The Engineering Design Cycle

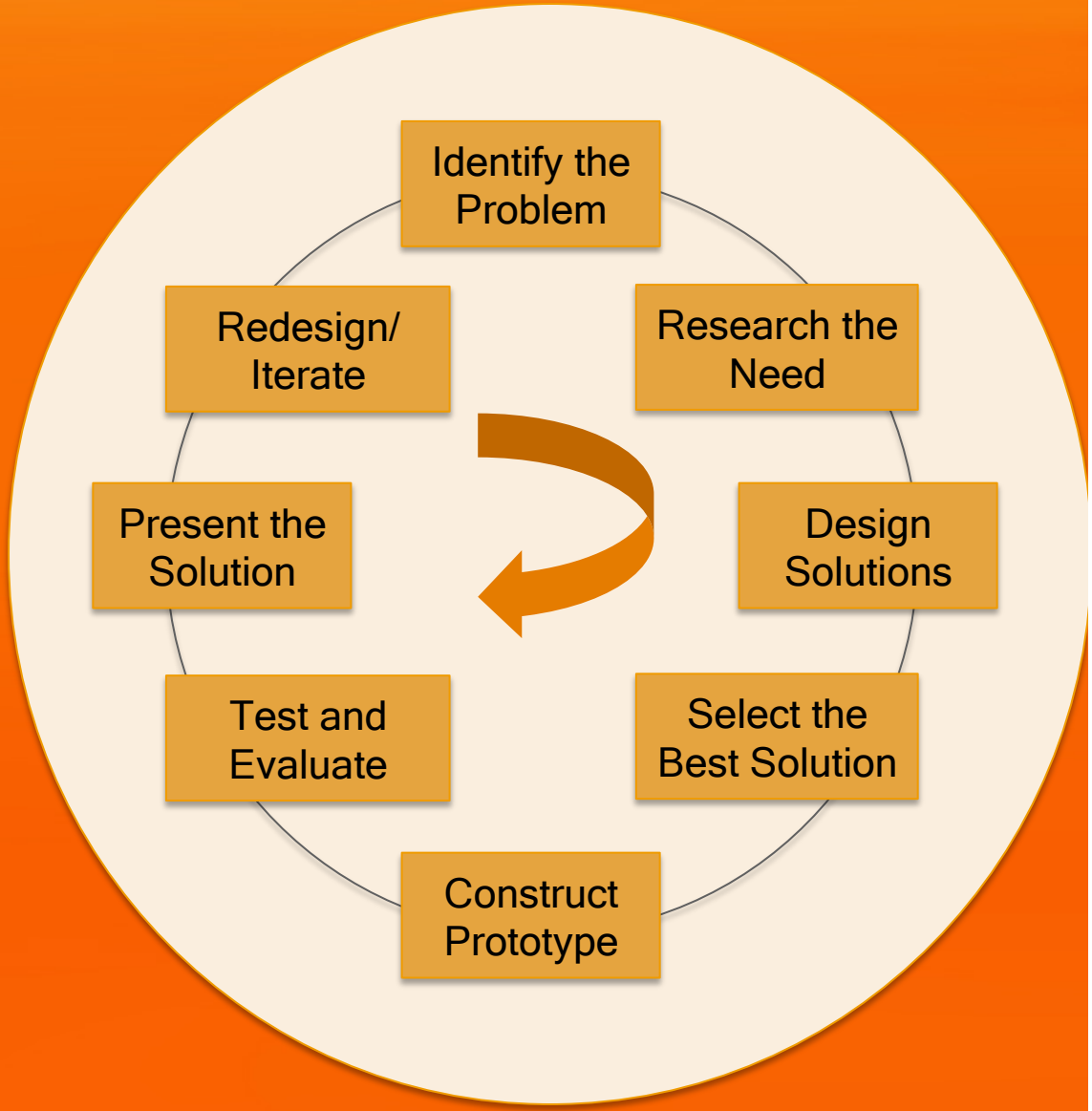
Research the Need

Filtering Less Credible Information

Once information has been gathered from a variety of different sources, the credibility of the information must then be evaluated so that the credible can be separated from the questionable.

The Engineering Design Cycle

Once the design team has gathered information to establish the relevance of the problem (and the design intended to solve that problem), it is time to sort the credible from the questionable sources from which the information was gathered. Once sorted, the credible sources will be retained for project proposals, design project reviews, and other formal communications of the design with those outside the team. But some information will not be sufficiently credible to use outside the design team. Here, we will identify sources that are potential troublemakers.



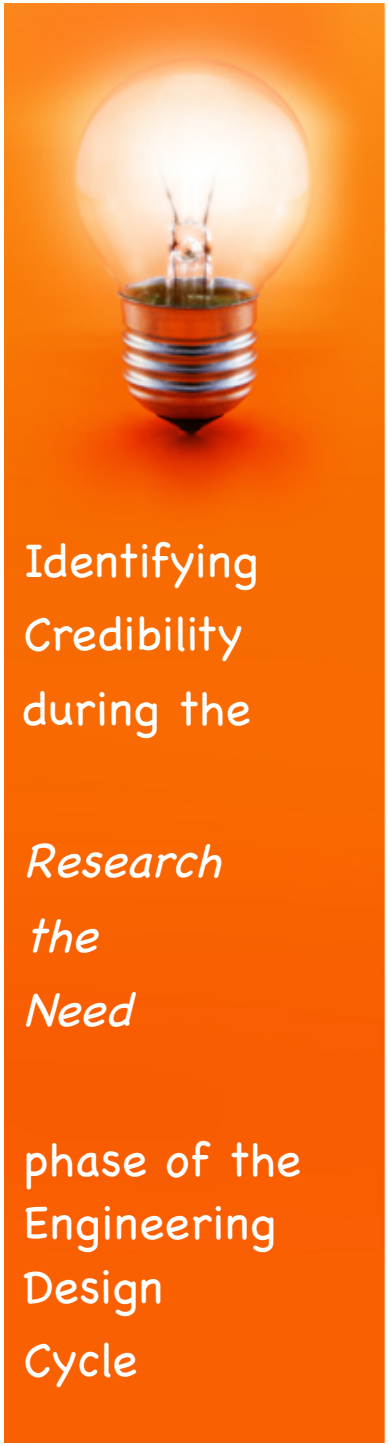
Many, many sources of Information

Identifying Credibility during the

Research the Need

phase of the Engineering Design Cycle

Source	Credible?	Investigating....
Peer-Reviewed Journals	Very Often	Eigenfactor, Impact Factor
Technical Conferences	Often	Acceptance Rate, Reach
Trade Magazines	Often	Reach, Stature, Reputation
Market Research	Often	Potential Bias, Reach & Reputation
Organizations, Government	Often	Stability and History of Government
Organizations, Non-Government	Sometimes	Potential Bias, Possible Agendas
Blogs, Discussion Forums	Rarely	Author Reputation & Expertise
Newspapers, Magazines, Popular Publications	Sometimes	Potential Bias, Underlying Sources
Web Documents, Author not disclosed	Rarely	Reputation of Organization
Companies	Sometimes	Potential Bias, Possible Agendas



Identifying Credibility during the

Research the Need

phase of the Engineering Design Cycle

Gathering Information from: Companies & Corporations

In general, use information from a corporate organization that

- Can either be readily recognized, or
- Can be accompanied by a brief biography (origin of company, market share, annual revenue, date of inception, etc.) that establishes the stability and credibility of the company.

Apple

OR

Microsoft

Intel

FLUKE®

Started in 1948, Fluke is a major manufacturer of electronic testing equipment and has over 2,500 employees at its home base in Everett, Washington.

Identifying Credibility during the

Research the Need

phase of the Engineering Design Cycle

Gathering Information from: Companies & Corporations

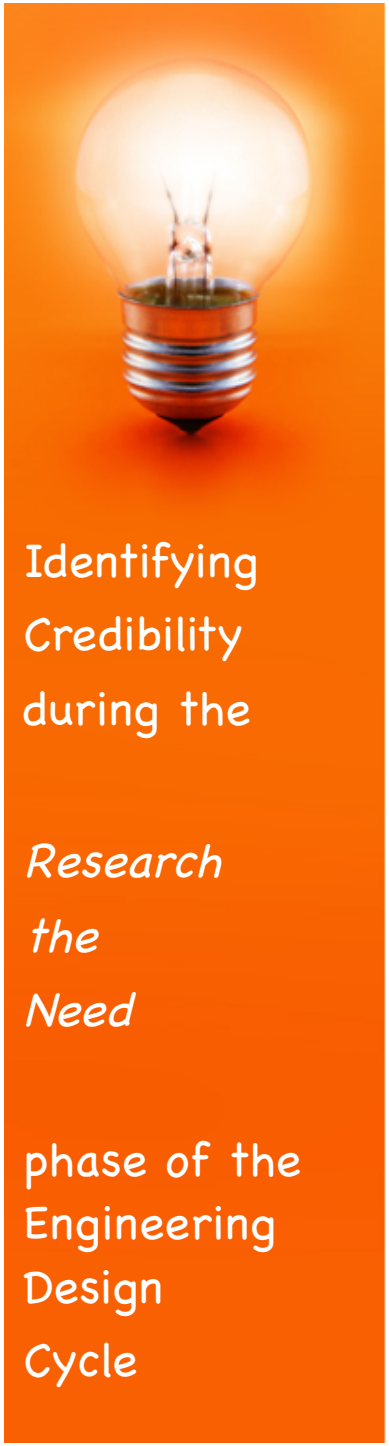
Company Web Sites:

Can be assumed to be biased and less credible than other sources. A notable exception would be information that is referenced to another, more credible source published outside the company (e.g. reputable government reports, peer reviewed scientific literature, etc.)

Data Sheets and other Technical Information:

Can be assumed to provide accurate and credible information regarding specifications, performance, and underlying science/theory of operation but can be biased in stating the goodness of the device or product.

"Honeywell continues to maintain product excellence and performance by introducing innovative solid-state magnetic sensor solutions. These are highly reliable, top performance products that are delivered when promised. Honeywell's magnetic sensor solutions provide real solutions you can count on."



Gathering Information from: Companies & Corporations

Company/Corporation Annual Reports:

- Information regarding overall market share and revenue (which gives credibility to the company as a whole).
- Information regarding a particular product or product line as a function of overall business (which can be used to establish a company as an expert on a particular product or product line).
- Descriptions of the company and its products are like most other company propaganda, inherently biased.

Biased

As worldwide demand for renewable energy continues to increase, it is increasingly clear that consumers will turn to energy-saving solutions from Acme Electronics for their electronic device needs.

Biased

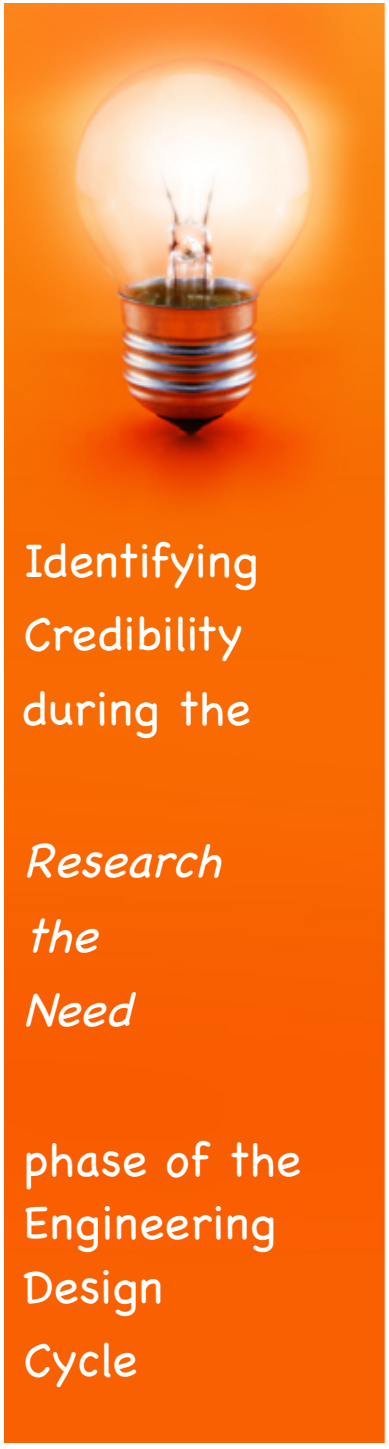
Acme Electronics provides the world's best video games to a broad range of users.

Credible

Acme Electronics generated gross profits of 1.4 billion dollars in 2015.

Credible

Acme Electronics products carried 40% of the global market share in personal fitness products in 2014.



Gathering Information from: Many, Many Other Sources

When considering a wide range of other Print Sources:

- Newspapers
- Popular Magazines
- Propaganda, Brochures and the like

As well as Internet Sources:

- Blogs
- Discussion Forums
- Product reviews from companies or associations of companies
- Propaganda from organizations with a clear bias
- Any material with an unknown author

Red Flag:
Article contains science which is not timeless and is several years old.

Red Flag:
Article has an author, but the author has no expertise in the area.

Identifying Credibility during the

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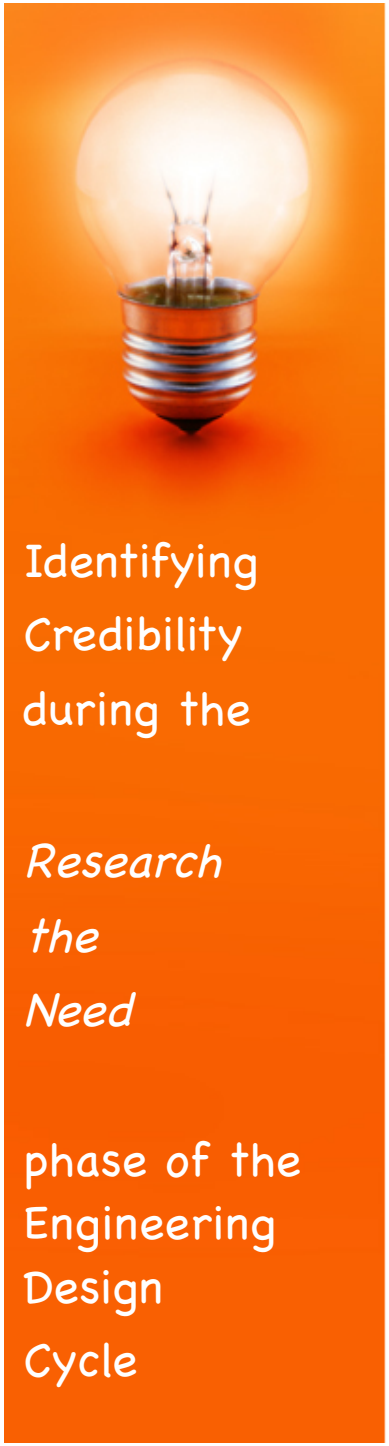
Red Flag:
Article has no author and no list of other sources/references.

Rule of Thumb:
An article that is UNauthored is very often UNcredible.



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Yellow Flag:
Article is on Wikipedia and information of interest is either not referenced or referenced to a source of questionable credibility.

Identifying Credibility

Research the Need

Information gathered to support the relevance of the problem and of the proposed design must be filtered for its credibility:

- Category 1: CREDIBLE
- Category 2: LIKELY CREDIBLE (but needs backup from CREDIBLE sources)
- Category 3: NOT CREDIBLE (this information should be retained for internal use only, and never be seen in an presentation or report to an outside audience)