

## The Knowledge Worker Attention Deficit

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Welcome to the Attention Economy – where the scarcest resource is no longer land, capital, labor, information, or knowledge. **It's Attention.** 

## THE ATTENTION ECONOMY

Understanding the New Currency of Business



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## **Keeping Up in the Office?**



- The average US white-collar worker sends and receives
   220 messages per day in multiple media
- New media over the last decade: e-mail, voice mail, instant messages
- Yet old media--voice, fax, paper--volumes all up
- 60% of office time is spent processing documents
- Most organizations have fewer people available to deal with more business

## **Keeping Up Elsewhere?**



The Internet:

2.1 billion publicly available pages 7.3 million new pages created everyday 23 internal links per average page 14.4 average images on each page

stocks 40,000 SKUs 15,000 new ones are introduced each year, but the

average household buys only about 150 products

#### Media:

300,000 new books every year 80% more new feature films than 10 years ago

## **Coincidence?** Use of Ritalin up 900% since 1990

#### **Advertising**

- In 1971 Americans were targeted by 561 ads daily
- By 1991, 3000 ads competed for your attention
- Number of ads per minute increased from 1.1 to 2.4

#### Shopping:

The average grocery store

## **The Need For Attention Management**

- Attention: the most important resource in business
  - a finite resource
  - a zero-sum game
  - Attention management is a two way street:
    - seekers of attention try to capture it
    - and givers of attention have to allocate and try to preserve it





#### Attention Model – Complex and Simple





#### **Attention - A New Lens** on Organizations Drivers Foci for Attention as the Lens the Lens **Economics** and Various business Measurement and management areas, including: **Technologies** Leadership Information proliferation ■ The firm, strategy, organization **Evolutionary** Rapidly-changing E-commerce Psychology business environments Project/process and **Biology** management Leaner business Globalization organizations Attention Education Industry Knowledge management Lessons

Attention Economics and Measurement



- If attention is scarce, it becomes valuable
- Attention won't replace money but it is increasingly convertible into it
- If we want someone's attention, we must offer something valuable in exchange for it
- If you can't measure attention, you can't manage it
  - Electrical activity in the brain
  - Eye movements
  - Messages that get opened
  - Self-reported attention allocation

## **Six Types of Attention**





## Measuring Attention Allocation -The AttentionScape



A (voluntary) personal map can give an employer a quick "read" on an employee's focus.



### **Measuring Attention Impact**

![](_page_10_Picture_1.jpeg)

![](_page_10_Figure_2.jpeg)

## **The Index Ingredients**

![](_page_11_Picture_1.jpeg)

### **Attention Impact :**

<ul> <li>The message source was</li> <li>1. trustworthy or respected.</li> <li>2. influential or powerful (i.e., socially/politically).</li> <li>3. charismatic or appealing.</li> </ul>	<ul> <li>The message context was</li> <li>4. personalized (i.e., directed to and about me).</li> <li>5. about a group I belong to or have interest in.</li> <li>6. related to a question or issue I was concerned about.</li> </ul>
<ul> <li>The message's content was</li> <li>7. concise, direct, or story-like in structure.</li> <li>8. engaging to my senses (i.e., eye, ear, touch).</li> <li>9. new, unusual, or unique.</li> </ul>	<ul> <li>The recipient was</li> <li>10. emotionally moved by the message (i.e., angry, pleased, etc.).</li> <li>11. able to consider the message's implications or consequences.</li> <li>12. convinced the message was important to my work or life.</li> </ul>

# What Information Gets Attention?

![](_page_12_Picture_1.jpeg)

People pay the most attention to personalized, concise, emotion provoking messages from trustworthy senders

- <u>Context</u>: It is most important to have a <u>personalized</u> message; more than answering a person's questions
- <u>Content</u>: <u>Concise</u>; even more than engaging to the senses or unique
- <u>Recipient</u>: Evoke <u>emotion</u>; more than considering implications or importance
- <u>Source</u>: Make message from a <u>trustworthy</u> or respected sender; more important than being influential or charismatic

## Some Emerging Attention Technologies

![](_page_13_Picture_1.jpeg)

#### Structuring

- Simulations
- Online multimedia education
- Web "channels"
- PVR—"Tivo"

#### Monitoring

- Infrared analysis of bodies in the room
- Brain wave analysis
- Retinal scanning for drivers and pilots

#### Protecting

- Web ad blocking
- TV ad skipping
- Self-teaching agents
- Collaborative filtering

#### **Old Hat: Attention-Getting Technologies**

## The Psychobiology of Attention

![](_page_14_Picture_1.jpeg)

- Some things just naturally get attention
  - Sex and love
  - Hierarchy
  - Movement on the periphery
- The myth of multi-tasking (not much, anyway)
  - So toss your car phone!
  - Or push some items to back of mind
  - Generational differences in attention patterns
    - Will the Nintendo generation mix work and entertainment?

![](_page_14_Picture_11.jpeg)

## Lessons from the "Attention Industries"

#### Movies

- Segment your audience by age
- Let us entertain you into "attention captivity"

#### Television

- Use short, serialized narratives
- Don't let technology get in the way

### Publishing

- Focus marketing on a few information units
- Cultivate the "cult of personality"

#### Advertising

- Keep the message simple and repeat it often
- Use multiple, complimentary channels

![](_page_15_Figure_13.jpeg)

## If I Were Building an Information Portal, I Would...

![](_page_16_Picture_1.jpeg)

- Personalize it to the role, if not the individual
- Decide what information is really important to get across
- Know what information and knowledge is really critical to the recipient's strategy
- Embed the information in a compelling story
- Send out information (if you must) in small chunks on a regular, predictable frequency
- Make effective use of infomediaries
- Help managers and knowledge workers to manage their personal information environments
- Measure aggregate information use

## Even Better, Bake Knowledge Into the Work Itself

![](_page_17_Picture_1.jpeg)

- Knowledge worker productivity is "the issue of the century," according to Peter Drucker
- Knowledge workers need knowledge to do their jobs effectively, but they don't have the time or attention to find and access it
- Pace of knowledge growth is accelerating; ability to attend to it is probably shrinking
- Most knowledge management initiatives have involved "separate" repositories, communities, etc.
- Can't rely fully on knowledge workers having a high appetite for knowledge and the slack time to consume it

## **Scope of Knowledge in Medicine**

![](_page_18_Picture_1.jpeg)

- 10,000 diseases/syndromes/problems
- 1,000,000 facts to master as a PCP
- 3,000 medications
- 1,100 laboratory tests
- 300 radiology procedures
- 460,000 articles added annually to the biomedical literature

## **Consequences of Poor Knowledge Management**

![](_page_19_Picture_1.jpeg)

The level of adverse drug events is high:

- 5.5 ADEs per 100 patients coming in for care
- 6.5 ADEs per 100 non-OB admissions
- Each event costs more than \$2000 to address
- ■60% of the adverse drug events are caused by inappropriate ordering
- No follow-up for a third of abnormal Pap smears and mammograms
- 16% of inpatient and 52% of outpatient Digoxin tests were appropriate

# Preventing ADEs with Embedded Knowledge

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## **Prescribing Optimal Drug Therapy**

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## Impact of Attention-Getting Information Systems

#### On an average day, 13,000 orders are entered by a clinician

- 386 of these are changed as a result of a computer suggestion
- Providers consulted online resources only about 1000 times/day
- On an average day, during order entry:
  - 40 medication allergy warnings are generated; 46% of the orders are canceled
  - 288 medication conflict warnings are generated; 30% of the orders are canceled

The event detection system generated 1,730 alerts in a 6 month period:

- Treatment was changed, as a result of the alert, 72% of the time
- Leading to a 35% decrease in time to correct the problem

Serious Medication Errors Before and After Intelligent Order Entry

![](_page_23_Figure_1.jpeg)

Bates et al, JAMA, 1998

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## **Where Will Attention Go?**

![](_page_24_Picture_1.jpeg)

- It's still early days for attention management
- There's not one big application, but a lot of smaller ones
- It's abstract and invisible but then so is knowledge
- Attention should be part of a broader program to achieve information and knowledge effectiveness, not just access
- Examples of attention-conscious applications are beginning to appear