

Engineering Design *An Introduction*

Using Market Research

- Consumer market research
 - Useful for researching prior to a purchase decision
 - Example: *Consumer Reports* magazine
- Companies may want to answer specific questions
 - Example: what do customers dislike about the existing ketchup bottle?

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Using Market Research (cont'd.)

- Research methods
 - Questionnaires
 - Focus groups
 - Consumer interviews
- Information from market research:
 - Used early in the project
 - And throughout the design process

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Using Primary Sources

- Primary source
 - Original information not previously summarized or reported
 - Most reliable information designers can use
 - Sometimes available in online databases

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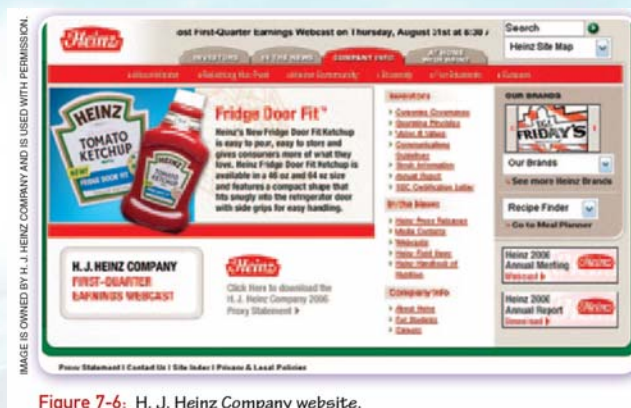


Figure 7-6: H. J. Heinz Company website.

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Consumer-Based Information

- Ways to ask questions
 - Post on an Internet blog
 - Invite group of people that fit market demographic to a focus group session
 - Telephone or face-to-face surveys
 - Test marketing

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Patent Information

- Intellectual property
 - Certain types of ideas and information
 - Used to determine legal ownership rights
- Three types of patents
 - Utility patent
 - Design patent
 - Plant patent

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Trademark and Copyright Protection

- Trademark
 - Word, name, symbol, or device used to market a product
 - Indicates the source of the goods
- Service mark
 - Used to identify the source of the service

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Trademark and Copyright Protection (cont'd.)

- Trademark law
 - Protects companies against others using the same mark on competing product or service

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Trademark and Copyright Protection (cont'd.)

- Copyright
 - Similar to a trademark
 - Protects literary, dramatic, musical, artistic works
 - Registered by the Copyright Office of the Library of Congress
 - Marked with the © symbol

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Trademark and Copyright Protection (cont'd.)

- Plagiarism
 - Using a direct quote or paraphrase without giving credit to the author
 - Can carry serious consequences

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Patent Searches and Independent Inventor Resources

- US Patent and Trademark Office
 - Database searchable on the Web
- Google search engine
 - Can be used to search patents
- Inventors Assistance Center (IAC)
 - Resource for individual inventors

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Visiting Stores

- Methods to learn about new products
 - Visit stores in person
 - Get information online
- Need permission to photograph, operate, or measure a product when in a store

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Laboratory Studies

- Used when essential information is unavailable
- Expensive
- Direct observation of a material or process
 - Example: Heinz testing silicone valve from shampoo bottle cap
- May use consumers to test products

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Using Secondary Sources

- Secondary source
 - Previously published information
 - Report may be accurate
 - May not contain critical information
 - Good place to start research

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Library Homepages

- Poor research techniques:
 - Lead to irrelevant or discouraging information
- Library homepage
 - Good place to start
- Trade journals may be available for your topic

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Web Portals

- Online libraries
 - Refdesk.com
 - Internet Public Library
 - Virtual Reference Desk
 - Libraryspot.com

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Encyclopedias

- Britannica.com
- Wikipedia
- Look for keywords you can use to do further research

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Internet

- Many search engines are available
- Sort information for relevancy
- May need to narrow the search topic
- Google Scholar
 - Excellent tool for searching scholarly articles
 - Allows for Boolean logic searching
 - AND, NOT, and OR

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Magazines, Trade Journals, and Newspapers

- Some specialized search engines:
 - Can search databases of magazines and newspapers
- Trade journals
 - Specific to a discipline
 - Example: Plastic Additives & Compounding

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Figure 7-13: Trade publication.

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Saving Information and Citing Sources

- Bookmark relevant information
 - Organize it in files
- Google Docs
 - Provides document storage and sharing
- Provide accurate and complete references
 - Use specified reference style

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Using Human Factors Information

- Products must be designed for the intended users
- Human factors engineering
 - Design of products to fit human needs
 - Application of knowledge about people and their environments to product design
 - Involves psychology, biology, anthropology, and other disciplines

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The Myth of the Average Person

- Most things are not designed for the average person
- Custom items designed for a specific person
- Door is designed to allow nearly everyone to pass through without bending

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Human Scale

- Design team needs to get information about human users
- Chapter 15 will give more information on Human Factors Engineering

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