

**INFORMATION SERVICES AND  
COMMERCIAL SYSTEMS  
INTEGRATION**

**An Opportunity Profile**

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Vice President  
INPUT**



- **Commercial Systems Integration is an Emerging Market Which Can Impact the Strategies of a Wide Range of Information Industry Firms.**



- **Among Those Potentially Impacted Are:**
    - **Software Providers**
    - **Professional Services Firms**
    - **Hardware Manufacturers**
    - **Telecommunications Vendors**
-



## DEFINITION OF CSI

- **CSI is a Single-Source Approach to the Design Development and Implementation of Large Systems Wherein One Vendor Takes Responsibility for All (or Most) Aspects of a System Including Hardware, Software, and Communications**





## FURTHER REQUIREMENTS

- **The System Must be Large, i.e., Over \$5 Million in Development Cost**
- **Custom Software and Networking Must Be Present**

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry, no matter how small, should be recorded to ensure the integrity of the financial data. This includes not only sales and purchases but also expenses and income. The text suggests that a consistent and thorough record-keeping system is essential for identifying trends and making informed decisions.

Next, the document addresses the issue of budgeting. It states that a well-defined budget is crucial for controlling costs and maximizing resources. By setting clear financial goals and limits, individuals and organizations can avoid overspending and ensure that their financial plans are realistic and achievable. The text provides several tips for creating an effective budget, such as tracking expenses and adjusting the budget as needed.

The third section focuses on the importance of regular financial reviews. It explains that periodic assessments of financial performance allow for the identification of areas that need improvement. By reviewing financial statements and comparing them against the budget, one can gain valuable insights into their financial health and make necessary adjustments to stay on track.

Finally, the document concludes by highlighting the benefits of sound financial management. It notes that a disciplined approach to money can lead to long-term stability and growth. By following the principles outlined in the text, individuals can take control of their finances and work towards their financial goals with confidence.

## THE GENESIS

- **Although Occasionally Practiced Elsewhere, Systems Integration Has Its Contemporary Beginnings in the Federal Government Sector**
-

the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million, and the number of people aged 75 and over has increased from 4.5 million to 6.5 million (Office for National Statistics 2000).

There is a growing awareness of the need to address the needs of older people, and the need to ensure that the health care system is able to meet the needs of an ageing population. The Department of Health (2000) has identified the need to improve the health care system for older people, and has set out a number of key objectives for the health care system to meet the needs of older people.

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- **Under Policy Mandates to Use Private Sector Sources Whenever Feasible, Federal Agencies Developed the Concept of Systems Integration Under a "Life Cycle" Concept.**



- **In Federal, It Is Common for a Vendor (with Subcontractors) to Build and then Operate Immense "ADP" Systems**





● **In the Federal Sector S.I. Encompasses**

- **Systems Design**
  - **Packaged Software**
  - **Professional Services**
  - **Facilities Management**
  - **Maintenance**
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- **Current INPUT Forecasts Place the Federal Market at \$800 Million in 1985 and Growing at a 16% Average Annual Growth Rate to \$1.9 Billion in 1991.**



- **Federal Sector Participants Include:**
    - **Service Firms**
    - **Aerospace Firms**
    - **Hardware Manufacturers**
    - **Telecommunications Vendors**
    - **Professional Services Firms**
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- **Through a Combination of Forces, the Systems Integration Concept is Moving to the Commercial Sector**
- **INPUT tracks CSI under "Professional Services"**

THE HISTORY OF THE UNITED STATES

CHAPTER I

THE EARLY HISTORY OF THE UNITED STATES

THE DISCOVERY OF AMERICA

THE EARLY SETTLEMENTS

THE STRUGGLE FOR INDEPENDENCE

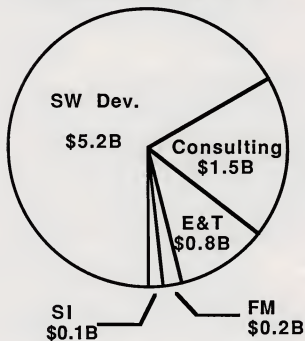
THE CONSTITUTION

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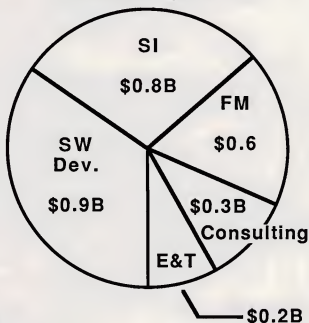


**PROFESSIONAL SERVICES SEGMENTS  
1985 EXPENDITURES,  
FEDERAL AND COMMERCIAL**

**Commercial \$7.8 B**



**Federal \$2.8 B**

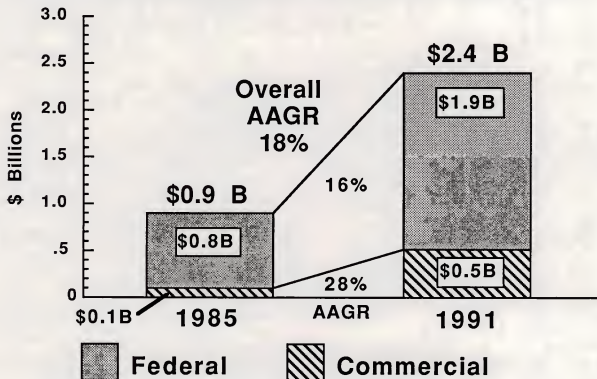




- **Systems Integration in the Commercial Sector Is Still a Miniscule Factor (only \$135 Million in 1985) but Is Expected to Grow Very Rapidly to about \$630 Million by 1990.**
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**SYSTEMS INTEGRATION  
1985 EXPENDITURES AND 1991 GROWTH**





- **This is Among the Most Rapidly Growing Areas Tracked and Events May Have Overtaken the Forecast Rendering It Conservative**





## CSI SUPPLY FACTORS

- **On the Supply Side, a Major Factor in CSI Will Be the Interest of Federal Suppliers in "Leveraging" their Federal Skills.**
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## CSI SUPPLY FACTORS

- **Hardware Manufacturers Find the Business Attractive Because It Enhances Account Control and Provides Additional Ways to "Embed" Equipment**

the 1990s, the number of people in the world who are under 15 years of age has increased from 1.1 billion to 1.3 billion. This increase is due to the fact that the number of children under 15 years of age has increased in every country in the world, with the largest increase in the number of children under 15 years of age in the developing world.

The increase in the number of children under 15 years of age in the developing world is due to a combination of factors. One of the main reasons is the increase in the number of children surviving to the age of 15. This is due to a combination of factors, including a decrease in the number of children who die in infancy and a decrease in the number of children who die in childhood. Another reason is the increase in the number of children who are born in the developing world. This is due to a combination of factors, including a decrease in the number of children who are born in the developed world and a decrease in the number of children who are born in the developing world.

The increase in the number of children under 15 years of age in the developing world is a cause for concern. This is because the number of children under 15 years of age who are in need of education and health care is increasing. This is due to a combination of factors, including a decrease in the number of children who are in school and a decrease in the number of children who are in need of health care. This is a cause for concern because the number of children who are in need of education and health care is increasing, and this is a cause for concern because the number of children who are in need of education and health care is increasing.

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## CSI SUPPLY FACTORS

- **Telecommunications Vendors see CSI as a Way to Add Value and Guarantee Transmission Share**



- **Software Suppliers See CSI as a Way To Increase Professional Services Activity, as Do P.S. Firms Themselves**





- **The Multiple Activity Nature of CSI  
Makes it "Franchise Expanding"  
for Most Potential Participants**



- **From a Defensive Perspective, CSI Implies a Much Greater Degree of Account Control and an Improved Ability to Fend Off Competitive Incursions.**

the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion (United Nations 1998). This increase in the number of children in the world is expected to be particularly large in the developing countries.

There are a number of reasons why the number of children in the world is expected to increase. One of the main reasons is that the number of children who are born in the world is increasing. This is due to a number of factors, including the fact that the number of children who are born in the world is increasing in many of the developing countries. This is due to a number of factors, including the fact that the number of children who are born in the world is increasing in many of the developing countries.

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## CSI DEMAND FACTORS

- Demand Factors are Complex--Among Them Are:
    - Increasing System Complexity
    - Perceived Technical Limitations
    - Need For Network Rationalization
    - Historical Problems with On-Time, On-Budget Delivery of Systems
    - Project Management Skills
-



## CSI PSYCHOLOGY

- **CSI is Fraught with Complexity from a Demand Perspective (i.e., Buyer Perspective)**
  - **CSI "Promises" Successful Completion of Very Complex Systems**
-

the 1990s, the number of people in the world who are under 15 years of age has increased from 1.1 billion to 1.5 billion, and the number of people aged 65 and over has increased from 0.2 billion to 0.5 billion (United Nations 2002).

There are a number of reasons why the world population is increasing. One of the main reasons is that the number of children born to each woman has increased. This is due to a number of factors, including the fact that women are now having children at a younger age, and that there is a higher birth rate in developing countries. Another reason is that the number of people who are surviving to old age has increased. This is due to a number of factors, including the fact that people are now living longer, and that there is a higher life expectancy in developed countries.

The increase in the world population has a number of implications. One of the main implications is that there is a greater demand for resources, such as food, water, and energy. This is because there are more people who need these resources. Another implication is that there is a greater demand for housing and infrastructure. This is because there are more people who need these things. The increase in the world population also has a number of social implications, such as the fact that there are more people who are poor, and that there is a greater need for social services.

There are a number of ways in which the world population can be reduced. One of the main ways is by reducing the number of children born to each woman. This can be done by a number of ways, including the fact that women are now having children at a later age, and that there is a lower birth rate in developed countries. Another way is by reducing the number of people who are surviving to old age. This can be done by a number of ways, including the fact that people are now living shorter, and that there is a lower life expectancy in developed countries.

The world population is increasing, and this has a number of implications. There is a greater demand for resources, such as food, water, and energy. There is a greater demand for housing and infrastructure. There are more people who are poor, and there is a greater need for social services. There are a number of ways in which the world population can be reduced, and this is a challenge that we must face in the future.

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## CSI PSYCHOLOGY

- **CSI Shifts Control from Inside to Outside**
  - **CSI Is a "Threat and a Promise"**
  - **CSI Is Most Threatening and Most Applicable to the Largest, Most Critical Systems**
  - **CSI May Be the Ultimate "Make or Buy" Dilemma**
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## WHO WILL BUY FIRST

- Users of Very Large Network Applications
  - IS Departments Which are Secure in Their Company Relationships
  - The Most Competent and Aggressive Companies
-

the same way, the model can be used to estimate the effect of the number of employees on the number of accidents.

The model is estimated by the method of maximum likelihood. The likelihood function is the product of the probabilities of the observed accidents given the observed number of employees. The likelihood function is:

$$L(\theta) = \prod_{i=1}^n \frac{e^{-\lambda_i} \lambda_i^{y_i}}{y_i!} \quad (1)$$

where  $\lambda_i$  is the expected number of accidents given the observed number of employees  $x_i$  and  $y_i$  is the observed number of accidents.

The maximum likelihood estimates of the parameters are obtained by maximizing the log-likelihood function:

$$\ln L(\theta) = \sum_{i=1}^n \left[ -\lambda_i + y_i \ln \lambda_i - \ln y_i! \right] \quad (2)$$

The maximum likelihood estimates of the parameters are obtained by solving the following system of equations:

$$\frac{\partial \ln L(\theta)}{\partial \theta_j} = 0 \quad (3)$$

where  $\theta_j$  is the parameter to be estimated. The maximum likelihood estimates of the parameters are:

$$\hat{\theta}_j = \frac{\sum_{i=1}^n y_i x_i^j}{\sum_{i=1}^n x_i^j} \quad (4)$$

where  $\hat{\theta}_j$  is the maximum likelihood estimate of the parameter  $\theta_j$ . The maximum likelihood estimates of the parameters are:

$$\hat{\theta}_0 = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n 1} \quad (5)$$

where  $\hat{\theta}_0$  is the maximum likelihood estimate of the parameter  $\theta_0$ . The maximum likelihood estimates of the parameters are:

$$\hat{\theta}_1 = \frac{\sum_{i=1}^n y_i x_i}{\sum_{i=1}^n x_i} \quad (6)$$

where  $\hat{\theta}_1$  is the maximum likelihood estimate of the parameter  $\theta_1$ . The maximum likelihood estimates of the parameters are:

$$\hat{\theta}_2 = \frac{\sum_{i=1}^n y_i x_i^2}{\sum_{i=1}^n x_i^2} \quad (7)$$

where  $\hat{\theta}_2$  is the maximum likelihood estimate of the parameter  $\theta_2$ . The maximum likelihood estimates of the parameters are:

$$\hat{\theta}_3 = \frac{\sum_{i=1}^n y_i x_i^3}{\sum_{i=1}^n x_i^3} \quad (8)$$

where  $\hat{\theta}_3$  is the maximum likelihood estimate of the parameter  $\theta_3$ . The maximum likelihood estimates of the parameters are:

$$\hat{\theta}_4 = \frac{\sum_{i=1}^n y_i x_i^4}{\sum_{i=1}^n x_i^4} \quad (9)$$

where  $\hat{\theta}_4$  is the maximum likelihood estimate of the parameter  $\theta_4$ . The maximum likelihood estimates of the parameters are:

- **Early Buyers Will Be "Innovators"  
with Difficult-to-Solve Problems**



- **Since These Systems Will Be Critical to the Companies Acquiring them, they Represent Higher "Risk" to the Buyers.**
  - **This Risk Is Compounded by the Application of a Novel Solution**
-

The first part of the history is a general account of the state of the empire at the beginning of the reign of the Emperor. It describes the various provinces and the different customs and manners of the people. The second part is a more particular history of the reign of the Emperor, and the various events that happened during that time. The third part is a description of the state of the empire at the end of the reign of the Emperor, and the various changes that had taken place since the beginning of his reign.

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- **One Powerful Effect of CSI--Particularly in Oligopolic Industries--Will Be to Precipitate the Building of Similar Systems by Other Competitors**



- **This will Prevent Any One Integrator From Obtaining Dominance**
- **We Believe Chances are Slim that the Same Integrator will Develop the Same Systems for Different Competitors**



- **This Competitive Aspect Indicates a Higher Likelihood of Several Viable Systems Integrators**
- **The Key Question: Who Will They Be?**



- **Each Firm Type Can Claim Certain Competencies and Each Has Certain "Liabilities"**





## HARDWARE MANUFACTURERS

- In Place Excellent Relationships
  - Able to Identify Opportunities Early
  - Historically Weak in Software Skills
  - Variable Network Skills (by Vendors)
  - "Some" Industry Experience
  - Perceived as Non-Objective?
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## **P.S. FIRMS**

- **Good Relationships in Some Firms But Not to Hardware Depth**
  - **Demonstrable Project Management Skills**
  - **Industry Experience**
  - **Questions of Project Scale and Capability**
  - **Lesser Network Capability**
-

the 1990s, the number of people who have been employed in the service sector has increased in all countries.

There are a number of reasons for the increase in the service sector. First, the service sector has become more important in the economy because of the increasing demand for services. Second, the service sector has become more important because of the increasing demand for services. Third, the service sector has become more important because of the increasing demand for services. Fourth, the service sector has become more important because of the increasing demand for services. Fifth, the service sector has become more important because of the increasing demand for services.

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**FEDERAL S.I.s**

- **Demonstrated ("Known") Large Project Skills**
  - **Have Performed Integration Work**
  - **May Have Very High Software Skill**
  - **Do Not Have Strong Commercial Relationships**
  - **May Have Plausible Applications Skill Claims**
-



## TELECOM. COMPANIES

- Excellent Network Skills
  - Relationships in Companies, but Questions of Quality and Positioning
  - Some Hardware and Software Skills
  - Weakest on their Own--Better in Joint Relationships?
  - Other than AT&T, Participation Limited
-

of the study. The authors also noted that the study was limited by the relatively small sample size and the lack of a control group. The authors concluded that the study provided preliminary evidence that the use of a mobile phone while driving is associated with an increase in the risk of a road traffic accident.

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## SOFTWARE PRODUCTS COMPANIES

- **Good In-Place Relationships with Moderate Coverage**
- **In Some, Good Software Development Skills**
- **Probably Weaker on Networks, Hardware**

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- **At this Point There Is No Clear Winning Company Type that Meets All Requirements**
  - **Joint Ventures and Subcontracting Relationships May Well Become the Norm**
  - **Actions of Specific Firms from this Point More Important than Background**
  - **Any Capability Can Be Built**
-

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## RECOMMENDATIONS

- **Consider the Impact of CSI on Your Client Base As a Competitive Alternative**
- **Consider the Possible Modes of Participation**
  - **Prime Contractor**
  - **Subcontractor**
  - **Informal Relationship**
  - **Co-Venture**



- **Because of its Wide-Ranging Nature, CSI Can Profoundly Affect the Industry**
  - **Like any "New" Concept, It Can Alter the Competitive Picture, Creating New Opportunities for Some and Threats to the Established Order for Others**
  - **Adaptation may be Required (at a Minimum) as the Acceptance of Commercial Systems Integration Increases**
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- **Systems Integration in the Commercial Sector Is Still a Miniscule Factor (only \$128 Million in 1985) but Is Expected to Grow Very Rapidly to about \$500 Million in 1991.**
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