Prof. Dr.,Ricardus Eko Indrajit (ABFI Institute Perbanas, Indonesia).

The coordination with the General Co-Chairs (Sang Hoon Kim, Teddy Mantoro, Eva Handriyantini), the Steering Co-Chairs(Jin Kwak, Joko Lianto), the Program Co-Chairs(Kyung Oh Lee, Media A. Ayu),the Organization Chair (Betty Dewi Puspasari), the Publication Chair (Mukhlis Amien), the Publicity Co - Chairs (Eun Young Cho, Rangga Firdaus,Nurul Hidayat), was essential for the success of the final program. We sincerely appreciate their constant support and guidance.

Finally, we would like to thank the Korea Information Processing Society and Asosiasi Pendidikan Tinggi Ilmu Komputer Indonesia for providing valuable assistance to the conference.

We hope you will find the conference very productive and enjoyable.

CAIPT 2017 Honorary Chair
Seok-Cheon Park
Chairman of KIPS IT Convergence Society

Prof. Dr. Lee Kyeong Oh

The Fourth Industrial Revolution is a very hot topic in Korea and I want to share the notion of it with Indonesia educators and researchers.
The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.
Previous industrial revolutions liberated humankind from animal power, made mass production possible and brought digital capabilities to billions of people. This Fourth Industrial Revolution is, however, fundamentally different. It is characterized by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.
The resulting shifts and disruptions mean that we live in a time of great promise and great peril. The world has the potential to connect billions more people to digital networks, dramatically improve the efficiency of organizations and even manage assets in ways that can help regenerate the natural environment, potentially undoing the damage of previous industrial revolutions.
The Fourth Industrial Revolution builds on the Digital Revolution, representing new ways in which technology becomes embedded within societies and even the human body. The Fourth Industrial Revolution is marked by emerging technology breakthroughs in a number of fields, including robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, The Internet of Things, 3D printing and autonomous vehicles. These technologies have great potential to continue to connect billions more people to the web, drastically improve the efficiency of business and organizations and help regenerate the natural environment through better asset management.[9]

Prof. Dr. Ir. R. Eko Indrajit, M.Sc., MBA., Mphil., MA

Utilizing Big Data to Gain Competitive Advantage: Hypothetical Cases of Indonesia

Many modern companies are flooded with data and information gleaned from their day-to-day business activities. However, there are very few of them who can turn it into a precious asset and provide benefits to the company. Lack of knowledge and competence in the field of data science became one of the causes.
Competition in the 21st century lies in how far the company can learn and master knowledge - where the main source is data and information. Initially, Big data is merely a supporting technology, but has now become a very powerful competing weapon for those who successfully utilize it effectively.
This session provides an overview of how strategic and technical big data use can improve business competitiveness during its significant utilization.

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Table of Contents

Search Engine Optimization: Raising The Ranking of "Suku Osing" Websites on Search Engine Page

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The tribe Osing (Suku Osing) is a native of Banyuwangi and is the majority population in several sub districts in Banyuwangi District. The Osing tribe is a Javanese sub-tribe. The Osing tribe occupies several sub-districts in central and northern Banyuwangi district. The cultural potential possessed by the Osing Tribe is very diverse. Arts, crafts, food, herbal medicines / more familiarly called "jamu", language, and also customs are the cultural potential possessed by the Osing Tribe.

The need for information by the community can easily be met with the utilization of the internet. Website is one of the media that become the reference for the public to get information. When people search for information on search engines, it is not uncommon for websites that appear on the first page of a search engine to provide information that cannot be justified / questionable validity.

For that we need an effort to provide appropriate / relevant information related to the culture of Osing tribe through the website. www.osingbanyuwangi.com is a website that provide all about Osing tribe potential resource. In additions it requires a Search Engine Optimization (SEO) strategy that is able to make the website appear on the earlier pages of search engines when people enter keywords related to the cultural potential of the Osing tribe. Increasing the possibility of people to access the website. (*Abstract*)

Keywords: Osing tribe; Website; SEO

I. INTRODUCTION

The Osing tribe is a native of Banyuwangi Regency and can be regarded as a sub-tribe of the Javanese tribe [1]. The cultural potential and also the nature tourism owned by the tribe of Osing is very diverse. There are various kinds of natural and cultural tourism destinations located in banyuwangi [2]. All of this potential becomes unique to the Osing tribe. All these potentials become an attraction for everyone to know more or make it as a tourist destination.

Nowadays, Internet couldn't be separated from our life activities. In 2015, the number of Indonesian Internet users reaches 88, 1 million [3]. It's no surprise, for some simple activity such as when we are looking for some information, we often using search engine features that connect with Internet. The ease of Internet access also supported by technological developments on mobile phones, this thing plays a major role in encouraging Internet use by the public. The needs for information by the community can easily be met with the utilization of the Internet, one of them through search engines. Search engine is the most popular activity on the Internet [4]. Search engine is a software system which is useful to find information on the World Wide Web based on the keywords [5]. There is some popular search engine, such as: Google, Bing, Yahoo, etc [6]. The result of a search engine is a website that has relevance to the keywords entered.

The growth of websites is increasing sharply nowadays. Everybody can make a website and put any information on it. Website blog, instant website template, infrastructure support and easy tutorial have a big role in this development. It's a good thing that everybody can share an information that might be useful for the others. But in other way it's a bad thing if somebody just put any information without considering its truth. In 2012, 52% of search engine users say search engine results have gotten more relevant and useful over time, while just 7% report that results have gotten less relevant [7].

Website is one of the media that become the reference for the public to get information. When people search for information on search engines, it is not uncommon for websites that appear on the first page of a search engine to provide information that cannot be justified / questionable validity. www.osingbanyuwangi.com is a website that provide all about Osing tribe potential resource [8]. Cultures, foods, natures, handicrafts, etc.

Internet users are more likely to visit search results that are shown at the top of a results page. To provide accurate / relevant information related to the Osing tribe culture through the website in search engine, it is required a strategy that was able to make the website appear on the earlier page of the search engine when the keywords entered by user related to the cultural potential of the Osing tribe. It will increasing the possibility of user to access the website.

Search Engine Optimization (SEO) is the art, craft, and science of driving web traffic to web sites [9]. In this paper we implements SEO technique on www.osingbanyuwangi.com as the website that provide all about Osing tribe culture information. Our focus is how to increasing the rank of website on the google search engine with keywords all about Osing tribe.

II. METHODS

Various ways are done to increase visitors on a website, one of them by doing Search Engine Optimization strategy (SEO). SEO is the process of increasing the amount and quality of traffic to the website of the search engine by placing the title / tag on the code of the compiler program in accordance with keywords that may be entered by users search engine [10]. To get the user's attention and get them back to visit the visited web page, the website should be built with the target of the right content and quality. So as to meet the needs of users and will also increase the ranking of positions on search engine listings.

A. *Keyword Density*

Keyword density is the repetition of words in the articles we write. On this site that will be the target is "Suku Osing Banyuwangi", "Jamu Suku Osing Banyuwangi", "Kuliner Suku Osing Banyuwangi", and "Kerajinan Suku Osing Banyuwangi", then applied to the article therein. Keyword Density is important because search engines use this information to categorize a site's theme [11]. Each article is given a repetition of words on every paragraph (as Fig. 1) that allows easy to read by google search engine with ideal and in accordance with the rules of the search engine in general.

Figure 1. Keyword density implementation for "Suku Osing Banyuwangi" article

B. *On-page Optimization Techniques*

Page Optimization (SEO On-Page) is the process of making changes in web pages, so that the page is judged relevant by the search engine with the keywords searched by users on the internet. As Fig. 2, this method optimizes links, title sites, and article titles to influence the relevance of searches performed on google [12]. This basic technique is powerful enough to do and becomes the basis of all the seo techniques used in the site.

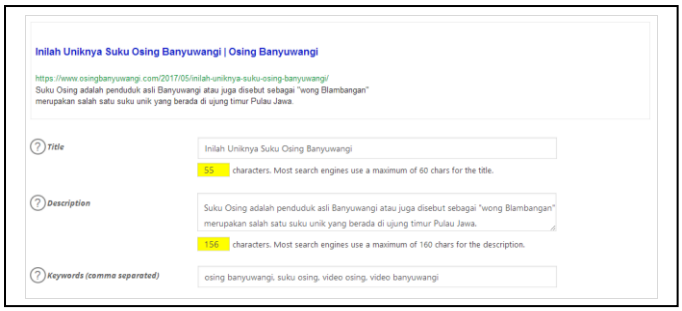

Figure 2. Page optimization implementation for "Suku Osing Banyuwangi" article

C. *Keyword in URL*

Keyword in this section puts a link on the url or commonly called a permalink which means a link or link is permanent to the page or post on the blog as Fig.3.

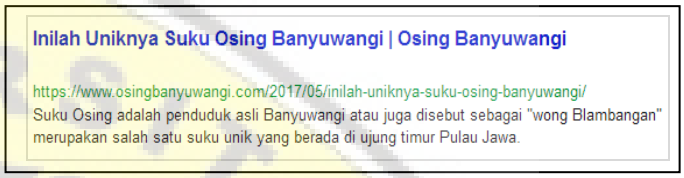

Figure 3. Permanent link implementation for "Suku Osing Banyuwangi" article

D. *Title tag*

This title tag aims to optimize the post titles that appear on search engine results. It is important to optimize both the title tag for both the site title and for the title of an article. In SEO, the title tag plays a very important role because the title tag itself is the basic factor of search engines to measure the relavansi of keywords that users search. On this website has generally been located on the domain, the main title of the website, and some post titles as Fig. 4. This will make it easy to optimize the search results.

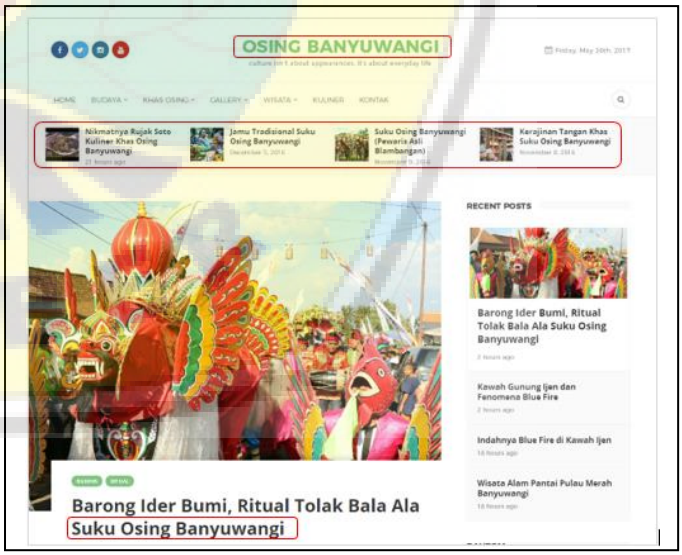

Figure 4. Title Tag implementation for "Osing Banyuwangi"

E. *Location of Keyword*

Keyword is one word typed by internet users in the search engine. A key phrase is a phrase (a few words) typed by internet users in a search engine. In this case the placement of keywords is very important role to make a site can be indexed by search engines. Placement of keywords at least 3 in one article, in one paragraph there is one keyword that will be targeted in the search. In this website is intactly placed on the title tag, H1, and articles as Fig. 5.

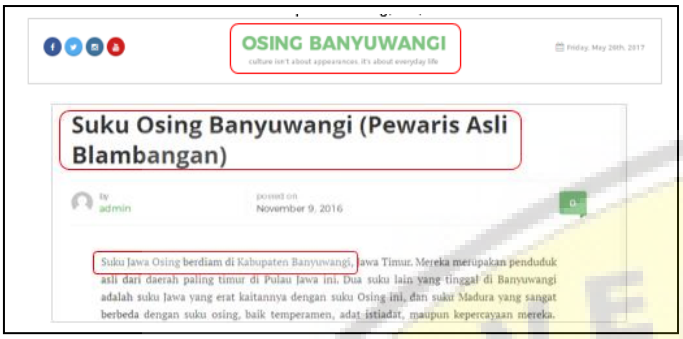

Figure 5. Location of keyword on main title and article title implementation for "Osing Banyuwangi"

F. *Keyword in Meta tag*

Meta tags are an HTML code that is installed inside a site template, whose purpose is to help search engines know the general keyword of a site to facilitate search engine index as Fig.6.

```
<meta name="keywords"  content="budaya osing,barong ider,barong ider bumi,suku osing,
```

Figure 6. Keyword in meta tag implementation for "Osing Banyuwangi"

G. *Keyword in alt text*

The use of this alternative keyword is embedded in the image and the title of the image, the keyword indirectly give effect to the index if visitors do image search as Fig 7.

Figure 7. Keyword in alt text implementation for "Osing Banyuwangi"

H. *Title Length*

Title length is another way to make it easier for users to find information or products that we serve. Title usage should not be more than 60 characters, because search engines faster index the articles that match what the user typed as Fig 8.

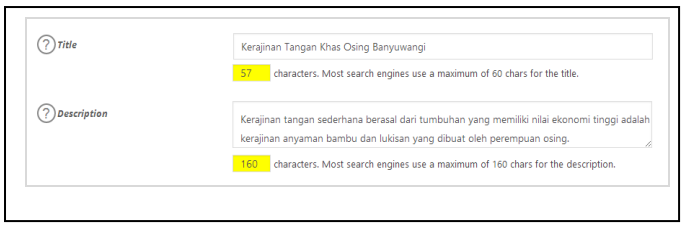

Figure 8. Title length for "Kerajinan tangan khas Osing Banyuwangi"

I. *Off-site Optimization Techniques*

Off-Site Optimization (SEO Off-Site) is the process of increasing the value (popularity) on factors outside the site, it can affect the ranking of web pages according to keywords that have been on the shoot. Based on keyword considerations and serve as a site address makes it easy for sites to index by search engines. The website is in the 5th position of search engines. This is because the selected url also a keyword.

III. Result And Discussion

Based on the results of searches conducted after applying the concept of SEO on articles and sites then it can be compared the results as follows with specific keywords that become targets:

A. *Keywords "Suku Osing Banyuwangi"*

The first keyword that tested is "Suku Osing Banyuwangi". Before the SEO strategy implemented on this site, website's position in the google is on 5th page. But after we do the SEO strategy, the website's position on 2nd page as Fig. 9 (accessed on May, 28th 2017).

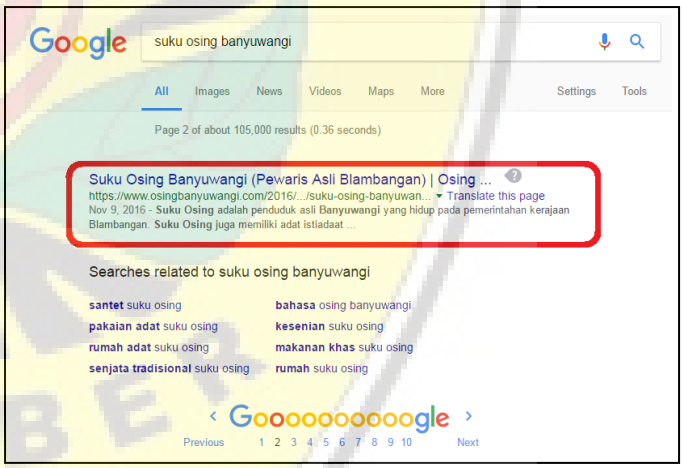

Figure 9. Website position in search engine with keyword "Suku Osing Banyuwangi"

B. *Keywords "Jamu Suku Osing Banyuwangi"*

For "Jamu Suku Osing Banyuwangi" keyword there is significant result. The website appear on the 1st page of google after SEO implemented as Fig.10 (accessed on May, 28th 2017).

Figure 10. Website position in search engine with keyword ”jamu suku Osing Banyuwangi"

C. *Keywords “Kerajinan Suku Osing Banyuwangi”*

For “Kerajinan Suku Osing Banyuwangi” keyword also got significant result. The website appear on the 1st page of google after SEO implemented as Fig.11 (accessed on May, 28th 2017).

Figure 11. Website position in search engine with keyword ”kerajinan suku Osing Banyuwangi"

D. *Keywords “Kuliner Suku Osing Banyuwangi”*

For “Kuliner Suku Osing Banyuwangi” keyword also got significant result. The website appear on the 1st page of google after SEO implemented as Fig.12 (accessed on May, 28th 2017).

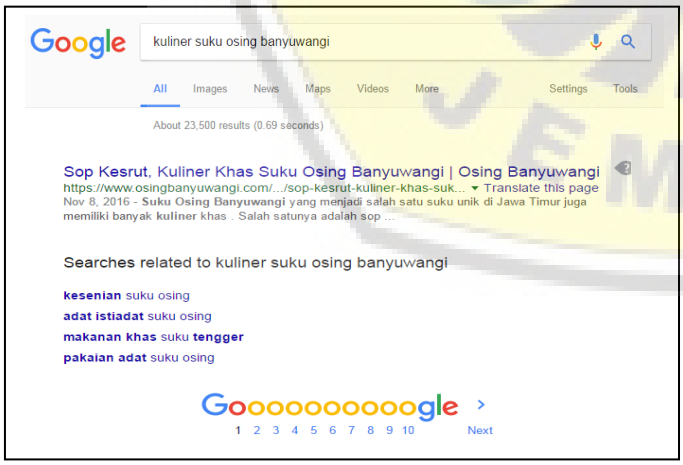

Figure 12. Website position in search engine with keyword ”kuliner suku Osing Banyuwangi"

Implementation of SEO strategy on website www.osingbanyuwangi.com with target of 4 keyword search got different result. In the keyword "Suku osing Banyuwangi" website is on the 2nd page of google search. While in the keyword "Jamu Suku Osing Banyuwangi", "Kuliner Suku Osing Banyuwangi", and "Kerajinan Suku Osing Banyuwangi", this website is on the 1st page of google search.

IV. Conclusions

The search results page is different. This could happen due to other web sites that also contain with similar substance and also the websites “maturity”. So when search engines do a search, the search engine will check the compatibility between keywords with website content. The higher the level of conformity then it will get a better ranking and displayed on the web page of the search engine further ahead. The number of web sites that contain similar content, as well as each website that performs various SEO techniques make the competition in getting a better search index to be diverse. But the fact is SEO strategy implementation able to increase website rank position in the search engine page [13].

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