360|Flex CONFERENCES

THE FUTURE OF USABILITY:

By Simon J. Hill
Director of User eXperience, SpireMedia, Inc.

Why You Should Care About This Presentation: Ammo for Your Career & Your

WHY
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- If Flex is to continue to break out of the realm of cool marketing and advertising gimmickry, it needs to **push its RIA usability credentials**, as these are the only credentials that translate into real business innovation and competitive advantage in the long run.
- The **trajectory of usability improvement** is also

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- As the web comes **more interactive**, the **collaboration** of interaction designers, visual designers, information architects, and programmers is **getting tighter and tighter**.
- For this collaboration to succeed, Flex developers should have a **sound grasp of the principles of usability**, and this presentation introduces the state-of-the-art in the field.

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WHAT IS PERFECT USABILITY?

How Will We Interact With Applications in 40–60 Years?

1. Perceiving & Knowing Mental Interfaces

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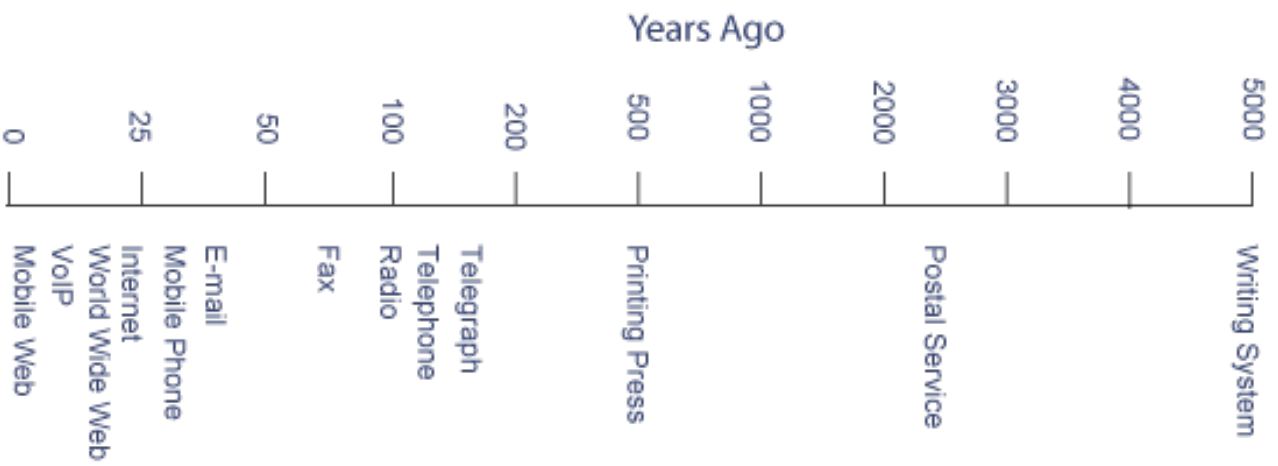## 1. Perceiving & Knowing Mental Interfaces

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• Self-improving: preserve, maintain, and develop their form.
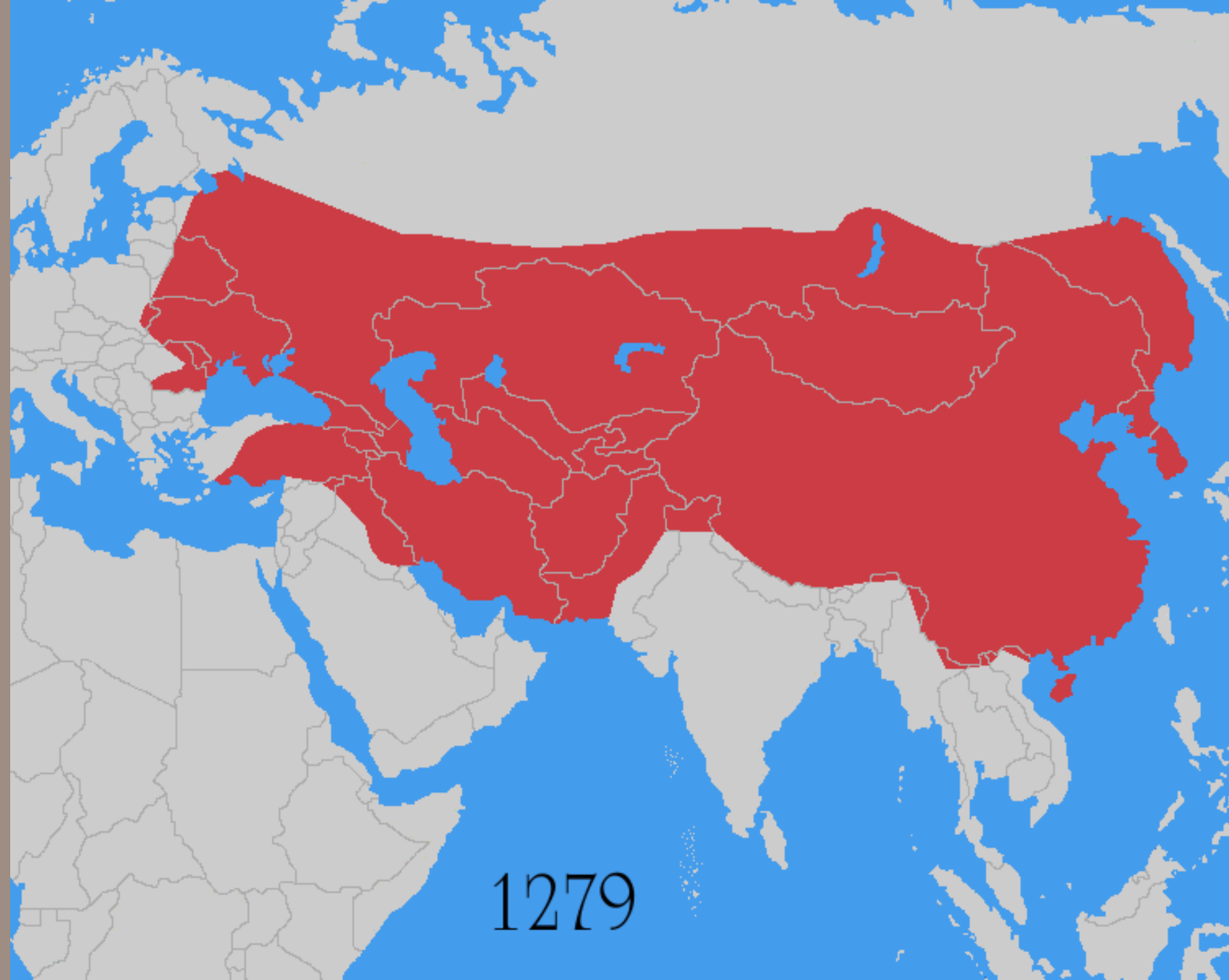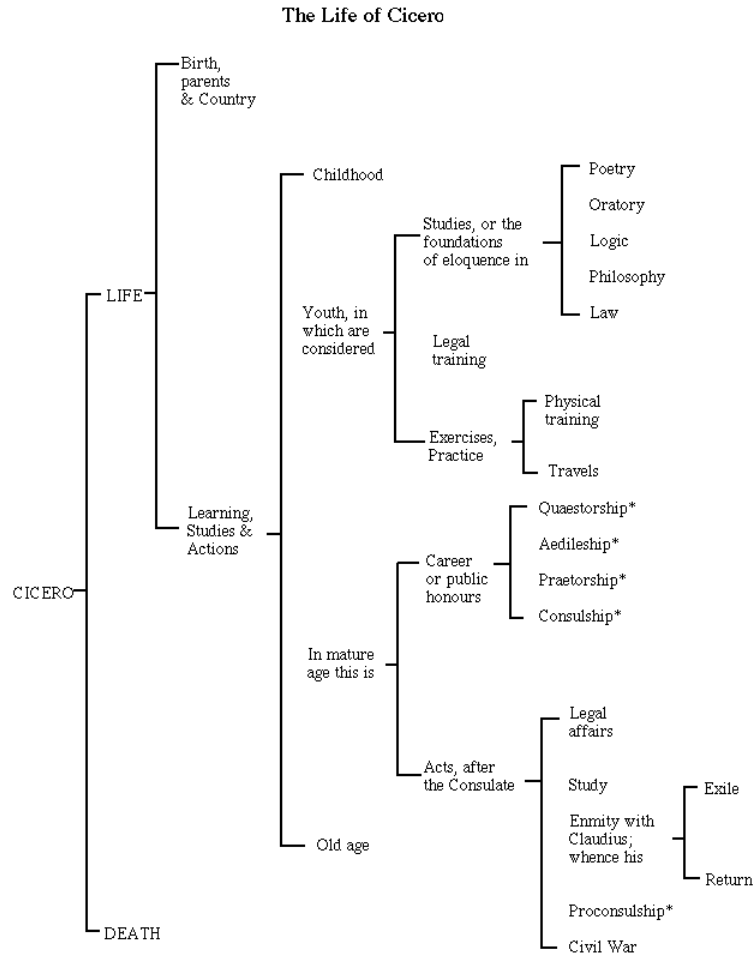
INFORMATION TECHNOLOGY & SEEING BEYOND

1279

CARRIER PIGEONS & THE MONGOLIAN EMPIRE

The Life of Cicero

CICERO
- LIFE
  - Birth, parents & Country
  - Childhood
  - Youth, in which are considered
    - Studies, or the foundations of eloquence in
      - Poetry
      - Oratory
      - Logic
      - Philosophy
      - Law
    - Legal training
    - Exercises, Practice
      - Physical training
      - Travels
  - Learning, Studies & Actions
    - In mature age this is
      - Career or public honours
        - Quaestorship*
        - Aedileship*
        - Praetorship*
        - Consulship*
      - Acts, after the Consulate
        - Legal affairs
        - Study
        - Enmity with Claudius; whence his
          - Exile
          - Return
        - Proconsulship*
        - Civil War
  - Old age
- DEATH

*Public Offices

TABLE I. Summary of threshold data (SPL) by age groups, sex, and ears for the original sample of subjects.

Nominal frequency in cps[a]	Ear[b]	N[c]	18–24 Mean[d]	S.D.[e]	N	26–32 Mean	S.D.	N	34–40 Mean	S.D.	N	43–49 Mean	S.D.
Male subjects													
250	R	27	27.5	7.5	84	25.9	8.0	84	24.6	6.4	45	28.4	15.6
	L	27	27.6	7.6	84	26.6	6.2	84	27.4	9.7	45	28.7	16.2
500	R	27	12.0	8.5	84	13.2	7.5	84	12.8	6.8	45	12.5	14.0
	L	26	11.5	5.5	84	12.6	5.1	84	14.0	10.4	45	11.2	16.5
1000	R	27	7.7	8.0	84	7.2	6.7	84	9.6	5.7	45	10.1	13.4
	L	26	5.5	5.1	84	6.5	5.0	84	9.1	9.4	45	11.4	15.3
1500	R	27	9.2	8.5	84	7.2	7.2	84	9.5	7.8	45	14.3	12.8
	L	26	6.0	4.8	84	7.0	7.9	84	9.8	10.8	45	16.4	13.8
2000	R	27	8.7	6.9	84	8.9	9.4	84	10.9	9.5	45	14.4	11.5
	L	27	7.7	11.5	84	7.7	8.0	84	11.9	11.7	45	18.9	14.6
3000	R	26	13.6	8.3	84	12.4	13.8	84	15.8	14.6	45	26.9	18.5
	L	24	14.0	11.5	84	14.1	16.1	84	18.4	15.1	45	30.5	17.7
4000	R	25	12.6	8.4	84	20.0	22.1	84	24.1	19.1	45	34.9	18.0
	L	26	14.8	11.6	84	21.7	19.7	84	25.2	18.8	45	37.6	18.8
6000	R	27	27.1	12.3	84	36.4	23.3	84	38.2	21.5	45	42.2	21.4
	L	23	32.9	12.2	84	42.1	21.1	84	44.8	17.6	45	49.6	20.0
8000	R	27	26.3	14.4	84	34.1	20.5	82f	35.7	19.5	45	35.1	20.5
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  - E.g., the iPhone interface. Gone are the labyrinth of menus or the wait to boot up. Traditional phones are absolutely unacceptable now.
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- **Subjective Usability**
  - Office 2000 was horrid interface, but people got used to it and many found Office 2007 hard to use, even though it was much better on an absolute scale.

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- In the general case, Usability problems can be the causes or contributors to the following negative business consequences:
    - Low sales-to-marketing ratio.
    - Substantial revision of product required after usability testing or soon after release.
    - Slow adoption of important features by users.
    - High drop-off rate of first-time users.
    - Low rates of repeat use.
    - High demand for tech support by users.
    - Poor reviews for usability in the press.
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- When Usability issues are properly addressed, it can greatly contribute to the following business benefits:
    - Increased Sales & Usage
        - Better reviews, word of mouth.
        - Better optimization of feature set, usability, and the desires of customers.
        - Clearer, easier to understand, easier to use features.
        - Faster learning by customers about how to use.

THE COMMUNICATION–THEORETIC FOUNDATION FOR

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"Website is a Machine"

- – User–Interface is a Control Panel.
- – Buttons, Links, Fields, etc., are Controls (levers, gears, switches, & dials)
- – Interacting with a Website is Using a Machine
- – Usability is Efficiency of Operation

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"Website is a Place"

- – A collection of hyperlinked information is a Site
- – A User is a Visitor
- – Users are Traffic
- – Finding information on the website is Navigation
- – Efficiency is Ease of Getting Around

Avoid Common Fallacies About Webs Sites & Usability

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A Website is
NOT a machine and
NOT a Place.

A Website is a
Form of Communication.

WEB SITE AS FORM OF COMMUNICATION

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INDUSTRIAL DESIGN? WAY–FINDING? COGNITIVE SCIENCE?

WEB SITE AS FORM OF COMMUNICATION

Background on the Theory of Communication

- **Information Theory**
(Shannon & Weaver, Bateson)

- **Communication Theory**
(Watzlawick, Bateson, Gordon, Lewin)

- **Cybernetics**
(Weiner, Rapaport)

- **General Systems Theory**
(von Bertalanffy)

Principles of Communication Quality

- Purpose
- Stance
- Expression
- Relevance
- Sufficiency
- Grouping
- Order
- Depth
- Span
- Coherence
- Timeliness
- Feedback
- Fidelity

Frame

Content

Organization

Reliability

Frame

● **Purpose**: Information is only informative relative to some purpose. That purpose must be the right one.

Frame

- **Purpose**: Information is only informative relative to some purpose. That purpose must be the right one.

- **Stance**: Refers to your underlying attitude to the recipient of your message, and the point of view you're taking. Respectful tone, avoiding defending, or attacking.

Content

- **Expression:** wrong or misleading wording, labeling, metaphors, imagery, or wrong media for the message. E.g., expressing something verbally that can only be shown by demonstration.

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- **Sufficiency:** missing information, or too much information

Organization

- **Grouping:** illogical or inefficient grouping of content, given the User's purpose.

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- **Depth:** more levels, the harder to get at what you want.
- **Span:** but too few levels is overwhelming, as this leads to insufficient organization for effective access.

Reliability

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- **Feedback**: feedback loops are error-correcting circuits. Open feedback loops lead to many mistakes: e.g., assuming you've been understood (e.g., when you search for something), or assuming you or the system will respond to a change without prompting (e.g., that you have incompatible items in your shopping basket). Absence of feedback is what makes a system seem dumb, inert, broken, uncommunicative, difficult.

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- **Fidelity**: lack of accuracy, misinterpretation, too low or high a level of precision, deceitful metaphors, information graphics—these are all problems of fidelity that lower the user experience, make it less useful, and can lead to failure. E.g., a Web site that tries to tell

APPLIED EXAMPLES

NIKE ID

MY VIRTUAL MANIKIN

iSc RYB E

Model selection

Lupo
add to search ▶
£2,995 to £9,495

Fox
add to search ▶
£4,995 to £8,795

Polo
add to search ▶
£3,488 to £16,995

Golf
add to search ▶
£3,995 to £31,000

Golf GTI
add to search ▶
£5,485 to £29,000

Golf Plus
add to search ▶
£8,999 to £19,995

New Beetle
add to search ▶
£5,495 to £22,995

Bora
add to search ▶
£4,995 to £11,995

Jetta
add to search ▶
£11,495 to £22,995

Eos
add to search ▶
£19,995 to £31,995

Passat
add to search ▶
£4,488 to £29,995

Sharan
add to search ▶
£7,975 to £24,499

Touran
add to search ▶
£7,995 to £25,240

Touareg
add to search ▶
£16,990 to £51,800

Phaeton
add to search ▶
£18,495 to £41,999

view: **All** Hatchbacks Saloons Estates Cabriolets Executives MPVs 4x4s

🔍 **My search**   ☆ My favourites

Setup your search and click 'search now'

1. Chosen models: ▼

To ADD a model:

- Simply click a model on the left.

Please note, you can add more than one model to your search.

Once added:

- Click the 'model image' for more options and to select only specific model variations & trims.

OR

Click the 'remove' button to delete the model from your search.
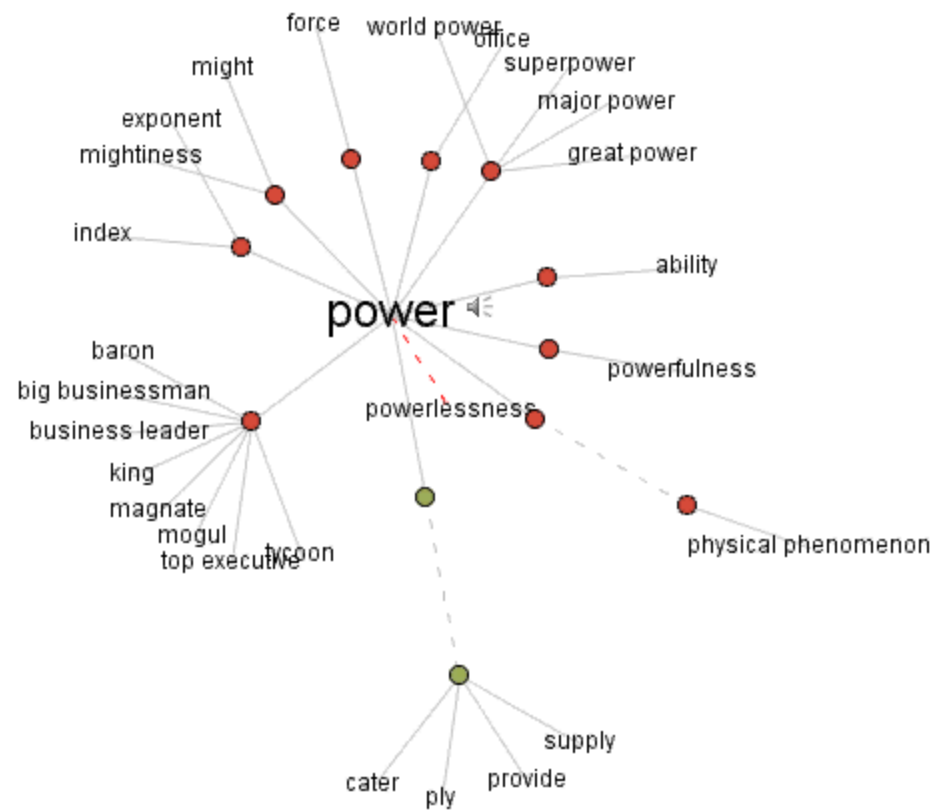
2. Fine-tune your search: ▶
3. Must haves: ▶
4. Enter postcode:* | rh89hw
◉ Available stock   ○ Coming soon stock

Search now

*Required   Why is my postcode required?

VW SITE

Summary of the Advantages of Rich Internet Applications Over Traditional

- **Expression**: more appropriate media for the message, e.g., physical object interactions and visual simulations
- **Grouping**: tighter integration of GUI with User's purposes (less in the way, fewer clicks, fewer "page mechanics")
- **Order**: more flexible, less prescribed
- **Depth**: flatter, fewer tunnels and restrictions
- **Span**: wider, more accessible at any one time
- **Timeliness**: faster, earlier
- **Feedback**: way faster, more informative, less "batched"
- **Fidelity**: much higher, more concrete, less abstract

RIA USABILITY ADVANTAGES

Usability Factors	Purpose	Stance	Expression	Relevance	Sufficiency	Grouping	Order	Depth	Span	Coherence	Timeliness	Feedback	Fidelity
Criteria for Communication Quality													
1 Clarity													
Hard to understand what it's telling me	●		●	●	●		●		●	●		●	●
Easy to lose your way, forget "where you are"	●		●	●	●	●	●	●	●	●	●	●	●
2 Accessibility													
Hard to locate some important features or information	●		●	●	●	●	●	●	●	●			
Hard to access and use some important features or informatio	●		●	●	●	●	●	●	●	●			
3 Speed													
Cumbersome to use, e.g., too many steps, too slow, etc.					●		●	●	●		●	●	
4 Error Avoidance													
Unforgiving of user errors											●	●	●
Hard to avoid making mistakes			●				●			●	●	●	●
5 Feedback & Reassurance													
Can't tell what you did	●		●		●					●			●
Can't tell if what you did worked	●		●		●					●		●	●
6 Ease of Learning													
Hard to learn how to use, non-intuitive	●		●	●	●	●	●	●	●	●	●	●	
Takes too long to learn or get used to		●	●	●	●	●	●	●	●	●	●	●	
7 Stance													
Offensive, condescending, presumptuous, offhand attitude	●	●	●										

USABILITY FACTORS

Contact Details

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APPENDIX:

Verbal & Non-Verbal Communication

- Verbal communication covers the use of words (lexicon and grammar).

- Nonverbal communication includes all kinds of signals except the words themselves. Studies have shown that 65%–93% of oral communication is nonverbal.

Verbal Communication

- Taxonomy, Hierarchy, and Nomenclature
- Information Accuracy, Precision, Redundancy, Relevance, Logic
- Apposite Use of Metaphor and Convention
- Information-Quality aspects of Typography & Visual Design
- Contents of Messages: purpose, stance, relevance, sufficiency, logical class, organization, expression, and matters of degree, accuracy,

VERBAL VS. NON-VERBAL COMMUNICATION

Non-Verbal Communication

- Body Movements
  - **Gestures**: e.g., waving, nodding, pointing, beckoning, wring hands, clenching fists, etc.
  - **Posture**: e.g., stiff, relaxed, composed, closed, open, sitting, leaning, etc.
  - **Facial Expressions**: e.g., smiling, amused, glaring, puzzled, surprised, expectant, excited, embarrassed, serene, etc.
  - **Eye Behavior**: e.g., staring, intermittent eye contact, looking away, looking down, rolling eye balls, tracking, focusing, etc.
  - **Synchrony**: e.g., clapping, embracing, shaking hands, bowing, facing each other, etc.
  - **Distance**: the spatial distance between interlocutors

- Voice
  - **Volume**: loud or soft
  - **Pitch**: high or low
  - **Inflection**: patterns of stress and intonation
  - **Speed**: rapid or slow
  - **Rhythm**: e.g., natural, stuttering, languid, clipped
  - **Articulation**: how well words are formed and differentiated. E.g., precise, exaggerated, natural, slurred, sleepy, abbreviated
  - **Resonance**: the personal, individual harmonic quality of the voice. E.g.,

Nonverbal Factors of Interactive Media–Design

Nonverbal Factors	Interactive Media-Design Factors
A. Body Movements	
1. **Gestures**	Illustration, Iconography, Animation, and Response Signals, Foreground/Background
2. **Posture**	Typography, Alignment, Relationship, Boundary, Isolation, Foreground/Background, Typography
3. **Facial Expressions**	Illustration, Motif, Color, Typography
4. **Eye Behavior**	Sequence & Flow, Layering, Alignment, Animation, Response Signals, Foreground/Background, Typography
5. **Synchrony**	Response Signals, Illustration, Animation
6. **Distance**	Layering, Foreground/Background, Sequence & Flow
B. Voice	
1. **Volume**	Color, Palette, Prominence, Size, Emphasis, Layering, Foreground/Background
2. **Pitch**	Color, Palette, Prominence, Size, Emphasis, Layering, Foreground/Background
3. **Inflection**	Emphasis, Response Signals, Animation
4. **Speed**	Prominence, Sequence & Flow, Layering, Density, Space
5. **Rhythm**	Grid, Space, Sequence & Flow
6. **Articulation**	Boundary of regions, Relationship among elements, Alignment
7. **Resonance**	Color, Texture, Iconography, Illustration
8. **Silence**	Space, Sequence & Flow, Animation, Response Signals

VERBAL VS. NON–VERBAL COMMUNICATION