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# In Context

MODULANT'S CONTEXTIA PRODUCTS AND SOLUTIONS NEWSLETTER

## BUILDING THE AGILE, ADAPTIVE, AND INNOVATIVE ENTERPRISE

With Business Information Integrity, customers, investors, and employees can trust that the information provided and used by your organization has integrity.

## Business Information Integrity Drives Success

Integrity is a word that is used often today to discuss how organizations ensure they meet the standards of their customers, investors, and employees. We all know that the lack of integrity leads to an untrusting customer, skeptical investors and disenfranchised employees. But what about the integrity of the business information an organization uses to operate its business processes? Organizations today need to be able to rely on the integrity of its business information to be successful. Business information is more than the specific information that a business has; it is **how**, **where** and **when** it uses that information to support the business.

Information, unlike data, must be considered in the context of the business process or function in order to understand its relevance to the organization. Without business information integrity, the users of that information, whether they be human or system, cannot perform the required function with accuracy and completeness. Errors can lead to costly down time and missed opportunities. A Business Information Integrity Program (BIIP) is designed to instill business information integrity in an organization.



## Context is Critical

Contextia is named for the importance that context plays in business information integrity. Without context, the meaning of information, when the information is moved from place to place, is difficult to understand. Context is the explicit association of the activities, rules, and systems in which data is meaningful and valid. The definition and management of context is critical to understanding how an organization uses information within its business processes to achieve a solution.

The S-L-P paradigm for the creation of the Contextia Business Map: Each level is defined with a color:

- ⇒ Semantic (S) - Real business things are represented in the Semantic level as concepts. Semantic-level concepts are depicted with the color yellow.
- ⇒ Logical (L) - Logical groupings of information are represented in the Logical level as entities, and individual data elements are represented as attributes. Logical-level entities are depicted with the color green.
- ⇒ Physical (P) - Database tables, XML schemas and DTDs, flat files, and COBOL copybooks are represented in the Physical level as groups, and table columns, XML elements, and COBOL fields are represented in the Physical level as fields. Physical-level groups are depicted with the color blue.

## The Semantic Level

In order to understand the use of information by the business, Modulant has developed the S-L-P paradigm. Within the paradigm, the 'S' stands for Semantic, the 'L' for logical, and the 'P' for physical. Each of these is the designation of a level of information. Each level is an independent model and can stand alone for the modeling of specific information. The physical and logical levels meet all of the requirements of an Entity-Relationship model including the definition of primary and foreign keys and the specification of cardinality of the relationships.

The semantic level is the most important level within the S-L-P paradigm. The semantic level is an ontology that provides for the classification of information within a structure. The ontology goes further in allowing both the specification of classes of information as well as members of the classes. This allows not only the specification of concepts of interest but also of specific concepts like an actual person.

To understand the semantic level, it must be understood that the level is interested in capturing the label and description of real world things, or concepts. A concept is anything that can exist in the world. It can be a person, product, event, time, activity, or much more. For instance, an employee is a concept that defines a specialization of a type of person.

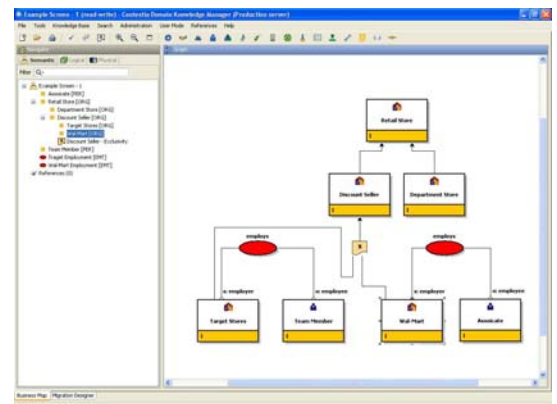
Employee is still a class because it includes a number of actual people that can be classified as people. Employees could be further specialized as full-time or part-time. Again, because more than one actual employee can be classified as a full-time employee it can be defined as a class as well. John Doe is an individual that can be defined as a member of the full-time employee class.

It is important to note that while this may seem very straight forward, not all organizations classify people as employees; in Wal-Mart, the classification might be an Associate, while in Target it would be a Team Member. These definitions are what are referred to as the semantics of the organization.

It is also important that in order to convey the idea that a Wal-Mart employee is classified as an Associate, there must be the concept that Wal-Mart as an organization is related to a class of persons called Associates. Since our ontology allows for the specification of both of these concepts as well as a special class of information called associations, the concepts of the organization (Wal-Mart) and person (Associates) can be linked with the "Employment" relationship.

Another important concept that can be defined in the semantic level is the concept of context. For instance, we could define that there are two types of persons - 'Associates' and 'Team Member'. The concept of an 'Associate' is within the context of the organization "Wal-Mart" and the concept of a 'Team Member' is within the context of "Target" both of which are 'Discount Seller' of the organization 'Retail Stores'.

The picture below shows how the semantic level captures all of these concepts within a visual representation.





## FINANCIAL ORGANIZATION USES CONTEXTIA TO ENSURE BUSINESS INFORMATION INTEGRITY OF TESTING PROCESS

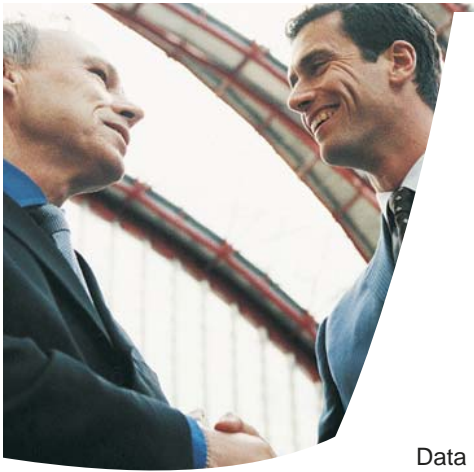
**Challenge:** A major financial institution's testing services organization is responsible for ensuring the proper operation of the production code for its operations. To ensure the integrity of the testing function, the test conditions and test cases used to check the production code must be complete and, most importantly, accurate. The customer was not confident that the integrity of the information used to test the application was as strong as they could be.

Management at this financial institution was concerned that they were dependent on a small group of people to keep their testing processes functional. The process was very time consuming and normally caused the employees they were dependent on to work nights and weekends. Management realized that to get out of this "firefighting mode" would require innovative solutions that could capture this knowledge that they depended so highly on and reuse it within the organization.

The complexity of today's organizations requires that more attention be given to the integrity of the business information. By establishing a Business Information Integrity Program (BIIP), businesses can reduce the maintenance and upgrade costs of their IT applications. Organizations can begin to manage the use of their business information within in a single repository which is easy to maintain and the information can be used for many different business objectives. This control allows for the business information integrity that leads to more efficient IT processes and reduces the total IT support costs.

**Solution:** Modulant's Contextia Products and Services Group used Contextia to capture the use of the business information within the context of the business requirement needed by this customer. Modulant created Business Maps to select only the information required for the transactions that met the testing conditions as specified by the business. Much like a geographical map, a Business Map is a mechanism for sharing knowledge, including symbols and tailored "directions", so that information can be interpreted correctly, within the context of the business challenge at hand, and provides knowledge to how the information is used by the organization.

With Contextia Business Maps, organizations can stop re-establishing domain knowledge each time they have a new business challenge. Part of the challenge to test software is the requirement that the information to be processed by the application must have certain characteristics to ensure an accurate test. For instance, if you want to offer a movie pass to an individual under 21 and a drink coupon to someone over 21, then you must have a transaction with a birth date less than 21 years ago and a transaction with a birth date of more than 21 years ago. A transaction would be the information a person entered into a form on a web site. Without these transactions that include the birth date of the customer, you can not test the software accurately. In this case, you are making sure that the transaction with the birth date less than 21 years ago would be given a movie ticket in the promotion. After this transaction ran against the application, you would check the promotion type indicator to see that it was now an "M" for the movie pass. If there were no transactions with a birth date year less than 21 years ago, you would not know that the program worked correctly. The birth date year less than 21 years ago is just one condition that could be tested. A more complex selection could be a the person less than 21 years of age, living in a particular zip code, and having made a purchase in the last 30 days.



# Beyond Data Management

## Part 1

*Organizations must move beyond data management to automated processes based on business information integrity.*

There is a very important distinction between data and information which tends to get glossed over in technical literature. Data is the characters and text, which is stored within our IT datastores, which in relational datastores includes data in columns and rows. We can see if the stored data is data by showing the data to someone not familiar with the datastore. If they see only pieces of text and numbers that have no meaning then they have data.

Humans can take data and create information by relating the data with other data and knowledge of the environment. We call this understanding of the environment: context. The human must understand the context in which the data resides in and its associated data to create information. Information is the understanding of data within the context of the environment whether that be a business process, a person's experience, or a document. Therefore, while we tend to refer to data and information synonymously they are quite different.

Data management people and organizations can not figure out why management doesn't pay more attentions to the importance of data management.

Data management will tell you that data quality, data profiling, data compliance, data governance, and all other data processes are important to how well a business operates. Therefore, IT purchases tools which it uses to improve the quality of its services to the business, but never gets the "buy-in" from business that they are expecting. However, the tools continue to be used on specific projects but are not considered critical to the business. And while many IT organizations have groups that are responsible for data management, there continues to be poor data quality, missing data compliance, lack of data governance in most organizations. So where do we go from here.

As the CIO you know the importance of each of these capabilities to the business, but it should be also clear that the business is not listening. Rather than believing it is due to lack of understanding or importance, it may be due to the fact that the business organizations do not deal with data in the manner which IT organizations believe it does. Businesses deal with information. The information that the business uses to achieve its operational goals may start out as data, but it is used as information. In other words, businesses require context to care about data.

Business managers do not consider that they are dealing with discreet pieces of data that must be stored, managed, and secured. They are concerned with having the right information, at the right time, to accomplish the business objective. The business management is not concerned with the application, datastore, or network unless they are unable to achieve the business objective because of lack of processes, access, or availability of the information. The business wants Business Information Integrity.

For the business user, accurate customer lists, products delivered to the correct address, financials that show the accurate revenue, status and number of customer accounts that are past due, not giving confidential information to competitors, and/or number of new customers by a particular region are examples of important types of information to the business. The accuracy, availability, completeness, and security of this information can be defined as business information integrity. Maintaining integrity of this information is difficult and most people would agree that their organization can not provide this information with complete integrity.

## SMARTER SOLUTIONS: Sunsetting a System



There are times when an application's usefulness can no longer support the cost of maintaining that system – resulting in a decision to acquire a new and less costly system that can continue to support users' processes or to completely eliminate the system because the processes are duplicated and/or no longer required. There are no processes that ensure that the usage of the information within the legacy system will be captured correctly in the new system.

**CONTEXTIA** changes that by ensuring business information integrity between the legacy environment and the new environment where the information will be managed. It assists in determining what information can be eliminated or consolidated during this process – and provides this information through a visual presentation and in terms the business understands.

This series discusses Business Information Integrity and the importance to enterprise IT organizations

.PETER R. EVERITT - CTO