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Virtual Automation Networks

Work Package 10
Exploitation and Dissemination

Task 10.1
Information Dissemination

Deliverable 10.1-3
**Use and Dissemination of Knowledge
Assessment**

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Executive summary

This is the last deliverable from task 10.1 “Information Dissemination”, from work package 10, “Exploitation and Dissemination”.

In this report an assessment on the dissemination plan followed along the whole project is presented. The study is structured in five chapters, being the first one a brief introduction. There follow an analysis on the events (chapter 2) and deliverables (chapter 3). Chapter 4 is devoted to the assessment of dissemination in terms of indicators from the website, and chapter 5 gathers some conclusions on the overall work.

Contents

1	Introduction	6
2	Events	7
3	Deliverables	10
4	Web site	12
4.1	Layout and contents	12
4.2	Assessment indicators	13
4.3	Improvement measures.....	15
5	Conclusions.....	18
	Glossary	19
	References	20

List of figures

Fig. 2.1 Major events attended by VAN consortium from September 2005 till August 2007.....	7
Fig. 2.2 Major events attended by VAN consortium from September 2007 till October 2009.....	7
Fig. 2.3 Contributions from each partner along the whole project.....	8
Fig. 2.4 Contributions from each partner in terms of percentage.....	8
Fig. 2.5 Dissemination contributions in terms of audience.....	9
Table 2.6 Evaluation indicators for major events.....	9
Fig. 3.1 Deliverables from VAN project from the period Sep 05 – Aug 07.....	10
Fig. 3.2 Deliverables from VAN project from the period Sep 07 – Oct 09.....	11
Fig. 3.3 Deliverables classified by Work Package.....	11
Fig. 3.4 Deliverables classified by type.....	11
Fig. 4.1 VAN Home page.....	12
Fig. 4.2 Evolution of unique visitors and number of visits.....	14
Fig. 4.3 Trend followed by the indicators: Pages and Hits.....	14
Fig. 4.4 Trend followed by the indicator: bandwidth.....	15

1 Introduction

After 4 years since the start of VAN project we have come to the time to look back and assess to what extent we have managed to reach our initial targets in terms of dissemination and exploitation. To do so we will be analysing the dissemination events attended by VAN partners, the deliverables produced, the publications in relevant magazines, etc., considering both the quantity and quality of all this material.

From the very first moment we made a distinction between passive and active dissemination aiming at differentiating between those events not specifically organized by VAN members and those specially thought for and organized by VAN consortium to show concrete results of the project. With this in mind, a strategy was carefully designed taking into account the channels that were going to help us to get to our desired audiences, the audiences themselves and the required tools. We identified as channels: users and vendors organizations, Internet, fairs, congresses, seminars, conferences, workshops and mass media in general. The audience would be classified among the categories: industry, research community, government, public organizations and general public. The needed tools to achieve this were: our web page, regularly published newsletters, posters, press releases, presentations and publications. All this would be regularly evaluated through our assessment indicators and, above all, the project review meetings held regularly with the project officer of VAN and technical reviewers [D10.1-2 V1].

In general terms it can be said that we have followed this initial plan quite to the letter if we admit some adjustments in our initial definition of "active dissemination". In practice, it's not been possible to organize major events for broad audiences with live presentations, mainly for logistic reasons, but also because it didn't make much sense to show in such a way innovative concepts ready for exploitation but not manageable as final technology, which is much more appealing for a live presentation. Our approach instead has been to promote VAN outcomes through forum presentations, panel discussions, presentation days, lectures, etc. [D10.2-1].

2 Events

Along the whole duration of this project, VAN partners have attended 102 major events. These include: conferences, fairs, congresses, seminars, etc. Sometimes VAN results were shown through presentations frequently followed by related discussions. Other times, papers and/or articles were sent to relevant scientific magazines.

There follow a couple of graphs with the most remarkable events VAN partners have attended from the beginning of the project till now. They are displayed along time aiming to show the distribution through the different stages of the project. Two graphs have been used for clarification, as it would have been difficult to include the whole 4 years within a unique graph with enough resolution. The complete list can be found inside the different versions of the Plan for Using and Disseminating Knowledge [D10.1-2].

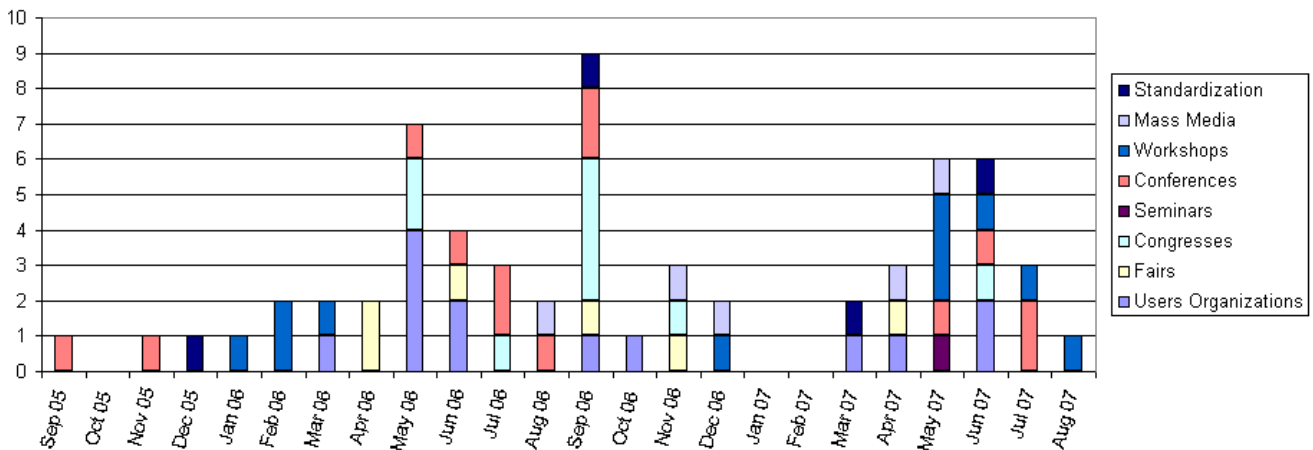


Fig. 2.1 Major events attended by VAN consortium from September 2005 till August 2007

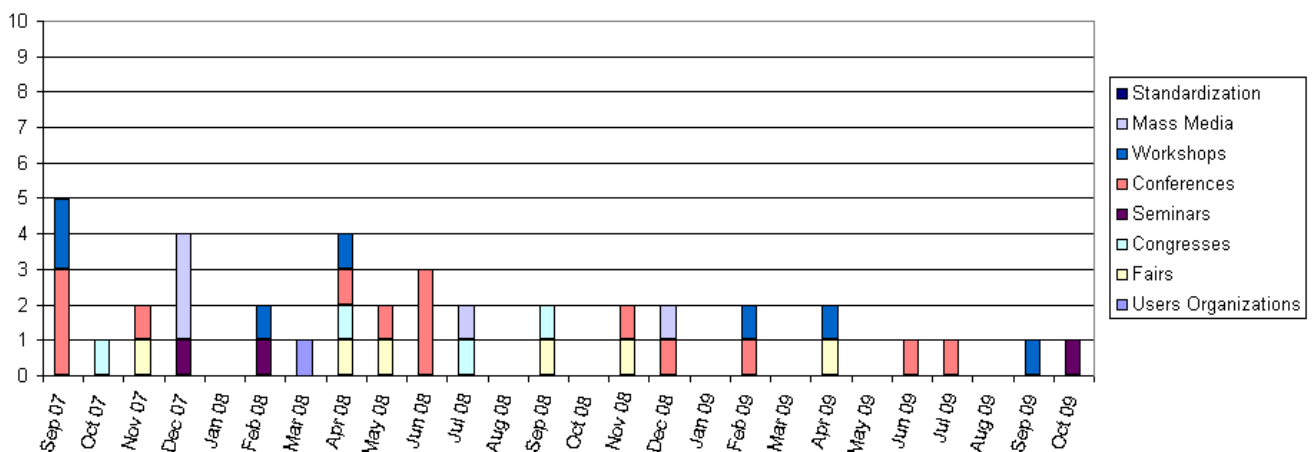


Fig. 2.2 Major events attended by VAN consortium from September 2007 till October 2009¹

¹ Note that events foreseen in October 2009 have also been included for practicality.

From figures 2.1 and 2.2 we can conclude that activity increased remarkably from May 2006 onwards, though not regularly. Maximum peaks were reached on September 2006, May 2007 and June 2007, though there has been a constant activity all the time. A logical explanation for this is the fact that dissemination activities concentrate around relevant events such as renowned international congresses or conferences. Efforts are usually directed towards specific events though the related work is carried out regularly in time. For example, on May 2006 we find ICOA'06 (International Congress on Open Automation with the Focus in 2006 Industrial Communications) and ICCC 2006 (7th International Carpathian Control Conference). Moreover, we must take into account the fact that partners have often shared participation within a common event, that is to say, most of the times, within each of the events represented in the previous graphs we must be aware of the participation of several partners contributing several papers, presentations, etc, though here we are just considering the number of events. In order to clarify this point figure 2.3 has been included below.

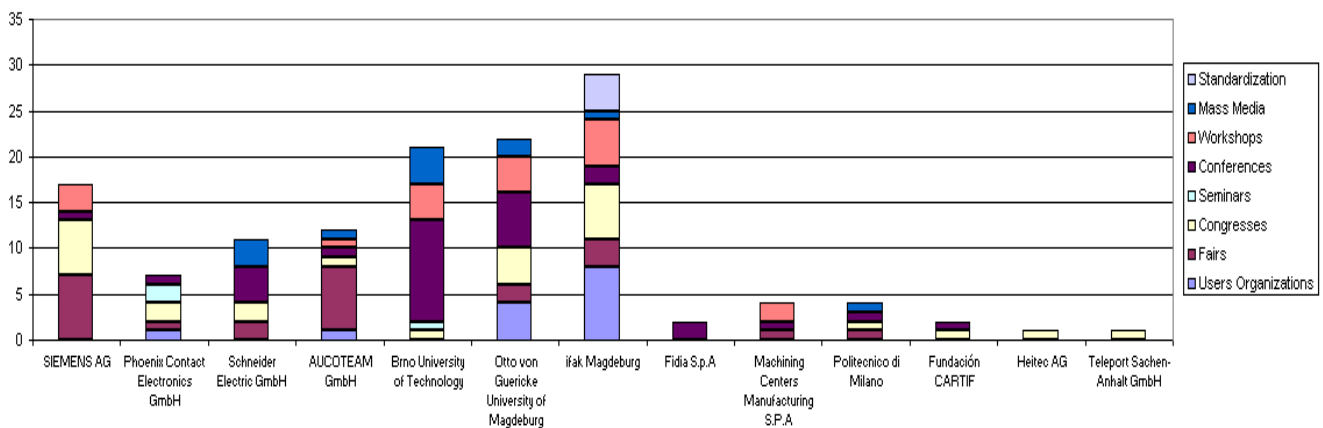


Fig. 2.3 Contributions from each partner along the whole project

As reasonably expected, research centres and universities in general have contributed more significantly to VAN dissemination in terms of publications and attendance to congresses, while industrial partners have been more focused on fairs, workshops, etc.

However, big differences can be appreciated regarding degree of participation. This is mainly due to the budget allocated to each partner.

This can be better analysed in next figure, where we can see the degree of participation of each partner in terms of percentage.

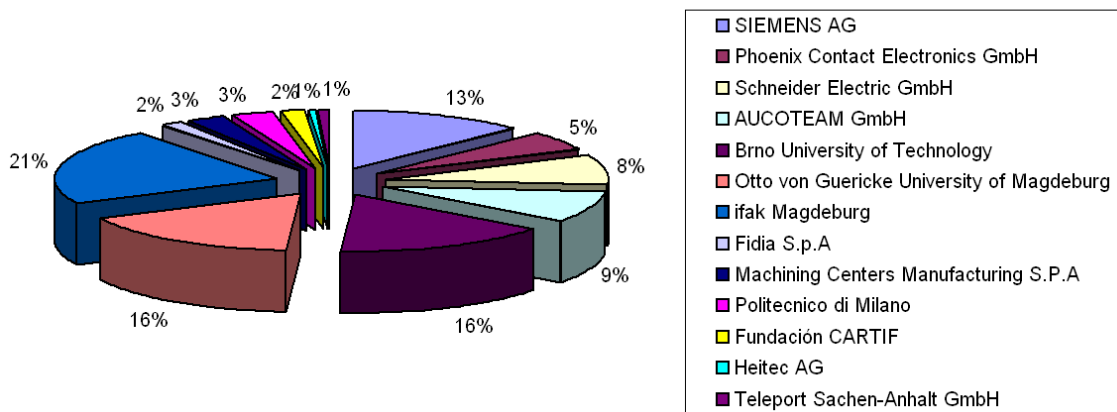


Fig. 2.4 Contributions from each partner in terms of percentage

Finally, we can't miss the analysis in terms of audience. This can be checked within figure 2.5.

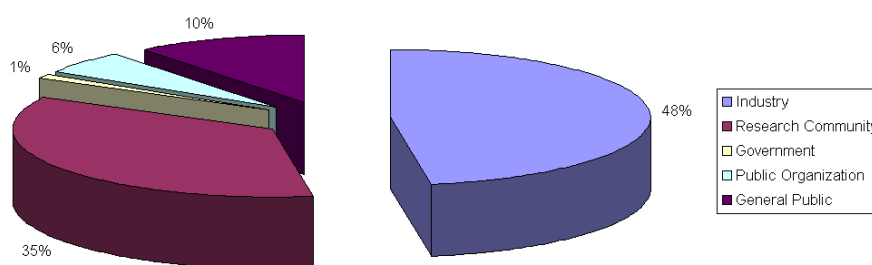


Fig. 2.5 Dissemination contributions in terms of audience

From the very beginning, efforts have been focused towards the five identified audiences. This way, we have produced both technical deliverables and more commercial oriented material (leaflets, posters, etc), trying to reach at the same time technically specialized recipients and laymen.

On the one hand, the research community has been reached through scientific papers published in specialized magazines, and on the other hand, live presentations based on intermediate or final IESs have been targeted towards industrial oriented audiences.

Dissemination has been assessed in several ways, being the main one, the evaluation indicators. VAN partners have been regularly filling in a dissemination template where they have included information related to past and future events of their choice. Whenever possible, impact of VAN project on the audience has been assessed through several basic indicators, namely:

For **conferences** and **congresses**: the number of attended events, number of papers presented, and number of interested entities. The same applies to **workshops**.

As regards attendance to **fairs**, the size of the stand or the number of interested visitants.

For **written publications**: the impact index that corresponds to that specific magazine.

Table 2.6 summarizes a couple of indicators for major events gathered all along the project:

	Interested Organizations	Contacts for future collaboration
Schneider Electric GmbH	45	9
SIEMENS AG	63	23
Otto von Guericke University of Magdeburg	19	0
Phoenix Contact Electronics GmbH	16	1
CARTIF	4	2
Aucoteam GmbH	125	15
Brno University of Technology	23	7
Total	295	57

Table 2.6 Evaluation indicators for major events

As a result from these efforts a number of publications, presentations, etc have been produced and are accessible to everyone through VAN website (www.van-eu.eu).

3 Deliverables

The overall structure of the project is divided into 5 major subsections. Therefore, it is reasonable to describe its evolution out of them.

1. **Requirements and trend screening:** This has been mainly performed inside WP1, with the aim of defining the state of the art, specifying and validating the requirements on VAN and self-evaluating the project execution.
2. **Specification of the application dependent architectures, including APIs:** A model for the Open Platform and System Architecture to combine existing industrial network protocols with a new generation of IT and telecommunication protocols has been worked out. The interfaces, service and protocol boundaries of both have been developed to integrate the new VAN extensions and to introduce a new quality of automation networks.
3. **Detailed specification of the used technologies, concepts and mechanisms:** Here the focus is on the specification of wireless communication, real time mechanisms, security mechanisms for automation and the specification of a safety layer. A common tool interface has been defined. The interfaces for the integration and coupling of different engineering tools have also been specified.
4. **Implementation:** The objective at this point was to develop dedicated solutions that implement the functions from the specifications into industry proven hardware and software modules. Focus is on a modular concept that allows easy integration of the IESs (Industrial Experimental Setups) into a different kind of automation equipment.
5. **Verification:** The objective at the last stage of the project was to install prototype devices, engineering systems and networks, both wired and wireless, at identified test sites. On the one hand, this refers to the Industrial Experimental Setup (IES) for Process Automation (PA), and on the other hand for Factory Industry.

The first measurable outcome from VAN project is its deliverables and a great amount of them has been produced along the last 4 years. Many of them are not public due to the fact that they contain sensitive information from the authors, but many others are available to the general audience from our website.

We have made a deep analysis inside their nature and characteristics and the results can be seen below.

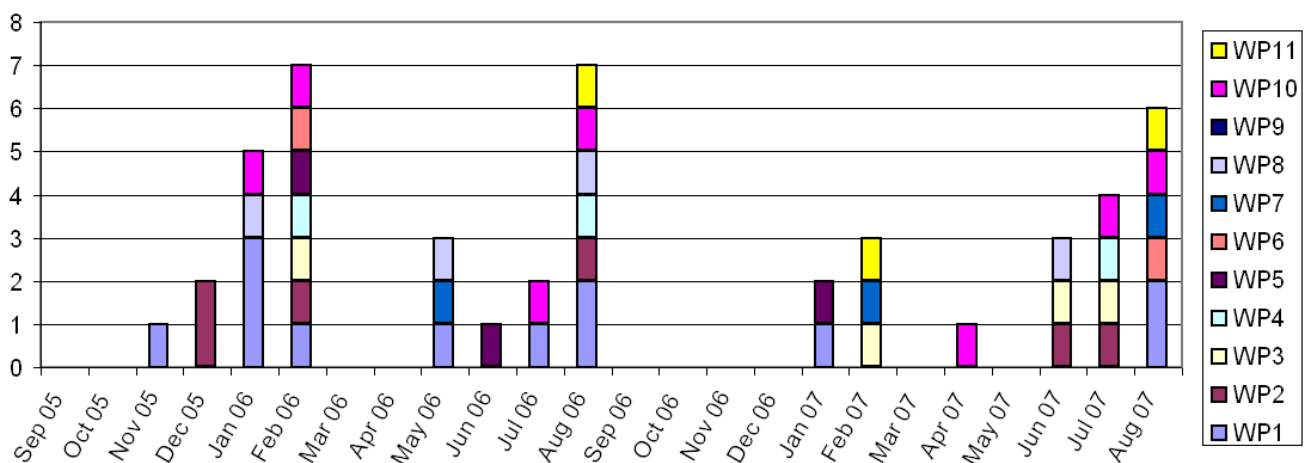


Fig. 3.1 Deliverables from VAN project from the period Sep 05 – Aug 07

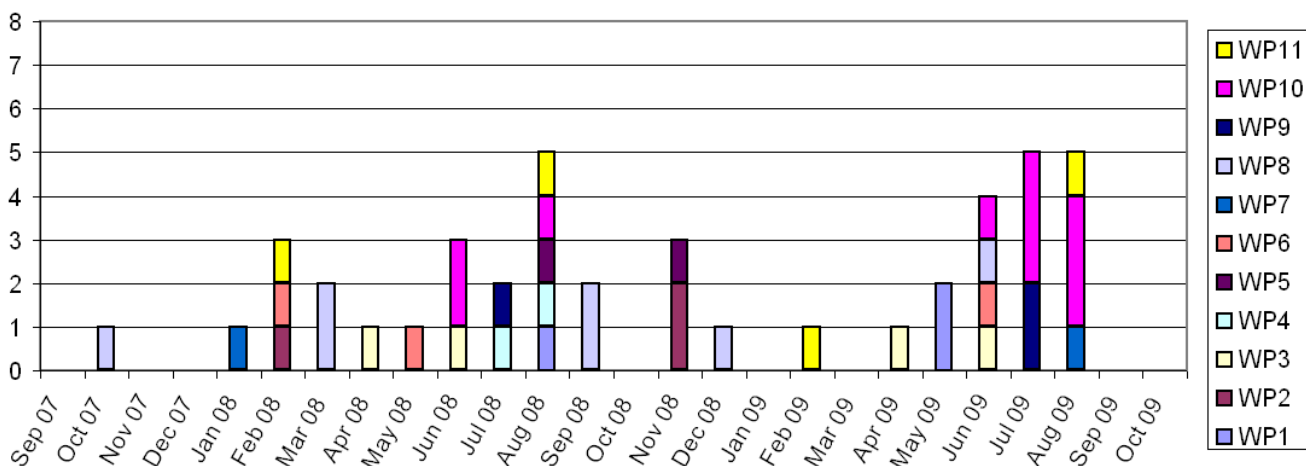


Fig. 3.2 Deliverables from VAN project from the period Sep 07 – Oct 09

From the figures above we appreciate an irregular distribution with time, including some periods (usually not very long) with none or just one or two deliverables. On the contrary, we realise some “peaks” with up to 7 deliverables within the same month.

The distribution per work package is displayed in the figure below:

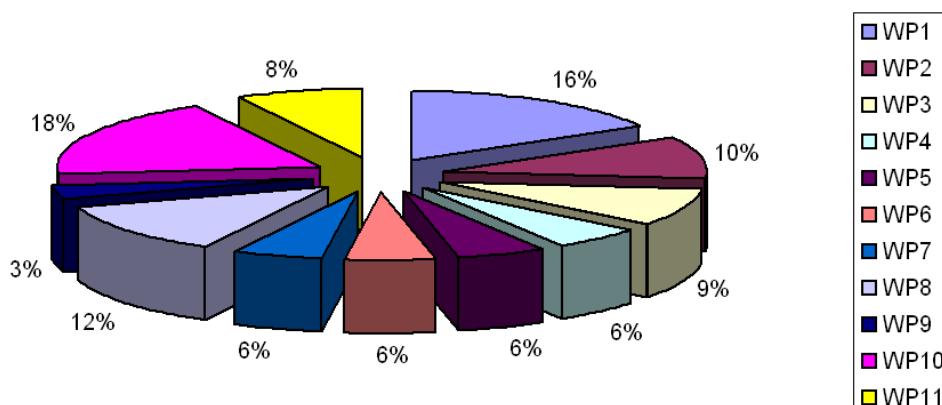


Fig. 3.3 Deliverables classified by Work Package

It must be noted that, though WP2 and WP9 have been represented separately, we should clarify that WP9 is mostly a continuation of WP2. Therefore, under the consideration of work performed inside them, they should be considered as a unique WP.

Regarding type, 55% of the deliverables produced have been classified as confidential until now according to what was agreed on the first Description of Work of the project. However, after evaluation of all documents and having in mind the objective of letting the audience have access to all the possible material, the consortium has agreed to change the status from confidential / restricted to public in eight of them. The final classification is displayed on figure 3.4.

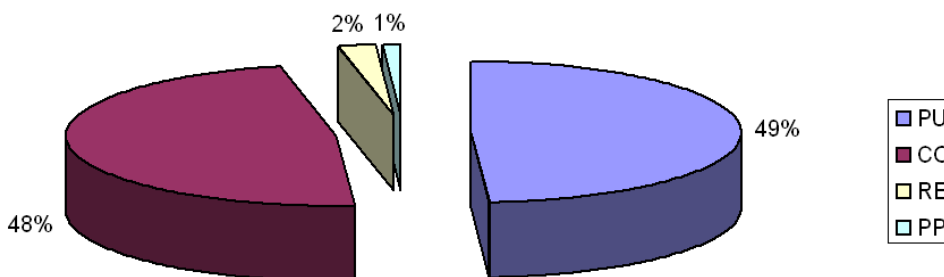


Fig. 3.4 Deliverables classified by type

4 Web site

4.1 Layout and contents

The general layout of our web site has suffered some changes since it was first launched till now. However, the main sections have been kept quite the same, mainly in terms of structure.

van eu investigation for future communication

About Contact us Home Search Welcome to the VAN Project Home Page

Latest News

Hannover Messe 2010

Options

- Project info
- Consortium
- News and Events
- Related links
- Publications
- Deliverables
- Downloads
- Join interest group
- Contact
- Groupware
- Site Map

Virtual Automation Networks "VAN" is an integrated Project funded by the European Commission under the Information Society Technology (IST) priority within the 6th Framework Programme (FP6)

The VAN Project focuses on an important part of a flexible manufacturing automation scheme: the required industrial communication network for local and wide area connection between the parts of the automation functions.

VAN Use Case for Factory Automation **VAN Use Case for Process Automation**

Find out information on VAN prototypes (excerpt taken from deliverable D01.3-1 V5)

Download here the latest issue of our newsletter

Office Domain

Office Sub Domains

Industrial Domain

Industrial Segment

Intrinsic Safety Domain

Individual Industrial Sub Domains

Realtime Domain

Industrial WLAN Domain

Mobile Devices

Industrial Backbone

Public and Private Telecommunication Networks/Internet

Single device integration (e.g. telecontrol)

Domain connected via radio link

VAN - Vision

Vision of VAN is an open, universal, seamless multivendor networking solution which is able to link worldwide components in process and factory automation from the single sensor in one factory plant to remote machinery in de-centralized enterprises/sites. VAN's interoperable communication can be realized via fieldbuses, office networks and even the public communication infrastructure - wired or wireless.

Core of this approach is the IEC standard 61158 - Type 10, enlarged by web services and other IT based technologies to enable VAN's all-embracing communication approach. By means of a common engineering model the user may not see the single building blocks of the underlying communication infrastructure and regards the whole network as a homogeneous system. To realize this totally new concept, the VAN solution provides scalable real-time, safety and security strategies, needed to meet QoS requirements over the whole Virtual Automation Network, necessary in automation-science and -practice.

Information Society Technologies

EU VI Framework Program Site Map Disclaimer Webmaster

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W3C W3C Developed, hosted and maintained by CARTIF

Fig. 4.1 VAN Home page

In order to attract attention towards the most recent updates, a special dedicated area is always available at the home page. Contents currently available are: an excerpt describing VAN IESs and the latest issue of our newsletter.

The main sections and their current status are described next:

Project Info: General information regarding the project itself and the coordinator. Information concerning the objectives, expected results of the project, work packages contents and organization structure.

Consortium: Contact data and description of VAN consortium.

News and Events: VAN relevant events are announced in this section that is periodically updated with information regarding forthcoming events of interest with links to their web sites. Also, information related to VAN partners' participation in most of these events is displayed here.

Related links: Related projects and information regarding topics of interest for the project are available in this section.

Publications: This section is devoted to display all the publications (and some presentations) produced by VAN partners as outcome from the project. In order to access them it's necessary to register. Registering is free and is meant just for keeping a database with interests and profiles of the users who show interest in VAN publications.

According to the information collected so far they partly work for private firms and partly are doing research at university. There are also several ones who are students and search for useful information for their PhD thesis. Among their interests, we have found: automation trends, wireless networks for process automation, reliability in wireless networks, web services, industrial communication products, automation networks, networked control systems, zigbee wireless in VAN, engineering software architectures, safety critical communication, embedded systems, wireless sensor networks and wireless automation.

Deliverables: Public deliverables from the project are accessible from this section. They are announced in due time and the general public is able to download them.

Downloads: Mainly dedicated to commercial oriented material. From this section it's possible to get VAN commercial brochure, posters, leaflets, presentations, etc.

4.2 Assessment indicators

VAN web site impact on the audience has been measured since its start up. This has been done through specific indicators that are likely to reflect the interests of users accessing it. These indicators are mainly: number of visitors, their origin, number of visits, more visited sections and downloaded traffic. They assess, in both a quantitative and qualitative way, the extent to which VAN progress and results reach different kinds of audiences (from industry, research, academia, general public, etc).

It was not before the first year of the project that these indicators showed a first rise due to the fact that first project outcomes were being achieved. From then on, as a bigger amount of material was being displayed, the trend has been towards a continuous increase, though not in an exponential, but rather in a linear way. The maximum values both in terms of number of visits and unique visitors were reached on June 2008. Then, August showed a deep fall, probably due to summer holidays because there was a quick recovery on the following month. From then till the end of year 2008 there has been a continuous decrease that stopped just during the first couple of months of 2009. Then, from March till August we have experienced once again this negative trend. After the latest project review in Bari, some measures have been put in practice in order to react to this situation. Objectively there seems to be no reason from our side that justifies this behaviour from our audience. So far and

since the start of the project we have been observing alternative periods of rises and falls (always within a steadily increasing trend) regarding visits to our website.

Now that the project is approaching its end we have agreed on maintaining its website for 2 to 3 years after its finalization. With this in mind we are aiming to fight against this negative trend by improving even more the quality of the contents and by helping our site's interaction with search engines, making it more visible to potential users. Right now, after the summer break we realize an encouraging recovery in relation to last July. It's a good sign that shows us we are on the right track to recovery.

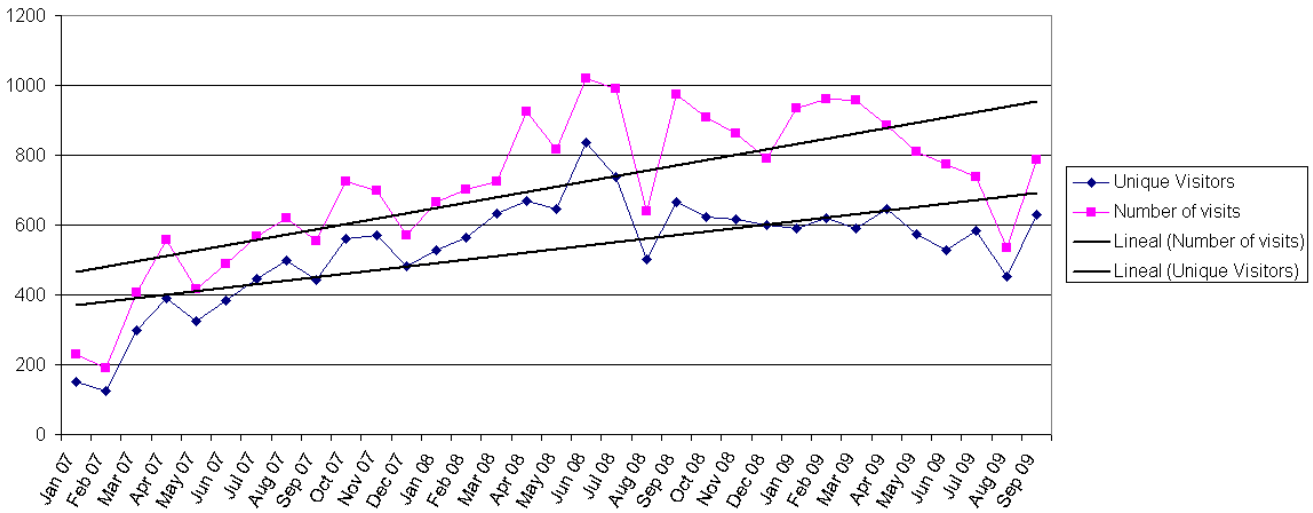


Fig. 4.2 Evolution of unique visitors and number of visits

If we analyse the evolution of the other indicators, conclusions are quite similar, though the recovery is even more remarkable when it comes to Hits and Pages.

Below a graph displaying Pages and Hits is displayed:

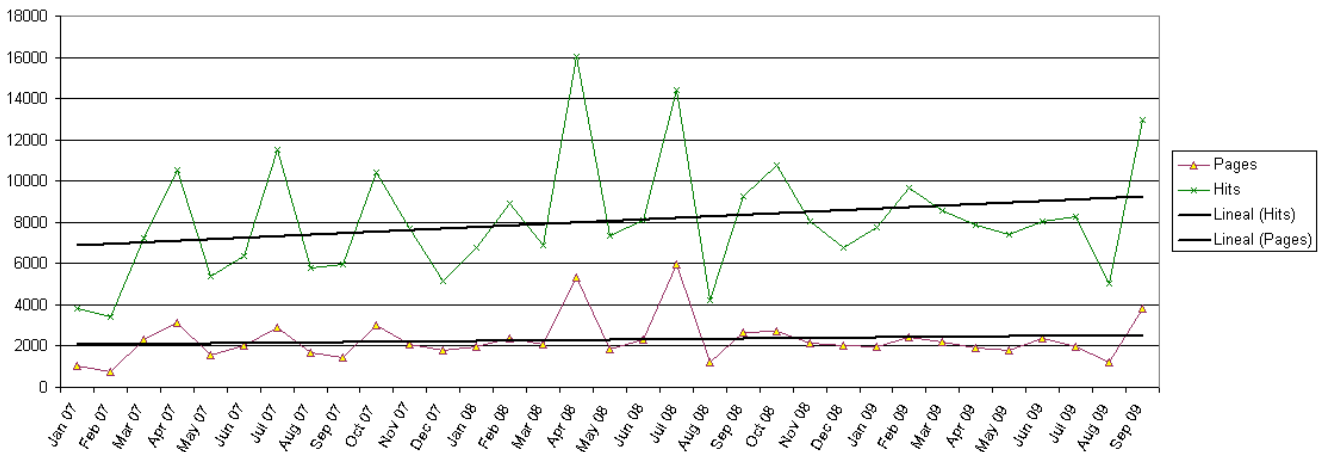


Fig. 4.3 Trend followed by the indicators: Pages and Hits

Finally, with respect to the last indicator, bandwidth, the corresponding graph is shown below:

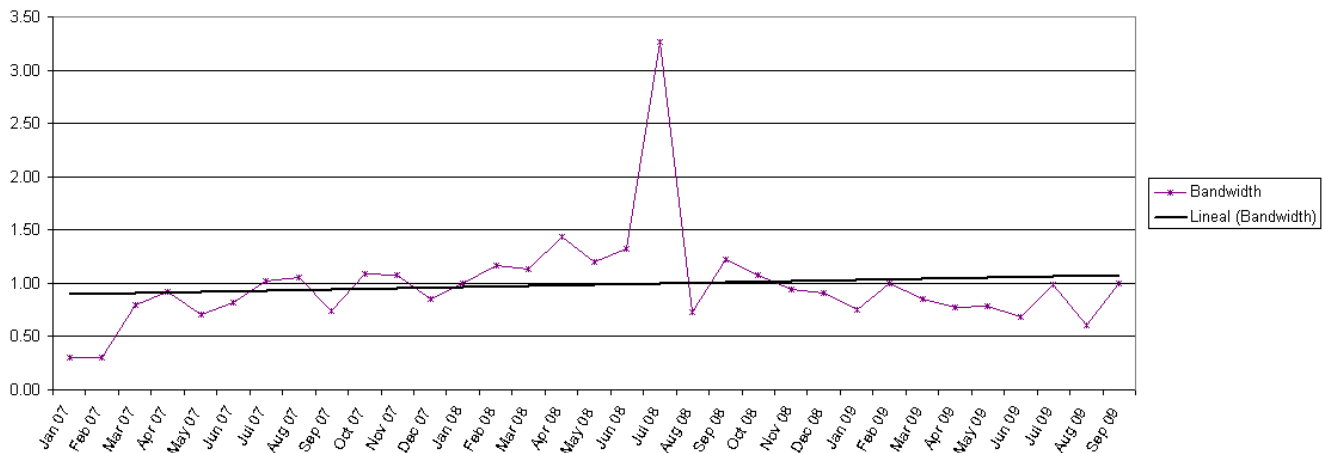


Fig. 4.4 Trend followed by the indicator: bandwidth

4.3 Improvement measures

The indicators shown in the previous sections are our means to analyse to which extent our website is catching the interest of the public. Though we've been extremely careful regarding quality and update of contents, we have realised an additional effort is necessary to keep our past positive trend.

If we have a look at the entries from Google after searching for: "Virtual Automation Networks" we get 2.170 entries being www.van-eu.eu the first one in the list. There are currently numerous references to VAN project from publications, other web sites, presentations, etc, and all them contribute to the popularity of our web site.

In order to keep this going at this pace we have considered two ways to improve it or at least keep it at a reasonable level within the next 2 or 3 years . To achieve this, first we have analysed how contents and the way to present them could be improved inside the site. Second, we have focused on specific strategies to gain ranking in the organic results of search engines [Goo08].

We understand the second methodology should be a complement of the first one, as there is no doubt that creating compelling and useful content will likely influence the website more than anything else. Users know good content when they see it and will likely want to direct other users to it. Therefore, we have revised all the sections and made the modifications listed below:

1. An excerpt describing VAN IESs and the latest issue of our newsletter have been included at the home page. This will ease the task of finding out about the latest achievements of the project.
2. The old "Expected results" section has been substituted by a new one called "Achieved results". Here we find three sections, namely:
 - a. Objectives and Achievements of the Project
 - b. Project Technologies, State-of-the-Art and Application trends
 - c. VAN showcases
3. The Work packages section has been updated with related information.
4. The News and Events section has been updated with events related to future dissemination (there are already some plans for the short / medium term), descriptions of the latest meetings and the issue 6 of our newsletter.

5. The Related Links section has been updated and completed with new VAN related projects among other novelties.

With a view on making available to the public every possible material coming out of the project, a software application, built from open source, has been produced as an outcome of the cooperation between WP4 and WP7.

openvpn4van is a modification of openvpn to preserve real-time traffic priorities among software tunnels. Developed first for the Virtual Automation Networks (VAN) project and now publicly available for the open source software community.

To find more information, please check: <http://openvpn4van.sourceforge.net/>

6. The Publications and Deliverables sections have been updated accordingly to the available new material.

Regarding good strategies to gain ranking in the organic results of search engines, there follows a list with some of the ones applicable to our site:

1. **Create unique, accurate page titles:** A title tag tells both users and search engines what the topic of a particular page is. The <title> tag should be placed within the <head> tag of the HTML document.
 - a. Accurately describe the page's content: Choose a title that effectively communicates the topic of the page's content.
 - b. Create unique title tags for each page: Each of the pages should ideally have a unique title tag, which helps Google know how the page is distinct from the others on the site.
 - c. Use brief, but descriptive titles: Titles can be both short and informative. If the title is too long, Google will show only a portion of it in the search result.
1. **Make use of the "description" meta tag:** A page's description meta tag gives Google and other search engines a summary of what the page is about. Whereas a page's title may be a few words or a phrase, a page's description meta tag might be a sentence or two or a short paragraph. Description meta tags are important because Google might use them as snippets for the pages. This means Google may choose to use a relevant section of the page's visible text if it does a good job of matching up with a user's query.
 - a. Accurately summarize the page's content: Write a description that would both inform and interest users if they saw our description meta tag as a snippet in a search result.
 - b. Use unique descriptions for each page: Having a different description meta tag for each page helps both users and Google, especially in searches where users may bring up multiple pages on our domain.
2. **Make the site easier to navigate:** The navigation of a website is important in helping visitors quickly find the content they want. It can also help search engines understand what content the webmaster thinks is important.
 - a. Create a naturally flowing hierarchy: Make it as easy as possible for users to go from general content to the more specific content they want on our site. Add navigation pages when it makes sense and effectively work these into our internal link structure.
 - b. Use mostly text for navigation: Controlling most of the navigation from page to page on our site through text links makes it easier for search engines to crawl and understand our site. Many users also prefer this over other approaches, especially on some devices that might not handle Flash or JavaScript.

- c. Have a useful 404 page: Users will occasionally come to a page that doesn't exist on our site, either by following a broken link or typing in the wrong URL. Having a custom 404 page that kindly guides users back to a working page on your site can greatly improve a user's experience. Our 404 page should probably have a link back to our page and could also provide links to popular or related content on our site.

There are many other good practices that have not been listed here because they have already been applied from the very beginning and therefore they are not part of our current efforts to improve the site ranking.

5 Conclusions

According to the analysis made within this report, the dissemination plan once designed for this project has now proved to have reached its initial targets. VAN project has produced valuable results in terms of quantity and quality and they have been adequately disseminated among the audiences targeted (industry, research community, government, public organizations, general public).

VAN partnership has successfully managed to get to the audience through relevant events and high-quality deliverables. All the related information is now available at our web site, as well as a complete set of information from the project.

A continuous assessment on dissemination has been performed along the 4 years of duration of the project, both through the evaluation indicators that gather information from relevant events attended by VAN partners and from the web site indicators (collecting information about access to the site).

There is an agreement on keeping the web site running for some years after the project. During this period, updates with future dissemination activities will be included. Special efforts have been carried out during the latest months in order to improve its ranking among search engines, though it's still too early to see the positive effects. So far, a slight improvement is appreciated from the number of visits, visitors and pages visited during the last month of September, just after summer holidays.

Glossary

API	Application Programme Interface
IES	Industrial Experimental Setup
IT	Information Tecnologies
PA	Process Automation
VAN	Virtual Automation Network
WP	Work Package

References

- [Goo08] Google's Search Engine Optimization Starter Guide
- [D10.1-2 V1] D10.1-2 V1 Plan for using and disseminating knowledge
- [D10.2-1] D10.2-1 Demonstration of VAN Devices and Technology based on Prototype Installations
- [D10.1-2] D10.1-2 Plan for Using and Disseminating Knowledge (versions 1 to 5)