Dubberly Design Office

Collection of Design Principles

Version 1.0
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PART ONE

Design Principles

Hippocrates

- ‘First, do no harm.’

“Hippocratic Oath.” Wikipedia, Wikipedia Foundation, Inc., 8 Apr. 2022, en.wikipedia.org/wiki/Hippocratic_Oath#:~:text=%22First%20do%20no%20harm%22,-Main%20article%3A%20Primum&text=Another%20equivalent%20phrase%20is%20found,century%20English%20surgeon%20Thomas%20Inman.

Vitruvius

- solidity, commodity, delight
  or
- Firmitas (strength, durability)
- Utilitas (utility)
- Venustas (beauty)

William of Ockham

Principle of parsimony (or Ockham’s Razor)

- Don’t multiply terms needlessly

Shakers
(or The United Society of Believers in Christ’s Second Appearing)

1 Simplicity
2 Honesty
3 Utility

“Finding Inspiration in the Shaker Design Principles.” Plyroom, 2022, www.plyroom.com.au/blogs/journal/finding-inspiration-in-the-shaker-design-principles#:~:text=The%20Shaker%20design%20principles%20are,%2C%20craftsmanship%2C%20restrain%20and%20balance.

John Ruskin

7 Principles that Should be Reflected in a Building:

1. Sacrifice
2. Truth
3. Power
4. Beauty
5. Life
6. Memory
7. Obedience

Louis Sullivan

- Form ever follows function

Frank Lloyd Wright

- Form and function are one

(May 20, 1953 The Future of Architecture)

Robert Venturi (1966)

- We no longer argue over the primacy of form or function (which follows which?)

Christopher Alexander

- The ultimate object of design is form.
  … every design problem begins with an effort to achieve fitness between two entities: the form in question and its context.
  The form is the solution to the problem;
  the context defines the problem. …
  Good fit is a desired property…

Louis Kahn

- Form evokes function

Hartmut Esslinger

- Form follows emotion

Frank Lloyd Wright

The Language of Organic Architecture:

- Nature
- Organic
- Form Follows Function
- Romance
- Tradition
- Ornament
- Spirit
- Third Dimension
- Space

Ronald Mace, et al.

7 Principles of Universal Design:

1 Equitable use
2 Flexibility in use
3 Simple and intuitive use
4 Perceptible information
5 Tolerance for error
6 Low physical effort
7 Size and space for approach and use

Rossetti, Rosemarie. “The Seven Principles of Universal Design.”
Universal Design Living Laboratory, United Spinal Association, Dec. 2006,
www.udll.com/media-room/articles/the-seven-principles-of-universal-design.

Dieter Rams

10 Principles for Good Design:

1 Innovative
2 Makes a product useful
3 Aesthetic
4 Makes a product understandable
5 Unobtrusive
6 Honest
7 Long-lasting
8 Thorough down to the last detail
9 Environmentally-friendly
10 Little design as possible

"Dieter Rams' 10 Principles of Good Design." Heurio, Heurio, 2022, www.heurio.co/dieter-rams-10-principles-of-good-design.

Paul Rand

Principles for Logo Design:

1. Distinctiveness
2. Visibility
3. Adaptability
4. Memorability
5. Universality
6. Timelessness
7. Simplicity

"Paul Rand's Principles for Logo Design." Concept Machine, Concept Machine, 5 June 2014, conceptmachine.ro/notes/paul-rands-principles-logo-design.

Massimo Vignelli
The Vignelli Canon

- Discipline (attention to detail), appropriateness,
ambiguity, is one, visual power, intellectual elegance,
timelessness, responsibility, equity, proportion (paper size),
grid, typefaces, flush left/centered/justified,
type size relationship, rules, contrasting type size,
scale, texture, color, layout, sequence, binding,
identity and diversity, white space

Mark Weiser, et al.,
Calm Tech Design Principles

- Technology should require the smallest possible amount of attention
- Technology should inform and create calm
- Technology should make use of the periphery
- Technology should amplify the best of technology and the best of humanity
- Technology can communicate, but doesn’t need to speak
- Technology should work even when it fails
- The right amount of technology is the minimum needed to solve the problem
- Technology should respect social norms

Alvin Eisenmann

- Similar functions should have similar form

ISO 92410-11

- effective, efficient, delightful

"ISO 25000 Software and Data Quality." ISO 25000, iso25000.com/index.php/en/iso-25000-standards/iso-25010/61-usability. Accessed 27 Apr. 2022.

DFV or Balanced Innovation Framework

- desirable, viable, feasible

Orton, Kristann. “Desirability, Feasibility, Viability: The Sweet Spot for Innovation.” Medium, 28 Mar. 2017, medium.com/innovation-sweet-spot/desirability-feasibility-viability-the-sweet-spot-for-innovation-d7946de2183c.

Don Norman

7 Fundamental Design Principles:

1 Discoverability
2 Feedback
3 Conceptual Model
4 Affordance
5 Signifiers
6 Mapping
7 Constraints

Batterbee, Ian. “Don Norman’s Seven Fundamental Design Principles.” Medium, 3 Feb. 2020, uxdesign.cc/ux-psychology-principles-seven-fundamental-design-principles-39c420a05f84.

Edward Tufte

Principles of Graphical Excellence:

1. Show the data
2. Induce the viewer to think about the substance of the findings rather that the methodology, the graphical design, or other aspects
3. Avoid distorting what the data have to say
4. Present many numbers in a small space, i.e., efficiently
5. Make large data sets coherent
6. Encourage the eye to compare different pieces of data
7. Reveal the data at several levels of detail, from a broad overview to the fine structure
8. Serve a clear purpose: description, exploration, tabulation, or decoration
9. Be closely integrated with the statistical and verbal descriptions of the data set

LaMorte, Wayne W. “Principles of Graphical Excellence from E.R. Tufte.” 3 June 2016, sphweb.bumc.bu.edu/otlt/mph-modules/bs/datapresentation/DataPresentation3.html.

Edward Tufte

Principles of Graphical Integrity:

1. The representation of numbers, as physically measured on the surface of the graphic itself, should be directly proportional to the numerical quantities measured.
2. Clear, detailed, and thorough labeling should be used to defeat graphical distortion and ambiguity. Write out explanations of the data on the graphic itself. Label important events in the data.
3. Show data variation, not design variation.
4. In time-series displays of money, deflated and standardized units of monetary measurement are nearly always better than nominal units.
5. The number of information-carrying (variable) dimensions depicted should not exceed the number of dimensions in the data.
6. Graphics must not quote data out of context.

Raghu, Radhika. “Edward Tufte’s Six Principles of Graphical Integrity.” LinkedIn, 28 May 2020, www.linkedin.com/pulse/edward-tuftes-six-principles-graphical-integrity-radhika-raghu.

Albert Cairo

5 Qualities of Great Visualizations:

1. Truthful
2. Functional
3. Beautiful
4. Insightful
5. Enlightening

Manuel Lima

Information Visualization Manifesto

1. Form follows function
2. Start with a question
3. Interactivity is key
4. Cite your source
5. The power of narrative
6. Do not glorify aesthetics
7. Look for relevancy
8. Embrace time
9. Aspire for knowledge
10. Avoid gratuitous visualizations

Lima, Manuel. “Information Visualization Manifesto.” Visual Complexity, VC Blog, 30 Aug. 2009, www.visualcomplexity.com/vc/blog/?p=644.

John Chris Jones

Manifesto, calling on designers

- To begin with what can be imagined
- To use both intuition and reason
- To work it out in context
- To model the contextual effects of what is imagined
- To change the process to suit what is happening
- To refuse what diminishes
- To seek inspiration in what is
- To choose what depends on everyone

quoted by John Thackara, page 338 of ‘Designing Design’.

W. H. Mayall
Ten Principles of Design

1. The Principle of **Totality**
All design requirements are always interrelated and must always be treated as such throughout a design task.

2. The Principle of **Time**
The features and characteristics of all products change as time passes.

3. The Principle of **Value**
The characteristics of all products have different relative values depending upon the different circumstances and times in which they may be used.

4. The Principle of **Resources**
The design, manufacture, and life of all products and systems depend upon the materials, tools, and skills up which we can call.

5. The Principle of **Synthesis**
All features of a product must combine to satisfy all the characteristics we expect it to possess with an acceptable relative importance for as long as we wish, bearing in mind the resources available to make and use it.

6. The Principle of **Iteration**
Design requires processes of evaluation that begin with the first intentions to explore the need for a product or system. These processes continue throughout all subsequent design and development states to the user himself, whose reactions will often cause the iterative process to continue with a new product or system.

7. The Principle of **Change**
Design is a process of change, an activity undertaken not only to meet changing circumstances, but also to bring about changes to those circumstances by the nature of the product it creates.

8. The Principle of **Relationships**
Design work cannot be undertaken effectively without establishing working relationships with all those activities concerned with the conception, manufacture, and marketing of products and, importantly, with the prospective user, together with all the services he may call upon to assist his judgement and protect his interests.

9. The Principle of **Competence**
Design competence is the ability to create a synthesis of features that achieves all desired characteristics in terms of their required life and relative value, using available or specified materials, tools, and skills, and to transmit effective information about this synthesis to those who will turn it into products or systems.

10. The Principle of **Service**
Design must satisfy everybody, and not just those for whom its products are directly intended.
pg 75 - 80, ‘Designing Design’

Tom Starr

Design Principles:

1. Self-expression to communicate
2. Persuasive
3. Informative
4. Political
5. Little design as possible
6. “Adds legitimacy to messages by translating them into recognizable media formats while humanizing the message itself”

Starr, Thomas. “Politicians, journalists and pundits use language. Graphic designers use visual language.” Aug. 2011, https://web.northeastern.edu/wethedesigners/WTD_intro.pdf.

Doug Scott

Design Principles:

1. Clear
2. Accessible
3. Appropriate

Max Bill

- Good design depends on the harmony
established between the form of an object and its use.

PART TWO

UI + UX Design Principles

Ergonomic Requirements for Office Work With Visual Display Terminals (VDTs): Guidance on Usability (ISO 9241-11)

after the International Organization for Standardization (1998)

(rooted in the works of Vitruvius)

Usability	Extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use
Effectiveness	Accuracy and completeness with which users achieve specified goals.
Efficiency	Resources expended in relation to the accuracy and completeness with which users achieve goals.
Satisfaction	Freedom from discomfort and positive attitudes toward the use of the product.

http://www.idemployee.id.tue.nl/g.w.m.rauterberg/lecturenotes/ISO9241part11.pdf
International Organization for Standardization. International Standard ISO 9241-11.
Ergonomic Requirements for Office Work With Visual Display Terminals (VDTs) – Part 11: Guidance on Usability. 1998.

Ten Usability Heuristics
after Jakob Nielsen (1994)

Heuristic	Description
Visibility of system status	The system should keep users informed about what is going on, through appropriate feedback within reasonable time.
Match between system and the real world	The system should speak the user's language rather than system-oriented terminology. Follow real-world conventions and make information appear in a natural and logical order.
User control and freedom	Users often choose functions by mistake and need clearly marked "emergency exits". Support Undo and Redo.
Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.
Error prevention	A careful design that prevents a problem from occurring is better than good error message.
Recognition rather than recall	Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions should be visible or easy to retrieve whenever not visible.
Flexibility and efficiency of use	Accelerators, which are not seen by novice users, may often speed up the interaction for the expert user. Let users tailor frequent actions.
Aesthetic and minimalist design	Dialogues should not contain information that is irrelevant or rarely needed. Every extra piece of information in a dialog box competes with the relevant pieces of information and diminishes their visibility.
Help users recognize, diagnose, and recover from errors	Error messages should be expressed in plain language, precisely indicate the problem, and constructively suggest a solution.
Help and documentation	Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, be focused on the user's task, list concrete steps to be carried out, and not be too large.

http://www.useit.com/papers/heuristic/heuristic_list.html
http://www.fast-consulting.com/books/APPB.html
Nielsen, Jakob. "Heuristic evaluation." In Usability Inspection Methods, edited by J. Nielsen and R.L. Mack. New York: John Wiley & Sons, 1994.

Nine Usability Heuristics

after Nielsen and Molich (1990)

1. Simple and natural dialog
2. Speak the user's language
3. Minimize user memory load
4. Be consistent
5. Provide feedback
6. Provide clearly marked exits
7. Provide shortcuts
8. Good error messages
9. Prevent errors

http://www.usabilitybok.org/methods/p275?section=how-to
Nielsen, J. and R. Molich. "Heuristic Evaluation of User Interfaces." Proc. ACM CHI '90 Conf (1990): 249-256.

First Principles of Interface Design

after Bruce “Tog” Tognazzini (2003)

Principle	Description
Anticipation	Applications should anticipate users’ wants and needs.
Autonomy	- The computer, the interface, and the task environment all “belong to the user,” but user-autonomy doesn’t mean we abandon rules. - Use status mechanisms to keep users aware and informed. - Keep status information up to date and within easy view.
Color Blindness	Any time you use color to convey information in the interface, you should also use clear, secondary cues to convey the information to those who don’t experience color coding.
Consistency	- Levels of consistency: The importance of maintaining strict consistency varies. The following list is ordered from those interface elements demanding the most faithful consistency effort to those demanding the least. Paradoxically, many people assume that the order of items one through five should be exactly the reverse, leading to applications that look alike, but act completely different in unpredictable ways: 1. Interpretation of user behavior, e.g., shortcut keys maintain their meanings. 2. Invisible structures. 3. Small visible structures. 4. The overall “look” of a single application or service— splash screens, design elements. 5. A suite of products. 6. In-house consistency. 7. Platform-consistency. - Inconsistency: It is just as important to be visually inconsistent when things must act differently as it is to be visually consistent when things do act the same. - The most important consistency is consistency with user expectations.

http://www.asktog.com/basics/firstPrinciples.html

First Principles of Interface Design

after Bruce “Tog” Tognazzini (2003)

Principle	Description
Defaults	- Defaults should be easy to “blow away”: Fields containing defaults should come up selected, so users can replace the default contents with new material quickly and easily. - Defaults should be “intelligent” and responsive. - Do not use the word “default” in an application or service. Replace with “Standard”, “Use Customary Settings”, “Restore Initial Settings”, or some other more specific terms describing what will actually happen.
Efficiency of the User	- Look at the user’s productivity, not the computer’s. - Keep the user occupied. - To maximize the efficiency of a business or other organization you must \ maximize everyone’s efficiency, not just the efficiency of a single group. - The great efficiency breakthroughs in software are found in the fundamental architecture of the system, not in the surface design of the interface. - Write help messages tightly and make them responsive to the problem; good writing pays off big in comprehension and efficiency. - Menu and button labels should have the key word(s) first.
Explorable Interfaces	- Give users well-marked roads and landmarks, then let them shift into four-wheel drive. - Sometimes, however, you have to provide deep ruts. - Offer users stable perceptual cues for a sense of “home”. - Make Actions reversible. - Always allow “Undo”. - Always allow a way out. - However, make it easier to stay in.
Fitts’ Law	The time to acquire a target is a function of the distance to and size of the target.

http://www.asktog.com/basics/firstPrinciples.html

First Principles of Interface Design

after Bruce “Tog” Tognazzini (2003)

Principle	Description
Human Interface Objects (HIOs)	- HIOs can be seen, heard, touched, or otherwise perceived. - HIOs that can be seen are quite familiar in graphic user interfaces; objects that play to another sense such as hearing or touch are less familiar. Good work has been done in developing auditory icons. - HIOs have a standard way of interacting. - HIOs have standard resulting behaviors. - HIOs should be understandable, self-consistent, and stable.
Latency Reduction	- Wherever possible, use multi-threading to push latency into the background. - Reduce the user’s experience of latency.
Learnability	- Ideally, products would have no learning curve. - Limit the Trade-Offs.
Use of Metaphors	- Choose metaphors well, metaphors that will enable users to instantly grasp the finest details of the conceptual model. - Bring metaphors alive by appealing to people’s perceptions—sight, sound, touch, and kinesthesia—as well as triggering their memories.
Protect Users’ Work	Ensure that users never lose their work as a result of error on their part, the vagaries of Internet transmission, or any other reason other than the completely unavoidable, such as sudden loss of power to the client computer.
Readability	- Text that must be read should have high contrast. Favor black text on white or pale yellow backgrounds. Avoid gray backgrounds. - Use font sizes that are large enough to be readable on standard monitors. Favor particularly large characters for the actual data you intend to display, as opposed to labels and instructions. - Pay particular attention to the needs of older people.
Track State	- Because many of our browser-based products exist in a stateless environment, we have the responsibility to track state as needed. - State information should be held in a cookie on the client machine during a session with a transaction service, then stored on the server when they log off.
Visible Navigation	Avoid invisible navigation.

http://www.asktog.com/basics/firstPrinciples.html

Eight Golden Rules of Interface Design
after Ben Shneiderman (1998)

Rule	Description
Strive for consistency	Consistent sequences of actions should be required in similar situations; identical terminology should be used in prompts, menus, and help screens; and consistent commands should be employed throughout.
Enable frequent users to use shortcuts	As the frequency of use increases, so do the user's desires to reduce the number of interactions and to increase the pace of interaction. Abbreviations, function keys, hidden commands, and macro facilities are very helpful to an expert user.
Offer informative feedback	For every operator action, there should be some system feedback. For frequent and minor actions, the response can be modest, while for infrequent and major actions, the response should be more substantial.
Design dialog to yield closure	Sequences of actions should be organized into groups with a beginning, a middle, and an end. The informative feedback at the completion of a group of actions gives the operators the satisfaction of accomplishment, a sense of relief, the signal to drop contingency plans and options from their minds, and an indication that the way is clear to prepare for the next group of actions.
Offer simple error handling	As much as possible, design the system so the user cannot make a serious error. If an error is made, the system should be able to detect the error and offer simple, comprehensible mechanisms for handling the error.
Permit easy reversal of actions	This feature relieves anxiety, since the user knows that errors can be undone; it thus encourages exploration of unfamiliar options. The units of reversibility may be a single action, a data entry, or a complete group of actions.
Support internal locus of control	Experienced operators strongly desire the sense that they are in charge of the system and that the system responds to their actions. Design the system to make users the initiators of actions rather than the responders.
Reduce short-term memory load	The limitation of human information processing in short-term memory requires that displays be kept simple, multiple-page displays be consolidated, window-motion frequency be reduced, and sufficient training time be allotted for codes, mnemonics, and sequences of actions.

http://www.cs.utexas.edu/users/almstrum/cs370/elvisino/rules.html
Shneiderman, Ben. Designing the User Interface. 3rd edition. Addison Wesley, 1998.

Research-Based Heuristics of Usability
after Gerhardt-Powals (1996)

Heuristic	Notes
Automate unwanted workload	- Free cognitive resources for high-level tasks - Eliminate mental calculations, estimations, comparisons, and unnecessary thinking
Reduce uncertainty	- Display data in a manner that is clear and obvious
Fuse data	- Reduce cognitive load by bringing together lower level data into a higher level summation
Present new information with meaningful aids to interpretation	- Use a familiar framework, making it easier to absorb - Use everyday terms, metaphors, etc.
Use names that are conceptually related to function	- Context-dependent - Attempt to improve recall and recognition
Group data in consistently meaningful ways to decrease search time	
Limit data-driven tasks	- Reduce the time spent assimilating raw data - Make appropriate use of color and graphics
Include in the displays only that information needed by the user at a given time	- Allow users to remain focused on critical data - Exclude extraneous information that is not relevant to current tasks
Provide multiple coding of data when appropriate	
Practice judicious redundancy (to resolve the possible conflict between heuristics relating to grouping of data and display only that information needed by the user at a given time)	

http://www.ahic.org.au/evaluation/heuristics.htm
Gerhardt-Powals, J. “Cognitive Engineering Principles for Enhancing Human-Computer Performance.” International Journal of Human-Computer Interaction 8, no. 2 (1996): 189-211.

GUI Evaluation Heuristics
after Hugh Dubberly (2006)
Page 1 of 2

Heuristic	Criterion	Questions
Effectiveness	Completeness	Does the product do what users need? Is it deep enough? Does it include features irrelevant to users?
	Accuracy	Does the product have the necessary granularity? (fineness of control)
	Appropriateness	Does the product conform to users' models of the task? Is the product right for its audience?
Efficiency	Ease of learning (first operation)	What level of skill does it assume? How long does it take to learn?
	Depth of learning (once learned but set aside for a time)	How easy is it to pick up again later? How much do users recall after one week?
	Ease of use (on-going operation)	How quickly can users complete tasks? How much attention does the product require? (cognitive load) How frequently does the interface interrupt tasks? How deep (or fatal) are the interruptions? How easily can users recover from interruptions?
	Navigation	Is the product well organized? Can users find things easily? Are the form and language of the product clear? Are the form and language consistent?
Satisfaction / Delight	Tone	Does the product communicate the right tone? Is it friendly and polite or annoying and rude?
	Surprise	Does it go beyond standard expectations? Is there something wonderful about the product? Do you say "wow"?
	Stress	What emotion does the product leave users with? Does it take energy or replace it?

Dubberly, Hugh. Email correspondence, 2006.

GUI Evaluation Heuristics
after Hugh Dubberly (2006)
Page 2 of 2

Heuristic	Criterion	Questions
Universality	Skilling	Does the product “dumb-down”?
	Diversity	Is the product culturally specific? Does it exclude users from other cultures?
	Accessibility	Does the product hinder users with disabilities?
Integration	Within the product	Is the interface well integrated with the physical form?
	Between products	Does the product connect to other products? Is the product “open” so that others may extend it?
	Between user and product	Are input and output well integrated?
	Between users	Does the product fit easily into users’ lives? Does the product help users connect to others? Does the product help users help others?
Meta-level design	Does this product make sense?	Is the product concept clear? Does it have a clear idea of the intended user? Does it have a clear idea of the context of use?
	Is the business case for the product clear?	Does the business model make sense? Is the positioning compelling?
	Does the product make the world a better place?	

Dubberly, Hugh. Email correspondence, 2006.

Goal of Interface Design

after Shelley Evenson and John Rheinfrank

Our goal should be to
"foster interactions that are . . .

1 **Compelling** . . . capture users' imagination
2 **Orienting** . . . help users navigate the world
3 **Embedded** . . . become part of users' lives
4 **Generative** . . . promise more good things
5 **Reverberating** . . . 'you just have to try this' "

Dubberly, Hugh. Email correspondence, 2006.

Product Evaluation Criteria

after Samsung and Hugh Dubberly (2006)

The Product Evaluation Criteria are applied to the following:

1. Product Design
2. Physical User Interface (PUI)
3. Aural User Interface (AUI)
4. Graphical User Interface (GUI)

Criterion	Questions
Innovation	How innovative is the product? What new elements does it introduce?
Identity / Expandability	Does the product relate to others in its family? Does the product extend its parent brand? Is the product compatible with its parent brand?
Composition	Does the product have the right features? Is the product well organized? Did you find it clear or confusing?
Perfection	Does the product get all the details right? Does the product convey a feeling of quality?
Between products	Does the product connect to other products? Is the product “open” so that others may extend it?
Attraction	How attractive is the product? Will the intended customer desire the product? Would you buy the product?

Dubberly, Hugh. Email correspondence, 2006.

The ACM interactions Design Awards Criteria
after Alben+Faris (1996)

Two indirect criteria and six direct criteria contribute to the “quality of experience” measured in the ACM interactions design awards.

Criterion	Questions
Indirect	
Understanding of users	How well did the design team understand the needs, tasks, and environments of the people for whom the product was designed?
Effective design process	Is the product a result of a well-thought out and well-executed design process?
Direct	
Needed	What need does the product satisfy?
Learnable and Usable	Is the product easy to learn and use?
Appropriate	Does the design of the product solve the right problem at the right level? Does the product serve users in efficient and practical ways?
Aesthetic experience	Is using the product an aesthetically pleasing and sensually satisfying one?
Mutable	Have the designers considered whether mutability is appropriate or not? How well can the product be adapted to suit the particular needs and preferences of users? Does the design allow the product to change and evolve for new, unforeseen uses?
Manageable	Does the design of the product move beyond understanding “use” merely as functionality and support the entire context of use?

Alben, Lauralee. “Quality of Experience: Defining the Criteria for Effective Interaction Design.” interactions 1113 (1996).

Mobile Usability Heuristics
after Bertini et al. (2006)

Heuristic	Description
Visibility of system status and losability / findability of the mobile device	Through the mobile device, the system should always keep users informed about what is going on.
Match between system and the real world	Enable the mobile user to interpret correctly the information provided, by making it appear in a natural and logical order.
Consistency and mapping	The user's conceptual model of the possible function / interaction with the mobile device or system should be consistent with the context.
Good ergonomics and minimalist design	Mobile devices should be easy and comfortable to hold / carry along as well as robust to damage (from environmental agents).
Ease of input, screen readability, and glancability	Mobile systems should provide easy ways to input data, possibly reducing or avoiding the need for the user to use both hands.
Flexibility, efficiency of use, and personalization	Allow mobile users to tailor / personalize frequent actions, as well as to dynamically configure the system according to contextual needs.
Aesthetic, privacy, and social conventions	Take aesthetic and emotional aspects of the mobile device and system use into account.
Realistic error management	Shield mobile users from errors. When an error occurs, help users to recognize, to diagnose, if possible to recover from the error.

Bertini, E., S. Gabrielli, and S. Kimani. "Appropriating and Assessing Heuristics for Mobile Computing." Proceedings of the Working Conference on Advanced Visual Interfaces (2006): 119-126.

How to Conduct a Web Site Competitive Analysis

after Thomas Myer (2002)

What to analyze

Item	Questions
Home page	How informative is the home page? Does it set the proper context for visitors? Is it just an annoying splash page with multimedia? How fast does it load?
Navigation	Is the global navigation consistent from page to page? Do major sections have local navigation? Is it consistent?
Site organization	Is the site organization intuitive and easy to understand?
Links and labels	Are labels on section headers and content groupings easy to understand? Are links easy to distinguish, or are they ambiguous and uninformative (“click here” or “white paper”)? Are links spread out in documents, or gathered conveniently in sidebars or other groupings?
Search and search results	Is the search engine easy to use? Are there basic and advanced search functions? What about search results? Are they organized and easy to understand? Do they give relevance weightings or provide context? Do the search results remind you what you searched for?
Readability	Is the font easy to read? Are line lengths acceptable? Is the site easy to scan, with chunked information, or is it just solid blocks of text?
Performance	Overall, do pages load slowly or quickly? Are graphics and applications like search and multimedia presentation optimized for easy Web viewing?
Content	Is there sufficient depth and breadth of content offerings? Does the content match the mission of the organization and the needs of the audience? Is the site developing its own content or syndicating other sources? Is there a good mix of in-depth material (detailed case studies, articles, and white papers) versus superficial content (press releases, marketing copy)?

http://www-128.ibm.com/developerworks/webservices/library/us-analysis.html
Myer, Thomas, “How to Conduct a Web Site Competitive Analysis,”
IBM developerWorks, http://www-128.ibm.com/developerworks/webservices/library/us-analysis.html

How to Conduct a Web Site Competitive Analysis

after Thomas Myer (2002)

Writing a report

Section	Description
Executive summary	Give a summary of the report. Subsections of the executive summary should include a section summarizing why you undertook the analysis, a summary of the sites' rankings, and a summary of recommendations for further action.
Methods	Explain the methodology you employed for selecting and rating the sites, including what criteria you looked at. Provide insight into your thinking when you undertook the analysis.
Findings	Summarize your findings for each site. Start each subsection with the name of the site, the site's URL, and the overall score for the site. Then go through each part of the site and describe how it ranked, including a site section score. The findings section will comprise the bulk of the report.
Discussion and recommendations	Provide future direction for the team. Mention integrating other sites' best practices to the site being deployed by the company.
Appendices	Provide detailed information. It is appropriate to list raw data of your findings here.

http://www-128.ibm.com/developerworks/webservices/library/us-analysis.html
Myer, Thomas, "How to Conduct a Web Site Competitive Analysis,"
IBM developerWorks, http://www-128.ibm.com/developerworks/webservices/library/us-analysis.html

Ten Recommended Documentation Heuristics

after Vesa Purho of Nokia

Vesa Purho was conducting a study
on documentation usability.
She searched for a set of heuristics
for evaluating the usability of documentation,
but found that no clear set existed.

The following combines general ideas
about what is good documentation
and provides 10 statements
to serve as guides for a documentation
usability review.

Heuristic	Description
Match between documentation and the real world	The documentation should speak the users' language, with words, phrases, and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
Match between documentation and the product	The forms, screens, manuals, and online help system should match so that the same terminology is used in all of them. This may contradict with "Match between the documentation and real world" if the interface uses strange terminology.
Purposeful documentation	If the documentation set contains several documents, the purpose of each type of document should be clear, as well as the intended use. The media of the documentation must be purposeful so that users get what they need. For example, people working on a rooftop installing some hardware would not necessarily be delighted with nice multimedia CD-ROMs but prefer a laminated quick reference card.
Support for different users	The documentation should support users with different levels of knowledge on the domain as well as those assigned different tasks in the domain. Any unnecessary information for a specific user must be hidden from other users or be easily overlooked. Quick reference information for expert users should be available.
Effective information design	Information must be presented in a way so that it is easily found and understood by the users. Short lines and paragraphs are easier to read. Graphics, tables, and lists are easy to scan and read, and appropriately used to support the information need the user has. Unnecessary graphics only slow the reading and the download time of web-based documentation. Write instructions in imperative form and address the user directly using active sentences.

http://www.stcsig.org/usability/newsletter/0004-docsheuristics.html
Purho, Vesa. "Heuristic Inspections for Documentation – 10 Recommended Documentation Heuristics." Usability Interface 6, no. 4 (2000).

Ten Recommended Documentation Heuristics

after Vesa Purho of Nokia

Heuristic	Description
Support for various methods for searching Information	Documentation should support people with different strategies for finding information: Some search through the table of contents, some use the index, some browse, and some use searches (in electronic documentation). The index should contain users' own terminology as well as system terms, terms from international standards, and those used by competitors. The layout of documentation should support browsing so that beginnings of new chapters and important warnings and notes are easily picked up.
Task orientation	Instructional documentation should be structured around the users' job tasks, that is, tasks that are independent of the tools used. The job tasks remain the same although the tools may change. For example, the job task "baking bread" remains the same although the baker may do it all by hand or using latest state-of-the-art tools. This reduces the need to restructure the documentation when the product is changed. The tasks should be approximately at the same level of granularity throughout the documentation.
Troubleshooting	The documentation should contain a troubleshooting section giving users guidance for common problem situations and how to analyze rare situations. All documentation related to errors must be easily accessible.
Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. If the product has several documents, they should be consistent in their structure and the information in different documents should be designed so that no unnecessary overlapping exists. Follow platform conventions when creating the help system. Be sure that the terminology is consistent throughout the documentation suite.
Help on using documentation	If the documentation set is large, provide instructions on intended use, and how it is going to be updated (if separate updates are delivered).

http://www.stcsig.org/usability/newsletter/0004-docsheuristics.html
Purho, Vesa. "Heuristic Inspections for Documentation – 10 Recommended Documentation Heuristics." Usability Interface 6, no. 4 (2000).

Thank you.

Presentation posted at
presentations.dubberly.com/design_principles.pdf