

Information Architecture: historical- conceptual analysis

Rodrigo Ronda León

Translated by: Gretchen González Nieto

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http://www.nosolousabilidad.com/articulos/historia_arquitectura_informacion.htm

Attribution

This article is a translation and update of an original article written in Spanish in 2008 and published on NSU (www.nosolousabilidad.com). There are new historical elements included in this article that enrich the discussion.

Introduction

Information architecture has had from the 90s last century a growing popularity. This popularity decreased with the dot-com drop in 2001, but it quickly retook rise in subsequent years.

It is logical that there is not much literature on the historical and theoretical aspects of it since it is a new profession. A possible reason could be that fact that this discipline becomes an eminently empirical (practical) act and therefore its theory is strongly influenced by the experience of those who play it.

The aim of this paper is to approach some criteria on the historical origin and therefore to the conceptualization of Information Architecture (IA) until 1998.

Historical Review

Most of the literature deals with the coinage of the term owed by Richard Saul Wurman in 1975 and around 1998 Rosenfeld and Morville popularized the profession through their book "Information Architecture for the World Wide Web", also known as the "polar bear book ". Also in some cases Edward R. Tufte is mentioned as initiator, along with Wurman, from IA, but their names are more associated with the discipline of Information Design.

It is intended to show in this article that before the coinage of this term by Wurman, Information Architecture term existed and that from 1983 to 1998 there were efforts which also marked patterns in modern Information Architecture.

AI general timeline etymology

Human beings in their evolutionary path have imagined an object before creating it physically. To do so they have modeled their imagination to reach a final solution that meets their specific need. These processes have been called design, conception, planning, etc.

The term architecture is conceptualized as a native of *architectūra* from Latin, meaning: The art of designing and constructing buildings. [DRAE, Microsoft Corporation, 2006]

The use of the term INFORMATION ARCHITECTURE has an English-speaking origin. Since the term "Architect" is widely used among English speakers to refer to a creator, who creates or invents things. [Oxford, 1996]

General influences

There were events that marked patterns in the interdisciplinary use of the term "architecture" and even in the world of computing. One of these events was the General Systems Theory, proposed by Ludwig von Bertalanffy in 1931 at the University of Chicago. These principles influenced on propositions for Structured systems analysis and design method (SSADM) which subsequently happened in the 80s.

Another factor was the development of structuralism as a methodological orientation that among its principles presupposed "the advances from the primary organization of observable facts in the context of the research task towards clarify of the internal structure of the object (its hierarchy and connections between the elements of each level) [Dictionary of Philosophy, 1984]. Structuralism as synthesized by RAE is a "scientific theory and method considers a set of data as a structure or system of relations" [DRAE, Microsoft Corporation, 2006]. So, structuralism related to semiotics and linguistics through

Ferdinand de Saussure. It influenced ethnology by Levi-Strauss, on Psychology by Vygotsky and Piaget, as well as in other sciences and scientific disciplines.

A fact that was influenced by those described above and that also contributed much to Information Architecture was the **Structured systems analysis and design method (SSADM)**. SSADM had relevant authors who had made important contributions to the design of information systems. Among the most important are: Larry L. Constantine, Wayne P. Stevens, Glenford Myers and Edward Yourdon. [Senn, 1987]

Origin of the term

The term architecture started to be used in the computational context by the IBM company about 1959, and according to an article in Wikipedia, it can be traced in the work done by Lyle R. Johnson and P. Frederick Brook, members of Machine Organization department at IBM main research center in 1959 [Computer architecture, Wikipedia, 2008]. Later, as the article states, one of these authors, Frederick P. Brook, in his book "Planning a Computer System: Project Stretch", edited by W. Buchholz in 1962, wrote in chapter 2:

"Computer architecture, like other architecture, is the art of determining the needs of the user of a structure and then designing to meet those needs as effectively as possible within economic and technological constraints." [Computer architecture, Wikipedia, 2008]

Moreover, in IBM technical literature, we can find a definition of the term "architecture" as "The term *architecture* is used here to describe the attributes of a system as seen by the programmer, i.e., the conceptual structure and functional behaviour, as distinct from the organization of the data flow and controls, the logical design, and the physical implementation" [Amdahl, Blaauw y Brooks, 1964]

Although the use of the term in these cases is associated with the Computer Architecture, conceptualization obviously marks an important guideline in the further expansion of its use in other areas of computing.

In 1967 Nicolas Negroponte founded the Architecture Machine Group at MIT (Massachusetts Institute of Technology), which was a combination of laboratory and think tank in the study of new approaches to human-computer interaction. [Nicholas Negroponte, Wikipedia, 2008]. This laboratory later became the MIT MediaLab.

In 1970, July 1st, Xerox Palo Alto Research Center (PARC) Company emerged. In the beginning Xerox Corporation brought together a group of world class scientists specializing in Information Sciences and Natural Sciences and gave them the task of creating "*the architecture of information*" [Pake, 1985]. This

company has made many contributions: the first personal computer with a friendly interface, the first WYSIWYG text editor, laser printer, Ethernet networks. Many of the investigative techniques of this company were emphasized in the Human-Computer Interaction (HCI) and the social aspects of computing. [Hearst, 1996]

It is noteworthy that the first documentary evidence of the use of the compound term "Architecture of information" has two interesting features: specialists in Information Sciences and user-focused development. This approach towards the user is also evident from the earliest uses of the term "architecture". This Xerox project gave birth to the first personal computer with a graphical user interface.

The second historical evidence of the use of the term is found in Richard Saul Wurman's work among which there is an article written together with Joel Katz entitled "Beyond Graphics: The Architecture of Information" written in October 1975 and published by AIA Journal; and a lecture given in 1976, during a meeting of American Institute of Architecture (AIA) which he titled *The Architecture of Information*.

This claim was recognized in a book published by the author in 1996 [Wurman, 1996]. Wurman is an architect by profession and he is considered one of the pioneers of the Information Design. [Jacobson, 1999] According to his own website (www.wurman.com) he has had a passion throughout his life: "making information understandable". Wurman has focused in urban environments from his origins as a professional in information design, with emphasis on the processes of organizing information, such as previous steps to visibly understandable information to users.

It should be noted that the way the term "information architecture" has been seen in two ways:

- The first, as "Architecture of information"
- The second, as "Information architecture"

Both forms mean the same, so the first is used in a more formal register than the second, which is a more colloquial.

The third evidence of the use of the term "information architecture" with this terminology structure, are found in a series of articles published in the 80s. Authors of these articles refer to Information Architecture as a tool for designing and creating information systems (information system design). Most of these articles have practical approaches of application thereof.

Among the most prominent authors of these works are:

- James C. Wetherbe,
- Gordon B. Davis,
- Douglas R. Vogel,
- Gary W. Dickson,

- James C. Brancheau.

It is interesting to see how most of these authors show remarkable influence from Structured Analysis and Design, in previous articles and papers.

A chronology of these little cited items is displayed below, showing the development of the profession of information architect in the 80s and early 90s of XX century. These references were obtained mainly from the LISA database [Library and Information Science Abstract, 1998] and other sources.

1983

Title: "Developing a long-range Information Architecture"

Authors: James C. Wetherbe and Gordon B. Davis

Publication: Proceeding of the National Computer Conference, Anaheim, CA, 1983

1984

Title: "University planning: Developing a long-range Information Architecture"

Authors: Douglas R. Vogel and James C. Wetherbe

Publication: Planning and Changing, fall 1984

1985

Title: "The management of Information System"

Authors: Gary W. Dickson and James C. Wetherbe

Editorial: McGraw-Hill, New York, 1985.

(In this book, Information Architecture is conceptualized)

Title: "Information architectures"

Authors: Richard A Spencer

Publication: Journal of Systems Management; NOV 85, Vol. 36, p34-41

1986

Title: "Information architectures: methods and practice."

Authors: James C. Brancheau and James C. Wetherbe

Publication: Information Processing & Management, Vol 22, No 6, december 1986, pp 453-463

1987

Title: "Information Architectures and Data Modelling: Cornerstone for Succeeding in the Information Society"

Authors: James C. Wetherbe

Publication: Proceedings of the Sixth International Conference on Entity-Relationship Approach, North-Holland Publishing Co., 1987, p. 3

1989

Title: "Building and implementing an Information Architecture"
Authors: James C. Brancheau, Larry Schuster and Salvatore T. March.
Publication: DATA BASE, summer 1989.

Title: "Information architectures. The information resources entity (IRE) modelling approach"
Authors: Forest Woody Horton
Publication: Aslib Proceedings; Nov-Dec 1989, Vol. 41 Issue 11/12, p313-318.

Title: "The use of high-level models in the specification of an information architecture"
Authors: Robert A. Stegwee
Publication: R. Maes (Ed.) Proceeding of the First Dutch Conference on Information System. Amersfoort (NL) November 1-2.

1991

Title: "Information architecture: sharing the sharable resource."
Authors: Douglas R. Vogel and James C. Wetherbe
Publication: *CAUSE/EFFECT*, 14, pag 4-9.

Title: "Alternative Strategies for Information Architecture Specification."
Author: Robert A. Stegwee
Publication: A. van Harten and B.G.F. Pol (Eds.) *Bedrijfskundig Onderzoek 1991 : 5e NOBO Onderzoekdag Bedrijfskunde; Dutch and Enschede (NL), November.*

1992

Title: "Division for Conquest: Decision support for Information Architecture Specification"
Authors: Robert A. Stegwee
Publication: *Groningen (NL): Wolters Noordhof*

There are other articles written in the 90s than in their content, they address Information Architecture as an important topic:

- **Prototyping an institutional IAIMS/UMLS information environment for an academic medical center.**
Perry L. Miller, Jeffrey I. Clyman, John A. Paton, Seth M. Powsner.
Bulletin of the Medical Library Association 80 (3) Julio 92, pp 281-287.
1992
- **Prerequisite matrix in decision-making process through the business systems planning (BSP) study of the Public Health of Split.**
B. Matokovic.
Journal of Medical Systems 18 (1) Feb 94, pp 1-7. **1994**

- **Communications architecture: towards a more robust understanding of information flows and emergent patterns of communication in organizations.**
A. H. Sagars and V. Grover.
European Journal of Information Systems 3 (2) Apr 94, pp 87-100. **1994**
- **Archives and the new information architecture of the late 1990s.**
R. F. E. Weissman.
American Archivist 57 (1) Winter 94, pp 20-34. **1994**
- **The quality of information on the Internet [in Hebrew]**
M. Farber.
Information and Librarianship 21 (1) Mar 95, pp 45-7. **1995**
- **Modelling requirements for future CASE: modelling issues and architectural consideration.**
P. Marttiin, K. Lyytinen, M. Rossi, V-P. Tahvanainen, K. Smolander, J-P. Tolvanen.
Information Resources Management Journal 8 (1) Winter 95, pp 15-25.
1995
- **Information architectural design in business process reengineering.**
W. J. Kettinger, J. T. C. Teng, S. Guha.
Journal of Information Technology 11 (1) Mar 96, pp 27-37. **1996**
- **Architecture for Information in Digital Library.**
William Y.Arms, Chistopher Blanchi, Edward A. Overly.
D-Lib Magazine, Feb. **1997**
- **Information architecture practice: research-based recommendations for the practitioner.**
K. P. Perisasamy, D. F. Feeny.
Journal of Information Technology 12 (3) Sep 1997, pp 197-205. **1997**

The vast majority these previous papers are little cited on Information Architecture's current bibliography.

Another document that addresses the topic of Information Architecture, written in 1995, was a thesis for the Doctor degree by Murray Louis Weitzman and entitled "*The architecture of information: interpretation and presentation of information in dynamic environments*", published by MIT (Massachusetts Institute of Technology).

In this thesis, written a year before Wurman's book *Information Architects*, Weitzman argues that the origin of the term comes from Xerox projects:

"Xerox was one of the first corporation to address this notion of information structure and use the 'elegant and inspirational phraseology, the architecture of information' to define its new corporate mission." [Smith & Alexander, 1988 cited by Weitzman, 1995, pag 12]

He continues:

"The basic purpose of Xerox Corporation is to find the best means to bring greater order and discipline to information. Thus our fundamental thrust, our common denominator, has evolved toward establishing leadership in what we call the architecture of information. What we seek is to think of itself as a natural and undeveloped environment which be enclosed and made more habitable for the people who live and work within it. (Xerox: Searching for an Architecture of Information, an address by C. Peter McColough, President, Xerox Corporation, before the New York Society of Security Analysis, March 3, 1970)" [Weitzman, 1995, pag 12]

In this thesis, other than confirm that Xerox was the company starting using the term before Wurman's Conference in 1975-76, shows information architecture as a tool to support the design and presentation of a document, bringing up the concept of "information structure" and posing as a concept of Visual information Architecture, VIA. This thesis used as bibliographies, books on design, architecture, among others, Tufte and Wurman.

The following year after the completion of this thesis, the large-scale production of books begins focused on information architecture as a profession. Clearly this was also due to accelerated development of computer technologies from 1990 to 1995.

Among the most remarkable books of this period from 1996 to 1998 are:

Title: *Information Architects*.
Author: Richard Saul Wurman.
Year: 1996
Editorial: Zurich, Switzerland: Graphis Press Corp.

Title: *Building Enterprise Information Architecture: Reengineering Information Systems*
Authors: Melissa Cook and Hewlett-Packard Professional Books
Year: 1996
Editorial: Upper Saddle River, NJ: Prentice Hall.

Title: *Website Information Architecture*.

Authors: Paul Kahn and Krzysztof Lenk.
Year: 1998
Editorial: Indianápolis, IN: New Riders.

Title: Designing Websites with authority: secrets of an information architecture
Author: Jakob Nielsen.
Year: 1998
Editorial: Indianápolis, IN: New Riders.

Title: Information Architecture for the World Wide Web
Authors: Louis Rosenfeld and Peter Morville.
Year: 1998
Editorial: Cambridge: O'Reilly

An important note is that the book written by Melissa Cook, entitled "*Building Enterprise Information Architecture: Reengineering Information Systems*" is based on the Enterprise Architecture Framework proposed by John A. Zackman 1987 [Zackman, 1987]. This Zackman framework is a clear result of the central development of architectural concepts applied to computing environment and it has a principle of structured analysis and design. Also Zackman model includes information architecture as one of design elements of information systems.

It is also important to highlight that Rosenfeld and Morville by writing their book, which became very popular due to its simplicity in drafting and synthesis, facilitated AI diffusion and assimilation in the area of the World Wide Web as a profession. These authors are librarian (they studied Library and Information Science), which warrants their work when incorporated new techniques of organization and representation of information from Information Sciences to the work of information architect. They gave to IA other point of view.

From year 2000 onwards many books and articles on AI have been written. Among the most prominent authors today are Eric Reiss, Jesse James Garrett, Susan Batley, Christina Wodtke, Earl Morrogh, Peter van Dijk, Louis Rosenfeld, and Peter Morville, Andrea Resmini, Donna Spencer, Erin Malone, among others. Therefore IA has grown up until be today, a very famous profession.

It is noteworthy that in Earl Morrogh's book entitled: *Information Architecture: An Emerging 21st Century Profession*, a historical depth on routes information architecture study is done.

For this century, the term Information Architecture is widely known and the work of its experts is inserted in software design processes. On the Web (WWW) various publications and companies dedicated to the topic can be found.

Chronological evolution of the use of the term "architecture" in computing environment

The term "architecture" as mentioned above is to be used in the computing environment from the 60s. The first evidence lies with the term Computer Architecture.

Since that time, the term "architecture" extends its use to form other compounds terms used in the computational environment. What follows is an example along with a chronological analysis from the presence of the terms in LISA database (Library and Information Science Abstract)

During the 70s a wide use of these terms is observed:

- *Data Base Architecture*
- *System Architecture*

During the 80s others are listed as:

- *Software Architecture*
- *Hardware Architecture*
- *Networks Architecture*
- *Communication Architecture*
- *Information Architecture*
- *Information System Architecture*

By the end of the 80s and during the 90s:

- *Hypertext Architecture*
- *Enterprise Architecture*
- *Server Architecture*
- *Website Architecture*
- *Process Architecture*

There are many more uses as it is shown by Zackman in his framework. (Zackman, 1987) For more information visit <http://www.zifa.com>.

Social and technological reason that led to Information Architecture

AI early approaches that are account in the 70s focus on a basic problem: disorganization of information that surrounds us and the solution is to achieve an order of this information in the emerging computing environment.

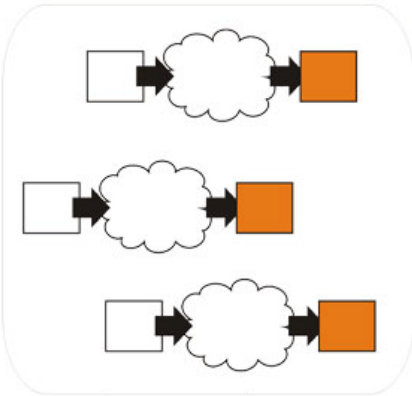
During the 70s, because of the development of computing companies began to use it to manage the data resulting from internal processes. That is, to create information systems independent from each other, but that solved specific problems. The primary use computers had in companies was to create databases that allow processing such databases to generate new information, following the model of Figure 1.

ENTERPRISE CONTEXT

decade 70



The model was to process Data in order to create Information

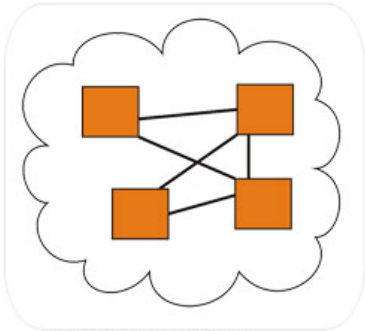


Each system was creating information but they were working isolated.

Companies

It was necessary to change the model for relating the information:
ARCHITECTURE OF INFORMATION

decade 80



Companies

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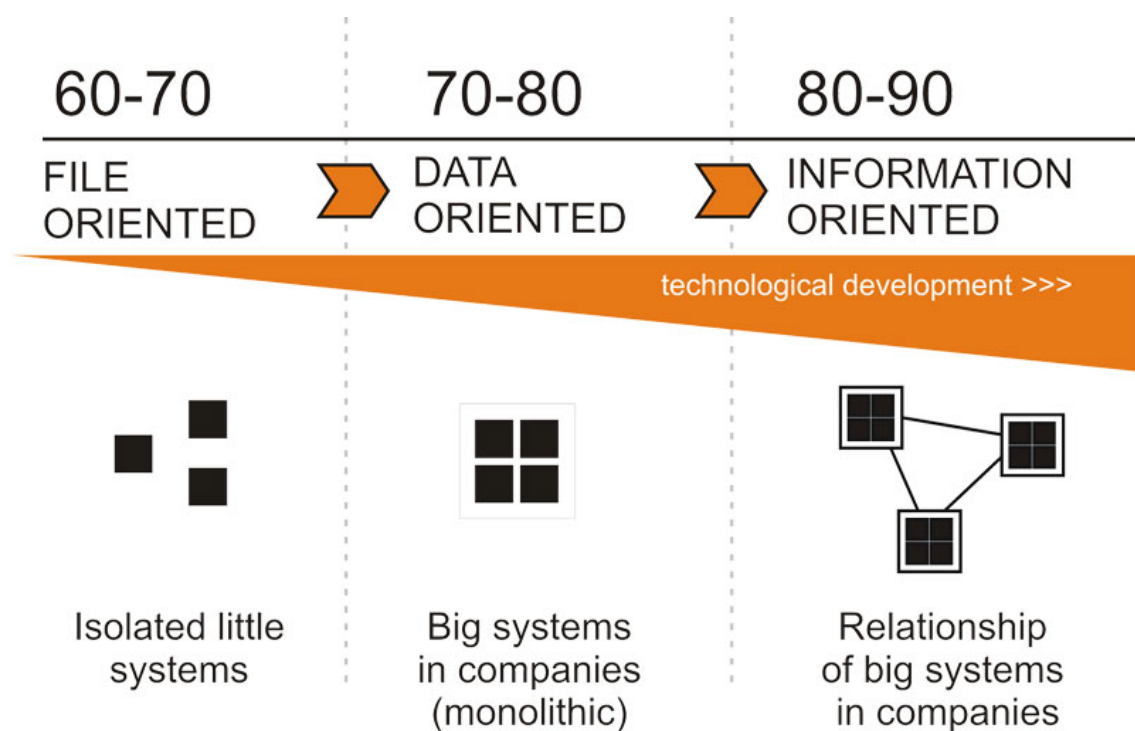
Figure 1. Model for Data-Information-Processing

This decade was marked by the evolution of computers towards minicomputers, the development of UNIX operating system, the creation of TCP / IP protocol,

and the business use of email network services and file transfer (FTP). This period was also marked by the creation of small-scale processing and data management, usually not related to each other, because the technology did not allow it.

In the late 70's and early 80's the business need was growing as it had created several data management systems generating new information and therefore they needed to relate each other, thus, it was necessary to integrate information and to do so, it a new model was required.

By early 80s a new approach was initiated in the model by posing an Information Architecture integrating outflows resulting from data management systems, as it is shown in Figure 2.



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Figure 2. Model evolving towards Information Architecture.

The 80's were characterized by the development of Graphic User Interfaces consolidating global TCP / IP protocol, the creation of other network services such as WAIS (Wide Area Information Server) and by the end of this decade the widespread Internet. Obviously, before the development of networks and business need to integrate systems, a new "architectural" model was needed.

A similar approach is shown by Kettinger, Teng, and Guha when stating:

"In this way, the historical development of information systems has progressed from schemes focused: database focused on isolated application files, a comprehensive information architecture design in a business context" [Kettinger, Teng, Guha, 1996]

Moreover Roger and Elaine Evernden, also consider the division into stages of AI history, but they differ in their temporary location thereof. [Evernden, 2003]

Conceptual Analysis of Information Architecture

AI Conceptual analysis would be chronologically convenient.

With the addition of the term "architecture" in the 60's, above mentioned, we find elements proposed by Frederick P. Brooks in its conceptualization. They functionally illustrate what architecture would be in computational context. This can be seen when he says that "computer architecture, like other architecture, (...)" comparing this new concept with traditional architecture, and later when architectural design process is focused on "user needs". [Computer architecture, Wikipedia, 2008]

Another item of interest is found in the article **Architecture of the IBM System / 360** by Amdahl, Blaauw, and Brooks 1964, when they argue that architecture is the definition of "the conceptual structure and functional behavior." [Amdahl, Blaauw, and Brooks, 1964] Note the similarity with the work currently done by an information architect.

The concepts offered in the 70's are mainly based on making information better integrated in working or urban environments, based on an architectural principle, following the pattern that shows the traditional architecture to create a final information product. These approaches were presented by Xerox project and later by Wurman.

Authors who presented AI in the '80s conceptualize it following empirical approaches, raising AI as a process within the software design, specifically within information system design.

To Dickson and Wetherber (1985) "information architecture is a high-level map of the information requirements of an organization. It is a personnel, organization and technology independent profile of the major information categories used within an enterprise" [Dickson & Wetherbe, 1985, cited by Brancheau, Schuter & March, 1989]

Note how the requirement concepts are posed as Map and information categories. "Profile" concept here refers to a representation.

In 1986 in his article **Information architectures: methods and practice**, Wetherber and Brancheau, extend this concept:

"The profile shows how the information categories relate to business processes and how the information categories must be interconnected to facilitate support for decision makers." [Brancheau and Wetherber, 1986]

More they describe it as "...the concept of information architecture is explored as a fundamental building block underlying the effective development of information systems." [Brancheau and Wetherber, 1986]

In order to make their notion more concrete, later they raised:

"Information architecture is a blueprint or plan for modelling the global information requirements of an enterprise. It provides a way to map the information needs of an organization, relate them to specific business processes and document their interrelationships. The information-process mapping is then used to guide applications development and to facilitate the integration and sharing of data." [Brancheau & Wetherber, 1986]

This latter concept also corroborates IA social and technological origin.

Defining what IA is for, these authors state:

"The process starts from a high-level conceptual view, then is successively refined until at the lowest level a physical database can be implemented." [Brancheau & Wetherber, 1986]

Here a criterion of designing from general to particular is evidenced (Top-Down focus).

These authors place IA as a process in the design of information systems. Specifically within the stage that requirement analysis is done to make the system design. In their article they propose ideas that are repeated from previous concepts

- *Blueprint*
- *Requeriment*
- *Information categories*
- *Guidelines on bussines processes relates*
- *Global corporate needs*

These conceptual categories are highly used in IA at present. Another element supporting the criterion that these authors set the bases in the processes we know today as IA is an article by Brancheau, Vogel & Wetherbe titled *An investigation of the Information Center from the user's perspective*. The authors deeply study users for supporting the notion of vital step for good information system design.

In another article Brancheau, Schuster and March (1989) reaffirm that:

"...information architecture provides a framework in which informed applications development planning can be done at the project group and

project levels. Information architecture can guide decisions about which applications should be built." [Brancheau, Schuster & March, 1989]

Later on they make the point on method:

"First, the basic functions of the business must be identified and defined. This involves determining what business the organization is in and determining what functions need to be performed to compete successfully in that business. Second, the existing organization structure must be mapped to the business functions. This involves determining which managers are responsible for (or have a stake in) each business function. The mapping is useful for determining which managers should be involved in the development of the architecture. Third, information about existing applications must be mapped to business functions. This involves gathering information about the functions provided by existing systems and how well they meet the organization's information needs." [Brancheau, Schuster y March, 1989]

It is interesting how these authors pose as a tool to make the IA, conducting matrices through tabulation of content; from a Global Data Model (which is very similar to UML case diagrams); and the description and definition of the entities described in the map.

Another interesting fact is that these authors defend entity-relationship model presented by Peter Pin-Shan Chen, who created in turn inspired by faceted classification system of Ranganathan (Colon Classification) (Shiyali Ramamrita Ranganathan (1892-1972) Indian mathematician and librarian, creator of Colon classification systems with faceted methods).

Other early definitions are found in the articles **Information Architectural Design in Business Process** written in 1996 by Kettinger, Teng and Guha where other authors are cited; and Kim Everest, besides those mentioned above. An interesting concept is:

"...information architecture as 'blueprints or diagrams which reflect, satisfy, and adapt to the needs of business functions, operations, and decision making'." [Everest and Kim, 1989, cited by Kettinger, Teng, Guha, 1996]

And again they discussed what to do the IA:

"...involves 'the planning, designing, constructing, or managing' of information architecture using a methodology and a set of formal techniques." [Everest and Kim, 1989, cited by Kettinger, Teng, Guha, 1996]

Another concept, now given by the authors of the article says

“...we define information architecture as: a high-level model of a set of data classes configured to support the organization’s value-adding business processes. The model may be portrayed in graphical form and is independent of technology and organizational structure.” [Kettinger, Teng, Guha, 1996]

In this article their authors placed IA in a higher category also establishing a chronology of the phenomenon:

“It is important to recognize that information architecture as discussed by Wetherbe and Davis (1983) and Brancheau and Wetherbe (1986) is one component of a broader concept commonly known as information system architecture (ISA) (Sowa and Zachman, 1992a; Targowski, 1988; Wardle, 1984; Zachman, 1987). ISA is often described as including architectures for hardware, communications, and business practice.” [Kettinger, Teng, Guha, 1996]

Conclusions

The evidence shown in this article requires rethinking historical criteria on information architecture discussed so far. In this review is included the author opinion.

1st. The term "information architecture" etymologically comes from the evolution and extension of the term "architecture" within the computing environment, which also becomes the term traditional architecture (art and science of designing buildings and project). This trend was evident from the 60s of the twentieth century.

2nd. The oldest evidence found so far, for the term Information Architecture is the foundation stage of Xerox Corporation in 1970, this project that gave birth to many significant advances in computing project.

3rd. There were two visions that formed the modern IA. The first one saw it as the one to raise the organizational structures of information in the visual results of our information environment. And the second one saw it as an organizational model of the interactions of information systems to achieve business process integration and information products. Both views focus on the computational environment. Both views were mixed in the 90s adapting to new technologies (eg, the Web) and forming what we have today as IA. It is important to emphasize that R&M added the vision of Information Science with their Polar Bear book.

Summarizing these two visions, we can say that:

- The first one came from of Information Design as a need to organize the information before rendering.
- The second one arose from the Analysis and Design of Information Systems and a need to organize processes and information resources before programming.

Unfortunately, this research has not been able to find a meeting point between these two visions, leading to assume that they were created independently.

Then we can set as pioneers of information architecture:

Focused on information organization for rendering [from 70s to 90s]

1. Xerox Project
2. Richard Saul Wurman

Focused on system analysis and design [from 80s and early 90s]

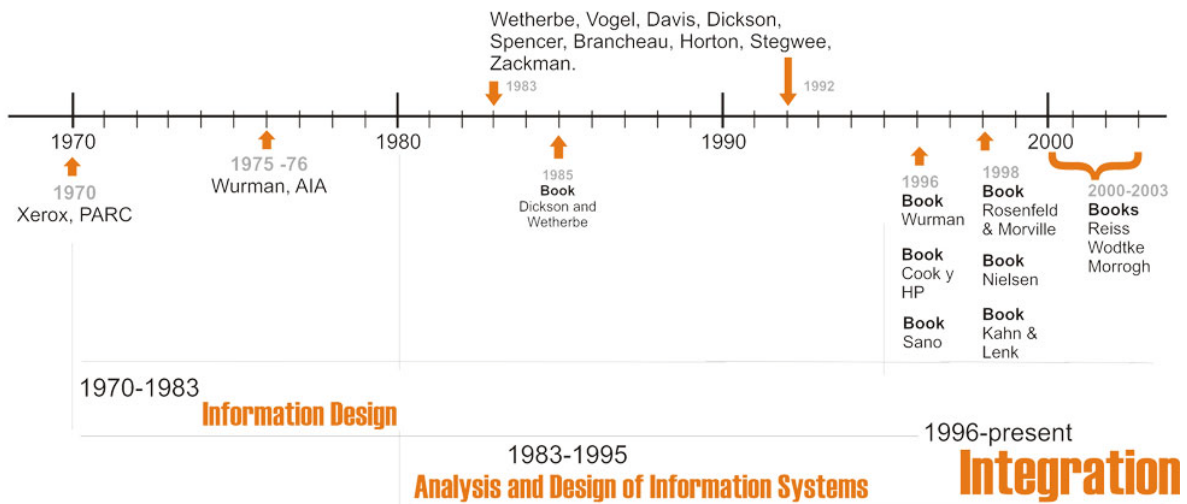
1. James C. Wetherbe
2. Douglas R. Vogel
3. Gordon B. Davis
4. Gary W. Dickson
5. Richard A Spencer
6. James C. Brancheau
7. Forest Woody Horton
8. Robert Stegwee
9. J. Zackman
10. Mellisa A. Cook

Focused on Web platform [from 1995 to 2003]

1. Jacob Nielsen
2. Paul Kahn
3. Lenk Krzysztof
4. Louis Rosenfeld & Peter Morville
5. Eric Reiss
6. Christina Wodtke
7. Earl Morrogh

From these criteria a graphical timeline of information architecture (Figure 3) is proposed

Information Architecture Chronology from 1970 to 2003



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Finally, a number of features are proposed for conceptualizing Information Architecture:

Why IA arises:

- The wealth of digital information that was coming needed to be organized.
- The business need to relate resulting information from management-related systems.

How IA came up:

From two perspectives:

1. From information designers
2. From analysts and system designers.

When these perspectives emerged:

- Early 1970s.
- 1980s.

Consolidated in the second half of the 1990s

Therefore Information Architecture:

What is it?

Arts and Science

What is it about?

Defining information organizational structures and interacting methods, from needs, activities and characteristics of users and their environment.

How do you do it?

Interacting with the user, examining the context, organizing and representing information.

Why do you do it?

To achieve a higher quality of information product (better search and retrieval, usability, experience, etc)

What is the raw material?

Information (information resources, information products, etc)

What context does it occur?

Digital (software, web sites, intranet, information systems, etc)

Whom does it help?

Users (User Experience), Companies and Software team (Interaction design, information design, graphic design, and programming).

These conceptual approaches are comparable to the one proposed by the Asilomar Institute for Information Architecture (<http://iainstitute.org/>) and to the elements of the user experience proposed by Jesse James Garret.

Modern information architecture is so related to other processes of software design and creation that it sometimes loses its boundaries and tends to be confused. Evidence of this, is the projection of "Pervasive Information Architecture" by Resmini and Rosati, but this is another history [Resmini and Rosati, 2011].

Research Limitations

The inability to access some of these bibliographies makes this research biased. Most of it cannot be accessed from the author's country.

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Translation into English:
Gretchen Gonzalez Nieto
gretchen@infomed.sld.cu
CNICM-Infomed
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