

# INDUSTRIAL ENGINEERING AND THE INTERNET

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## 1.0 The Enterprise View

It seems probable that there is a relationship between the style of the organisation and how it reacts to the web. The following table maps my perception of this relationship.

<b>Organisational Character</b>	<b>Action</b>	<b>Comment</b>
Traditional	Ignore it.	"Just a fad that will go away."
Bureaucratic, conservative	Use it as a status advertisement.	"Its new. We should have a presence there."
Bureaucratic, concerned	Provide information to stakeholders that promulgates good messages.	"Let people see what we do and how good we are." "It's just another form of media."
Marketers	Provide product details and how to order.	"Other people are selling on the net, we should too."
Remote workers	Use communication capabilities to destroy geography.	"I download the drawings from my principals in London, take off the quantities. They pay my invoice into a Swiss account which I can access from Australia. I don't know where the work gets done. Australia, England or Switzerland."
Proactive, innovative, service-oriented, growth focussed	Uses full capabilities of web to better achieve business outcomes. The web provides capabilities that do not exist elsewhere.	"We have our customers finding viruses send them to us. We fix the virus and update our web so other customers get the cure too. They can dial up or periodically our software does it automatically."  "Get to our site, follow the prompts to download your choice of features in your very own website. You get a really professional interactive site for about \$2,000."

The web is an interactive communication system that allows access to much of the information in the world. Some people are keen for knowledge, others couldn't care less. Some people don't know that they need to know, others will only learn what they are made to learn. But in addition to allowing access to knowledge, web users can act and cause actions so that products are purchased and other transactions completed.

## **2.0 The Virtual Institute**

Instead of just merely advertising, providing public domain information and some contact lists, a website can deliver outstanding service to an Institute's members. This opportunity becomes available at a time when Institutes and other professional bodies need help. Throughout the world membership is declining, while those remaining members need more support. They need to be empowered by their association. Yet they find it difficult to make time available to attend workshops and seminars. Most professional bodies have an entrenched bureaucracy that is helpless in the face of declining membership and can only respond by cutting service to members or increasing prices. Typically they use the web only as media, posting advertising and contacts.

It is probable that a properly constructed website could become a virtual institute and provide all the needs, all the empowering required by a professional Industrial Engineer.

## **3.0 How a Virtual Institute might work for Industrial Engineers**

If we (the infinitely wise and kind, experienced Industrial Engineers) were to build a website into a Virtual Institute, members of our association could access all the information needed to produce superior outcomes. They could comment or vote on issues; they could download interactive education programs, network with IEs around the world; download utility programs of standard times; for data analysis, download forms for recording data or record data live.

To develop this website we would need to consider many issues. Some of the issues are discussed in the following section.

### **3.1 General Information, with Public Access**

- Set up authorised background and IIE definition. Include a blank interactive membership form.
- Include each division's and the national governing body's contact details.
- Provide "events" and "news" pages for each division.
- Establish international "news" page.
- Set up a discussion ("chat") page.
- Publish papers
- Publish current and past journals.

### **3.2 Access Regime**

Methods of access will need to be tested. We will only provide access to members to some areas. We would limit access to the public. Members would have to pay once their usage exceeded a set number of hours.

Access regime:

- Page controllers
- Members
- Non-members
- Ability for members to pay subscriptions and fees.

### **3.3 Charge Out System for:**

- Members
- Non-members

### **3.4 Advertising**

It is possible to sell advertising on websites. Advertisements tagged to particular issues or pages or groups of pages are possible.

### **3.5 Sponsorship**

Information may be developed as the result of a grant by a sponsor who should be offered effective acknowledgments on screen.

### **3.6 Networking**

To enable members to network, the control council needs to approve approaching members to seek their permission (and chosen details) for listing. Accessible to the world?

### **3.7 Employment Services**

Members could list their capabilities and interests under a 'Position Seekers' heading. Any statements made would be made by members on their own behalf. The size of the notice would be limited.

Entities anxious to engage Industrial Engineers could make their needs known under a Positions Vacant area, that has access restricted to members only.

### **3.8 Issues Development**

Papers supporting particular options relating to how the institute and its members should react to any significant issue could be posted for comment by members only, or by the public at large. Reviewing the comments people record would allow for the development of good policy and effective plans.

### **3.9 Voting**

Elections or polling on particular issues is possible. We would need to ensure security is adequate to ensure that only those properly entitled to vote can record their vote once, accurately.

### **3.10 Conferencing**

Agenda items are put up prior to meeting commencing. Participants can comment and discuss using their keyboards. All comments and views are shown. Polling is possible. It is likely in future face to face with audio will be effectively available, but using the keyboards to get and record each person's input is a very effective means of conferencing, whether or not the participants can see each other.

### **3.11 Library**

We could initially list recommended books with any reviews. We could seek help from members to suggest books to be listed and to provide reviews. Reviews would also be available from publishers.

We could approach publishers (and other institutes) to publish text books and technical publications. We would need to deal with cost and copyright issues.

### **3.12 Other Institutes (national and international)**

We could approach other appropriate groups so we can include link buttons to their websites and to have them reciprocate.

The virtual institute would be flexible enough to be home for other institutes in the same or kindred disciplines.

### **3.13 Utilities**

We should provide standard IIE handbook information. We could seek contributions from members. We must, of course check out copyright.

We could provide, and keep under review, a set of procedures and policies that could be used, including downloading, by our members.

We could investigate establishing a suite of downloadable utility software for analysis, standard times, etc. We would need to test these programs regularly. This area should be accessible to members only.

### **3.14 Accreditation**

If we have proof of completion of appropriate courses of instruction (including completion of the downloadable modules available in our website) and appropriate experience supported by substantial references, a panel could conference through the site and grant accreditation. An electronic interview or an old fashioned face to face, could be arranged if the panel thought that was what they should do.

### **3.15 Training**

Members can offer their services or advice about training on a contact spreadsheet which could show what training people could provide and any training they are seeking.

We could set-up downloadable interactive programmed learning modules. After testing we would need to determine how to deliver and charge for these and if any specific modules are to be restricted to members only.

### **3.16 Site Visits**

We could use virtual reality programs to provide animated, annotated guided tours with dialogue.

Notice boards of coming events could be used to arrange and stimulate group attendance at real worksites.

### **3.17 Respond to Feedback**

The web is interactive and it can provide for reiterations. Site design and management (administration) should actively seek feedback from site users and respond to it so the site continues to meet the changing demands of its users.

A line on each screen or a tag on each topic could ask users to contact the Institute with suggestions for improvement and material to be included or removed.

## **4.0 Web Administration, Organisation Implications**

A web administrator may need to be part of the Executive Committee, so the developing web keeps in step with the changing organisational needs. An administrator would also focus on:

- protocols, including for papers;
- acceptance of content;
- security; and
- copyright.

The Institute's organisation may also be impacted. By using the web, there would be an opportunity to centralise organisational activity while maintaining decentralised responsibility. For example a regional group could manage their assigned budget by approving invoices for payment and review its own financial position by reviewing its own reporting page on the web. The cheque would be prepared and posted centrally. Similarly, a web based data base could be used by regions to specify what they will instruct central to mail out on their behalf.

## **5.0 Implementation**

A website is accessible to all members provided they have an Internet facility. Members who do not have the appropriate technology at home have a variety of options - the local library, high school or even at Internet Cafe. However, they are most likely to find connections at their places of employment. Even so, we should be able to provide for their needs by providing them copies of the web material on CD or low cost prints.

A panel of people with conceptual and pragmatic expertise, together with executive authority, should be selected and given the resources to implement an appropriate website.

## **6.0 What Do We Need to Do?**

The Queensland Division of the Institute of Industrial Engineers used all of its resources, some help from the Federal Council and sponsorship to set up a website and to test the possibilities. We sought involvement of other divisions but did not receive it. The Queensland Division moved the control of the site to Federal Council so that it would be further developed. Today the site as constructed has been deleted in its entirety so this conference's brochure could be advertised.

From our experience, the Queensland Division offers the following conclusions:

- It is possible to construct a virtual website.
- It is desirable to construct such a website.
- It is beyond the resources of the Queensland Division to do it.
- If IIEAust. is to develop a website into a Virtual Institute it would need to marshal all of its resources and input from members for a year to set up the framework and enter the initial data.
- It would be better to expend our efforts on doing this than doing anything else.
- If we don't do it we may not have a viable Institute in five years time.
- It could be done in partnership with an information provider such as a university or research institute.
- Involving skilled professional websiteers will be necessary.

## **7.0 Conclusion**

Tomorrow the Queensland Division will put a motion to the AGM and the Federal Council that this year the Institute should commence to develop a website along the lines described in this paper as a Virtual Institute.

Such action could provide for the drawing together of IEs from all over the world. It could develop and disseminate information, ideas and concepts that would empower IEs to produce the optimal organisational outcomes that will be required in the emerging global economy.

I recommend to all of you here today that you support such a concept and help bring it to a virtual reality.

Thank you

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