

# **Web Vision Task Force Final Report**

**Submitted  
November 14, 2014  
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**(CPCDS) Committee on Publications and  
Cheminformatics Data Standards  
Web Vision Task Force**

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## **Introduction**

A current IUPAC objective is to have a new or updated website in place by August 2015 in time for the General Assembly in Korea. A Task Force was established earlier this year with the following Charter:

“To assess the current state of the IUPAC Web site and recommend improvements that will bring the site quickly and inexpensively to a state that is satisfactory for our NAOs, volunteers and the chemical and general publics.”

The ultimate goal is to create an attractive, intuitive “task-oriented” website, so that the user can get in, get what they need, and get-out with a minimum number of click-throughs and distractions.

Once the Task Force has completed the vision, a second Task Force will be formed with the goal of implementing the necessary changes, within IUPAC’s financial means, to bring the site to the recommended standard.

## **Methodology**

The Task Force held its first meeting on April 11, 2014 in Coimbra Portugal in order to obtain input on the current IUPAC website from Bureau members and to determine a course of action. It was ultimately agreed that IUPAC members would be surveyed to gather the following key information regarding the website:

- Frequency of usage
- Reason for usage
- Updating/editing requirements
- Ease of navigation
- Comprehensiveness of content available
- Perception of website image
- Features important for the future
- Respondent demographics

In addition, the history of the existing website was compiled to demonstrate how it has evolved since its initial launch in 1997 (see Appendix I beginning on page 10).

The survey was distributed on June 30, 2014 with responses requested by mid-July. It was sent to all Division Presidents for distribution to their constituency, to a list of active committee and project members, and was posted on the IUPAC Discussion Board. It was agreed to extend the response date and reminders were sent out in August with a revised response date of September 30<sup>th</sup>. Unfortunately, the number of responses was far less than desirable (45). However, some interesting data was gained that re-enforced prior perceptions of the website and the comments that were submitted shed light on areas that need significant improvement (see Appendix II beginning on page 25).

The Task Force met again on October 29, 2014 to review the findings and make its final set of recommendations.

## RECOMMENDATIONS

### I. Web Platform

#### *Background*

The current website platform is TYPO3, an open source Content Management System (CMS) - see description in Appendix III beginning on page 38). Its major market penetration is in Germany where it originally developed, with a presence elsewhere in Europe. While it is considered to be versatile, it has no significant presence in the USA, making support difficult. In addition, it is not any easy system for even programmers to use (see user reviews beginning on page 40). Since an important requirement of the IUPAC website of the future is ease of uploading, updating, and editing content, its platform must be easy to use by both staff and members. (See Appendix IV beginning on page 42 for a list of the 2014 top ten Content Management Systems as well as the current market share of a much larger list of systems).

Another major issue that must be seriously considered when choosing a website platform is how well the system can be integrated with the IUPAC in-house database. IUPAC has used ACT! as its contact and customer management system since the Secretariat moved to the United States (see: <http://www.act.com>). It is used to populate the web pages with relevant member data; e.g. member information is exported from ACT! to create the members' pages and to note relationships to projects, committees, divisions, etc.

The website and ACT! interact as follows. There is a "black box" between them and it is through this "box" that the data is exported to the website. It contains script that was revised by IUPAC members in 2007 and upon which the process is very dependent. When the database is updated the routines are run overnight and the results cannot be viewed on the website until the following day. If there is a problem the process must be repeated, introducing delays into the updating process. The relationship between the future website and the in-house database is a critical factor when determining how the adding/updating of member data can be accomplished more efficiently in the future.

Take into consideration the following example. A new standard emerged in 2012 that allows for the disambiguation of researchers with similar names and facilitates the linking of publications, research projects etc. to the appropriate scientists (see <http://orcid.org>). If IUPAC were to add these identifiers to its in-house database, it would need to be done manually once a not-insignificant effort to obtain them from members was undertaken. In an ideal world, IUPAC members should be able to update their individual user-profiles in a manner similar to how members of the American Chemical Society (ACS) update their member information in the ACS Yellow Book (see: <https://www.join.acs.org/yellowbook/DynamicPage.aspx?site=ACSYBWeb&WebCode=LoginRequired> where a member's name and ID number can be used to log in to update personal information).

### PLATFORM RECOMMENDATION

The Web Vision Task Force recommends that the new IUPAC website be based upon a platform other than TYPO3 as that system is neither easy-to-use nor readily supported within the United States. The Task Force recognizes its own lack of technical expertise and cannot suggest a specific platform. It is recommended that a new platform be selected after an external third-party technical assessment is conducted that looks at 1) the recommended website features and 2) how the new website will need to be integrated with the IUPAC in-house database. It is also recommended that the platform support user-authentication to facilitate member control over the input of their own personal information.



If IUPAC needs to implement the recommended new website features and functionalities in phases, the platform must provide the flexibility to add such features relatively easily and at a reasonable cost.

## **II. Features and Functionalities**

### *Background*

Survey respondents presented a perspective of the current IUPAC website that while not as negative as anticipated, is much less-favorable than desired. Because of its current structure (its various iterations having been cobbled together over the years - see website history section “Now and Then” on page 16) - information is buried under many layers, natural links between sections are broken or no longer can be easily navigated, and as a result the site is neither intuitive nor easy-to-use by seasoned visitors and novices alike. Searching is very time-consuming. Also of concern is the outdated “look” of the website and what image that ‘look’ projects to the general public and to others within the scientific community. Of equal concern is how that image may impede the fulfillment IUPAC’s strategic goals and objectives.

The top features and functionalities that emerged from the survey are listed below in rank order:

1. Ease of navigation (clear winner – 65% of survey respondents do not find the home page intuitive, 41% cannot find information easily, and only 23% find the site navigable)
2. Addition of content for the general public (47% believe that the site is ineffective with the general public and 38% believe that the site does not promote a positive image of IUPAC)
3. Linking to related sites
4. Ability to easily upload and update content\*  
Ability to easily edit content\*
5. Addition of more content for IUPAC members (only 32% said that all the information they need is on the site)  
Group workspace in which to share information (possibly replacing discussion boards)
6. Mobile access to the website
7. Social media
8. Job postings
9. My IUPAC

\*23% of survey respondents believe that those responsible for the content (Divisions, Committees, etc.) should be responsible for data curation; 14% believe that responsibility lies with IUPAC staff; and 55% believe that the responsibility is a combination of those two efforts in order to maintain uniformity.

Of the features listed above “Job postings” and “My IUPAC” were clearly at the bottom and “Ease of navigation” was clearly at the top. The remaining features were fairly close together in importance and the Task Force believes that “Mobile access<sup>1</sup>” and “Social media<sup>2</sup>” would have ranked higher had more young people responded (only 2.94% were 35 years of age or younger). A list of the most popular social media used worldwide as of November 2014 appears in Appendix V beginning on page 47.

<sup>1</sup> Nearly 2/3 of all mobile phone users (25% of the world’s population) will use a smart phone by the end of 2014: <http://www.emarketer.com/Article/Smartphone-Users-Worldwide-Will-Total-175-Billion-2014/1010536>

<sup>2</sup> It is estimated that there will be 1.82 billion social network users by the end of 2014: <http://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/>



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### FEATURE/FUNCTIONALITY RECOMMENDATION

The Task force recommends that all of the fore-mentioned features be included in the new website. However, if a phase-in is required, only “Job postings” and “My IUPAC” should be relegated to a later phase. The rationale for including social media and mobile access in the first phase is that these features are very closely-tied to promoting a positive, modern image of IUPAC to both the general public and others within the scientific community. In addition, they are essential communication tools for today’s young generation of researchers whom IUPAC wishes to attract and retain as members.

The Task Force is not recommending a specific structure or site map for the new website. We recommend that a professional and experienced website designer undertake an unbiased assessment of the desired website features, its usage, and its management requirements with the goal of providing a proposed structure to which IUPAC leadership and this Task Force can react and ultimately revise.

### III. Task General Force Guidelines

1. The Homepage should be visually attractive and provide prominent search starting points that will facilitate quick access to the most frequently-used IUPAC content with a minimum number of clicks. Site navigation must be quick, easy, and intuitive for both experienced and novice users. Based upon the survey results the most sought-after information is as follows:

Governance activities:	43.18%
Project Information:	22.73%
Conference information:	11.36%
Access to IUPAC Publications:	11.36%
Other (please specify):	6.82%*
News:	4.55%

\*membership information - not intuitively located under “About.” Refer to the comments related to question #3 on page 26 of the survey results for more details.

The Task Force believes that the IUPAC Home Page must appeal to varied audiences. While the primary audience is IUPAC members and others within the scientific community, even this audience has diverse information requirements, from simply trying to find member names and email addresses, to locating the status of specific projects, favorite publications, etc. Of equal importance is the need for the website to clearly demonstrate why IUPAC membership is important, especially to those who are responsible for paying dues (e.g. a National Adhering Organization should be able to easily locate projects that involve their members and support their research).

The secondary audience is the general public, including high school and college students who may be seeking information on chemistry-related topics. Reaching out to this secondary audience has been identified as a key requirement for the IUPAC website of the future. IUPAC’s stated Vision is as follows: “IUPAC advances the worldwide role of chemistry for the benefit of Mankind.” The website must demonstrate those benefits and provide access to information that will be of interest to the secondary audience.

2. Project information is the second most sought-after information on the IUPAC website (65.91% of survey respondents access the site for that purpose and for 23% that is their main purpose of accessing





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the site). Project information must be highly-visible and searchable on multiple data points (e.g. project number, Division, Committee, members, etc.).

3. Publications and conferences are the third most sought-after information on the web site. Those accessed most frequently by the survey respondents are as follows:

Chemistry International (CI):	51.43%
Pure and Applied Chemistry (PAC):	48.57%
Gold Book:	25.71%
Color Books:	25.71%
IUPAC Recommendations or Technical Reports (in PAC):	20.00%
Educational Resources:	14.29%
Chemical Education International:	14.29%
Databases:	11.43%
Other (Please specify):	5.71%
Books:	2.86%

The publications most used on the IUPAC site in the past have been *Pure and Applied Chemistry (PAC)* and *Chemistry International (CI)*. These publications are now being published by De Gruyter and by contract must be accessible only their site. However, IUPAC should have the option to make them accessible on the IUPAC site in the future if the De Gruyter relationship ends, if IUPAC chooses to host the open access files in order to drive traffic to the site, and/or if IUPAC chooses to again host *CI* as part of the public face of chemistry.

Also, *CI*, through May 2013 is currently on the IUPAC site behind a fire wall and not accessible from the outside. This was done with De Gruyter's approval in order to preserve the links from *CI* to other parts of the site (e.g. projects, conferences, etc.) that had been built manually over a decade. This data and the links should be preserved in the new site.

### Management Issues

There are certain issues related to the website that are pure management decisions, but they are highlighted here for consideration as work on a new website moves forward.

#### 1. Website Updating

When asked how frequently the website should be updated, the survey provided the following results:

Weekly:	38.64%
Monthly:	22.73%
Daily:	13.64%
Quarterly:	13.64%
Other (Please specify):	6.82%
No opinion:	4.55%

It was also made clear that the speed of updating is content-related, with news, hot topics, etc. being updated most frequently. Also, member contact information must be current at all times.

## 2. Content Curation

As noted earlier, one of the top five requirements of the new website is the ease of uploading, updating, and editing content. An open issue is how these efforts will be accomplished. Opinions differ. 23% of survey respondents believe that those responsible for the content (Divisions, Committees, etc.) should be responsible for data curation; 14% believe that the responsibility lies with IUPAC staff; and 55% believe that the responsibility is a combination of those two efforts in order to maintain uniformity. Management will need to develop content curation policies to ensure quality and consistency and meet member needs and expectations.

## 3. More Content for IUPAC Members

44% of the survey respondents to question #12 do not believe that the IUPAC website has all of the information that they need and they list multiple examples that can be found starting on page 32. The information may be on the website, but buried too deeply to be found or the links are broken, etc. Management must decide what content will be accessible moving forward.

## 4. General Public Information

The second most-important feature of the new website is content for non-scientists, including students (high school, undergraduate, other) who may be searching for information on a current issue or of a historical nature (e.g. periodic table). IUPAC needs to decide what existing information can be used for this purpose and what additional content, if any, needs to be added over time. Can information from *CI* be deployed here?

## 5. Communication

The use of social media and the creation of group workspaces have been identified as desired features for the new website. However, management should consider if it wants to use the website for either one- or two-way communication with members. There are other possible communication mechanisms such as group e-mails, listservs, etc. that can be used to disseminate surveys, important information, etc., but if the website is to serve in that role it should be decided upfront. Note that survey respondents want a replacement for the current discussion boards and group workspaces may serve that role as noted earlier.

## 6. Website Hosting

Where and how the new website is hosted is also a management decision. However the Task Force does recommend that IUPAC consider keeping an arms-length relationship with the organization that is selected and not have a member organization host the site as in the past.

## 7. Other Issues

For consideration in seeking proposals for development of a new web site, other issues to be considered are:

- Search speed
- Web analytics to identify usage, trends, etc.
- Search engine optimization (SEO) – ensure that the IUPAC site is easily found



### Website Examples

Survey respondents were asked to provide examples of websites that they believe had some or all of the features that they would like to see in the IUPAC website. These are as follows with the comments that were provided:

American Chemical Society (ACS):	<a href="http://www.acs.org">www.acs.org</a> (not perfect, but good)
Royal Society of Chemistry (RSC):	<a href="http://www.rsc.org">www.rsc.org</a> (pretty good)
International Council for Science (ICSU):	<a href="http://www.icsu.org">www.icsu.org</a>
ACS Division of Organic Chemistry:	<a href="http://www.organicdivision.org">www.organicdivision.org</a>
ACS Division of Medicinal Chemistry:	<a href="http://www.acsmedchem.org">www.acsmedchem.org</a>

(The latter two sites were developed by DigitalCheetah in Austin, Tx <http://www.digitalcheetah.com>. The cost for the initial design work for the Medicinal Chemistry website was approximately \$15,000).

The Task Force welcomes any questions and comments – see full contact information on page 2.

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## Appendix I Brief History of IUPAC.org

Fabienne Meyers, June 2014

This brief history of iupac.org is a personal account of the major stages of the site as I have seen it and to which I contributed in part.

Three distinct periods are identified and characterized as follow:

1. 1997 to 2007 – so called 'old.iupac.org' (still available) or 'flat' html (page 16)
2. 2007 to 2010 – so called 'stage.iupac.org' (down since March 2014) or XML (page 19)
3. 2010 to today – so called typo3 (current site – page 20)
4. Now and Then – a comparison of the original site to the current situation (page 21).

### 1. Old.iupac.org (1997 – 2007)

When John Jost established the office in North Carolina in 1997, he also established a contact with an Information Technology (IT) team at the University of North Carolina Chapel Hill (UNCH) and quickly set a few pages under the address iupac.org. When I came on board there were as many as twenty pages or so. My job was to organize the content and basically post the IUPAC Handbook online (see below reference to the Handbook or <http://old.iupac.org/handbook.html> ).

Within a year and in anticipation of the General Assembly in Berlin (July 1999), we had made significant progress and developed much of the structure as it is still accessible as old.iupac.org

The site was an easily-accessible series of folders/subfolders/files. I was provided with a pseudo-template that included the key navigation on the inside left column, and I could edit any part with Dreamweaver.

A consultant recommended by UNCH did help me to get started and was also involved in implementing several specific projects within the site.

A site map was published on a two-page spread in the July 1999 issue of *Chemistry International (CI)* (pp. 12-13). The content that follows is taken from that issue of *CI* which is accessible at: <http://www.iupac.org/publications/ci/1999/july/CI9907.pdf> , p. 114).

The map of the site as it existed at that time appears as an attachment to this report (see page 25) and can be accessed at: [http://old.iupac.org/general/site\\_map.html](http://old.iupac.org/general/site_map.html).

*IUPAC Web Site Tour – July 1999 (www.iupac.org - A Site Tour)*

The structure of the site closely reflected the structure and function of the Union. The information provided was an attempt to answer questions about IUPAC such as Who?, How?, and What?

The main sections listed below could be accessed directly from the Home page, these sections were also accessible from anywhere on the site.

- News & Notices
- Organizations & People



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- Standing Committees
- Divisions
- Projects
- Reports & Recommendations
- Publications
- Symposia & Conferences
- Affiliate Members Program
- Links of Interest

The Organizations & People section provided access to the organization and the underlying bodies, including the Bureau, Executive Committee, Officers, National Adhering Organizations (NAOs), Associated Organizations (AOs), etc.

A complete alphabetical index of members was accessible and lead to one page per member, including the member's address, e-mail address, status in the Union, and a link to recent projects.

Independent sections were devoted to the Standing Committees and Divisions that carry out the scientific activities of the Union. By following the links, a general description could be found for each body, and the officers, membership, current projects, recent publications, reports, etc. could be accessed.

An entire section of the web site is devoted to Projects. Links provided information on or access to:

- Frequently Asked Questions (FAQs) on the project submission and approval process
- Project Submission Form and Guidelines for Completion
- Advice for Project Reviewers
- Current Projects
- New Projects

The Current Projects section was a compilation of all projects, listed by Division; a detailed description of each project was presented on a single page, including information on the chairman or coordinator, task group members, the project's objective, and recent progress.

These compilations changed as new projects were initiated and others were completed. These updates were presented respectively under New Projects and Completed Projects (the page was in preparation at the time the article was published).

The results of the activities and projects undertaken by the so-called Working Parties, or Task Groups were combined into the Reports and Publications sections.

The Reports section was divided by topics, with complete references, abstracts, and, where available, online versions of the documents. This section also included a link to current Provisional Recommendations.

The Publications section included information on the *Journal of Pure and Applied Chemistry (PAC)*, including instructions for authors and contents of current and past volumes, *Macromolecular Symposia*, *Chemistry International* on-line, and indexes of IUPAC books and references.





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Other IUPAC activities included the sponsorship of major international symposia and conferences. The Symposia section was designed to keep users informed of coming events. Calendars from 1996 to 2001 were readily-accessible at the time the article was published. Past calendar entries were regularly updated to provide links to the corresponding publication in *Pure and Applied Chemistry* or *Macromolecular Symposia* and conference reports in *Chemistry International*. Links to recently sponsored events, sponsorship information and application forms, and non-IUPAC conference calendars were located in this area.

The Affiliate Membership Program section, as well as News & Notices, could also be reached from the home page. This latter section highlighted important news from the Union. In the near future, a section entitled "What's New on the Site" was to be offered, enabling shortcut access to newly-posted items. Finally, for those familiar with the IUPAC Handbook, the table of contents could be searched on-line and the corresponding information accessed on the web site.

### *Content, content, and content*

Up to 2007, the prime focus of the side was content. Already in 2000 there were hundreds of pages, and content was added all the time. Each and every 'page' was manually indexed, i.e. links were added to reach new pages and indexes were updated accordingly. The logic was simple and it followed easily the structure of the Union and the earlier practices set by the Handbook.

There was nothing automatic in the content management, except for a simple routine that was implemented as an 'add-on' to ACT. ACT is the local membership database used by the Secretariat to record member information, including address and current and past IUPAC status. The website displayed much of the same information and one-page per member was maintained. The amount of regular updates was too demanding to keep ACT and the online information in sync. A very simply program was 'plugged' into ACT that generated updated html member pages. The remaining manual task was to push these individual html pages into the proper directories online and to update index of member names when new members were added. The 'add-on' plug was programmed by a contractor. Initially, I routinely ran these updates. When Paul LeClair joined the staff in 2002, it became his task.

### *e-news*

To keep pace with informing members of what was added to the site, I established *e-news* in June 2000 (see <http://old.iupac.org/news/e-news.html>). The introduction of the first *e-news* announced its purpose (see <http://old.iupac.org/news/e-news/28jun00.html>). The *e-news* was emailed to all (using mailman if I recall correctly) and simultaneously posted online.

When in 2002 I became responsible for *Chemistry International* (CI), the compilation of *e-news* and that of CI became one combined task. One evidence is the timing of the *e-news* release which in 2002 became regularly and bimonthly.

### *PAC online (further research needed to retrace exact timeline)*

In 2000, IUPAC itself took the independent path of publishing *Pure and Applied Chemistry* (PAC) and the earlier contract to work with Blackwell was terminated. In addition to coordinating the traditional print production, the office worked with Bohumir Valter (former member of the Committee on Print and



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Electronic Publications (CPEP)) to develop and implement the online production and dissemination of PAC. A separate virtual site was set for that. The developing collaboration between Bohumir Valter and the other Prague team developing the Gold Book resulted in the relocation of the server and the IT support (see following section).

### *The Gold Book*

In 1997, the second edition of the IUPAC's 'gold' book was published by Blackwell. Quickly after that, an online version was compiled by Alan D. McNaught and Andrew Wilkinson (Royal Society of Chemistry, Cambridge, UK). The initial online Gold Book was simply a collection of pdfs (see: <http://old.iupac.org/publications/compendium/index.html>).

Meanwhile, in 2002, a new project was approved to translate existing IUPAC standard terminologies and related-information to data dictionaries in eXtensible Markup Language (XML) format.

<http://www.iupac.org/project/2002-022-1-024>

The first public preview release of the new XML Gold Book was in March 2005.

Based upon the success of that project, at its meeting in July 2006 CPEP recommended that the same team of developers look at iupac.org to see how to best organize the content of the site.

### *Server relocation to FIZ-CHEMIE Berlin*

During the 2005-2006 period, the website host was changed from UNCH to FIZ-CHEMIE in Berlin. The IT support was contracted out to a team in Prague. CPEP's chair report to the Council in 2007 echoes the following updates:

"Three major developments of significance to IUPAC as a whole have occurred over the recent biennium. The first is the movement of the IUPAC Website (<http://www.iupac.org>) to FIZ-CHEMIE in Berlin at most favorable terms. This change permits greater control of the operations of the Website, enhancing both content and interactivity. The second is the publication online and on CD-ROM of the "Gold Book" (IUPAC Compendium of Chemical Terminology) in an enhanced, interactive XML version (<http://goldbook.iupac.org>). The third is the availability online of Pure and Applied Chemistry, now from vol. 45 (1976); the format of the most recent online volumes (from 2007) represents major enhancements of their usability, now including 'out-bound linking' of the references to their sources, through IUPAC's membership of CrossRef."

Reproduced from [http://old.iupac.org/news/archives/2007/44th\\_council/Item\\_12-1\\_2007.pdf](http://old.iupac.org/news/archives/2007/44th_council/Item_12-1_2007.pdf).

## **2. XML site (2007 – 2010)**

The growing contents and the lack of controlled structure triggered the interest of the Gold Book team to take on the project of converting the old site into something better. Even though uncontrolled, the existing structure of the old site allowed them to harvest a good portion of the information.

The three sections that were mostly and successfully transposed from the old to the XML site were members, projects, and conference calendars. For the members section, the team established an automatic routine which regularly queried ACT (locally hosted of the office server in Research Triangle Park) and displayed updated information.





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For projects, a template was established. Most of the information included in the old site was imported automatically in the developed template, although some parts had to be rekeyed. That template became the only page that I can update or edit.

Similarly, conferences information was transferred from the old site to the new system and a one-page interface was made available for Paul and myself to update individual events.

### *Focus shift*

At the time, the complexity of the system maintenance triggered a shift and the focus on content was no longer the top priority when one talked about the website. By 2008, an additional staff member, Bryan Pearson, was added solely to act as a connection and mediator with the developers and to import content from the old site into the new XML.

This shift, from my perspective, created a real disconnect and frustration started to spread between the three parts of the web team, i.e. Paul and I on one side, Bryan in the middle, and Mila at the developers end. The frustration was due to the fact that there was no clear understanding of each other's roles and expectations and two years later, in 2010, CPEP took FIZ's offer and recommended that the site be redeveloped by FIZ CHEMIE Berlin.

In Glasgow (GA 2009) CPEP had a long discussion about the web (see attached minutes on page 26).

"After extensive discussion, the committee members expressed the opinion that the current situation, with different versions of the web under maintenance, was causing a severe drain on the limited resources. The switch to the new software behind the web site was suggested as top priority together with implementation of a new graphical interface. The committee requested Bohumir Valter to manage the project, in order to finish this transformation timeously."

The above reference (in section 5.5 of the minutes) to the 'graphical interface' relates to [http://mkmillsdesign.com/clients/iupac/iupac\\_homepage/index.html](http://mkmillsdesign.com/clients/iupac/iupac_homepage/index.html). This for example is a development which I had initiated, but of which the XML team disapproved as they judged the coding to be poor, and it was never constructively taken to the next stage and implemented.

In 2010, again CPEP had a long discussion about the web (see attached minutes on page 27). The multiplicity of sites being worked out and a missing Content Management System triggered the move to let FIZ undertake a redevelopment.

### **3. Typo3 (2010- Present)**

For all of the reasons detailed in the 2010 minutes of the CPEP meeting mentioned above, the next stage in the history of iupac.org was to start directly after the meeting in RTP July 2010. This is when Rene Deplanque took the lead to involve FIZ-CHEMIE Berlin in a complete redevelopment of the site and worked with Mila to develop specific recommendations. The new IUPAC Executive Director assigned the responsibility for the daily oversight of web development to Bryan Pearson.

Concurrently, a not-insignificant background of the growing frustration with iupac.org was the parallel development of the website for the International Year of Chemistry (iyc2011.org). That development started in 2009 and the initial site was presented at the Council in 2009, and the CMS was fully-



deployed by mid-2010. That site was completely developed independently of iupac.org, and yet it gave a clear sense of what could be developed and how.

During the interim phase from September 2010 to February 2012, a transition from XML to TYPO3 was staged, during which the XML was maintained as the public site and gradually the TYPO3 was developed. Preview sites were set for review at various points. My involvement grew smaller and I was only interested in making sure that I could update projects.

On the XML site, my range of actions was still limited to projects. *Chemistry International* online was unchanged from the old.iupac.org and was still a simple collection of files and folders editable with Dreamweaver that I maintained in collaboration with *CI* copy editor. Simultaneously the demands of iyc2011.org kept growing and my own priority was mostly focused on the IYC2011 initiative.

By the time of CPEP meeting in July 2011, a site was about ready and the plan was set for a soft launch in August 2011 (see 2011 CPEP minutes on page 29). I have kept no detailed records of that period, but recall that several members spent a lot of time and care in reviewing content and comparing the new TYPO3 to the XML site and provided valuable input to the development team in Berlin. The actual launch was delayed.

By February 2012, the move to the TYPO3 site was, as I recall, 'forced' over night by the departure of the principal programmer who was leaving FIZ (which in the interim had become part of Wiley-VCH). Bryan was still the only person at the Secretariat able to make additions/modifications. A year later, in February 2013, I was provided instructions on how to edit individual project records. I was never presented with a detailed outline of the database supporting the projects and to this day I have no clear documentation of the various queries coded to render the indexes pertaining to the listings of projects.

By October 2012, and as alluded in the July 2012 minutes of CPEP (see page 29), the need to relocate the server became a priority. This transfer was ultimately resolved in June 2013, just before the General Assembly in Istanbul, and the servers were reset with Tranquil Hosting Inc. in North Carolina.

In December 2013, Bryan left the Secretariat and Paul LeClair, assisted by a couple local contractors with whom the office had worked before, tried to collate as much information as possible.

Practically, since Bryan's departure I have acquired the very minimal experience with TYPO3 to add a news item and modify slightly a Divisions page. When I do so, I skype with the consultant who while more confident than I, knows none of the actual details of our site. Editing is somewhat an exploration!

In March 2014, the server crashed. As of June 2014, the restore has been incomplete, leaving *CI* frozen back in May 2013 and my login inactive. The stage.iupac.org that was the online archive of the XML site crashed as well and was not restored. IYC2011 for which a partial back-up was accessible as iyc2011.iupac.org was also lost. Access to <http://iupac.org/polyedu/> has also not been restored, leaving the contributors unable to update the content.



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### 4. Now and Then

In this last section, I will attempt to answer the following question:

*"How does the site compare with that described in the 1999 CI article?"*

My answer is again a personal view biased by my own use as an IUPAC staff member and the resultant experience.

I was asked a similar question earlier, and to explain the first transition; my answer was the following story.

The IUPAC website (in this case the old.iupac.org) can be compared to a village composed of individual houses and in which each individual house organically changed over time. It grew from a small town center and mazes formed to include various details and specific content. The initial village map is the site map. Each house has evolved differently because each owner provided different contents. Each house is connected to some other houses, but not to all, and the cables or links are maintained manually. The paths in between the houses are often twisted. Each house is cleaned-up individually and likewise each page is edited manually. Nothing is automatic. Yet the site is like a village and if you know it, you can walk around.

Then, came IT. The villagers were promised a cleaner city with well-structured buildings. They were shown a 'golden' model house. A set of buildings were quickly developed and the villagers moved in. Individuality was left behind and the collection of uniqueness was replaced by series of more rigid frames. What was lost in the many peculiarities was to be gained in ease of maintenance. Folks were asked to fit in. In my view, that transition was flawed, and the lack of an architect with a clear plan quickly caused troubles. Before the move, not all the villagers were asked what they needed and wanted, and even when they were, they actually did not know or were unable to articulate specifications. They did not know before moving in that the structures would be so strictly set and impossible to adjust.

More recently, the difficulties of maintenance justified and triggered yet another a transition. The city now known as TYPO3 was built and again everyone moved into newer buildings. Unfortunately, the architects are gone and they left town without having shared the city plans. Since, the keys have been lost.

Still, anyone can walk around and find ways to parts that seem familiar. There is no inventory that I know of and no systematic records are available to indicate what content has been imported from former sites and proofed. There are many pages with embedded old links. There are sections built around specific databases for which the structures is undocumented. There is valuable content under misleading headers and many impractical addresses that make things difficult to share. The search does not function. Even if one know where to go to get somewhere, the number of actual links to get there is higher than before. The village mazes have grown. The unfriendliness of the back end makes it very clumsy to do any editing and it is clearly uninviting to update or add content.

This story does not provide a clear comparative picture of the 1999 versus 2014 site. To do so will require a rough inventory of the current site which I do not readily have. The site today might be better-structured and supported by a content management system, but the frame/design has flaws.



One major flaw is the lack of connectivity and enriched content. Just consider the top four sections 'about', 'projects', 'publications', and 'conferences.'

Conferences do not link to Divisions (under "About"), to projects or to publications, yet there is in each event, a connection with either a member, a division, publication, or even sometime a project.

Projects link to members (and vice versa and through ACT – which caused a separate problem because ACT is on a local server), but projects do not link in any systematic way to their outcome (principally publications). Only manual links are set and they cannot be easily queried.

Publications do not link to members. *PAC* used to link to projects. *CI* is unstructured and only manually-linked to projects, *PAC*, and conferences. Books do not link to members/authors.

Under About, Divisions do not link to conferences (which they sponsored), nor to Projects and Publications. The only link is to members.

Better connectivity is what a Content Management System (CMS) will support if well- designed. The current system fails to provide such structure. A detailed and critical assessment of the content is clearly needed and to better outline the unique value of iupac.org content.

The current platform does not provide a web2.0 experience where individuals and members can have control of and responsibility for the information that is pertaining to them.

When years ago I asked a Task Group Chair for an update to add to his/her project page, he/she quickly returned the information and acknowledged the service provided. Now they can hardly find their own project page. In some instances their response has been "I've tried to login (top right corner), but that path leads nowhere; how do I update my project page?"

The current website is not considered an integral part of IUPAC information. Rather, it is currently viewed as a cumbersome or even a duplicative or deprecated system that barely lists members and access to minutes of committees. Even member history has now been lost in the current site. I believe that functionalities to serve our members and help them take part in IUPAC activities should be thought about and defined. A new site, as it could never have been imagined in 1999, could today be envisioned to better engage members and membership.

/end/

FM/27 June 2914





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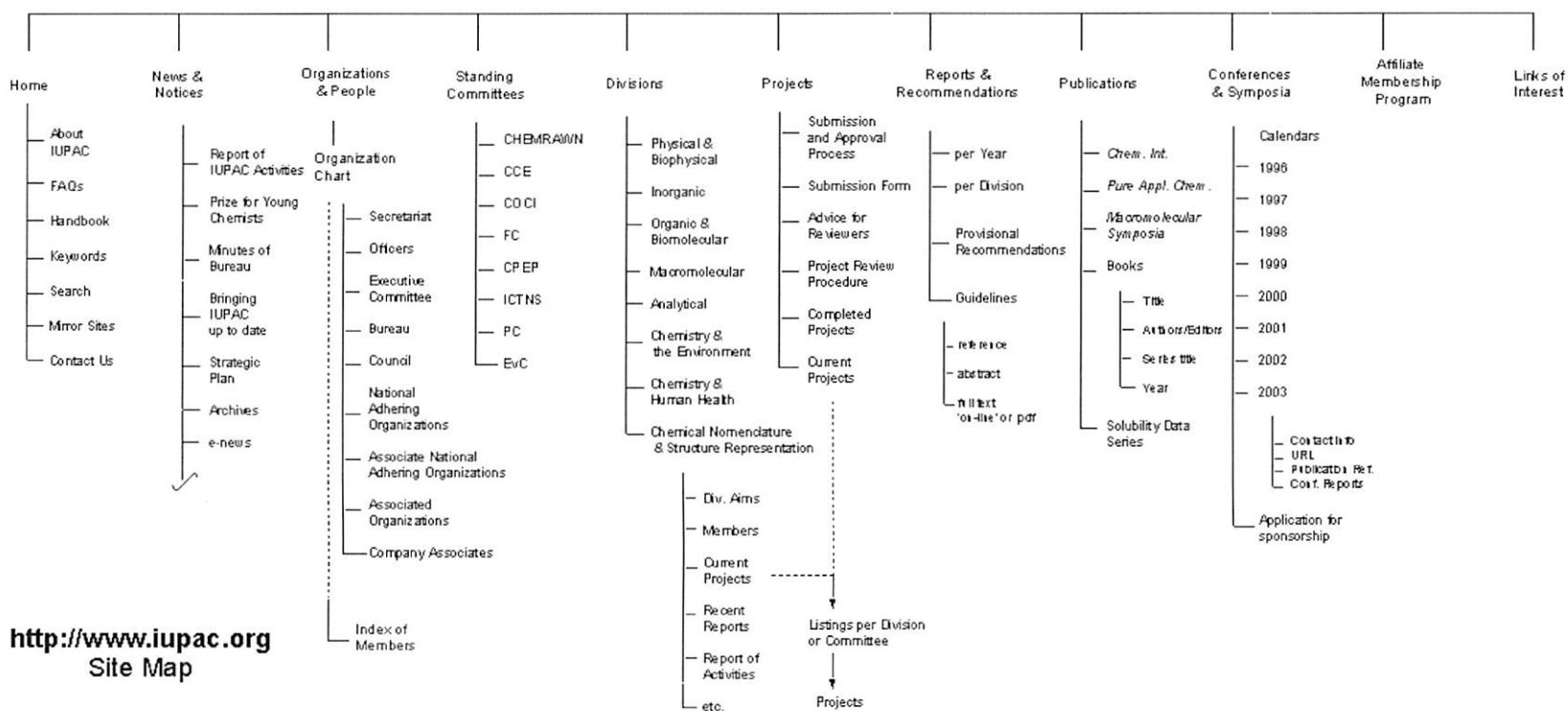
**Annexes**

CI, 1998

<http://www.iupac.org/publications/ci/1998/march/web.pdf>

### ***New IUPAC Web Site***

The IUPAC Web Site (<http://www.iupac.org>) has been extensively revised and updated. Information on the officers of the Union, Council Actions, Press Releases, Commission Activities and much more is available. The site is now located at the Sunsite server at the University of North Carolina, Chapel Hill. This is a large server with high bandwidth access. The Royal Society of Chemistry plans to support a mirror site on their server. Future plans include inclusion of the full text of recommendations and reports from *Pure & Applied Chemistry* as well as provisional recommendations during the public comment period. Each issue of *Chemistry International* will be posted as soon as it is printed. Comments are welcome and should be sent to [secretariat@iupac.org](mailto:secretariat@iupac.org)



<http://www.iupac.org>  
Site Map

Annex:

## 2009 CPEP minutes

### 5. IUPAC Web Site

#### 5.1. Introduction (Bohumír Valter)

#### 5.2. Gold Book site (Bedřich Košata)

#### 5.3. *PAC* site (Bedřich Košata, Bohumír Valter)

#### 5.4. Contents Management System (Miloslav Nič, Bohumír Valter)

#### 5.5. Future Strategy and Enhancement (Miloslav Nič, Bohumír Valter)

5.1. Bohumír Valter, responsible for coordination of the web site work, opened the presentation. He emphasized that the CPEP decision of a few years previously, to focus on XML and other corresponding technologies, had been correct. He described briefly the most successful projects of the last year and reported on problems with transformation of the old IUPAC data to the new structure, due to communication barriers among people which slowed progress. René Deplanque noted that Bohumír Valter has not only has the responsibility, but also the full authority, to manage this work; the CPEP members agreed.

5.2. Bedřich Košata informed the Committee of progress on the online version of the Gold Book. Almost 300 entries were updated in release 2.1.0, and internal software developed which simplifies the most tedious tasks of editing the XML sources of the Gold Book. He described a software system ('goldify') for automatic addition to relevant Gold Book entries of links into HTML and other electronic formats. The result of this work was applauded.

5.3. New functions on the *PAC* web were demonstrated. Among the most important was the introduction of ASAP (As Soon As Publishable) articles and the authentication of subscribers by their IP addresses. Besides these major features, other additions were mentioned - an index of articles by Nobel prize laureates, and links to the Gold Book from article abstracts. Conference index entries have been compiled into conference series. James Bull noted that this new index has proved to be an excellent tool in persuading conference organizers to contribute their content to *PAC*. As an additional service, electronic delivery of new *PAC* issues to complimentary subscribers was implemented, thus significantly reducing the number of printed copies necessary. Future effort will be directed to increase integration with CrossRef, and display of data from different points of view.

5.4. Miloslav Nič introduced the new version of the web site, which is programmed to offer improved functionality, including an improved search system, navigation, and downloading of information from the IUPAC office database. This development also enables phasing out the old website in the near future. He then explained a concept of a graphical interface which was implemented on a trial website and tested.

Unfortunately, these tests confirmed that a proposed new web interface was unsuitable for use as a front-page of the website and he demonstrated the principal problems.

5.5. After extensive discussion, the committee members expressed the opinion that the current





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situation, with different versions of the web under maintenance, was causing severe drain on the limited resources. The switch to the new software behind the web site was suggested as top priority together with implementation of a new graphical interface. The committee requested Bohumír Valter to manage the project, in order to finish this transformation timeously.

### 2010 CPEP minutes

In April 2010 David Martinsen received a letter from Christopher Ober, President, IUPAC Division IV, who expressed concern about the IUPAC Website. He requested a plan of action to resolve the problems by the end of this calendar year. A virtual meeting was held to discuss the issues. Afterwards, René Deplanque and others from FIZ-CHEMIE Berlin met with the Prague Web Team that is currently responsible for web development. As a result, in late May David distributed an analysis of the current state of the IUPAC Website along with recommendations for moving forward – the report has been posted to the forum thread for this meeting at: <http://iupac-services.fiz-chemie.de/iupacforum/showthread.php?t=355>).

There are several versions of the Web servers; 1) <http://old.iupac.org> is located at FIZ-CHEMIE Berlin contains static html pages with the style hardcoded so it is difficult to easily change the look and feel of the site; 2) <http://www.iupac.org> is also located at FIZ CHEMIE Berlin and is referred to as Version 2.0. This, too, is difficult to update and version control and the tracking of edits are missing features. In addition, it does not have the complete content of the old server; 3) <http://pre.zvon.org> is the development server, also referred to as Version 2.1. It is located on a Google server and has a database management system based upon Google docs. Searching is improved and the version control and edit tracking features are available. The site is in a beta state (85% finished) and the developers believe that it can be completed in a month. If acceptable as is, it could be launched in a matter of days; 4) <http://goldbook.iupac.org> is located at FIZ- CHEMIE Berlin and contains only the content of the IUPAC *Gold Book*; 5) <http://agrochemicals.iupac.org>, also at FIZ-CHEMIE Berlin, is for the dissemination of information on the chemistry of agrochemicals and the regulations pertaining to their use; 6) <http://moureu.iupac.org>, also at FIZ-CHEMIE Berlin and is a alias for [www.iupac.org](http://www.iupac.org); 7) the *PAC Journal* server, located in Prague.

It was noted that Bryan Pearson has been loading the old content to the new site and that the underlying technology of the two sites differ. Steven Bachrach pointed out that the Website will inherently be complex and that a lot of people will need to add content, so the interface must be for non-experts. René Deplanque said that for the site to be easy to use it needs a database management system that automatically organizes the site. The database management system is a key piece that appears to be missing.

Currently, content is being moved from version 1.0 to version 2.1a (and version 2.1b). Miloslav Nič (version 2.1a) controls what goes in and Bryan actually does the input (version 2.1b). A significant problem is that the information in each of the versions differ - they are not in sync. John Jost said that we need a single development location where everything is in one place. The question was asked as to who will be uploading content – experts? chemists? It was noted that as of now only Bryan and Fabienne have been involved. John asked how we can get version 2.1 unified and live, and migrate all of version 1.0 content. He believes that we need a fully functional “next step” all in one place, and then we can deal with the issue of a database management system. We need to define responsibilities and define a time line. David Martinsen asked if we need to step back and look at a design, information architecture, etc. John’s response was that we already have something usable, and



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that René can accommodate the space to meet Milo's needs, the archive, as well as something that will help Bryan and Fabienne. So let René get us over the initial hump and then we can move forward.

The question was raised whether or not a Web oversight group should be established - one that would allow Division Presidents to participate. After some discussion it was agreed that this was an excellent suggestion. René Deplanque **MOVED**

That a Web Steering subcommittee of CPEP be established and that the composition be two CPEP members, two IUPAC Secretariat members, and one Division President plus an alternate.

Bonnie Lawlor seconded the motion and it passed unanimously.

Following some discussion as to who should actually fill those positions, Colin Batchelor **MOVED**

That René Deplanque and David Martinsen be recommended to represent CPEP, and that Terry Renner and Fabienne Meyers be recommended to represent the IUPAC Secretariat.

Miloslav Nič seconded the motion and it passed unanimously. It was agreed that both Milo and Bryan are developers and should not be part of the steering subcommittee. It was noted that the subcommittee is under the control of the committee that established it and that the subcommittee can exist as long as needed. It was also agreed that the day-to-day responsibility for web activities, for project oversight, and for answering developer questions is a staff deployment issue to be decided upon by the Executive Director, Terry Renner. CPEP believes that this responsibility needs to part of someone's job description.

**ACTION:** *Terry Renner* will assign the responsibility for daily oversight of web development and incorporate the responsibility into that person's job description.

There followed a discussion of technology issues related to the Website. René Deplanque said that we need a single environment, that we need to stabilize the site, and that FIZ-CHEMIE Berlin will host it.

**ACTION:** *René Deplanque* and *Miloslav Nič* will develop recommendations within the next month or so for the Website steering subcommittee to review and discuss.

We need to get the material into both systems, we need to determine a time frame for the project, and we need to write up a proposal in order to request funding. The question of how much material needs to be migrated was raised. It appears that the material on <http://old.iupac.org> is the problem. Fabienne pointed out that human intervention is required to clean the old pages. As noted earlier, the information on Mila's machine can differ from that on Bryan's. She noted that we need a workflow and a tracking system and that all of the material should be uploaded to only one server as it is completed. René said that we will migrate everything into one place ASAP and implement a tracking system. The goal is to eliminate version 1.0 in a matter of months (not weeks and not years). For the time being the staff will continue the proofing and clean-up on the existing systems. As soon as Milo and René complete the proposal the work will be migrated.

David Martinsen and all committee members expressed sincere thanks to Mila for his development efforts and to Fabienne and Bryan for the efforts that they are putting forth to work through this difficult transition period.



## 2011 CPEP Minutes

### 10. IUPAC Website Update

The Web Steering Subcommittee reported that the new IUPAC web site could be ready for a soft launch by the time of the ACS meeting in Denver at the end of August. A follow-up meeting of the Web Steering Subcommittee would be held there. The main reason for waiting another few weeks was that information on Divisions and Members was not available on the new site and this was deemed essential. This information is extracted from the ACT! Membership database, and while the major issues have been addressed, there are still some minor issues to be resolved.

The new site was merged from the existing 3 main IUPAC sites. None of these had held all of the information. The new site, hosted by FIZ CHEMIE Berlin, uses the Typo3 content management system for importing and creating content. Fabienne was not yet familiar with the editing system and a training session was to be organized in the upcoming weeks prior to the launch. At present Bryan was the only person at the Secretariat able to make additions/modifications.

René noted that Domain Registration for the IUPAC site needed to be held officially by the IUPAC Secretariat; at present it seemed to be linked to someone in Prague. He recommended that a 5 year renewal be done with Joker.com but this required communication with the person in Prague to move it from netsolutions.

## 2012 CPEP Minutes

### 9. Web Platform for PAC and CI, René Deplanque

Phase I of the IUPAC website migration to the TYPO3-based platform at FIZ CHEMIE Berlin has been largely completed. Missing files are being added as reported by end users. The search function is not working, but Bryan Pearson is working on fixing the problem. However, the situation at FIZ CHEMIE Berlin is uncertain. There are no development resources available for the IUPAC servers, and the servers themselves could be withdrawn at any time. The Secretary General indicated that the servers could be moved to the University of Frankfurt (Oder) as an alternate to FIZ CHEMIE Berlin. However, IUPAC must find a long term solution.

Based on a communication from Division IV, the navigation and usability of the new website is difficult, and the ability to load new content is lacking. CPEP had recommended a Phase II to the website migration, analyzing and improving navigation. Once the web platform is stabilized, Phase II of the migration should proceed.

**Motion 8:** CPEP recommends that IUPAC investigate new hosting platforms for the IUPAC website. Possibilities include self-hosting, working with a TYPO3 hosting vendor, migrating to a new web host. Phase II must be completed.

### 12. IUPAC Website Update

René noted that Domain Registration for the IUPAC site was now officially held by the IUPAC Secretariat.





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There was an issue with continuing at FIZ CHEMIE and a long term solution was required. One of the FIZ programmers who had been involved in maintaining the IUPAC service was now at the University of Frankfurt-Oder and had offered to provide space there. Alternatively server space could be sourced from commercial vendors (in the cloud?) or a server could be established at RTP. This would need to be finalized before the end of 2013.

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