

# 스포츠산업 통합정보망 구축 방안★

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## 요 약

본 연구는 스포츠산업분야의 정보 체계를 통합한 정보인프라를 구축함으로써 수직적·수평적 네트워크 형성, 지식정보의 공유와 확산의 극대화를 목적으로 하였다. 스포츠산업 통합 정보망 구축 모형 및 방안 모색을 위하여 스포츠 산업 정보 시스템과 네트워크 시스템 현황에 관한 문헌조사와 전문가회의를 실시하였다. 스포츠산업 관련 정보는 국가 기술력의 기반으로 대용량화, 전문화된 스포츠산업 정보의 특성상 분산화, 고속화가 필수적이다. 이를 보장하기 위해서는 유기적인 정보 공유 및 교류가 가능한 인프라를 구축하여 국내외 스포츠산업 관련 기관의 개발자들에게 핵심 인프라를 제공하고, 사용자 중심의 통합정보망으로서의 선도적 역할이 필요하다. 이에 따른 결과로 첫째, 온톨로지(Ontology)를 반영한 스포츠산업 관련정보 DB구축단계이며, 시맨틱 웹(Semantic Web)을 고려한 DB설계가 필요하다. 둘째, DB 구축 이후 이들 간 유기적인 정보 교류를 가능하게 하는 RSS/Atom 기반 능동형 네트워크 구축이 필요하다.

## A construction Plan for the integrated information network of sports industry

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## ABSTRACT

This research analyze the current status pertaining to the sport industry's information system and information network in Korea to propose integrated information network of sport industry construction measures with the goal of optimizing vertical and horizontal network formation, and knowledge information sharing and dissemination. To construct integrated information network of sport industry, literature examination and meeting of experts to search for measures are utilized. This paper analyze the realities of the sport industry's information system and information network in Korea to propose the following when it comes to the measures to realize sport industry's information integration. First, DB for sport industry relate information that factored in the Ontology is being developed. In other words, it is necessary to design a DB that factors in the Semantic Web. Second, once the DB relate to the sport industry that factored in the Ontology is developed, it is necessary to build RSS/Atom based active network that enables exchange of organic information among them.

**Key words : Sports industry, Integrated information network, Ontology, Semantic web, RSS/Atom**

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## 1. INTRODUCTION

Presently, Korea is faced with massive changes in all different segments of the society ranging from politics, economy and society. Physical training and sport areas are not an exception. Likewise, along with the progress of the knowledge information society, traditional sport paradigm pertaining to whole-rounded education, enhancement of national prestige, increase in citizens' health and increase in citizens' wellbeing that used to react centered on the core principle of physical training sport advancement is changing into a new sport paradigm that emphasizes sport' industrial values such as development of media value, creation of new value-added and creation of productive citizens' well-being.

Sports have not only vast market base as an earth-wide common culture in which technology and rules that are standardized world-wide, but also highlighted as important business contents along with the rapid growth of the IT field.

Moreover, in Korea, it is noteworthy to realize that sport industries informatization was emphasized as a very important part as the business subjected to the creation of high value-added in line with the informatization of the sport industry. Accordingly, in line with the informatization of the sport industry in Korea, sport industry's informatization became an important element of policy as the market segment subjected to focused promotion for the creation of high value-added.

E-commercialization is taking place in the sport industry due to the advancement of IT industry, acceleration of informatization in other industries, and spread of the Internet. Sport industries e-commercialization can be distinguished from the e-commercialization of the existing industries and e-commercialization of the new industries. In case of existing industries' e-commercialization, sport

goods industries, companies related to the sport for participation, and professional sport teams use Internet and SNS (Social Network Service), which are the representative forms.

New industries' e-commercialization can be witnessed in the companies that provide and processes Internet contents specialized for sport including smart phone application in the form of mobile. Meanwhile, advancement of the sport industry is closely related to the advancement of the broadcasting industries.

Thus, broadcasting digitalization that is taking place rapidly these days is expected to accelerate sport industry's informatization and e-commercialization even more, and sport industry's profit model via e-business that combined IT technologies such as smart phone, SNS, social commerce of the joint purchasing method, and Table PC such as I-Pad is expected to be developed newly [1].

Until now, projects for the construction of the base for physical training informatization and for the expansion of physical training information networks portal site contributed greatly to the distribution of physical training related organizations information system and to the service for the greater public.

However, there is another side to this evaluation that claims that performance is rather lacking when it comes to information standardization, system linkage for information sharing and utilization, new contents development and development of quality information service system [2].

To resolve the above mentioned problems and to ensure that the IT infrastructure that was already constructed becomes the growth lever for the Korean sport industry, it is possible to say that integrated sport industry's information network construction that connects individualized network organically is a prerequisite [3].

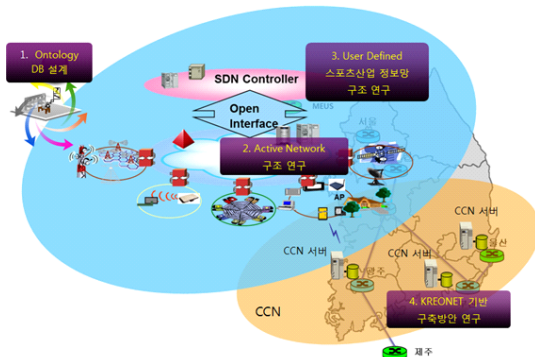


Fig. 1. Deployment scenario for virtual sports industry network

Moreover, it is possible to claim that the Korean sport industry reached a point when it has to make an effort to construct sport industry's information network first and foremost from the strategic level since it has no comparative advantage when it comes to market basis or competitive edge so that it can strengthen its competitiveness in the international arena.

Accordingly, this research analyzed the current status pertaining to the sport industry's information system and information network in Korea to propose integrated information network of sport industry construction measures with the goal of optimizing vertical and horizontal network formation, and knowledge information sharing and dissemination.

## 2. METHOD

To construct integrated information network of sport industry, literature was examined to assess current status of the sport industry's information system and information network. As for the type of literature examined, it includes all types of research reports issued both in and out of Korea, policy materials, statistical data, academic journals, regular books and Internet documents. Likewise, diverse methods and mediums were capitalized on to collect

and to analyze data.

This examination of literature served as the base data for proposing the model for the construction of integrated information network of sport industry, which is the core element of this research. Moreover, integrated information network of sport industry construction model and meeting of experts to search for measures were utilized.

During the meeting of experts, discussions were held on the contents to include in the integrated information network and contents related to construction measures after accepting opinions from the meeting of researchers and other experts.

To obtain advice of the experts, researchers, university professors, researchers specialized in information and network information network and experts in Korea were convened to form the group.

## 3. ANALYSIS

### 3.1 Current status

Recently as the sport industry is perceived as a high value-added industry that can lead the future, demand by the consumers who want to obtain sport related information is increasing. Consumers who are hungry for sport industry related information spend significant time and effort to obtain necessary information while traveling around the world via Internet aimlessly. Likewise, the need for specialized site that can satisfy this type of demand for information is being discussed.

Moreover, providing sport industry related statistics and information is essential factoring in the size of the sport industry and in order to develop policies from diverse areas that are suitable. In addition, sport portal site that anyone can use anytime, anywhere whether the beneficiaries are sport industry related companies, public organizations and others so that they can



Fig. 2. A mashup using Google MAP OpenAPI

leverage the Internet environment to use information needed for company management activities, policy making and so forth at the just right time [4].

Among this situation, the government (Ministry of Culture, Sport and Tourism) constructed industry's portal site to satisfy users demand for information. This sport industry's portal site offers sport industry related information, aggregation of statistics and analysis information. An operation system that provides diverse and specialized information on the Korean sport industry and that continues to renew the information that consumers want is being constructed. In particular, information demanded by the government and sport industry organization through the composition of Community Pool, Information and

Service is provided in a multi-dimensional manner. Moreover, effort is being made continually to lay down the basis for multi-dimensional analysis based on the sport industry's business model by providing sport industry information [5].

Along with the advancement of the informatization society, timely access to resourceful information is being emphasized to secure

companies competitiveness. Effective use of information communication network is perceived as a means for companies to survive.

Likewise, active discussions and efforts continued to be made regarding the construction of the information communication base in order to ensure growth and advancement of the related industries and to ensure and to improve market value of individual companies when it comes to the sport industry as well. In particular, construction of the system that enables sharing and effective linking of the sport related information that is available in the Korea super speedy network today, and effective operation are certainly key policy initiatives.

In order for the constructed IT infrastructure in Korea to serve as sport industry's growth lever, it is essential to make effort to construct structured and user-friendly information network as well as connect each information network in an integrated manner .

The explosive growth in information following the advent of the informatization society is not an exception in case of the sport industry as well and emphasized that it is possible to positively contribute to the sport advancement by expanding general public's scope of choice when it comes to the physical training related information produced and created through informatization and sport related information [6].

Moreover, network construction following informatization is gaining attention as an essential element for the growth of regional society [7]. Accordingly, it is also true that there is a possibility that negative side symptoms such as decreased quality of applicable information or user confusion as well user burden may result due to the drastic increase in sport information [8].

However, construction and connection of the organic and resourceful information network for the

sake of the Korean sport industry are expected to serve as important mediums for satisfying diverse demands for sport. However, it is possible to claim that the level of Korea's sport industry network is still at the beginners level. Since most of the sites are operated centered on their organizations, linkage with other organizations is very weak. Thus, the reality is that the integrated synergy of the sport industry is not ensured [9].

### 3.2 Limitations of the existing networks

Decentralization and acceleration based on nations technological capability are required when it comes to the sport industry related information due to the nature of the sport industry's information system that handles large amount of specialized information.

To guarantee these, it is necessary to construct infra that enables organic information sharing and exchange in order to provide core infra to the developers of the sport industry related organizations such as economic, industry, research cooperation both in and out of Korea. Moreover, it is necessary to play a leading role as user centered integrated information network.

However, numerous integrated information network of sport industry today merely list down related information and offers merely search function. Thus, it is difficult to provide new service through information processing. Moreover, integrated information network of sport industry today does not allow groups that compose information and community to exchange information organically due to the in-born limitation of information and due to the limitations of the network technology.

Accordingly, the only method that exists today is for the supervising organizations to provide merely contents in a one-sided manner. Basically, organizations and individuals who comprise

integrated information network of sport industry cannot produce contents jointly for distribution. Moreover, it is difficult to utilize produced contents to provide the Mashup measures that can make the third contents.

To overcome these problems, it is necessary to develop digital contents by combining together with the media by combining together organically the sport industry's information and services based on IT technology, expand Internet broadcasting, and diversify into online sport education, and virtual sport experience business by capitalizing on the advancement of the multimedia. These will likely to ensure drastic growth going forth.

TABLE I. PROPOSED OPEN API FOR SPORTS INDUSTRY NETWORKS

| Open API             | Contents  |
|----------------------|---|
| Search               | Search result<br>XML/RSS format   |
| Online Storage       | Based REST API<br>Save infrastructure                                       |
| Online Storage       | Based REST API<br>Save infrastructure<br>Real-time update<br>Mobile support |
| Location information | Location information of sports industry<br>Cooperate with Map Open API      |
| Cloud                | Computing service<br>Based server virtualization                            |
| Extended RSS         | Web-based RSS reader<br>Real-time update                                    |
| OpenSocial           | Common API for social app<br>Real-time update                               |
| UCC                  | Common API for UCC app  |
| Flexible Payment     | Common API for electric payment   |
| OpenCertify          | Certification API for sports goods & equipment                              |

### 3.3 Model for the development of next generation integrated information network of sport industry

- Integrated information network of sport industry : First is that it is based on the data exchange method (RSS, Atom, RDF and others) of the flexible format that is based on the standard

and XML along with the method for generating/sharing individuals knowledge easily using blogs. Second, Open API environment and open structure that are based on the Web service that uses REST, SOAP, WSDL, XML-RPC and others are adopted as core elements. Through this, advancement to open system linked model and platform based service model is being pursued. Third, data centered software integration and light programming model are pursued after through open API, as well as Internet based service centered software environment.

- OpenAPI : In general, Open API (Open Application Programming Interfaces) is that which opened up own companys API to the outside in the form of Web service. This facilitates bringing information and function easily from the outside to use them. API is what enables user to search VODs that are otherwise scattered around the integrated information network of sport industry by tag, user, popularity and category by utilizing them. Moreover, CCN API provides total solution such as VOD upload, deletion, modification and searching so that VOD service will be enabled at a third party. In case of small companies and sites that cannot make VOD platform due to limited financial means, it is possible to add on VOD section easily anytime.

#### 4. CONCLUSIONS

This research analyzed the realities of the sport industrys information system and information network in Korea to propose the following when it comes to the measures to realize sport industrys information integration.

First, DB for sport industry related information

that factored in the Ontology is being developed. In other words, it is necessary to design a DB that factors in the Semantic Web. That is, foremost focus should be placed on providing information that is most needed for user and to process vast amount of information that exists in the integrated information network in order to provide customized information to user.

Second, once the DB related to the sport industry that factored in the Ontology is developed, it is necessary to build RSS/Atom based active network that enables exchange of organic information among them. As contents syndication technologies such as RSS and Atom get combined, it is possible to distribute the information generated from sport industrys information network in an increasingly organic man-ner. Through this, it is necessary to realize distributions core platform that produces and re-produces contents.

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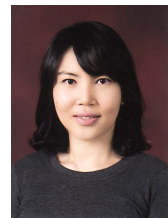
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