

### ACADEMIC PROVIDERS ANALYSIS

Technology plays an important role in everyday life. From cellular phones to televisions and computers, technology has become a necessity in society. With the passing of time, the world has seen a great advancement in technology. For more than 35 years, Moore's Law has guided the computer industry, creating a decline in prices, and a rise in performance. A key factor in the continuance of Moore's law will be molecular manufacturing. Nanotechnology makes this type of fabrication possible and promises to bring revolutionary capabilities. The creation of nanoelectronics and nanodevices can be the solution to many problems faced by mankind today. This is why billions of dollars have been spent for the research and development of nanotechnology. Two educational institutions that are involved in this research are the Cornell and Northwestern Universities. Both of these schools have research facilities specializing in the further development of nanotechnology. In order to see how academic websites provide information on nanotechnology, the websites of both the Cornell and Northwestern nanotechnology facilities have been analyzed. In performing a site analysis, the following questions were answered:

- Is there a bias evident in the site's mission statement?
- Is the organization up front about their bias?
- How long has the website or organization been around?
- Is the information presented in a well-organized manner?
- Who are the stakeholders involved in the organization?
- How is the general public directed to the website?
- If the organization's board of directors is viewable, are there any investor relations?
- Are the organization's advisory boards easily accessible?
- Is the content provided on the website positive or negative?

- Who is the intended audience of the website?

The Cornell NanoScale Science & Technology Facility (CNF) was the first academic organization to be analyzed. When visiting the Cornell site, [www.cornell.edu](http://www.cornell.edu), users can direct themselves to the CNF site by clicking the “Research” link and finding the Cornell NanoScale Facility under the “Research Centers, Institutes, Labs, and Programs” listing. The CNF website can be directly accessed at [www.cnf.cornell.edu](http://www.cnf.cornell.edu). On the welcome page the longevity of the facility and their intended audience is immediately addressed: “The Cornell NanoScale Science & Technology Facility (CNF) has served the US research community for more than 25 years.” The website is aimed at the general scientific community, specifically those who wish to become CNF users/researchers. There is no bias evident on the site since their mission is to encourage the research and development of nanotechnology.

The information about the organization and their research findings is well-organized and may be viewed online in the form of text, lecture videos, .pdf reports as well as offline in the form of newsletters and brochures. The content of the information is neither positive nor negative, since they only serve to summarize the capabilities of their facility and the results of their research. The website serves as a recruitment tool for those interested in using their facility to perform research in nanotechnology, as stated on the welcome page: “The research accomplishments will give you a short introduction to research, the equipment index more on detailed capabilities, and the nano-course a practical introduction to technology. Other links and the search engine will lead you to a variety of information related to nano-scale science and technology.” Many of the links on the website provide information about the tools that may be found in their facility.

Video tours of the facility, equipment training videos, detailed equipment lists, safety manuals, and research accomplishments comprise the majority of the site's content. This serves to show that their intended audience are those involved in the hands-on aspect of nanotechnology.

Information about the lab equipment and results are not the only things accessible from the site, as the staff and stakeholders are publicly available. Though the Board of Directors information is not available for investor relations lookup, the CNF staff contact information is listed. The contact information contains the name, position, phone number, e-mail, and office location of each employee of the facility. The stakeholder information was not as easily attainable, since a direct link was not provided. In order to find this information, a site search was required. This was accomplished by typing the word "sponsors" in the CNF site search field. This query resulted in a listing of CNF sponsors and partners which included Intel, JEOL, Zeiss, Oxford Instruments, and Applied MST.

General information about nanotechnology for those not familiar with the topic is not available at the CNF website. In order to benefit from the information provided by the facility you must be well-versed in the different scientific aspects of the technology. If you are a consumer with an interest in learning more about nanotechnology and how it works, this site will not be of any help. On the other hand, if you are a research scientist who wishes to further your knowledge in the field by using the facility to perform a project, than this is the ideal site. Fortunately, not all educational providers of nanotechnology information take this standpoint.

The nanotechnology center at Northwestern University provides a website that may be a little more helpful for those not involved in the scientific community. Starting from the Northwestern main page ([www.northwestern.edu](http://www.northwestern.edu)), users can find their way to the nanotechnology center's site by following the "Research" link and looking for the Institute of Nanotechnology under the "University Research Centers" listing. This site can be accessed directly by going to [www.nanotechnology.northwestern.edu](http://www.nanotechnology.northwestern.edu). The welcoming page provides an overview of the center's mission: "The role of the Institute is to support meaningful efforts in nanotechnology, house state-of-the-art nanomaterials characterization facilities, and nucleate individual and group efforts aimed at addressing and solving key problems in nanotechnology." This mission statement shows no bias on the nanotech issue.

The Northwestern site is similar to the Cornell site since both promote the further research of nanotechnology, but the information provided on the Northwestern site is not as technical. Information about nanotechnology is well-organized into different sections of the site, and is available in the form of external site links and news articles. By clicking the "News" link from the main page, the user is directed to an archive of selected institute news. The articles within this archive show how research in nanotechnology has progressed over the years. The news listings contain articles from various sources, such as *The Chicago Tribune*, *The Chicago Sun-Times*, *Wired News*, *BusinessWeek*, and others, dating from 1994 to 2004. The articles highlight a range of topics in nanotechnology including, but not limited to, its many applications, research findings, and governmental funding. This shows how the site is geared more towards the general public than just the scientific community. The content presented is more positive than

negative, since the articles provided support the benefits of nanotechnology. Information about the university's numerous nanotechnology facilities is available to those who wish to perform research onsite. Northwestern has performed research in this field for many years, making longevity a non-issue.

As was the case with the Cornell site, staff and sponsor information is available, but a Board of Directors listing is absent. Members of the Northwestern nanotechnology institute faculty include professors from other universities (University of Chicago, University of Illinois at Urbana-Champaign, and Harold Washington), as well as employees from The Chicago Museum of Science & Industry and The Argonne National Laboratory. Most of the staff members have a profile page with contact information including phone numbers and e-mail addresses, meaning that they are easily accessible. Their faculty is not the only impressive aspect of their operation, seeing as they boast an extensive list of sponsors. Their current business partners are Abbott Laboratories, Air Liquide, Air Products, Applied Biosystems, DuPont, FEI, JEOL, NanoInk, Nanosphere, Praxair, Rohm and Haas, and Veeco.

The Northwestern site provides a great deal of information for the general public, not just research enthusiasts and those involved in the industry. This site provides no visible bias, even though they are funded by commercial organizations that may have one. The analysis of both the Cornell and Northwestern University websites has revealed important issues in the publishing of nanotechnology information. Though both sites show no bias, they address different audiences and present information in different manners. Using this analysis of academic provider websites, one can make comparisons to how information is provided by academic, commercial, and independent providers.

Analysis of the other providers may reveal biases, lack of longevity in the nanotechnology industry, or any other issues not apparent in the websites of academic providers. These analyses will be able to help the IPRO 341 team move further towards a concrete goal. Hopefully something beneficial will result from the team's provider research and analysis.

## BIBLIOGRAPHY

### Cornell University Links:

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<http://www.cornell.edu/research/>  
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[http://www.cnf.cornell.edu/cnf5\\_publication.html](http://www.cnf.cornell.edu/cnf5_publication.html)  
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### Northwestern University Links:

<http://www.northwestern.edu/>  
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