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W H I T E P A P E R

Design
for
Content Management

Concept **Communication Design**	Practice **Graphic, Web (etc.) Design**
audience (specific)	medium (specific)
"meta-message" (high level)	legibility (universal)
research and planning	ad hoc, but based on rules

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visual communication

Introduction

This White Paper is adapted from a series of outline-form notes I prepared for Content Managers, tasked almost exclusively with web site maintenance for large corporate clients. It is based on my own education in Communication Design at the Nova Scotia College of Art and Design; subsequent teaching at the College, professional experience and assorted readings.

The hand-outs were explicitly designed to facilitate note-taking during training lectures, rather than to function as stand alone documents, and much of the language employed is a transcription of my own notes, taken from the aforementioned sources. I am distributing them 'as is', because I think there is enough information here to be of value in pointing readers in the right direction.

The series proceeds from the concrete and specific (including typesetting skills), to the abstract and conceptual. Even though content managers may not participate in creative direction, it is extremely important for them to understand the conceptual underpinnings of a given design, in order to effectively incorporate changes and additions.

Content management performed without such awareness can inflict harm to both the communication of the content, and the overall impression that is simultaneously communicated to the audience (the *meta-message*).

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Legibility Factors:

Typeface ("Font")

Medium & environment

Scale

Contrast

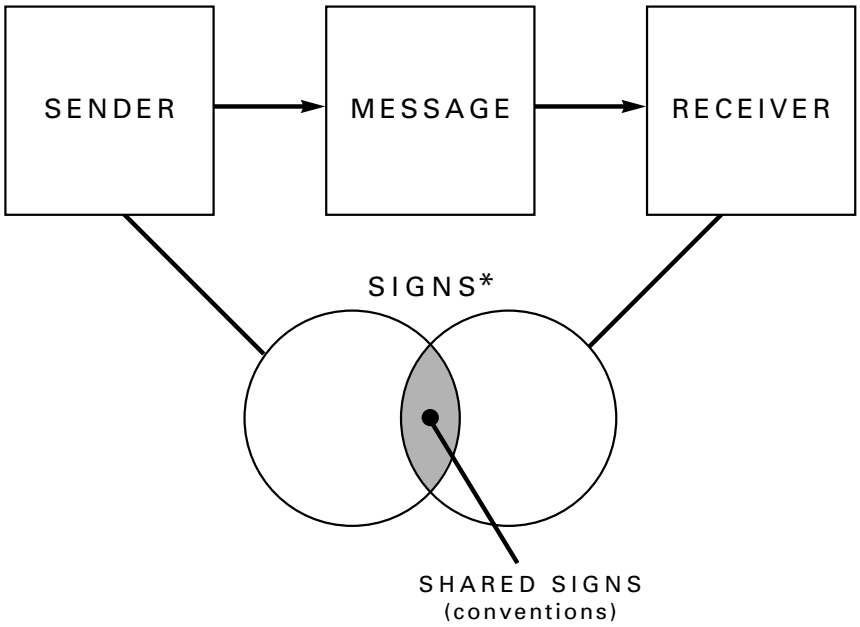
Spacing - leading, letterspacing, wordspacing, kerning, margins, gutters (between columns), etc.

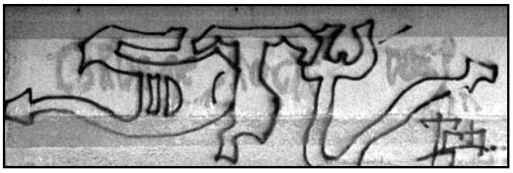
Measure (line width)

Page Layout (organization)

Consistency and convention

Technical Model of Communication:

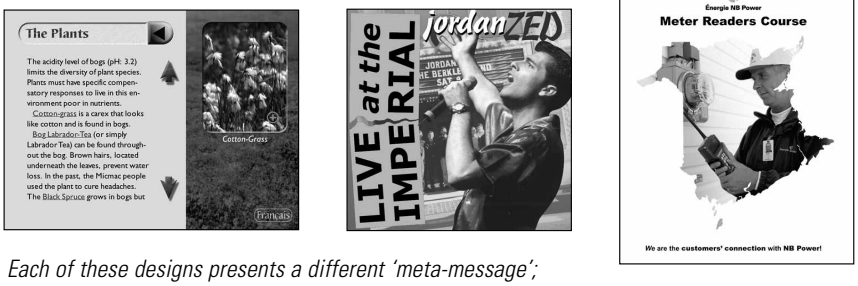




it@sj

"**Sign**" is a decision whether or not some 'thing' is a sign. Every 'thing' is *potentially* a sign. Communication is an exchange of signs (language = anything that *sign*ifies). Communication happens between people; interpretation is required.

"**Message**" is a construction of signs, which by the act of interpretation produces meaning. The 'content' is the literal message (usually), but the total package – content and presentation – always communicates a '**meta-message**', *whether or not the sender intends it.*



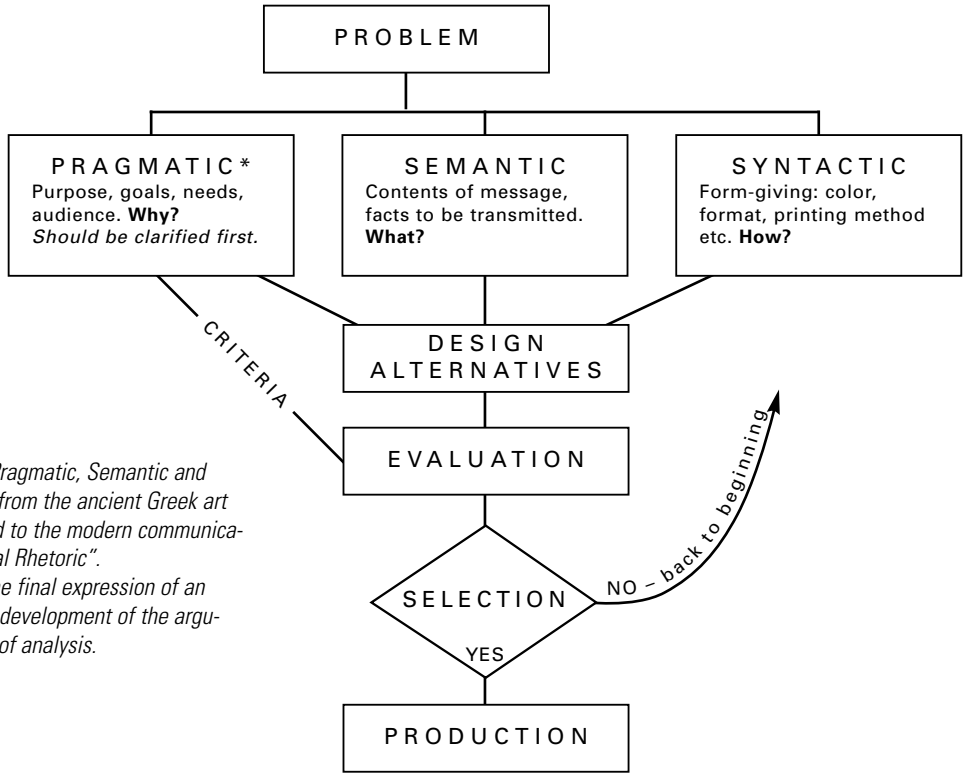
Each of these designs presents a different 'meta-message';
(left to right) public educational, consumer product, and internal corporate.

Communication Design addresses the identification and rhetorical form of the meta-message.

Graphic Design/Web Design etc. addresses the tangible production of the communication.

Design 'Process':

- **Evaluation -**
  What is the requirement?
- **Planning and Organization -**
  How to go about creating the design? Inventory content, determine scope, timeline, budget, delivery medium etc.
- **Asking Questions and Investigation -**
  Who is the audience, what is the 'meta-message'?
  Research existing solutions *within the industry sector*.
- **Imagination**
  - Constraints and affordances (based on preceding steps).
  - Don't 'reinvent the wheel'!
  - The purpose of design is to effectively communicate the client's content (including meta-message) to the target audience, not the designer's *or the client's* self-expression.
- **Modelling and Manipulation -**
  thumbnail sketches and other visualizations, interactive mockups etc.
- **Realization and Presentation**



**The terminology "Pragmatic, Semantic and Syntactic" derives from the ancient Greek art of Rhetoric, applied to the modern communications theory, "Visual Rhetoric".*

Rhetoric is not the final expression of an argument, it is the development of the argument by a process of analysis.

Legibility

I. BACKGROUND

Character elements & size terminology (handout)

x-height

ascenders & descenders

Type measurement (units) —

Point & Pica system

European (modern) — metric (mm)

Screen (digital display) — pixels (Mac = 72 ppi, Windows = 96 ppi).

Most sw will translate on the fly. Possible confusion with base resolution of document.

Page elements terminology (handout) — some terms carry-over into web site design.

"The Virus of Print Design" from: *Fresh Styles for Web Designers* by Curt Cloninger, p8.

"IBM has an ongoing relationship with a big-client marketing firm. This big-client marketing firm is primarily trained in print design. [...] And so you copy ibm.com, other designers copy you and the virus of print design is desseminated throughout the corporate web." — but see www.ibm.com/easy

e.g. www.aiga.com, www.gdc.net

Unlimited choices, ignorance = problems with client interactions etc.

Mechanics of measuring legibility: speed & comprehension;
saccadic movements; 'word-pictures'.

"x-height": The Cochin sample (above left) is 48-points, and the Times Roman (right) only 39.5-points. Note also the difference in widths of the two settings (bars).

Cochin is rarely used, except as a display font, or in relatively large-sized body settings. Times Roman (and variants) is very common, is included in the default Mac and Windows font sets and pre-installed on most laser printer ROM chips. **This is Cochin 7-pt. 'solid' (no extra leading).**

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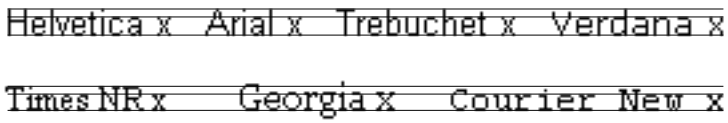


x-heights of fonts for screen display (HTML).

II. FACTORS

Typeface ("font")

"body" vs. "display" typefaces.

body text must above all be legible.

display typefaces can play an important role in defining/supporting "meta-message".

relationship between display and body text (layout, spacing etc): 'gestalt'.

word recognition — distinctive shapes anchored by certain characters. many 'novelty' font designs actively defeat this!

'quality' fonts vs. cheap imitations.

Medium & Environment

Print — paper, texture and quality, ink bleed, 'show-through' (contrast)

Screen — dot pitch. crt vs. lcd (flat panel/laptop). crt monitor configuration: flat or bulging, shadow-mask or aperture grill. refresh rate. resolution. video card. anti-aliasing of text. "worst common denominator" — graphic artists typically work with optimal equipment and viewing conditions; end-users seldom do!

Animated text — effects of compression, delivery medium (e.g. NTSC interlaced video)

Environmental lighting conditions. Glare, contrast.

Scale

bigger does not equate to more legible.

distance of reading.

end-users' vision.

hierarchy (including scale) defines order of reading, ability to find information. Very important!

Contrast & color

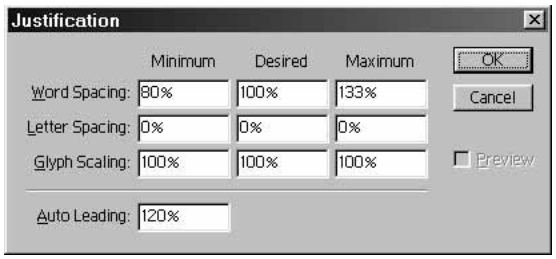
Strongly affected by medium & environment.

Avoid white-on-black for body text, very tiring to read.

Spacing

Kerning — adjust space between letter pairs. Percent of "em" (= type size). Commonly required for display type. Aim is to achieve an *optically* uniform whitespace among all the characters. Fonts sometimes come with pre-defined kerning pairs, but these are usually optimal at body text sizes only. Numerals almost always require kerning, even body text. Can't be applied in HTML – big disadvantage with HTML-defined headings.

Letter-spacing, Word-spacing and Tracking — adjustments of spacing between all selected characters, words or both. Tracking is easily abused as a kind of styling, but can sometimes improve legibility if done right. Letter- and word-spacing are better for body text, but sometimes are useful for display text.



Letter- and word-spacing in Photoshop (accessed via the "Paragraph" palette).

Leading — space between lines of type. Default in sw is 120% of type size — usually not enough for optimal legibility, depending on measure (line width) and x-height. Less relevant for display text, in some cases 'negative' leading can improve appearance at no cost to legibility. Defined in CSS using "line-height".

Margins & gutters — can critically affect legibility. Mechanics of reading — eye must be able to find the next line intuitively! 'White space' is an important page design element.

Measure (line width)

Critical factor in legibility that is often overlooked.

Optimal width for body text 8 –11 words, or 1.5 'alphabets' (39 characters) — may vary somewhat, depending on other factors.

Justification (alignment)

Left-justified is most legible, 'ragged' pattern makes it easier to track reading position. 'Force-justified' is frequently used for newspaper columns to fit greater quantities of text, and requires elaborate word- and letter-spacing, and hyphenation algorithms to work correctly. Abused in 'desktop publishing' and web design.

Consistent alignment is best, but mixed justification may sometimes be required, e.g. in web forms design.

Page Layout

gestalt, 'the whole enchilada'

2D design. "Greeking" text to see the page as an abstract design (formerly used in visual 'roughs').

Individual textblocks may be legible, yet page navigation is illegible — fails 'appeal' test.

Quantity

The more text, the more critical all factors affecting legibility.

Consistency and convention

Context — what does the target audience expect to see? Convention is culture-specific.

Text may require editing, especially page titles, subheads and navigation labels (hyperlinks, buttons) for web sites.

Consistency improves overall navigation and legibility.

Character Terminology

Typography

"Typographer" (Middle Ages) was historically the person who set type and also knew how to organize type matter on pages. Mainly produced "broadsheets" and books. Professional prestige – allowed to carry weapons.

Problem of organizing pages became more complex with the Industrial Revolution – increased trade, new formats (e.g. catalogs), advertising etc. Typesetters were unprepared to cope with this change and designers got involved. Europe, 'applied arts' (respectable); North America, a step-child of 'fine arts' (less status). Training became more specialized. Designers moved into a vacuum — professional rivalries with typesetters, gradual acceptance and cooperation.

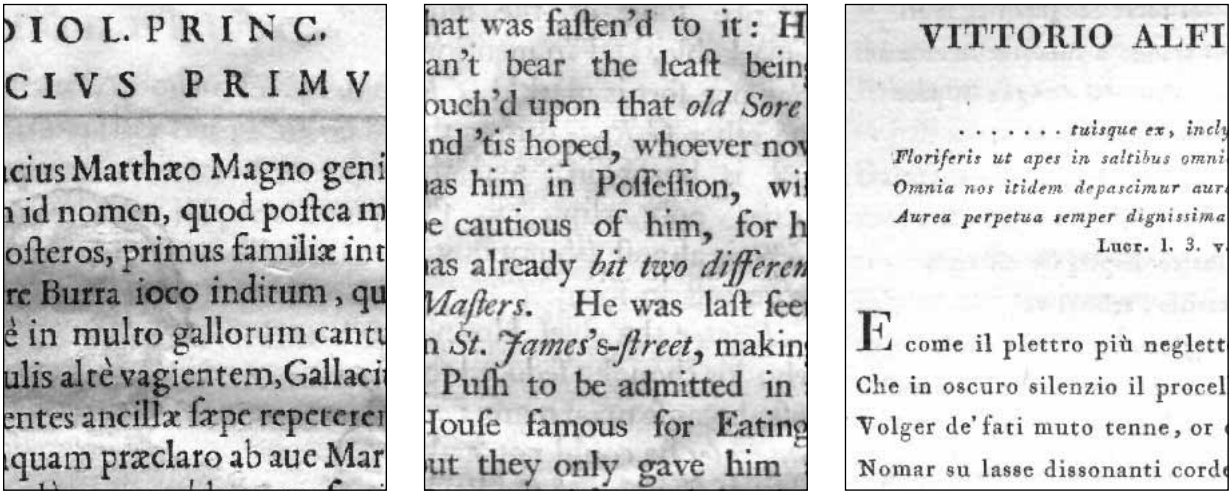
Today there is excellant cooperation between professional designers and typesetters, but anyone can perform typesetting. The experts are competing with amateurs.

Type Classifications (broad categories) in chronological order of appearance

Old Face/Style ("face" = original type specimen, "style" = modern version; this text is set in "Goudy Old Style"). Based on script letters. Renaissance, 'Classical' influence. Trajan's Column (Roman, carved letterforms, all-caps): ideal form. Thick and thin strokes, produced by mason's flat pieces of chalk. Serifs – finishing strokes with bracketing. Manuscript writers used quills, reed pens, similar effect (thick & thin). Contrast of stroke – visible in all characters – oblique stress (slant). Garamond, 1480 – 1561.

Transitional – Between extremes of Old Face and Modern. Still has bracketed serifs but finer, more contrast, vertical & horizontal stress. Baskerville, 1757.

Modern – refinements based on improvements in paper quality (less pressure, better contrast) Bodoni, 1788. Extreme contrast, plain serif (no bracketing), vertical stress (no slant).



Type samples: (left to right), Garamond 1549; Caslon 1739 and Bodoni 1794, from University of Florida Rare Book Collection (www.uflib.ufl.edu/spec/rarebook/art3283c/index.htm). Note use of joined character"ligatures" (Garamond & Caslon), "f" for "s" and contractions (Caslon).

Industrial Revolution

New demands on typography – brash, loud, bold, big. Posters, 1850s – very heavy faces & serifs. **Wooden type**. Heavy ornamentation (Victorian bric-a-brac).

Egyptian (square serif) – Grab attention (compete with other posters). Century Expanded, 1894. Extreme distortions to fill space.

Sans Serifs – Novel in 19th century, called "Gothic" or "Grotesque". No lower case. Modern; Gill Sans, 1928. Futura, 1928. Univers & Helvetica, 1957. versatile (display and body settings, signage), improved legibility.

Typeface variations

Pre industrial revolution; Roman, Italic (slanted 'version' – different designer, similar weight & style, e.g. Garamond & Granjon).

Modern; type *families*, e.g. Univers – range of weights, light, regular (medium), bold, extra-bold, ultra-bold *and* of widths, condensed, regular, extended, etc.

Wood type specimens.

Typesetting technologies

Handsetting (character by character). subdivided trays – 1 char/sec.

Mechanical (Monotype, linotype) – 5 char/sec.

Computer – 3,000 char/sec.

Invention of type

1045 – China moveable type (ceramic). Bi Sheng.

1450 – Europe (metal). Gutenberg (goldsmith, 1400 – 1468) – "The inventor of moveable type used for printing." Printing press based on wine press.

"Hot" (metal) type

1822 – 1st type composing machine

1855 – Linotype. Typewriter-style keyboard. Cast type in lines.

1877 – Monotype. Two machines: keyboard to perforated paper tape, tape fed into casting unit; individual characters, more easily corrected.

"Cold" type

1950's – Phototypesetting, hand-moved filmstrip, form or disk to expose photo paper. Used for display type by design studios.

1970's – 2nd-generation: electric keyboards producing a perforated paper strip, type produced in 'galleys' (long rolls of body text), 'pasted-up' with halftones & line art to make pages that were photographed. Varityper (variable-space typewriter; a cheap form of typesetting). Proprietary mainframe computer systems for large newspapers – 'desktop publishing' is a direct descendant of these systems.

Transfer type e.g. Letraset, used more for 'comping' (mock-ups) display type, than actual typesetting. Slow; alignment and spacing very tricky – but it replaced hand tracing!

3rd-generation, computer typesetting, electronic pagination sent direct to film (imagesetting).

1985 – 'Desktop publishing revolution' Apple's "Macintosh" computer (WYSIWYG), the laser printer, Adobe Postscript (page description language) and Aldus Pagemaker page layout software.

Metal plates with light-sensitive, acid-resistant emulsion exposed through film of text and images to produce actual printing plates (offset printing). Multiple plates for different colors (process and spot-color) printed sequentially in 'registration' (alignment).

Current technology: electrostatic (like photocopier or laser-printer), direct from computer. Cheaper for 'short-run' printing (especially color). Set-up costs: film, plates, "make-ready", clean-up etc. (offset printing).

Typesetting for screen

HTML, word-processing, 'presentation' (Ppt) – based on *typing*, not type*setting*. Page design is difficult, unintuitive and unstable.

Adobe's "Acrobat" – output based on PostScript. High quality anti-aliasing and precise, rock-steady screen rendering of type and page designs. 'WYSIWYG,' resolution-independent printing. Repurposing not required (uses same files). Fonts embedded, can use almost any font of good technical quality. Useful to 'preflight' (check) files for imagesetting. Editing, technical and font copy-protection issues.

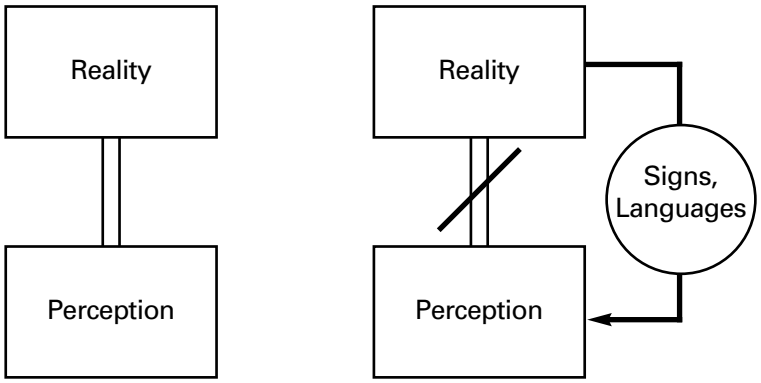
Communication Theory

Two main 'schools' (theoretical systems)**:**

1. "Process" school – communication is a transmission of *messages*. Social sciences, psychology; *acts* of communication'.

2. Semiotics – communication is the production and exchange of *meaning*. Linguistics and the arts (e.g., Umberto Eco, "The Name of the Rose"); *works* of communication. "Semeiology"; English medical term for the study of *symptoms*.

"Semiotics can be defined as a science that studies all possible varieties of signs and rules that govern the production, transmission, exchange, generating, interpretation [etc.] of information."



Dualistic *Triadic*

Hypothetical design problem (packaging for a CD), 'What is music?'

– **Dualistic**: 'pitch + duration = music'; basis for setting-up a design *process*.

– **Triadic**: interpret the particular music as a sign. Traditions of music packaging, according to genre. Think semiotically to maintain options. Typography, imagery, color *as signs*.

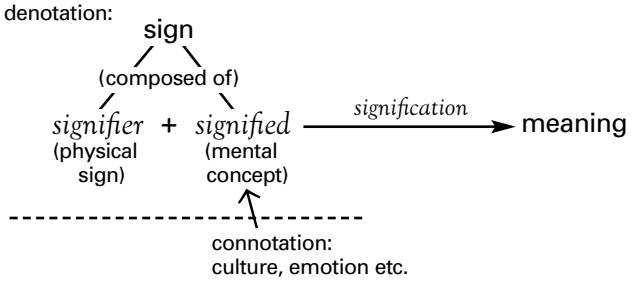
Types of signs

Symbol – a sign that refers to a given object because of a "rule". Relation is arbitrary, e.g. red = stop, green = go (traffic lights).

Index – refers to the object by having been physically affected or generated by it, e.g. smoke = fire, broken glass = accident.

Icon – Picture element, relationship of expression and content is the visual similarity, e.g. Churchhill's two-finger "V" for "victory" (the same gesture was adapted during the 1960's as a *symbol* of "peace").

Codes = sign *systems*, e.g. languages. All languages which are in use change.



Distinctions

Relationship between a sign and others (especially similar ones) in the same system; how it is *different*.

We use 'signifieds' to categorize reality so we can understand and talk about it, e.g. Inuit have 80 words for "snow".

Paradigm is a set of signs to choose from.

Syntagm is the message created from the chosen signs.

All messages require selection from a paradigm and combination into a syntagm.

Denotation is the common-sense, obvious meaning of the sign.

Connotation is the subjective formation and interpretation of the sign, according to cultural and emotional (etc.) values.

"Where there is choice there is meaning, and the meaning of what was chosen is determined by the meaning of what was not." – importance of making distinctions when communicating.

Advertising as a 'battle of lifestyles' (consumer identification through choice) – Coke vs. Pepsi (etc.). How distinctive are they (product and marketing), and why does it matter?

Yet another model (Jakobson 1960)

Constitutive factors of communication:

addresser	context message contact code	addressee

Functions of communication:

emotive	referential poetic phatic metalingual	conative

emotive – relationship of message to addresser; emotions, attitudes, status, class.

conative – effect of message on addressee.

referential – 'reality orientation', facts.

phatic – "Hello, how are you.", open channel & confirm communication is taking place.

metalingual – identify the code being used.

poetic – relationship of message to itself; aesthetic embellishment.

contact – physical channel, psychological connections

Noise and Redundancy

Noise is anything that negatively impacts on the transmission/reception of a message.

Redundancy is a strategy to overcome noise through predictability and repetition, often including additional cues intended to defeat possible varieties of noise. Conventionality is a kind of redundancy.

Entropy is the opposite of redundancy; an entropic message is unpredicatable, will not be repeated and therefore is more likely to be missed or misunderstood. Assumption that audience is motivated to overcome noise. Skillful communicators orchestrate redundancy and entropy to achieve better impact with target audiences.

Rhetoric (next week)

1. verbal art of persuasion 2. invention of organizing principles, answer to technological fragmentation, tool for creating disciplines, arts, systems & methods.

"moral emblem", middle ages = classic [modern] advertisement layout. image-headline-text. Up to 18th c., rhetoric was main system of all European formal teaching.

Literature and "liberal arts" became isolated; scientific analysis came to the fore.

Separation of invention & disposition (science) from the rest of rhetoric (art).

Technology comes between observer & reality.

Rhetoric is uncertain; communication model(s) strive for scientific certainty.

The purpose of rhetoric is action. Design as the result of rhetorical action.

Visual Rhetoric

Inference and deduction – how we 'think' (interpret signs into syntagms).

Abduction (hypothesis). Suggests something may be. Most useful for design.

observation:	Event drew a large audience.
rule (supposed):	The event was announced on the radio.
case (probable):	Many people listen to the radio.

Induction. Shows something actually is operative. The 'scientific method'.

case:	The event will be announced on the radio.
observation:	Station cxyz has higher ratings (most listeners).
rule (probable):	Make sure events are announced on cxyz.

Deduction. Proves something must be. Rules-based.

rule:	Cxyz has the most listeners.
case:	The event was announced on cxyz.
result:	The event will have a large audience.

Content and form

What and how (artifical division). Language affects thought – interdependence.

Five 'canons' of rhetoric

Invention – argumentative, persuasive core of rhetoric, "discovering the best available means of persuasion" – Aristotle. Research and modeling phases of the design process.

Arrangement – order of arguments. Temporal (debate), hierarchy (design).

Very important to:

Style – appropriateness for audience, appeal. Virtues, levels and qualities of style; and "figures of speech" (naming the ways *content* and *form* can be configured in an argument).

Memory – not *memorization* (i.e. of speeches), but ability to respond through knowledge of the subject and modes of argument/persuasion.

Delivery – public presentation; craft, quality (e.g. typography, compression).

Persuasion (appeals)

Logos – reason (informative, 'plain facts'). Cause and effect, comparison, etc.

Pathos – emotion (vehement, arousing).

Ethos – ethics (charming, attractive).

Schemes and Tropes – categories of 'figures'

Schemes alter *sequence* of elements to affect *rhythm* (addition, omission, inversion).

Tropes alter the *reference* of elements (substitution).

Metaphor (*trope*)

Literal – expressing the unfamiliar in terms of the familiar. *Paradigmatic* units. Common in advertising; an event or object is set up as a metaphor for a product (less useful for other design applications). Everyday metaphors – "Time" as a metaphor for "money", e.g. "saving time", "wasting time" etc.

Metonymy (*trope*)

Make a part stand for the whole, e.g. a photograph stands for (a kind of) 'realism'. *Syntagmatic* (the audience completes the syntagm). Works *indexically*, but based on arbitrary selection. This selection is disguised or ignored, thus metonyms can be made to appear as natural indexes, e.g. people tend to interpret a news photo or video to stand for the whole event, rather than an editorial selection.

Some other rhetorical figures

Schemes:

Amplification: expansion of the subject through repetition, scale, alternate views (etc.).

Antithesis: opposition, or contrast of ideas or words [/signs, visual elements] in a balanced or parallel construction.

Apposition: adjacent element in a paradigm (similar but distinct).

Chiasmus: two corresponding pairs arranged not in parallels (a-b-a-b) but in inverted order (a-b-b-a)

Ellipsis: omission of something that may be assumed (in context).

Parenthesis: insertion of something that doesn't belong in the paradigm, interrupting normal syntactical flow.

Tropes:

Euphemism: substitution of an agreeable or at least non-offensive expression for one whose plainer meaning might be harsh or unpleasant.

Hyperbole: exaggeration for emphasis or for rhetorical effect.

Irony: expression of something which is contrary to the intended meaning; the words say one thing but mean another. Hyperbole and Litotes are kinds of irony.

Litotes: understatement, for intensification, by denying the contrary of the thing being affirmed. The opposite of hyperbole.

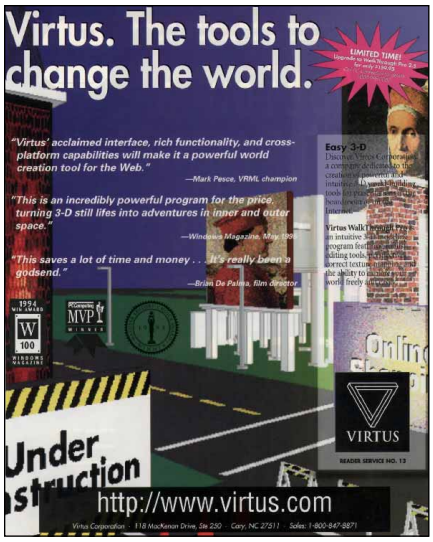
Oxymoron: apparent paradox achieved by the juxtaposition of words which seem to contradict one another.

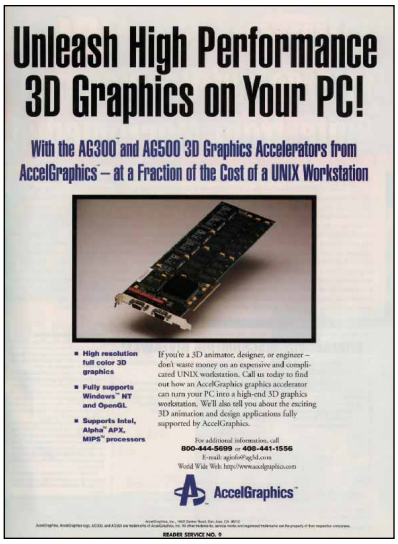
Personification: attribution of personality to an impersonal thing.

Synecdoche: understanding one thing with another; the use of a part for the whole, or the whole for the part. A form of metonymy.

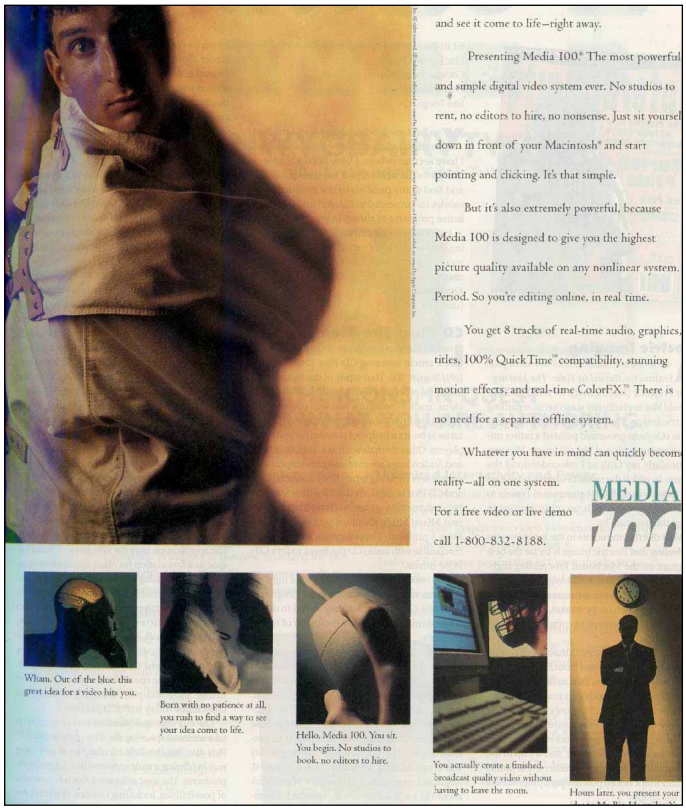
– see http://humanities.byu.edu/rhetoric/silva.htm for an exhaustive list.

'Visual Rhetoric' is the application of classic rhetorical structure to design.

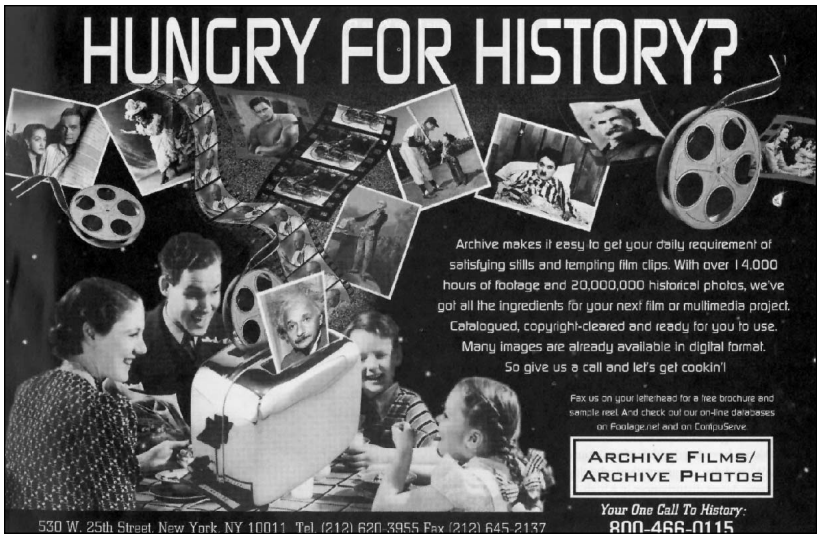




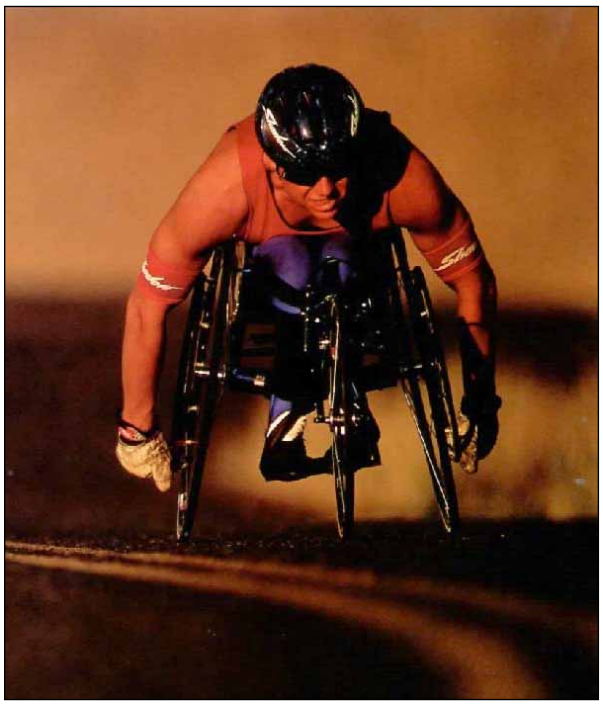
The full page ad on the left does not use any meaningful rhetorical figure or clear appeal; there is no conceptual hook on which to focus our interest. The ad on the right relies on the appeal of 'logos', which would be undermined or negated by introducing superfluous metaphors or other figures.



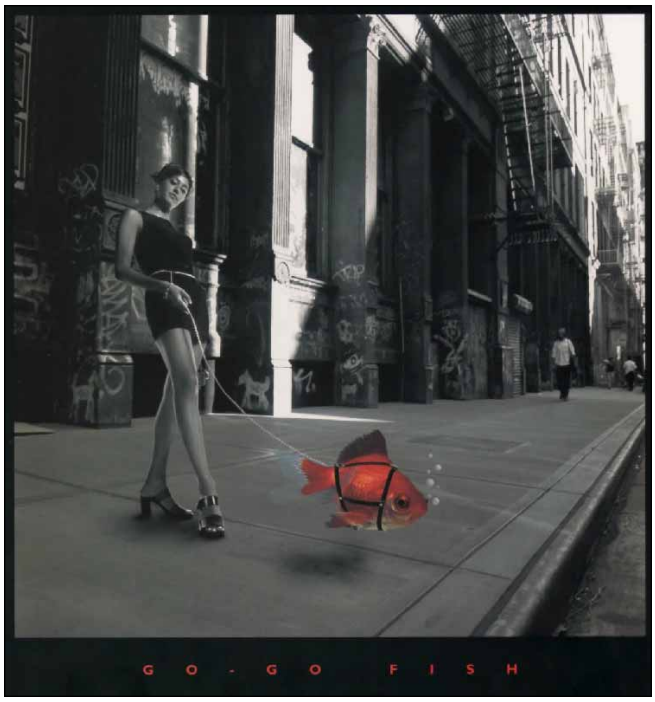
This ad (from a two-page spread) uses the rhetorical figures of metaphor, metonymy & synechdoche, hyperbole, ellipsis and amplification.

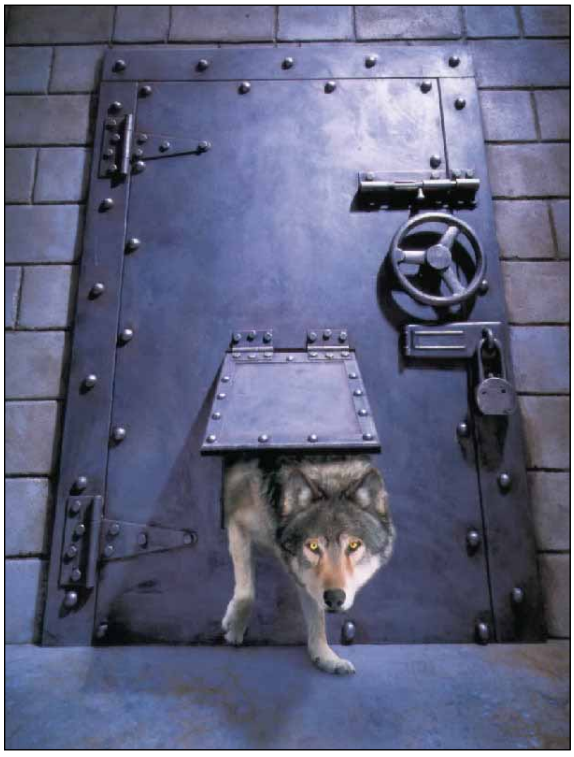


Parenthesis: what is the toaster doing there?



Antithesis: "handicapped" and "athlete". Note the extreme visual contrast between the athlete's arms and legs.





What are some of the rhetorical figures employed in these staged photographs and photomontages?

Abduction, Induction and Deduction (theory of Charles Peirce).
http://seamonkey.ed.asu.edu/~behrens/asu/reports/Peirce/Logic_of_EDA.html#logical

Abduction looks for a pattern in order to suggest possible explanations or solutions (*hypotheses*) to a problem. But its objective is to determine which ones to test, not which one to use. The result of abduction is (only) 'plausible hypotheses'.

Result:	Many people attended an event.
Hypotheses:	1) The event was on a Saturday. 2) The event was held in a large arena. 3) The event was publicized.
(Probable) case:	The publicity was effective. (this is still just a hypothesis!)

– The *case* was inferred from the *result* and (several) hypotheses, leaving a single hypothesis that can either be applied as a rule in future situations 'as is' (not recommended), or tested. The rejected hypotheses aren't invalid, but are deemed less important or promising for further investigation.

Deduction. *After* suggesting a plausible hypothesis by abduction, *the next stage* is to refine it with deduction. Deduction takes an existing hypothesis as its premise, and does not identify new ones. Deduction tests a hypothesis by applying it to new (or other) cases. Because it is self-referent, deduction is a *necessary*, but not a *sufficient* condition of knowledge.

Rule:	TV is the most effective publicity medium.
Case:	(If we) run more TV spots...
Result:	...Even more people will come to the next event.

– A *rule* is deduced from a *result*, given a (particular) case. In the example, the result is conjecture, based on the (unproven) rule – it ignores a number of other important factors and may well turn out to be faulty reasoning. This is frequently encountered in poorly designed communications, and highlights the self-referential, delusional nature of deduction when it is applied in the absence of abduction and induction.

Induction depends upon reproduceable results to 'prove' a hypothesis; i.e. the hypothesis can be applied to different cases, for (usually) the same result. However, this supposes a *finite* number of cases – there is no way of knowing whether it would remain operative for *n* additional cases.

Case:	The event was publicized *on TV, and a web site*.
Result:	Most people saw the event publicity on TV.
Rule:	More people watch TV than surf the Internet.

– Given a case and a result, I infer a rule.

"At the stage of abduction, the goal is to explore the data, find out a pattern, and suggest a plausible hypothesis; deduction is to refine the hypothesis based upon other plausible premises; and induction is the empirical substantiation. [...] In short, abduction creates, deduction explicates, and induction verifies."

"Abduction is a type of critical thinking; deduction and induction are types of symbolic logic. *All three modes of inference must be used together*."

The Design Process

Evaluation – what is the requirement?

Request from client or PM (formal or informal), or RFP (always formal). Is it do-able? Meeting/managing client expectations – who's in charge?

Planning and organization

Concrete objectives (functional requirement for the design), scope (quantity and varieties of content, treatments), budget and due date. Scaling design to budget and timeline. Project Plan – design dev. schedule, milestones (with client approvals), assumptions, architecture (flow chart inventory of screens with navigation).

Asking questions and investigation

Industry/market research. Consult with client: what is the client's 'argument' (marketing message), how do they want to be positioned in the market, who is the audience? Pragmatic, semantic, syntactic.

Imagination

Inference and deduction applied to 'discover' plausible treatments.

Modelling, sketching and prototyping.

Aim is to create *low-cost representations* of design variations, to aid development, and for client approval of a creative direction.

Concept development is more thorough with 'thumbnail' sketches on paper, to quickly generate and evaluate a large number of concepts.

Digital sketching facilitates rapid development, since builder files can be easily changed and adapted to production. Assemble visual content, e.g. logos, photos etc. then begin playing with position, scale, color and typography.

HTML body text, form elements should be set using tables to precisely control measure (width) of text settings.

Avoid pursuing designs that will be difficult to produce, update or expand.

Realization

Refine and polish sketches for client presentation – typography, spacing, color scheme etc. A good test of visual design effectiveness is how long it takes to build an identical functional prototype. Be prepared to explain the design at various stages to the client. Design alternatives should all offer plausible solutions, and be evenly developed. Avoid 'hard-selling' a preferred solution; discuss the pro's and con's of each approach. Expect change requests.

Delivery and follow-up

Instructions for production artists must be very clear and obvious; a *Style Guide* may be required for large projects. Check production against the original designs and specs. Explain to the client that 'improvisations' may degrade the design.

2.5 Key Issues of Concern

The key issues of concern for which the introduction of self-serve ticketing Kiosks is expected to provide improvements are:

a. Currently, a customer must come in contact with a live agent at least once to make a reservation and obtain a valid-for-travel ticket. Self-serve ticketing Kiosks are expected to significantly reduce, and in some cases, eliminate the need to interact with a live agent.

b. During peak travel times at high-volume stations, queues at wickets can get very long, subjecting customers to excessive wait times. Self-serve ticketing Kiosks are expected to significantly reduce queue lengths and wait times.

c. Much of an agent's time is used up in handling relatively simple transactions (i.e. transactions suited to self-serve devices). Self-serve ticketing Kiosks are expected to handle the simpler transactions and free the agent to better deal with the more complex, non-kioskable transactions.

d. Under current methods, growth in business will necessitate adding agents at certain stations in order to handle additional volumes. Self-serve ticketing Kiosks are expected to handle volumes sufficient to avoid adding agents.

3.1 Objectives

The key objectives of the Kiosk solution are as follows:

a. To reduce queue lengths and the time customers have to stand in line at a wicket for an Agent to make reservations and obtain tickets.

b. To help reduce the lead time (currently one hour, or 30 minutes for first class), prior to train departure, customers have to show up at a VIA Station to pick up previously booked tickets.

c. To speed up the processing of customers at busy stations, especially at peak times.

d. To off-load tasks to the Kiosks thereby enabling Agents to provide better service for complex situations.

e. To provide customers an alternative channel of service available 24 hours a day.

f. To help retain 20% to 30% of the recent increased traffic due to habitual fliers taking the train as an alternative means of travel.

g. To avoid adding agents as volumes increase.

h. To use technology as a means of providing a hassle-free pre-boarding experience.

i. To bring VIA into line with competition (equipped with Kiosks for many years).

j. To further enhance VIA's image as a technology aware Corporation in tune with customers' needs.

q. If a request to print a ticket is received, but the ticket has already been printed (VIAnet will return an error message), the Kiosk will display a meaningful message to the customer.

r. Ticket printing for booking with more than 6 passengers or with more than 8 travel legs will not be allowed by the Kiosk.

s. The Kiosk will print tickets for all passengers chosen by the customer from his PNR record.

t. The point-of-sale (POS) logic to process ticket payments will be performed for all tickets, except those purchased over the Internet (reserVIA), or those with zero value.

User Interface

The user interface will be designed to provide the following:

w. Touch screen interface between the customer and the Kiosk.

x. Quick loading graphical user interface.

y. Intuitive dialogue requiring minimal help.

z. Easy navigation through the booking and ticketing processes.

aa. Basic input field validation with meaningful messages to customer.

bb. Input fields matching VIAnet API specifications.

cc. Meaningful error messages prompting follow-up action.

dd. Payment processing splash screen with an indication of average processing time.

ee. Kiosk "temporarily out of order" advisory messages.

ff. Special broadcasts.

4.2.2 The Kiosk

a. Enclosure

The Kiosk shall have ergonomic design and all its components shall be "rugadized". The enclosure shall be freestanding and durable for use in public areas, and have an overall footprint of approximately 18 inches x 18 inches. It should be reinforced and locked to deter theft and vandalism of the components. The enclosure will include an integrated, high profile, back lit sign of approximately 11 inches x 14 inches. All service access should be from the front of the unit (unit can be placed against a wall) and cable access should be available from the back or through the base (option for both is ideal).

Provide concept drawings of the proposed Kiosk from multiple views, and a general description.

d. Customers with disabilities

The Kiosk must accommodate the needs of the disabled.

Describe how the solution meets the accessibility requirements of the disabled. Provide relevant drawings.

e. Processor

The processor shall have sufficient power to drive a rich graphical user interface and animated attract loop. Standard PC components shall be used and there should be slots/ports available for future expansion. A keyboard

f. Screen

The screen shall be a touch-activated screen with a minimum 15-inch viewable area, 24-bit color, and 1024x768 resolution.

k. Audio

The solution shall provide audio feedback to the customer during the transaction that is suitable for noisy station environments.

Confirm that audio feedback is suitable for noisy environments.

"User Interface" specs *provide an incomplete description of the requirement (VIA Rail RFP for ticket kiosks). The entire, ~40-page document had to be read carefully to find important additional clues, including multimedia capability, accessibility, and many interesting marketing and 'POS' (Point Of Sale) design issues.*

NBTel Managed Network Services
GUI Specifications and Style Guide 3.23.00

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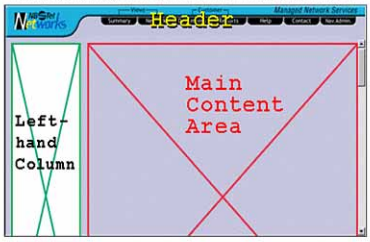
General Specifications

IMPORTANT! **These specifications are intended to address visual interface features only, rather than specific HTML coding methods. HTML examples are included only to provide visual samples (when viewed in a browser); have not been optimized for different browser/system configurations; and may require extensive re-coding to function correctly in the MNS application environment.**

Minimum Display and Browser Requirements: The MNS front end is designed to run full screen on an 800 x 600, 16-bit display (minimum) in the Netscape and Internet Explorer 4.0 web browsers.

Screen Layout: The MNS screen is divided into three main regions –
1. A ~65-pixel high ***Header*** including a row of navigation buttons ("button bar") that spans the entire width of the browser window when maximized on an 800 x 600 display;
2. A ***Left-hand Column*** approximately 168-pixels wide, reserved for display of navigation links, help information and/or content specific to certain contexts; and
3. A ***Main Content Area*** approximately 580-pixels wide.

The Content Area and Left-hand Column are defined through HTML Table cells (not frames) as parts of the same HTML document, except where the Left-hand Column is required to contain an extra menuing system (e.g. the reports, documents and network view screens).

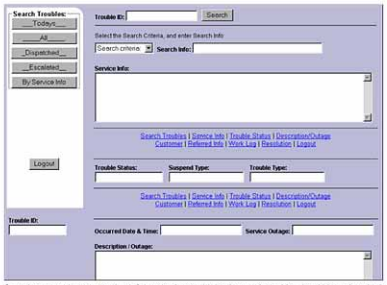


Visual separation: Sub-groups should be separated by vertical space and a 1-pixel, solid black horizontal rule:

<HR SIZE=1 COLOR=black WIDTH="100%">

Do not use any other style of rule, including the default, '3d'-style for unspecified rule.

The amount of vertical space that should be applied depends upon the visual density of the adjacent sub-groups, i.e. dense, adjacent sub-groups require relatively more space.



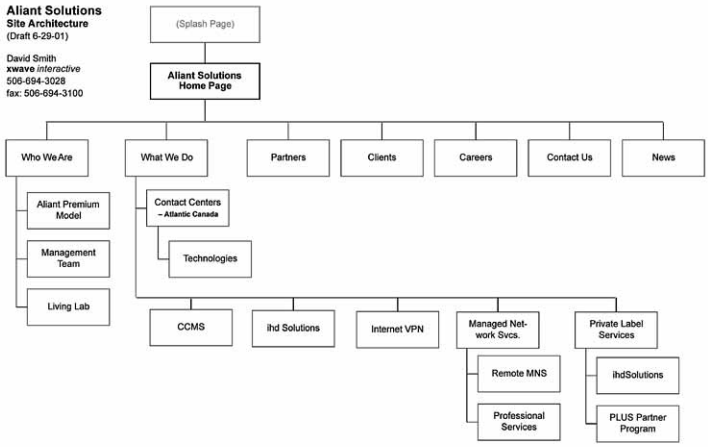
Sample content layout showing left-hand column with background graphic; visual hierarchy with logical groupings of elements; visual separation with horizontal rule; and redundant sets of text hyperlinks between groups (*arrangement of elements in this sample layout may not conform to final output*).

Internal document navigation: Long content documents (containing more than two, 400-pixel high screens) organized into many sub-groups should have anchor links applied to each sub-group, and redundant sets of text hyperlinks to the anchors placed between each sub-group.

Cascading Style Sheets (CSS): Many of the specified tags below come from legacy HTML that has been deprecated in the HTML 4 standard (published in 1997), in favor of "style sheets" (or "CSS", for Cascading Style Sheets). Style sheets facilitate writing leaner HTML and sophisticated typographical control over HTML documents that is completely lacking in the legacy HTML 3.2 standard. CSS also make it much easier to edit and update HTML, since many HTML documents can refer to just one external style sheet.

Although legacy browsers (e.g. Netscape 4.0) do not handle CSS well, the use of CSS is critical to building a user interface that meets the standard that users have come to expect from all leading IT companies that publish on the Web. CSS should be implemented in any future release of the Managed Network Services HTML front end.

This Style Guide *(above) includes HTML examples, to facilitate application of specs to complex forms. In the absence of designer oversight and under severe time constraints, developers ignored key design specs, resulting in poor production quality.*



Site architecture *(left). Use a simple presentation, so the client can understand the architecture 'at a glance', and easily spot errors and ommissions.*