

TITLE: "THE 4 STAGES OF IRM GROWTH"

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Since 1971: *"Software for the finest computer - the Mind"*

*"No amount of elegant technology will solve our problems, only strong management will."
- Bryce's Law*

INTRODUCTION

It seems that everyone is aspiring to use information for competitive advantage. To do so, literally billions of dollars are being spent on the latest technology, hence the excessive use of the expression "Information Technology" (IT) to refer to the departments charged with implementing the latest gizmo. Years ago, prior to the computer, there was the "Systems and Procedures Departments" who were charged with streamlining business processes in order to maximize the production of information. As computers entered the picture "Data Processing" (DP) departments sprang up to tend to the care and feeding of them. In the 1960's, the term "MIS" (Management Information Systems) was coined to refer to total corporate systems. This lasted for several years. However, over the last ten years the term "MIS" was supplanted by "IT." Nevertheless, these departments all shared a common mission, to deliver the most accurate information to operate a business. As an aside, the change from MIS to IT also suggests a change of thinking and orientation. Now, instead of thinking in terms of whole systems (with their business processes, procedures and programs) the focus is on the physical implementation of systems only. To me, this is a dangerous course of action as it tends to limit people's perspectives; instead of thinking about a total business solution, we are now pacified by attacking it in piecemeal.

In the past, you have heard me rail about the need for taking a comprehensive approach to Information Resource Management (IRM) requiring an engineering/manufacturing perspective for developing and managing a company's information resources. But is anyone actually doing it? Most people don't even understand the problem, let alone how to build an effective IRM en-

vironment. Let me see if I can explain the differences between a simplistic approach versus a robust IRM environment. To do so, consider the following "Maturity Model" which describes the four stages in the use of information: Birth, Childhood, Adolescence, and Adulthood.

BIRTH

The day a company goes into business is the day when its information systems are born. When a new company or organization is established, there are some very primal information requirements to accommodate the operation of the enterprise. For example, basic bookkeeping (billing, payroll, government reporting, etc), minutes of meetings, recording of policy decisions, schedules, correspondence, etc.

To implement these basic administrative requirements, simple office equipment is typically required, such as typewriters, calculators, photocopiers, telephones, fax machines, etc.

An Office Manager with a clerical staff (e.g., secretaries, book-keepers) normally implements these processes and operates the equipment. During this stage, their concern is for implementing basic manual procedures with an eye for work simplification to minimize overhead.

As the business expands and becomes more complicated, whether from an increase in employees and/or business, there is a growing demand for more information which leads to the next stage of growth...

CHILDHOOD

This stage is entered into either by an emerging company or an established firm that is pressured to investigate the potential of new technology, namely the computer, to give leverage to their business needs. This is a stage which most of the "FORTUNE 500" companies and major government institutions went through in the 1950's, 60's and 70's.

In the childhood stage, the intent is to investigate the potential of the computer. This is an age of experimentation where a highly complicated and technical device is introduced to a company. This new technology, of course, requires a technically oriented individual to operate it. Someone who is more in tune with the equipment as opposed to the problems and objectives of the business.

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The computer is typically centralized in one location until someone can determine an appropriate way to apply it to the business.

This stage results in the executive's "black box" image of the computer. The executive doesn't fully understand its capabilities and looks upon it suspiciously as a necessary evil. As a consequence, they divorce themselves from the machine and appoint a "IT Manager" who is given free reign over the new technology. Like the staff that supports him, the IT Manager is technically inclined (probably just one step ahead of a programmer).

The "IT Department" tackles simple problems aimed at automating some of the basic administrative routines of the company. There is not considerable pressure to satisfy business problems, only a "see what you can do" type of attitude. As a result, the IT staff takes an ad hoc, "quick and dirty" programming approach to problem solving. This type of philosophy sows the seeds for problems to come in the years ahead. For example, applications are not integrated, data is not shared (data redundancy is commonplace) and documentation is nonexistent, applications are not easy to maintain or modify. As a result, they are constantly being discarded and rewritten, further compounding the problem.

One of the most significant aspects of this stage is that it fosters the "tool oriented approach" for solving problems. The attitude of the staff is that the only legitimate problems worth solving are those that can be addressed by the computer. All others are immaterial. This is a frame of mind that will take considerable time to overcome. The indifferent attitude of the IT Department irritates and alienates end users who have increasing demands for information.

Impatient for results, management begins to apply pressure on the IT Manager for more applications to satisfy user demands. This leads to the next stage ...

ADOLESCENCE

This is the age of awakening for most companies, an era when the IT Department begins to manage itself in order to accommodate growing business demands. The IT Manager is supplanted by an IT "Director," someone who is a little more adept at management politics.

In this stage, the IT Director implements rudimentary management controls, particularly in the areas of project management and documentation. Using the "tool oriented approach" to improve staff productivity, the IT Di-

rector implements several software tools and techniques, such as: Data Base Management Systems (DBMS), Program Generators, Report Writers, Fourth Generation Languages (4GL), Computer Aided Software Engineering (CASE), etc.

Dazzled by sophisticated software and in fear of "falling behind" in the technology race, the IT Director authorizes the purchase of tools that implement esoteric (some prefer to call it "Voodoo") management principles.

Unfortunately, the IT Director is seduced and abandoned by the technology; the results are still the same: Applications do not satisfy user needs, applications are not integrated, data redundancy is still pervasive, applications are still difficult to modify and maintain, and the staff remains a free-spirited group of technicians.

The "tool oriented approach" is very costly to the company, but the results are still the same. The IT Director is still supported by a technical staff that believes that the "real work" is in the production of software, where their programming skills excel. The "Analyst/Programmer" is really nothing more than a senior programmer.

Superficial standards and pseudoscientific management techniques are applied to the development process. An application project typically consists of the classical approach for developing systems: A primitive Feasibility Study, General Design (sometimes referred to as "External Design"), Detail Design ("Internal Design"), Programming (usually following a Structured Programming Guru's technique), Testing, Installation, and Review. In this situation, programming remains 85% of the entire project. This approach is usually well packaged in voluminous standards manuals (which no one but the Auditors read).

The computer is decentralized with mainframes, minis and micros being distributed throughout the company.

The end User, who is frustrated by the lack of support from the IT Department, turns to the Personal Computer (PC) for help. Unfortunately, the User is no more adept at using the computer to solve his business needs as the IT people are and the problems are compounded even further (particularly in the area of redundant data).

Despite the substantial investment in computer hardware and software thus far, executive management finally recognizes that conditions are intolerable and that the company is not getting a satisfactory return on investment. This becomes the catalyst for change. Without it, the company stagnates and the situation worsens. Adolescence must eventually give way to ...

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ADULTHOOD

This stage represents a radical departure from the past mode of operation. Very few companies, if any, have reached this stage of growth yet. It represents a mature environment where the systems staff is in tune with the mission of the company, and information is viewed as a corporate asset used for strategic purposes. This is the age of Information Resource Management (IRM). This philosophy gives rise to the Chief Information Officer (CIO), a true and legal officer of the company, not just a job title. Such an officer reports, at least, on the same level as the Chief Financial Officer (CFO).

No longer is the "tool oriented approach" pervasive in the company. It was tried, and it failed. The latest "state of the art" technology is a worthless status symbol if it doesn't contribute to the profitability of the company.

Now, the CIO turns to tried and proven approaches to management. Information Systems design is no longer viewed as an art, but a science. The CIO organizes the systems development environment into an engineering/manufacturing company, complete with Assembly Lines,

Production Control and Materials Management. As a result, the systems staff is transformed from free spirited programming "hackers" to a group of disciplined and quality conscious business professionals. In some respects, the staff will resemble the "Systems and Procedures" staff of yesteryear who had a business orientation.

The computer is viewed as just another piece of office equipment; they are not discernible. Users and management no longer fear technology because the CIO implements it effectively into the business. In the adult stage, the emphasis is on complete and integrated information systems, not just software. Programming is less than 15% of the entire development process, with the bulk of the work being expended on business analysis. Data is managed as a resource and redundancy is eliminated. All of the problems experienced earlier disappear.

As enticing as adulthood may sound, very few companies have the management skill or fortitude to make it happen, particularly in the United States. Most companies don't even understand the problem. Adulthood rep-

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THE FOUR STAGES OF MATURITY				
CHARACTERISTICS	BIRTH	CHILDHOOD	ADOLESCENCE	ADULTHOOD
APPLICATIONS	Basic Bookkeeping	Program basic administrative routines.	Major systems	Information as asset and strategic weapon
EQUIPMENT	Basic office equipment	Centralized computer	Decentralized computing equipment	Computers blend in with office equipment
PERSONNEL	Office Manager & clerical staff	IT Manager & technical staff	IT Director & Programmer/Analysts	CIO & business oriented staff
ENVIRONMENT	Concern for manual processing; Work simplification	Experimentation; "See what you can do." Beginning of the "Tool Oriented" approach.	Awakening. Applying rudimentary management tools & techniques.	Age of IRM. Strong management. Science vs. Art. Organization & quality conscious.

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resents a substantial and long-term corporate commitment, not just departmental commitment, which most American companies strongly resist. Instead, they are content with short-term "quick and dirty" solutions. On the other hand, Asian companies, who are much more far-sighted, have a greater chance for success and are rapidly moving into the adulthood stage. This will make them increasingly more competitive in the years ahead.

CONCLUSION

Over the last ten years alone, computer technology has changed radically, job titles and terminology have changed, and salaries have risen sharply, but little else has changed. The information problems of today are no different than 10, 20 or 30 years ago. Despite today's technology, companies still experience:

- Project cost overruns and slipped schedules.
- Poor communications and relations with the User community.
- Redundant data and lack of application integration.
- Applications are difficult to modify and maintain.
- Lack of adequate documentation.
- Design inconsistencies.
- Applications still do not satisfy User needs.
- Hardware/Software dependencies.
- Employee dependencies to maintain systems.

The tools and characters have changed, but the tune remains the same. Regardless of the titles and technology used, most companies in North America are stuck in either the "Childhood" or "Adolescent" stages of growth. Indicative of this are the journals, trade groups, universities, and trade shows that still promote the "tool oriented approach" as opposed to promoting management. Systems development is still viewed by many people as an art, not a science. In reality, it is a science. It has established and proven concepts and can be taught as a science.

No amount of elegant technology will solve our problems, only strong management will.

NEXT UP: What does an IRM Infrastructure look like?

END

About the Author

Tim Bryce is the Managing Director of M. Bryce & Associates (MBA) of Palm Harbor, Florida and has 30 years of experience in the field of Information Resource Management (IRM). He is available for training and consulting on an international basis.

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