



Whitemarsh
Information Systems Corporation

Information Systems Plan The Bet Your Business Project

Whitemarsh Information Systems Corporation
2008 Althea Lane
Bowie, Maryland 20716
Tele: 301-249-1142
Email: mmgorman@wiscorp.com
Web: www.wiscorp.com

1.0 Rationale for an Information Systems Plan

Every year, \$300-700 million dollar corporations spend about 5% of their gross income on information systems and their supports. That's from about \$15,000,000 to \$35,000,000! A significant part of those funds support enterprise database, a philosophy of database system applications that enable corporations to research the past, control the present, and plan for the future.

Even though an information system costs from \$1,000,000 to \$10,000,000, and even through most chief information officers (CIOs) can specify exactly how much money is being spent for hardware, software, and staff, CIOs cannot however state with any degree of certainty why one system is being done this year versus next, why it is being done ahead of another, or finally, why it is being done at all.

Enterprises do not have model-based information systems development environments that allow system designers to see the benefits of rearranging an information systems development schedule. Questions that cannot be answered include:

- ! What effect will there be on the overall schedule if an information system is purchased versus developed?
- ! At what point does it pay to hire an abnormal quantity of contract staff to advance a schedule?
- ! What is the long term benefit from 4GL versus 3GL?
- ! Is it better to generate 3GL than to generate/use a 4GL?
- ! What are the real costs of distributed software development over centralized development?

If these questions were transformed and applied to any other component of a business (e.g., accounting, manufacturing, distribution and marketing), and remained unanswered, that unit's manager would surely be fired!

We not only need answers to these questions NOW!, we also need them quickly, cost effectively, and in a form that they can be modeled and changed in response to unfolding realities. This paper provides strategies for developing answers to these questions. Under this same title, Whitmarsh provide a book, course, and ISP software creation components.

Too many half-billion dollar organizations have only a vague notion of the names and interactions of the existing and under development information systems. Whenever they need to know, a meeting is held among the critical *few*, an inventory is taken, interactions confirmed, and accomplishment schedules are updated.



This ad hoc information systems plan was possible only because all design and development was centralized, the only computer was a main-frame, and the past was acceptable prologue because budgets were ever increasing, schedules always slipping, and information was not yet part of the corporation's critical edge.

Well, today is different, really different! Budgets are decreasing, and slipped schedules are being cited as preventing business alternatives. Confounding the computing environment are different operating systems, DBMSs, development tools, telecommunications (Lan, Wan, Intra-, Inter-, and Extra-net), and distributed hard- and software.

Rather than having centralized, long-range planning and management activities that address these problems, today's business units are using readily available tools to design and build ad hoc stop-gap solutions. These ad hoc systems not only do not interconnect, support common semantics, or provide synchronized views of critical corporate policy, they are soon to form the almost impossible to comprehend confusion of systems and data from which systems order and semantic harmony must spring.

Not only has the computing landscape become profoundly different and more difficult to comprehend, the need for just the right--and correct--information at just the right time is escalating. Late or wrong information is worse than no information.

Information systems managers need a model of their information systems environment. A model that is malleable. As new requirements are discovered, budgets modified, new hardware/software introduced, this model must be such that it can reconstitute the information systems plan in a timely and efficient manner.

1.1 Characteristics of a Quality ISP

A quality ISP must exhibit five distinct characteristics before it is useful. These five are presented in the table that follows.

Characteristic	Description
Timely	The ISP must be timely. An ISP that is created long after it is needed is useless. In almost all cases, it makes no sense to take longer to plan work than to perform the work planned.
Useable	The ISP must be useable. It must be so for all the projects as well as for each project. The ISP should exist in sections that once adopted can be parceled out to project managers and immediately started.



Characteristic	Description
Maintainable	The ISP should be maintainable. New business opportunities, new computers, business mergers, etc. all affect the ISP. The ISP must support quick changes to the estimates, technologies employed, and possibly even to the fundamental project sequences. Once these changes are accomplished, the new ISP should be just a few computer program executions away.
Quality	While the ISP must be a quality product, no ISP is ever perfect on the first try. As the ISP is executed, the metrics employed to derive the individual project estimates become refined as a consequence of new hardware technologies, code generators, techniques, or faster working staff. As these changes occur, their effects should be installable into the data that supports ISP computation. In short, the ISP is a living document. It should be updated with every technology event, and certainly no less often than quarterly.
Reproducible	The ISP must be reproducible. That is, when its development activities are performed by any other staff, the ISP produced should essentially be the same. The ISP should not significantly vary by staff assigned.

Whenever a proposal for the development of an ISP is created it must be assessed against these five characteristics. If any fail or not addressed in an optimum way, the entire set of funds for the development of an ISP is risked.

1.2 Comparison of Three ISP Development Approaches

The three traditional approaches to the development of an Information Systems plan are:

- IBM's Business System Plan
- James Martin's Strategic Data Planning
- Clive Finklestein's Strategic Management Plan

The table on next page presents a summary of the approaches. A full explanation of the three approaches including summary work plans is provided in the Information Systems Plan book from the Whitemarsh website.



Characteristic	Approach Name		
	IBM's Business System Plan	James Martin's Strategic Data Planning	Finklestein's Strategic Management Plan
Timely	20 staff years	16 staff years	22 staff years
Useable	Low	Low	High
Maintainable	Low	Medium	Medium
Quality	Medium	Medium	High
Reproducible	Low	Low	Medium

It should be easy to conclude that these three approaches are not acceptable for an enterprise that must develop five-year strategic, three-year tactical, and then one-year operational updates to its information systems plan.

Few enterprises either complete, or once completed, maintain ISPs. An analysis of the details behind the three traditional approaches through which ISPs are attempted clearly reveals why they take so long, do not meet the required level of quality, and finally are not cost-effective. Key among the reasons are:

- ! IBM's and Martin's (BSP and SDP) methodology requires a full function decomposition as well as a high level data model. In addition, the functional decompositions must be finished before the ISP can be started.
- ! Finklestein's methodology (SMP) requires the development of a fifth-normal form data model and an almost complete process model prior to the start of the ISP.

It is very difficult to obtain consensus on a functional decomposition for any one application, much less across all the information systems within the entire corporation. That is because functional analysis requires identification and codification of how activities are performed. In short, the codification of style. This type of analysis leads to conflicts, power struggles, and endless nit-picking. In the end, nobody likes the results. Once, or if ever completed, both IBM and Martin use the resulting ISP as a foundation for identifying information systems. Building the ISP on top of such a foundation of discord cannot possibly result in stable, enduring information systems.

Finklestein's methodology requires the development of a fifth-normal form data model for the entire enterprise. Such an extraordinarily detailed effort certainly embraces three to five thousand entities, all the appropriate attributes, full definitions for entities and attributes, and a full exposition of every relationship among all entities. While development of such a edifice is a valuable final shrine



once all the identified information systems have been implemented, it is totally unnecessary for the ISP.

Even if the length of time for IBM, Martin, and Finkelstein was deemed acceptable, produced plans would still unacceptable because:

- ! The form of their ISPs is a static set of matrices that merely show associations and hierarchies of data and process.
- ! Each identified information system is not tied to existing information systems and data for contextual assessment and analysis
- ! The identified information systems are not estimated through any standard work break downs structures (standardize project methodology templates) and standard metrics enabling development of alternative time-lines, costs and resource loadings.
- ! The identified set of information systems is not placed in any precedence sequence that supports a rational, dependable project sequence that can be loaded into a project management package for computation of Gantt and CPM outputs.

Because of all these inadequacies, any ISP developed through the IBM, Martin, and Finkelstein techniques produces a motionless, unchangeable blueprint. Great for illustrating the past, for controlling an instant in the present, but poor for modeling the future.

1.3 Whitemarsh's ISP: A Difference in Kind

Whitemarsh's ISP approach was built directly on the strengths and designed-out the weaknesses of the three traditional approaches¹. The Whitemarsh approach employs:

- ! A mission based foundation for the ISP rather than the extremely politically charged function modeling.
- ! A data driven approach for the formulation of all databases, but only at a high level. That is, database objects.

¹ Much of the credit for the formulation of the approach upon which the Whitemarsh Information Systems Plan approach is due to Dagmar Bogan and Stan Hopkins, both formerly of The MITRE Corporation.



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- ! The Whitemarsh metabase to store, evolve, report and analyze all collected analysis products.
- ! Project, deliverable, and metric templates to make project estimation accurate and reproducible.
- ! Ron Ross's interrelated resource life-cycles as a lattice upon which all ISP proposed projects are cast.

As a consequence of this difference in kind, the Whitemarsh ISP exhibits these characteristics:

Whitemarsh Information Systems Plan Approach	
Characteristic	Description
Timely	Creation of the Whitemarsh ISP is timely because it can be created in less than three staff years. This is an order of magnitude less than IBM's BSP, Martin's SDP, or Finkelstein's SMP. The time is even less if components already exist.
Useable	The Whitemarsh ISP enables its users to make both strategic and tactical decisions regarding business information system and database project sequencing based squarely on business fundamentals.
Maintainable	The Whitemarsh ISP is maintainable because it mainly uses metadata already essential for enterprise database. Metadata that should be readily available in the metabase.
High Quality	The Whitemarsh ISP is a quality product because it is accomplished through common-sense-based techniques that have been proven over 20+ years.
Reproducible	The Whitemarsh ISP is reproducible because at each review, the resources can be re-examined, new technology set into place, basic RLC precedence vectors re-cast, and then the whole plan regenerated.



