

**New media and economy:
The rising of the attention economy.
Advertising in the attention economy**

Vorgelegt von
Diplom-Kommunikationswissenschaftlerin
Maria Alexander Markou
aus Athen

Von der Fakultät I – Geisteswissenschaften
der Technischen Universität Berlin
zur Erlangung des akademischen Grades
Doktorin der Philosophie
Dr. phil.

genehmigte Dissertation

Promotionsausschuss:

Vorsitzender: Prof. Dr. Christiane Griese

Berichter: Prof. Dr. Norbert Bolz

Berichter: Prof. Dr. Persefoni Zeri

Tag der wissenschaftlichen Aussprache: 7.12.2011

Berlin 2012

D 83

©Copyright by Maria A. Markou 2011
All Rights Reserved

To my beloved father

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	
ABSTRACT	
INTRODUCTION	
CHAPTERS	
1.ATTENTION.....	1
1.1.DEFINITION OF ATTENTION.....	1
1.2 FEATURES AND TYPES OF ATTENTION.....	2
1.2.1 Capacity or resources.....	4
1.2.2. Selective attention.....	4
1.3 THEORIES OF ATTENTION.....	5
1.3.1 Single-channel, filter theories.....	7
1.3.2 Flexible Central resource capacity.....	8
1.4 MULTIPLE RESOURCE CAPACITY.....	9
1.4. 1. Action-selection views of attention.....	10
1.5 BOTTLENECK" (FILTER) THEORIES AND CAPACITY MODEL THEORIES.....	11
1.5.1 Limitation Fianlly? Bottleneck /filter theori.....	12
1.5.2Early selection.....	13
1.5.3 Late selection.....	15
1.6 THE OTHER POINT OF VIEW?.....	17
1.7 MILLER’S EXPERIMENT.....	18
2. INFORMATION.....	20
2.1 Characteristics of Information.....	23
2.2 INFORMATION TECHNOLOGY REVOLUTION.....	24
2.3 INFORMATION OVERLOAD.....	27
2.4 ALLOCATION OF ATTENTION.....	30
2.5 HEADING TOWARDS ATTENTION ECONOMY.....	36
3. INFORMATION RULES?.....	38
3.1 NEW ECONOMY AND GOODS SALES.....	41

3.2 PROPERTY IN ATTENTION ECONOMY.....	43
3.4 ATTENTION ECONOMY.....	45
3.5 ECONOMY AND ATTENTION.....	50
4. ATTENTION ECONOMY AND MASS MEDIA.....	54
4.1 TELEVISION AND ATTENTION ECONOMY.....	55
4.2 ATTENTION ECONOMY AND PRINT MEDIA.....	58
4.3 ATTENTION ECONOMY AND RADIO.....	59
4.4 ATTENTION ECONOMY: THREE TYPES OF ATTENTION.....	61
4.4.1 Captive vs. Voluntary.....	61
4.4.2 Aversion-based vs. Attraction-based.....	61
4.4.3 Front-of-mind vs. Back-of-mind.....	62
5. ADVERTISEMENT.....	64
5.1 ADVERTISING HISTORY.....	65
5.2 CHARACTERISTICS OF ADVERTISEMENT.....	69
5.3 ATTENTION, ADVERTISING AND MEDIA.....	72
6. ADVERTISING NOW.....	77
6.1 ADVERTISING AND THE WORLD WIDE WEB.....	78
6.2 INTERNET USERS-DEMOGRAPHICS.....	79
6.3 INTERNET LANGUAGES.....	83
6.4 SOCIAL NETWORKS.....	85
6.5 INTERNET ADVERTISING.....	91
7. A NEW ADVERTISING MODEL.....	93
7.1 ADVERTISING COMPANIES AS PROFESSIONAL INTERMEDIATES.....	98
7.2 AIM OF PERSONALIZED ADVERTISING.....	99
7.3 WHY INTERNET?.....	100
7.4 MOBILE ADVERTISING.....	101
CONCLUSION.....	105
PROPOSED ADVERTISING MODEL (FIGURE).....	106
REFERENCES.....	107
APPENDIX.....	111

ACKNOWLEDGMENTS

I would like to thank Professor Doktor Norbert Bolz not only for his supervising but for the kindness and patience he showed during these years. I would also like to thank Professor Doctor Persefoni Zeri for the immediate response and guidance throughout this dissertation. Additionally, Professor Doctor Peter Erdmann and Professor Doctor See Young Cho for the kindness, their time and their helpful advice. Dr. Katsaounis Nikolaos for his friendship through difficult periods.

Nothing would have been accomplished without the love and support of my family. Special thanks to Efi, Metaxia and Petros.

ABSTRACT

The core of this thesis is the phenomenon of **attention**, the factors that affect this complex phenomenon and how attention affects the evolution of communication. Attention-absorbing capabilities have proven to be limited and attention is proven scarce in contrast with information which has minimized even more the already little attention.

Limited attention triggered of a series of changes establishing a new type of economy named after it. The attention economy has influenced most aspects of communication, deconstructing long-term practices and methods and reconstructing them according to the demands of a post-information era.

My contribution to knowledge is to readjust advertisement, both as method and as communicative tool, to the new circumstances, by proposing a new advertising model, compatible to attention economy.

INTRODUCTION

In the everyday life we use so many expressions that have to do with attention. Attention is the basis of numerous actions; attention is a prerequisite for the achievement of many things. We can divert or distract the attention from something but we can also captivate, catch or attract somebody's attention. Attention is more than a neuropsychological action, more than a communicative tool. Attention is the driving force behind choices, actions, decisions.

Attention is scarce; our attention apothegms are limited and keep on shrink in the over-informative environment. There is no much attention to be paid to,

The power of attention is unquestionable; just other ideas or phenomena of the past, it elaborated a revolution to the communication .The inaugural kick for the term "Attention Economy" in the scientific fields was in the middle of the last decade but its actual "Big bang" in the everyday life was in 1998. This controversial -at the beginning term- generated several debates and still divides opinions and people. It is though actual, intriguing, extremely interesting, a prism for a different perception of viewing and living.

1. ATTENTION

1.1 DEFINITION OF ATTENTION

We all use the term attention in our everyday lives but how does each one realizes what attention is? How could this complex communicative phenomenon be defined? Attention is a multifaceted phenomenon for which a plethora of definitions struggle to identify it. To the question, what attention is, there are many recognizable answers most of them derive from the scientific fields of the psychology and are of extreme help in realizing the deep and profound meaning of the phenomenon of attention.

The current information processing psychology provides several theories and definitions, which are cooperative enough since the observable fact of information is of extreme significance not only for the formulation of a definition but for the entire thesis throughout. It is significant to mention that attention is characterized from extreme complexity, both as a psychological and as a communicative phenomenon. Van der Heijden agrees with this statement and he argues that,¹ “current information psychology has not really yet solved this definition problem. Attention is still an ambiguous and elusive concept”.

It is very possible that in the term attention a number of different ideas and conceptions are engaged: “Attention is not a single concept, but the name of a complex field of study”.² Pashler’s statement “Attention has long posed a major challenge for psychologists” indicates the importance of a declaration of the term attention.³

Attention has long been one of the biggest challenges for the scholars who deal with sciences of psychology and communication. Augustine of Hippo (354-430b.C.)

¹ Van Der Heijden, A.H.C. “Selective Attention in Vision”, pg. 32, Routledge, New York, 1992

² Posner, MI, “Psychobiology of attention“, pg.32, New York, Academic Press, 1975

³ Pashler, H, “the Psychology of Attention”., pg 1, Cambridge., MA: MIT Press, 1998

made comments on the phenomenology of attention that seems quite close to present day intuitions about how different events in the world attract our attention.⁴

Historically, many philosophers and psychologists treated the concept of attention with great importance in the late 19th century but it fell into disrepute since the behaviorists regarded all the internal process with the outmost suspicion. Attention, however became “fashionable” again following the publication of Broadbent’s book “Perception and Communication” in 1958 and has remained a topic of extreme importance ever since.⁵

The literature concerning attention is as mentioned before, never-ending and continual, but there are certain opinions that are a prerequisite to be mentioned in order to realize attention and its special features.

1.2 FEATURES AND TYPES OF ATTENTION

Like every phenomenon and/or every idea, attention has a basic definition upon which the evolution of this phenomenon is built and is being used as a basis for further paraderinitions.

William James, in his monumental work “Principles of Psychology” (1890), remarked “Everyone knows what attention is. It is the taking possession by the mind of one out of what seem several possible objects or trains of thought. Focalization and concentration of consciousness are of its essence. It implies withdrawal from these things in order to deal effectively with others and it is a condition which has a real opposite in the confused, dazed, scatterbrained state which in French is called distraction and Zerstreutheit in German”.⁶ This definition was believed as a dogma and for many decades it was the alpha and the omega when the issue of what is attention occurred.

⁴ Pashler, H., “the Psychology of Attention”., pg 1, Cambridge., MA: MIT Press, 1998

⁵ Donald E. Broadbent (Birmingham, 1926-1993) was an influential British experimental psychologist. His career and his research work bridged the gap between the pre-Second World War approach of Sir Frederick Bartlett and its wartime development into applied psychology, and what from the late 1960s became known as cognitive psychology)

⁶ James. W., “Principles of Psychology” Voll.2, pg. 403-404, Henry Holt and Co, London, 1890

This definition by James is nowadays open, often doubted and no longer believed as a dogma. “The notion of “attention” is generally left undefined, or defined by reference to subjective experience. In practice, the observable criterion for successful “attention” to (or awareness of) an environmental event invariably turns on the ability of the subject to act voluntarily, or, arbitrarily, in response to that event”.⁷ There is a declaration that has to be made at this point; that different theories/models of attention necessarily entail different definitions of what attention is.

Decoding James’s definition, I come up with conclusions about the nature of attention. Three main characteristics of attention derive. Attention is:

- i. Limited: we are only capable of attending one thing at a time
- ii. Selective: we are able to direct our attention where we want to choosing between two or more subjects
- iii. Connected to consciousness: what we are aware of at any given time⁸
(Consciousness is a philosophically difficult concept and hard to measure. It has been linked to the concept of controlled vs automatic processing).^{9 10}

Attention itself has undergone a division in three types (notions):

- i. Effort or arousal (the general state of excitability of a person)
- ii. Capacity/resources allocation (for information processing)

⁷ Allport. D.A, „Selection for Action: some behavioral and neurophysiological considerations of attention and action In H. Heuer & H. F. Sanders (eds.), *Perspectives on Perception and Action.*“, pg. 408, Hillsdale, NJ, Erlbaum, 1987

⁸ According to Nick Milton, James’ definition neatly exposes a problem that dogs the field of attention: the relationship between attention and consciousness. Milton also notices that the tangled notions and vague definitions of attention, awareness, mental effort/concentration and consciousness can lead to severe problems.

⁹ Magill defines attention as: the conscious or coconscious **engagement** in perceptual, cognitive and/or motor activities (Magill RA “Motor Learning. Concepts and Application”s, pg 141, New York: McGraw-Hill, 2004). Additionally, he points out that although an activity may demand our attention, it does not always require that we are consciously aware of our engagement in the activity.

¹⁰ William James, whose definition was mentioned before, made a very significant segregation in 1890. He distinguished between passive and active modes of attention. We could describe the act of attention as **active** when it is organized in a **top-down way** by the individual’s aims whereas attention could be described as **passive** when controlled in a **bottom-up way** by external stimuli. Yantis, (Yantis S, “Control of visual attention”, in H. Pashler’s (Ed) “Attention”, pg 252, Hove :Psychology Press ,1998) agrees with this differentiation and also adds his own point of view by declaring “Stimulus-driven attentional control is both faster and more potent than goal-driven attentional control”. In other words, passive attention is “stronger” than active attention.

iii. Selective attention (i.e. allocation of attention)

In this dissertation I am occupied with last two types of attention, the capacity and the selective attention. Moreover, types 2 and 3 show that attention has an important bearing on the conception of the stages of information processing, which is a very important part of this thesis. Capacity resource and selective attention theories include the vast majority of psychological streams from cognitive psychology to neuropsychology and it is worth to notice at the outset that both selective attention and capacity theories are based on the idea that humans have limited information processing capacity.

1.2.1 Capacity or resources

This view of attention suggests that a limitation in the capacity or resources available for information processing exists. Kanheman¹¹ put forward the capacity/resource allocation model of attention. This is one of the best known models and suggests that humans have a limited amount of processing capacity and whether two or more tasks can be performed together successfully depends on how much demand they make on this limited capacity processor. This idea of a limited capacity is very probable and has been clear to be the case from earlier research carried out on divided attention.¹²

1.2.2. Selective attention.

This theory could be another name for allocation of attention. Methods for selective attention (selection of information for processing) have been developed as a means of allocating available capacity or resources. We are able to allocate our attention to different tasks. This allocation can be either intended or involuntary. Intended allocation takes place when we voluntarily choose to attend to a source of information. Involuntary allocation usually happens as a response to an external

¹¹ Kanheman Daniel, "Attention and effort", Englewood Cliffs, NJ: Prentice Hall, 1973

¹² This theory of attention is very popular and has a lot of support. For instance, it can account for dual task studies such as those carried out by Bourke et al. in these, Bourke gave his participants four very different tasks and measured the degree at which each one interfered with the others. He found that the tasks did interfere with each other, with the random generator task interfering the most and the tone task interfering the least.

stimulus, eg, a loud noise. The initial evidence for this phenomenon was derived from work by a Dutch psychologist named de Groot during the 1940's and his theories were followed and evolved by numerous scholars such as Broadbent, Treisman, Deutsch and Deutsch and Norman.

Before proceeding to a further analysis of the two aspects, I believe that selective attention theories are the strongest version of the limited capacity model (in which only one message at a time is able to come into the human brain but at a specific point processing of the message/stimulus is reduced to a single channel) whereas capacity theories are also exponents of the same limited capacity model, but in a weaker way since they support that information could be processed through many channels but the fixed capacity limit is there, a fact.

1.3 THEORIES OF ATTENTION

Speaking on psychological terms, I conclude that attention is the cognitive process of selectively concentrating on one aspect of the environment while ignoring other things. This definition will help us to understand a little further the theories that are going to follow.

The contemporary theory of attention first started to form in the mid 1950's in the United Kingdom and was based upon cognitive psychology. Since this thesis is mostly focused on communication along with other scientific fields, I suggest that a further explanation upon psychology is totally necessary. Cognitive psychology draws its name after the word cognition. The term cognition (Latin: *cognoscere*, "to know") is used in several loosely related ways to refer to a faculty for the human-like processing of information, applying knowledge and changing preferences. Cognition or cognitive processes can be natural and artificial, conscious and not conscious

Therefore, cognitive psychology is the school of psychology that examines internal mental processes such as problem solving, memory, and language. It had its foundations in the Gestalt psychology of Max Wertheimer, Wolfgang Köhler, and Kurt Koffka, and in the work of Jean Piaget. Cognitive psychology is one of the more recent additions to psychological research, having only developed as a separate area

within the discipline since the late 1950s and early 1960s (though there are examples of cognitive thinking from earlier researchers). The cognitive approach was brought to prominence by Donald Broadbent's book *Perception and Communication* in 1958. Since that time, the dominant paradigm in the area has been the information processing model of cognition that Broadbent put forward.

James' theory was until the mid of 50's the dominant theory upon which the whole attention science was based. In the 1950s, research psychologists renewed their interest in attention when the dominant epistemology shifted from positivism (i.e., behaviorism) to realism during what has come to be known as the "cognitive revolution"¹³. This was the stimulus for a re-examination of the attention phenomenon from scientists, which progress follows.

This stream has also been named as revival of the attention theory since the use of the new -at that time- computer and digital devices and theoretical developments in linguistic¹⁴ as well as experimental modus operandi were of extreme help for the progress of the contemporary attention theory.

The theories that have been developed concerning attention could be divided in four (4) categories, the following:

- Single-channel, filter theories
- Central resource capacity
- Multiple resource capacity
- Action-selection approach

The theories of these four main categories are *not totally* different. They all have *common* features, but after a profounder research, little details differentiate them and the four of them are part of the above mentioned larger attention streams. More specifically

¹³Harre Rom , "Cognitive Science: A Philosophical Introduction", Sage Publications Ltd ,UK, 2002

¹⁴ Colin Cherry and Donald Broadbent, among others, performed experiments on dichotic listening. In a typical experiment, subjects would use a set of headphones to listen to two streams of words in different ears and selectively attend to one stream. After the task, the experimenter would question the subjects about the content of the unattended stream

1.3.3 Single-channel, filter theories.

The most important early theory of attention is another name for the most famous attention theories, the “bottleneck” theories. Welford has first developed them in 1952 suggesting that attention was literally a “single channel” that could occupy only one stimulus at a time, but the theory is mostly known by Broadbent’s experiments and definitions in 1958. According to this theory, information processing is performed in a serial order and at a specific point along the stages of processing, the system has a “bottleneck”/filter which sorts out *not selected information* for further processing. The shape of the model is similar to the letter 'Y', symbolizing two incoming sources of information/inputs with the two arms of the Y and one final source being recognized, through a filter.

This filter symbolizes the location of selection to attention. Broadbent (1957) developed the filter model to explain the proposition that a bottleneck occurs before pattern recognition, and that attention determines what information reaches the pattern recognition stage. This model asserts that the selective filter allows information to come in from only one channel at a time, into working memory. Parallel processing, without attention, could occur prior to the filter; then serial processing with (selective) attention was required.

The filter theory assumes that: (a) the filter selects for physical characteristics, (b) information goes through a limited capacity channel that is all or none (thus, only selected messages will be available for later processing; unselected messages will not; also, people cannot pay attention to more than one source, because the channel is limited), (c) the filter is consciously controlled, and (d) interpretation (semantic processing) happens only after information has been filtered¹⁵.

In this theory, the capacity for information processing is considered to be limited - a single undifferentiated resource - in the extreme case, a single information channel, and one and only one stimulus-response operation at a time.

¹⁵ <http://io.uwinnipeg.ca/~epritch1/attent~1.htm>

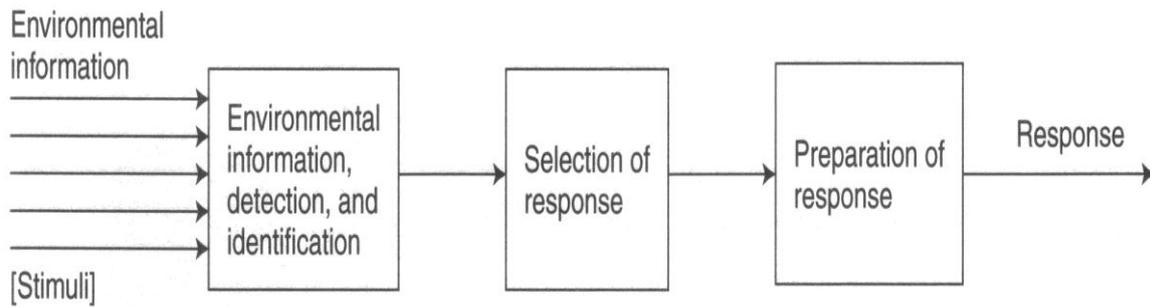


Figure 1 (Magil 2004, pg. 142)

The following theoretical stage concerning attention was that attention limits were the outcome of a limited availability of the necessary resources in order to fulfil information processing. According to this theory humans are capable of performing several tasks at the same time only if the resource capacity limits of their “system” are not surpassed. If the limits are surpassed, difficulties in performing one or more of the tasks occur.

1.3.2. Flexible Central resource capacity

Other factors that affect attention, such as if attention somehow adjusts to the demands of a situation, led Kahneman¹⁶ to support the *flexible allocation theory*, a theory that continues to have strong effects in present views about attention. This construct predicts that attentional capacity is actually flexible and that more can become available depending on the nature of the task.

More analytically, in this model the capacity limits of the central pool of resources are flexible. This means that the amount of available attention can be modified depending on conditions related to:

- The individual - stimulation level differs within and between individuals

¹⁶ Kahneman Daniel, “Attention and effort”, Englewood Cliffs, NJ: Prentice Hall, 1973

- The tasks - attentional demands vary across tasks
- The circumstances
 - i. Involuntary attention to innovation, meaningfulness
 - ii. Selective attention to specific aspects of situation

These conditions rule both the available amount of attention and the allocation of attention to different tasks. Kahneman viewed the available attention as a general pool of effort, which involves the aspect that mental resources are necessary in order for the activity to be carried out each time.

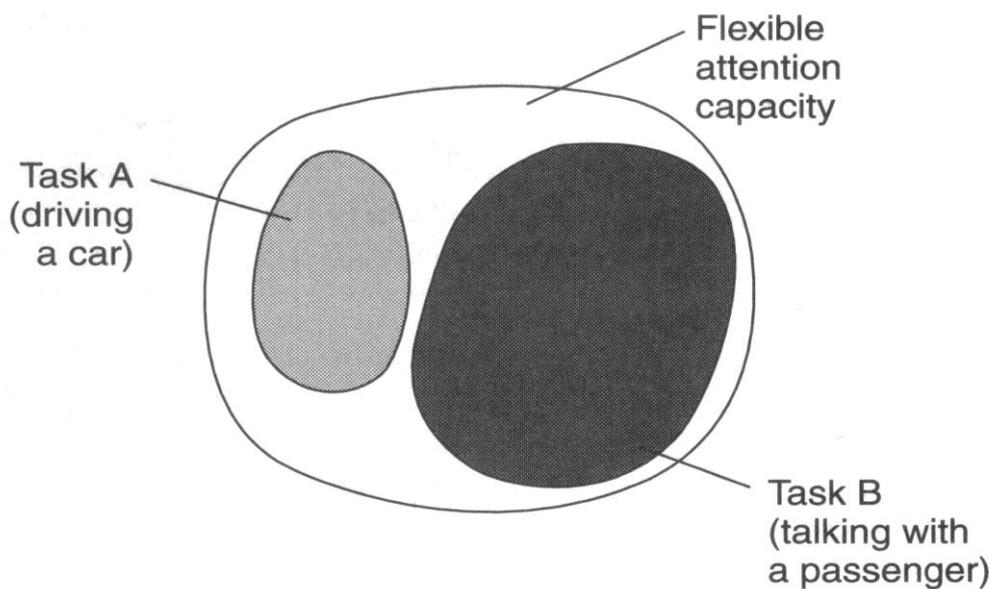


Figure 2 (Magil 2004 pg. 143)

1.4 MULTIPLE RESOURCE CAPACITY ¹⁷

Multiple resource theories argue that attention should not be conceptualised as a single resource but that several “attentional” mechanisms exist, each one with limited resources and each one specific to a component of skill. Wickens proposed

17. Navon, D. Gopher D, “On the economy of the human processing system”, *Psychological Review*, 1979, Allport DA, “Attention and performance. In: G Claxton (Ed.), *Cognitive Psychology: New Directions*. London: Routledge and Kegan Paul, 1980, Wickens CD, ”The structure of processing resources”, In: R Nickerson (Ed.), *Attention and Performance VII*. Hillsdale, NJ: Erlbaum, 1980, Wickens CD, “Engineering Psychology and Human Performance”, New York, Harper Collins, 1992

what has become the most popular of these theories. He proposed 3 sources of information processing capacity:

- Input and output modalities - eg, vision, hearing, limbs, speech
- Stages of information processing - eg, perception, memory encoding, response output
- Codes of information processing - eg, spatial codes, verbal codes

1.4. 1. Action-selection views of attention¹⁸

More recently, researchers such as Neumann and Allport have criticised the various capacity/resource theories and presented a considerably different view. The key idea behind resource theory is the idea of mental energy. There is a major difficulty in defining mental energy, capacity or resources. Allport hypothesized that attentional mechanisms have been developed so as to fulfil functional purposes - to meet the requirements of goal-directed behaviour. The successful implementation of an action requires the coupling of relevant sensory information to appropriate effectors.

Processes of selective attention are responsible for this linkage of perceptual and motor subsystems. Neumann supports that when we aim to attain a goal, many stimuli may be received and processed in parallel in the early stages, and the final product of this processing will be the selection of a certain action.

As a result of this action of selection, certain processes are then prevented from occurring, or can occur only with great difficulty. Thus, interference between two tasks occurs not because attention, as a resource, is needed for the action; rather it occurs because an action has already been selected and these other processes are then

18. Neumann, O: "Beyond capacity: a functional view of attention". In: H Heuer and AF Sanders (Eds.), *Perspectives on Perception and Action*. Hillsdale, NJ: Erlbaum, 1987, Neumann O, "Theories of attention". In: O Neumann, AF Sanders (Eds.), *Handbook of Perception and Action, Volume 3: Attention*. San Diego: Academic Press, 1996, Allport D.A, "Selection for action: some behavioural and neurophysiological considerations of attention and action. In: H Heuer and AF Sanders (Eds.), *Perspectives on Perception and Action*. Hillsdale, NJ: Erlbaum, 1987, Allport A, "Attention and control: have we been asking the wrong questions?" In DE Meyer, S Kornblum (Eds.), *Attention and Performance XIV*. Cambridge, MA: MIT Press. 1993

completely or partially blocked. Thus, according to this theory, selection is the most basic and fundamental process of attention, not resources and/or capacity. This theory makes sense from an ecological viewpoint, in that if a particular action is important (and is therefore selected), then it would seem critical that other possible actions be prevented, at least until the selected action has run its course. Otherwise, a risk would occur that selected actions would not be completed due to interference from other stimuli - such distractibility could mean that actions are not seen through to completion. But, this theory does not exclude the limited capacity theory, since selection as an action chooses to dedicate the attention apothegms to one and only task or action; therefore no attention is left in order another task that may not have been selected to be performed.

1.5 BOTTLENECK" (FILTER) THEORIES AND CAPACITY MODEL THEORIES.

Summarising the four above presented theories I see that all theories have a very important common feature: the limitation of information perceiving capacity, sometimes strict, sometimes more flexible.

The theories mentioned above are probably the most influential theories in this scientific field. There are numerous theories regarding attention but the majority of them falls into two broad categories: "bottleneck" (filter) theories and capacity model theories. Although, the latter are arguably the most favoured nowadays, it is the former, which they have probably been the most influential.

It is worthwhile noting at the outset that both bottleneck and capacity theories are based on the idea that humans have limited information processing capacity: for example, we could never be able to deal with of all the inputs that ad infinitum flood into our processing systems from our senses and memory, and even if we were, we have limitation in the number of the responses we can make. Bottleneck theories could be described as a strong version of this limited capacity idea, (according to that, only one message at a time can enter consciousness), since at some point processing is reduced to a single channel. Capacity models, on the other hand, are a weaker version; that means that information can be processed via many channels but that there is a fixed capacity limit to be distributed amongst the channels.

1.5.1 LIMITATION FINALLY?

Bottleneck /filter theories

The decade of the 50's was the starting point for the revival of the attention theories. Collin Cherry performed the most notable study at that time in 1953 by using the dichotic listening technique.¹⁹ Cherry's studies and observations created a fertile ground for the development of a respectable number of theories, having to do with the study of the attention phenomenon. Donald Broadbent, a scientist with great contribution to the study of attention, formulated the first information-processing theory of attention in 1958.

This theory is met with several names such as, "Filter Theory" and/or "Early Selection Theory". (A résumé of this theory would be useful at this point; Broadbent suggested that all the messages that reach the humans are analyzed at a non-semantic level, whether they are attended or not, only attended messages will have the opportunity to be further evaluated and that selection happens before the identification).

These two theories are not totally different, but actually it is a one two-part theory that supports the same aspects from a slightly altered point of view. Were there no reactions heard to this theory?

According to the most of neuropsychological theories, attention is controlled and stimulated by several neurons of the brain that influences the reactions of the persons, which are affected by the incoming stimuli. Therefore the outcome could be that attention is the equivalence of the incoming stimuli to the outcome reactions, a simple analogous mathematic procedure.

This result could be translated, that the human brain has unlimited incoming capabilities and the attention it produces is equivalent to the stimuli it obtains. But this is not as simple as it sounds.

¹⁹ Cherry had people listen to different messages played to the two ears through headphones (dichotic listening). When instructed to 'shadow' (repeat back) either message, Cherry's subjects were able to comply. Having done so, they could describe the message they had shadowed but could not report almost nothing about the unattended message. Pashler, H, "The Psychology of Attention". pg 1, Cambridge., MA: MIT Press, 1998

Several experiments regarding the limits of the incoming stimuli and the reactions of the individuals to them have taken place, since 1950 and at first level I could speak about two different views regarding the subject of limited or unlimited capacity of information processing.

The first group of scientists (the majority from the fields of cognitive psychology) stands up for the limited capacity. Their theory is named early selection theory. The other group of psychologists supports the late selection theory, which at first sight could be misinterpreted. Whereas the second and most recent group supports the opposite point of view, not only the unlimited capacity of information processing but as seen and above, the act of selection in attention.

1.5.2 Early selection

Broadbent²⁰ formulated in 1958 the first theory that describes the limited capacity of information processing, and it demonstrated that due to very specific modus operandi, the incoming information reaches the brain and is being handled; the limits for this procedure exist and are very strict. As mentioned before, all the incoming stimuli are briefly held in a sensory register and then undergo pre-attentive analysis by a selective filter on the basis of their physical characteristics. The stimuli that are selected pass along a (very) limited capacity channel to a detection device where semantic analysis takes place. The not selected stimuli ('filtered' out) are not analysed for meaning and do not reach consciousness.

This point of view has, as most theories, two particular theories, which are of extreme interest. "At a basic level these theories appear to explicitly show that the locus of the bottleneck in a person's information processing system is either early or late".²¹ Therefore, early could be translated as perceptual limitations and late as response limitations. The bottom-line at these theories is the limitation in procedure.

The first team of theorists puts forward the aspect that the human information processing system has a very special characteristic under the name of "structural central limitations". According to Van Der Heijden, Broadband, the founder of this

²⁰ Broadbent, D.E., "Perception and Communication", Elsevier Science Ltd, 1958

²¹ www.epistemics.co.uk/staff/nmilton/papers/attention.htm - 27k -

theory, postulated a central information processing channel with a limited capacity.
²²Other scientists described this procedure as the central processing unit of a computer.

Anne Treisman's²³ theory followed the one of Broadbent and it is as interesting and useful as the one mentioned above, not to mention that Treisman's theory could be described as a modification of Broadbent's theory. According to attenuation theory, the physical characteristics are attenuated, but not completely filtered out - and then semantic criteria are applied. The semantic criteria are based on the individual's expectations, and are subject to change.

Therefore, the incoming stimuli are briefly held in a sensory register, undergo pre-attentive analysis by an attenuation filter on the basis of basic physical characteristics (information resulting from this analysis is available to conscious perception and for reporting by the subject, regardless of what happens to the message beyond this point). According to Milton's analysis, the stimuli which are selected, in other words, attended to, pass along a limited capacity channel to a detection device (a pattern recogniser, including a number of 'dictionary' units) where semantic analysis takes place. Unattended stimuli are attenuated (the signal strength is lowered) before passing along the limited capacity channel to the detection device, where they are semantically processed if they meet certain criteria.²⁴

The attenuation model therefore proposes that there is a decrease in the perceived volume of an unattended message. This message will usually not be strong enough to reach its threshold unless it has a very low threshold to begin with (your name), or there is a general momentary decrease for all messages.²⁵ This is, consequently, an early selection theory, as Broadbent's and an attenuation model of attention.

²² Van Der Heijden, A.H.C. "Selective Attention in Vision", pg. 238, Routledge, New York, 1992

²³ Anne Treisman, "Journal of Verbal Learning and Verbal Behavior", Volume 3, Issue 6 "Monitoring and storage of irrelevant messages in selective attention" pg. 449-459 December 1964

²⁴ Information received through the attenuated channel may even take over the listener's attention if, for some reason, it is interesting or important enough. For example, if while in the middle of a conversation you should happen to hear your name mentioned by someone else standing nearby, it is very possible that you would notice it despite paying your full attention to the conversation you're having at the moment since your name would have quite a low threshold for achieving your attention: this is known as the "cocktail party phenomenon", for reasons which escape those of us who have never been invited to a cocktail party.

²⁵ I Beneli Iris, "Selective Attention and Arousal", California State University, Northridge, 1997, <http://www.csun.edu>,

1.5.3 Late selection

The second group of scientists that supported this thesis from another point of view suggested a totally different form of limitations and they gave emphasis to the action of selection. They completely disagreed with the aspect that “a message will reach the same perceptual and discriminating mechanisms whether attention is paid to it or not”, and they claimed that in addition to the information processing system, something else was additionally required for the processing of information²⁶. The most profound and prominent paradigm of this hypothesis is the one from Neisser,²⁷ who stated that the processing limitation was set in focal attention; an act of focal attention cannot deal with more than one unit at the same time.

Broadbent and Treisman's models proposed that the selection filter in attention occurs prior to selection, or pattern recognition stage. Later models by Deutsch and Deutsch (1963), and Norman (1968), attempted to merge growing information regarding memory and the selection process of attention.

Deutsch and Deutsch suggested that both channels of information are recognized but are quickly forgotten unless they hold personal pertinence to the individual. In shadowing experiments, the participant is asked to repeat a certain message that would create the personal significance needed in attention²⁸. Deutsch and Deutsch supported that filtering occurs later in the processing stream, after the verbal content of the message has been analyzed. They suggested that people can perceive many messages, but they can only respond to one (only shadow one). That response (shadowing) is performed according to a criterion, which could be either message content (semantic characteristic) or message source (physical characteristic). Thus, the bottleneck is not early in processing (e.g., selecting which channel to attend), but rather it's late in processing - at the point when the individual is preparing to make a response.

²⁶ Van Der Heijden, A.H.C. “Selective Attention in Vision”, pg. 239, Routledge, New York, 1992

²⁷ Neisser, U., “Cognitive Psychology”, New York, Appleton –Century-Focus, 1967

²⁸ Beneli Iris, “Selective Attention and Arousal”, California State University, Northridge, 1997, <http://www.csun.edu>,

The grounds of this theory derive from the assumption that all the stimuli the person acquires are perpetually analyzed at the highest level²⁹. Deutsch and Deutsch claimed that “almost every incoming message in a sensory register reaches the same perceptual and discriminatory mechanisms whether attention is paid to it or not; and such information is then grouped or segregated by these mechanisms”. And they move further by supporting that certain attributes of the incoming message/stimuli arouse discriminatory mechanisms, depending on the “weight” of the importance of the message/stimulus.

Based on this theory, Milton suggests that each message will reach the classifying mechanisms of the human brain whether attention is paid to it or not. More detailed, almost every received message reaches "the same perceptual and discriminatory mechanisms whether attention is paid to it or not; and such information is then grouped or segregated by these mechanisms".

Discriminatory (or classifying) mechanisms become excited by particular attributes of the incoming message depending on preset weightings of importance. The discriminatory mechanism with the highest weight will transfer this weight to the other classifying mechanisms with which it has been grouped or segregated. Since normally there will be activity in a number of classifying mechanisms, a "diffuse and non-specific system is necessary" which takes up a level, at any time, corresponding with the level of the 'highest' discriminatory mechanism.

This highest level sets a criterion by which all other levels are compared. Hence, only the discriminatory mechanism with the highest level activates the appropriate outputs (storage, motor response) and inhibits the outputs associated with the other discriminatory mechanisms. Consequently, for a low level of arousal (e.g. sleep), only very high level messages will be able to alter storage/motor response. This theory is named late selection theory.

²⁹ Deutsch, J. & Deutsch, D. Attention: Some theoretical considerations. *Psychological Review*, pg 85,1963

As every theory, this too, has been characterised as problematic from a number of scientists, who established their argument to the “simplistic” discrimination “early” and “late” selection. Apart from the lapsus lingue that may exist, this theory is up to nowadays the cornerstone and the basis for further research.

1.6 THE OTHER POINT OF VIEW?

Like every groundbreaking theory, the voices of reaction did not wait long before they shouted their objection towards the bottleneck/filter theory. More specifically, the opposing theories pointed out that unattended message must be proceeded more extensively than the theory would allow. The cornerstone of these theories was the fact that even when humans ignore or try to ignore a message, this message is recorded automatically and instinctively by the nervous system. Researches that followed and their outcomes used many more methods than audio stimuli. In fact they were more based on visual stimuli, which on the one hand could provide results that resembled the ones that derived from the researches that used auditory stimuli but on the other hand the visual stimuli allowed more accurate control over the phenomenon of attention.

The opposite point of view supports the hypothesis of the unlimited capacity of information processing, a hypothesis that was developed a couple of years after the previous one. This aspect has raised great debate between the scientists. Taking one more look at the previous thesis, derives that it is the limited capacity of the brain that requires a mechanism of selection for information processing. From this thesis algorithmically derives the “opposite one”: if there were not central capacity limitations for the processing of information, no selection would be necessary.³⁰

Thus, decoding the second thesis, I suppose that if there is unlimited capacity in information processing system, therefore all the messages, information and the stimuli that reach human beings, are all treated in the same way, they are all subjects of our attention, whether we want it or not.

³⁰ “If there were really sufficient machinery available in the brain to perform such analysis for every stimulus, and then to use the results to decide which should be selected, it is difficult to see why any selection at all should occur. The obvious utility of a selection system is to produce an economy in mechanism. If a complete analysis were performed even on the neglected message, there seem no reason for selection at all”, Broadbent, 1971, pg 127

Lately, a combination of elements of the two theories that mentioned above made its appearance. This hybrid theory points out that there is not the limited capacity, but the unlimited or too large capacity that imposes the selection of the incoming information. This aspect distinguishes two vital forms of selection:

1. The 1st structure of selection is needed due to the fact that there is one real “capacity” limitation: human beings have only a limited number of effectors. So there is a difference in capacity between the central information processing system* and the action system of effectors**.

2. The 2nd structure of selection is necessary since a selected action can be directed to only one among a number of simultaneously available objects at a time.” In most natural situations...there are however more potential targets to which a selected action can be directed”.³¹

The “struggle” between these two theories has dominated the researches that took place in the name of the attention for a number of decades.

To conclude, the gist of the debate was, and still is, whether the unattended stimuli that each human being receives are being processed or not. The “winner” of the fight seems to be the limited capacity theory since results from the past 10 to 15 years indicate, “perceptual selectivity is possible, at least to some extent”.³² The assumption that derives is that each thesis does not collide with the others, but there are differencing points that should be taken under consideration.

1.7 MILLER’S EXPERIMENT

George Miller, a famous psychologist of the past century, has expressed his opinion in connection with the limitation the human brain has regarding to the absorbance of information and the reaction to it, in his renowned article “the magic number 7 +/-2”.³³ (See Apendix)

³¹ Allport. D.A, „Selection for Action: some behavioral and neurophysiological considerations of attention and action In H. Heuer & H. F. Sanders (eds.), *Perspectives on Perception and Action*..“, pg. 395, Hildsale, NJ, Erlbaun, 1987

& Neumann, O. “Beyond Capacity: A functional view of attention”, Hildsale, NJ, Erlbaun, 1987

³² Pashler..H , “The psychology of attention”, Pg 5MA:MIT Press, 1998

³³ Miller George A. “The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information” *Harvard University* First published in *Psychological Review*, 63, 81-97,1956

George Miller expresses clearly his judgment, but not at the first place. Initially, he presents several experiments that take place. The aim of those experiments was not only to find out how many information / stimuli can the human brain accept, and therefore administrate but to declare and support the limitation the human brain has, regarding the amount of information it can accept and perceive. The objects of those experiments were elements that stimulated all the five human senses.

The general idea of the experiment is that the limit of the individual's capacities is the number 7, which means that no one can acquire, receive and process more than 7 elements of information at the same time. This aspect shows "the significance of the number seven as a limit on our capacities".³⁴

"Objects, faces, words, and the like differ from one another in many ways, whereas the simple stimuli we have considered thus far differ from one another in only one respect....The point seems to be that, as we add more variables to the display, we increase the total capacity, but we decrease the accuracy for any particular variable. In other words, we can make relatively crude judgments of several things simultaneously".

When attempted to add more information than the human brain could obtain, the persons could not pay attention to all of it, and therefore it could not had an accurate judgment. "The first point to note is that on patterns containing up to five or six dots the subjects simply did not make errors. The performance on these small numbers of dots was so different from the performance with more dots that it was given a special name. Below seven the subjects were said to suppose; above seven they were said to estimate. This is, as you will recognize, what we once optimistically called "the allocation of attention."

The allocation of attention is the reason that the theory of the limited capabilities of the human brain will be selected as the dominant theory. This theory will be accepted for this dissertation, since it includes the cornerstone of the meaning of the attention economy. The allocation of attention is the crucial issue of this dissertation and is the key word that leads to the Attention economy.

³⁴ Miller George A. "The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information" *Harvard University* First published in *Psychological Review*, 63, 81-97,1956

2. INFORMATION

Information has played a great role in the formulation of the world as it is today, not to mention the information “blow” that took place the last twenty years with the introduction of the new technologies in our everyday life. It is quite surprising to find out the wide range of ideas that people have about.

The difference of the definitions has to do with the elements that the term information each time is adorned. For example, a definition may occur from the point view that information is solid transfer of data or information may be conveyed by communication.

The most important reason for these so diverse definitions about information is the fact that information is intangible “good” and therefore can be encountered operationally, through its subjective effects.

One of the most favorable definitions about information is the one given by the “Guide to Concepts and Terms in data Processing”³⁵. According to it, “information is the meaning that a human expresses by, or extracts from, representations of facts and ideas, by means of the known conventions of the representation used”. This definition, supposed that the part of meaning is omitted, since it is also intangible, sets an important aspect: the known convention of the representations used.

What is actually information? This is a crucial question seeking for an answer. Information is neither an idea nor a sense and each one has a million times heard that human brain and their subunits processes information and performs a variety of activities with it. This is true actually, but it does not answer the question set above.

Information (should) always “embraces knowledge”; or at least this is the commonsense when a discussion over information occurs. But does always information contain knowledge? How many times each one of us has heard or better been informed about something that contained no knowledge, that could not add not the least to the already existing wide of our knowledge?

Information is a totally subjective thing, idea, good, notion. What could be information for somebody could mean absolutely nothing to another one and vice

³⁵ Gould, H.I., “Guide to Concepts and Terms in data Processing”, North Holland, Publishing Company, 1979

versa. Could this be decoded that information can only at specific circumstances and by certain conditions contain knowledge? Therefore, what comes out is that information contains some times the element of the knowledge but is not by any means synonym to it.

- i. A very interesting research talks about three kinds or even better three stages of information.³⁶
- ii. The first kind/stage of information is the difference, is the most elementary one and it is called “parainformation”.³⁷
- iii. The second is the hitherto called “juxtaposition-type” of information, another name for structural information. The second type of information cannot exist without underlying parainformation. Hence, structural information is a juxtaposition of the first kind of information.
- iv. The third kind of information, the “higher-order” information according to this survey, is the so-called “metainformation”.

The combination of these three subcategories is, according to the survey, information.

Another study of extreme interest is the one elaborated by David Israel and the late John Perry, under the title «What is Information?»³⁸. This survey is based upon an example of the everyday life and adjusts the principles of information to this example. Despite the fact that this survey very analytical and profound is, it still does not answer to the question of the title.

Etymologically³⁹, the earliest historical meaning of the word *information* in English was the act of *informing*, or giving form or shape to the mind, as in education, instruction, or training. The English word was apparently derived by adding the common "noun of action" ending "-ation" (descended through French from Latin "-tio") to the earlier verb *to inform*, in the sense of to give form to the mind, to discipline, instruct, teach. *Inform* itself comes (via French) from the Latin verb

³⁶ <http://www.bu.edu/wep/Papers/Cogn/Cognchmi.htm> ANDRZEJ CHMIELEC

³⁷ According to this survey, the carrier of this type of information can discriminate just two states, for example, “open electrical circuit” or “close electrical circuit”.

³⁸ Perry John, Israel David, “What is Information?”, *Information, Language and Cognition*, edited by Philip Hanson, Vancouver: University of British Columbia Press, 1990: 1-19

³⁹ <http://www.etymonline.com/index.php?term=information>

informare, to give form to, to form an idea of. Furthermore, Latin itself already even contained the word *informatio* meaning concept or idea, but the extent to which this may have influenced the development of the word *information* in English is unclear.

As a final note, the ancient Greek word for *form* was *eidos*, and this word was famously used in a technical philosophical sense by Plato (and later Aristotle) to denote the ideal identity or essence of something "Eidos" can also be associated with thought, proposition or even concept.

A synopsis of the definitions a researcher will meet is the following;

INFORMATION

- Knowledge derived from study, experience, or instruction.
- Knowledge of specific events or situations that has been gathered or received by communication; intelligence or news. See Synonyms at knowledge.
- A collection of facts or data: statistical information.
- The act of informing or the condition of being informed; communication of knowledge: Safety instructions are provided for information of our passengers.
- Computer Science Processed, stored, or transmitted data.
- A numerical measure of the uncertainty of an experimental outcome.
- Law: A formal accusation of a crime made by a public officer rather than by grand jury indictment.

Just like in the case of attention, there is indeed a definition, which is commonplace for the scientists in order to develop their own aspects. In the case of attention was James' theory, in the case of information the most renowned theory is the one developed by Claude Shannon and his co-worker Warren Weaver in 1949. It is often argued that due to the nature of their occupation⁴⁰, the theories they developed

⁴⁰ They worked for Bell Telephone Laboratory and Claude Shannon was a mathematician. Claude Elwood Shannon (April 30, 1916 – February 24, 2001), an American electrical engineer and mathematician, has been called "the father of information theory". Shannon is famous for having founded information theory and both digital computer and digital circuit design theory when he was 21 years-old by way of a master's thesis published in 1937, wherein he articulated that electrical application of Boolean algebra could construct and resolve any logical, numerical relationship. It has been claimed that this was the most important master's thesis of all time. Warren Weaver (b. July 17, 1894 in Reedsburg, Wisconsin d. November 24, 1978 in New Milford, Connecticut) was an American scientist, mathematician, and science administrator.

were based on mathematical models and were more applicable to fields that had to do with information theory and not so much to the communication theory. However, their model is until now one of the most used ones from scholars of all fields. The most renowned representation of their model that has to do with information is in the legendary book of Denis McQuail and Sven Windahl, “Communication Models for the Study of Mass Communication”.

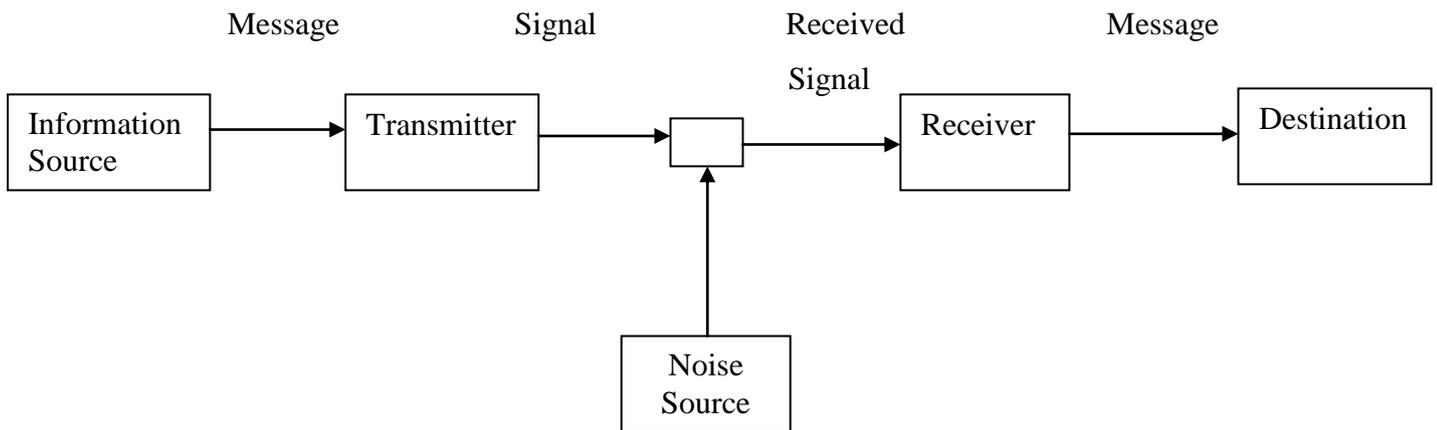


Figure 3 Shanon and Weaver

This model has undergone a lot of further developments during the years, in order to be adopted in various fields of the sciences but still remains the “favorite” model of communication theory regarding information. On the other hand, now, this definition needs to be re-examined and transformed in order to mach to the new state of things that the new technologies have brought to our lives.

2.2 CHARACTERISTICS OF INFORMATION

What are therefore these characteristics that could transform a simple series of words, vowels and consonants, numbers or signs to information, useful or not for us? There are a number of features that information must carry in order to fulfill its aim, to be named information. “About information technology”, gives us in the chapter “the quality of information” the features that are necessary. These are:

- i. Reliability and accuracy
- ii. Verification
- iii. Completion and precision

These three elements combine the so named “high quality status’ of information. On the other hand, low quality information has as characteristics the following;

- i. It can be deceptive and confusing
- ii. Incompatible to other information
- iii. Inconceivable and beyond understanding

Moreover, high quality information, beyond the general attributes that mentioned above, should contain a number of other elements according to the context it is placed in or according to the circumstances information is used. Hence, information should be current and up-to-date, easily accessible and precise.

According to a study, in which branch managers of a bank were requested to evaluate the attributes that influence the quality of information, in relation to their need, the first past the post element was content, second was accuracy, third was updated and other features followed.⁴¹

2.2 INFORMATION TECHNOLOGY REVOLUTION

Information, beyond a word and a definition, is a sense, a feeling that something has been known to us, something that is good for us, something that we learned from, something from which we have been benefited. At this point, the issue of the subjective nature of information arises; a piece of information that could benefit me, could be indifferent to you. That does not come in contrast with the fact that this is information. Therefore, in the everyday meaning, *information is the action of acquainting news or knowledge, useful for us*. Notwithstanding, a very important note about the definition of information should be here mentioned: information is in one sense something new. Therefore the inundating information that reaches us everyday is information only with the sense that neither was encountered it before, nor that it adds to our knowledge level.

⁴¹ Neumann Seve and Segev Eli, “A case study of user evaluation of information characteristics for system improvements’, *Information and Management*, pg 271. 1979

As mentioned above, the human brain has certain capability of information processing; consequently the amount of information that a person can perceive has a strict limit.⁴² This is how the human brain works, this is indisputable and beyond doubt. At the beginning of the last decade, when the new technologies have started to develop themselves with enormously fast pace, the term “information economy” was in the everyday agenda of the economic and communication scientist all over the world.

The fundamental rule is that each and every economy across the centuries is being dominated and named after this specific feature that is in most scarce, was probably not their first thought in order to talk about and even more to design new rules for this new emerging information economy.

The term “informational economy” has made its breakthrough in 1996, where the first volume of Manuel Castells’ trilogy, “The Rising of the Network Society” was published. According to Castells “a new economy has emerged in the last two decades on a worldwide scale. I call it informational and global to identify its fundamental distinctive features and to emphasize their intertwining. I call it informational because the productivity and competitiveness of units or agents in this economy fundamentally depend upon their capacity to generate, process and apply efficiently knowledge-based information.....it is informational and global because, under the new historical conditions, productivity is generated through and competition is played out in a global network of interaction. And it has emerged in the last quarter of the 20th century because the Information technology Revolution provides the indispensable, material basis for such a new economy. It is the historical linkage between the knowledge-information base of the economy, its global reach, and, the Information Technology Revolution that gives birth to a new, distinctive economic system”.⁴³

Decoding Castells’ point of view derives the result that the arrival of the new economy could be depicted at a simple equation. The elements of this equation are the following:

- i. Productivity drives economic progress

⁴² The limit applies to information that is being processed and not to these incoming stimuli that

⁴³ Castells Manuel, “The Rise of the Network Society. The Information Age: Economy, Society & Culture”, vol. 1, pg 77, Oxford:Blackwell, 1996

- ii. Productivity depends upon the capacity to generate, process and apply efficiently knowledge-based information
- iii. Productivity depends on information
- iv. Economic progress is driven from information

Therefore economic progress is based on information. The discussion at this point is placed upon pure economic basis; therefore the point of view of one of the most famous scholars of the economy would be of extreme use. What Peter F. Drucker thinks about “information economy”?

“The truly revolutionary impact of the Information Revolution is just beginning to be felt. But it is not "information" that fuels this impact. It is not "artificial intelligence." It is not the effect of computers and data processing on decision-making, policymaking, or strategy. It is something that practically no one foresaw or, indeed, even talked about ten or fifteen years ago: e-commerce -- that is, the explosive emergence of the Internet as a major, perhaps eventually the major, worldwide distribution channel for goods, for services, and, surprisingly, for managerial and professional jobs. This is profoundly changing economies, markets, and industry structures; products and services and their flow; consumer segmentation, consumer values, and consumer behaviour; jobs and labour markets. But the impact may be even greater on societies and politics and, above all, on the way we see the world and ourselves in it.”⁴⁴ Even if I agree or disagree with Drucker’s opinion, the aspect that I keep from it is that he too believes and supports the idea that the emerging economy will have little if nothing to do with information.

Given the circumstances that the discourse is based more upon economical growths, I should argue here that the term “informational Economy” is mostly based upon the “Information Technology Revolution”, is in fact a consequence of it. The history of the information technology revolution has become a commonplace and it is marvelous described at Castell’s “Rising of the Network Society”, but there are some points that are worthwhile to be mentioned.

⁴⁴<http://www.s-jtech.com/Peter%20Drucker%20-%20the%20Next%20Information%20Revolution.pdf> Peter Drucker - the Next Information Revolution

A very important distinctive of the ITR⁴⁵ is the fact that it took place only in a relatively limited geographic area. Even today, where the acquisitions of the new technologies have penetrated so much in the everyday life of the average west person, there are millions if not billions of people, who are totally unaware and uninformed of what telephone is.

The second point that has to be declared is that the ITR is relatively new; according to Castells, the ITR consists of three crucial innovations⁴⁶, with the first to have started at 1947. Nevertheless it was not until 1970's that the revolution was a reality out of the university laboratories. The term relatively new refers at this exact date, in which from that point on and until early 90's the IT has generated totally new perspectives to a new state of things. Manuel Castells has noted, "Technological revolutions are all characterized by their pervasiveness that is by their penetration of all domains of human activity, not as an exogenous source of impact, but as the fabric in which such activity is woven."⁴⁷

2.3 INFORMATION OVERLOAD

One of the most important "laws" that dominated and still dominates the Informational technology revolution is Moore's law, originally expressed by Gordon Moore, chairman of Intel, a pioneer company in computers and electronics in general. Gordon Moore made his famous observation in 1965, just four years after the first planar integrated circuit was discovered. The press called it "Moore's Law" and the name has remained yet. In his original paper, Moore observed an exponential growth in the number of transistors per integrated circuit and predicted that this tendency would continue. Through relentless technology advances, Moore's Law, the doubling of transistors every couple of years, has been maintained and still holds true today.

⁴⁵ Information Technology Revolution

⁴⁶ The first one took place at bell laboratories in Murray hill, in 1947 and was nothing more than the invention of the transistor. The second and extremely important step was performed by an Intel engineer in 1971, named Ted Hoff. Ted Hoff invented the microprocessor, which is a computer on a chip. Third and most important step was the launching of Personal computer PC at the beginning of the 80's by IBM.

⁴⁷ Castells. Manuel, "The Rise of the Network Society. The Information Age: Economy, Society & Culture", vol. 1. pg 29-31, Oxford:Blackwell, 1996

Intel expects that it will continue at least through the end of this decade⁴⁸. The same law could have affect and for information, and more precisely for information processing. According to Castells, “the average cost of processing information fell from \$75 per million operations in 1960 to less than on hundredth of a cent in 1990”.⁴⁹

Decoding this statement derives the conclusion that information becomes less and less expensive as the years go by. But the cost of information is not the point; it is just indicative of the scarcity of information. Every economic law from ancient years until now appreciates highly the object/feature that was most uncommon/ rare. Information was indeed one of the scarcest goods, but this period has expired with the rising of the information technology revolution, in the early 70’s. The 80’s meant the arrival of information as an everyday good. With the personal computer being a sine qua non element of every common household, with the television devices to gain “at last” their own place in each room of every house, the creation of colossal television networks that their only program was broadcasting news, the information era was there. This excessive supply of information had as a consequence the so-called information overload.

This term was “invented” earlier, in 1970 by Alvin Toffler and was first presented in his best-seller book “Future Shock”⁵⁰. He claimed that the most important characteristic of our present society is the incredible speed with which it changes. Whether things evolve in a positive or in a negative way, change itself constitutes a problem and in his detailed study of the acceleration of change and its psychological effects suggested that it would lead to a set of severe physical and mental disturbances, which he called the “future shock” syndrome. Just like people exposed to war or disaster may develop a nervous breakdown (“shell-shock”), people exposed to the rapid changes of modern life may develop a state of helplessness and inadequacy.

Almost 35 years after, a recent article in the “New Scientist” claimed that exposing individuals to an information overloaded environment resulted in lower IQ scores than exposing individuals to marijuana although these results are contested. The same article also notes that a night without sleep can be as debilitating as over-

⁴⁸ <ftp://download.intel.com/research/silicon/noorespaper.pdf>

⁴⁹ Castells, Manuel, “The Rise of the Network Society. The Information Age: Economy, Society & Culture”, vol. 1, pg45, Oxford:Blackwell, 1996

⁵⁰ Toffler Alvin, “Future Shock”, Bantam,1984

exposure to information. Information, as it turned out, not only was not scarce, but it was in overabundance. This was a fact that it started to reach the dimensions of a problem with the arrival of the new technologies and especially the Internet and the World Wide Web.

At the mid 90's, when the problem had started to be realized, was the first time than "information overload" was first heard. From that point on, the problem is in the everyday agenda of all the Mass Media, including the ones, which cause the problem. Additionally, it has nicknames such as "information glut", "information smog", "infobog", etc. Although it has been presented as a problem of that modern individuals face, it is ironic that it affects only the persons that are "lucky" enough to have a job and/or to interfere with technology in the everyday communication. It is ironic, that this problem cannot reach and 'harm' 50% of the earth's population, since this percentage has never in its entire life attempted a telephone call. Under these circumstances, these underprivileged people could consider themselves extremely lucky when compared to all the west civilization people, who "suffer" from overinformation.

According to the article "Perspectives on Information Overload," there are five causes of information overload⁵¹.

- i. The sheer volume of information available
- ii. The convenience of information access (due, in large part, to continuing developments in technology).
- iii. The diversity of information available.
- iv. The continuing trend of interdisciplinary research.
- v. The fact that more searching is being done by end-users (not professionals).

Richard Wurman claimed that "The information explosion didn't occur solely because of an increase in information. Advances in the technology of transmitting and

⁵¹ Holtham, Clive and Nigel Courtney. "Perspectives on Information Overload." *Aslib Proceedings* 51, no. 8 (Sept. 1999), pg 249-256. In UMI Proquest Digital Dissertations [online database]. Proquest Information and Learning Company. Accessed through UBC Libraries.<<http://www.library.ubc.ca>>

storing it are as much a factor. We are affected as much by the flow as by the production of information”⁵²

2.5 ALLOCATION OF ATTENTION

Doris Graber states that “the first step in acquiring information for processing and formulating opinions is attention arousal.”⁵³ How many times have you glanced at an advertisement or a paper and not remembered anything from it? Or heard a radio broadcast in the car, but not really heard a single word of it? When a person selects a piece of information, for whatever reason, it has aroused attention.

Since not every article in a newspaper or on the Internet is of interest to the reader, one is able to use selective attention⁵⁴. Generally, people are actually quite good at using this technique. If information is repeated, one tends to ignore it. As well, interests dictate what a person will pay attention to, and what will be filtered out. Selective attention is, essentially, ignoring all but what is of use or interest to a person.

Information plays a great role in the creation of attention since, on one hand it affects and on the other it stimulates it. Every human being pays attention to information he finds intriguing and he neglects information that seems obsolete and not interesting. But what happens nowadays when the average person is bombarded each and every minute with tones of useful and/or useless information? The entrance to the world of the “Information revolution” a revolution that according to Peter F. Drucker⁵⁵ is going to change the world as radical as once did the industrial revolution is already done.

The consequences of this “information Revolution” will be of great importance, this time for each human being as an individual. The importance of this new type of revolution is deep and profound. This case has bothered a lot of prominent academics and this problematic is extremely well depicted in the scripta of the late

⁵² Wurman, Richard Saul., “Information Anxiety”, pg47, New York & Toronto:, Doubleday, 1989

⁵³ Graber, Doris A. “Processing the News: How People Tame the Information Tide”, pg 23, 2nd ed. New York & London: Longman, 1988. Green, Leila. Communication

⁵⁴ Biggs, Mary. “Information Overload and Information Seekers: What We Know About Them, What to Do About Them.” pg 411-429, The Reference Librarian 25/26 , 1989

⁵⁵ Drucker Peter. F., “Managing in the Next Society”, St. martin’s Press, New York, 2002

Michael L. Dertouzos⁵⁶ and Manuel Castells⁵⁷. The information revolution is the great and most important of all and it will be treated here as a consequent of the new media technologies. The term “Informational revolution” has been introduced in the middle ‘70’s and started to gain ground from the emerging of the new informational technologies.

It is an unquestionable fact that the informational revolution was, as mentioned above, the most concrete outcome of the INTERNET, the leading medium of the informational technology. Never before the humanity in its all has confronted so much information in a glimpse and, if compared with the Gutenberg’s revolution is far more pervasive. This kind of revolution has demolished book from its #1 place as the dominant medium of information and has won its place.

Information that could be spread through the Internet and could reach every one was at first a reality that set off extreme curiosity for the new and the unknown. It was the greatest turn in the history regarding knowledge, information and the access to them. For the first time such a medium was in the public’s disposal, with no other prerequisites than a modem and a telephone line⁵⁸. A whole new and mysterious world was lying in front of every screen calling for the greatest human feature, the one that progress ought its existence, curiosity.

Once curiosity was fulfilled, the real need for information acquaintance made its appearance. And the Internet -with all the progress it has be done through the last decade- could serve all different needs of information instantly and accurately. The constant introduction of communicative systems adds to the information glut, since new technology has not in any case displaced the old.⁵⁹

The problem has started to occur when information was not sought after but when it was the one that sought for an audience. I could place this time point at the beginning of the millennium where the Internet consisted of several millions of web

⁵⁶ Dertouzos Michael. L., “What will be:How the new world of Information will change ourlives”, HarperOne;FirtharperCollins Pbc, Ed 1998

⁵⁷ Castells, Manuel, “The Rise of the Network Society. The Information Age: Economy, Society & Culture”, vol. 1, Oxford:Blackwell, 1996

⁵⁸ We take for granted the PC existence

⁵⁹ The advent of e-mail, pagers, cellular phones, video conferencing, chat rooms and discussion groups did not replace snail mail, telephones, answering machines, faxes and voice male. They are all added together.

pages. Of course the human need for answers to questions, which could be translated into the term «information», was the one that moved the world from the ancient Greeks until now and will be the fuel for every single progress that will ever take place.

On the other hand, the amounts of information available reached the amounts of overinformation, and in philological terms the prefix “over” bestows a negative meaning to the word. Such a case is the overinformation. The amounts of attention every human being has and can dispose are, as seem before, from definition limited. “Large though the brain is, any conceivable mechanism, which could cope simultaneously with all possible states of the eye, the ear and other receptors, would probably be even larger. The workings of the nervous system then are likely to incorporate a good many devices aimed at economizing an the mechanism necessary held that the limited capacity portion of the nervous system was preceded and protected by a selective device or filter, which would pass only some of the incoming information”. The limitations of the attention each human possess are de facto limited and become more limited every day since in daily basis the human brain is bombarded with huge amounts of information. “A weekly edition of the New York Times contains more information than the average person was likely to come across in a lifetime in seventeenth-century England”.⁶⁰

According to scientists, the human organization exists in an environment containing many different sources of information. It is patently impossible for the organism to process all these sources, since it has a limited information capacity, and the amount of information available for processing is always much greater than the limited capacity. Therefore the organism must process information selectively.

Of course another differentiation regarding attention has to be made and given regarding the meaning of attention. Therefore, the differentiation will take place as seen before between conscious und unconscious attention⁶¹. The term conscious and unconscious attention in this semantic field has the meaning of the selective activity of

⁶⁰ Wurman, Richard Saul. *Information Anxiety*. New York & Toronto: Doubleday, 1989.

⁶¹ Another name for the “controlled vs. Automatic processing model” Schneider W, Shiffrin RM, “Controlled and automatic human information processing: I. Detection, search and attention”, *Psychological Review*, 1977

the mind, always at work whenever we are conscious of something.⁶² Moreover, the humans may realize that they pay attention to several stimuli but on the other hand they may not realize the fact that they pay attention to stimuli they do not realize. The term “stimuli” can conclude a great number of things, but what interest us are information and the feelings that cause the human attention.

The attention of the human beings could be depicted as a communicative model including a number of very concrete factors. These are:

- i. The person itself,
- ii. The attention apothegms the person has,
- iii. The stimuli it receives
- iv. Information receiving capabilities of the person
- v. The feedback of the person to few stimuli

The point that the reaction of the person to one stimulus meets the stimulus is the attention of the person.

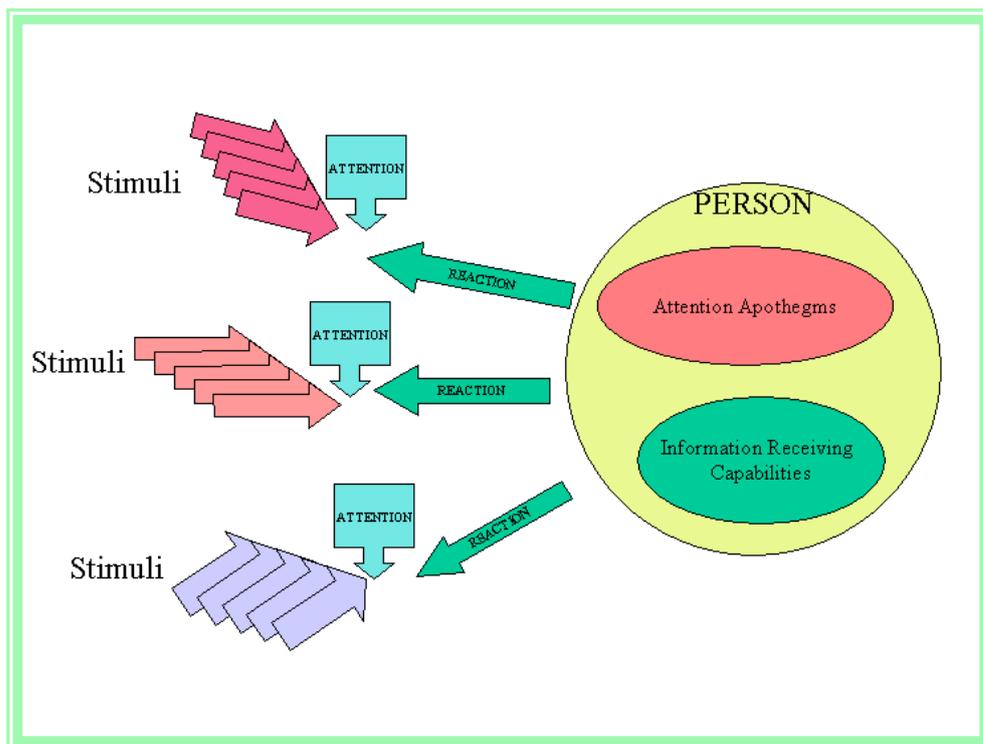


Figure 4

⁶² Calabi. Clotilde “The choosing mind and the judging will”, pg 169, Peter Lang, 1992

The moment when the reaction of the people reaches the stimulus that has caused this reaction then we have the phenomenon of the attention. (Of course, this reaction is caused and affected by several factors. Additionally, reaction can be either conscious or unconscious).

The most important reason that has led to the allocation of attention is the overinformation. An attempt to depict the analogy between attention and information is shown to the diagrams that follow:

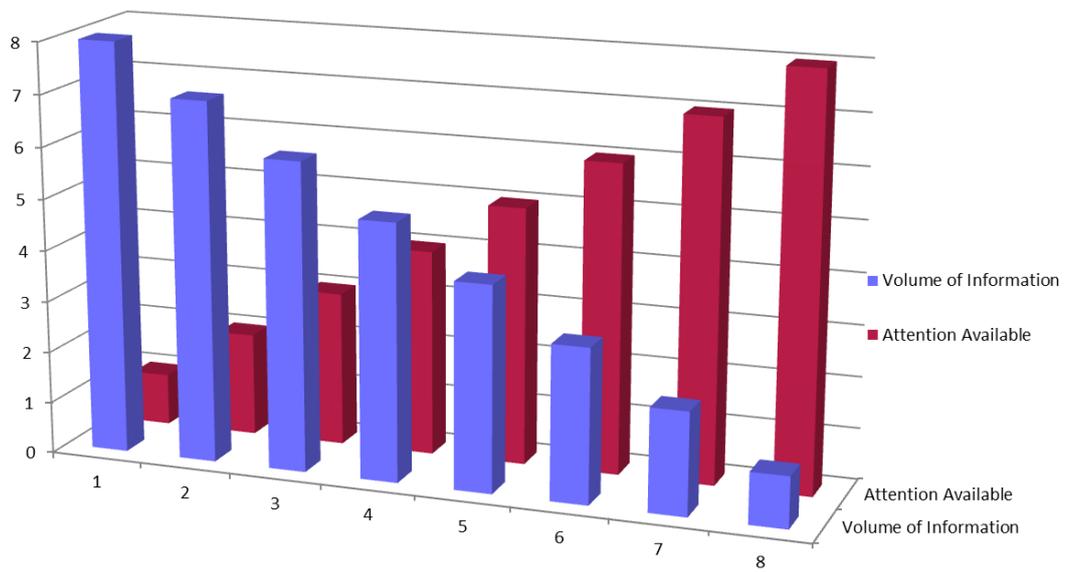


Figure 5

The diagram in figure five depicts the relationship between attention and information. The horizontal axon indicates information whereas the vertical axon indicates attention. The attention line moves in a different way than the information line, that means that where the attention line is high the information line is low and the opposite. The exact outcomes results and from the representation in figure six. The two constituents, attention and information have a non-analogous development. When gathering of information is high the available attention from the humans is low and the opposite: when there is a little amount of information, then the concentration and the attention from the individuals grows radically.

In simple words, the bigger the amounts of information a person receives, the less attention is able to pay to them. Since there is little attention available for each task or each piece of information, the phenomenon of allocation of attention occurs. The medical definition for this phenomenon is: “the length of time you can concentrate on some idea or activity”⁶³. Apart from its medical meaning, allocation of attention is another name for the broken into pieces attention from the extreme amounts of information. The lack of concentration to a simple task is many times the consequence of the overinformation, which has the ability to distract thee attention from the desired goal.

The result is: glimpses of attention are available for every task that needs to be performed, limited ability to select the appropriate information, since it is many times impossible due to the extreme growth of it, and attenuating concentrating capabilities.

All the above-mentioned consequences from the information overload, led to the conclusion that what the humans need are bigger attention apothegms. Since this is a priori impossible, attention is being treated as a scarce characteristic, limited and in short supply, all these necessary traits that transform an everyday notion to treasure.

All we need is attention?

⁶³ www.hyperdictionary.com/dictionary/concentrate

2.5 HEADING TOWARDS ATTENTION ECONOMY

The importance of information could not be at any cases or under any circumstances downgraded or underestimated. I actually believe that information is something very precious and I am appreciative for being so much information available. But nowadays a person may come across extreme difficulties trying to find the appropriate information for the purpose he wants it. “One of the great ironies of the information age is that as the technology of delivering information becomes more sophisticated, the possibility that we can process it all becomes more remote”.⁶⁴

Information has also an amusing nature and a company-keeping character. There are so many persons that they enjoy themselves by surfing the Internet (the most extensive means of communication nowadays). This same action has been proved a very good friend for lonely people.

The ancient Greeks had a saying that has helped them to reach perfection; Miden Agagn, “all done up to needed”. Unfortunately, in the case of information the right analogies do not exist anymore. Paraphrasing one of the most known expressions ever-stated regarding Mass Media and Communication, “we are informing ourselves to death”.⁶⁵ This statement is not far beyond reality. There is a growing concern that information overload may be contributing to employee health problems. In order to determine the extent of the problem, Reuters Business information conducted a survey of 1,300 managers. They published startling results in an October 1996 report. “One in four managers admitted to suffering ill health as a result of the amount of information they have to handle. Moreover 2/3 managers said that stress from information overload increases tension with colleagues and lowers job satisfaction”⁶⁶.

The outcome is that indeed, information is too much. Therefore, no information economy can exist, based upon the rule that the element in scarcity defines the nature of the economy. On the other hand, attention is in scarcity; this could be translated that the new emerging economy is the one of the “Attention Economy”.

⁶⁴ Wurman, Richard Saul, “Information Anxiety”, New York & Toronto: Doubleday, 1989.

⁶⁵ Postman Neil who was chair of the Department of Culture and Communications at New York University, in 1990, claimed that we are informing ourselves to death. He argued that the development of computer technology is not as positive as it has been heralded to be. With our focus on technology, we are forfeiting our humanity. We are drowning in information that contains empty promises of improving our lives. Postman Neil, “Amusing Ourselves to Death: Public Discourse in the Age of Show Business”, Penguin (Non-Classics); 1 edition, 2005

⁶⁶ www.sims.berkeley.edu/academics/courses/is206/f97/GroupE/infoglut.html

The term “Attention Economy” may sound new but it is actually relatively old, according to scientific time, for the scientists of the communication and mass media fields. In fact, this term is more than 10 years old. Attention economy is itself a very interesting hence a phenomenon of extreme complexity.

3. INFORMATION RULES?

Information, apart from philological/terminological point of view, has also “functional” role, meaning, to realize and apprehend better the reasons that such a precious “good” as information has “abolished” its value and significance and has become instead of valuable worthless.

Information followed the rules of the rise and fall. If it could be depicted from a diagram, it would have at the beginning a top-up rout, it would reach the highest level and after that, a radical top-down route.

During the ascendant course that information had, it is worthwhile to say that it controlled, governed and dominated everything. Its impact was profound not only in the everyday life but in economy and other scientific fields. So profound was the power of information that Carl Shapiro and Hal Varian claimed that “Information Rules”⁶⁷, but that in 1998. Indeed, information ruled, but when?

The most obvious answer to this question is that information ruled when it had, as mentioned before, worth, in the case of information when it could be highly, not only appreciated but also, priced. Information was highly priced when little access to it was available. In other words, information was or had been high estimated when each and every one of us had to pay for having access to it.

The example of the decline of the newspapers sale (the, by nature, medium of information) will be used in order to realize better the connection with the price. In order to do so, I will mention a paradigm from my country, Greece, which could apply with small alterations to almost every country.

In Greece the dual television system had started at the 15th November 1989. Until then, in the Greek television scenery existed only with two public television channels. The newspapers, reached its circulation peak just before the date of the beginning of the free television in Greece. Each channel represented the point of view of one or more newspapers that had to do with the political scenery, not to mention the power of picture, which was fascinating.⁶⁸ From that point on, the readability of the newspapers in Greece had rapidly declined. The most significant reason for such a decline in the sales of the

⁶⁷ Shapiro Carl, Varian Hal R., “A Strategic Guide to the Network Economy”, Harvard Business School Press, Boston, Massachusetts ,1999

⁶⁸ It is worthwhile to mention that Greece at this period of time was undergoing its major political crisis, since three political elections in a row just between a year took place.

newspapers is the fact that television offered every piece of information available in the newspapers but it offered it free of charge, since change is only for the public television.

Instead of spending every month a significant amount of money in order to acquire information a person finds important, it could be obtained in a compact and depicted form through the television channel of his own preference, and most important, for free.

This new situation lasted about 5 years. Newspapers tried various “tricks” to lift their readability, but it was of no use. Free television has absorbed all the former readers. The result was that the “central news” broadcasting was growing in information and as a consequence in time. From 15 to 20 minutes at 1990, it ended in 1999 to last for more than 2 hours, from 19 to 21.15, not to mention the numerous advertising breaks. Of course, such duration could not be supported only by news and as a consequence, the news broadcast transformed itself from a pure informative “broadcast” to the ultimate infotainment⁶⁹ show. The viewers were confused since what was before the 15 minutes information broadcast, turned to be a mix-match, amalgamated television show, which consisted a little bit of all the kinds of shows.

This situation was unbearable for the majority of viewers from the length point of view, since they could not by any means, watch marathon central news, and they turned again to the newspapers.

Unfortunately, the newspapers did not examine well the paradigm of free TV and started to add to the main newspaper corpus, numerous magazines and other informational material, which raised dramatically the cost, not to mention their weight. They included apart from the main paper, TV program, a lifestyle magazine, an amusing magazine, a literature magazine, a sports magazine, a hunting magazine, a music magazine, a music Cd, a food recipes DvD, a movie Dvd etc. The result turned out to be that the Sunday newspapers ended to weight more than 2 kilograms and to cost more than 5 euros.

⁶⁹ **Infotainment** (a portmanteau of information and entertainment) refers to a general type of media broadcast program which provides a combination of current events news and "feature news", or "features stories. The infotainment concept is taken to its logical extreme by the increasingly ubiquitous "infomercial", which is blatant, thinly disguised advertising presented as though it were infotainment. This is not the same thing as Home Shopping, which doesn't attempt to disguise its real purpose. This technique can be quite insidious, depending on the skill of the presenter, and his/her ability to seamlessly transfer focus from the lead topic to the advertising.

Consequently, the managers and the directors of the free TV channels decided, at the beginning of 2002 to reduce the length of the central news show to one hour, which was a much more acceptable duration for the viewers, but it was in any case quite a long show, since you have to undergo all the stuff that it will be broadcasted in order to watch the news that is important to you.

Alas, no proposal like this took place in the meeting rooms of the printed type managers, and newspapers continue their extreme inclusion of useless for the most of their readers' additional issues. The readers, on the other hand, do not seem to be "touched" from the "generosity" of the newspapers, they are actually disheartened and instead of being keener on buying the paper in order to benefit from all the additional issues it includes, they clearly show their dissatisfaction by not buying it at all.

On other factor that has led to the decline of the sales of the most traditional medium of information, the newspaper is the actual fact that each newspaper has its own web page. What would be more convenient for the individuals looking for information to quench their thirst, than from entering the web page of the paper of your preference and read the columns and the articles of your interest? Additionally, there is no need to restrict yourself in only one paper, since you could just load the web pages of almost all the papers available, and to inform yourself globally and objectively without having to pay for it and with the luxury to do it anytime you favour.⁷⁰

The entrance of the World Wide Web and the Internet in our everyday live, especially in the fields of news and information⁷¹, has radically transformed the scenery of the press, as we knew it.

The television scenery has become more and more complex, since new channels kept on emerging, under the vision of offering the viewers another prospect, but it turns out that it is much more the same as the previous ones. News is always news and what actually alters is the anchormen and the order the news are presented. Not to mention the fact that old information is very often "baptized" as new and is being dressed up the cloak of the important and useful.

Unfortunately, "old" information is of no such use and importance, actually, in the words of Hal Varian and Carl Shapiro, "information is like an oyster; it has its greatest

⁷⁰ Exceptions always exist

⁷¹ Information in the meaning of news

value when it is fresh”.⁷² This statement is so very true in all the fields that information is applied, from economy to television etc.

The viewers and/or the readers are bombarded with all this information which they cannot handle and therefore cannot attend. It is impossible to keep in your head all the news that the gatekeepers of the channels or the newspapers regard as important, it is confusing, of not use and indeed a waste of time and money, according t the old saying “time is money”.

I used this paradigm that I have myself experienced in order to show in a more actual way information overload the humanity undergoes/experiences today. Even the ones that claimed that “Information Rules” had in their minds that apart of the economics of information, what follows may be the economics of attention.⁷³ Varian and Shapiro, at the beginning of their epic, smash hit book, make a comment about information overload, and claim that nowadays where information is directly and quickly obtainable and accessible, everyone is complaining about information overload and go further by stating that the problem, in contrast with the previous years is not the access to the desired information but the opposite, the excess and the overabundance of information. Since they too argue that a problem with the exceed of information indeed exists, then this dissertation has a point in trying to find out the economics of attention.

3.1 NEW ECONOMY AND GOODS SALES

Since the late 70's we are entering in a whole different economical status than the previous materialistic capitalism. When Daniel Bell in 1973 wrote the book “*The Coming Of Post Industrial Society*” the new economy was moving at an accelerated pace to its zenith.

The term “new economy” is about the declination of the produced commodities and the rise of services as selling product/ manufactured good.

⁷² Varian Hal. R & Shapiro Carl, “Information rules: A Strategic guide to the Network Economy”, pg. 56 Harvard Business School Press, Boston, Massachusetts, 1999

⁷³Varian Hal. R & Shapiro Carl, “Information rules: A Strategic guide to the Network Economy”, pg. 6 Harvard Business School Press, Boston, Massachusetts, 1999

One of the most important features of the new economy is its network nature. In contrast with what was believed in the past, being part of a network, which is designed so as to increase the common aims pledges more guarantees for success.

Five types of networks can be recognized in the new network economy:

1. Providers' networks⁷⁴
2. Producers' networks⁷⁵
3. Customers' networks⁷⁶
4. Usual consortiums⁷⁷
5. Networks of technological collaboration⁷⁸

The first thing that has to be realized concerning the new economy is that it leads and is being leaded from an accelerated speed of the technological innovation. The productive procedures, the equipment, the goods and the services become obsolete. Hence long-term possession is less welcomed when short-term access is the most frequent choice. The speed of the innovation and the life of each product spell the laws of the new economy. ⁷⁹

The new economic era has given emphasis to the third sector of economic procedure: services. Moreover, products' material nature is of less importance and they are transformed to non-material, insubstantial services. The manufactured goods lose the product character and they alter themselves into services.

The product itself is replaced from a service and the ownership of the product is being replaced from the access to it. What is important is having access to the service the product offers than owning the product. Most of the consumers do not buy a product

⁷⁴ The ones, the companies "hire" so as to produce a wide variety of projects, from design to spare of products, Rifkin. J, "*The Age of access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience*", pg 43 J. P. Tarcher;, March 2001

⁷⁵ They are made of companies which they join their "forces", so as to expand in place and to reduce the risk of a failure, Rifkin. J, "*The Age of access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience*", pg 43 J. P. Tarcher;, March 2001

⁷⁶ They get together producers, distributors and final users, Rifkin. J, "*The Age of access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience*", pg 43 J. P. Tarcher;, March 2001

⁷⁷ They join companies in one, in order to benefit each other from the technological equipments the other companies have, Rifkin. J, "*The Age of access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience*", pg 43, J. P. Tarcher;, March 2001

⁷⁸ They allow the companies to share valuable knowledge as far as the research is considered, Rifkin. J, "*The Age of access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience*", pg 43 J. P. Tarcher, March 2001

⁷⁹ Gordon Moore was engineer and founder of the Intel, has early foreseen that the force of treatment of completed circuits of the PC would be doubled every 8 months, while their production cost would remain the same it would be decreased.

for what the product is but for the service the product offers. The value of the goods is being appraised by the access into services they offer.

Additionally the nature of the services is being altered. They can be defined as long-term relationships between providers and clients. The new spirit in the economy as we knew it is not selling as more items of a product to many customers but selling as more products you are able to one customer-a wide range of products, a wide space of time and through them a variety of services.⁸⁰ That is the gist of creating a relationship with clients.

Since the product is now the service and the experience accessed through it, the companies do not care to sell products to their clients but services. The most appropriate method to do so is to give the product for a small fee or even for free, and to charge for the services. The main idea is to use the platform of the product as a bridge between the company and the customer. This link enables the company to start a long-term connection of service offer with the customer. This form of relationship comes along with the advertising of the product or the services as a supporting tool, since advertising it is currently weakened to perform the maximum.

The idea of creating a personal and even close relationship with the customers means that you pay back the attention they pay you. Each one of us is fond of being paid attention from others. So there is a kind of a strategy in paying attention to the customers, a strategy that is very often used by the advertisers in the attention economy.

The issue is to assess which are the right procedures that will conclude to a successful advertising policy in the attention economy.

3.2 PROPERTY IN ATTENTION ECONOMY

What is the role of money and property in the attention economy? Will money have the same importance in the attention economy as before? Will property remain of the same significance? Michael Goldhaber states that, "...in the new economy attention

⁸⁰ Peppers Don, Rogers Martha , *"The One to One Future: Building Relationships One Customer at a Time»* Currency/Doubleday, January 1997

itself is a property” and continues with, “...in a pure attention economy money has no essential function, no real role to play”⁸¹.

Economy is going through a transitive period from a monetary economy to the attention economy. Of course, the currency of the previous economy, in our case, money, in order not to be misunderstood, will not be lost and in no case will abolish its worth and its significance. The term “currency” in this case is used allegorically.

Attention economy will include in its laws the currency of money and attention will move, at least at the first steps of the new economy, side by side with money. “In other words, money flows along with attention, or, to put this in more general terms, when there is a transition between economies, the old kind of wealth easily flows to the holders of the new”⁸².

Within the next few years, when the attention economy will find its natural environment, the Internet and the Web, the role of money will be of less importance since everything will flow through the Net and money unfortunately, due to its material nature, is impossible to do so. “There is something else that moved through the Net, flowing the opposite direction from information, namely attention”⁸³.

What is therefore the relationship between money and attention? “That is, getting attention is not a momentary thing; you build on the stock you have every time you get any and the larger your audience at one time, the larger your potential audience in the future. Thus obtaining attention is obtaining a kind of enduring wealth, a form of wealth that puts you in a preferred position to get anything this new economy offers”. It is clear that attention will be the currency of the future, in the sense, that it will have the power to obtain everything.

Attention economy is, from communicational point of view, met in every mass media, from analogous to the new digital media. Attention economy is a new form of economy and therefore, is more applicable to the new media. The term “new media” is

⁸¹ Goldhaber Michael, “The attention economy and the net: the natural economy of the net” http://www.firstmonday.org/issues/issue2_4/goldhaber/

⁸² Goldhaber Michael, “The attention economy and the net: the natural economy of the net” http://www.firstmonday.org/issues/issue2_4/goldhaber/

⁸³ Goldhaber Michael, “The attention economy and the net: the natural economy of the net” http://www.firstmonday.org/issues/issue2_4/goldhaber/

translated into the Internet and its parameters, though Web and the Cyberspace, the environment into which, according to many scientists, the humanity will live its life.

It is unquestionable that the Internet will dominate our of lives, to be more specific every aspect of life, from commerce to entertainment.

3.4 ATTENTION ECONOMY

“...in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious. It consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate attention efficiently among the overabundance of information sources that might consume it”.⁸⁴ Herbert Simon, the famous scholar, gives with this renowned phrase the perfect basis for the attention economy.

Attention Economy: a phrase that reaches the ears of more and more people everyday. What does the everyday person understand and realize when hearing this term? The meaning and the dimensions of economy have been clarified at the first part of the second chapter. Attention in front of economy may sound puzzling and confusing as a meaning.

Attention economy is a relative new term for the public/audience and it is natural that its hearing is still dazzling and puzzling. The first meet with the term attention economy was in 1994 with Richard Lanham, and was soon followed by Michael Goldhaber with his famous articles at the web journal, “First Monday”. But it was Georg Franck that triggered off the scientific discussion regarding attention economy. At the famous 1995, discussion about attention economy he and Dorothea Franck, started to approach the core of the idea, setting the framework for further research⁸⁵. He stated that “nothing seems to attract attention more than the accumulation of attention income, nothing seems to stimulate the media more than this kind of capital, nothing appears to charge advertising space with a stronger power of attraction than displayed wealth of earned attention... The solution to the riddle of the miraculous increase in prominence lies

⁸⁴ Herbert. Simon, "Designing Organizations for an Information-Rich World", in Martin Greenberger, *Computers, Communication, and the Public Interest*, pg 40-41, Baltimore, MD: The Johns Hopkins Press, 1971

⁸⁵ Franck Doro and Franck Georg on: The Economy of Attention, Public Netbase 02.06. 1995.

in the media's ability to collect and deliver the critical quantities needed to run gathering attention as a mass business. If the attention due to me is not only credited to me personally but is also registered by others, and if the attention I pay to others is valued in proportion to the amount of attention earned by me, then an accounting system is set in motion which quotes something like the social share prices of individual attention. What is important, then, is not only how much attention one receives from how many people, but also from whom one receives it - or, put more simply, with whom one is seen. The reflection of somebody's attentive wealth thus becomes a source of income for oneself... No attentive being has direct access to the world of another being's attention. By receiving another being's attention, however, the receiving one becomes represented in that other being's world... Applause may, of course, sometimes come from the wrong side, and it may sometimes be the wrong side which is noticed. But if caring attentiveness comes from people whom we esteem, and if we receive it for qualities of which we are proud, there can hardly ever be too much of it”⁸⁶.

Travelling in the past, at the beginning of economic history there is a treasure to be found. Adam Smith, the founder of economic science at his first book he stated: “To be observed, to be attended to, to be taken notice of with sympathy, complacency, and approbation, are all the advantages which we can propose to derive from it. It is the vanity, not the ease, or the pleasure, which interests us. But vanity is always founded upon the belief of our being the object of attention and approbation. The rich man glories in his riches, because he feels that they naturally draw upon him the attention of the world, and that mankind are disposed to go along with him in all those agreeable emotions with which the advantages of his situation so readily inspire him. At the thought of this, his heart seems to swell and dilate itself within him, and he is fonder of his wealth, upon this account, than for all the other advantages it procures him. The poor man, on the contrary, is ashamed of his poverty. He feels that it either places him out of the sight of mankind, or, that if they take any notice of him, they have, however, scarce any fellow-feeling with the misery and distress which he suffers. He is mortified upon both accounts. for though to be overlooked, and to be disapproved of, are things entirely different, yet as obscurity covers us from the daylight of honour and approbation, to feel

⁸⁶<http://www.heise.de/tp/r4/artikel/5/5567/1.html>

that we are taken no notice of, necessarily damps the most agreeable hope, and disappoints the most ardent desire, of human nature”⁸⁷.

One of the main reasons for the lack of attention is the information glut. As seen above, the Sunday New York Times contains more factual information in one edition than all the written material available to a reader in the 15th century. Information does not appear or exist only in the form of news, words and pictures. Information comes along with all the products that occur, products that demand our attention in order to be held in our memory and perhaps satisfy their purpose, to be sold and consumed. This too has led to a division of attention of the consumers, which is another cause for the “construction” of the attention economy.

The term “attention economy” suggest, when first heard, that a new type of currency has replaced of the currency of the previous economic state, in our case, money. This new emerging economy suggests that attention is a new kind of exchanging good. Is the new emerging economy similar to the previous one? If not what are the differences between them? Will attention have the exact role that money played in the previous economy?

Limitation of attention along with information overload has lead to a new kind of economy, totally different from any other kind of economy since the motivation force in attention economy is a feature that from the very first sight is characterized as an idea, a human function that is far apart from the tangible goods that motivated previous kinds of economies. But was always economy in connected to tangible goods?

It is known that economies are based on exchanging values; values that are always translated in tangible goods in the feudal economy, labor work in the industrial economy and money in the capitalistic economy. The common characteristic among these values is that they are in some way concrete and/or material.

What happens in the attention economy? Is attention a tangible good or a physical resource? Of course attention can be a resource only symbolically, since attention as mentioned above is not a commodity, a tangible good. “Attention is not standardized and

⁸⁷ Smith Adam, “The Theory of Moral Sentiments (Great Books in Philosophy) Prometheus Books, 2000

measurable like a commodity; you can't give or trade away all the attention you have accumulated, as would be possible with currency and the goods”⁸⁸

The new attention economy emerges society to a new state of economics: scholars suggested when first occupied with the phenomenon of attention economy that this new kind of economy would little have to do with economics as known before. Richard A. Lanham, from California-Los Angeles University first argued in 1994 that our society is moving from the material economy to an information economy. The point that Lanham was making during the 124th annual meeting of ARL was that the nature of economics as known until then was undergoing radical changes. ⁸⁹

Lanham, as a pioneer in the fields of attention economy has predicted the alteration in the nature of the economy, followed by another scholar, Michael Goldhaber. Lanham, when arguing why the emerging economy was not the information economy, wonders what will be the feature in scarcity that will dominate the rising economy with the word “commodity”. ⁹⁰

Regarding the attention economy phenomenon, two points should be made: Is attention a commodity? Is attention the new currency that will create a new economy named after it? Business strategists have adopted the term "attention economy" (Davenport & Beck 2001), and some writers have even speculated that "attention transactions" will replace financial transactions as the focus of our economic system (Goldhaber 1997, Franck 1999)

Not a lot of aspects have been supported concerning this issue: Michael Goldhaber, one of the first scholars that were occupied with attention economy, offers his own argumentation if attention is a commodity, a tangible good. “Used by economists the word commodity most commonly refers to something uniform and interchangeable, so that it may be purchased easily at a standard price without regard for its origins”. And continues that “More loosely...commodity means that something that it can be sold, or more loosely still, it just means that is somehow valued...” He concludes by arguing “Attention is most standardized and measurable like a commodity; you can't give or trade

⁸⁸ Goldhaber Michael, “The attention economy and the net: the natural economy of the net” http://www.firstmonday.org/issues/issue2_4/goldhaber/

⁸⁹ Of course, Lanham's point was not that we are entering an information economy, since he declares his view that information is not a scarce resource, consequently an economy of information could not exist.

⁹⁰ “What then is the scarce commodity” Lanham, Richard A. **The Economics of Attention: Style and Substance in the Age of Information**, University of Chicago Press, April 2006

away all the attention you have accumulated, as would be possible with currency and the goods bought with it, nor can you barter attention for something else”.

This aspect treats attention like an idea, a notion or even a feeling that nothing has to do with the motivating force of a new economical state. According to the above aspect, attention could not at all appeal to the laws of classical economics, since attention has no value, therefore no exchanging value and consequently, no ability to support by itself a new economy therefore, nothing can be bought and its exchange to be attention(according to the exchanging law of tangible goods).

The same should apply to the so-called information economy that many scholars suggested that this type of economy would be the emerging one. If attention could not, as not being a commodity or a resource, support a new type of economy, how can therefore experience or entertainment support an economy on their own?

Pine and Gilmor, in their bestseller book “the experience economy”⁹¹ suggested that experience is the motivating force of the rising economical state. Why could experience establish an economy, since experience is also not a commodity neither a resource, under the meaning that experience is neither tangible nor good, that can be “locked up”?

The same goes for entertainment, another notion, idea or need of the human beings, a lot of scientists proposed that this notion is the one that will characterize the coming economics.

- a. What can be described as a commodity?
 - ii. A physical substance, such as food, grains, and metals, which is interchangeable with another product of the same type, and which investors buy or sell, usually through futures contracts. The price of the commodity is subject to supply and demand.
 - iii. Articles of commerce
 - iv. Any item that can be bought and sold. Taken to refer to Exchange– traded items including sugar, wheat, Soya beans, coffee and tin.
- b. And what is actually a resource?
 - v. A person, asset, material, or capital, which can be used to accomplish a goal

⁹¹ Goldhaber Michael, “The attention economy and the net: the natural economy of the net”
http://www.firstmonday.org/issues/issue2_4/goldhaber/

- vi. A source of aid or support that may be drawn upon when needed; "the local library is a valuable resource"
- vii. The ability to deal resourcefully with unusual problems; "a man of resource"
- viii. Available source of wealth; a new or reserve supply that can be drawn upon when needed

According to the previous definitions, commodity should in most cases have a material substance therefore attention does not fit to this point of view. On the other hand, a definition suggests that with the term commodity is meant any item that can be bought and sold. Along with this definition, attention could be characterized as commodity, since attention can be sold and bought. The most prominent paradigm is advertising, which will be further explained at the impending chapter. Resource, on the other hand has a broader definitions, which are not restricted to the material nature.

At economic theory the third sector includes everything that is characterized as “services”. This sector is the largest of the three, at least at the majority of economies worldwide (not rising economies). If service is something intangible, insubstantial, elusive then it is close to a phenomenon that represents this percentage of the economy.

3.5 ECONOMY AND ATTENTION

Economy is interpreted in the minds of most people like the everyday transaction of money, the daily buying and selling of things. In general, the term “economy” is taken for granted, always based upon the exchanging of money or/and goods. Of course, economy has a lot more meanings than the daily bartering of money or/and products.

The meaning of the term can be addressed from many points, for instance economy could mean: (a) Activities related to the production and distribution of goods and services in a particular geographic region, and at the same time (b) The correct and effective use of available resources. Additionally, (c) an act of economizing; reduction in cost; "it was a small economy to walk to work every day"; "there was a saving of 50 cents", also (d) frugality in the expenditure of money or resources; "the Scots are famous for their economy" , (e) the efficient use of resources; "economy of effort" and (f) the system of production and distribution and consumption.

Despite the fact that this dissertation has to do with communication and mass media science, there is little nowadays that is not directly or indirectly related to economy, since economy has always been of great influence for every scientific field. For instance, greatest scientific achievements would have never been accomplished if it had not been for sponsors that have supported researches. Contemporary economy was not always like this. The roots can be found at feudal economy.

Feudalism, term that derives from the ancient Latin word *feudum*, derives itself from the German root *fehu*, a commonly used term in the middle ages. Feuds were large parts of (privately owned) self-possessed land. In-between the feuds border, land was divided in several agricultural units, with one of them to rule and to be ruled from the Landlord. The rest of agricultural units, which number was not always the same, were unequal regarding their size, but much smaller from the main unit. They were dispersed/scattered at a certain distance and they were given for agricultural use.

The main role for these Satellite units was additional for the demesme: more precisely, they had to pay frequent tribute taxes to the Landlord and most of all to contribute to the labor (corvees) in order to fulfill the needs of the central agricultural unit. Essentially the typical feud around 1000 AC, was an economical microworld, centrally managed, in a large degree self-sustained into which labor transactions were playing a secondary role.

At the middle of the 12th century feudalism started to dissolve first in Italy, then in France and finally in Germany and England. Large scale agricultural activities of the central unit ceased, land which until then was managed directly from the landowner was rented to land users and the traditional labor contributions of the satellite units were transformed to obligatory money rent or part of the crop. The history of west European agriculture of the 13th and 14th century is totally dominated from the renowned issue of deconstruction of the feudal organization. What replaced it was an extreme variety of organizational forms, which were adapted to the local economical and geophysical conditions. Between feudal economy and industrial revolution, production evolved around two poles: the workshop of the Laborer and the storehouse of the Merchant.

Between 1780 and 1850 an innovating evolution of invaluable importance took place in England and consequently the rest of the world. Since then, world has never been the same. Historians have used and “overused” the term “revolution” in order to show

radical changes were, but no revolution was so (radical) deeply evolutionary as Industrial Revolution.⁹² Industrial revolution opened the gates of a whole new world, of world of new and unused energy resources like coal, fossil oil, electricity and human. The gates to a world into which human gained power to control enormous amounts of energy unimaginable for the previous agricultural and bucolic world, were widely opened. The technological and economic progress of the Industrial Revolution gained momentum with the introduction of steam-powered ships, boats and railways. In the 19th Century it spread throughout Western Europe and North America, eventually impacting the rest of the world.

Industrial revolution was supported by the liberal economic stream along with the political liberalism and the establishment of the parliament. These circumstances, appropriate to help the bourgeoisie to gain political power, enabled capitalism to be the succession state. Capitalism evolved itself and was different at its beginning than nowadays. It could be defined as a combination of economic practices that became institutionalized in Europe between the 16th and 19th centuries, especially involving the right of individuals and groups of individuals acting as "legal persons" (or corporations) to buy and sell capital goods such as land, labor, and money, in a free market and relying on the enforcement by the state of private property rights rather than feudal obligations.

Furthermore competing theories that developed in the 19th century, in the context of the industrial revolution, and 20th century, in the context of the Cold War, meant to justify the private ownership of capital, to explain the operation of such markets, and to guide the application or elimination of government regulation of property and markets. These three phases have emanated from one another and their importance is unquestionable. Their main feature, their conjunction is that all of them were based upon the tangibility of their basic characteristic. Land ownership was the basic attribute of feudal economy; automation and railway were of the industrial revolution and good consumption the one of the capitalism. In economical terms, their features are named as "commodity" and/or "resource". The question that rises in the attention economy is that, since attention has no material substance, could it be regarded as resource or commodity

⁹² Ashton. Thomas, S, "The Industrial Revolution, 1760-1830", Oxford University Press, USA, 1964:
Mantoux, Paul, "The Industrial Revolution in the eighteenth century: An outline of the beginnings of the modern factory system in England", The Industrial Revolution in the eighteenth century: An outline of the beginnings of the modern factory system in England, 1983

in order to support the economy that it is named after it? Or is it necessary to totally alter the idea that the common person has about the meaning of the term “economy”?

Economy has only in less certain circumstances to do with money, as it is usually thought. According to the definitions placed above, economy has less to do with commodities as with resources. The point here is that economics, even better, the meaning of the term economics, cannot be taken for granted. “We tend to think, as we are taught, that economic laws are timeless”.⁹³ It is obvious that a turn from the old, material-based or product-based economy to a different kind of economy could be our future economy.

Economic science was not always an autonomous science. At 18th century it was part of social sciences. The fathers of economy, no matter which economical skepsis they represented, they all agreed that there is a basic economic problem and to that problem they were called to find the answer. From the invisible hand of Adam smith, the law of Say and the Keynesian Consensus to the neo-monetarist Milton Friedman and the founder of institutionalism, Galbraith, the problem is diachronically the same: limited resources for unlimited needs. Each economic theory that has been formulated tried with its own tools to solve this problem. But the problem still remains and at our case it is even more profound: limited attention resources for unlimited needs.

Therefore, whether an alteration not only in the terminology but also in the approach on the new economical state of things takes place, is of little importance. Consequently, the traditional aspects that are for the theory that attention, an idea and not a material or a good in this case, could not support an economy, is fallacious. Paul Samuelson, a renowned and Nobel-prize winner economist, point out that economics is “the study of how societies use scarce resources to produce valuable commodities and distribute them among different people”.⁹⁴ And attention is nowadays a scarce resource.

⁹³ Goldhaber Michael, “The attention economy and the net: the natural economy of the net” http://www.firstmonday.org/issues/issue2_4/goldhaber/

⁹⁴ Samuelson, Paul, “Economics”,pg. 3 McGraw-Hill, New York, 1973

4. ATTENTION ECONOMY AND MASS MEDIA

Georg Franck claimed that “the media are by no means just shunting places of information. They are a system of channels supplying information in order to gather attention in return”. In his marvellous essay “Decline of the material wealth”⁹⁵ published in *First Monday*, elaborates a treatise over the attention economy and its philosophical parameters. Franck uses the TV and print media circulation in order to demonstrate that media is the environment in which attention economy will evolve and flourish. Frank makes no implication about the Web, though it was expected.

Many have argued that attention economy’s most applicable mass medium will be the Internet. This skepsis is being more and more often heard from many scholars and its roots are back in 1998, a little later than the term attention economy first made its appearance. Of course the laws and the principles of attention economy apply to all other mass media (digital or analogical) but Internet and Cyberspace are regarded, by the most, as the media into which attention economy will flourish, “the economy of attention-not information-is the natural economy of cyberspace”. According to Thomas Mandel and Gerard Van der Leun in their 1996 book “Rules of the Net” argue that attention is the hard currency in cyberspace.

This aspect may sound radical but it derives from the very common, lately, aspect that “the Web and The Net can be viewed as spaces in which we will increasingly live our lives”,⁹⁶ aspect often heard, not only regarding attention economy, since from the early 90’s many scientists have expressed their opinion concerning the transformation of the environment we will express ourselves and live on the whole. Nicolas Negroponte wondered about “being digital” and the late Jim Dertouzos questioned, “What will be” not to mention Manuel Castells, who worked out a treatise about the new, network era in every aspect of the everyday life.

It is essential that the connection between attention economy and the other mass media to be further examined, since Internet may completely dominate the future of our

⁹⁵ <http://www.heise.de/tp/r4/artikel/5/5567/1.html> -Merkur", no. 534/535

⁹⁶ Goldhaber Michael, “The attention economy and the net: the natural economy of the net” http://www.firstmonday.org/issues/issue2_4/goldhaber/

everyday live but our present has still time and space for the “traditional”, the old mass media, such as newspapers, radio and of course, television. Maybe the last available space but still exist.

4.1 TELEVISION AND ATTENTION ECONOMY

No one could ever argue that television was and still is the most dominant, the most effective medium the humanity ever met until now, until recently. Television, for more than fifty years has created its own culture, its own “laws”, and its own science. Its most powerful weapon is picture and the dynamics it brings and involves. Television has changed the perspective people faced the world until its appearance, it replaced, until a point, cinema and it has established a different kind of entertainment, VHS, Dvd, Blue-Ray, little decades later, could not be seen separated from television device since, the most important apparatus for the projection of video movies was television as a machinery, an equipment.

Television, in the recent years has been partially ruled by the laws of attention economy. According to surveys, each person watches 3, 5 hours television per day and the average household more than 7, percentages which are indicative of the influence that television exerts to people.

The decade of the 80’s was the extreme development of television all over the world. The dual system that made its appearance in the 70’s in the USA has started to appear in the European television system, not to mention all the other kinds of television’s new developments that came into view. Cable television, satellite television, pay per view television and network subscribing television have threatened the traditional senders and demanded their own share in the vie percentages.

Many talked about cannibalism of the television field, others for a compulsory transformation, necessary to attract attention of more and more viewers. The cannibalism of the television was a solid fact, since the share each channel had, was instantly declined and moved towards other channels/ networks. A reverse proportional relationship was formed between the number of channels and the number of viewers. The more the channels, the less the percentage of viewers each channel had. Another consequence that the overabundance of television channels brought was that it helped the phenomenon of information overload, since the availability in information resources, was rapidly and radically boosted.

The moving force of every television channel, apart from the public ones, is the income of the advertisement each channel has. As mentioned before, advertisement is one of the most reliable media to count attention. Television is not only harmed from the cannibalistic phenomena that harass it but from the new media that have made their dynamic appearance the past 5 years. The strongest competition that television tastes in the fields of attention getting nowadays comes, not from DVD or other substitutes, but from the Internet. “Although some observers argue for different attention categories for this media-passive attention for TV, active attention for Internet use-there is evidence of small declines in television consumption for heavy Web users”.⁹⁷

In five years from now, fast Internet will have radically changed the way we watch television, says Bill Gates. The era where anyone will be able to watch, without paying, any program he desires, whenever he wants it without any advertising spots interruption, is only five years away. Fast speed, widezonic Internet, which is nowadays a fact for millions of households because of the broadband net expansion-which allow the fastest transmission of image even in real time- comes up with a revolution to the households habits, merging PC's with Television.

This esteem obtains special importance when it is set out from the guru of Information Technology, the founder of Microsoft, Mr. Bill Gates, who made these shocking about the future of Television predictions, within the scope of his speech, which ended at 28.01.2007 at Davos, Switzerland.

“In five years from now everyone will laugh at the televisions that we have today” said the person who placed the PC's in every household, explaining the limitations that he most favored device has. As Bill Gates mentioned, when viewers are forced to wait until the program flow to move forward in order to watch information they are interested in. “Broadcasting of important incidents/facts via Net is superior” exclaimed the founder of Microsoft.

Television was until recently the arena in which everyone fights for the attention of the viewers. Television lives from its viewers. Fewer viewers are translated into less advertising and as a result little income, no livable channel. So as each channel to increase its broadcast share, has to captivate and maintain the attention of the viewers,

⁹⁷ Davenport. T & Beck.J,” The Attention Economy: Understanding the New Currency of Business” pg.96, Harvard Business School Press; New Ed edition 2001

this number is counted and the results determine whether this channel will have its slice in the advertising pie.

In order to do so, television has mobilized every mean so as to raise its share. The most prominent paradigm of it was the reality and talent shows that made their appearance the last decade. “Big Brother” grabbed the attention of millions of viewers and nailed them down despite the fuss that this reality show has raised. After the fuss was brought to an end, channel managers had to figure out of another attention-grabbing “program” for their viewers. What could appeal more to the viewers than a reality that would combine apart from the aspect of watching 24/7 every life aspect of unknown people, entertainment? And then became talent show. Until the time writing, shows such as “Super Idol” “Pop Stars” “X-factor” monopolize the interest of the television crowd, which obtains an active role in the television game, actively participating in the evolution of the “show”. None could ever find a better way for captivating and maintaining the attention of the viewers, even for a short period of time.

The time paid for the broadcast of TV commercials is indicative of the amount of attention a program receives. The advertising time spent for commercials broadcast during the last episode of the series “Friends”, cost approximately \$2. This is translated, as that “Friends” could seize and maintain the viewers’ attention, therefore the viewers saw the commercials broadcasted. Additionally, for a thirty second block of commercial time for the World Cup and the Super Bowl can cost several million dollars, not to mention the enormous amount paid so as President Obama to have at his disposal for half an hour a national television network for his last pre-election speech at 2008.

4.2 ATTENTION ECONOMY AND PRINT MEDIA

As already noted in previous chapters, newspapers have undergone a severe hurt in their readability the last two decades. Book reading is also following a declining route especially in the younger ages as a result of the explosion and the consolidation of the digital media. Most newspapers offer their editions and via the Net and many publishers, who find it more beneficial to “publish” their new books in HTML, follow this example⁹⁸. Recently Apple has launched the i-pad, the so-called digital book. Another paradigm is the one that many encyclopedias offer their contents and their services via the net, an example that first launched by the pioneer of the electronic media Bill Gates with his Encarta. Lately five of the most well-known libraries of the United States agreed and decided to unite their volumes and to offer access to their data banks to the Internet users, not to mention Wikipedia, and its penetration to the Internet users. What is left for the traditional print media to do so as to attract the readers’ attention and to remain lucrative and prosper?

Books are not always part of the category “printed media” but on the other hand they are sometimes part of the term mass media because Mass media is a term used to denote a section of the media specifically envisioned and designed to reach a very large audience such as the population of a nation/ state.

Nevertheless, in this case, specializing the kind of the book, which is attended to special audience, could attract attention. Additionally, attention could always be attracted to books indirectly, by focusing the advertising campaign to star writers or celebrities. A good example of this aspect is the “da Vinci Code”⁹⁹. Written in 2003 by Dan Brown, is a worldwide bestseller with more than 80 million copies in print (as 2009) and has been translated into 44 languages. It is thought to be the fourteenth best-selling book of all time. Until then, Dan Brown had already written numerous books, without any success until 2003 but the fourth novel, *The Da Vinci Code*, became a runaway bestseller, going to the top of the *New York Times* Best Seller list during its first week of release in 2003.

⁹⁸ In 2000, Stephen King, an American author of over 200 stories including over 50 bestselling horror and fantasy novels, published a serialised novel "The Plant" over the internet, bypassing print publication. Sales were unsuccessful, and he abandoned the project. <http://stephenking.com>

⁹⁹The novel has provoked popular interest in speculation concerning the Holy Grail legend and the role of Mary Magdalene in the history of Christianity. According to the premise of the novel, the Vatican knows it is perpetuating a lie about Jesus' bloodline and the role of women in church, but continues to do so to keep itself in power. The statistics place it, as of 2010, the best selling English language novel of the 21st century and the 2nd biggest selling novel of the 21st century in any language

Its success has helped push sales of Brown's earlier books. In 2004, all four of his novels were on the *New York Times* list in the same week.

But what happens to the newspapers, where the star journalists are less and not always in the front page? Newspapers have altered their contents and they have adjusted it to be even more commercial. Based on television models, newspapers move towards the “keyhole policy”. The so-called “yellow” press, has always the opportunity to attract the attention of their reading public, since each celebrity that monopolizes the interest of the public opinion, is the first and main subject of these kinds of papers.

What is the strategy with the other papers? How will these papers keep the readers’ interest, and consequently maintain it in high levels? The policy that applies to the economics of television, applies to the newspapers as well. Newspapers “live” apart from the incomes from the selling of their issues, from advertising as well. What will be the future of a newspaper with declining route in sells and consequently with even fewer income from the advertising share? Apart from the periods of extreme political interest such as national elections, or from international significance subjects such as a war, newspapers face the last two decades a severe decline in readability.

The news gatekeepers have resulted into specific techniques and tactics, in order to raise their selling circulation. These tactics are often been translated into offering additional, magazines, DVD’s, and a variety of gifts. Unfortunately, these tactics do not always bring the wanting results, since there is always a rise in the prize of the papers and no one is willing to pay up to 4,5€ just to obtain a DVD that may not be of his preference. Of course, specialized kind of newspapers like economic press, always have their standard shared. This, of course, is another paradigm of the application of attention economy.

4.3 ATTENTION ECONOMY AND RADIO

Radio, is one of the most favorable and expanded mass media ever. Since the beginning of the past century, radio was the medium for information and amusement of every household. Radio was a relative cheap medium, which could easily be attended even from people that were analphabets, in contrast to the dominant until then newspapers. Radio was the medium that informed large masses during and between the two world wars, the medium that offered its frequencies to the new melodies, to the controversial music, to information.

Radio, when television “obtained” its place in the living-room (and not only) of every household, became rather secondary in the preference of people regarding entertainment and information. Hearers’ attention was declined until the appearance of the private radio stations. This brought a “kiss of life” to the radio, since the hearers could chose from a wide range of radio stations and consequently from a wide range of programs that could satisfy even the most demanding listeners.

What has happened to the radio, one of the oldest and most favorite mass media? Radio is not excluded from the principles of attention economy, since apart from public radio stations, all the others are supported mainly from advertising incomes.

Radio stations and radio producers should maintain their hearers, if not attracting more and more each day. The plethora of radio stations, with the majority to have similar programs, makes it quite difficult to capture a hearer in order to be focused and loyal to one and only radio station.

Radio has also suffered a severe hurt from the web radio stations, which are expanding the last 5 years. The web radio attracts more and more hearers, situation that reduces the hearers and as a consequence the advertising the radio stations receive.

Additionally, radio hearing is mostly a subconscious function. Little are those who tune themselves in order to hear their favorite frequency or radio show. Most of us face radio hearing as a secondary function, a background of our main action and not an action itself. Radio could be classed to the front-of-mind attention that is little attention is paid to what or where we hear what we

hear. Radio has also its share in the attention economy.

Radio station owners have also adjusted their program-apart from these stations that broadcast special content programs- according to the target group they address to. They arrange contests with high prizes, trying to tempt hearers to stay tuned. Of course, radio has to play the game of advertising as well in order to find its place in the attention economy.

What know happens is the combination of the old, retro aesthetic with the new, digital media : web radio, where thousands of radio stations made their appearance. Web radio offers the advantage that it can be “transmitted” throughout the global; everyone can listen to it without the prerequisites of the past. Additionally, most of existing radio stations already transmitting through the web but the most noticeable is that specific radio stations have become reality. Radio stations that are occupied with a specific type of

content-whatever this content may be- and they attend to a specific type of audience. This is the appropriate method for a radio station to be evolved in the attention economy era.

4.4 ATTENTION ECONOMY: THREE TYPES OF ATTENTION

In every economy, apart from its name and its function, one of its main, if not the most important, a characteristic is its currency. In the attention economy, six types of complete currencies exist:

- i. Captive vs. Voluntary
- ii. Aversion-based vs. Attraction-based
- iii. Front-of-mind vs. Back-of-mind

The three couples of attention could be described and explained as following:

4.4.1 Captive vs. Voluntary.

This definition is easily derived by the name of these two types of attention. Captive attention as well as voluntary attention has to do with ¹⁰⁰choice. People are free to pay attention wherever they want to and whenever they want to. The objects of their attention are the objects of their desire, of their will. The key word in voluntary attention is the verb “want”. On the other hand, captive attention is ruled by the auxiliary verb “must”. This type of attention is shoved towards people and they pay attention even if they do not want to.

4.4.2 Aversion-based vs. Attraction-based.

The second pair of attention types has as well opposite meanings and elements, aversive vs. attractive. In accordance to Davenport and Beck “we pay attention to some things because we wish to avoid negative experiences (aversive attention) whereas we pay attention to other things because we think they may bring us positive experiences (attractive attention)”. Goldhaber offers a similar explanation of these two types of attention. Moreover, he gives the example of beautiful people, who attract our attention (attraction) whereas unattractive, “ugly” people attract our attention because we feel aversion, dislike for them.

¹⁰⁰ Davenport, T & Beck, J, “The Attention Economy: Understanding the New Currency of Business”, pg.23, Harvard Business School Press; New edition 2001

4.4.3 Front-of-mind vs. Back-of-mind.

The third pair of attention types is also contradictory and opposing as the two above. Hence, back-of-mind attention could be described as the attention paid from persons unconsciously to things and circumstances whereas front-of-mind could be described as the conscious, aware attention people pay to things and circumstances. A often-used paradigm to show the back and front-of mind attention is the one of the person that while driving (back-of-mind) he talks at his cell phone (Front-of-mind).

These three parts of the six types of attention are the currency in the attention market. Additionally, Davenport and Beck suggest in their bestseller book, “The Attention Economy”, that the currency of the attention economy is the meaning of time. “In the absence of precise attention currency, we often use the proxy of time”.¹⁰¹

The writers, at this point, have replaced the meaning of measuring attention with the term currency. Their example is that they cannot be sure if their customers are paying attention to their advertisements, but they can determine the possibility that they were watching that advertisements when broadcasted.

The correlation between the time that a viewer spent watching an advertisement and the amount of attention that was channeled to that advertisement is not always analogous. All of us have repeatedly watched advertisements without paying a single glimpse of attention to it. On the contrary, numerous advertisements have captivated our attention at the first sight, automatically without getting in the procedure of consciously paying attention to them. “As is now obvious, the economies of the industrialized nations have shifted dramatically. We’ve turned a corner towards an economy where an increasing number of workers are no longer involved directly in the production, transportation and distribution of material goods....by definition, economics is the study of how a society uses its scarce resources, in our case attention. Attention has its own behavior, its own dynamics, its own consequences. An economy built on it will be different than the familiar material-based one”.¹⁰²

¹⁰¹Davenport, T & Beck, J, “The Attention Economy: Understanding the New Currency of Business”, pg. 11, Harvard Business School Press; New Ed edition 2001

¹⁰² Goldhaber Michael, “The attention economy and the net: the natural economy of the net” http://www.firstmonday.org/issues/issue2_4/goldhaber/

To summarize, attention can establish an economy not only because it is a fundamental human desire but also because it is intrinsically, unavoidably scarce.

I believe that attention economy is the one that our society is entering from communicational point of view as well. Many scientists have expressed their belief that the economy we are entering is the experience economy, others that the emerging economy will be based on entertainment. My opinion is that these two aspects of everyday life could not ground each one an economy, but they are two of the most important parameters of the attention economy. Davenport and Beck mention, “Information arrives not only on the form of words and pictures. Every new product or business offering is a form of information that requires attention to be comprehended and consumed. During the 1990’s for example, 15,000 new products were introduced in grocery stores each year”.¹⁰³

Therefore, in an era where all products have been bought and consumed, where you can obtain anything you could ever desire and not could imagine, where nothing is left to be acquired, the most expensive “good” is the attention. In the attention economy, which is characterized by short life cycle product and by an unremitting growth of services-replacing the old, materialized products- what is limited, scarce and wanted is the consumers’ attention. The fact that the market life expectancy of the produced goods is becoming shorter and shorter is owed to the reduced length of the consumers’ attention. With the hurricane pace the new products enter the market, it is expected that the anxiety and the eagerness of the consumers’ will rise and the attention will become even less. The space between desire and satisfaction reaches the simultaneous.

Consequently the issue for the companies is not only to produce their “goods” fast enough in order to keep pace with the market but to imprison and maintain the consumers’ attention long enough so as to “transform” them to long term clients. Therefore the leading factor of the new economy is the attention, gaining and maintaining attention of the audience.

¹⁰³Davenport, T & Beck, J, “The Attention Economy: Understanding the New Currency of Business”, pg 5, Harvard Business School Press; New Edition, 2001

5. ADVERTISEMENT

What is advertisement? Everyone has heard this word more than once in our lives, no matter how old is he and no matter of numerous other factors that constitute his/her personality. As a kid I often remember myself being amused by the broadcasting of TV commercials, instead with the programs themselves. Plenty of times an ad caught my eye, irrelevantly of the product that was being advertised. What is actually this situation, this commercial trick, this form of art that is called advertisement? How old is it, what are its roots and its importance for the present and for the future societies?

Advertisement could not easily be categorized in a very specific scientific field; nevertheless, generally speaking, it is included in the scientific fields of marketing/management and mass media, not necessarily with this order. Therefore, in this case, a bunch of definitions could depict what exactly advertisement is.

“Advertising is the structured and composed non-personal communication of information, usually paid for and usually persuasive in nature, about products (goods, services, ideas) by identified sponsors through various media”.

“The techniques and practices used to bring products, services, opinions, or causes to public notice for the purpose of persuading the public to respond in a certain way toward what is advertised”.¹⁰⁴

“Advertising includes all forms of paid, non-personal communication and promotion of products, services, or ideas by a specified sponsor. Advertising appears in such media as print (newspapers, magazines, billboards, flyers) or broadcast (radio, television)”.¹⁰⁵

“A paid, mediated, form of communication from an identifiable source, designed to persuade the receiver to take some action, now or in the future.”¹⁰⁶

One of the characteristics that these definitions have in common is the fact that they refer to a paid action, irrelevantly of the medium of the action or the action itself. The second common element is that the sources from which the action of the

¹⁰⁴ <http://www.britannica.com/eb/article-9003817/advertising>

¹⁰⁵ <http://www.britannica.com/eb/article-27218/marketing>

¹⁰⁶ Richards, J. I., and Curran, C. M. (2002). Oracles on "Advertisement": Searching for a Definition. *Journal of Advertisement*, Summer, 31(2), 63-77.

advertisement derives have to be identified. The third common feature of the definitions is that they plainly refer to advertisement not only as the promotion of commodities but to the endorsement of ideas, services etc, both tangible and intangible. The strongest element, the most powerful characteristic of advertisement is its non-personal character. In other words, it attends to numerous, farraginous crowds, with different background, sex, preferences and most of all, needs.

5.1 ADVERTISING HISTORY

Advertising, is nothing but recent and its roots should be searched thousands of years before. The first told of advertisement is persuasion, an ability that is directly connected with the rhetoric skills. The word rhetoric derives from the ancient Greek word «ρητορική», *rhetoriki*, which means the ability to express fluently and to persuade.

As seen before, advertisement is connected with the promotion of goods, services and ideas. Therefore, the origins of advertisement could be found at the ancient societies at a variety of forms. The medium that advertisers used was the most primary, the spoken, word to mouth advertisement of the product, service or idea. At ancient Greece, and specifically in Athens, where the elections for the government took place every year, famous orators/ speech makers of the time, were used in order to persuade the citizens that were eligible to vote, to vote in favor of the various representatives. Moreover commercial messages and election campaign displays were found in the ruins of Pompeii.

Another form of advertisement had to do with the market, market of goods and market of services. In ancient Greece, many famous orators advertised their philosophy schools, using the same “word to mouth” method.

Of course, the “word to mouth” advertisement was at its peak when referred to relatively few populated communities. Conquerors and invasions led to the expansion of population overseas. Travelers and sailors were the best advertisement among different populations and civilizations. Commercial transactions among the countries of the Mediterranean Sea (between Egypt and Greece for instance) were based on word to mouth advertisement.

The invention of writing and its customization in the everyday life, gave the, until then “word to mouth”, advertisement, an additional, but unfortunately limited, tool: The

ability to read was not a de facto commodity in the everyday life; therefore a written form of advertisement was mutatis mutandis not so successful and effective.

Advertisement apart from its commercial part had to do with the expansion of ideas and beliefs as well. One of the most prominent examples is the religions, especially the ancient ones. For instance, the ancient Greek religion, a polytheistic, paganistic 12-God religion, was expanded and believed throughout Greece, only through word to mouth preaching. The same happened with the religion of the ancient Egyptians and the majority of the ancient polytheistic religions.

The expansion of these religions was a priori limited compared with the Christian religion, which could provide ground for the most outstanding and well-known archetype of “word to mouth” advertisement. Apostles and especially Paul and Peter used their lectures and preaching while traveling around the, until then known, world to influence and therefore persuade people.

This type of “word to mouth” advertisement was the most dominated and effective medium until the invention of typography. “Perhaps the most significant contribution to advertisement was the development of the printing press by Gutenberg in 1438. Forty years later, in 1478, William Caxton printed the first English language advertisement...”¹⁰⁷ “As printing developed in the 15th and 16th century, the first step towards modern advertisement was taken. “ The printed press ...made possible newspapers and magazines”.¹⁰⁸ It was in the 17th century when advertisement started to be part of English newspapers and within a century, advertisement as a medium of promotion started to gain significant popularity. This was the inaugural kick towards advertisement the way we know it today. The promotion of services and products through printed advertising was transformed in a more massive way. It is clear that it was the first time that a medium was consciously used to promote advertisement.

The need for more and more systematic advertisement emerged as the society moved towards another form of economy, where the production of more manufactured goods, items of consumption, commodities and services was dramatically increased. This need led to the establishment of a so-called “office of advertisement”. The first advertisement agency was established by Volney Palmer in Philadelphia In 1843. At first

¹⁰⁷ Aaker David, Rajeev Batra, John Myers “Advertisement management”, pg 16, Prentice /hall International, 1996

¹⁰⁸ Aaker David, Rajeev Batra, John Myers “Advertisement management”, pg 17, Prentice /hall International , 1996

the agencies were just brokers for ad space in newspapers, but in the 20th century, advertisement agencies started to take over responsibility for the content as well.

The past century was the breakthrough for advertisement. The transformations of the economy and society but above all the technological innovations were the best media for an advertisement explosion. Radio at the beginning and television later were the electronic media of the time that transformed advertisement. Communication vehicles such as newspapers, magazines, radio broadcasting, television, billboards, direct mail, and, lately the Internet were innovations of the last century that converted the elementary form of advertisement and transformed from a medium of promotion to a fine art.

As seen above, radio made its appearance in 1922 and it soon was established as a communication and entertainment medium. The 1930's and 1940's were the most prosperous years of radio and it was the first national advertisement medium in the electronic field¹⁰⁹. "In what have been the Golden years of radio, programs featured performances by top entertainers as well as commentary on new issues of the day, and the programs were supported by big national advertisers. Radio lost its dominance when television arrived, at the early 50's. Hence radio managed to change its nature and transformed to a local advertisement medium, a move of strategic significance.

Television emerged in the late 1930s; nevertheless its massive expansion was delayed by the World War 2. "During the first decade of television, the advertiser usually sponsored and was identified with an entire program. This differs from the present practice of having several advertisers share a program"¹¹⁰. The rapid growth of television took place during the 1950 and 1960s. From that point on, television, which combines sound and vision, the major difference from radio, is considered to be the premium advertising medium from most types of products and services. In the 1980s, the arrival of cable television, pay-per-view television and VHS impelled the entry of the television in every household. At the early 1990s television was the most popular medium, therefore the most popular medium for advertisement.

The emerging of the WWW and Internet shocked the world of the telecommunications. The Internet has emerged as a massive medium for marketing and

¹⁰⁹ Barton White, Satterthwaite Doyle, "The selling of broadcast advertising", pg 21, Allyn And Bacon, Boston, Massachusetts, 1989

¹¹⁰ Aaker David, Rajeev Batra, Myers John, "Advertisement management", pg 20, Prentice /hall International, 1996

advertising since 1994. The Internet is different in several respects, not only from conventional but from the other electronic media as well.

Giving a pre-shot of what is the advertising power of the medium, firstly, it can be used not only as a communications channel but also as a transaction and distribution channel. Consumers can get information and make purchases and payments all through the Internet. No other medium can accomplish these marketing functions instantly, without resorting to other means. Secondly, the Internet is by nature interactive. Users can initiate a shopping process by visiting a Web site and then clicking on hyper-linked text for more information. It is a two-way communication, with the Internet serving as a provider of customized content that meets an individual's needs. Thirdly, it has the capacity for multimedia content. It can carry not only text and graphics but also audio and video content. The multimedia nature of the Internet is suitable for high-impact advertising. The Internet has become an integral part of the media mix for many advertisers, and new forms of advertising have filled the World Wide Web landscape, including animated banner ads, sponsor logos, interstitials, "advertorials," "advertainment," and 3-D visualization.¹¹¹

Advertisement is a multifaceted phenomenon since it touches and reaches many aspects of the everyday life. Advertisement in its broader sense could be characterized as a very special kind of influence among the various aspects of the human activity. According to this aspect, advertisement is not a specific economic or communicational phenomenon but a more general social fact.

The advertising campaigns that are not used for economic purposes e.g. "Got Milk"¹¹² are not excluded by the rule that they too are a paid action. The health ministry, for instance, pays an advertising agency to elaborate the campaign. On the other hand, there are a number of international organizations that they do not pay themselves for their advertising campaign, organizations such as Red Cross, Amnesty International etc.

The advertisement that is solidly used for economic purposes could also be divided to the part that regards the company as a whole (public relations) and to the part that is focused to the entrepreneurial functions of the company. This could be described

¹¹¹ Hairong Li, Advertising Media, Michigan State University, <http://www.admedia.org/>

¹¹² **Got Milk?** is an American advertising campaign encouraging the consumption of cow's milk, It has been running since October 29, 1993. It is one of the most famous campaigns in the USA. www.gotmilk.com

as commercial advertisement. Commercial advertisement includes targets of sales policies which aim to influence people with the help of mass media.

Another element regarding advertisement is the content of the message. The content is characterized from three criteria:

- i. Advertisement helps targets of sales policies, therefore advertisement should positively influence the buying decision of the prospect consumers concerning the product
- ii. Advertisement is a series of determined, aware and not accidental practice of meters and procedures. The conscious procedure of advertisement acts comes into practice with the application of special means of communication.
- iii. Advertisement exerts a, free of forced pressure, influence to the audience, that wishes to satisfy its various needs. Regarding this last criterion a lot of debates have taken place, debates that had as a result the flourishing of such literature.

Regarding the last criterion, advertisement content, the everyday observation of the advertisement in the everyday life, indicates that the consumers have total subjective freedom and despite the efforts that each advertisement may make, the consumers can unperturbed to decide what to prefer. As a verification of the above mentioned argument is that the number of unsuccessful products during the last two years, despite the raising funds that are available for advertisement, has not declined.

5.2 CHARACTERISTICS OF ADVERTISEMENT

The fine art of advertising has been often accused as crowd-manipulative and is frequently misinterpreted as propaganda, the actual medium of crowd-manipulation.

There are of course common elements between these two forms of “persuasion” but a fundamental different in their purpose. Propaganda is a specific type of message presentation aimed at serving an agenda. At its root, the aim of propaganda is 'to propagate (broadcast) a message or point of view. The most common use of the term (historically) is in political contexts; in particular to refer to certain efforts sponsored by governments or political groups.

Propaganda's purpose is to affect people's opinions actively, instead of informing them about something. For instance, propaganda might be used to acquire either support or disapproval of a certain opinion, rather than to simply present the opinion. What separates propaganda from "normal" communication is in the understated, often sinister,

ways that the message attempts to form opinion. For example, propaganda is often presented in a way that attempts to deliberately evoke a strong emotion, especially by suggesting non-logical (or non-intuitive) relationships between concepts. “Propaganda, in a narrower use of the term, connotes deliberately false or misleading information that supports or furthers a political cause or the interests of those in power”.

The misinterpretation of advertising to propaganda derives from the fact that propaganda uses many methods as advertising. Actually, advertising can be visualized as propaganda that promotes a commercial product; nevertheless, literally “propaganda” typically refers to political or nationalist uses, or promotion of a set of ideas. Propaganda also shares a lot with public information campaigns held by governments, whose intention is to support or discourage particular behaviors. Propaganda can take the form of leaflets, posters, TV, and radio broadcasts and can also extend to any other medium.

One of the most important reasons for the misinterpretation of advertising with propaganda is the similarity of the techniques each method uses. For instance, the seven famous propaganda techniques are very often acquired from advertisers.

Propaganda Techniques

Name Calling: “Name calling-giving an idea a bad label-is used to make us reject and condemn the idea without examining the evidence”.¹¹³ This technique is not so often in advertising, since it could be used only with a notion of negative publicity for another competitive product.

Glittering Generality: “Glittering generality-associating something with a virtue word- is used to make us accept and approve the thing without examining the evidence”.¹¹⁴ This technique is used for the advertising, mainly associated with product names such as “Super Shell” and Imperial Margarine”.

Transfer: “Transfer carries the authoricity, sanction and prestige of something respected and revered over to something else in order to make the latter more

¹¹³ Lee Elizabeth and Lee Briant, Alfred McClung “ Fine Art of Propaganda: A Study of Father Coughlin’s Speech”, Harcourt, pg. 26 Brace and Company 1939

¹¹⁴ Lee Elizabeth and Lee Briant, Alfred McClung “ Fine Art of Propaganda: A Study of Father Coughlin’s Speech”, Harcourt, pg. 47 Brace and Company 1939

acceptable”.¹¹⁵ Also works with something that is disrespected to the latter rejected. The goal of transfer is to associate an idea or product or cause with something that people admire. Many advertisements and commercial are created based upon the transfer method. One of the most prominent examples is the Marlboro cigarette campaign, claimed to be one of the most, if not the most successful advertising of the past 50 years. The core of this campaign is to *transfer* the starkness and roughness of the cowboys to the people that smoked this particular label of cigarettes.

Testimonial: “Testimonial consists in having some respected or hated person saying that a given idea or program or product or person is good or bad”¹¹⁶. How many times has anyone of us heard or seen our favorite celebrity speaking in favor of one or another product? Testimonial technique in advertising has the power to imply that the customer does not simply buys the product but the lifestyle of the celebrity that advertises it as well. This feature is extremely important for the advertisers and their products. Britney Spears the famous American young singer had a million-dollar contract with Pepsi-Cola, which ended in a glimpse when a paparazzi photo of her enjoying the competitive Coca-cola drink reached the headquarters of Pepsi.

Plain Folks: “Plain folks is the method by which a speaker attempts to convince his audience that he and his ideas (or products) are good because they are “of the people” the plain folks”¹¹⁷. Advertising campaign the last years use more and more this technique, promoting the everyday housewife or the just-retired 60-year old man with their products.

Card Stacking: “Card tacking involves the selection and use of facts or falsehoods or distractions, and logical or illogical statements in order to give the best or worse possible case for an idea, program, person or product”,¹¹⁸ one of the most common advertising techniques especially when it comes to the TV commercials. I refer to this kind of commercial when a television interviewer comes across people in supermarkets or

¹¹⁵ Lee Elizabeth and Lee Briant, Alfred McClung “ Fine Art of Propaganda: A Study of Father Coughlin’s Speech”, Harcourt, pg. 69 Brace and Company 1939

¹¹⁶ Lee Elizabeth and Lee Briant, Alfred McClung “ Fine Art of Propaganda: A Study of Father Coughlin’s Speech”, Harcourt, pg. 74 Brace and Company 1939

¹¹⁷ Lee Elizabeth and Lee Briant, Alfred McClung “ Fine Art of Propaganda: A Study of Father Coughlin’s Speech”, Harcourt, pg. 92 Brace and Company 1939

¹¹⁸ Lee Elizabeth and Lee Briant, Alfred McClung “ Fine Art of Propaganda: A Study of Father Coughlin’s Speech”, Harcourt, pg. 95 Brace and Company 1939

shopping centers asking them their opinion about a product or trying to persuade them to use another product, asking again for their opinion.

Band Wagon: "Band wagon has as its theme: Everyone is doing it (or at least all of us is doing it; with it, the propagandist attempts to convince us that all members of a group to which we belong are accepting his program and that we must therefore follow our crowd and jump on the band wagon".¹¹⁹ To convince members of a group that their peers accept the program, and that we should all jump on the band wagon rather than being left out. Examples: soft drink ads with a bunch of handsome young people having fun on the beach; political ads featuring groups waving flags.

5.3 ATTENTION, ADVERTISING AND MEDIA

One of the tools to count, measure or calculate the attention economy is the reaction, reaction of the consumers, the audience, the voters, reaction from anyone that was the receiver of external stimulus/i. That can occur, and until now to be the only reliable method for calculating attraction of attention, since advertising is a measurable size. Advertising is one of the most proven methods to assure attention paid, since sales and numbers can, from nature, count the influence an advertisement had.

Attracting attention, nowadays, has as a prerequisite to find a way into the media. Franck argues that "Since media presence is the initial requirement, it is best to make one's appearance in the form of a picture, or better, on television....For, the new entry must in turn benefit the medium, he or she must promise to increase its circulation figures or TV ratings." And concludes that "a medium's financial success in turn depends on its ability to be used as marketable advertising space. The supply of advertising space is an offer to attract attention via a service rendered. The effectiveness of this service is measured in terms of circulation figures or TV ratings".¹²⁰

¹¹⁹ Lee Elizabeth and Lee Briant, Alfred McClung "Fine Art of Propaganda: A Study of Father Coughlin's Speech", Harcourt, pg.105 Brace and Company 1939

¹²⁰ Georg Franck The Economy of Attention, , <http://www.heise.de/tp/r4/artikel/5/5567/1.html>

The term “Advertising media” includes all the media that are used in order to present an advertising message and its goals to an audience. More analytically, radio advertising, television advertising, newspaper advertising, direct mail advertising, billboard advertising, lately Internet advertising etc. It has to be clarified that “word-of-mouth” advertising, is not included in the term “Advertising Media” since it lacks the “tint” of commercial transaction.

Therefore, advertisement in order to fulfill its aims, to spread its message to the consumers, needs the “mass”? Media in order to do so. “In advertisement the term media refers to communication vehicles such as newspapers, magazines, radio, television, billboards, direct mail, and the Internet. Advertisers use media to convey commercial messages to their target audiences, and media depend to different degrees on advertisement revenues to cover the cost of their operations”.¹²¹

Of course, these conventional media are not the only ones onto which advertisement can be seen. “Some commercial advertisement media include billboards, street furniture components, printed flyers, radio, cinema and television ads, web banners, Web Popups, skywriting, bus stop benches, magazines, newspapers, town criers, sides of buses, taxicab doors and roof mounts, musical stage shows, elastic bands on disposable diapers, stickers on apples in supermarkets, the opening section of streaming audio and video, and the backs of event tickets and supermarket receipts. Any place an identified” sponsor pays to deliver their message through a medium is advertisement.

“Although the plural term media commonly describes channels of mass communication such as television, radio, newspapers, and magazines, it also refers to other communication vehicles such as direct mail, out of home media (transit¹²², billboards¹²³, etc) specialized media (aerial/blimps, inflatables), specialty advertisement items (imprinted coffee mugs, balloons) and new communication technologies such as digital media, interactive TV and satellite networks”¹²⁴.

The various media that are used to serve the purposes of advertisement can be categorized in groups. A brief description of these categories follows:

¹²¹ Hairong Li, ”Advertising Media”, Michigan State University, <http://www.admedia.org/>

¹²² Transit: Advertisement that appears on public transportation or on waiting areas and bus stops. <http://advertisement.utexas.edu/research/terms/>

¹²³ Billboard: (1) An outdoor sign or poster; (2) Sponsor identification at the beginning or end of a television show. <http://advertisement.utexas.edu/research/terms/>

¹²⁴ Arens William, “Contemporary Advertising” pg 121, International Edition, McGraw-Hill/Irwin, 2002

PRINT MEDIA: the term print media refers to “any commercially published, printed medium that sells advertisement space to a variety of advertisers”¹²⁵. This group of media includes newspapers, (weekly and daily, local, national or international), magazines, directories, calendars.

ELECTRONIC MEDIA: this category includes Television and Radio. The past decade electronic media also include many programs which are transmitted through wires (cable TV) instead of being broadcasted.

OUT-OF-HOME MEDIA: this category includes all the possible forms of advertisement and is divided into two major subcategories.

I. billboard

II. transit advertisement

DIRECT MAIL: a simple letter mailed from companies to future customers. This letter may contain brochures or samples of the product.

DIGITAL INTERACTIVE MEDIA: this new form of advertisement, a consequence of the technology evolution, has apart from the pathetic aspect, an active feedback from the customer. The main source for this sort of advertisement is the Internet but also SMS, are a form of digital interactive media, used for advertising purposes.

Until now the most effective and widespread format of advertisement was the TV commercials. This statement is reflected by statistics which prove that for this sort of advertisement have been spent enormous amounts of money. Advertisement on the World Wide Web is a current phenomenon. Three are the web advertisement categories: E-mail advertisement, banners¹²⁶ and pop-ups.

A further distinction between the media used for advertisement is the distinction into passive and active media. Therefore, print media as well as direct mail belong to the category *active media*, since the reader/consumer should put forth to reach the advertised

¹²⁵ Arens William, “Contemporary Advertising” pg 122, International Edition, McGraw-Hill/Irwin, 2002

¹²⁶ Banner: A banner is an advertisement in the form of a graphic image that typically runs across a Web page or is positioned in a margin or other space reserved for ads. Banner ads are usually Graphics Interchange Format (GIF) images. In addition to adhering to size, many Web sites limit the size of the file to a certain number of bytes so that the file will display quickly. Most ads are animated GIFs since animation has been shown to attract a larger percentage of user clicks. The most common larger banner ad is 468 pixels wide by 60 pixels high. Smaller sizes include 125 by 125 and 120 by 90 pixels. These and other banner sizes have been established as standard sizes by the Internet Advertisement Bureau.

message: read the paper or open the brief. Electronic media, on the other hand, are classified as *passive media*, since the viewer/hearer/consumer should do nothing in order to reach the message the advertised message.¹²⁷

Electronic media are very young if compared to the print media. “Until television arrived, magazines were the largest advertisement medium”¹²⁸, as well as newspapers, of the past century but on appearance of electronic media, they became the leaders of the game.

At the time speaking, or even better writing, no medium could be characterized as dominant in the battlefield of advertisement since advertisement is undergoing a strong decline. “It used to be that people needed products to survive. Now products need people to survive”.¹²⁹

There is a statement that "Word of mouth is the best medium of all." Yes, this statement may be true and word of mouth can be the most effective advertising method, but it has a serious drawback: it can not be measurable. It may bring tremendous rising to a product's sales but this could never be identified and credited to word of mouth advertising. No-one could count how many “mouths” transmitted information about a product to how many ears. Therefore, this medium is never measured to advertising ratings and never is a parameter if advertising has increased or decreased.

Nevertheless, a decrease in advertising costs, especially in the forms that have to do with advertising as we know it is going to change the whole advertising scenery. The official website of Dow Jones¹³⁰, perhaps the most reliable economic site, points out that ‘Advertising revenue at the print Wall Street Journal decreased 7.2% in July on a 20.9% decrease in advertising volume’.

And it goes further by: “Technology advertising volume decreased 75.4% as a strong prior year comparison (up 33.5% in July of 2006) and decreases in communications, hardware, office products, technology professional services, software and other B2B technology advertising more than offset an increase in personal computers

¹²⁷ White, Barton C.; Satterthwaite, N. Doyle, “The selling of broadcast advertising”, pg 20, Allyn And Bacon, Boston, Massachusetts, 1989

¹²⁸ Aaker David, Rajeev Batra, John Myers “Advertisement management”, pg 19, Prentice /hall International, 1996

¹²⁹ www.nicholasjohnson.org

advertising. Classified advertising volume decreased 13.5% due to a decrease in real estate advertising partially offset by a gain in other classified advertising. General advertising volume decreased 5.9% as decreases in auto, consumer electronics, pharmaceuticals, luxury goods and corporate advertising were partially offset by increases in travel, media, healthcare, professional services and other general business advertising (excluding auto, general advertising volume increased 12.8%). International print advertising revenue decreased 6.5% in July primarily driven by declines in technology and classified advertising. At Barron's, total print advertising revenue decreased 9.5% in July on a 16.2% decrease in advertising pages primarily driven by a decrease in financial advertising".¹³¹

On the other hand, on September of 2007, Nielsen Media Research¹³² reported that ad spending across all major sectors had shown growth of over 5 percent in the first half of the year. Online ad spending was reported to have increased the most, up nearly 50 percent. The largest corporate increase in ad spending during the first two quarters of the year involved AT&T, who rebranded, and increased its spending by 50 percent.¹³³

The outcome of these measures-findings is that "traditional" advertising is really experiencing a hard time. Shrinking in advertising costs may be useful for the companies from one aspect, since advertising expenditures are really high. On the other hand, reducing advertising costs, mean less advertising, less brand awareness, less product sales. Double-edge sword.

¹³¹ http://www.dj.com/Pressroom/PressReleases/Financial/2007/0813_FIN_1207.htm

¹³² **Nielsen Media Research (NMR)** is an American firm that measures media audiences, including television, radio, theatre films (via the AMC MAP program and newspapers. NMR, headquartered in New York City and operating primarily from Oldsmar, Florida, is best-known for the Nielsen Ratings, a measurement of television viewership.

¹³³ http://www.bizreport.com/2006/09/is_ad_spending_really_going_to_decline.html

6. ADVERTISING NOW

The general rule says that in order for an advertising to be successful, it has to bring back to the company which product/service is being advertised the amount it cost plus one more. If this rule is taken for granted, not every advertising campaign is successful, since not each product returns its budget to the company. Partial buying of a product-service is not translated into a successful or a lucrative campaign.

In order for an advertising campaign to be “booming”, it has to “reach” a capable/large amount of the target audience. “The term “reach” refers to the total amount of *different people* or households exposed, at least once to a medium during a given period of time, usually four weeks”.¹³⁴ Reach should not be confused with the number of people who will actually be exposed to and consume the advertising, though. It is just the number of people who are exposed to the medium and have an opportunity to see the ad or commercial.

This rule includes an element “responsible” for the declination of advertising, the element “different”. Different people, different households, different needs. Why should a single, unique and personalized product to cover the need/s of several different people? Why should an advertising ad to cover the cultural and aesthetical tastes of all viewers? As in everyday life, not all people share the same tastes in food, music, people, etc; consequently a campaign could appeal to few, some people and not to all. At this point I argue with Georg Franck, who claims that attention is linked to closely observe what the general public wants to read, listen to or watch¹³⁵.

If a „magic formula” could exist and be applied to the advertising procedure in order to create a total new model of advertising. What could that be? What should the dominant feature of that new formula be? A closer look at the advertising results indicates that one of the main causes that advertising is undergoing a declining route, as seen in previous chapters, is the fact that not much attention is being paid to.

This makes sense. It is impossible to pay attention to all the ad- bombard that happens in everyday life of a common person, especially when few of them are included in the interest fields of his. As expressed before, what may interest me, maybe of no

¹³⁴ Surmanek Jim, “Introduction to Advertising Media: Research, Planning and Buying”, pg 106, Chicago, NTC Business Books, 1993

¹³⁵ Georg Franck, www.heisse.de

interest to you at all. Therefore, advertising should not cover needs in general but advertisers should change their mentality regarding advertising 180 degrees.

At this point, a revision at Jeremy Rifkin's aspects in "*The Age of Access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience*" book should be of extreme importance. Jeremy Rifkin argued that differentiation among people of different cultures, ages, economical backgrounds, interests etc. suggest that will be based and built upon the mutual experience.

6.1 ADVERTISING AND THE WORLD WIDE WEB

Advertising has to be totally, radically changed and this is the turning point where Attention Economy comes in the front scene, as a new rule, a new formula as well as a new advertising framework

Attention economy could be, according to my opinion the future for a successful advertising campaign. What could this actually mean? Attention economy laws suggest that attention of the subject should and could be totally captivated and focused to an object. Therefore, consumer's attention (subject) should and could be totally devoted to the advertising and furthermore to the advertising product (object).

The radical differentiation has not only to do with the advertising strategy but with the medium that will be used as well. Only one medium can and will support the new advertising model. That does not automatically mean that all other media will be excluded but the role that they will play will be of less importance.

Which will be this new medium? Many opinions were heard, regarding the nature of the Internet as a medium, implying that it could not be included in the medium category since it does not collect the medium features.

The fact is that today, we are all part of the evolving media revolution another term regarding the mass media is being used: digital interactive media, mass media beyond digital media and far more beyond than traditional mass media. Information superhighway is a reality and this highway is the Internet, the fastest-growing medium in history.¹³⁶

6.2 INTERNET USERS-DEMOGRAPHICS

The most usable method in order to count a medium's penetration ability is the use of demographics. Demographic segmentations "is a way to define population groups by their statistical characteristics: sex, age, ethnicity, education, occupation, income and other quantifiable factors. Demographics are often combined with geographic segmentations to select target markets for advertising. This is called geo-demographic segmentation."¹³⁷

Who uses the Internet?

A myth that surrounds the Internet users has been demolished during the last six years. The profile of the Internet users has been stereotyped as a young person at the end of his school life and reached the early twenties. Probably a little bit isolated from his friends/ school environment, maybe with antisocial behaviour. Another profile option had to do with the Internet user as a professional. In other words, the users of the Net were occupied with it as a part of their job. This stereotype has been altered and nowadays the Web scenery has been totally altered.

As a point of reference, I am going to use the year 2000, a year-turning point, landmark for the expansion of the Internet at a worldwide basis. Therefore, from this time point, a migration towards the Internet from all other media started. At the beginning, the "emigrants" were the slightest minority but throughout the years, the percentages have been vastly increased. At the beginning of the millennium researches¹³⁸ that took place among Internet users indicated that a 50% of them were watching less TV, 22% reduced magazine reading and 21% reduced newspaper reading.

The compelling charm of the internet has grown since the beginning of the Millennium captivating almost everyone. The outcome of the e-metric¹³⁹ research was for once again of extreme interest. The ever growing Internet dynamic and its intense attraction to the users were again confirmed. Brian Elliot's foresight, who is the creative founder and CEO of Amsterdam Worldwide was crystal clear: "In a few years from now, Internet will be something just like the water, the breath. It will be considered as something implicit."

¹³⁷ Arens William, "Contemporary Advertising", pg 168, International Edition, McGraw-Hill/Irwin, 2002

¹³⁸ <http://web1.forrester.com/forr/reg/jupiterlogin.jsp>

¹³⁹ www.emetrics.gr

Extremely optimistic? Definitely not, since according to the e-metric research 66.9% of the participants answered that they use the Internet as their main source of information. In other words, they choose to be informed via the Internet and not via Television, Radio and Press. They take pleasure from “surfing”, 36.3% dedicates every TIME from 2 to 5 hours while 27.5% is proved to be even more hardcore. Maybe those who took part at the research not to express the average user, nevertheless Internet’s establishing is fact.

Internet users per 100 inhabitants 1997-2007 (Source: ITU)

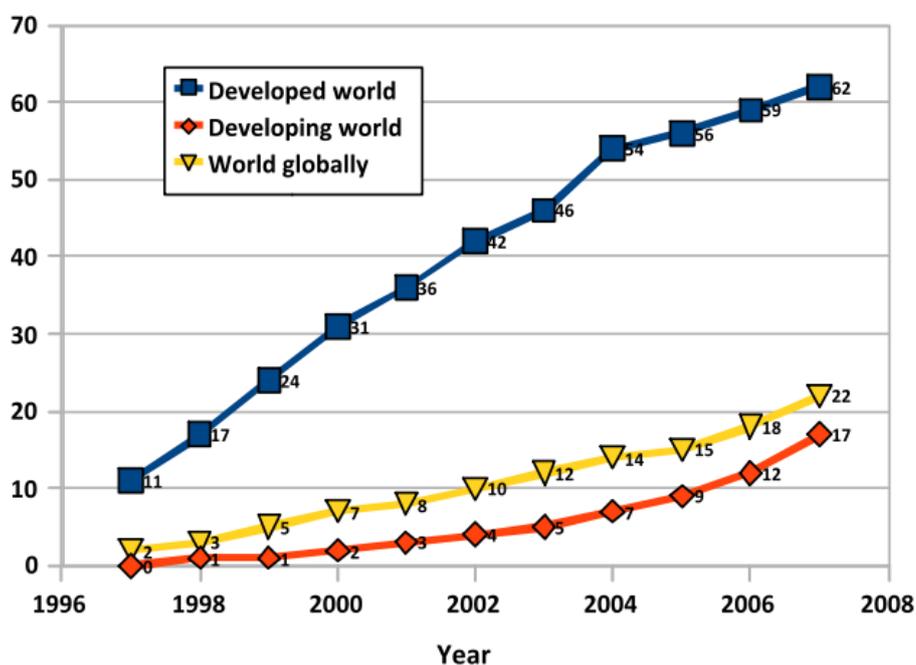


Figure 7 (ITU)

While the audience that can be reached through the Web is unlimited, its demographic characteristics make it an attractive target group for many advertisers. Users of the Web are generally affluent and well-educated. Additionally, in contrast to Internet’s early years, the high representation of women is another plus for advertisers since women tend to make the majority of key buying decisions in almost every household. In order to explore the relationship between advertising and Internet, two other parameters should be estimated:

- Internet Penetration
- Internet languages

As far as the penetration rate is concerned it is important to see if the analogy of the Internet users of a country to the population of it is good enough in order to support Internet advertising. It is important to notice here that large markets such as China have recently entered, since for political reasons mostly Internet was unknown/ prohibited to them so far. A detailed list of Internet penetration can be found at the Appendix, which shows thoroughly what takes place in almost every country regarding the Internet use.

The following list indicates the countries with the highest penetration rate worldwide according to the latest data (2010).

TOP 58 COUNTRIES WITH THE HIGHEST INTERNET PENETRATION RATE					
#	Country or Region	Penetration (% Population)	Internet Users Latest Data	Population (2010 Est.)	Source and Date of Latest Data
1	<u>Falkland Islands</u>	100.0 %	2,546	2,546	ITU - June/10
2	<u>Iceland</u>	97.6 %	301,600	308,910	ITU - June/10
3	<u>Norway</u>	94.8 %	4,431,100	4,676,305	ITU - June/10
4	<u>Greenland</u>	90.2 %	52,000	57,637	ITU - Mar/08
5	<u>Sweden</u>	92.5 %	8,397,900	9,074,055	ITU - June/10
6	<u>Saint Kitts and Nevis</u>	34.1 %	49,898	17,000	ITU - June/10
7	<u>Netherlands</u>	88.6 %	14,872,200	16,783,092	ITU - June/10
8	<u>Denmark</u>	86.1 %	4,750,500	5,515,575	ITU - June/10
9	<u>Finland</u>	85.3 %	4,480,900	5,255,695	ITU - June/10
10	<u>New Zealand</u>	85.4 %	3,600,000	4,213,418	ITU - June/10
11	<u>Australia</u>	80.1 %	17,033,826	21,262,641	N-O - AUG/09
12	<u>Luxembourg</u>	85.3 %	424,500	497,538	ITU - June/10
13	<u>Korea</u>	81.1 %	39,440,000	48,636,068	ITU - June/10
14	<u>Faroe Islands</u>	76.4 %	37,500	49,057	ITU - Nov/08
15	<u>United Kingdom</u>	82.5 %	51,442,100	62,348,447	ITU - June/10
16	<u>United States</u>	77.3 %	239,893,600	310,232,863	ITU - June/10
17	<u>Antigua & Barbuda</u>	74.9 %	65,000	86,754	ITU - June/09
18	<u>Switzerland</u>	75.3 %	5,739,300	7,623,438	ITU - Sept/09
19	<u>Japan</u>	78.2 %	99,143,700	126,804,433	ITU - June/10
20	<u>Germany</u>	79.1 %	65,123,800	82,282,988	ITU - June/10
21	<u>Bermuda</u>	79.1 %	54,000	68,265	ITU - June/10
22	<u>Canada</u>	77.7 %	26,224,900	33,759,742	ITU - June/10
23	<u>United Arab Emirates</u>	75.9 %	3,777,900	4,975,593	TRA - June/10
24	<u>Israel</u>	71.6 %	5,263,146	7,353,985	TNS - May/08
25	<u>Singapore</u>	77.8 %	3,653,400	4,701,069	ITU - June/10

26	<u>Austria</u>	74.8 %	6,143,600	8,214,160	ITU - June/10
27	<u>Spain</u>	62.6 %	29,093,984	46,505,963	N-O - AUG/09
28	<u>Andorra</u>	79.5 %	67,200	84,525	ITU - June/10
29	<u>Guernsey & Alderney</u>	74.6 %	48,300	64,775	ITU - June/10
30	<u>Belgium</u>	70.0 %	8,113,200	10,423,493	ITU - June/10
31	<u>France</u>	68.9 %	44,625,300	64,768,389	ITU - June/10
32	<u>Hong Kong</u>	68.8 %	4,878,713	7,089,705	N-O - Feb/05
33	<u>Saint Lucia</u>	88.8 %	142,900	160,922	ITU - June/10
34	<u>Estonia</u>	75.1 %	969,700	1,291,170	ITU - June/10
35	<u>Ireland</u>	65.8 %	3,042,600	4,622,917	ITU - June/10
36	<u>Monaco</u>	75.2 %	23,000	30,586	ITU - June/10
37	<u>Liechtenstein</u>	65.7 %	23,000	35,002	ITU - Mar/08
38	<u>Barbados</u>	49.7 %	142,000	285,653	ITU - June/10
39	<u>Taiwan</u>	70.1 %	16,130,000	23,024,956	ITU - June/10
40	<u>Malaysia</u>	64.6 %	16,902,600	26,160,256	ITU - June/09
41	<u>Slovak Republic</u>	74.3 %	4,063,600	5,470,306	ITU - June/10
42	<u>Slovenia</u>	64.8 %	1,298,500	2,003,136	ITU - June/10
43	<u>St Vincent & the G</u>	72.9 %	76,000	104,217	ITU - June/10
44	<u>Niue</u>	68.8 %	1,000	1,598	ITU - June/10
45	<u>Latvia</u>	67.8 %	1,503,400	2,217,969	ITU - June/10
46	<u>Hungary</u>	61.8 %	6,176,400	9,992,339	ITU - June/10
47	<u>Lithuania</u>	59.3 %	2,103,471	3,545,319	GfK - Mar/08
48	<u>Czeck Republic</u>	65.5 %	6,680,800	10,201,707	ITU - June/10
49	<u>Tokelau</u>	58.4 %	800	1,371	Teletok - May/07
50	<u>San Marino</u>	54.0 %	17,000	31,477	ITU - Sept/09
51	<u>Brunei Darussulam</u>	80.7 %	318,900	395,027	ITU - June/10
52	<u>Bahrain</u>	88.0 %	649,300	738,004	ITU - June/10
53	<u>Jamaica</u>	55.5 %	1,581,100	2,847,232	ITU - June/10
54	<u>Qatar</u>	51.8 %	436,000	840,826	ITU - June/09
55	<u>Poland</u>	58.4 %	22,450,600	38,463,689	GfK - June/10
56	<u>Italy</u>	51.7 %	30,026,400	58,090,681	N-O - AUG/09
57	<u>Chile</u>	50.0 %	8,369,036	16,746,491	IWS - Dec/09
58	<u>Croatia</u>	50.0 %	2,244,400	4,486,881	ITU - June/09
TOP 58 in Penetration		73.9 %	816,570,322	1,105,560,854	IWS - June/10
Rest of the World		20.0 %	1,149,944,494	5,740,049,106	IWS - June/10
World Total Users		28.7 %	1,966,514,816	6,845,609,960	IWS - June/10

Analyzing the above graphic, I believe that at a first glance, seems surprisingly enough. When referring to Information Superhighways, Information Technology and many other elements of Advanced Computer Science, no-one could expect that between the four first places at the Top 30 Countries with the highest internet penetration rate,

would meet countries such as Iceland or Falkland Islands. From a sociological point of view, such countries are expected to show extremely high internet penetration rate since the special climate parameters, the low population has turned the Internet apart from a medium of information to a medium of communication and entertainment. Hence, analyzing the list from anthropological aspect, it seems perfectly expected. Leaving aside large countries, what is the common element between the others? The one and foremost common characteristic is their geographical site. New Zealand, Iceland, Greenland, Falkland and Faroe Islands could be very well described as isolated, since the closest neighbor country is thousands of kilometers far from each one. The web is apart from a good companion, a perfect medium to taste the “different”.

Countries from the former U.S.S.R. seem to overcome the lapse of the past years, they demand and win their position and their place even at the right lane of the Information Superhighway. No surprise is the fact that all the Scandinavian countries are in the list showing a very good percentage of Internet penetration.

Another very important characteristic is the former political and economical state of things a number of countries listed. For instance, Hong Kong, Taiwan and South Korea are still recovering from the severe political and economical harassments of the past.

6.3 INTERNET LANGUAGES

The other parameter that should be observed is the languages that are being used through the World Wide Web. From its very beginning, the language that dominated Web environment was the English language. A very “convenient” language, since apart from its native speakers at three continents, it is the most popular foreign language for all humans to learn.

Throughout the years, the monopoly of the English language was partially declined as various sites hosted other languages as well. The following survey shows the percentage of each language at the Global Web. It is of extreme interest to find out how many different languages exist today at the Web.

Top Ten Languages in the Internet 2010 - in millions of users

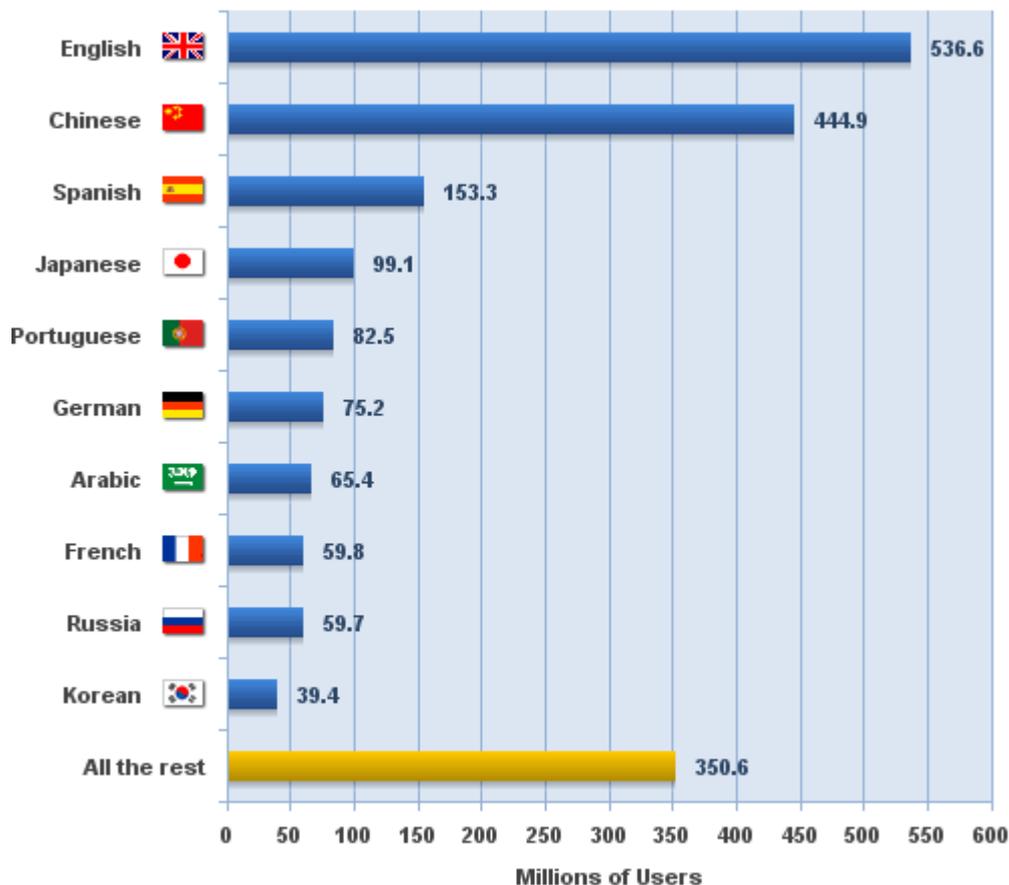


Figure 8

What derives from the diagram is that the current Internet environment is friendly for every user, every monolingual user who wishes to surf. Each language has made its way through the Web and this is translated into much more users and therefore much more potential buyers.

One conclusion that draws from the analysis of the Internet penetration and the language variety that, up to this point, characterizes the World Wide Web is that the Web could be described as the «new television». And why is that? A comparative analysis of the two elements of penetration and language variation could help to establish this conclusion.

Television the last half of the previous century, had gradually dominated the media environment. Television gradually made its appearance to all around the globe and almost each country owned at least national television channels. This is translated that

each program was broadcasted at the local language, whether if it was subtitled or dubbed.

Therefore the sum is that numerous television channels in numerous countries exist, channels and programs for every taste, for every desire, for every viewer. This resembles to what happens today at the Web environment: billions of Web pages including the most extraordinary content and as seen before, in almost every language with extreme deep penetration.

Parallelizing the two media, web pages are the television channels and their content is the broadcasted program. As far the variety is concerned no comment. It should not here be any misunderstanding: television is going to be replaced by the Internet immediately but it is worthwhile to take a look at what might be those elements of replacement.

As seen above, the Internet user's profile has been radically altered. The GPA of age has been expanded, not only men are occupying themselves with the medium, Internet is not being used solidly for information exchange but it has entered the infotainment sphere.

Of course, someone could argue that not all people who watch Television are now likely to use the Internet for their infotainment, but it is a solid fact that Internet through its multiple physis has achieved serious goals:

An enormous number of Television viewers watch Television through the Web via TV stream. This means that viewers are interested in the content and not the medium itself. The Television content includes as it is expected to be Commercial ads, which in this case, the limits between TV commercials and Web ads are very narrow.

Therefore, large audiences which belong to the television viewers are captivated through the Web-as a medium- watching of course Television-as content-. In this case, a large step towards Internet has been achieved.

6.4 SOCIAL NETWORKS

Jeremy Riffkin suggested the creation of web communities, communities of people who will share at least some interests and wish to participate to common experiences. But how could all these data to be collected; personal information to be retrieved? Many have discussed about the overwhelming power of the social network, as a source of such information collectors .Could this actually work this way, without raising complaints or conflictions?

Social media is a term that at the beginning of the last decade even with the Internet explosion was a term and an idea far away from real life, an intangible notion that only on the mind of a Jules Verne of the 2000 could have existed.

Since 2005 “Facebook” has opened new routes to what is called social network. A new, innovative way to connect people far beyond the up to then known methods such as e-mail, chat rooms, instant messenger, skype. Facebook could be assumed at its early levels as a more direct way to communicate your everyday activity to the people that are somehow related to you by “posting” your thoughts, your pictures and whatever could be interesting to the administrator/owner of the account/profile, a short of intranet that already existed at many companies for enabling fast communication.

As it evolved, Facebook gave the opportunity to share more about you with the multiple applications it gradually included. Facebook has gained even more ground at the everyday activity and status that nowadays it sounds extraordinary for someone not to own a Facebook profile. Unlike other similar socializing media Facebook does not set a limit at the number of words a person can edit/ “upload” allowing the user to express however he/she wishes, giving them the biggest of freedom. Constructed in an extreme bright and intelligent route, including even more applications Facebook now counters some 500 million active users. Like every new tendency, it was an object of mimic and today more or less similar social networks are evolving: MySpace, LinkedIn, Hi5, Twitter, Badoo, Habbo, aSmallWorld and the list still grows.

The most intriguing about Facebook is that every profile can be parameterized and customized in order to reveal the profile owner’s way of thinking, preferences and a series of other personal elements. Apart from mentioning the users’ sex through creating a profile, male or female, (a very important element of its own) user edits-in most cases- its location, origins, marital status, age, religious and political beliefs. In many cases even the sign of the user can be of extreme use. The above mentioned personal characteristics can already form a rough demographics escalating from local to global, demographics that can not be underestimated.

The parameterization/ customization comes along with the use of the account. Every music, every film, every political belief, every motto that a user likes is another hint for his profile creation. His/her hobbies, his/her interests, his/her favorite TV shows, his/her educational background add information for the construction of a complete profile.

From the very moment the user becomes “friend” with somebody the connection starts. It is that connection that leads from one element to another even if the user, the person, does not have the slightest will to reveal anything about him /herself. Just becoming someone’s “friend” can give away a lot about another person; verifying the old proverb “tell me your friend to tell you about you”. The first “like” or “dislike” triggering off the procedure of networking revelation. By expressing openly that you approve or disapprove of something simultaneously you reveal what you do or do not like. A suggestion for people, participation or experiences come along, acceptance or not of them guides the profile to the formulation path. Participation in Facebook communities is the concrete, the real web community where anyone shares the same belief, opinion, interest with the rest of the members, a web local module.¹⁴⁰

Similar attributes exist to other social networks, for instance, twitter allows to see who “follows” who. The followers a person has can tell a lot about the person and the followers as well, e.g. favorite writer, music, cosmetics, brand. Additionally twitter followers have come to be synonyms of the status of a person. No one could have ever imagined at the beginning of the millennium that the President of the United States would have a web competition with a pop idol concerning the followers that each one has.¹⁴¹ It can be seen as a sign of the times. It is worth noting that the number of users is ever growing and approximately 700.000 new users are added each day.

Such parameterized phenomena have occurred throughout the last decade, for instance book buying through web was giving hints about your possible preferences, and therefore suggestions had a solid base. Moreover, taken to extremes, it could be assumed that many goods and services could have been produced in order to fulfill needs that do not at the time exist but may exist in the future, in others words, created needs. For instance, music industry produces massively after someone has set the trend, since it will fill needs that they did not existed before. Books about vampires will be written massively after Edward¹⁴² became the next best thing.

¹⁴⁰ Additionally, apart from the social and medial aspect of the global interconnection, the possibility for consultation with anyone is the ideal form of the participation democracy, first stated from Juergen

¹⁴¹ During last year an unofficial fight took place between President Obama (U.S.A) and the famous pop icon/ singer Lady Gaga, regarding who of them would have the more fans and followers at their profiles they had at two social networks. With 10.4 Million Facebook fans compared to the 9.7 Million for Obama, Lady Gaga’s Facebook page, President Obama run second.

¹⁴² The leading male hero at the *Twilight*, a series of four vampire-themed fantasy romance novels by American author Stephenie Meyer, that has sold over 100 million copies worldwide with translations into at least 38 different languages around the globe

You-tube and my-space, a lighter form but definitely a form of social networking, have become the new scouts, the new artists' "seedbed", throughout a constellation of new artists has arisen. Networking is present here as well. Users profiles, channels, streams and comments compose the environment where socializing takes place. The support given to any uploaded video is counted by its "views along with the freedom for anyone to upload anything are the basic elements of customizing choices and preferences. Consequently, the next time a user logs on to the site, the homepage arises with suggestions for the user based upon the user's previous activity. The administrators come up with preferences of massive audiences and viewers, very important and useful information for anyone involved with marketing and advertising industry. The same goes for similar networks. For instance it is a perfect crash test to see the feedback a new singer could have at the audiences by uploading his/her work at such a network. The sampling of reactions is what can be used in order to adapt the forthcoming product to the people's needs and demands.

The power of the-up to now- dominant of the social networking, Facebook is so obvious where it was recently presented to big screen. Each one has created his/ her own web personality, that in many we can actually talk about avatars. Facebook has occupied not only the free space in life but has outweighed most of other activities in order to be fully expanded. Facebook is not a simulator of the real life; Facebook is the real life for a great number of users. This social network has replaced phone calls, message sending, letters, e-mails, wishes, presents, excursions, loneliness, de-socializing, and many human activities that demanded something more than an account.

Each user, who participates in such networks, gives away a plethora of personal data and information, information that in other cases would be difficult to acquaint. This fact has raised a debate whether is it legitimate for this information to be publicly known or not. At the beginning of 2010 this debate led to many controversial discussions whether is it moral or not for such information to become widely known. One is sure, that each one participating agrees to the terms and does it at its own will, without reinforcement or further struggling.

This new form of interconnecting, compatible with the rapid change of the technology has transformed reality and everyday life. The six degrees of global separation

¹⁴³ may be proven true and academics such as Christakis write best seller books describing the way each one of us is interconnected with any other person in the world¹⁴⁴. The famous thesis of Marshal McLuhan, who predicted about a global village, is nowadays fact, with the emphasis to be given at the term “village”, since borders are overthrown and like in a small village society there are no hidden secrets, no privacy, nothing left to be known for your neighbor.

The question is: are the social networks the appropriate tool for the completion of the web advertising? Are the requirements for attention economy fulfilled? Is all that information useful? Are social media the new media? Are all media going to be replaced by social media or another form of media is rising? Internet and its environment is the place where that change will take place. But do we perceive Internet as social media only or is it the medium, the channel for the actual digital revolution?

The list with the sites of social networking is growing bigger and at the same time the average user creates more profiles. According to www.checkFacebook.com globally Mark Zuckerberg’s controversial creation is behind from China and India in population; and not for long. It is then obvious that “the times are e-changing”¹⁴⁵ and both agencies and advertisers are in front of a new very interesting reality social media as a communicative tool.

Yes, the popular sites of social networking with the million of pilgrims are treated as a potential el dorado, a promising means of advertising which every brand “must take advantage of”. Which is actually the reality and how possible is all of these to be much ado about nothing? At his recent article www.Brandrepublic.com Michael Trenerry has expressed his disappointment regarding the fact that brands “invade” into popular sites of social networking without having carved a long term strategy. And he has also warned that if Facebook is not being treated with the appropriate responsibility and prudence, then it will be soon renamed into users’ consciousness to spam book.

If a brand wants to achieve its goals needs to use, to trust the experts. Would they attempt a TV commercial on their own? If not then why do they attempt it alone on the Internet? It should be realized that it is not as simple as it may seems. They should not be

¹⁴³ The idea that everyone is on average approximately six steps away from any other person on Earth, so that a chain of, "a friend of a friend" statements can be made, on average, to connect any two people in six steps or fewer.

¹⁴⁴ Nicholas A. Christakis, James H. Fowler “Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives”, Little, Brown and Company, 2009

¹⁴⁵ Paraphrasing Bob Dylan’s lyrics

fooled by the technical simplicity of the attempt and to believe that setting up a group and forwarding a message to a thousand of people their goal will be achieved.

Specific strategy, long term entrepreneurial planning, analysis and targeting of the audience are the necessary requirements for an advertisement to be successful. Social Media contribute with their directness to a healthier and constant connection between the brands and their audiences at the on-line environment. This directness enables the audience to comment, to communicate, to influence and to have a stronger position towards the brands. Moreover social media make possible for new customers to be approached, customers who could not have been reached through traditional media.

Through dialogue encouragement and complaints or proposals submission, the brands have a unique opportunity to optimize their products and upgrade their services by being informed in time about the expectations of the target group they address to. To all the above advantages of the social media, the low cost should be added to.

Social Media seem, even today not to have made their mind about which they prefer to be firstly served; their users or the random expectant intruders. In order to approach and additionally to maintain a wide audience consistency and detailed knowledge so as to answer to all the questions being set are necessary prerequisites. The relationship between the brands and social media can not be built in a day and the reward of the efforts may take long.

It is a common secret that third parties, especially companies that specialize demographics use for many years personal data that individuals / consumers have submitted for several purposes, from buying to voting. And still, it was difficult under specific circumstances for companies to have access to personal data. The question that rises has to do with the enormous amount of personal information that flows every second at the Internet through social media. Will it be an object of exploitation from advertising companies so as to promote their goods? If so, does this establish the targeted advertising?

6.5 INTERNET ADVERTISING

What is actually until now Internet advertising? Internet advertising is divided in many subcategories which continue to multiply. I will present each existing category briefly:

First and foremost, the websites themselves are the most prominent and dominant Internet advertising. Websites, if seen as a whole are much more than an ad. They are the storefront of each company, of each enterprise where anyone can search and find any information he might wish, viewers and potential customers can contact immediately with the company, set their questions and develop an interactive communication.

The typical internet advertising is the ad banner. Banner can be described as little poster or flag that covers the top or the bottom of the Web page. They are hyperlinks, and when clicked they “send/transmit” the user to another site, the advertiser’s site.

The next “type” of internet advertising is the classified ad websites, which are websites similar to newspapers of classified ads. Of course, I could note leave out the interstitials, the accepted term for the well-known to every internet user, Pop-ups. Pop ups, are exactly what they are named after. They appear suddenly at the PC screen while the Internet user has started to download another web page. If anyone clicks on the pop-up, is immediately transferred to the web page the pop-up determines.

These are the most “famous” types of Internet advertising but not of the same importance. E-mail advertising, is as well a means of Internet advertising but the use of it- at least up to now- is not the appropriate since despite of achieving its goal it has created a large number of spam-detection programs, so as the users to dispose of useless, spam message automatically.

The World Wide Web is inherently different from the mass media, which are traditionally used as advertising channels, and an understanding of the differences is essential to optimizing advertising efforts in this new medium. Advertisers who do not understand and acknowledge these differences and who attempt to apply traditional advertising concepts and approaches indiscriminately to this new medium are likely to fail. Therefore, new advertising approaches and models which exploit the unique properties of this medium must be established. Despite the great attention given to the development of the Internet, not much research has been done about how the World Wide

Web is actually used for advertising purposes today, and even less about how it should be used. While most observers agree that the Web has an enormous potential as a commercial medium, there is widespread disagreement about how the medium is developing and what advertisers should do to exploit this development.

7. A NEW ADVERTISING MODEL

This dissertation aims to propose a new advertising model, based upon the framework of the new socioeconomic changes that the new media brought to the modes of development, supporting that personalized advertising in an attention economy framework, through internet -as a carrier-is the future advertising model.

Advertising is until nowadays accessed/described as the “*non-personal promotions of goods, ideas, services*”. The scarcity of human attention is strongly underlined throughout the previous chapters. Traditional advertising methods follow a steady declining route not only as far as profits are concerned but at the consciousness of consumers’ as well.

There is a great historical irony at the heart of the current transformation of advertising. The industry is being deconstructed by technology but by undermining the mass media’s advertising models. Traditional media have undergone severe harm through their proliferation since the audience remained the same arithmetically but it was shared to even smaller shares. In an over-informational environment where the average person is being exposed to 500-1200 a day, since s/he has inadequate time and attention to pay. Therefore, audience’s attention was allocated at many more stimuli resulting to lower advertising revenues, until recently, where advertising messages attended to enormous audiences, without scrutinizing the differences that individuals who formed the audiences had. Moreover, we had seen the same advertising campaigns slightly differentiated if not differentiated at all to be exported to a number of countries, each one with different culture and purchasing state of mind. Many ad campaigns underwent one change in order to be exported: **dubbing**.

In order to be more accurate through description, the campaign that could seize, captivate and uphold my attention could have no effect on another individual, despite the fact that the product being advertised could interest me as much it could him/her. This could not be searched easily since in order to do so the demographic elements that were mentioned in previous chapter are totally necessary. Traditional advertising methods do not have at their disposal complete demographic elements about the addressers of their campaigns, since traditional advertising methods lack both the elements of feedback and interaction.

The most important feature of every advertising campaign is far beyond, attention. Since a campaign manages to gain the attention of a person, the person is

most likely to proceed to the purchase of the product/service. The “traditional methods” of gaining attention “primadonnas promote Rolex and soccer idols recommend Budweiser”¹⁴⁶ if not dead yet, is by far in a total declining route. Potential customers actually lend their attention to the campaign and if it does not manage to uphold it then attention is turned to another campaign or to no campaign.

In the framework of the global economic crisis, mass media that still preserve their massiveness, continue to have significant power at the current multi-divided communicational environment and still have the ability to “survive” for the expected crisis period. For the majority of the small and medium size mass media, the future is not so brightly colored.

Today, advertising is being self-redefined, self-readjusted in order to be in consistency with the new economic era. Advertisement has stopped being global and has turned into being local. In other words, the individual/consumer demands products that address and satisfy his unique needs. The star has ceased to be a star causing mimetic shopping behaviors and the consumers are becoming the stars of their own advertising world.

Advertising is entering a dialogue state, since it has an interlocutor, the consumer. The consumer, should be able to be heard regarding his needs, the changes of his need, his preferences. He should have the opportunity of two way communication of an actual feedback, a feedback that will be taken under consideration.

It is beyond question that advertising stimulates a healthy economy. It creates well informed consumers. The meaning of “Well informed” in the current information overload framework equals to less information. Concerning information its hyper-value is limited to three words: less is more.

It creates price-conscious, financially healthy consumers, meaning that they buy what they truly need; they satisfy their real needs without being carried away by advertising messages tide. What is more, advertising creates demanding and sophisticated consumers. In the attention economy framework the conscious consumer knows what he wants to know about and is no more an information overload victim.

Clearly something has happened to the advertising business. That something is of course the Internet which has disrupted the advertising industry. But as well as

¹⁴⁶ The Economy of Attention, Georg Franck, <http://www.heise.de/tp/r4/artikel/5/5567/1.html>

demolishing old ways of doing things, it has also made new ones possible Internet opens a total new horizon for the creation of a new advertising model that it will be supported from it as a medium.

It is beyond question that the World Wide Web is a galloping infrastructure with significant influence to our lives. Is it actually as mature and stable as it seems? Has it outworn its potentials? University Professor of Information Technology at Aegean University, Doctor Michael Vafopoulos, comments that “The World Wide Web over the last five years Internet has entered a maturation phase with turbulences at social, economic and technological level. Today Internet is an infrastructure for everyday use and of high necessity for more than a billion of people. The bet is to comprehend it and to choose what kind of life we want to live with it”¹⁴⁷.

It may be a galloping infrastructure, it is also a hybrid medium: hybrid in the meaning of new and hybrid, in the meaning that includes and it composes elements from all other media. Therefore, its special characteristics will follow a transforming, ever-changing route until this post-medium to be established

The fascinating about this post-medium is that it shares characteristics of mass communication as well as interpersonal communication. The Web combines the ability of the mass media to disperse a message to wider audiences with some of the interpersonal communication possibilities of providing individualized information using feedback and interaction. The low entry barriers of the medium and the absence of gatekeepers between content providers and the audience allow information, action and interaction to flow without any limitation.

Since the medium is interactive, users of the Web play a much more active role in the communication process than users/audience of traditional mass media. Whereas traditional mass media are characterized by an information **push**, the communication process on the World Wide Web is driven by a basic information **pull**, meaning that the control balance of the communication process has shifted **in favour of the user**. Where TV viewers have to do something **actively** to **avoid** the advertisements, Web users have to do something **actively** to **access** the advertising Web sites. Since Web users actively get information, rather than have it distributed to them, the costs of distribution on the Web are very low from the point of view of the advertiser.

¹⁴⁷ <http://tovima.dolnet.gr>

Therefore, from microeconomic point of view, the marginal cost of delivering extra information depth or letting more users access information is very low.

A new advertising model, which will keep its basic features but will be totally differentiated, is what, according to my opinion, needed in order advertising to rise up again, a new model that could dominate the future of advertisement the forthcoming years. The feature that distinguishes the new model is the feature of attention, more specifically, attention economy. This new model uses attention not in the same way that was used. Furthermore, the fine difference between old model and new model lies in the fact that in the case of attention economy model attention is not irrelevant from whom it emanates. It must retain and reward their attention in order to get the right kind of exposures.

This could be depicted as an equation: The first part has to do with the nature of advertising and the second one has to do with the most appropriate medium.

The elements that constitute the equation are each feature, each thematic field that was thoroughly analyzed in this dissertation. Therefore: attention, information, information overload, attention economy, media and advertising.

- Attention is limited therefore scarce
- Information is in overabundance especially after the ITR
- Scarcity of attention combined with information overload led to the establishment of attention economy as a means of development
- Attention economy is the framework that the new media “rules” are set, consequently the advertising rules
- Advertising is non-personal, it does not match the needs that each individual may has
- A new advertising model is necessary so as to cover the true and unique needs of every individual
- Traditional media are unsuitable to support such a model since they lack in interaction and in feedback implementation

The equation could be showed as following

(Scarcity of attention + overinformation + distraction of consumers’ attention= advertising declination) + (Attention economy + new advertising model + supporting

media) = Advertising in attention economy, The new model seen above as “personalized advertising”. Personalized advertising has en masse to do not with the individualization of the product but of the campaign, in a sense.

The answer to the equation is the personalized advertising. What is actually personalized advertising? Personalized advertising can be seen as a customized, a sur-mesure advertising agenda, created for each customer personally, from a professional intermediate between the customer and the producer.(maybe the advertising companies if they undergo a slight transformation) based on the personal data (eg segmentations, demographics, preferences among others) that the customer has *consciously* and *willingly* submitted. This advertising agenda will be regularly updated, it will be readjusted to changes that already have or may take place regarding the consumer. Important component of this model is the information gatekeepers, in other words, only relative and wanted information will reach the consumer.

Critical elements of this model are:

- The initiative of the customer. Conscious customers, who know what they want to know about, take themselves the initiative to address to such an alternative in order to facilitate their lives. A kind of compass through the ad information tide.
- The consensus of the customer regarding the access of the intermediate to his private sphere.
- The creation as seen before of lifetime relationships between clients and producers, which reach the level of partnership. The most critical element according to my opinion is the real and actual feedback, since each human is an evolving organism with needs, wishes and states that are always subject to change. Therefore, the opportunity to readjust the personal profile according to each new state of things is a unique and meritorious chance.

One step further, attention-economy advertising could seem as creation of monothematic communities and single-identified experiences. Therefore, companies should not attend to large audiences but to small or one-person groups, who share the

same interests or who share the same purchasing interests. Personalized advertising has to do with the **unique approaching of each customer** as an **isolated buying unit**.

Advertising has entered a new era. Advertising has transformed to post-advertising, preserving elements and techniques of the past and developing them to new tools adjusted to the attention economy environment. Nothing more, nothing less. Attention-economy advertising addresses to each customer personally, trying to create a personal account that fits his profile and try to enrich it with this piece of information useful for the future.

7.1 ADVERTISING COMPANIES AS PROFESSIONAL INTERMEDIATES

Advertising companies can be transformed to the professional intermediate between the producers and the customers. Their role has to be radically changed and except for designing and planning successful advertising campaigns they are being transformed to post-companies. Post-companies in the sense that they are called to perform a multi-role, differentiated from their previous one. Nor are they the agents that just seek for the future customer neither do they perform only P.E.S.T. and S.W.A.T. analyses. On the contrary, just like the Internet, which is a post-medium that combines a variety of activities, they should become multifarious and manifolds customer-service companies. Until now each person has its Internet provider, its telephone provider; nowadays at a post-advertising era I believe that advertisement provider will be the next entrepreneurship thought.

Companies that are specialized in analyzing each person's profile, his priorities, his job and economic status, his marital status, educational background, his habits and lifestyle, his preferences and his wills and to conclude after profound and professional scrutinizing what his actual needs are. Companies that store personal information and data being given by their customers, creating a detailed profile of them with the help of experts and professionals, a form of database for each one, a database that will be readjusted to any alteration. Online communication shows its great importance to this case as well. Customers can inform their account form wherever about anything knowing that the changes will be paid attention to and their needs will be covered according the new circumstances.

Such a multifaceted procedure demands a great amount of attention from the company combined with the consumer's cooperation, meaning that he/ she informs the

company about any alterations that took place regarding every sector that he/she has given information about. For instance gaining or losing weight, getting married or getting divorced, being promoted or fired, are factors that affect the status of every user positively or not. It is understood that needs, wishes and state of things are ever changing and circumstances should be ever-adjusted to the altering needs.

Therefore, intermediates do not merely inform their customers about products and services available that *may* fit their needs or suggest to them that “customers, who bought that, bought the other one as well”, *segmentation of one*”. They **pay attention** to their customers so as to find the appropriate product/ service for them; they inform them about discounts or better prices, about products that may have wanted in the past and they were not available. They are their **personal consultant** through the immensity of information that surrounds them and their consequently allocated attention. They may prevent them from purchasing the unsuitable and inappropriate product, they have checked the credibility of the products and they guide them without manipulating them

7.2 AIM OF PERSONALIZED ADVERTISING

The fundamental goal of the industry through advertisement is to “alter” occasional customers to loyal customers. So as to achieve this goal, through this new model emphasis is given to customer service. Through excellent customer service a solid online community of mature users who trust each other is being built, users that trust each other, transact without any hesitation and consequently they multiply the unique and special offers. Internet is a unique channel of product distribution, whose immediate availability and lowest price form the factors that create its comparative advantage towards traditional selling channels.

This is exactly the model of advertising in attention economy: limited attention and time of customers, creation of database of interests and needs, selection of suitable product, information of client/consumer about the selected ones. And then the crucial question arises. How will this new model be put into practice? Advertising does not exist by itself; it needs a medium or media to make its way through consuming audiences. Which medium or media can or could functionally possibly support such a model? It should be a medium that combines a number of features. The medium has to

be direct, interactive and quick in order to achieve/ support the personalization of the ad. Is Internet the future advertising? It is for sure the medium of our socializing, information and entertainment. Internet enjoys extremely high acceptance Internet has as a medium throughout the world. Internet user's profile tends to be equated with the average TV viewer. We noticed as well the multiple language options that exist in the World Wide Web. Fast Internet speeds offer the ability of perfect resolution of pictures not to mention the high quality of video stream. Technically and demographically Internet is equated or tends to be equated to television with very good potentials to surpass it in penetration the coming years.

7.3 WHY INTERNET?

The fact that Internet is a vivid part of our everyday life establishes it as the most appropriate medium for this purpose nowadays. Why is Internet the suitable medium for this advertising method? Advantages and perspectives of Internet are thoroughly explained. Real-time interaction and actual implementation of feedback are the elements that distinguish it from all other media and this is what adds its hyper value. Timing as well, is the other element that raises it to the perfect suitability for this new advertising model: feedback because each one can add, remove or change information about his/her preferences/needs and timing because all this potential transformation can happen at real time and whenever the customer wishes to.

In no other medium is such a capability possible. The most important feature is attention, attention that is paid from the opposite direction; attention that is paid to the customer from the company, finding the custom-tailored product. Attention that could inspire the feeling of significance to the customer, attention paid to the customer that the product can really fulfill his actual needs, his existing and his altering demands. Web Advertising, is clearly based and derived from attention economy, will clearly serve attention economy needs and additionally it could help all of us to cover our true needs at the most suitable way. A value for money tool.

Over the last few years, through the expansion of the broadband communication, a significant rise of the e-shops that address wider consuming audiences takes place. A number of questions are arising regarding the liability of these e-shops and how the feeling of security can be further reinforced. Based up on

international bibliography a consumer will keep on making on line purchases only if he is completely satisfied from his very first purchase. Trust is, if not the most significant, one of the main factors that lead a consumer to use a service or not, to buy a product or not.

Primarily this is the only medium that is truly interactive. This “permits” the consumer directly to communicate with the company/store/enterprise. The enormous audience of the Internet is a fact. As seen above, the expansion of the age of the Internet user profile is also a fact. According to advertisers the most “wanted” target group in order for an advertising campaign to be effective, therefore the product to be bought and the company to be profitable, are the ages among 16-45.

But what are the features that Internet advertising has and overwhelms television? It could be synopsized to just one, from which others derive. Attention. Internet advertising can have a hold on consumers’ attention since it is able to know what stimulates their attention. Summarizing attention economy suggests that the problem is the lack of attention, lack of attention also flows in the everyday life. Humans / consumers need to be informed about products/ product categories that are interested in and only about them.

7.4 MOBILE ADVERTISING (M-ADVERTISING)

The model of personalized advertising goes beyond e-advertising; it is actually mobile -advertising as a facet of mobile -services using the mobile phone as the personal communication channel. Personalized advertising is therefore seen in the M-commerce environment, framework where using Internet, mobile computing and wireless telecommunications are all messed. Mobile phone industry has experienced an explosive growth. Mobile phone users originate from all walks of life and include almost all age groups. It creates new methods of personal communications without location constraints.

Moving further, Internet has been in the minds of many people identified with Pc’s, laptops, notebooks; at any case existence of a computer device is a prerequisite. This is true but not accurate. The last four years the world has started to overflow from the so-called “smart-phones”. A smart-phone is a mobile phone that offers more advanced computing ability and connectivity than a contemporary basic feature phone.

Smartphones and feature phones may be thought of as handheld computers integrated within a mobile telephone. Smartphones run complete operating system software providing a platform for application developers. Like feature phones, a smartphone can be considered as a Personal Pocket Computer with mobile phone functions, because these devices are mainly computers, although much smaller than a desktop computer. Additionally a Personal Pocket Computer is more personal than a desktop computer. Such an evolution has made it most possible for the targeted, the customized advertising through Internet but via another medium, the personal, mobile telephone. M-Advertisement, can be even more **personalized and accurate** since taking advantage of the **physical location** of the customer/user through the **GPS** can offer even more **customer tailored** service that take place at **real time** according to the information previously provided

Despite the fact that over the last years the aspect that “this is the year of the mobile advertising” has many times been heard from many highly ranked technocrats and academics, 2011, may actually become the year-trademark for that globally. That is supported in a NY Times article, which regards very possible that the “next big thing of the marketing” will make its presence powerful.

The commercial expenses at mobile phones for the last year rose globally at 1,2 billion dollars according to a Juniper¹⁴⁸ research survey, corresponding to something less than the 0,33% of the total advertising expenses. And this is why, according to NY Times, because several marketers still remain reluctant as far as the evaluation of the medium is concerned, fearing the invasion the consumers may feel.

Nevertheless, their foresight is reinforced through activation of media Colossians like Apple and Google, which on the one hand have launched new devices (i-Pad for Apple and Android for Google) and on the other hand they have taken over advertising agencies that were active in the market¹⁴⁹.

The actions of these two companies combined with the auspicious predictions of the analysts create a euphorical climate for the markets. Moreover Windsor Holden, analyst of Juniper Research estimates that advertising expense will have been quadruplicated until 2014 and will reach 6 billion dollars. The credit rating agency

¹⁴⁸ www.juniperresearch.com

¹⁴⁹ Apple has recently agreed to Quatro Wireless for 275 billion dollars while Google has agreed to one of the strongest players in the market, AdMob, which disposes advertisements for more than 15.000 mobile sites and applications worldwide for 1 billion dollars.

Global Industry Analysis Inc, in a research that has been recently published, talks about the perspective that this brunch has and foresees that the value of the global mobile advertising market will reach the 18,5 billion dollars for 2015. More than positive is the recent prediction of Morgan Stanley that in the next five years Internet access will take place for the majority of the users through mobile telephones than through the PC's. Research Company IDC estimates that 450 million people today serf the Web through their mobile telephone, number that will reach the 1 billion until 2013.

As mentioned above Mobile Advertising represents a very small part of the total advertising expenses of the companies, however the fact that it goes one step further from the traditional advertising campaigns and at the same time it can locate and target specific audiences forms a new and promising perspective. Set in a detailed framework, mobile advertising could form a new communication channel that, in addition to the traditional mass media, reinforce the communicational attitude of the companies being advertised and of their products and to strengthen the relationship among them and their clients.

We came across the phenomenon of the social media, which has puzzled us whether information spread through it could establish a database for potential customers or not. The answer is positive, the outcome is questionable. Undoubtedly such a tank of information could not be left unexploited, since information spread through it is beyond the imagination of the most optimistic demographic company. The moral aspects touch legal aspects, which are extremely important but will be left out.

Of course the aspect that no consensus for information utilization is given by the users is given comes in contrast with the core of the targeted advertising. As seen above targeted advertising requires the agreement of the user both to be reached and informed. Just the fact that someone may know your preferences does not enable him to contact or even to annoy you. Moreover, targeted advertising also requires the feedback and the interaction of the consumer, his active participation and cooperation with benefits both for the consumer and for the advertiser. Advertiser and consumer have agreed with the terms and the conditions of the contract.

Social media are a demographic treasure house and these data are sold to advertisers for serving their goal. On the other hand, the advertising that takes place through them could not be characterized as web advertising in the sense that lacks

professionalism. Addressing a large audience through the web so as to sell or promote a good or a service may reach the goal but accidentally, not as a result of systematic procedure. If a brand wants to achieve its goals needs to use, to trust the experts. Would they attempt a TV commercial on their own? If not then why do they attempt it alone on the Internet? It should be realized that it is not as simple as it may seem. They should not be fooled by the technical simplicity of the attempt and to believe that setting up a group and forwarding a message to a thousand of people their goal will be always achieved. Specific strategy, long term entrepreneurial planning, analysis and targeting of the audience are the necessary requirements for an advertisement to be successful.

The gainsaying would argue that social media contribute with their directness to a healthier and constant connection between the brands and their audiences at the on-line environment. This directness enables the audience to comment, to communicate, to influence and to have a stronger position towards the brands. Moreover social media make possible for new customers to be approached, customers who could not have been reached through traditional media. Through dialogue encouragement and complaints or proposals submission, the brands have a unique opportunity to optimize their products and upgrade their services by being informed in time about the expectations of the target group they address to.

The question of bioethical arises since no permission, no authorization for their use by third parties was given by the individuals. Without the agreement of the users, the publication of their personal data, the commercialization and their abuse for their own interest by third parties could reach the levels of trespassing, if invasion of their personal life.

Closing comment

Up to one fifth of the American TV viewers does not watch the ad commercials even when being broadcasted during prime shows, during suspense reality shows like “survivor”. This revealed an in-depth research conducted by Nielsen researches (see above) last September, when the most popular TV shows for the new season started to broadcast. These results offer a harder time to the TV channels and Nets, which see their commercial part to lessen even more from the Internet.

CONCLUSION

I supported that the attention capacity of the human brain is **limited**. The other factor that followed was the overabundance of information that has started to accumulate the last two decades and especially after the arrival of the new digital media. I continued by analyzing the new socioeconomic state we are entering and I supported the emerging attention economy. The media analysis regarding attention economy and advertising demonstrated that “traditional advertising” is undergoing a severe declination and the need of a readjustment is totally necessary.

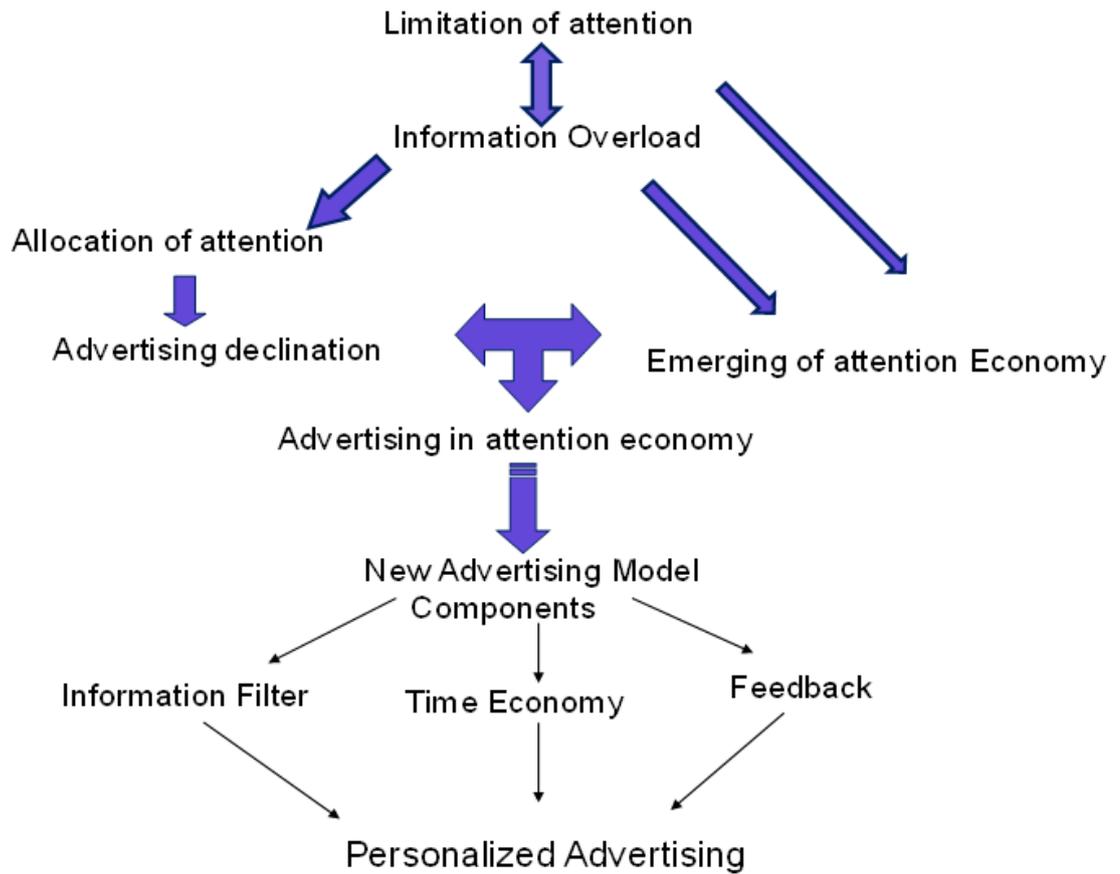
Advertising loses its material substance since the target is no longer the product itself but in what level does the product meet and fulfill the needs of the consumer. In an era that everything has been bought, advertising is transformed into a service, a consulting service in order to help/advise the consumer not about all the products available but about the one product that is most or totally suitable for him/her. Consequently, advertising also abolishes its non-personal character, and is dressed into a totally personal suit, a *sur-mesure* suit that fits only to the size of the consumer addressed to covering its requests/demands at a maximum level.

Internet is becoming introvert. The emerging Web 3.0 marketplace where unlike the Web 2.0 it will be about semantic web (or the meaning of data), personalization (e.g. iGoogle), intelligent search and geosocial applications (Foursquare, etc.) among other things, personalized advertising as tailored services to meet individual customer needs could find its ideal implementation.

Attention is far more than just the ready supply of information processing capacity. Attention is the essence of being conscious in the sense of both self-certain existence and alert presence of mind. Attention is the medium in which everything must be represented that is to become real for us as experiencing creatures. Each attentive creature is the centre of its own individual world. This world exists as many times as there are conscious beings.

Attention will never cease being important. Even at a post-industrial society, at a post-advertising era “All we need is attention”

PROPOSED ADVERTISING MODEL



REFERENCES

1. Aaker David, Rajeev Batra, John Myers "Advertisement management", Prentice /hall International, 1996
2. Allport D.A, "Attention and control: have we been asking the wrong questions?" In DE Meyer, S Kornblum (Eds.), Attention and Performance XIV. Cambridge, MA: MIT Press. 1993
3. Allport DA, "Attention and performance. In: G Claxton (Ed.), Cognitive Psychology: New Directions. London: Routledge and Kegan Paul, 1980,
4. Allport. D.A, „Selection for Action: some behavioral and neurophysiological considerations of attention and action In H. Heuer & H. F. Sanders (eds.), *Perspectives on Perception and Action..*“, Hildsale, NJ, Erlbaun, 1987
5. Arens William, "Contemporary Advertising", International Edition, McGraw-Hill/Irwin, 2002
6. Ashton. Thomas, S, "The Industrial Revolution, 1760-1830", Oxford University Press, USA, 1964:
7. Beneli Iris, "Selective Attention and Arousal", California State University, Northridge, 1997, <http://www.csun.edu>,
8. Biggs, Mary. "Information Overload and Information Seekers: What We Know About Them, What to Do About Them." pg 411-429, *The Reference Librarian* 25/26 , 1989
9. Broadbent, D.E., "Perception and Communication", Elsevier Science Ltd, 1958
10. Calabi. Clotilde "The choosing mind and the judging will", Peter Lang, 1992
11. Castells Manuel, "The Rise of the Network Society. The Information Age: Economy, Society & Culture", vol. 1, pg 77, Oxford:Blackwell, 1996
12. Castells, Manuel, "The Rise of the Network Society. The Information Age: Economy, Society & Culture", vol. 1, Oxford:Blackwell, 1996
13. Christakis Nicholas A., Fowler James H. "Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives", Little, Brown and Company, 2009
14. Davenport. T & Beck.J," The Attention Economy: Understanding the New Currency of Business" , Harvard Business School Press; New Ed edition 2001
15. Dertouzos Michael. L., "What will be:How the new world of Information will change ourlives", HarperOne;FirstharperCollins Pbc, Ed 1998
16. Deutsch, J. & Deutsch, D. Attention: Some theoretical considerations. *Psychological Review*,1963
17. Drucker Peter. F., "Managing in the Next Society", St. martin's Press, New York, 2002
18. Franck Doro and Franck Georg on: The Economy of Attention, *Public Netbase* 02.06. 1995.
19. Georg Franck The Economy of Attention, , <http://www.heise.de/tp/r4/artikel/5/5567/1.html>
20. Goldhaber Michael, "The attention economy and the net: the natural economy of the net" http://www.firstmonday.org/issues/issue2_4/goldhaber/
21. Gould, H.I., "Guide to Concepts and Terms in data Processing", North Holland, Publishing Company,1979
22. Graber, Doris A. "Processing the News: How People Tame the Information Tide", 2nd ed. New York & London: Longman, 1988. Green, Leila. *Communication*

23. Hairong Li, Advertising Media, Michigan State University, <http://www.admedia.org/>
24. Harre Rom , “Cognitive Science: A Philosophical Introduction”, Sage Publications Ltd ,UK, 2002
25. Herbert. Simon, "Designing Organizations for an Information-Rich World", in Martin Greenberger, *Computers, Communication, and the Public Interest*, Baltimore, MD: The Johns Hopkins Press, 1971
26. Holtham, Clive and Nigel Courtney. “Perspectives on Information Overload.” *Aslib Proceedings* 51, no. 8 (Sept. 1999)<http://www.library.ubc.ca>
27. James. W., “Principles of Psychology” Voll.2, Henry Holt and Co, London, 1890
28. Kanheman Daniel, “Attention and effort”, Englewood Cliffs, NJ: Prentice Hall, 1973
29. Lanham, Richard A., “What then is the scarce commodity” *The Economics of Attention: Style and Substance in the Age of Information*, University of Chicago Press, April 2006
30. Lee Elizabeth and Lee Briant, Alfred McClung “ Fine Art of Propaganda: A Study of Father Coughlin’s Speech”, Harcourt, pg. 26 Brace and Company 1939
31. Magill RA “Motor Learning. Concepts and Application”s, pg 141, New York: McGraw-Hill, 2004
32. Mantoux, Paul, “The Industrial Revolution in the eighteenth century: An outline of the beginnings of the modern factory system in England”, *The Industrial Revolution in the eighteenth century: An outline of the beginnings of the modern factory system in England*, 1983
33. Miller George A. “The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information” *Harvard University* First published in *Psychological Review*,1956
34. Navon, D. Gopher D, “On the economy of the human processing system”, *Psychological Review*, 1979
35. Neisser, U., “Cognitive Psychology”, New York, Appleton –Century-Focus, 1967
36. Neumann O, “Theories of attention”. In: O Neumann, AF Sanders (Eds.), *Handbook of Perception and Action, Volume 3: Attention*. San Diego: Academic Press, 1996
37. Neumann Seve and Segev Eli, “A case study of user evaluation of information characteristics for system improvements’, *Information and Management*, 1979
38. Neumann, O: “Beyond capacity: a functional view of attention”. In: H Heuer and AF Sanders (Eds.), *Perspectives on Perception and Action*. Hillsdale, NJ: Erlbaum, 1987
39. Pashler..H , “The psychology of attention”, MA:MIT Press, 1998
40. Peppers Don, Rogers Martha , “*The One to One Future: Building Relationships One Customer at a Time*» *Currency/Doubleday*, January 1997
41. Perry John, Israel David, “What is Information?”, *Information, Language and Cognition*, edited by Philip Hanson, Vancouver: University of British Columbia Press, 1990:
42. Posner, MI, “Psychobiology of attention“, New York, Academic Press, 1975
43. Postman Neil, “Amusing Ourselves to Death: Public Discourse in the Age of Show Business”, Penguin (Non-Classics); 1 edition, 2005
44. Richards, J. I., and Curran, C. M. (2002). Oracles on "Advertisement": Searching for a Definition. *Journal of Advertisement*, Summer, 31(2)
45. Rifkin. J, “The Age of access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience”, J. P. Tarcher;, March 2001

46. Samuelson, Paul, "Economics", McGraw-Hill, New York, 1973
47. Schneider W, Shiffrin RM, "Another name for the "controlled vs. Automatic processing model" Controlled and automatic human information processing: I. Detection, search and attention", Psychological Review, 1977
48. Smith Adam, "The Theory of Moral Sentiments (Great Books in Philosophy) Prometheus Books,2000
49. Surmanek Jim, "Introduction to Advertising Media: Research, Planning and Buying", Chicago, NTC Business Books, 1993
50. Toffler Alvin, "Future Shock", Bantam,1984
51. Treisman Anne, "Journal of Verbal Learning and Verbal Behavior", Volume 3, Issue 6 "Monitoring and storage of irrelevant messages in selective attention" December 1964
52. Van Der Heijden, A.H.C. "Selective Attention in Vision", Routledge, New York, 1992
53. Varian Hal. R & Shapiro Carl , "Information rules: A Strategic guide to the Network Economy", Harvard Business School Press, Boston, Massachusetts, 1999
54. White, Barton C.; Satterthwaite, N. Doyle, "The selling of broadcast advertising", , Allyn And Bacon, Boston, Massachusetts, 1989
55. Wickens CD, "Engineering Psychology and Human Performance", New York, Harper Collins, 1992
56. Wickens CD, "The structure of processing resources", In: R Nickerson (Ed.), Attention and Performance VII. Hillsdale, NJ: Erlbaum, 1980,
57. Wurman, Richard Saul., "Information Anxiety", New York & Toronto:, Doubleday, 1989
58. Yantis S, "Control of visual attention", in H. Pashler's (Ed) "Attention", pg 252, Hove :Psychology Press ,1998

59. <ftp://download.intel.com/research/silicon/noorespaper>.
60. <http://advertisement.utexas.edu/research/terms/>
61. <http://cse.stanford.edu/class/cs201/projects-00-01/third-world/credits.html>
62. <http://io.uwinnipeg.ca/~epritch1/attent~1.htm>
63. <http://stephenking.com>
64. <http://tovima.dolnet.gr>
65. <http://web1.forrester.com/forr/reg/jupiterlogin.jsp>

66. http://www.bizreport.com/2006/09/is_ad_spending_really_going_to_decline.html
67. <http://www.britannica.com/eb/article-27218/marketing>
68. <http://www.britannica.com/eb/article-9003817/advertising>
69. <http://www.bu.edu/wep/Papers/Cogn/Cognchmi.htm> ANDRZEJ CHMIELECKI
70. http://www.dj.com/Pressroom/PressReleases/Financial/2007/0813_FIN_1207.htm
71. <http://www.etymonline.com/index.php?term=information>
72. <http://www.heise.de/tp/r4/artikel/5/5567/1.html>
73. <http://www.heise.de/tp/r4/artikel/5/5567/1.html> -Merkur", no. 534/535
74. <http://www.insites.eu>
75. <http://www.isoc.org/oti/articles/1196/sadowsky.html>
76. <http://www.marketingweek.gr/>
77. <http://www.s-jtech.com/Peter%20Drucker%20-%20the%20Next%20Information%20Revolution.pdf> Peter Drucker - the Next Information Revolution

78. www.emetrics.gr
79. www.epistemics.co.uk/staff/nmilton/papers/attention.htm - 27k -
80. www.hyperdictionary.com/dictionary/concentrate
81. www.juniperresearch.com
82. www.nicholasjohnson.org
83. www.sims.berkeley.edu/academics/courses/is206/f97/GroupE/infoglut.html

APPENDIX

The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information

by George A. Miller

originally published in The Psychological Review, 1956, vol. 63, pp. 81-97
(reproduced here, with the author's permission, by Stephen Malinowski)

Table of Contents

- **Information measurement**
 - **Absolute judgments of unidimensional stimuli**
 - **Absolute judgments of multidimensional stimuli**
 - **Subitizing**
 - **The span of immediate memory**
 - **Recoding**
 - **Summary**
 - **References**
-

My problem is that I have been persecuted by an integer. For seven years this number has followed me around, has intruded in my most private data, and has assaulted me from the pages of our most public journals. This number assumes a variety of disguises, being sometimes a little larger and sometimes a little smaller than usual, but never changing so much as to be unrecognizable. The persistence with which this number plagues me is far more than a random accident. There is, to quote a famous senator, a design behind it, some pattern governing its appearances. Either there really is something unusual about the number or else I am suffering from delusions of persecution.

I shall begin my case history by telling you about some experiments that tested how accurately people can assign numbers to the magnitudes of various aspects of a stimulus. In the traditional language of psychology these would be called experiments in absolute judgment. Historical accident, however, has decreed that they should have another name. We now call them experiments on the capacity of people to transmit information. Since these experiments would not have been done without the appearance of information theory on the psychological scene, and since the results are analyzed in terms of the concepts of information theory, I shall have to preface my discussion with a few remarks about this theory.

Information measurement

The "amount of information" is exactly the same concept that we have talked about for years under the name of "variance." The equations are different, but if we hold tight to the idea that anything that increases the variance also increases the amount of information we cannot go far astray.

The advantages of this new way of talking about variance are simple enough. Variance is always stated in terms of the unit of measurement -- inches, pounds, volts, etc. -- whereas the amount of information is a dimensionless quantity. Since the information in a discrete statistical distribution does not depend upon the unit of measurement, we can extend the concept to situations where we have no metric and we would not ordinarily think of using the variance. And it also enables us to compare results obtained in quite different experimental situations where it would be meaningless to compare variances based on different metrics. So there are some good reasons for adopting the newer concept.

The similarity of variance and amount of information might be explained this way: When we have a large variance, we are very ignorant about what is going to happen. If we are very ignorant, then when we make the observation it gives us a lot of information. On the other hand, if the variance is very small, we know in advance how our observation must come out, so we get little information from making the observation.

If you will now imagine a communication system, you will realize that there is a great deal of variability about what goes into the system and also a great deal of variability about what comes out. The input and the output can therefore be described in terms of their variance (or their information). If it is a good communication system, however, there must be some systematic relation between what goes in and what comes out. That is to say, the output will depend upon the input, or will be correlated with the input. If we measure this correlation, then we can say how much of the output variance is attributable to the input and how much is due to random fluctuations or "noise" introduced by the system during transmission. So we see that the measure of transmitted information is simply a measure of input-output correlation.

There are two simple rules to follow. Whenever I refer to "amount of information," you will understand "variance." And whenever I refer to "amount of transmitted information," you will understand "covariance" or "correlation."

The situation can be described graphically by two partially overlapping circles. Then the left circle can be taken to represent the variance of the input, the right circle the variance of the output, and the overlap the covariance of input and output. I shall speak of the left circle as the amount of input information, the right circle as the amount of output information, and the overlap as the amount of transmitted information.

In the experiments on absolute judgment, the observer is considered to be a communication channel. Then the left circle would represent the amount of information in the stimuli, the right circle the amount of information in his responses, and the overlap the stimulus-response correlation as measured by the amount of transmitted information. The experimental problem is to increase the amount of input information and to measure the amount of transmitted information. If the observer's absolute judgments are quite

accurate, then nearly all of the input information will be transmitted and will be recoverable from his responses. If he makes errors, the transmitted information may be considerably less than the input. We expect that, as we increase the amount of input information, the observer will begin to make more and more errors; we can test the limits of accuracy of his absolute judgments. If the human observer is a reasonable kind of communication system, then when we increase the amount of input information the transmitted information will increase at first and will eventually level off at some asymptotic value. This asymptotic value we take to be the *channel capacity* of the observer: it represents the greatest amount of information that he can give us about the stimulus on the basis of an absolute judgment. The channel capacity is the upper limit on the extent to which the observer can match his responses to the stimuli we give him.

Now just a brief word about the *bit* and we can begin to look at some data. One bit of information is the amount of information that we need to make a decision between two equally likely alternatives. If we must decide whether a man is less than six feet tall or more than six feet tall and if we know that the chances are 50-50, then we need one bit of information. Notice that this unit of information does not refer in any way to the unit of length that we use -- feet, inches, centimeters, etc. However you measure the man's height, we still need just one bit of information.

Two bits of information enable us to decide among four equally likely alternatives. Three bits of information enable us to decide among eight equally likely alternatives. Four bits of information decide among 16 alternatives, five among 32, and so on. That is to say, if there are 32 equally likely alternatives, we must make five successive binary decisions, worth one bit each, before we know which alternative is correct. So the general rule is simple: every time the number of alternatives is increased by a factor of two, one bit of information is added.

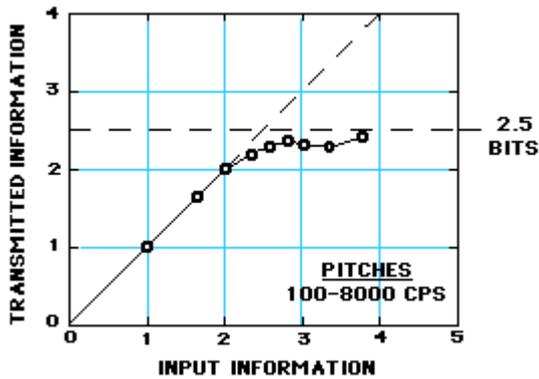
There are two ways we might increase the amount of input information. We could increase the rate at which we give information to the observer, so that the amount of information per unit time would increase. Or we could ignore the time variable completely and increase the amount of input information by increasing the number of alternative stimuli. In the absolute judgment experiment we are interested in the second alternative. We give the observer as much time as he wants to make his response; we simply increase the number of alternative stimuli among which he must discriminate and look to see where confusions begin to occur. Confusions will appear near the point that we are calling his "channel capacity."

Absolute judgments of unidimensional stimuli

Now let us consider what happens when we make absolute judgments of tones. Pollack [17] asked listeners to identify tones by assigning numerals to them. The tones were different with respect to frequency, and covered the range from 100 to 8000 cps in equal logarithmic steps. A tone was sounded and the listener responded by giving a numeral. After the listener had made his response, he was told the correct identification of the tone.

When only two or three tones were used, the listeners never confused them. With four different tones confusions were quite rare, but with five or more tones confusions were frequent. With fourteen different tones the listeners made many mistakes.

Figure 1. Data from Pollack [17, 18] on the amount of information that is transmitted by listeners who make absolute judgments of auditory pitch. As the amount of input information is increased by increasing from 2 to 14 the number of different pitches to be judged, the amount of transmitted information approaches as its upper limit a channel capacity of about 2.5 bits per judgment.



These data are plotted in Fig. 1. Along the bottom is the amount of input information in bits per stimulus. As the number of alternative tones was increased from 2 to 14, the input information increased from 1 to 3.8 bits. On the ordinate is plotted the amount of transmitted information. The amount of transmitted information behaves in much the way we would expect a communication channel to behave; the transmitted information increases linearly up to about 2 bits and then bends off toward an asymptote at about 2.5 bits. This value, 2.5 bits, therefore, is what we are calling the channel capacity of the listener for absolute judgments of pitch.

So now we have the number 2.5 bits. What does it mean? First, note that 2.5 bits corresponds to about six equally likely alternatives. The result means that we cannot pick more than six different pitches that the listener will never confuse. Or, stated slightly differently, no matter how many alternative tones we ask him to judge, the best we can expect him to do is to assign them to about six different classes without error. Or, again, if we know that there were N alternative stimuli, then his judgment enables us to narrow down the particular stimulus to one out of $N/6$.

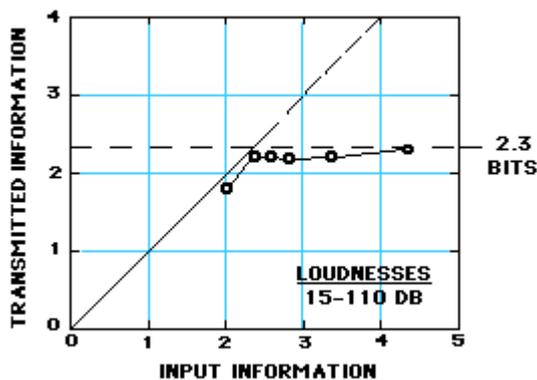
Most people are surprised that the number is as small as six. Of course, there is evidence that a musically sophisticated person with absolute pitch can identify accurately any one of 50 or 60 different pitches. Fortunately, I do not have time to discuss these remarkable exceptions. I say it is fortunate because I do not know how to explain their superior performance. So I shall stick to the more pedestrian fact that most of us can identify about one out of only five or six pitches before we begin to get confused.

It is interesting to consider that psychologists have been using seven-point rating scales for a long time, on the intuitive basis that trying to rate into finer categories does not really add much to the usefulness of the ratings. Pollack's results indicate that, at least for pitches, this intuition is fairly sound.

Next you can ask how reproducible this result is. Does it depend on the spacing of the tones or the various conditions of judgment? Pollack varied these conditions in a number of ways. The range of frequencies can be changed by a factor of about 20 without changing the amount of information transmitted more than a small percentage. Different groupings of the pitches decreased the transmission, but the loss was small. For example, if you can discriminate five high-pitched tones in one series and five low-pitched tones in another series, it is reasonable to expect that you could combine all ten into a single series and still tell them all apart without error. When you try it, however, it does not work. The channel capacity for pitch seems to be about six and that is the best you can do.

While we are on tones, let us look next at Garner's [7] work on loudness. Garner's data for loudness are summarized in Fig. 2. Garner went to some trouble to get the best possible spacing of his tones over the intensity range from 15 to 110 dB. He used 4, 5, 6, 7, 10, and 20 different stimulus intensities. The results shown in Fig. 2 take into account the differences among subjects and the sequential influence of the immediately preceding judgment. Again we find that there seems to be a limit. The channel capacity for absolute judgments of loudness is 2.3 bits, or about five perfectly discriminable alternatives.

Figure 2. Data from Garner [7] on the channel capacity for absolute judgments of auditory loudness.



Since these two studies were done in different laboratories with slightly different techniques and methods of analysis, we are not in a good position to argue whether five loudnesses is significantly different from six pitches. Probably the difference is in the right direction, and absolute judgments of pitch are slightly more accurate than absolute judgments of loudness. The important point, however, is that the two answers are of the same order of magnitude.

The experiment has also been done for taste intensities. In Fig. 3 are the results obtained by Beebe-Center, Rogers, and O'Connell [1] for absolute judgments of the concentration of salt solutions. The concentrations ranged from 0.3 to 34.7 gm. NaCl per 100 cc. tap water in equal subjective steps. They used 3, 5, 9, and 17 different concentrations. The channel capacity is 1.9 bits, which is about four distinct concentrations. Thus taste intensities seem a little less distinctive than auditory stimuli, but again the order of magnitude is not far off.

Figure 3. Data from Beebe-Center, Rogers, and O'Connell [1] on the channel capacity for absolute judgments of saltiness.

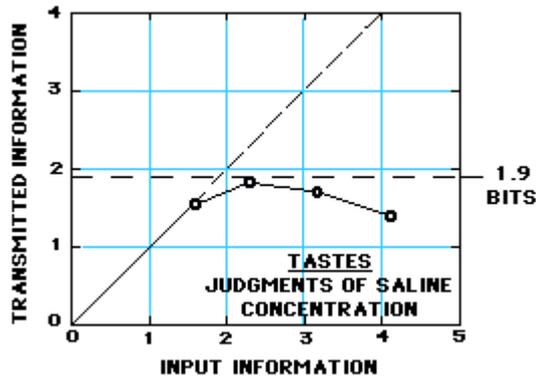
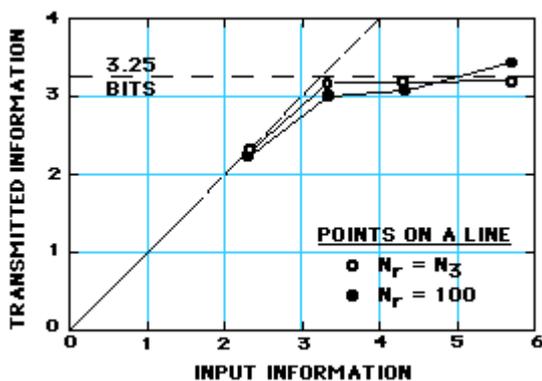


Figure 4. Data from Hake and Garner [8] on the channel capacity for absolute judgments of the position of a pointer in a linear interval.



On the other hand, the channel capacity for judgments of visual position seems to be significantly larger. Hake and Garner [8] asked observers to interpolate visually between two scale markers. Their results are shown in Fig. 4. They did the experiment in two ways. In one version they let the observer use any number between zero and 100 to describe the position, although they presented stimuli at only 5, 10, 20, or 50 different positions. The results with this unlimited response technique are shown by the filled circles on the graph. In the other version the observers were limited in their responses to reporting just those stimulus values that were possible. That is to say, in the second version the number of different responses that the observer could make was exactly the same as the number of different stimuli that the experimenter might present. The results with this limited response technique are shown by the open circles on the graph. The two functions are so similar that it seems fair to conclude that the number of responses available to the observer had nothing to do with the channel capacity of 3.25 bits.

The Hake-Garner experiment has been repeated by Coonan and Klemmer. Although they have not yet published their results, they have given me permission to say that they obtained channel capacities ranging from 3.2 bits for very short exposures of the pointer

position to 3.9 bits for longer exposures. These values are slightly higher than Hake and Garner's, so we must conclude that there are between 10 and 15 distinct positions along a linear interval. This is the largest channel capacity that has been measured for any unidimensional variable.

At the present time these four experiments on absolute judgments of simple, unidimensional stimuli are all that have appeared in the psychological journals. However, a great deal of work on other stimulus variables has not yet appeared in the journals. For example, Eriksen and Hake [6] have found that the channel capacity for judging the sizes of squares is 2.2 bits, or about five categories, under a wide range of experimental conditions. In a separate experiment Eriksen [5] found 2.8 bits for size, 3.1 bits for hue, and 2.3 bits for brightness. Geldard has measured the channel capacity for the skin by placing vibrators on the chest region. A good observer can identify about four intensities, about five durations, and about seven locations.

One of the most active groups in this area has been the Air Force Operational Applications Laboratory. Pollack has been kind enough to furnish me with the results of their measurements for several aspects of visual displays. They made measurements for area and for the curvature, length, and direction of lines. In one set of experiments they used a very short exposure of the stimulus -- 1/40 second -- and then they repeated the measurements with a 5-second exposure. For area they got 2.6 bits with the short exposure and 2.7 bits with the long exposure. For the length of a line they got about 2.6 bits with the short exposure and about 3.0 bits with the long exposure. Direction, or angle of inclination, gave 2.8 bits for the short exposure and 3.3 bits for the long exposure. Curvature was apparently harder to judge. When the length of the arc was constant, the result at the short exposure duration was 2.2 bits, but when the length of the chord was constant, the result was only 1.6 bits. This last value is the lowest that anyone has measured to date. I should add, however, that these values are apt to be slightly too low because the data from all subjects were pooled before the transmitted information was computed.

Now let us see where we are. First, the channel capacity does seem to be a valid notion for describing human observers. Second, the channel capacities measured for these unidimensional variables range from 1.6 bits for curvature to 3.9 bits for positions in an interval. Although there is no question that the differences among the variables are real and meaningful, the more impressive fact to me is their considerable similarity. If I take the best estimates I can get of the channel capacities for all the stimulus variables I have mentioned, the mean is 2.6 bits and the standard deviation is only 0.6 bit. In terms of distinguishable alternatives, this mean corresponds to about 6.5 categories, one standard deviation includes from 4 to 10 categories, and the total range is from 3 to 15 categories. Considering the wide variety of different variables that have been studied, I find this to be a remarkably narrow range.

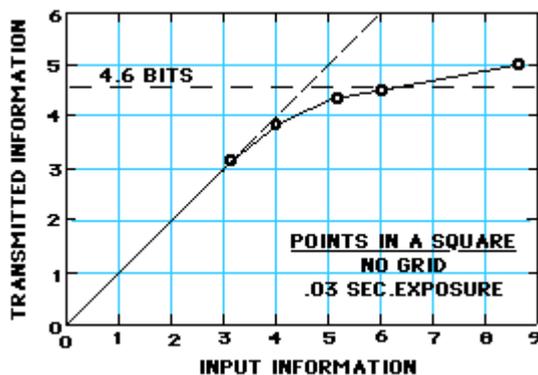
There seems to be some limitation built into us either by learning or by the design of our nervous systems, a limit that keeps our channel capacities in this general range. On the basis of the present evidence it seems safe to say that we possess a finite and rather small capacity for making such unidimensional judgments and that this capacity does not vary a great deal from one simple sensory attribute to another.

Absolute judgments of multidimensional stimuli

You may have noticed that I have been careful to say that this magical number seven applies to one-dimensional judgments. Everyday experience teaches us that we can identify accurately any one of several hundred faces, any one of several thousand words, any one of several thousand objects, etc. The story certainly would not be complete if we stopped at this point. We must have some understanding of why the one-dimensional variables we judge in the laboratory give results so far out of line with what we do constantly in our behavior outside the laboratory. A possible explanation lies in the number of independently variable attributes of the stimuli that are being judged. Objects, faces, words, and the like differ from one another in many ways, whereas the simple stimuli we have considered thus far differ from one another in only one respect.

Fortunately, there are a few data on what happens when we make absolute judgments of stimuli that differ from one another in several ways. Let us look first at the results Klemmer and Frick [13] have reported for the absolute judgment of the position of a dot in a square. In Fig. 5 we see their results. Now the channel capacity seems to have increased to 4.6 bits, which means that people can identify accurately any one of 24 positions in the square.

Figure 5. Data from Klemmer and Frick [13] on the channel capacity for absolute judgments of the position of a dot in a square.



The position of a dot in a square is clearly a two-dimensional proposition. Both its horizontal and its vertical position must be identified. Thus it seems natural to compare the 4.6-bit capacity for a square with the 3.25-bit capacity for the position of a point in an interval. The point in the square requires two judgments of the interval type. If we have a capacity of 3.25 bits for estimating intervals and we do this twice, we should get 6.5 bits as our capacity for locating points in a square. Adding the second independent dimension gives us an increase from 3.25 to 4.6, but it falls short of the perfect addition that would give 6.5 bits.

Another example is provided by Beebe-Center, Rogers, and O'Connell [1]. When they asked people to identify both the saltiness and the sweetness of solutions containing various concentrations of salt and sucrose, they found that the channel capacity was 2.3 bits. Since the capacity for salt alone was 1.9, we might expect about 3.8 bits if the two

aspects of the compound stimuli were judged independently. As with spatial locations, the second dimension adds a little to the capacity but not as much as it conceivably might.

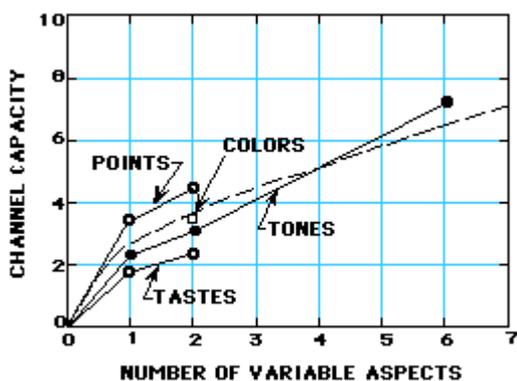
A third example is provided by Pollack [18], who asked listeners to judge both the loudness and the pitch of pure tones. Since pitch gives 2.5 bits and loudness gives 2.3 bits, we might hope to get as much as 4.8 bits for pitch and loudness together. Pollack obtained 3.1 bits, which again indicates that the second dimension augments the channel capacity but not so much as it might.

A fourth example can be drawn from the work of Halsey and Chapanis [9] on confusions among colors of equal luminance. Although they did not analyze their results in informational terms, they estimate that there are about 11 to 15 identifiable colors, or, in our terms, about 3.6 bits. Since these colors varied in both hue and saturation, it is probably correct to regard this as a two-dimensional judgment. If we compare this with Eriksen's 3.1 bits for hue (which is a questionable comparison to draw), we again have something less than perfect addition when a second dimension is added.

It is still a long way, however, from these two-dimensional examples to the multidimensional stimuli provided by faces, words, etc. To fill this gap we have only one experiment, an auditory study done by Pollack and Ficks [19]. They managed to get six different acoustic variables that they could change: frequency, intensity, rate of interruption, on-time fraction, total duration, and spatial location. Each one of these six variables could assume any one of five different values, so altogether there were 5^6 , or 15,625 different tones that they could present. The listeners made a separate rating for each one of these six dimensions. Under these conditions the transmitted information was 7.2 bits, which corresponds to about 150 different categories that could be absolutely identified without error. Now we are beginning to get up into the range that ordinary experience would lead us to expect.

Suppose that we plot these data, fragmentary as they are, and make a guess about how the channel capacity changes with the dimensionality of the stimuli. The result is given in Fig. 6. In a moment of considerable daring I sketched the dotted line to indicate roughly the trend that the data seemed to be taking.

Figure 6. The general form of the relation between channel capacity and the number of independently variable attributes of the stimuli.



Clearly, the addition of independently variable attributes to the stimulus increases the channel capacity, but at a decreasing rate. It is interesting to note that the channel capacity is increased even when the several variables are not independent. Eriksen [5] reports that, when size, brightness, and hue all vary together in perfect correlation, the transmitted information is 4.1 bits as compared with an average of about 2.7 bits when these attributes are varied one at a time. By confounding three attributes, Eriksen increased the dimensionality of the input without increasing the amount of input information; the result was an increase in channel capacity of about the amount that the dotted function in Fig. 6 would lead us to expect.

The point seems to be that, as we add more variables to the display, we increase the total capacity, but we decrease the accuracy for any particular variable. In other words, we can make relatively crude judgments of several things simultaneously.

We might argue that in the course of evolution those organisms were most successful that were responsive to the widest range of stimulus energies in their environment. In order to survive in a constantly fluctuating world, it was better to have a little information about a lot of things than to have a lot of information about a small segment of the environment. If a compromise was necessary, the one we seem to have made is clearly the more adaptive.

Pollack and Ficks's results are very strongly suggestive of an argument that linguists and phoneticians have been making for some time [19]. According to the linguistic analysis of the sounds of human speech, there are about eight or ten dimensions -- the linguists call them *distinctive features* -- that distinguish one phoneme from another. These distinctive features are usually binary, or at most ternary, in nature. For example, a binary distinction is made between vowels and consonants, a binary decision is made between oral and nasal consonants, a ternary decision is made among front, middle, and back phonemes, etc. This approach gives us quite a different picture of speech perception than we might otherwise obtain from our studies of the speech spectrum and of the ear's ability to discriminate relative differences among pure tones. I am personally much interested in this new approach [15], and I regret that there is not time to discuss it here.

It was probably with this linguistic theory in mind that Pollack and Ficks conducted a test on a set of tonal stimuli that varied in eight dimensions, but required only a binary decision on each dimension. With these tones they measured the transmitted information at 6.9 bits, or about 120 recognizable kinds of sounds. It is an intriguing question, as yet unexplored, whether one can go on adding dimensions indefinitely in this way.

In human speech there is clearly a limit to the number of dimensions that we use. In this instance, however, it is not known whether the limit is imposed by the nature of the perceptual machinery that must recognize the sounds or by the nature of the speech machinery that must produce them. Somebody will have to do the experiment to find out. There is a limit, however, at about eight or nine distinctive features in every language that has been studied, and so when we talk we must resort to still another trick for increasing our channel capacity. Language uses sequences of phonemes, so we make several judgments successively when we listen to words and sentences. That is to say, we use both simultaneous and successive discriminations in order to expand the rather rigid limits imposed by the inaccuracy of our absolute judgments of simple magnitudes.

These multidimensional judgments are strongly reminiscent of the abstraction experiment of Külpe [14]. As you may remember, Külpe showed that observers report more accurately on an attribute for which they are set than on attributes for which they are not set. For example, Chapman [4] used three different attributes and compared the results obtained when the observers were instructed before the tachistoscopic presentation with the results obtained when they were not told until after the presentation which one of the three attributes was to be reported. When the instruction was given in advance, the judgments were more accurate. When the instruction was given afterwards, the subjects presumably had to judge all three attributes in order to report on any one of them and the accuracy was correspondingly lower. This is in complete accord with the results we have just been considering, where the accuracy of judgment on each attribute decreased as more dimensions were added. The point is probably obvious, but I shall make it anyhow, that the abstraction experiments did not demonstrate that people can judge only one attribute at a time. They merely showed what seems quite reasonable, that people are less accurate if they must judge more than one attribute simultaneously.

Subitizing

I cannot leave this general area without mentioning, however briefly, the experiments conducted at Mount Holyoke College on discrimination of number [12]. In experiments by Kaufman, Lord, Reese, and Volkman random patterns of dots were flashed on a screen for 1/5 of a second. Anywhere from 1 to more than 200 dots could appear in the pattern. The subject's task was to report how many dots there were.

The first point to note is that on patterns containing up to five or six dots the subjects simply did not make errors. The performance on these small numbers of dots was so different from the performance with more dots that it was given a special name. Below seven the subjects were said to *subitize*; above seven they were said to *estimate*. This is, as you will recognize, what we once optimistically called "the span of attention."

This discontinuity at seven is, of course, suggestive. Is this the same basic process that limits our unidimensional judgments to about seven categories? The generalization is tempting, but not sound in my opinion. The data on number estimates have not been analyzed in informational terms; but on the basis of the published data I would guess that the subjects transmitted something more than four bits of information about the number of dots. Using the same arguments as before, we would conclude that there are about 20 or 30 distinguishable categories of numerosness. This is considerably more information than we would expect to get from a unidimensional display. It is, as a matter of fact, very much like a two-dimensional display. Although the dimensionality of the random dot patterns is not entirely clear, these results are in the same range as Klemmer and Frick's for their two-dimensional display of dots in a square. Perhaps the two dimensions of numerosness are area and density. When the subject can subitize, area and density may not be the significant variables, but when the subject must estimate perhaps they are significant. In any event, the comparison is not so simple as it might seem at first thought.

This is one of the ways in which the magical number seven has persecuted me. Here we have two closely related kinds of experiments, both of which point to the significance of the number seven as a limit on our capacities. And yet when we examine the matter more closely, there seems to be a reasonable suspicion that it is nothing more than a coincidence.

The span of immediate memory

Let me summarize the situation in this way. There is a clear and definite limit to the accuracy with which we can identify absolutely the magnitude of a unidimensional stimulus variable. I would propose to call this limit the *span of absolute judgment*, and I maintain that for unidimensional judgments this span is usually somewhere in the neighborhood of seven. We are not completely at the mercy of this limited span, however, because we have a variety of techniques for getting around it and increasing the accuracy of our judgments. The three most important of these devices are (a) to make relative rather than absolute judgments; or, if that is not possible, (b) to increase the number of dimensions along which the stimuli can differ; or (c) to arrange the task in such a way that we make a sequence of several absolute judgments in a row.

The study of relative judgments is one of the oldest topics in experimental psychology, and I will not pause to review it now. The second device, increasing the dimensionality, we have just considered. It seems that by adding more dimensions and requiring crude, binary, yes-no judgments on each attribute we can extend the span of absolute judgment from seven to at least 150. Judging from our everyday behavior, the limit is probably in the thousands, if indeed there is a limit. In my opinion, we cannot go on compounding dimensions indefinitely. I suspect that there is also a *span of perceptual dimensionality* and that this span is somewhere in the neighborhood of ten, but I must add at once that there is no objective evidence to support this suspicion. This is a question sadly needing experimental exploration.

Concerning the third device, the use of successive judgments, I have quite a bit to say because this device introduces memory as the handmaiden of discrimination. And, since mnemonic processes are at least as complex as are perceptual processes, we can anticipate that their interactions will not be easily disentangled.

Suppose that we start by simply extending slightly the experimental procedure that we have been using. Up to this point we have presented a single stimulus and asked the observer to name it immediately thereafter. We can extend this procedure by requiring the observer to withhold his response until we have given him several stimuli in succession. At the end of the sequence of stimuli he then makes his response. We still have the same sort of input-output situation that is required for the measurement of transmitted information. But now we have passed from an experiment on absolute judgment to what is traditionally called an experiment on immediate memory.

Before we look at any data on this topic, I feel I must give you a word of warning to help you avoid some obvious associations that can be confusing. Everybody knows that there is a finite span of immediate memory and that for a lot of different kinds of test materials this span is about seven items in length. I have just shown you that there is a span of absolute judgment that can distinguish about seven categories and that there is a span of attention that will encompass about six objects at a glance. What is more natural than to think that all three of these spans are different aspects of a single underlying process? And that is a fundamental mistake, as I shall be at some pains to demonstrate. This mistake is one of the malicious persecutions that the magical number seven has subjected me to.

My mistake went something like this. We have seen that the invariant feature in the span of absolute judgment is the amount of information that the observer can transmit. There is a real operational similarity between the absolute judgment experiment and the immediate memory experiment. If immediate memory is like absolute judgment, then it should follow that the invariant feature in the span of immediate memory is also the amount of information that an observer can retain. If the amount of information in the span of immediate memory is a constant, then the span should be short when the individual items contain a lot of information and the span should be long when the items contain little information. For example, decimal digits are worth 3.3 bits apiece. We can recall about seven of them, for a total of 23 bits of information. Isolated English words are worth about 10 bits apiece. If the total amount of information is to remain constant at 23 bits, then we should be able to remember only two or three words chosen at random. In this way I generated a theory about how the span of immediate memory should vary as a function of the amount of information per item in the test materials.

The measurements of memory span in the literature are suggestive on this question, but not definitive. And so it was necessary to do the experiment to see. Hayes [10] tried it out with five different kinds of test materials: binary digits, decimal digits, letters of the alphabet, letters plus decimal digits, and with 1,000 monosyllabic words. The lists were read aloud at the rate of one item per second and the subjects had as much time as they needed to give their responses. A procedure described by Woodworth [20] was used to score the responses.

The results are shown by the filled circles in Fig. 7. Here the dotted line indicates what the span should have been if the amount of information in the span were constant. The solid curves represent the data. Hayes repeated the experiment using test vocabularies of different sizes but all containing only English monosyllables (open circles in Fig. 7). This more homogeneous test material did not change the picture significantly. With binary items the span is about nine and, although it drops to about five with monosyllabic English words, the difference is far less than the hypothesis of constant information would require.

Figure 7. Data from Hayes [10] on the span of immediate memory plotted as a function of the amount of information per item in the test materials.

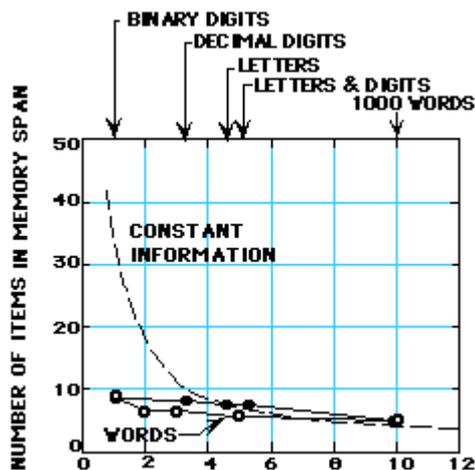
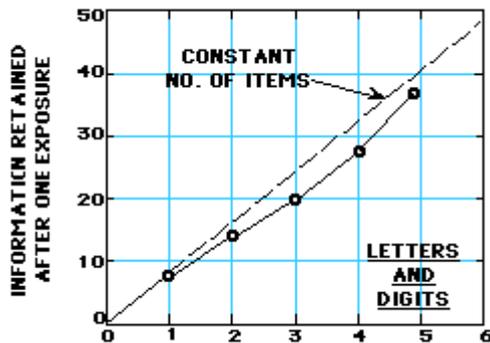


Figure 8. Data from Pollack [16] on the amount of information retained after one presentation plotted as a function of the amount of information per item in the test materials.



There is nothing wrong with Hayes's experiment, because Pollack [16] repeated it much more elaborately and got essentially the same result. Pollack took pains to measure the amount of information transmitted and did not rely on the traditional procedure for scoring the responses. His results are plotted in Fig. 8. Here it is clear that the amount of information transmitted is not a constant, but increases almost linearly as the amount of information per item in the input is increased.

And so the outcome is perfectly clear. In spite of the coincidence that the magical number seven appears in both places, the span of absolute judgment and the span of immediate memory are quite different kinds of limitations that are imposed on our ability to process information. Absolute judgment is limited by the amount of information. Immediate memory is limited by the number of items. In order to capture this distinction in somewhat picturesque terms, I have fallen into the custom of distinguishing between *bits* of information and *chunks* of information. Then I can say that the number of bits of information is constant for absolute judgment and the number of chunks of information is constant for immediate memory. The span of immediate memory seems to be almost independent of the number of bits per chunk, at least over the range that has been examined to date.

The contrast of the terms *bit* and *chunk* also serves to highlight the fact that we are not very definite about what constitutes a chunk of information. For example, the memory span of five words that Hayes obtained when each word was drawn at random from a set of 1,000 English monosyllables might just as appropriately have been called a memory span of 15 phonemes, since each word had about three phonemes in it. Intuitively, it is clear that the subjects were recalling five words, not 15 phonemes, but the logical distinction is not immediately apparent. We are dealing here with a process of organizing or grouping the input into familiar units or chunks, and a great deal of learning has gone into the formation of these familiar units.

Recoding

In order to speak more precisely, therefore, we must recognize the importance of grouping or organizing the input sequence into units or chunks. Since the memory span is a fixed number of chunks, we can increase the number of bits of information that it contains simply by building larger and larger chunks, each chunk containing more information than before.

A man just beginning to learn radio-telegraphic code hears each *dit* and *dah* as a separate chunk. Soon he is able to organize these sounds into letters and then he can deal with the letters as chunks. Then the letters organize themselves as words, which are still larger chunks, and he begins to hear whole phrases. I do not mean that each step is a discrete process, or that plateaus must appear in his learning curve, for surely the levels of organization are achieved at different rates and overlap each other during the learning process. I am simply pointing to the obvious fact that the dits and dahs are organized by learning into patterns and that as these larger chunks emerge the amount of message that the operator can remember increases correspondingly. In the terms I am proposing to use, the operator learns to increase the bits per chunk.

In the jargon of communication theory, this process would be called *recoding*. The input is given in a code that contains many chunks with few bits per chunk. The operator recodes the input into another code that contains fewer chunks with more bits per chunk. There are many ways to do this recoding, but probably the simplest is to group the input events, apply a new name to the group, and then remember the new name rather than the original input events.

Since I am convinced that this process is a very general and important one for psychology, I want to tell you about a demonstration experiment that should make perfectly explicit what I am talking about. This experiment was conducted by Sidney Smith and was reported by him before the Eastern Psychological Association in 1954.

Begin with the observed fact that people can repeat back eight decimal digits, but only nine binary digits. Since there is a large discrepancy in the amount of information recalled in these two cases, we suspect at once that a recoding procedure could be used to increase the span of immediate memory for binary digits. In Table 1 a method for grouping and renaming is illustrated. Along the top is a sequence of 18 binary digits, far more than any subject was able to recall after a single presentation. In the next line these same binary digits are grouped by pairs. Four possible pairs can occur: 00 is renamed 0, 01 is renamed 1, 10 is renamed 2, and 11 is renamed 3. That is to say, we recode from a base-two arithmetic to a base-four arithmetic. In the recoded sequence there are now just nine digits to remember, and this is almost within the span of immediate memory. In the next line the same sequence of binary digits is regrouped into chunks of three. There are eight possible sequences of three, so we give each sequence a new name between 0 and 7. Now we have recoded from a sequence of 18 binary digits into a sequence of 6 octal digits, and this is well within the span of immediate memory. In the last two lines the binary digits are grouped by fours and by fives and are given decimal-digit names from 0 to 15 and from 0 to 31.

Table I. Ways of Recoding Sequences of Binary Digits

Binary Digits (Bits)	1	0	1	0	0	0	1	0	0	1	1	1	0	0	1	1	0
2:1	Chunks	10	10	00	10	01	11	00	11	10							
	Recoding	2	2	0	2	1	3	0	3	2							
3:1	Chunks	101		000	100	111	001	110									
	Recoding	5		0	4	7	1	6									
4:1	Chunks	1010		0010	0111	0011	10										
	Recoding	10		2	7	3											
5:1	Chunks	10100		01001	11001	110											
	Recoding	20		9	25												

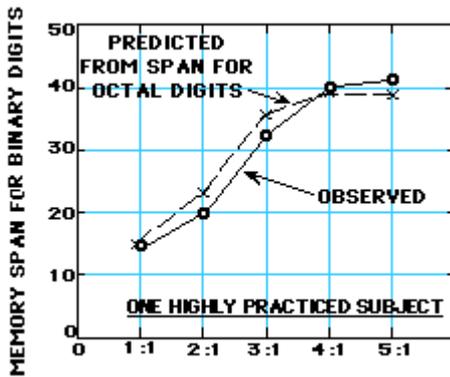
It is reasonably obvious that this kind of recoding increases the bits per chunk, and packages the binary sequence into a form that can be retained within the span of immediate memory. So Smith assembled 20 subjects and measured their spans for binary and octal digits. The spans were 9 for binaries and 7 for octals. Then he gave each recoding scheme to five of the subjects. They studied the recoding until they said they understood it -- for about 5 or 10 minutes. Then he tested their span for binary digits again while they tried to use the recoding schemes they had studied.

The recoding schemes increased their span for binary digits in every case. But the increase was not as large as we had expected on the basis of their span for octal digits. Since the discrepancy increased as the recoding ratio increased, we reasoned that the few minutes the subjects had spent learning the recoding schemes had not been sufficient. Apparently the translation from one code to the other must be almost automatic or the subject will lose part of the next group while he is trying to remember the translation of the last group.

Since the 4:1 and 5:1 ratios require considerable study, Smith decided to imitate Ebbinghaus and do the experiment on himself. With Germanic patience he drilled himself on each recoding successively, and obtained the results shown in Fig. 9. Here the data follow along rather nicely with the results you would predict on the basis of his span for octal digits. He could remember 12 octal digits. With the 2:1 recoding, these 12 chunks were worth 24 binary digits. With the 3:1 recoding they were worth 36 binary digits. With the 4:1 and 5:1 recodings, they were worth about 40 binary digits.

It is a little dramatic to watch a person get 40 binary digits in a row and then repeat them back without error. However, if you think of this merely as a mnemonic trick for extending the memory span, you will miss the more important point that is implicit in nearly all such mnemonic devices. The point is that recoding is an extremely powerful weapon for increasing the amount of information that we can deal with. In one form or another we use recoding constantly in our daily behavior.

Figure 9. The span of immediate memory for binary digits is plotted as a function of the recoding procedure used. The predicted function is obtained by multiplying the span for octals by 2, 3, and 3.3 for recoding into base 4, base 8, and base 10, respectively.



In my opinion the most customary kind of recoding that we do all the time is to translate into a verbal code. When there is a story or an argument or an idea that we want to remember, we usually try to rephrase it "in our own words." When we witness some event we want to remember, we make a verbal description of the event and then remember our verbalization. Upon recall we recreate by secondary elaboration the details that seem consistent with the particular verbal recoding we happen to have made. The well-known experiment by Carmichael, Hogan, and Walter [3] on the influence that names have on the recall of visual figures is one demonstration of the process.

The inaccuracy of the testimony of eyewitnesses is well known in legal psychology, but the distortions of testimony are not random -- they follow naturally from the particular recoding that the witness used, and the particular recoding he used depends upon his whole life history. Our language is tremendously useful for repackaging material into a few chunks rich in information. I suspect that imagery is a form of recoding, too, but images seem much harder to get at operationally and to study experimentally than the more symbolic kinds of recoding.

It seems probable that even memorization can be studied in these terms. The process of memorizing may be simply the formation of chunks, or groups of items that go together, until there are few enough chunks so that we can recall all the items. The work by Bousfield and Cohen [2] on the occurrence of clustering in the recall of words is especially interesting in this respect.

Summary

I have come to the end of the data that I wanted to present, so I would like now to make some summarizing remarks.

First, the span of absolute judgment and the span of immediate memory impose severe limitations on the amount of information that we are able to receive, process, and remember. By organizing the stimulus input simultaneously into several dimensions and successively into a sequence or chunks, we manage to break (or at least stretch) this informational bottleneck.

Second, the process of recoding is a very important one in human psychology and deserves much more explicit attention than it has received. In particular, the kind of

linguistic recoding that people do seems to me to be the very lifeblood of the thought processes. Recoding procedures are a constant concern to clinicians, social psychologists, linguists, and anthropologists and yet, probably because recoding is less accessible to experimental manipulation than nonsense syllables or T mazes, the traditional experimental psychologist has contributed little or nothing to their analysis. Nevertheless, experimental techniques can be used, methods of recoding can be specified, behavioral indicants can be found. And I anticipate that we will find a very orderly set of relations describing what now seems an uncharted wilderness of individual differences.

Third, the concepts and measures provided by the theory of information provide a quantitative way of getting at some of these questions. The theory provides us with a yardstick for calibrating our stimulus materials and for measuring the performance of our subjects. In the interests of communication I have suppressed the technical details of information measurement and have tried to express the ideas in more familiar terms; I hope this paraphrase will not lead you to think they are not useful in research. Informational concepts have already proved valuable in the study of discrimination and of language; they promise a great deal in the study of learning and memory; and it has even been proposed that they can be useful in the study of concept formation. A lot of questions that seemed fruitless twenty or thirty years ago may now be worth another look. In fact, I feel that my story here must stop just as it begins to get really interesting.

And finally, what about the magical number seven? What about the seven wonders of the world, the seven seas, the seven deadly sins, the seven daughters of Atlas in the Pleiades, the seven ages of man, the seven levels of hell, the seven primary colors, the seven notes of the musical scale, and the seven days of the week? What about the seven-point rating scale, the seven categories for absolute judgment, the seven objects in the span of attention, and the seven digits in the span of immediate memory? For the present I propose to withhold judgment. Perhaps there is something deep and profound behind all these sevens, something just calling out for us to discover it. But I suspect that it is only a pernicious, Pythagorean coincidence.

References

1. Beebe-Center, J.G., Rogers, M.S., and O'Connell, D.N. Transmission of information about sucrose and saline solutions through the sense of taste. *J. Psychol.*, 1955, **39**, 157-160.
2. Bousfield, W.A., and Cohen, B.H. The occurrence of clustering in the recall of randomly arranged words of different frequencies-of-usage. *J. Gen. Psychol.*, 1955, **52**, 83-95.
3. Carmichael, L., Hogan, H.P., and Walter, A.A. An experimental study of the effect of language on the reproduction of visually perceived form. *J. Exp. Psychol.*, 1932, **15**, 73-86.
4. Chapman, D.W. Relative effects of determinate and indeterminate *Aufgaben*. *Amer. J. Psychol.*, 1932, **44**, 163-174.

5. Eriksen, C.W. Multidimensional stimulus differences and accuracy of discrimination. *USAF, WADC Tech. Rep.*, 1954, No. 54-165.
6. Eriksen, C.W., and Hake, H.W. Absolute judgments as a function of the stimulus range and the number of stimulus and response categories. *J. Exp. Psychol.*, 1955, **49**, 323-332.
7. Garner, W.R. An informational analysis of absolute judgments of loudness. *J. Exp. Psychol.*, 1953, **46**, 373-380.
8. Hake, H.W., and Garner, W.R. The effect of presenting various numbers of discrete steps on scale reading accuracy. *J. Exp. Psychol.*, 1951, **42**, 358-366.
9. Halsey, R.M., and Chapanis, A. Chromaticity-confusion contours in a complex viewing situation. *J. Opt. Soc. Amer.*, 1954, **44**, 442-454.
10. Hayes, J.R.M. Memory span for several vocabularies as a function of vocabulary size. In *Quarterly Progress Report*, Cambridge, Mass.: Acoustics Laboratory, Massachusetts Institute of Technology, Jan.-June, 1952.
11. Jakobson, R., Fant, C.G.M., and Halle, M. *Preliminaries to speech analysis*. Cambridge, Mass.: Acoustics Laboratory, Massachusetts Institute of Technology, 1952. (Tech. Rep. No. 13.).
12. Kaufman, E.L., Lord, M.W., Reese, T.W., and Volkman, J. The discrimination of visual number. *Amer. J. Psychol.*, 1949, **62**, 498-525.
13. Klemmer, E.T., and Frick, F.C. Assimilation of information from dot and matrix patterns. *J. Exp. Psychol.*, 1953, **45**, 15-19.
14. Külpe, O. Versuche über Abstraktion. *Ber. ü. d. I Kongr. f. Exper. Psychol.*, 1904, 56-68.
15. Miller, G.A., and Nicely, P.E. An analysis of perceptual confusions among some English consonants. *J. Acoust. Soc. Amer.*, 1955, **27**, 338-352.
16. Pollack, I. The assimilation of sequentially encoded information. *Amer. J. Psychol.*, 1953, **66**, 421-435.
17. Pollack, I. The information of elementary auditory displays. *J. Acoust. Soc. Amer.*, 1952, **24**, 745-749.
18. Pollack, I. The information of elementary auditory displays. II. *J. Acoust. Soc. Amer.*, 1953, **25**, 765-769.
19. Pollack, I., and Ficks, L. Information of elementary multidimensional auditory displays. *J. Acoust. Soc. Amer.*, 1954, **26**, 155-158.
20. Woodworth, R.S. *Experimental Psychology*. New York: Holt, 1938.

The Attention Economy and the Net by Michael H. Goldhaber

If the Web and the Net can be viewed as spaces in which we will increasingly live our lives, the economic laws we will live under have to be natural to this new space. These laws turn out to be quite different from what the old economics teaches, or what rubrics such as "the information age" suggest. What counts most is what is most scarce now, namely attention. The attention economy brings with it its own kind of wealth, its own class divisions - stars vs. fans - and its own forms of property, all of which make it incompatible with the industrial-money-market based economy it bids fair to replace. Success will come to those who best accommodate to this new reality.

Contents

Greetings
Change Happens
A Feudal Hope
The New Natural Economy
A Driving Force
Chatting, But Not Necessarily About Anything
Illusory Attention
The Effect of the Audience
A Miniature Working Model
A Material Economy Falls Victim to Its Own Success
It's Not for Productivity
A Point Worth Repeating, Though Not Too Often
Organizations Diminish as Transparency Grows
Material Things Reinterpreted
Wealth and Property Take New Forms, Too
Money and Attention
Business as Performance
Further Expectations
Advice for the Transition
A Closing Scenario
The End
Notes

Explanatory note: This article began as a draft of a conference[*] presentation, and has been left pretty much in that form. Another version was actually presented.

Greetings

This is a conference on the "Economics of Digital Information." My guess is that most of the speakers, and most of the listeners interpret that title to mean that while "digital information" requires special consideration enough to justify a special conference, the basic meaning of the word "economics" can be taken for granted. What we are to be concerned with is how prices, costs, productivity, and so forth apply to digital information.

My vantage point is quite different. What we mean by economics cannot be taken for granted if what we are talking about is the economics which applies, say, to the Internet, or more generally to cyberspace, or more generally still, to life in the foreseeable future. We are moving into a period wholly different from the past era of factory-based mass production of material items when talk of money, prices, returns on investment, laws of supply and demand, and so on all made excellent sense. We now have to think in wholly new economic terms, for we are entering an entirely new *kind* of economy. The old concepts will just not have value in that new context.

Of course, there is nothing so new about the insight that the Internet is part of a revolutionary change in the way we do things and also in why we do them. Many names for the new era have been invoked: the information age, the Third Wave, the move towards cyberspace, all of which point, vaguely at least to the fact that new patterns of activity and of interrelationships among people are now emerging. The trouble with that insight is that it is so vague that you can easily agree with it without feeling the necessity of changing your economic thinking in the least. My effort over the past several years - it's embarrassing to admit how many - has been to overcome that vagueness, to come up with specifics about what this revolution actually implies. My conclusions are that we are headed into what I call the attention economy.

Change Happens

Before offering any details about the new economy itself I want to deal with a feeling you no doubt have. "Economics is economics; it really can't change." Even if you are not saying that in so many words, I feel fairly confident it is somewhere in your mind at this point. To try to convince you at least to have some doubts about that certainty, let me invoke two different analogies. (Since it is obviously beyond my capabilities to explain the full workings of an entire new economy in the brief time available here, getting you to take the thought of it seriously would not be a useless accomplishment.) The first analogy comes from science. Most scientists would agree that early in its existence, the planet Earth held no life. There were various kinds of minerals, volcanoes, sea water, chemicals in solution - lots going on, but all of it understandable in terms of the laws of physics, chemistry, geology. Then, fairly suddenly, some chemical molecules began to commingle in a new way, capable of growing and reproducing. Life had emerged, and, in its tremendous variety, grew and flourished according to completely new laws, the laws of molecular biology, of physiology, of ecology and so on.

To try to understand life solely on the basis of the old laws of physics and chemistry, would be an enormous, crippling mistake; you couldn't talk about the most obvious things, like sex or aging or

digestion or species or parasites, since those are all biological concepts that have no place in physics or chemistry. The parallel I want to draw is that the new kinds of connection that the Net and cyberspace make possible also demand a whole new way of thinking if you are to understand what is going on between people, the kinds of organized effort that are now possible, the motivations that most matter, and a host of other facets of life.

This analogy is imperfect in one way though. I don't mean to imply that the new concepts of economics we need come on top of or in addition to the old concepts. Rather, economics is about the overall patterns of effort and motivation that shape our lives, and it is these patterns and motivations that are changing. That implies a wholly new set of economic laws that *replace* the ones we all have learned.

A Feudal Hope

My second analogy should make this point more clearly. It also involves looking back to an earlier time, but, instead of billions of years ago we now must think back a mere five centuries. The expansion into cyberspace now underway parallels the expansion of European civilization into North and South America that followed Columbus's discoveries, exactly 498 years before Tim Berners-Lee discovered, or rather invented, the Web. Europe back then in the 15th century was still ruled pretty much on feudal lines, and the feudal lords took it for granted that the new world would be a space for more of a feudal economy, with dukes and counts and barons and earls ruling over serfs throughout the newly discovered continents. They did in fact begin to set up that system, but it was not what turned out to flourish in the new space. Instead, the capitalist, market-based industrial economy, then just starting out, found the new soil much more congenial. Eventually it grew so strong in North America that, when it re-crossed the ocean, it finally completed its move to dominance in Western Europe and then elsewhere in the world [1].

Contemporary economic ideas stem from that selfsame market-based industrialism, which was thoroughly different from the feudal, subsistence-farming-based economy that preceded it. We tend to think, as we are taught, that economic laws are timeless. That is plain wrong. Those laws hold true in particular periods and in a particular kind of space. The characteristic landscape of feudalism, dotted with small fields, walled villages, and castles, differs markedly from the industrial landscape of cities, smokestack factories and railroads, canals, or superhighways. The "landscape" of cyberspace exists only in our minds, perhaps, but even so it is where we are increasingly coming to live, and it looks nothing like either of those others. If cyberspace grows to encompass interactions between the billions of people now on the planet, those kinds of interaction will be utterly different from what prevailed for the last few centuries, or ever before [2].

If you want to thrive in this new world, it behooves you not to mistake it for a place where the dukes and earls of today will naturally continue to prosper, but rather to learn to think in terms of the economy natural to it [3].

The New Natural Economy

So, at last, what is this new economy about? Well if the Net exemplifies it, then you might guess it has less to do with material things than with the kinds of entity that can flow through the Net. We are told over and over just what that is: information. Information, however, would be an impossible basis for an economy, for one simple reason: economies are governed by what is scarce, and information, especially on the Net, is not only abundant, but overflowing. We are drowning in the stuff, and yet more and more comes at us daily. That is why terms like "information glut" have become commonplace, after all. Furthermore, if you have any particular piece of information on the Net, you can share it easily with anyone else who might want it. It is not in any way scarce, and therefore it is not an information economy towards which we are moving. What would be the incentive in organizing our lives around spewing out more information if there is already far too much?

Well, my title gives it away, of course. There is something else that moves through the Net, flowing in the opposite direction from information, namely attention. So seeking attention could be the very incentive we are looking for. Parenthetically, I have now rejected both parts of the conference title; no economics in the conventional sense, and not digital information either. You might conclude I am speaking at the wrong conference. I would rather say it has the wrong title. Except the title did serve its purpose. It did get your attention, and that was something, in fact a lot.

Attention, at least the kind we care about, is an intrinsically scarce resource [4]. Consider yours, right now. You are reading this paper, or more likely, since it is intended to be delivered at a conference, listening to me speaking it. You have a certain stock of attention at your disposal, and right now, a large proportion of the stock available to you is going to me, or to my words. Note that if I am standing in front of you it is difficult to distinguish between paying attention to me and paying attention to my words or thoughts; you can hardly do one without doing the other. If you are just reading this, assuming it gets printed in a book, the fact that your attention is going to me and not just to what I write may be slightly less obvious. So it is convenient to think of being in the audience at this conference in order to consider what attention economics is all about.

First of all, if this talk is not a total bust, at this moment I am getting attention from a considerable audience. There is a net flow of attention towards me. If this is a reasonably polite group, there may be no great competition for your attention at the moment, but nonetheless, if there were, you would have to choose, or someone else, say the chair, would. The assembled audience cannot really pay attention to very many people speaking at once, usually not to more than one, in fact. Which is another way to say that the scarcity of attention is real and limiting.

Now this might not matter if attention were not desirable and valuable in itself, but it is. In fact, it is a very nice feeling to have respectful attention from everybody within earshot, no matter how many people that may include. We have a word to describe a very attentive audience, and that word is "enthralled." A thrall is basically a slave. If, for instance, I should take it in my head to mention panda bears, you who are paying attention are forced to think "panda bears," a thought you had no inkling would come up when you decided to listen to this talk. Now let me ask, how many of you, on hearing the word "panda" saw a glimpse of a panda in your imagination? Raise your hands, please. Thank you. ... A ha.

What just happened? I had your attention and I was able to convert it into a physical action on some of your parts, raising your hands. It comes with the territory. That is part of the power that goes with having attention, a point I will have reason to return to. Right now, it should be evident that having your attention means that I have the power to bend your minds and your bodies to my will, within limits that in turn have to do with how good I am at enthralling you. This can be a remarkable power. When you have superb control over your own body, so that you can perform great athletic feats, it feels great; likewise, it feels good when your mind feels focused and powerful; how much more wonderful then to be able to have the minds and bodies of others at your disposal! On the rather rare occasions when I have felt I was holding an audience "in the palm of my hand, hanging on my every word," I have very much enjoyed the feeling, and of course others who have felt the same have reported their feelings in the same terms. The elation is independent of what you happen to be talking about, even if it is to decry something you think is horrible.

A Driving Force

This is not a particularly huge audience, but it is possible to enthrall any number of people if you can reach them and if you are good enough at it. So having attention is very, very desirable, in some ways infinitely so, since the larger the audience, the better. And, yet, attention is also difficult to achieve owing to its intrinsic scarcity. That combination makes it the potential driving force of a very intense economy.

Of course, not everybody necessarily wants a great deal of attention, just as in a money economy not everybody wants a great deal of money or many of the material goods that money can buy. But, just as in a money economy practically everyone must have some money to survive, so attention in some quantities is pretty much a prerequisite for survival, and attention is actually far more basic. This has always been the case for tiny babies. About the only thing they can get for themselves, or can give, is attention, which they begin to do within a half hour of birth, by smiling at those who smile at them. Without attention an infant could never satisfy its material needs, for food, warmth, fresh diapers, being burped, and so on. At a slightly later stage infants and toddlers need attention if they are to develop any sense of themselves as persons, and neither of those needs ever completely goes away. So even if you do not especially make a point of reaching for attention, even if you are very shy and reclusive, you still probably cannot do without some minimum, which however reluctantly, you may have to fight for. And no matter how humble you now may be, at some time in your own childhood you certainly sought attention, or you wouldn't be here.

As we move towards an attention economy in a fuller sense, the ethos of the old economy which makes it often bad taste or a poor strategy to consciously seek attention seems to be giving way to an attitude that makes having a lot of attention rather admirable and seeking it not at all to be frowned upon. Think of the sorts of things people are now willing to admit about themselves just to get on the likes of Oprah or the Sally Jesse Raphael show. Even the President of the United States is willing to discuss his underwear on nationwide television.

Chatting, But Not Necessarily About Anything

But I am running a bit ahead of myself. Before saying more about the workings of the attention economy and its ramifications, I have to offer you a bit more of an idea about how to view different situations in terms of the exchange of attention. Earlier I suggested that when information flows one way through the Net, attention has to be flowing the other. Now I want to say that it would be even better to think in terms of attention of some kind flowing both ways.

Consider an ordinary conversation. You could describe it as the exchange of information, but except in a highly technical sense that is rarely a very accurate description of what takes place. A conversation is primarily an exchange of attention. When you say "how are you?" for instance, you don't really want to know, as a rule, but if whomever you're talking with chooses to say how he or she is, it is more to get attention from you than to convey information. Even if this person genuinely thought you did want to know about her/his health, in answering, s/he would be attempting to pay attention to you. And even if you, in turn genuinely did want to know, the usual reason would be to pay attention to her/him.

Information, in the sense of something not previously known to one of the parties or another is secondary, if present at all. If I want your attention for any reason, I might begin by asking you for information, such as who you are and what you do, not necessarily because that is of great interest to me, but because it is a good way to get your attention. Children ask countless questions with this motive often patently obvious, and adults are not necessarily any different. Even if I am desperately searching for some fact that you happen to know, to get it from you I first have to get your attention. So what really matters in every conversation is the exchange of attention -- an exchange that normally must be kept more or less equal if one party or the other isn't likely to lose interest.

Illusory Attention

Now, let us come back to the example of this conference, in fact the very interchange going on between me and you at this moment. If you are still paying attention, it is at least in part because what I am saying interests you; that is, to some extent I am addressing some need or desire that you now have. Thus it appears, in a certain sense that I am paying each of you attention individually, even though I can't really be doing that. Of course, in this setting it helps that I have some idea of why you are here, but I obviously am not in a position to focus on your individual needs. If just the two of us were having a conversation, rather than my standing up here and reading this paper to this whole audience, you would be quite rightly incensed if instead of pausing to answer your questions or seeing whether you were still interested I just talked on and on in this fashion. As another sign of the asymmetry between us, if I leave the room after this talk, I would be extremely unlikely to be able to recognize a particular one of you three months from now, though you might well be able to recognize me.

What I am trying to get at here is that while you would normally want a conversation to involve a more or less equal exchange of attention, in the special circumstances that you are listening to a speaker, your feelings about what is a fair exchange are altered. What I would suggest is going on is

less that I am providing you with information that you deem in advance will be of value, than that I am offering you individually the *illusion* of my full attention. I don't claim to be very good at this, but what I have done to some extent is to set up some expectations in you about what I will get to by the time the talk is finished, and any sense of progress towards that goal then feels as if I am filling *your* need, even though it is a need I have subtly created. (Any speaker must somehow do this, of course, to hold attention.)

If rhetoric is the art of persuasive speech, then anyone who speaks or writes or seeks attention in any way has to become something of a success in the special rhetoric of persuading listeners, readers, and so on, that he or she is meeting their individual needs, when in fact some of these needs have been artfully set up in advance [5]. You want to know what I am driving at, for instance, because I have already provided clues galore that I am driving at something that should matter to you.

My success, if any, in meeting these expectations I have myself set up in you will appear to be attention - call it *illusory attention* - that flows from me to you. That helps create an apparent equality of attention, and it can in fact go beyond that to create a feeling of obligation on your part or the part of other readers or listeners. The audience members can each feel they have not paid as much attention to a speaker as the speaker has paid personally to them, even though, in a very real sense the reverse is closer to the truth. The speaker may still not know them from Adam though they have the speaker's visage, voice, and thoughts permanently etched in memory.

The Effect of the Audience

Much more is going on here. One thing is the question of why you started listening in the first place. Well one reason is that I was introduced by the chair, who had your attention already, she was paying attention to the committee that set up this conference, in particular to Brian Kahin. He in turn paid attention to Esther Dyson, who gets paid a lot of attention. And indeed you possibly came here because you saw Esther's name on the organizing committee, and you already had gotten used to paying her attention. A key truth is that if you have the attention of an audience, you can then pass that on to someone else. For instance, if I happened to spot a friend of mine in the audience, or just chose someone at random, I could turn over all of your attention to that person.

Now, the fact that attention can be passed on from someone who has it to someone else, and on and on, is of course a vital feature if there is to be anything resembling an economy. We will return to this general point. But right now, I want to combine the idea that I could pass the whole audience's attention on to you with the thought I introduced before that you can feel in a certain sense that I am paying attention to you specifically - what I referred to as *illusory attention*. Since I observably do have at least a good fraction of the whole audience's attention, if I were to pay attention specifically to you in reality, by singling you out, I would of course be paying not only my own attention but that of everyone else here, and yet, it would seem to be arriving at you through me.

A Miniature Working Model

And now, just a few more quick points about this conference. First, the whole conference works pretty much as an attention economy. While you are here, your main concern is how you pay attention and where you pay it, perhaps whether you get enough in return to have a chance at being one of the conference stars, perhaps only through the brilliance of the questions you ask. Even between sessions, the exchange of attention is what mostly tends to occupy people at a conference. Of course, there are material considerations, such as having enough to eat, a comfortable chair, etc. But they tend to be secondary issues, taken for granted, and not occupying much attention. We are living a temporary attention economy in miniature right at this moment.

It bears repeating: *We are living a temporary attention economy in miniature right at this moment.* It should be evident by now that everyone has always lived with some degree of an attention economy, but through most of human history it hasn't been primary. Material needs and the production of material goods or the provision of purely material and basically impersonal services such as railways held sway. Even fifty years ago, the percentage of the American population that could take basic material needs for granted and didn't work directly in factories or on farms was much smaller than it is today.

If you look at how you live your life when you are not attending this conference, you will probably see that quite a bit of what you personally do is better characterized as involving attention transactions than monetary transactions. You most likely make many more decisions every day about where and towards whom your attention should now go than about where your or anyone else's money should go. It is an issue every time you get a phone call, receive a memo, see someone you know waving at you, decide whether to go to a movie, or surf the Web, to list just a few examples. You are probably quite concerned too with getting attention in one way or another, or perhaps helping someone else get it. In this you are typical of a growing proportion of our society, and indeed of almost every sizable society on this globe now.

A Material Economy Falls Victim to Its Own Success

The simple fact, which I have no time to discuss at any length, is that compared with our capacity to produce material things, our net capacity to consume those things can no longer keep pace. Thus fewer and fewer of us, on a percentage basis are involved in producing standard items than ever before, and this is true despite the fact that per capita consumption of material goods keep rising. It just cannot rise fast enough to keep pace with possible production. There just is not enough work of the older kinds to keep us as busy as we once were. So, for example, actual manufacturing employment as a fraction of the total population continues its slow decline. Even in so-called developing nations, the Green Revolution in agriculture has led to the same sort of decline in the number employed producing material things, including food crops.

Yet strangely, we are all busier than ever. In fact, in the light of what I have been saying so far, that is not so odd. It is precisely because material needs at the creature comfort level are fairly well satisfied for all those in a position to demand them that the need for attention, or what is closely

related to attention, meaning or meaningfulness of life, takes on increasing importance. In other words, the energies set free by the successes of what I refer to as the money-industrial economy go more and more in the direction of obtaining attention. And that leads to growing competition for what is increasingly scarce, which is of course attention. It sets up an unending scramble, a scramble that also increases the demands on each of us to pay what scarce attention we can.

And because we all need some attention, as competition for it rises, the effort begins to take on still more importance. When real attention of the right sort is unavailable, one has to make do with the illusory kind, which comes through an increasing variety of media: paperback books, sound recordings, movies, radio, magazines, TV, video, and most recently computer software, CD-ROMs and the Web.

It's Not for Productivity

But the longing to get real attention and lots of it is only intensified by that experience. If the average kid today at age twenty has seen over 30,000 hours of TV, and, if, as is often suggested, TV offers young viewers role models for acceptable behavior, then the one thing everyone visible on the tube has in common to model is going after attention and getting it. This is also what is universally modeled by rock stars, successful athletes, politicians, and to a lesser degree even by school teachers and college professors.

So it is no coincidence that some of the most popular uses of computers, fax machines, networks, phone systems, etc., have more to do with getting attention than with directly aiding what they are supposedly about, increasing productivity of an organization or society as a whole [6]. For an important truth is getting attention is of primary value to individuals rather than organizations, and attention also flows from individuals. This conference is sponsored by several organizations, most notably Harvard University, and quite possibly additional organizations have sent more than one attendee apiece. However, within the confines of the conference, attention flows primarily irrespective of organizational affiliation.

If you are after attention, you use whatever organization you are part of as a stage upon which to perform for as wide an audience as you can manage. The Web and the Internet fit well in this model. The physical walls and barriers that might once have defined a university, a government bureau or an industrial corporation, making outside and inside sharply distinct, are pretty much no barriers at all on the Web or the Internet, or even on a phone system equipped not with a central switchboard allowing an operator to direct every incoming call but, as most are today, with direct inward dialing. You often don't even know what organization goes with the number you are dialing, the e-mail message you are responding to or the particular Web site you have been linked to.

In a full attention economy practically all organizations will be basically temporary, either communities in which attention is shared around pretty equally, or, more often, entourages of fans who form around one or a few stars to help them achieve the performances they are attempting. Think of the groups that come together to make a movie or to create a new piece of software, etc. More often than not, a few stars dominate the process; in the case of a movie, it is not only the main actors, but the directors, writer, producer, and possibly the cinematographer, the chief editor,

and a few others. If the movie is to be made, everyone else involved focuses their attention on these stars; afterwards, the stars usually go their separate ways, bringing together different entourages for their next performance.

A Point Worth Repeating, Though Not Too Often

This might be good point to add that since it is hard to get new attention by repeating exactly what you or someone else has done before, this new economy is based on endless originality, or at least attempts at originality. By contrast, the old industrial economy worked on the basis of making interchangeable objects in huge numbers. One could spend a lifetime of work in a factory, for instance, repeating the same motions over and over, polishing the same small area on car after car, for instance. And it was such repetition that allowed standard prices for things and standard wages for definite jobs to make sense. The entire money system is based on the simultaneous interchangeability of units of money, on the one hand, and of standardized goods on the other. One dollar is as good as another; one quart of non-fat milk is as good as another; both statements must be true, or non-fat milk will have no price.

With the endless originality and diversity of the attention economy, that kind of exchange is no longer possible. Even though one can loosely compare amounts of attention paid to different performances, attention does not come in precise, indistinguishable units, and neither does the illusory attention for which it is exchanged.

Organizations Diminish as Transparency Grows

Again, I digress. Let me return to the thread I have been trying to follow: the breakdown of organizational barriers. The Web and other media aid this development by allowing you to look behind the scenes as easily as at them. Gossip, interviews, biographies of individuals involved in specific efforts, photos, videos of rehearsals, documentaries of pre-performance steps, all are visible or can be visible on the Web, taking equal status with the final performances themselves. Documentaries about the production of movies are common by now; a movie about a movie is just as accessible as the first movie.

This *transparency* will even more be the case in the very near future, and, as a result, organizations will diminish in importance at rapid pace, relative to the importance of the individuals who are temporarily in them. Even as stable and long-lasting an institution as Harvard will be less its familiar buildings and more the people in the buildings, and the networks of attention among them. And whether these people are physically at Harvard or somewhere else will matter less and less, until the institution loses all coherence, all distinctness from other universities or from any one of hundreds of other organizations which have audiences in common.

In a full-fledged attention economy the goal is simply to get either enough attention or as much as possible. Recall now what I pointed out earlier: if you have a person's full attention, you can get

them to perform physical acts, ranging from moving their eyes to follow you, to raising their hands, to applauding, to bringing you a glass of water, to handing you a sandwich, or, as is not uncommon in the case of rock groupies or sports fans, having sex with you (to cite a notorious example). Just as a parent paying attention to a child fills its material wants and desires, so a fan, that is anyone paying attention can feel an obligation or a desire to do the same for whomever they are paying attention to.

Material Things Reinterpreted

In an attention economy as confined as a conference of this sort, the material goods such as a snack or a sandwich come from outside the system. If the whole world is an attention economy, then making material goods, growing food from scratch in a garden or on a farm, or obtaining resources in any other fashion, and ultimately turning these over to you can be a direct act of attention paying. Thus, if you have enough attention, you can get anything you want. If you don't have enough your options will be distinctly more limited, but supplying you with some range of items, produced in a fairly automated fashion, can also be a successful form of paying you illusory attention, in return for some real attention that you pay to whomever is apparently doing this for you.

Wealth and Property Take New Forms, Too

One lesson to draw is that material goods and the acts of producing them are only secondary in an attention economy. What is primary is attention in the form of hanging on your every word or gesture. Paying attention in that sense is not over when its over. If what I say to you today makes any impression at all, for instance, you will remember me as well as some of the message for some time, possibly even for the rest of you life. Even if you find what I say outrageous or stupid, it will be easier for you to tune into me the next time I come across your field of vision, however that might happen. That is, getting attention is not a momentary thing; you build on the stock you have every time you get any, and the larger your audience at one time, the larger your potential audience in the future. Thus obtaining attention is obtaining a kind of enduring wealth, a form of wealth that puts you in a preferred position to get anything this new economy offers.

Wealth that can endure and sometimes be added to is what we mean by property. Thus, in the new economy attention itself is property. Where is it? Primarily it is located in the minds of those who have paid you attention in the past, whether years ago or seconds ago. You may have forgotten all about some children's author whose books you had read to you as a child, but if you come across the book again, your memory will very likely be reawakened. Likewise you will remember actors you saw on television, sports figures who captured your attention in the past, professors, teachers, politicians, business leaders, etc. Thus, attention wealth can apparently decline, only to revive later. It is rarely entirely lost.

Seeing this kind of wealth as property suggests a strategy for maintaining and enlarging what you have that is far different from what is usually considered to be the case when dealing with ideas or information. Suppose you get attention through some text you send out over the Internet. Would you want your audience to copy this and pass it on to others who might pay attention in turn? Of course you would. It would be insane to want to stop or restrain such copying, since that would deprive you of much attention you could otherwise get. This is an area, clearly, where the new economy and the old are at sharp odds. Thus the fight over intellectual property and rights to make copies is actually a struggle between the outlooks of the new economy and the old, a reason why they cannot both coexist forever, and thus a feature of the period of transition from old to new.

Money and Attention

So let's now take up the topic of this of transition, which has been underway for some time and will loom still larger in the next few years. I have described the attention economy itself without saying anything about the role of money in it, which was easy because in a pure attention economy money has no essential function, no real role to play. In the period of transition from old economy to new, however, the connection between money and attention is significant and needs examining. If you have a lot of attention, you are a star of one sort or another, and we all know that these days stars generally have little trouble obtaining money in large amounts. Just think of the amounts that go to movie stars, sports stars, or even leading politicians or generals who retire to the lecture circuit or propose to oversee the ghostwriting of their memoirs. And if they have some pet project, such as a movie they want to make or a cause they want supported they can often influence their publics or bankers to cough up many millions more.

Within the framework I have suggested, there is little mystery as to why this should be. If fans are willing to do anything up to some limit for stars, such as wait in long lines to see them perform, avidly make sure to be there when they come to town, applaud them and sing their praises however they can, often paying more attention to stars than to members of their own families and so on, then it should come as no surprise that fans are also willing to pay out money at the stars' behest. It is just one more way to follow a star's wishes.

In other words, money now flows *along with* attention, or, to put this in more general terms, when there is a transition between economies, the old kind of wealth easily flows to the holders of the new. Thus, when the market-based, proto-industrial economy first began to replace the feudal system of Western Europe, in which the prime form of wealth was aristocratic lineage and inheritance of land, both the noble titles and the lands that went with them soon ended up disproportionately in the hands of those who were good at obtaining what was then the new kind of wealth, namely money.

With considerable ease, the rising merchant and industrialist class could buy old titles, induce governments to grant them brand new ones, or marry into the old impoverished gentry. The parallel today, again, is that possessors of today's rising kind of wealth, which is attention, and whom we label stars of every sort, have an easy time getting money.

But now let me point out that the other way round doesn't work nearly as easily. Contrary to what you are sometimes urged to believe, money cannot reliably buy attention. Suppose it did work that way. Then you could have been paid to sit here and listen closely even if I were to read you something as boring as the phone book or an unabridged dictionary. Presumably it wouldn't even matter if I kept repeating the same few syllables over and over. If money could reliably buy attention, all I would have to do is pay you the required amount and you would keep listening carefully through all that, not falling asleep en masse, nor allowing your minds to wander. In truth, even if you had been paid a huge sum, this would be most difficult, and if you did it, it would be a testament more to your own deep sense of principle than to a general condition in which another roomful of similar people could be expected to do equally well.

Someone who wants your attention just can't rely on paying you money to get it, but has to do more, has to be interesting, that is must offer you illusory attention, in just about the same amounts as they would if you had instead been paying money to listen to them -- which by the way is closer to the case here. Money flows to attention, and much less well does attention flow to money.

Business as Performance

There are exceptions, if only in a peculiar way. Business is still a lively spectator sport for instance, and just as we care about who is the best or the record breaker in football or basketball or any other such game, so we are interested in who heads lists like the Forbes 400 of those with the most money. According to some, like Ted Turner, who are on that list, in fact the main motive for trying to earn still more boils down to wanting to be recognized as number one. Presumably, Bill Gates might want to hold the record for more annual first-place finishes than anyone else. Even in this regard however, when the amount of monetary wealth you have draws attention to you, the price of such fame keeps going up. Even more literally does that happen in the well-known cases of the ultra-rich seeking political office. The price they must pay per vote keeps rising, and no matter how good the advertising geniuses they hire, they have to be good at attracting attention on their own.

Bill Gates is also a good example of how even monetary fortunes of his magnitude are in larger and larger measure just covers for stardom. A century ago, Gates' analog would have been John D. Rockefeller, leader and chief owner of the Standard Oil Trust. His wealth consisted chiefly of oil fields, oil wells, tanker cars, refineries, and so on -- material things that would have been worth just as much if someone else bought him out. Rockefeller could have sold his interests and still kept about the same net worth, which is what monetary net worth is supposed to mean. But the share value of a company such as Microsoft is already far more a result of attention-getting and the star process. Its future sales, for instance, largely depend on software that is yet to be completely designed.

If Gates were to decide to sell out and buy control of the XYZ Corp. instead of staying at the helm of Microsoft, as soon as he let this be known, his Microsoft stock would fall precipitously and XYZ's would rise. His own net worth would plummet, at least temporarily, but such is the attention wealth he has, that as soon as he began to issue pronouncements from his new stage, XYZ's stock would probably rise further, and Gates' former monetary wealth might magically reappear. Despite the fact

that the arena in which he made his mark happens to be business, it is already true that Gates' actual wealth, and that of many like him, is less in money or shares of stock than in attention.

Further Expectations

I hope that by now you have some sense that there is far more to discuss here or to think about than I can conveniently explain or you can take in at one sitting. So let me now just summarize a few developments that seem reasonable to expect over the next decade or so:

- A continuing rapid rise in the number of people attached to the Web and trying to get attention through it.
- A continuing growth in the capacity of those on the Web to send out multimedia or virtual reality signals, and thus to capture attention through all these means. Say you are primarily a writer of mere words, i.e. text; still, on the Web you will be able to supplement your writings with your picture, with video images, with recordings of your voice, with interviews or pieces of autobiography. The advantage of doing that is that by offering potential readers a more vivid and rounded sense of who you are, you can both increase their sense of who it is who is offering them illusory attention, and have them have a clearer and more definite feeling than otherwise of what it is like to pay attention to you, rather than to some other writer of similar sounding words. Both these effects can help you hold their attention better. This of course helps explain why authors' pictures are so commonly stuck on book jackets, and increasingly on the front cover rather than the back.
- All this and more will make the Web a better and better means of transmitting and circulating attention, a circulation that is essential for a full-fledged economy to emerge. To show that most strikingly, consider an author in the distant past, say the ancient Greek philosopher Aristotle. Over the past than two thousand years and more, his writings have gotten the direct attention of probably millions of readers. Still, except for contributing to his "immortality," the vast majority of that attention did him little personal good, since it came when he, along with all known descendants, had been long dead. Very few of today's attention getters can expect to remain in the public eye for thousands of years, but they do have a far better shot at reaping the benefits of attention from millions of people through the Web while they are still alive. Thus they can live, and live well, in the new economy.
- Individual attention getters of all sorts will find it ever easier to get attention directly through the Web, without any corporate packaging necessary. They will also find diminishing advantage in trying to make use of money, since attention in a wider and wider a variety of forms, filling more and more of their needs will be able to flow to them either directly through the Web, or as a kind of adjunct to it.
- Companies of all kinds will have less definite and fixed structures, since they will be structured not by physical walls and buildings, but through the Net itself, and more and more of their proceedings will be done in the full glare of Web attention, as temporary and rapidly re-forming projects. This means that companies will be unable to provide even what loyalty they do now to their employees, or say, in the case of publishers, to authors who have signed with them. Just as baseball stars move around from team to team or TV stars from network to network, so employee loyalties to companies will decrease as well. What will matter more for everyone is the stars one has

particular loyalty to, or the Net communities of which one is a part and through which one gets attention.

- Attention transactions, which already are far more numerous than monetary transactions will come to dominate even further. So even if you have lots of money, you will find it less and less convenient or worthwhile to bother to use it. As a result, our deeply ingrained desire for monetary recompense will begin to fade as well.

Advice for the Transition

All this means that the changeover to total domination by the new economy, while by no means complete or about to be, is moving very rapidly and is already quite far along, and probably unstoppable. Any individual today who fails to take that into account in her or his personal plans may be in for a rude awakening. Efforts that fit in with the overall flow of things are far more likely to work to your benefit than those that ignore them or are consciously opposed.

Say for example you work for a book publisher today. If you have any sense, you understand your employer as temporary. You will either strive to achieve stardom through what you do in your current job directly - say by being a great editor, a great marketer of books, a very visible cover designer or something of the sort - or (and this is not an exclusive but an inclusive or) you will want to be as visible and indispensable a part of what I call the entourages of bigger stars, so that through them you can get indirect attention. Your interest in your company's success as such is like a Major League baseball player's interest in his current team's success, something that can help him shine, and valuable to the extent that it does, but less valuable if it keeps him from displaying what he does best.

Simply amassing money (say by investing a large chunk of your salary in stocks) is not necessarily the best strategy if you believe you can do that without bothering to capture and in some way maintain some attention of your own. Even if the stock market never goes down, money, like the aristocratic titles of the past, may turn out to be less and less meaningful in the future.

A publisher also has to decide how to deal with the Internet. At present, for instance, it is impractical to distribute books directly over the Net, though it is easy to foresee that need not be the case for long. We still do understand material things as objects that generally are to be bought and sold in exchange for money, but we also understand that more people are likely to pay attention to a book if they find out about it than if they don't. So in the case of a book, the Internet should now be viewed as a useful and free publicity mechanism. Let passages be freely copied and circulated on the Net, because most of the time, the more of copying that takes place, the more customers there will be for the physical printed version. If you have a Web site, don't charge for it, because that will only reduce the attention it gets. If you can't figure out how to afford it without charging, you may be doing something wrong.

In due time, publishing companies as such will hardly be necessary, for actual physical books will be seen as cumbersome and quaint. Still, many of the kinds of tasks once performed by publishing company employees such as acquisition and line editors, designers, publicists, and so, will still be done, but on much more ad hoc and free-lance, eventually even unpaid basis. All of this will take

place over the Web. No one will earn monetary profits from it. And this disappearance of the involvement of capital will be equally the case for attention-getting objects of just about any sort.

A Closing Scenario

Money will not necessarily fade in value, in other words inflation will not set in, in the old sense; neither will recession nor deflation. Instead, money will just lose importance, just as noble titles have over the past few centuries. The stock market might not even fall; stockholders may simply lose interest, ceasing to sell and buy in equal ratio.

Am I speaking about the far future? I think not. Already, if you are reading this, you are probably involved in far more organized person-to-person or audience-type situations where what is being exchanged is attention, real and illusory, than you are in direct monetary transactions or the direct production of material goods. The fraction of time spent in pursuits more closely tied to the new economy is, even now, well above fifty per cent and rising. The new practices are already almost fully functioning for some, and more and more in place for others.

The End

At the end of the feudal period, the pomp and display of the nobility reached a level never before attained; the most gorgeous armor, the most magnificent tournaments of knights, the most elaborate ceremonies between rival nobles, the most brilliant marriages, the greatest interest in noble lineage. But by then it had lost all real function or importance. So today, when the stock market goes up and up, when money wealth itself seems a source of fame more than ever, when being number one on Forbes 400 list seems the height of perfection, when every basketball superstar wants a contract that is at least a million more than the last record one, we seem to be more dazzled by money than ever, just as we seem to be more intrigued by material goods than ever. But these interests are superficial and faddish. They are signs of decadence not of a glorious future for the money economy. Even in themselves they speak to the growing desire for attention, the need for it as well. Money is now little more numbers, one number among many, and as a source of lasting attention it can fade in an instant. The attention economy is already here, and more completely so every day. 

The Author

Michael H. Goldhaber is completing a book on the attention economy. Formerly a theoretical physicist, a Fellow of the Institute for Policy Studies in Washington, D. C. and editor of *Post-Industrial Issues*, he is currently head of his own think tank, The Center for Technology and

Democracy, and is a visiting scholar at UC Berkeley's institute for the Study of Social Change. His previous book was *Reinventing Technology*.

His Web site is <http://www.well.com/user/mgoldh/> E-mail: mgoldh@well.com
©Michael H. Goldhaber, 1997

Notes

The conference was on "Economics of Digital Information," hosted by the Kennedy School of Government, Harvard University, Cambridge, Mass., January 23-26, 1997.

1. To be more exact, in Western Europe as a whole, feudalism as an economic system reached its high point around the eleventh or twelfth century (i.e. between 1000 and 1200). After that the market economy began its slow rise. But the outward forms and ways of thinking long remained feudal, certainly in the Iberian peninsula whence the first explorers came. In the Americas, where feudal systems hadn't previously existed, they were unable to compete with the new economic ways that most of the settlers brought with them. As is most obvious in the case of the Puritan colonists in New England, many of these settlers quite consciously had come to escape the old forms of rule. The "Puritan Ethic" they brought with them was much more suitable to a capitalistic, market economy than to feudalism. The great text that argues the last point (though ignoring earlier economic history) is Max Weber, 1958. *The Protestant Ethic and the Spirit of Capitalism*. New York: Scribner.

2. Just as settlers in the Americas fashioned the geography they found to fit their purposes and values, so cyberspace is being shaped largely by those who want a space for their own new purposes. As I suggest elsewhere (Michael Goldhaber, 1986. *Reinventing Technology*. New York: Routledge & Kegan Paul) technology (such as that which goes into cyberspace) is shaped by the values of those who create it and it then helps promote those values, in the main, as it allows certain actions and not others. In the case of the kinds of technology (such as software) that make up cyberspace, the users play a very large role in deciding in what directions the technology as a whole will advance, and their underlying purposes and values are more in the direction of the new economy I will outline than the old.

3. Despite its seeming generality, the following definition, (Paul Samuelson, 1973. *Economics*. New York: McGraw-Hill, p. 3) as read by millions of students of basic economics, shows why this new thinking must be very basic:

Economics is the study of how men and society end up choosing, with or without the use of money, to employ scarce productive resources that could have alternate uses, to produce various commodities and distribute them for consumption, now or in the future among various people and groups in society. It analyzes the costs and benefits of improving patterns of resource allocation.

As will become evident, "employing scarce productive resources," "produc[ing] various commodities and distributing them for consumption" and "improving patterns of resource allocation" are simply

not relevant for what I will argue is unfolding. Nor is this a particularly perspicacious way of examining older economies, .e.g. feudalism.

4. On attention's scarcity and its economic importance, see also Michael H. Goldhaber, 1989. "Equality and Education in America Now," In: *Education and the American Dream*, H. Holtz, I. Marcus, J. Dougherty, J. Michaels, and R. Peduzzi (eds.), Granby, Mass.: Bergin & Garvey, Chapter 6, pp. 70-76; Michael H. Goldhaber, 1992. "The Attention Society," Release 1.0, (26 March), No. 3, E. Dyson (ed.), New York, EDventure Holdings, pp. 1-20; Michael H. Goldhaber, 1992. "Attention: The System of Post Industrialism?" *Z papers*, Vol. 1, No. 2 (April-June); and, Michael H. Goldhaber, 1996-97, Web site: <http://www.well.com/user/mgoldh/>

I still remember the thunderclap of insight that attention, not information is the key to the new system, a thought that struck me in 1984. While the details I present about the new economy stem from my own explorations, the fact that the following people, among others, have independently arrived at similar conclusions about the economic centrality of attention scarcity adds weight to the argument. See, for example, Richard Lanham, 1994. "The Economics of Attention," Proceedings of 124th Annual Meeting, Association of Research Librarians, Austin, Texas, <http://sunsite.berkeley.edu/ARL/Proceedings/124/ps2econ.html> or W. Thorngate, 1988. "On Paying Attention." In: *Recent Trends in Theoretical Psychology*, W. Baker, L. Mos, H. VanRappard, and H. Stam (eds.), New York: Springer-Verlag, (pp. 247-264), or W. Thorngate, 1990. "The Economy of Attention and the Development of Psychology," *Canadian Psychology/Psychologie Canadienne*, Vol. 31, pp. 262-271.

5. The rhetorician Kenneth Burke (in his 1931 book *Counter-Statement*, New York: Harcourt, Brace, p. 157) describes literary form in a very similar manner: "Form in literature is an arousing and fulfilling of desires."

6. Controversy continues to swirl around this point. It is argued at length by Thomas K. Landauer (in his 1995 book *The Trouble with Computers*, Cambridge, Mass.: MIT Press) among others. Erik Brynjolfsson and Lorin Hitt (1995, "Information Technology as a Factor of Production: The Role of Differences Among Firms," *Econ. Innov. New Techn.*, Vol. 3, pp. 183-199) present data revealing an overall positive correlation between total amounts of spending on information technology and total output for Fortune 500 companies. However, they do not show an increase in labor productivity per se, as is commonly presumed to be the case. What is indisputable is in the two decades since the introduction of the personal computer and related technologies, national measured productivity growth was lower than in the two decades following World War II, when such technology was either non-existent or much more limited. That is totally the opposite from what intuitive estimates of the value of these technologies would suggest and what has repeatedly been predicted.

While it would be impossible to thank everyone who has contributed to this lengthy project, I would like especially to thank Anatole Anton, Sandra Braman, Erik Brynjolfsson, Esther Dyson, Rishab Ghosh, William Gladstone, Nat Goldhaber, Peter Oppenheimer, Bruce Sterling, Edward Valauskas, and Terry Winograd for comments and/or encouragement that aided in the writing of this article. In addition I would like to thank Ilene Philipson. No one on this list should be held responsible for anything said here, however.

Copyright © 1997, *First Monday*

The Attention Economy and the Net by Michael H. Goldhaber
First Monday, Volume 2, Number 4 - 7 April 1997
<http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/519/440>

The Economy of Attention

Georg Franck 07.12.1999

Decline of material wealth

What is more pleasant than the benevolent notice other people take of us, what is more agreeable than their compassionate empathy? What inspires us more than addressing ears flushed with excitement, what captivates us more than exercising our own power of fascination? What is more thrilling than an entire hall of expectant eyes, what more overwhelming than applause surging up to us? What, lastly, equals the enchantment sparked off by the delighted attention we receive from those who profoundly delight ourselves? - Attention by other people is the most irresistible of drugs. To receive it outshines receiving any other kind of income. This is why glory surpasses power and why wealth is overshadowed by prominence.

This is also why it is becoming popular in our affluent society to rank income in attention above money income. When rising numbers of people are able to afford the insignia of material wealth, then the desire for distinction will create a demand for attributes which are more selective than a large money income. In accordance with the law of the socialisation of luxuries, such attributes will be found among privileges which are still élitist. The undisputed common denominator of

present-day élites is prominence - and prominence is nothing but the status of being a major earner of attention. When material wealth is spreading in an inflationary way, then the socialisation of this still élitist status is imminent.

I hear the objection that the socialisation of prominence is impossible, as this is a contradiction in terms. Prominence is an essentially distinguishing quality. In contrast to material wealth prominence cannot become a mass phenomenon. And yet: never has there been so much prominence as today; never has there been such fussing with familiar faces. Today, not only those are prominent who are on their way to the summits of fame and power; the prerequisite no longer is high birth, or the gift of great talent, or some valiant deed. Today one becomes prominent through a standardised career. The first step consists of nothing but somehow finding one's way into the media. Since media presence is the initial requirement, it is best to make one's appearance in the form of a picture, or better, on television. The career has passed its first hurdle when the impression one gives is commented upon, if one's appearance is talked about. At this point, a mechanism is set in motion which is needed for the rise, if that is to be successful. For, the new entry must in turn benefit the medium, he or she must promise to increase its circulation figures or TV ratings.

Circulation size and TV ratings are measures of the attention drawn by a particular medium. They also measure a medium's financial success; and the financial motive could, by itself, be sufficient to indirectly promote the prominence of everything which increases the medium's attractiveness. However, one would miss the point if one were to limit one's view to the pecuniary aspect. A medium's financial success in turn depends on its ability to be used as marketable advertising space. The supply of advertising space is an offer to attract attention via a service rendered. The effectiveness of this service is measured in terms of circulation figures or TV ratings. This is why the income in attention ranks above financial success, also with respect to the medium itself; and this is also why everything increasing the medium's attention income will be promoted, published, cultivated by it. Everything which is promoted, published and cultivated by the media is, by definition, prominent.

And, lo and behold, what is best for a medium's attention income? Very simple: as much prominence as possible. People enjoy nothing more than looking at faces shining with publicity. Nothing increases circulation more than as much gossip as possible about the world of the stars. Nothing increases viewing figures more than the commotion around the stars themselves. Therefore gossip columns are beginning to appear among serious commentaries and features; therefore, too, the tabloid press finds it worthwhile to report on surveys identifying the most frequently cited researchers. Therefore, too, prime time family television hours are absolutely packed with prominent individuals. Therefore, primadonnas promote Rolex and soccer idols recommend Budweiser - already, television and publishing programmes without well-known faces are beginning to be regarded as élitist

The Economy of Attention

Georg Franck 07.12.1999

Decline of material wealth

What is more pleasant than the benevolent notice other people take of us, what is more agreeable than their compassionate empathy? What inspires us more than addressing ears flushed with excitement, what captivates us more than exercising our own power of fascination? What is more thrilling than an entire hall of expectant eyes, what more overwhelming than applause surging up to us? What, lastly, equals the enchantment sparked off by the delighted attention we receive from those who profoundly delight ourselves? - Attention by other people is the most irresistible of drugs. To receive it outshines receiving any other kind of income. This is why glory surpasses power and why wealth is overshadowed by prominence.

 [download](#)

This is also why it is becoming popular in our affluent society to rank income in attention above money income. When rising numbers of people are able to afford the insignia of material wealth, then the desire for distinction will create a demand for attributes which are more selective than a large money income. In accordance with the law of the socialisation of luxuries, such attributes will be found among privileges which are still élitist. The undisputed common denominator of present-day élites is prominence - and prominence is nothing but the status of being a major earner of attention. When material wealth is spreading in an inflationary way, then the socialisation of this still élitist status is imminent.

I hear the objection that the socialisation of prominence is impossible, as this is a contradiction in terms. Prominence is an essentially distinguishing quality. In contrast to material wealth prominence cannot become a mass phenomenon. And yet: never has there been so much prominence as today; never has there been such fussing with familiar faces. Today, not only those are prominent who are on their way to the summits of fame and power; the prerequisite no longer is high birth, or the gift of great talent, or some valiant deed. Today one becomes prominent through a standardised career. The first step consists of nothing but somehow finding one's way into the media. Since media presence is the initial requirement, it is best to make one's appearance in the form of a picture, or better, on television. The career has passed its first hurdle when the impression one gives is commented upon, if one's appearance is talked about. At this point, a mechanism is set in motion which is needed for the rise, if that is to be successful. For, the new entry must in turn benefit the medium, he or she must promise to increase its circulation figures or TV ratings.

Circulation size and TV ratings are measures of the attention drawn by a particular medium. They also measure a medium's financial success; and the financial motive could, by itself, be sufficient to indirectly promote the prominence of everything which increases the medium's attractiveness. However, one would miss the point if one were to limit one's view to the pecuniary aspect. A medium's financial success in turn depends on its ability to be used as marketable advertising space. The supply of advertising space is an offer to attract attention via a service rendered. The effectiveness of this service is measured in terms of circulation figures or TV ratings. This is why the income in attention ranks above financial success, also with respect to the medium itself; and

this is also why everything increasing the medium's attention income will be promoted, published, cultivated by it. Everything which is promoted, published and cultivated by the media is, by definition, prominent.

And, lo and behold, what is best for a medium's attention income? Very simple: as much prominence as possible. People enjoy nothing more than looking at faces shining with publicity. Nothing increases circulation more than as much gossip as possible about the world of the stars. Nothing increases viewing figures more than the commotion around the stars themselves. Therefore gossip columns are beginning to appear among serious commentaries and features; therefore, too, the tabloid press finds it worthwhile to report on surveys identifying the most frequently cited researchers. Therefore, too, prime time family television hours are absolutely packed with prominent individuals. Therefore, primadonnas promote Rolex and soccer idols recommend Budweiser - already, television and publishing programmes without well-known faces are beginning to be regarded as élitist.

Nothing seems to attract attention more than the accumulation of attention income, nothing seems to stimulate the media more than this kind of capital, nothing appears to charge advertising space with a stronger power of attraction than displayed wealth of earned attention. The media would have to invent prominence if it did not exist already; they would have to create their candidates out of nothing if they were not recruitable already. Prominent individuals are needed en masse if one wants to make the attraction of attention a mass business. The solution to the riddle of the miraculous increase in prominence lies in the media's ability to collect and deliver the critical quantities needed to run gathering attention as a mass business.

Media and prominence

The media are by no means just shunting places of information. They are a system of channels supplying information in order to gather attention in return. A television appearance means much more than just the dissemination of information. Through it, it becomes technically possible to multiply one's personal presence and to send one's reproductions into people's living-rooms to collect donated attention. The media's power of producing prominent individuals is only limited by the suggestive capacity of this collection service.

It was only gradually that the media acquired this power. The mechanical reproduction of the written word, of sound and images was just the technological starting point. Also, it was not demand for information as such which made the media big. What did make them big and is ensuring their further growth is the ingenious business idea of offering people information in order to get hold of their attention. Without the attention income promised by publication, not even the publishing trade would have developed in any significant way. If only material certain of commercial success had been published in books and periodicals, today's literary scene would look different from the way it does. Solely the fact that authors calculate in the currency of attention can explain their willingness to toil for the best expression of an idea in return for starvation wages. The ingeniousness of the publishing trade's business idea lies in splitting up the returns in terms of financial and attention currency. The production conditions of our literary culture are such that the publisher gets the money and the author gets the attention. If, in addition, the publisher acquires fame and the author wealth, this - in economic terms - is surplus profit: it would not be necessary to keep the system going.

It is exactly this mixed calculation which lies behind the transition from publishing organ to mass medium. A mass medium must not be delicate in its choice of means in catching attention. By contrast, an author working for attention wages cannot avoid being delicate in this respect: only attention earned for something one personally identifies with counts as personal income. This is why the desire for attention is so closely linked with that for self-fulfilment. However, what furthers self-fulfilment, rarely moves the masses. One will only move them by closely observing what the general public wants to read, listen to, or watch. Their desire for sensation must be satisfied, catchy tunes must be put on the air, pictures must be touched up to strike the eye. Producing something for this observed taste indeed also requires creative minds. But those must be of the kind that is willing to serve a foreign cause. And this willingness must be addressed by money.

Compromise thus earns its money. One can make a good living on the salaries paid in the entertainment industry. Journalism also feeds the members of the profession. The attention incomes earned in show business and publishing are sizeable. However, in those branches they are clearly proportional to the respective money incomes. The attention drawn by an appearance in a film, on radio or television, or in the press, is always partly also directed towards the respective medium as an institution or brand. For, just as attentive and financial remuneration must be brought together in order to assemble masses of people in front of printed pages or screens, the respective medium itself must attract both money and attention if it is to reach the masses unflinchingly. The newspaper must be read because it exists; one must watch television because television exists. Put more succinctly: the papers and screens must become a separate, naturally perceived stratum of social reality. They must compete with the unmediated view of reality. They must impose themselves as fixed items in attention budgets. They will only do so, if the medium in question unflinchingly presents what people want to see, listen to, read.

If the offer meets the general taste, if enough money and attention are spent on keeping people in line, then the medium acquires an additional quality also for those appearing in it. Secure circulation figures and ratings create a fund of expectable attention of which suppliers may freely dispose. Control of the channels means being able to re-lend the mass of attracted attention. Those offering space in printed media or transmission time become able to elevate somebody to prominence in the same way as, historically, successful conquerors could raise somebody to peerage by conferring fiefs. They are the only group in society able to freely dispose of the most highly valued resource. And, like emperors and kings, they may increase their own fame by sending out their followers, thus endowed, on further conquests for the respective medium.

The asymmetry of the attention economy

However, being commercial enterprises, the media also have the choice of turning the attention they catch into hard cash. They can rent out their territory as advertising space. Indeed, through this commercial activity they may gradually make themselves independent of the sale of information sent out on tour to catch the eye. The leading mass medium, private television, finances itself exclusively by selling the service of catching attention for anything whatsoever. The fact that prominent individuals, especially ennobled for the purpose, assist in rendering that service brightly illuminates another facet of the brilliant business idea.

Brilliant business ideas are seldom equally beneficial for all sides. The attention which the media re-lend is unilaterally donated by the people sitting in front of pages or screens. People pay their attention to the supplier in return for finding out what they like. The relationship between the attention invested by the suppliers and that collected in return is strictly asymmetrical. The suppliers disseminate information in the form of technical reproductions, while the consumers pay with live attention for each copy. Only through this asymmetry is it possible to collect such masses of donated attention, which is what makes a medium attractive for those appearing in it and which allows the media their lavishness in conferring the modern peerage of prominence.

An inevitable consequence of this asymmetric exchange is the social redistribution of attention incomes. The media make one stratum wealthier and exploit another one. It is not as if exchanging information for attention were unfair in principle. But if the attraction service is organised on an industrial scale, then inadvertently the social disparity between those rich and those poor in received attention increases. One may speak of outright exploitation when the addiction to television becomes epidemic.

To be sure, the redistribution effect of media consumption does not act upon an originally equal distribution. It only increases the original slant. As old as mankind is, as old - no, much older - are individual differences in the talent of capturing the attention of others. There have always been shining figures, celebrities, who effortlessly engaged everybody's senses and hearts. And there have always been forgotten, overlooked ones who sacrifice their self-esteem to attract just one glance. Also, natural differences in talent have always been intermingled with social privileges or deprivations. In order not to demand too much of the media one must acknowledge that something like the capitalisation of attention income existed long before the media came into being.

Market and accumulation of the attention income

Of course, the attention one enjoys cannot be saved and invested as would be possible with money earned. However, there is a secondary way of accumulation not open to money. The fine difference between money income and attention income lies in the fact that in the case of attention it is not irrelevant from whom it emanates. We evaluate the attention we catch not only according to the duration and concentration of its expenditure, but also according to our own esteem for the person from whom we receive it. Attention coming from people we admire is most precious; it is valuable coming from those we esteem; it counts little coming from people towards whom we are indifferent; and attention may even assume a negative value coming from people we despise or fear.

The secondary way of accumulation thus makes use of the fact that our esteem for another person depends to no small degree on the attention income this person receives from third parties. The dependence of personal esteem on income is common knowledge in the case of money. But a high attention income also increases a person's charm. If that person is liked by everyone, if he or she is well-known or even famous, then there must be something special about him or her. Whatever the reasons for this person's general recognition, the attention I myself receive from him or her reflects, to a certain extent, this person's fascination for all the others.

The social crediting of somebody's earned attention to his or her prestige constitutes the original accumulation of attentive capital. This is the first form of social reinforcement of the naturally

uneven income opportunities. It happens in the sphere of social perception, but still remains, as it were, at the level of social instinct. It does not yet require any institutional shape or cultural encoding. Probably, this was already taking place among wolf packs or hordes of apes. Nevertheless, it was the starting point for the self-reinforcement of prominence in the media which we experience today.

If the attention due to me is not only credited to me personally but is also registered by others, and if the attention I pay to others is valued in proportion to the amount of attention earned by me, then an accounting system is set in motion which quotes something like the social share prices of individual attention. What is important, then, is not only how much attention one receives from how many people, but also from whom one receives it - or, put more simply, with whom one is seen. The reflection of somebody's attentive wealth thus becomes a source of income for oneself. Simple proximity to prominence will make a little prominent.

It is in this secondary market that social ambition thrives. It is this stock exchange of attentive capital that gives precise meaning to the expression "vanity fair" . However, the simple quest for recognition should not be called social ambition. Vanity is more than a healthy appetite for being noticed. Ambition is the hustle for a better position. The megalomania fed by somebody's notion of being endowed with superior talent may not be called ambitious. Ambition grabs any small chance. And chances arise abundantly in the heat dissipated by large amounts of capital. Diverting it to one's own grindmill does not require authentic brilliance but simply a touch of mercantile mentality. One may work one's way up in the economy of attention just by persistently keeping at the heels of those who are better off, just by being constantly seen in their vicinity. And if those at the summit are unreachable, there is the lower gentry besides high aristocracy.

Ambitious social risers take their clues from what is next best. They utilise small differences in the share prices of attention grabbed from above to immediately sell their own attention more dearly to equals or not yet equals. And if, additionally, their vanity is great, there will be side benefits which, given a little good will, can be extrapolated into windfall profits. Vanity, as observed above, is more than merely a strong appetite for attention by others. It contains an inclination for prettifying calculations that convert received attention into self-esteem. Vanity is, in the first place, not choosy about the where from and what for of attention but secondly it is quick in taking shortcuts from the path running via third parties that is normally prescribed for crediting income to a person's renown. Vanity has little regard for social control. It prefers to engage in self-deception, even more so since that is not always distinguishable from self-fulfilling prophecy. If one succeeds in making others take one's self-overestimation for real esteem, then what we have is actually not a case of self-deception but one of successful speculation. And the business of gathering attention is always speculative.

Quotations of the share prices of attention are not only influenced by a person's current attention income, they also incorporate expected future attention income. The observed trend is extrapolated. Those who are on the rise receive a bonus, those who are going down suffer an extra cut. This is the sphere of promotion by cheerleaders and annihilation by rumour, something not missing in any vanity fair. Hired applause has paved the way for many a career; ridicule in the press has extinguished more than just straw fires. However, as shady as the details of the speculation business may be, the larger volumes of capital cannot avoid going public.

The official quotation of the share price of personal capital is a person's presence in the media. Circulation figures and ratings document in black and white the income of the presented persons. A person's presence in a medium, calculated in terms of duration or space of presentation, measures the investment made by the respective medium. The volume invested corresponds to the expected amount of attractive power which this person will contribute to the medium. The relationship between the expected amount and successful attraction is, in economic terms, nothing but the relationship between the price of a company's shares and its operating results. Since it is the expected amount of attention which determines a person's presence in a medium, the media themselves are not only reloading points of the mass business in attention, they also act as exchanges assessing the value of capital denominated in attention currency. On the other hand, elbowing for a place in the media is not only motivated by the sizeable immediate returns, it also serves the purpose of nursing the share prices of attention.

The economy of attention has a long industrial history

It is instructive that there are extreme cases in the media scene demonstrating what it means if only one of the two functions described above comes into play. Thus, simple reloading of medially collected attention takes place when letters to the editor are printed, anniversaries are announced on radio, or when individuals from the audience are presented in quiz shows. In those cases a few people will experience receiving everybody's attention, but that will make little difference to their personal prestige. The attention they get will generally not be the starting capital for any later career. Being presented just makes them experience very shortly how it feels when everybody is watching you.

There is also the other extreme case where share prices are nursed without anybody watching. To this category belongs the boom in founding new scientific journals whose sole purpose it is to create a forum for the founder and a small circle of conspirators which will allow them to expand their publications lists. A publications list measures somebody's presence in scientific discussion, which is why it is tempting to have personal control over access to such a forum (and why, accordingly, prestigious journals prevent it). Since, however, the pro domo foundations are proliferating to such an extent that nobody is reading the stuff any more, it has also become common practice to publish the same contribution with slight variations under various titles. And since nobody checks the publications lists for their substance any more, either, it would be more than strange if with such help many an ass did not obtain a professorship.

These examples show *ex negativo* how closely related the wholesale function and the stock-exchange function normally are. However, they also show that in the attention economy, like in the real economy, faked deals and black markets thrive. This does not make the economy as a whole any less real. Bluffing reaches its limits in the ability of the whole to keep functioning. In this sense the attention economy is even very typical. It largely organises and stabilises itself. And its naturalness is so profound that few have intellectually taken note of its extensive and firmly established existence.

This intellectual ignorance is in so far remarkable as the immaterial component of the economic process has already reached the apex of its phase of full industrialisation. The economy of attention not only looks back on an ancient pre-history, it also has a long industrial history. It was pre-industrial as long as publication technologies were either of the handicraft type or,

respectively, had not yet permeated the entire economy. Attention economy reached its early industrial phase when the first, relatively simple information and communication technologies developed. The technology of printing, radio broadcasting and sound film for the first time assembled critical amounts of anonymously donated attention, turning the star cult into a mass phenomenon. It was then that the business of attraction became professionalised, that deliberate eye-catching became industrial in advertising. We may speak of a phase of full industrialisation since the advent of television. There, the secondary, i.e. the viewers' aspect of reality specially created to attract attention, is beginning to compete with the primary aspect, directly perceived reality. During this last phase, most of the freely disposable, i.e. consuming attention passes through the various media; popularisation, i.e. mass production of prominence, arises. And during this phase there are also first indications that attention income is beginning to have greater weight than money income.

A mental capitalism

At this point, one wonders how our archaic emotional life has managed to come to terms with this industrial superpower. We allow the media quite naturally to dispose of the major portion of our most precious good, indeed we even enjoy delivering our attention to the spectacle going on. At last there is not only bread, there also games in over-abundance. To be sure, there are most striking differences between what those people in there and what we in front of them are receiving in the way of caring attentiveness. The medium not only enlarges differences, it also neutralises them. It diverts feelings of objection or reservation away from persons on to itself, the medium. Somehow it happens that we extend interest, liking and fascination to the persons who appear, but that we direct our rejection, objection, or indignation at the medium. Instead of being annoyed about the disproportion between the prominence of persons and the substance of their presentation we call television stupid. The objectivity of the medium has such overwhelming power over human comparisons that it would seem ridiculous to react with feelings of envy or jealousy to the unjustified distribution of attention. In the media the supra-personal rules of distribution practically become a completely anonymous mechanism of which all of us are part and whose method of accounting inadvertently assumes the effectiveness of an automated payment system.

What we have is mental capitalism. To all appearances, there exists a nearly perfect reflection of the material base in our mental superstructure. It is a great pity that the old reflection theory is so completely dead that it can no longer enjoy this fact. However, imagine how the old warriors would rub their eyes if they saw what has happened to the old relationship between basis and superstructure! According to materialist doctrine, the mental superstructure is only a dependent reflex of the material production conditions. This doctrine claimed to have put the idealist world view, which had been standing on its head, back on its feet. But what are those conditions doing now? They are standing on their head out of their own accord. Idea-economy has taken the lead. However, the production conditions were indeed what brought about the reversal. Not at all just by volume of attention turnover are the media big industry.

The media's supply keeps growing. What is thus expanding is not just their contribution to the national product, and their attention turnover. What is expanding is the aspect of reality especially produced to attract attention. For quite some time has it not been clear whether the reality extracted from pages and screens is not already dominating the directly perceived one. What is

clear is that a major part of socially perceived reality is highly synthetic, as it is especially produced for use in the fight for attention.

Of course people know about the pre-structured and fiction-permeated share in what the media present to them. But it would be naive to believe that it is all that easy to distinguish between fact and fiction. For attentive beings like us, only that which retains our attention is real. This in turn does not mean that everything we imagine or think of is real for us. We are very well able to distinguish between perception, recollection and imagination. But we are not as easily able to stop some recollection acting like a real event, or to prevent an idea from exerting real power. Anybody in love knows about the unruliness of imaginative processes, any jealous person knows the relentlessness of recollections. It is in the stratum of such phenomena that the media are poaching for attention.

There is nothing more real than images which stick to the mind. Nothing exerts greater power over us than that which forces us to take attentive note. Everything to which we inadvertently pay attention, inadvertently exerts some effect on us. And everything that captures our attention is real to a higher degree than the background. To be sure, there is little in the media which sticks to the mind. Luckily, there is no obligation to pay attention, either. But there is enough which attracts, which caters to laziness, which may be taken in on the side. And everything in which attention gets entangled becomes, first of all, real in a subjective sense.

The obligation to address a large audience, indeed to keep a whole television nation in front of the screens, will leave its imprint and will influence style. Everything appearing in the media must undergo a highly professional process of styling and testing. This process means that a new forge of reality is forming, quite comparable to the role played by factories when they first came into being. It is true that the new process only produces semblances. However, semblance and substance are not distinguishable from one another because the latter can be physically touched. Through old habit we have come to consider the haptic, firm, in a generally perceivable sense public world, as actual reality, and to consider the world of transmitted images and published views as a phantom world of semblance. Often enough we overlook that immediate reality is not what we perceive as an assembly of touchable, solid things, but that which attention forms out of the stimuli activating our sensitivity. Everything appearing beyond this elementary stratum of perceivability has invariably been selected and actively shaped.

Media presentation shifts some of this subjective constitution of reality to the outside. The technique employed is to detach the pattern of stimuli from compact materiality. Technological progress in media presentation consists in detaching those patterns of stimuli with increasing perfection, so that they can be manipulated independently of the originals with increasing ease. The technology of this detachment process is what the new reality factories are operating with. It is logical that at the end of this path the detour via material reality need no longer be made and that virtual reality is produced directly.

In order to defend the doctrine of the superiority of what is material, one might argue that immaterial capitalism and excursions to virtual worlds are just consumption- and leisure phenomena. In the production sphere, material processes are still prominent. In the creation of value added the media are only one sector among others. In fact, material production has never been as enormous as today, not only regarding its economic value but also with respect to the ecological costs involved. Its enormity is such that it overburdens the regenerative potential

of ecological resources in a disastrous way. To deny the preponderance of the material aspect of economic life could amount to playing down this catastrophic danger.

The first objection is wrong, the second one leads in the wrong direction. As powerful as the material economy's growth may have been in absolute terms, equally strong - and at the same pace - has been the drop in the relative share of manual labour in the production of value added. It is one of the most significant economic changes of this century that the service of rendering attention has overtaken all other production factors in economic importance. At the same time it has become the guiding principle of economic rationality that the turnover of materials and energy must be reduced. The sheer magnitude of material turnover does not point to any superiority but is a sign that the current material economy cannot continue in its present form.

The pecuniary expression of the productivity of service-rendering attention is the share of mental labour in the production of value added. In all developed societies it surpasses that of physical labour. However, mental labour differs from physical labour both in that it employs attention instead of physical energy and mental instead of physical capital. Mental labour presupposes education. Education basically means investing attention in oneself. Its simplest economic measure is the amount of time invested in educational activities by a pupil and a teacher which incorporates interest accrued from "human capital".

The aim of education is the acquisition and application of knowledge. Knowledge is reified attention that has crystallised from its live creative state and is, in that sense, also capitalised attention. Only that part of knowledge which is accessible to the general public is public capital. Its analogue on the material side is the public capital of infrastructure.

The emergence of a new, quarternary sector of the economy

It would, therefore, be completely wrong to think that the capitalisation of attention is limited to the phenomenon of prominence. This view would be as erroneous as thinking that only received attention is scarce and expensive. This is the case, but it is also true of one's own self-generated attentive energy. That energy can be accumulated through investment in oneself. A higher income attained through education may also be considered as a kind of dividend. But in this case it is the investment of one's attention in oneself which is the important aspect. However, education is also a kind of capitalisation of other persons' attention, if one thinks of the teachers' contributions.

In economic terms, the decisive question in discussing the capitalisation of attention is the way in which total mental labour is divided up between its direct productive application and its reinvestment in the production and transmission of knowledge. The long-term optimisation of this ratio has become the central condition for keeping a national economy at the top in international comparisons. The optimal rate of mental capital formation has greater weight than the rate of real capital investment. It is also more important than physical resources, regardless of even excellent endowment with them.

The tendency of de-materialisation has for quite some time taken hold of the economic process as a whole. It also reaches back into history. Its origins go back to the period when the service sector began to expand to the detriment of the producing and extracting industries. Tertiary services - like agency, administration, sale, consulting - are goods in the shape of attention paid. They used to be classified as non-productive by the economists of former times because they did not produce

anything material, nothing which filled one's stomach. It was the drastic lightening of the burden of physical labour by machines and the increasing need for organisation in the production and distribution of goods which demonstrated that the service of rendering attention was not only a productive contribution, but was in fact pivotal to the enforcement of economic rationality.

The growth of the tertiary sector was alimeted by the mechanisation of physical labour and by growing prosperity. Mechanisation shifts human labour to activities like planning and supervision as well as to marketing of the steadily increasing minimum turnover. Prosperity makes demand for goods more exacting and ties it more closely to the complementary demand for presentation and consulting. The growing complexity of both leads to higher requirements regarding the organisation of information and decision circuits.

This organisation remained untouched by mechanisation until the advent of a new kind of technology. The mechanical unburdening and substitution of labour in this sphere became more urgent with the general rise in wages, and especially with the rising share of highly qualified mental labour. Mental labour is particularly expensive because of the education dividend. What was needed, therefore, was the introduction of some technology that would unburden mental labour by substituting its more mechanical components.

This was achieved by information technology. Computers replace attentive by electrical energy. They emulate mental labour in that they move information instead of heavy matter. Since their introduction, de-materialisation has shifted from the object of labour to the instrument employed. This does not mean that the mind, or indeed attention, have leapt across to the machines. It means, however, that a potential is forming which may contribute to eventually replacing the material economy on a larger scale. Information - this is also the singled out pattern of stimuli from which we construct, perceiving, our haptic, firm world. It is infinitely easier and more energy-saving to change such patterns, to move them around, shape them, knead them, assemble them and send them round the world instead of their material original. However, the perception we construct from those manipulated stimuli is virtual reality. If the information processing capacity in human attention moves over to machines, this means that not only developments in the media are drifting towards the colonisation of virtual space. The tendency of virtualisation emanates just as much from economic pressures to substitute increasingly expensive labour, as from an ecological need to reduce the materials and energy balances.

De-materialisation and virtualisation have become common concepts also in production. The importance of occupations in the information sector suggests the emergence of a new, quarternary sector of the economy. In any case, the predominance of that which is material seems to be crumbling throughout the entire spectrum of the economic process. The totality of this transformation goes much further than suggested by the phrase information society. Information is the still physical aspect of the trans-physical economy of attention. Attention is far more than just the ready supply of information processing capacity. Attention is the essence of being conscious in the sense of both self-certain existence and alert presence of mind. Attention is the medium in which everything must be represented that is to become real for us as experiencing creatures. Each attentive creature is the centre of its own individual world. This world exists as many times as there are conscious beings.

Attentiveness as such is more than, and of ontologically higher order than, anything appearing to or in it. Dedicated attentiveness imparts dignity to the person receiving the attention. This alone makes receiving somebody's benevolent attention a most highly valued good for creatures who are attentive themselves. Receiving alert attentiveness means becoming part of another world. No attentive being has direct access to the world of another being's attention. By receiving another being's attention, however, the receiving one becomes represented in that other being's world. And it is one's representation in the other being's consciousness which makes the desire to be noticed so irresistible. It is not just that vanity cannot get enough of this. All of us are in the throes of the question how we appear to others. We cannot bear not playing any role in the other being's consciousness. The human soul already begins to suffer if it does not play the leading role in another soul. It is permanently maimed and ends in bitterness if it does not receive a generous minimum income of attentiveness. And it is its highest bliss to bathe in caring attention. Applause may, of course, sometimes come from the wrong side, and it may sometimes be the wrong side which is noticed. But if caring attentiveness comes from people whom we esteem, and if we receive it for qualities of which we are proud, there can hardly ever be too much of it.

Thus, the modern cult around one's own attractiveness did not need to be invented. Also, the observation that people enjoying material prosperity venerate nothing so much as their own magnetic hold on other people's attention is not surprising. New and astonishing is just the fervour with which professional business sense devours the liberated mental energies. It is only the display of power wielded by the sphere of media-channelled attention that is shocking in the discovery of this new economy.

However, too critical a view of the present cultural state might overlook that the replacement of money as life's reserve currency entails the chance of a possibly life-saving change in values. We have known quite long and sufficiently well that every day of hesitation to withdraw from the battle of matériel which we are waging against (our own) nature will heap deplorable misery on future generations. However, full knowledge and the guiltiest conscience have so far only moved dwindling minorities to changing their ways. It is probably illusionist to expect that the necessary reorientation of economic activity will be brought about by mass abstinence. If the way out of materialism is not found in abstinence, then it must be sought in hedonism itself. Within hedonism I see no other emergency exit but the one of self-activated de-materialisation of the economic process and the imminent change in values concerning different kinds of income.

Is the economy of attention thus an already practically experienced preliminary stage of future ecologically non-harmful lifestyles? Could the transformation of economic competition into a sharper battle for attention ultimately be the "cunning of reason" which will save us? Are we perhaps - unknowingly and without wanting it - on the right track? We should not take looking for answers to these questions too lightly.

First published in German, in "Merkur", no. 534/535.

