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WORLD TRIZ-RELATED SITES PROJECT (WTSP) (3): WORLD WTSP CATALOGS OF TRIZ AND AROUND-TRIZ SITES: FIRST EDITION (OCT. 2019) AND ITS FURTHER ENHANCEMENT

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Abstract: This is the 3rd report of the World TRIZ-related Sites Project (WTSP). As the results of 2 years activities, we have completed the First Edition (Oct. 2019) of the World WTSP Catalogs and are now working to enhance them further. The Catalogs have 2 main products. (A) World WTSP Catalog of TRIZ Sites has been built with the site data contributed from 4 countries and the results of 2 internet surveys for TRIZ websites in USA and in the world. It contains 23 Most Important @ sites and 39 Important o sites. (B) World WTSP Catalog of Around-TRIZ Sites has been derived by using intensive internet surveys (of about 1000 sites) covering the fields of Creative thinking, Creative problem solving, Innovation, Quality/value/cost/productivity, Patent, etc. It contains 34 @ sites and 128 o sites. The Catalog system is composed of various indexes and many site description files. Individual sites are described briefly on basic information, and more closely in 3-10 lines or in our standard form of one page and are accessed from various indexes. This system structure makes the building/updating/managing easy and stable. The project is voluntary based and has a difficulty that “Many people support and join the project, but very few actually work for the project, because all of them are too busy”. This was particularly true when the vision of WTSP seemed so big and the product image and the process were not clear. Now that the First Edition is demonstrated nicely, the difficulty is much reduced. Tasks for enhancing the Catalogs are easily divided into smaller jobs achievable by individual members in parallel. The crucial issue is the coordination work to be served by Country Editors. We need volunteers having vision, passion, and leadership in TRIZ community in every country. Let’s work Together! Connected !! for making the World WTSP Catalogs more Attractive and Useful!!!

Key words: World TRIZ-related Sites Project (WTSP), World TRIZ Sites Catalogs, World Around-TRIZ Sites Catalogs, Global collaboration.

1. INTRODUCTION: OUR AIMS AND BRIEF HISTORY

[2] Aims of WTSP



- **To build Catalogs of TRIZ-related Sites**
 - of each country (in their own language, then in English) and
 - of the whole world (in English, then in many languages)
 - with appropriate (brief but close) introduction of individual sites
 - with appropriate selection of (useful and important) sites
 - for various people (unfamiliar, beginners, users, and experts in TRIZ)
 - in the field of TRIZ and relevant methodologies
 - as reliable sources of information (on theories, applications, activities)
- **To keep the Catalogs up-to-date**
 - accepting new and revised information regularly
 - revising all the Catalogs every two years
- **For promoting TRIZ and relevant methodologies further in the world**
- **By voluntary collaboration of many TRIZ colleagues in the world**

Fig. 1. Aims of the WTSP project [3]

The World TRIZ-related Sites Project (WTSP) started in December 2017 as a volunteer project [1, 2]. Its aims are represented in Figure 1 [3].

We reported the activities and results of the WTSP project at ETRIA TFC2018 [4] and TFC2019 [5]. In the first year (2018), Nakagawa made a pilot project for building a catalog of TRIZ-related websites in Japan (with 92 sites) in Japanese and in English. It demonstrated a sample of a Country WTSP Catalog and how to build it on the basis of Internet surveys. Then he also made Internet surveys of TRIZ sites in each of over 30 countries and posted the data openly for volunteers to analyze in each country. At

the TFC2018 conference, the WTSP project was accepted well by the participants and it obtained about 70 Members (including those stated to join) from about 30 countries.

In the second year (2019), we expected that in many countries WTSP Teams would be formed to build Country WTSP Catalogs. However, manuscripts of country catalogs were contributed only from China, Malaysia, and Russian language countries by June. In this situation Nakagawa started intensive Internet surveys in a top-down style. They include surveys of TRIZ websites in English in the world and in USA, and also surveys of websites in various fields around TRIZ in the world. He also wrote a proposal of WTSP Database System [6], which would build World WTSP Catalogs semi-automatically from many Country Catalogs.

In June 2019, we realized that our original bottom-up plan is not achievable. TRIZ leaders and WTSP Members in individual countries did not have clear images of World WTSP Catalogs and were not confident in their feasibility, especially because the DB System proposal was too idealistic. Thus we decided to change our strategy, on the basis of the “20 - 80 % principle”. We should better be practical to build a prototype of the World WTSP Catalogs quickly without pursuing high quality and thoroughness. This was the stage when we wrote in our TFC2019 paper [5].

From early July to early October 2019, we made a big progress. We quickly built the preliminary editions of World TRIZ Sites Catalogs and World Around-TRIZ Sites Catalogs, on the basis of the data obtained so far in the top-down Internet surveys. Such World WTSP Catalogs were reported in our talk at TFC2019.

In the present paper, we are going to report closely about the First Edition (Oct. 2019) of the World WTSP Catalogs and how to build them and enhance them further.

2. FIRST EDITION (OCT. 2019) OF THE WORLD WTSP CATALOGS

2.1 “Welcome to the WTSP Project Catalogs”

In April 2020, we have renewed the main pages of our WTSP site inside “TRIZ Home Page in Japan” [7]. The top page of our WTSP

site [8] is illustrated in Fig. 2. It shows the hierarchical structure of main pages inside the WTSP site. The boxes have hyperlinks installed which guide you to various main pages.

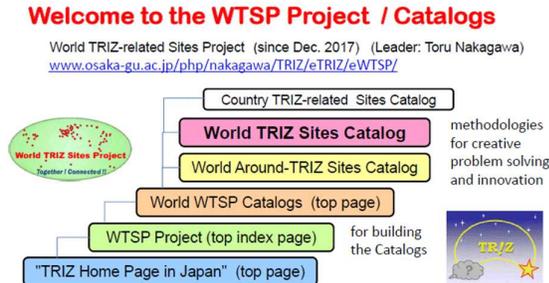


Fig. 2. Welcome page of the WTSP site [8]

2.2 Top page of the World WTSP Catalogs

The top page of the World WTSP Catalogs shows users the structure of the Catalogs as in Fig. 3. Users may access to various Indexes (i.e., tables of sites of various Catalogs). They include many Indexes for individual countries, for individual top-down surveys, and several types of World WTSP Catalogs. Each Index is a table of a large number of sites having brief basic information and a hyperlink to go to the description of the site.

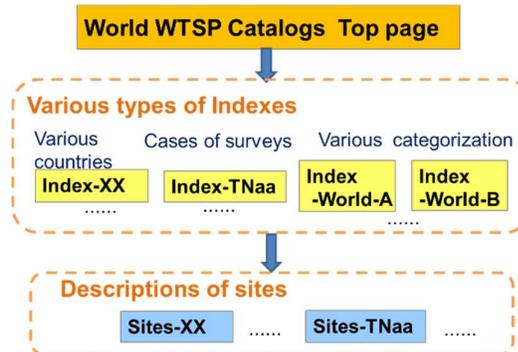


Fig. 3. Structure of the top page the World WTSP Catalogs (Users' view) [8]

This users' view is realized by the file system structure shown in Figure 4.

Every Country Team prepares its Country Catalog in the form of a pair of Index and Site descriptions file (See section 3). Such Country Catalogs and Top-down survey results are installed together in the World WTSP Catalogs Folder. In a separate working folder (see upper left in Fig. 4), all the Indexes (or 'Flat Tables')

are integrated and rearranged in some appropriate manner manually to build World Indexes.

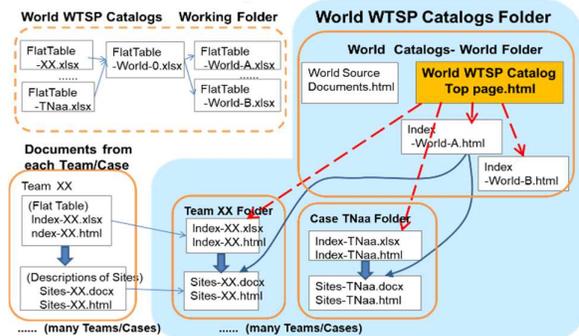


Fig. 4. Structure of the top page of the World WTSP Catalogs (Developer's view) [8]

Descriptions of sites are not affected by such a rearrangement of Indexes, and are accessed commonly from any Index and also directly from the top page. This independence is a key point in the design of the present WTSP Catalogs.

2.3 World WTSP Catalogs of TRIZ Sites

The source data of the current version of World WTSP TRIZ Sites Catalogs are shown in Table 1. The Evaluation marks mean: ⊙: Most important (about top 30),

Table 1

Source data of the World WTSP Catalogs of TRIZ Sites (Oct. 2019)

Code	Editor	Number of sites	Note
JP (Japan)	TN	⊙ 1, ○ 7, □ 18, △ 66	Including Around-TRIZ
CN (China)	Runhua Tan	⊙ 1, ○ 1, □ 13	
MY (Malaysia)	Eng Hoo Tan	⊙ 1, ○ 0, □ 4, △ 11	
RUL (Russian language)	Michael Orloff	⊙ 10, ○ 15, □ 12	
TN2F (USA)	TN	⊙ 6, ○ 11, □ 27, △ 24, - 22	
TN2A (World)	TN	⊙ 6, ○ 13, □ 29, △ 33, - 25	
World WTSP	TN	⊙ 23, ○ 39	2019 Oct.

○: Important (about top 100), □: Worthy in World Catalog, △: Worthy in Country Catalog, -: Irrelevant/not worthy. Data were contributed by four countries and supplemented by two top-down surveys (TN2F and TN2A). Excluding some duplication of sites, we obtained net 62 sites at the ⊙○ levels for the World Catalog.

In our WTSP Catalogs, we have chosen to categorize and rearrange these sites according to their Roles and Evaluation. Roles of sites are hierarchically classified [8], such as: (a) Information sending sites, (b) Promotor organizations, (c) Public organizations, (d) Academia, (e) Developer organizations [(e1) Method developers, (e4) Consultants, (e5) Training organizations], (f) Publishing organizations, (g) Information sharing, (h) User organizations, and (i) Personal.

World WTSP Catalog of TRIZ Sites (containing 23 ⊙ and 39 ○ sites) is posted in [9]. Fig. 5 shows the 23 ⊙ sites in it.



Fig. 5 Most important 23 ⊙ sites in the World WTSP Catalog of TRIZ Sites [9]

2.4 World WTSP Catalogs of Around-TRIZ Sites

An important policy of our WTSP project is to include various methodologies which have similar and common goals with TRIZ. Nakagawa made intensive internet surveys with various choices of keywords, as in Table 2.

Table 2

Source data of the World WTSP Catalogs of Around-TRIZ Sites (Oct. 2019)

Case	Keywords in the Internet survey	Number of sites
TN3A	Creat* Think* Method*	⊙ 1, ○ 4, □ 15, △ 3, - 84
TN3A2	Creative Think Method	⊙ 1, ○ 15, □ 65, △ 31, - 56 L (Listed already) 15 .
TN3B	(Creative / Innovative / Systematic) Problem Solve (Method / Process / Technique)	⊙ 10, ○ 26, □ 64, △ 32, - 39
TN3C	Innovation (Process / Strategy / Method / Management / Technology)	⊙ 3, ○ 36, □ 76, △ 70, - 19

TN3D	(Quality / Value / Cost / Productivity) (Deploy / Engineering / Management / Control / Analysis) (Method / Technique / Theory / Process / "Case Study")	◎16, ○ 38, □ 86, △ 36, — 41
TN3E	(Patent / IP / "Intellectual Property") (Analysis / Protect / Circumvent / Mapping / Strategy)	◎ 5, ○ 18, □ 37, △ 15, — 19
World WTSP	(integrating all the surveys)	◎ 34 , ○ 128 , □ 13

(Note: / means OR combination, while a sequence of keywords means AND combination. There seems no suitable name of such methodologies/approaches, we tentatively call them Around-TRIZ methodologies (including TRIZ itself).)



Fig. 6 Most important 34 ◎ sites in the World WTSP Catalog of Around-TRIZ Sites [10]

He visited all the sites (about 1000) one by one and wrote brief introductions and evaluated them even tentatively. Eliminating duplications of sites, the World WTSP Catalogs of Around-TRIZ Sites (at ◎○levels) are built as posted in [10]. The most important 34 ◎ sites are shown in Fig. 6.

3. GUIDELINES TO BUILD THE WTSP CATALOGS

We have successfully built the World WTSP Catalogs of TRIZ sites and Around-TRIZ sites, as described above, after various trials for overcoming difficulties. Here we summarize the practical process for building them step by step [8].

The main process is typically carried out as follows by forming Teams in individual countries or SIGs (Special Interest Group) in various methodologies or topics. Templates are available for all the steps.

(1) Any person who understands the significance of the WTSP Project may voluntarily join WTSP as a Member.

(2) List up Web sites related to TRIZ in your country (or in your choice of topic) and show them openly to your colleagues and people/leaders working in the field. Through these open communications you may gradually form a Team or a SIG with some coordinator(s) (or Country/SIG Editor(s)) voluntarily as-signed.

(3) For every site, describe the basic information and brief introduction.

(3a) Request the site owners to fill in the WTSP standard description form.

(3b) For the sites picked up by Internet surveys, a WTSP Member may de-scribe the site by actually visiting it. This needs much work. Persuading the site owner (3a) may be better after all.

(4) Evaluate each site (tentatively).

(5) Make a Table ('Flat Table') of sites (.xlsx) with basic information for indexing.

(6) Make these manuscripts (3)-(5) open for review and revision in the country (or among the people interested in the topic). Initially, try to collect important sites at ◎○□ levels without pursuing thoroughness of including △ sites.

(7) Convert these manuscripts into HTML pages, and make Country/Methodology Part of WTSP Catalog. See Fig. 7.

(8) Submit the completed manuscript of the Country/Methodology Part of WTSP Catalog (with the evaluation levels ◎○□) to the Project Leader, who will integrate them into the folder of the World WTSP Catalogs (See Fig. 4).

(9) Review the World WTSP Catalogs containing your manuscripts and ad-just/revise them if necessary.

Bypass procedure: Site owners proactive to promote the WTSP Catalogs may carry out (10)-(11) without waiting the orthodox steps (5)-(8).

(10) If you evaluate your site highly (◎○□), you may (besides doing (1)-(4)) write a close and attractive introduction of your site in a free format (2-5 pages in A4), and send it directly to the WTSP Project Leader.

(11) Reading your manuscript, the Project Leader will include your site in the World WTSP Catalogs, as soon as possible.

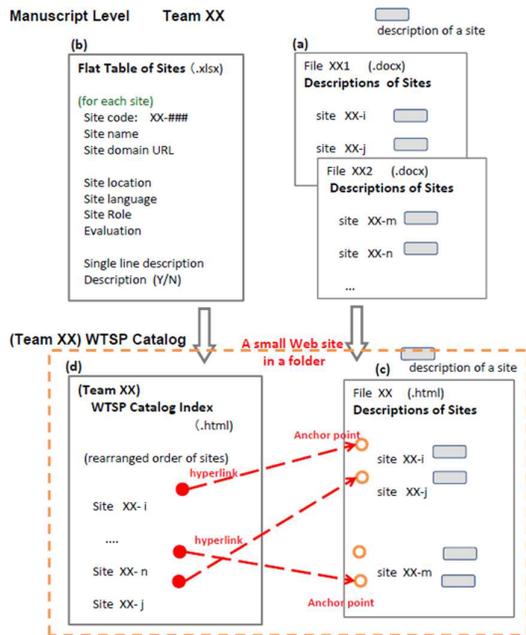


Fig. 7 Preparation of the WTSP manuscripts in the form of a small Web site.

The processes for the Project Leader to integrate new/ revised manuscripts and update the World WTSP Catalogs are rather tedious. Duplication of sites in the manuscripts from different Teams should be combined into single sites with revised site description. Hyperlinks from the World Indexes to individual sites need to be adjusted for reflecting the folder structure. Then as shown in the up-per left of Fig. 4, the Index tables (or ‘Flat Tables’) of all the Teams/SIGs are integrated into one big Flat Table in Excel, and all the sites are rearranged manually by some suitable Excel operations for categorization and sorting. All these processes can be carried out without much confusion because the files of site descriptions are not changed at all. (Note: The WTSP DB System [6] was once proposed for manipulating these processes semi-automatically with a software tool. But the manual operation has been chosen for practical reasons of better flexibility and earlier feasibility.)

4. CURRENT POSITIONS OF THE WTSP PROJECT

4.1 Evaluation by Users/Readers

The WTSP project and its WTSP Catalogs have been well accepted by

leaders/users/readers, fortunately. Here we may cite two examples of their reactions.

Mr. Richard Langevin, General Secretary of the Altshuller Institute, has been posting our WTSP Letters in the AI Web site. His preface in the HP [11] is cited here: “World WTSP Catalog: Some very important TRIZ work is being done by Prof. Toru Nakagawa in Japan. For some time now, he has been leading a world wide effort to provide a map of TRIZ organizations. This daunting task has been an effort of love and a driving force for Toru. His global thinking and desire to advance TRIZ needs to be recognized and supported by the entire TRIZ community.

AI has been publishing Toru's Newsletters for WTSP for some time now and I hope that you will take the time to review and support his work”.

He communicated in Feb. 2020 saying: “I have posted your latest letter on our website. Your project is coming along very nicely.” Second example is Dr. Bill Fowlkes, IP.com (USA). He communicated last October, saying: “I was an active user of TRIZ software (IM and III) many years ago, but cannot find new information of software tools recently”. So we passed him the URL of our WTSP Catalogs. He wrote back “It is a terrific reference. We all appreciate all the work you put into this.” He found his company’s site in the Catalog as TN3E-23. On our request, he wrote the description of his site in the WTSP standard form. After some Q&A on the structure of the WTSP Project and WTSP Catalogs, he sent us a message on Oct. 30, 2019 as shown below [12].

“To the World TRIZ-related Sites Project (WTSP) Global Co-editors:

I welcome the work you are doing to collect, organize, describe and link to the many internet sites that are of interest to students and practitioners of innovative methods such as TRIZ.

I have created a new bookmark folder with links to the WTSP Catalogs of TRIZ sites and the WTSP Catalogs of AROUND-TRIZ sites, and I expect that I will be referring to them frequently. The aggregation of these sites is much better than trying to find the data with a Google search, because the information is curated and

brief descriptions are provided. I encourage TRIZ providers and other content creators working in TRIZ related fields to participate in this project and make the World TRIZ-related Sites Project the best it can possibly be.

Dr. William Y. Fowlkes (VP, Analytics and Workflow Solutions| IP.com).”His message expresses the heart of the WTSP project and WTSP Catalogs. It is really encouraging to us and illustrative for all the users of not only TRIZ but also various similar approaches and methods. -- Very recently he contributed a list of 19 TRIZ and Around-TRIZ sites.

4.2 Weak points of the WTSP Catalogs and the WTSP Project

The WTSP Catalogs are much better than any Internet searches, in the aspects of (1) thoroughness and quality of site collection and (2) introduction to individual sites. However, they still have weak points in both of the two aspects.

(1) In the Catalogs, you will see many good sites you already knew and many more good sites you have never met before. Nevertheless you will notice that some of your favorite and useful sites are missing in the WTSP Catalogs. You may also wonder why there are only 62 TRIZ sites of levels ◎◎ in comparison to 175 Around-TRIZ sites. The reasons for the missing and the small number are clear in Table 1. Only 4 countries have submitted the manuscripts of TRIZ sites in their countries, while 30 - 40 countries have not. In many countries, WTSP Teams are not formed well, and their activities are very low. This fact would result in poor selection and poor evaluation of websites in their countries.

(2) Concerning to the quality of site introduction, our WTSP Catalogs are much better than ordinary simple lists of links. In our Catalogs all the websites are introduced (even at the Index level) in several basic terms, e.g., Site name, Site domain URL, Language(s), Location(s), Role(s), and single-line description. In the Site description files, all the sites are introduced further in 3-10 lines in free format, mostly referring top pages, ‘About us’ pages, and some more main pages. Filling in the Standard Site Description Form (of about 1 page of A4) is requested for the sites at ◎○□ levels. However, even such

one-page description is just an outline and not enough for users to understand the contents and importance of the sites.

5. FOR FURTHER ENHANCEMENT OF THE WTSP CATALOGS

5.1 Attractive and Useful Site Introduction

We should enhance our Catalogs to be more attractive and useful for many users to find attractive and useful websites in the world for their own jobs.

Since we know there are many (several tens or hundreds of) important websites in the world, we should make our best efforts for introducing them to be attractive and useful for the readers themselves. Such introduction can best be written by the site owners, who are proud of their own sites. Thus we should suggest and request them to write attractive and useful introductions of their sites and contribute the manuscripts to our WTSP Catalogs. Such introduction may be written in free format and in some suitable style of their choice. Probably 2 to 5 pages in A4 may be suitable for the description.

As a sample, Nakagawa has written a close Site Introduction [13] of his website “TRIZ Home Page in Japan” [7]. The site has a history of 21 years and is posting over 1400 articles in Japanese and over 1100 articles in English. So he chooses to write a historical review of the articles along the development of his research themes and his activities. His Site Introduction is 16 pages long in A4 with 160 references.

Getting Site Introductions for 5 to 10 sites initially is important for demonstration. After such pioneers, many more site owners will follow finding the advantage of being posted in the World WTSP Catalogs, we hope.

5.2 Collecting Attractive and Useful Sites in the WTSP Catalogs

As we discussed above in 4.2(1), it is most important to collect and select At-tractive and Useful sites for citing in the WTSP Catalogs. The main steps (1) through (9) in the Guideline (Section 3) are the instructions for the process to be applied here. It is the orthodox, bottom-up approach by forming Country Teams in various countries and SIG groups for specific topics. We have been inviting 70 Members (and about

200 TRIZ colleagues) to work together for this project. But we have not good responses yet in many countries, at moment. The difficulties in forming voluntary WTSP Teams are discussed in the next subsection.

5.3 Crucial Issues for the Success of the WTSP Project

The main difficulty for our WTSP Project has been clear from the beginning: I.e., (a) “Many people support the aims of the WTSP project and a number of them join WTSP as Members, but very few of them actually work for WTSP”. We once thought its main reason is: (b) “Active TRIZ leaders are too busy to work for WTSP besides their business”. But we now think this reasoning was superficial. Let’s consider step by step. (c) It is clear that many people share the understanding of the general back-ground situations and the needs of solutions proposed in the WTSP project. Thus they would support or join WTSP. (d) Many people understand the vision of WTSP is very big. There are numerous sites, in different countries and in different languages, and introducing each site is not so easy. Hence the WTSP vision would be achievable only by a close collaboration of many (probably hundreds of) people. The image of final goals and the ways to proceed were not clear at the initial stage of the project. Thus everybody did not know what to do. (e) The vision of the final outputs and the process for building them have been made clear step by step for these 2 years, in the form of First Edition of World WTSP Catalogs. It has become clear that the final output systems and the jobs for building them can be divided into small parts/jobs which are achievable by individual members in parallel. Thus if such small jobs are assigned, prioritized, and coordinated appropriately, we would be able to manage such work even in our busy schedule. (f) Thus we should get Teams and their leader(s) in every country and in every SIG group. The Team leader should have the vision of the goal, understand what to do and how to do in practice, be confident that the goal is achievable, and encourage and guide the Team members. We all should hope that our efforts are helpful for many people and are fruitful for ourselves as well. (g) In practice we should do the essential 20 % of jobs first

to get the results of 80 %. Namely, we should work on highly evaluated sites (◎○□) first. In this manner we hope we can solve the main difficulty (a)(b) we have had so far.

6. CONCLUDING REMARKS

The completion of the First Edition (Oct. 2019) of the World WTSP Catalogs of TRIZ sites and Around-TRIZ sites has solved the technical problems in the WTSP project. The structure and main contents of the final products are established. The processes of how to prepare the manuscripts and how to build them up into the final outputs are made clear in the technical aspects. This is the big achievement of the WTSP project for these 2 years.

On the other hand, the project has difficulties in the human/organizational aspects. The main difficulty “Many people support the aims of the WTSP project and a number of them join WTSP as Members, but very few of them actually work for WTSP” still exists even at present. The basis of this difficulty, however, has been lifted much already by our technical achievements. Now our critical issue is to form WTSP Teams with coordinators (Country Editors) in various countries. Relying on the passion of people in the TRIZ community, we are going to carry out the WTSP project on the voluntary basis. Let’s work Together! Connected !! for making the World WTSP Catalogs more Attractive and Useful !!!

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Dezvoltarea globala a siteurilor legate de TRIZ (WTSP) (3): Cataloagele mondiale WTSP ale site-urilor TRIZ și din jurul TRIZ-ului: prima ediție (oct. 2019) și îmbunătățirea ulterioară a acestora

Rezumat: Acesta este cel de-al treilea raport al Proiectului Mondial de Situri (WTSP). Ca rezultat al activităților de 2 ani, am finalizat Prima ediție (octombrie 2019) a Cataloagelor Mondiale WTSP și acum lucrăm pentru îmbunătățirea acestora. Cataloagele au 2 produse principale. (A) Catalogul WTSP Mondial al Site-urilor TRIZ a fost construit cu datele site-ului contribuite din 4 țări și rezultatele a 2 sondaje internet pe site-urile TRIZ din SUA și din lume. Conține 23 de site-uri foarte importante © și 39 de site-uri importante ○. (B) Catalogul WTSP mondial al site-urilor din jurul TRIZ-ului a fost obținut prin utilizarea unor sondaje de internet intensive (aproximativ 1000 de site-uri) care acoperă domeniile gândirii creative, rezolvării problemelor creative, inovației, calității / valorii / costului / productivității, brevetelor etc. Conține 34 de site-uri © și 128 site-uri ○. Sistemul Catalog este compus din diverse indexuri și multe fișiere cu descrierea site-ului. Site-urile individuale sunt descrise succint pe informații de bază, și mai îndeaproape în 3-10 linii sau în forma noastră standard de o pagină și sunt accesate din mai mulți indici. Această structură a sistemului face construirea / actualizarea / gestionarea ușoară și stabilă. Proiectul se bazează voluntar și are o dificultate pe care „Mulți oameni o susțin și se alătură proiectului, dar foarte puțini lucrează efectiv pentru proiect, pentru că toți sunt prea ocupați”. Acest lucru s-a întâmplat în special când viziunea WTSP părea atât de mare, iar imaginea produsului și procesul nu erau clare. Acum că prima ediție este demonstrată frumos, dificultatea este mult redusă. Sarcinile pentru îmbunătățirea cataloagelor sunt ușor împărțite în locuri de muncă mai mici realizate în paralel de către membrii individuali. Problema crucială este activitatea de coordonare care trebuie deservită de editori de țară. Avem nevoie de voluntari care au viziune, pasiune și leadership în comunitatea TRIZ din fiecare țară. Hai să lucrăm împreună! Conectat !! pentru a face cataloagele WTSP mondiale mai atractive și mai utile!!!

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