



Identifying and Developing Core Competencies at InterTech

InterTechnologies Group
Department of Administration
State of Minnesota

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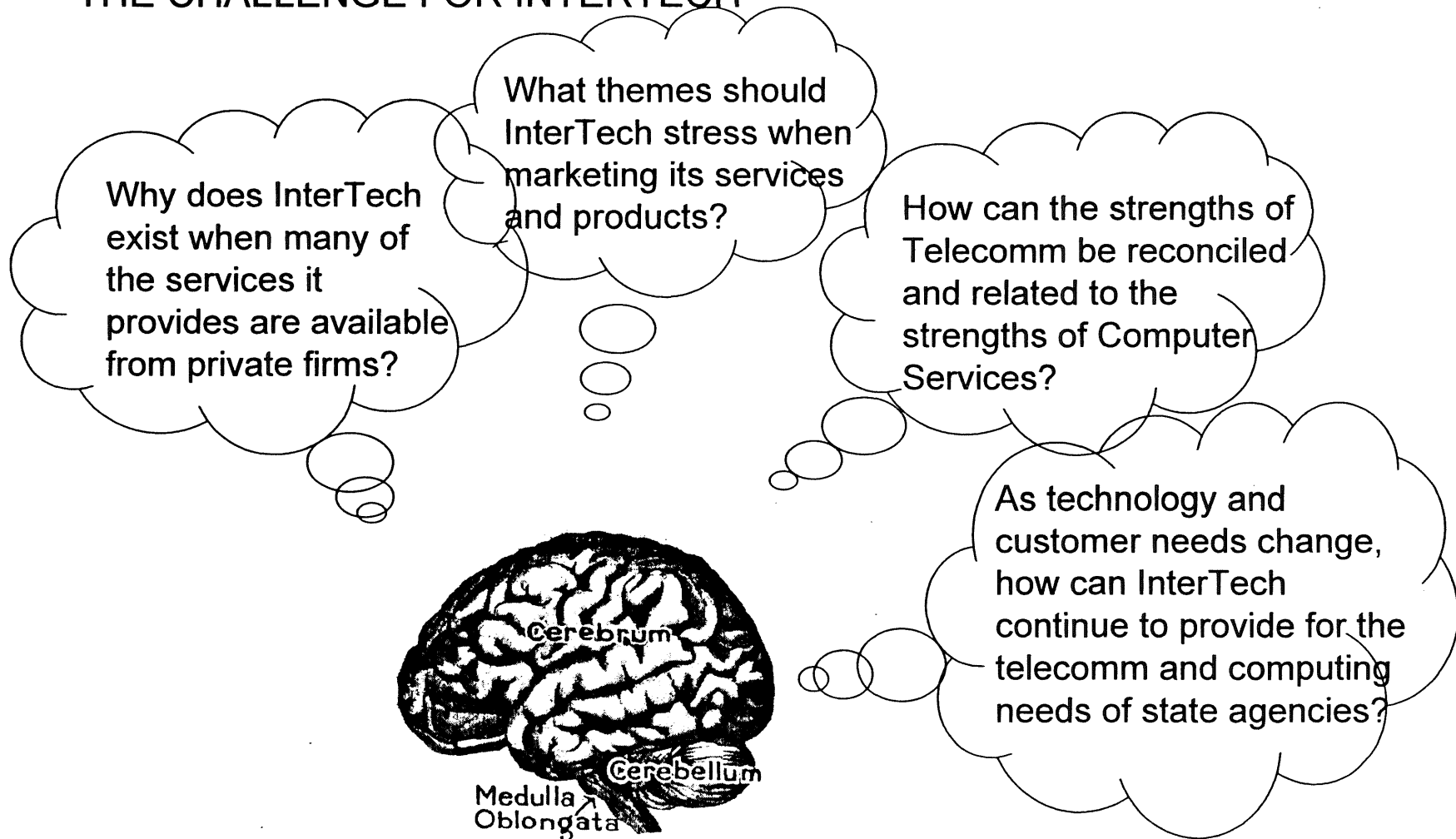
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TODAY'S DISCUSSION

- Introduction--the Challenge for InterTech
- A Very Short Course on Core Competencies
- Applying the Concepts
- Developing InterTech's Core Competencies

InterTech has been successful at delivering Telecomm and Computing Services that the State needs. But the Strategic Planning work in 1997 uncovered several opportunities for unifying InterTech, extending its services, keeping up with technology and communicating what it can do for customers. Developing a clear notion of InterTech's core competencies can help in each of those areas.

THE CHALLENGE FOR INTERTECH

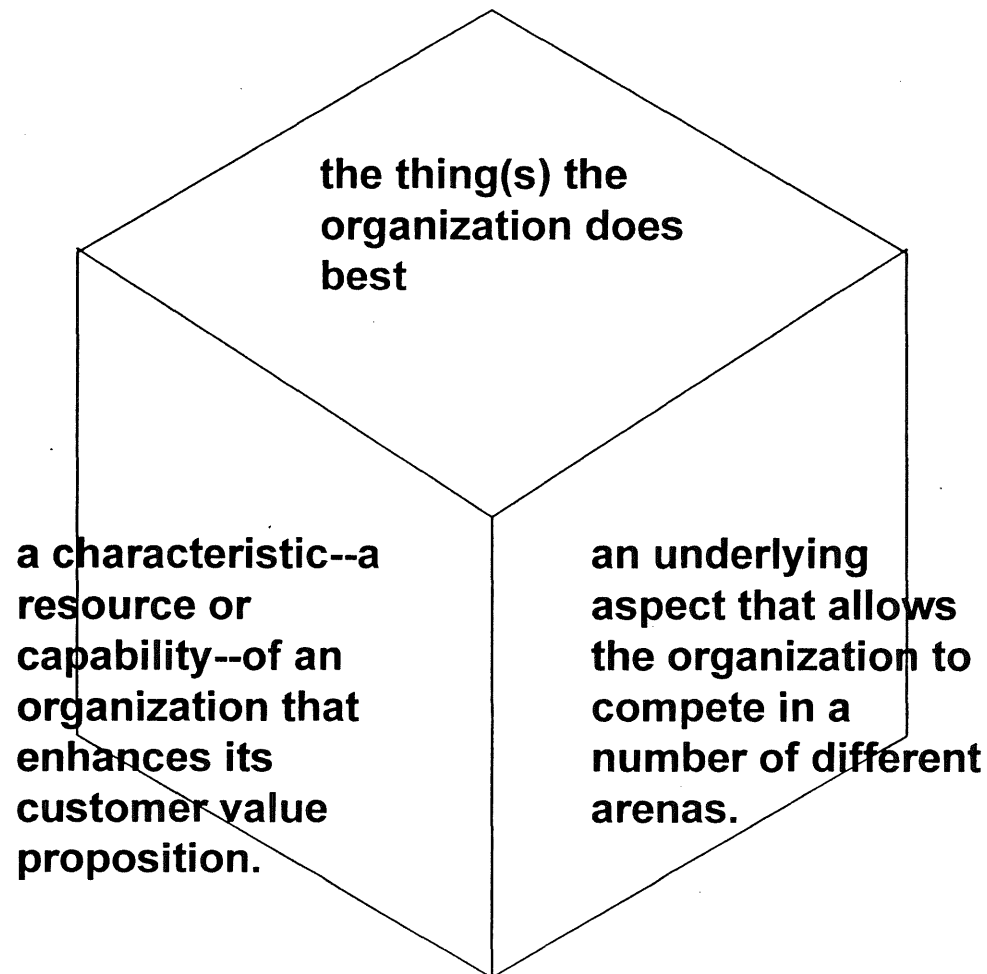


TODAY'S DISCUSSION

- Introduction--the Challenge for InterTech
- **A Very Short Course on Core Competencies**
 - **Concept of Core Competence**
 - **Core Competence and the Customer Value Proposition**
 - **Using Valuable Core Competencies**
- Applying the Concepts
- Developing InterTech's Core Competencies

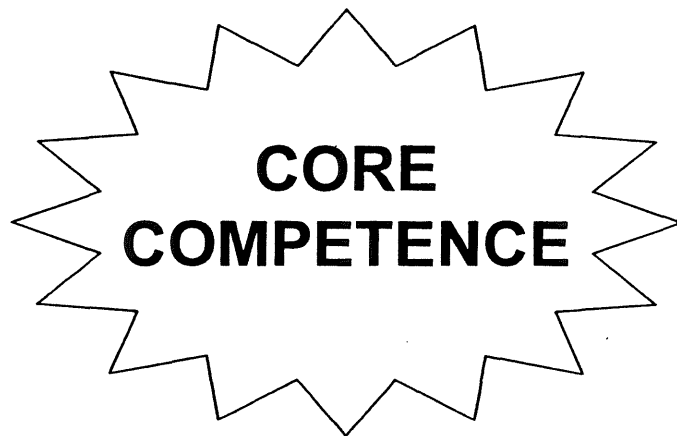
Core competence can be viewed in several ways. Some see it as a way to unite an organization around the things it does best. Others describe it as the characteristics of the firm that allow it to offer a compelling value proposition to customers. Still others view it as the basic set of firm skills and knowledge that can be applied to many different markets.

DIFFERENT FACETS OF CORE COMPETENCE



Each of these views is right. A core competence has at least three different aspects.

THE THREE ASPECTS OF CORE COMPETENCE



It provides the organization with potential access to a wide variety of markets.



It makes a significant contribution to the perceived customer benefits of the end product.

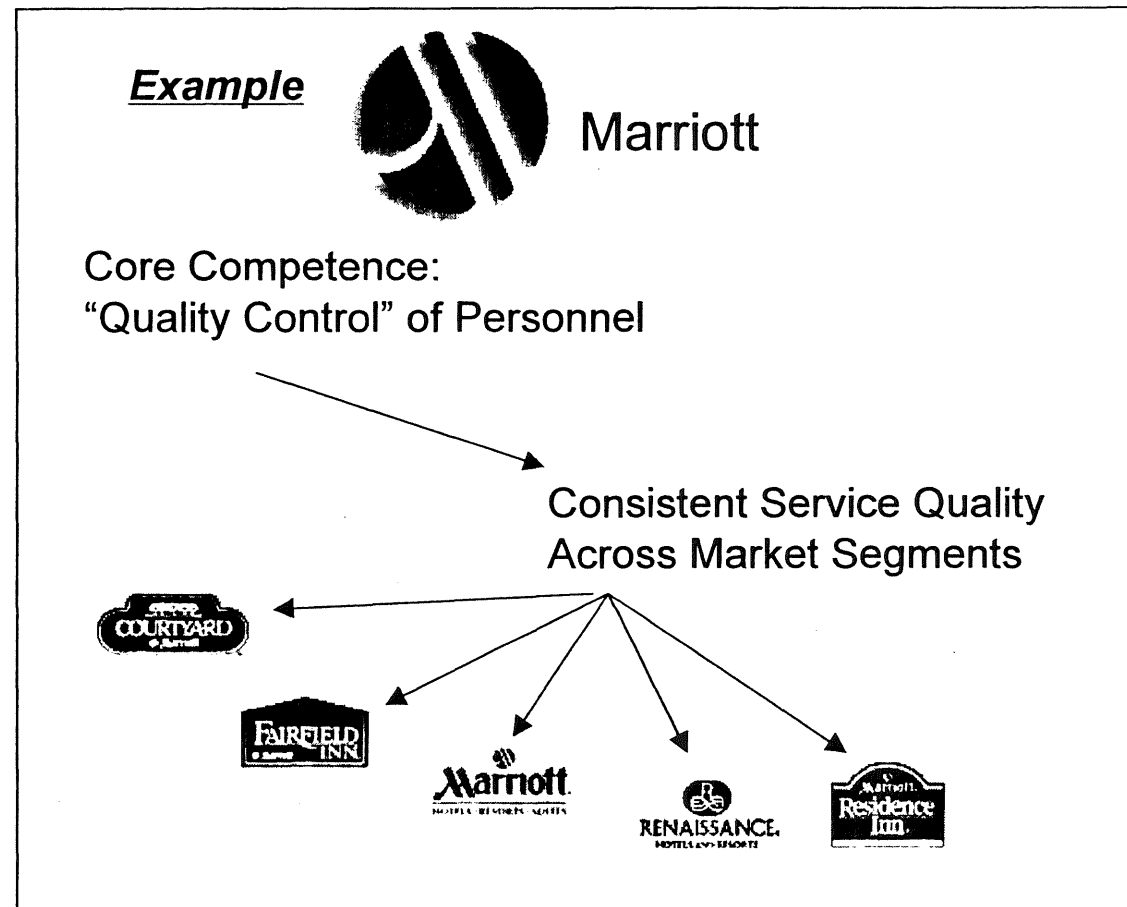
It is difficult to imitate.

Source: Prahalad & Hamel, "The Core Competence of the Corporation"

First, the core competence must provide the organization with access to a wide variety of markets. Marriott has a core competence in maintaining a high level of service staff in its hotels. This excellent staff adds value to each of its hotel brands, and gives the Marriott family of hotels a reputation for service superiority at each price point.

THE FIRST ASPECT

Provides potential access to a wide variety of markets



Source: Hostage, "Quality Control in a Service Business"; consultant's analysis.

Second, the core competence must have a fairly direct impact on the end product. Having superior service is recognized and appreciated by hotel customers, and that makes them return to Marriott. The key to Marriott's core competence in this area is the policies it has developed to keep its employees happy and performing at a high level.

THE SECOND ASPECT

*Enhances
perceived customer
benefits of the end
product*

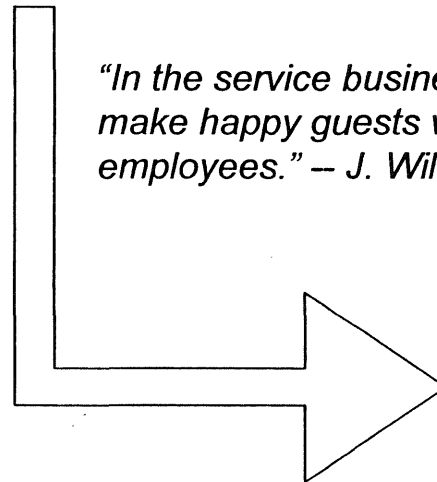
Example



Marriott

Core Competence:
"Quality Control" of Personnel

*"In the service business you can't
make happy guests with unhappy
employees." – J. Willard Marriott*



Source: Hostage, "Quality Control in a Service Business"; consultant's analysis.

The third aspect of core competence is that it is difficult to imitate. Marriott has an assortment of mechanisms that add to its ability to provide superior service. The eight programs that make up its staffing strategy have over time created a culture that is very hard to imitate. Each of the eight programs is itself difficult to implement.

THE THIRD ASPECT

Difficult to imitate

Example

Core Competence:
“Quality Control” of Personnel



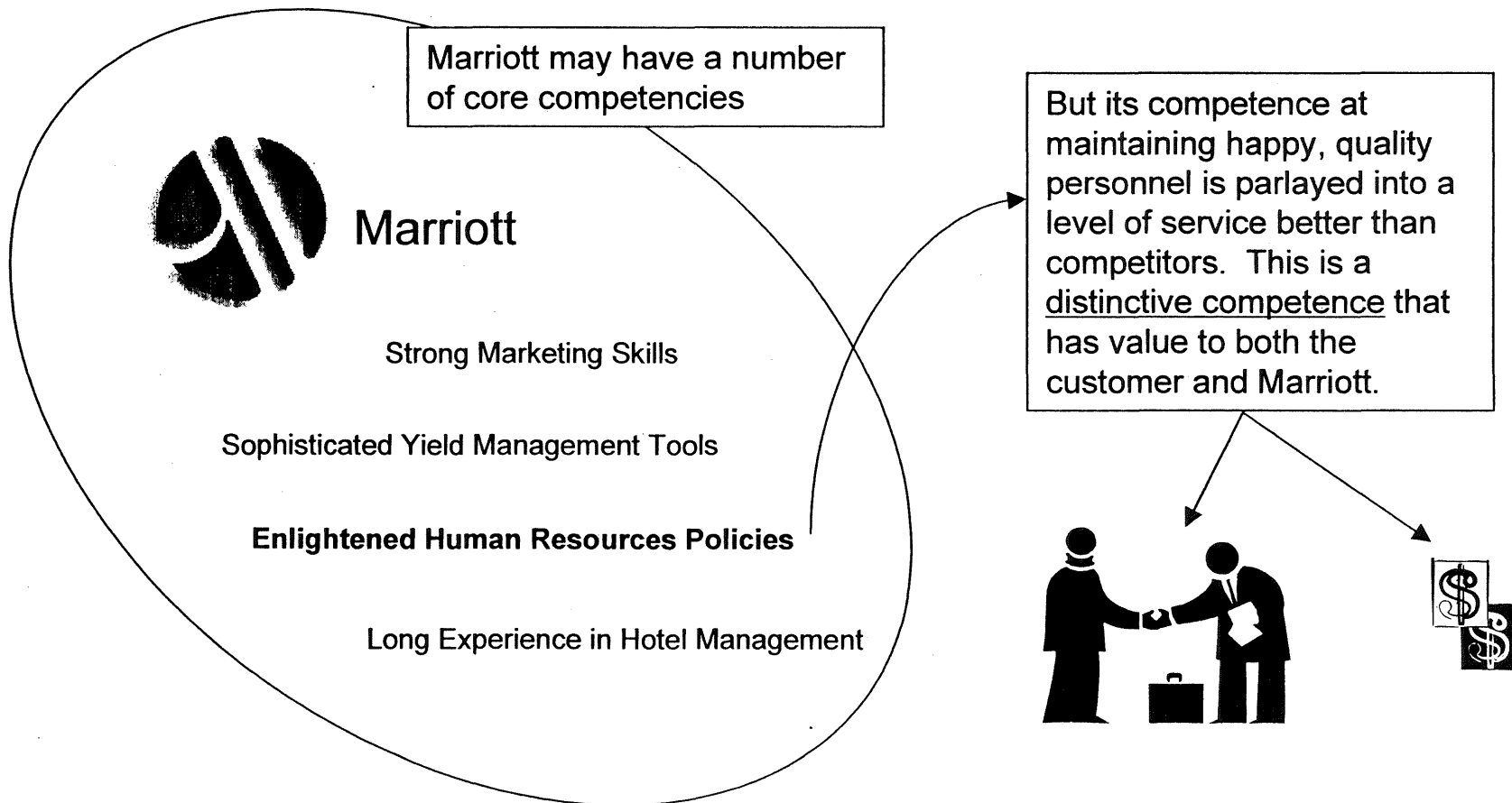
Marriott

1. *Individual Development*
2. *Management Training*
3. *Manpower Planning*
4. *Standards of Performance*
5. *Career Progression*
6. *Opinion Surveys*
7. *Fair Treatment*
8. *Profit Sharing*

Source: Hostage, “Quality Control in a Service Business”; consultant’s analysis.

For a core competence to be valuable, not only to the customer but to the organization, it must be distinctive as well. In other words, it must be something that the organization provides better than competitors.

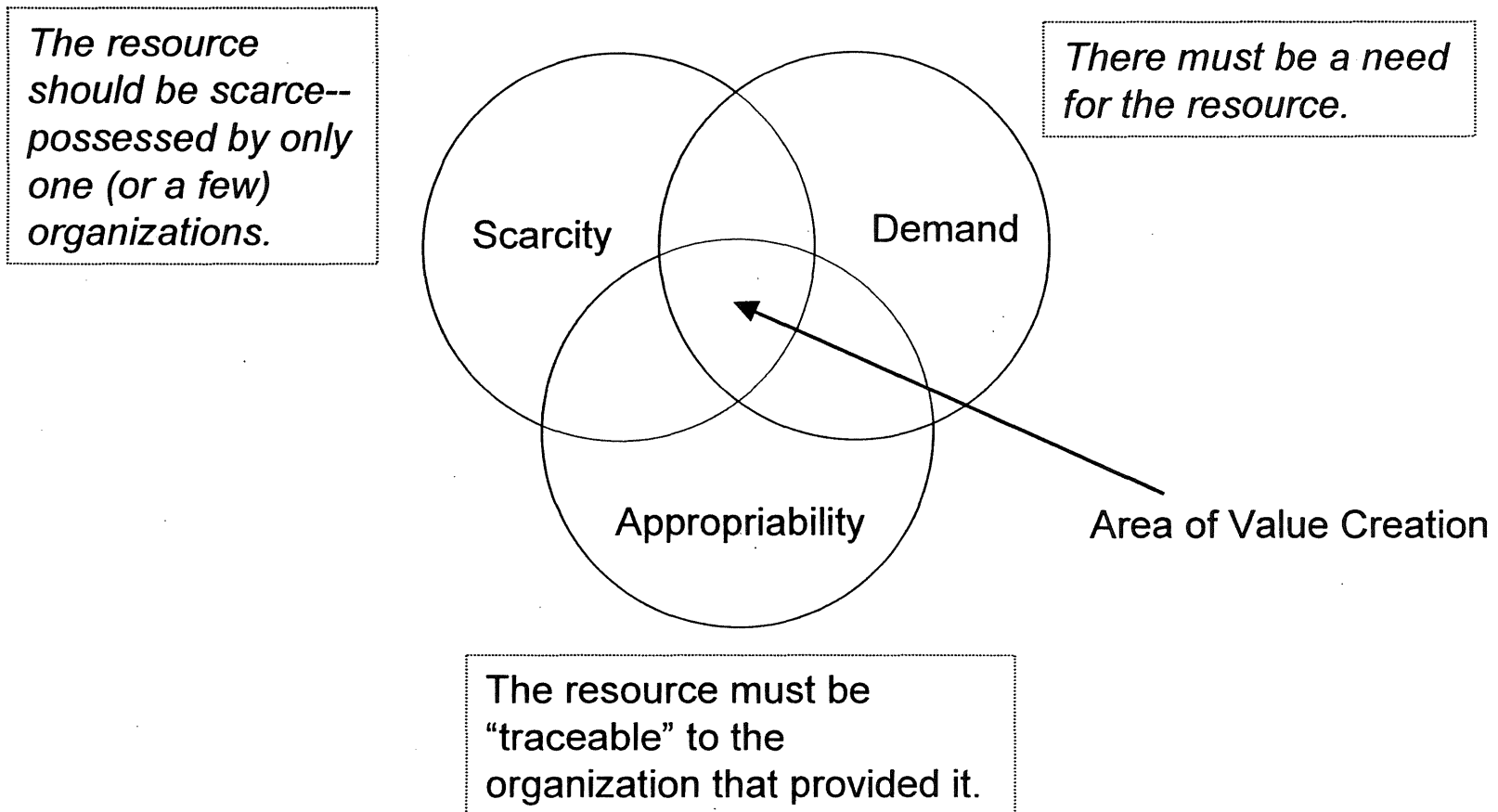
HOW DOES CORE COMPETENCE AFFECT THE CUSTOMER VALUE PROPOSITION?



Source: Hostage, "Quality Control in a Service Business"; consultant's analysis.

How does a core competence translate into a product or service that is valuable to both customer and provider? Think of a core competence as a resource owned by the organization. Value is found at the intersection of three characteristics: scarcity, demand, and appropriability. A provider may experience price competition if a resource isn't scarce, or poor sales if there is no demand. Without appropriability, the benefit ("profits") from providing the resource accrue to someone other than the provider.

WHAT MAKES A CORE COMPETENCE VALUABLE?



Source: Collis & Montgomery, "Competing on Resources: Strategy in the 1990's"

We can determine whether a core competence lies within the area of value creation by applying five tests. Each of these criteria can be mapped to the value drivers discussed earlier.

FIVE CRITERIA FOR IDENTIFYING VALUABLE CORE COMPETENCIES

Is the Core Competence . . .

	<u>Reasons</u>	<u>Value Driver</u>
1. Inimitable	It must not easily be copied by competitors	Scarcity
2. Appropriable	It must be directly traceable to the organization	Appropriability
3. Durable	It must be a sustainable advantage	Demand/Approp.
4. Non-substitutable	It must not have substitutes	Scarcity
5. Competitively Superior	It must actually be better than competitors offerings	Demand

Source: Collis & Montgomery, "Competing on Resources: Strategy in the 1990's"

Organizations have several choices in using valuable resources.

UTILIZING A VALUABLE CORE COMPETENCE

Upgrade

Sometimes organizations have characteristics or attributes that are near misses as core competencies, especially as measured by competitive superiority. Upgrading these resources often results in a core competence.

Invest

Core competencies, like other resources, can depreciate over time. They require continual investment to stay competitive, maintaining and building them as valuable resources.

Market

A core competency may directly provide a product feature that customers desire. This feature can be the basis of a marketing program.

Leverage

Extending core competencies into new markets enhances their value. But there are pitfalls:

- Overestimating transferability of specific assets and capabilities
- Overestimating ability to compete when entering profitable industries
- Assuming that generic resources (e. g. efficient operations) will bring competitive advantage in new markets

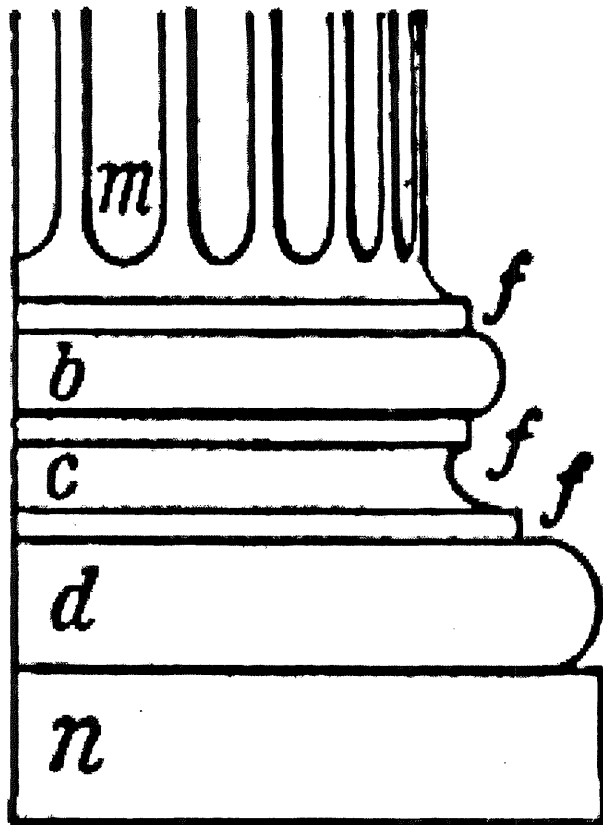
Source: Collis & Montgomery, "Competing on Resources: Strategy in the 1990's"; consultant's analysis

TODAY'S DISCUSSION

- Introduction--the Challenge for InterTech
- A Very Short Course on Core Competencies
- **Applying the Concepts**
 - **Methodology**
 - **Competitors' Core Competencies**
 - **Strategic Plans for InterTech**
- Developing InterTech's Core Competencies

We investigated core competencies of competitors as well as those of InterTech. Most of the rest of this section is dedicated to describing our findings about competitors. In the following section, we will do similar analysis on InterTech. In this case, “competitors” include private firms that provide information technology services rather than state agencies that have brought some of their information technology activities inhouse.

METHODOLOGY FOR DETERMINING CORE COMPETENCIES



Competitors

- Gather data on products, services and vision for the future from company Web sites
- Analyze to determine constituent parts and foundational activities
- Evaluate those parts and activities using the five criteria for core competencies

At InterTech

- Interview managers about products, services and vision for the future
- Leverage Gartner Group study
- Analyze to determine constituent parts and foundational activities of services offered
- Evaluate those parts and activities using the five criteria for core competencies

In order to apply the concepts under discussion today, we can examine a few private-sector companies in the fields of telecommunications and computer services. Below are some of the reasons for considering AboveNet Communications, EDS Corporations and IBM (Network and IT) Outsourcing Services.

REASONS FOR CONSIDERING ABOVE NET, EDS AND IBM AS COMPETITORS



- Offers never-fail Internet connectivity with one hop to the backbone
- Provides a server co-location service that InterTech could emulate
- Combines both telecomm and computer services expertise



- Often cited as a private industry "competitor" to InterTech
- Recently lost its bid to lead enterprise-wide outsourcing for State of Connecticut
- Will manage telecomm as well as computer services



- Most likely potential private industry "competitor" to InterTech
- As an equipment and software vendor, enjoys high credibility with customers, including state agencies
- Can provide both telecomm and computer services to customers

AboveNet Communications is an emerging competitor in the field of internet services. If InterTech wants to develop state-of-the-art Web site hosting, AboveNet provides a model. EDS, of course, provides soup-to-nuts enterprise IT outsourcing. Although it recently lost its bid to run Connecticut's IT operations, it is an example of a company that could offer the same services InterTech offers now.

OFFERINGS OF PRIVATE SECTOR COMPETITORS



Provides internet connectivity to ISPs, content providers, and corporate users, including server co-location, bandwidth, software services for improved connectivity, and technical support.

- Proprietary routing technology
- Largest single aggregated bandwidth in the world
- Full suite of telecommunications services and
- Over 25 Gb of telco capacity at San Jose facility



Offers systems management, communications management, enterprise applications, distributed systems management, information technology planning, process management, systems development, systems improvement, systems integration.

EDS has clearly articulated the opportunity that the Web affords governments in serving its citizens better. They envision citizens accessing complex, transaction-based government services through the Internet (or WebTV) and have the resources to make it happen.

Although it may seem that IBM offers outsourcing services almost as an afterthought, it can provide for the IT needs of most large companies. According to IBM's 1998 Annual Report, Global Services is by far the fastest growing segment of IBM's businesses. Revenues increased by 13.5% during the last annual reporting period.

OFFERINGS OF PRIVATE SECTOR COMPETITORS (CONT)



IBM Network Outsourcing Services

Manages and operates customer network (voice, data, video)

IBM IT Outsourcing Services

Manages high-end host operations and includes

Midrange Express (MRX)

For midrange servers, offers system monitoring, system operations system management controls, technical support and help desk.

IBM Capacity Services

Helps clients adopt new technologies, migrate applications across platforms, develop, test and deploy new applications.

IBM Output Services

Offers document creation, high-volume laser printing, and mailing services

IBM regards its outsourcing services and consulting services as a major opportunity for high margin growth.

AboveNet's operations are smaller and more restricted in scope than those of giants like IBM or EDS. It exists because new skills are needed to provide the most reliable and flexible Internet connectivity. Interestingly, many of its strengths, like 7/24 staffing and technical support, are similar to those of InterTech.

IDENTIFYING ABOVENET'S CORE COMPETENCIES



	<u>Inimitable</u>	<u>Appropriable</u>	<u>Durable</u>	<u>Non-substitutable</u>	<u>Competitively Superior</u>	<u>Comments</u>
Engineering Excellence in Internet Connectivity	✓	✓	✓	✓	✓	Proprietary routing technology ("Asynchronous Allocation of Packets") routes traffic around Internet congestion. Flexible options for use of bandwidth and space at facility.
Reliability of Network Operations Center		✓	✓	✓	✓	Customer-selected testing protocols, multiple options for notification of machine status, 24/7 staffing.

Source: consultant's analysis

EDS, whose core competencies are similar to those of IBM's technology services division, was one of the early competitors in the IT services field. It has never faltered in its drive to build broader and deeper expertise in managing information systems, which given it a recognizable brand name.

IDENTIFYING EDS'S CORE COMPETENCIES



	<u>Inimitable</u>	<u>Appropriable</u>	<u>Durable</u>	<u>Non-substitutable</u>	<u>Competitively Superior</u>	<u>Comments</u>
Resource Integration	✓	✓	✓	✓	✓	Able to get diverse systems to work together in a way that seems seamless to end users.
Strategic Technology Problem Solving		✓	✓		✓	Through A. T. Kearney unit, has some of the best technology consultants available. But other organizations have great problem solving abilities, too.
Using Long Experience to Build Customer Relationships	✓	✓	✓	✓	✓	The pioneer in the field, has been able to build an extensive base of customers who place their trust in EDS.
Expanding Scope of Operations	✓	✓	✓	✓	✓	Provides telecomm outsourcing as well as computer services. Can integrate communications with computing.

Source: consultant's analysis

IBM's core competencies are reflected in some of its recent outsourcing services agreements: manage Ameritech's data center operations; manage Washington Mutual's distributed client/server systems; manage all of Flagstar's information systems and develop/implement new applications for them; manage the distributed desktop computing systems at Sears. Just as IBM serves disparate clients, InterTech's challenge is to develop its core competencies to serve disparate state agencies.

IDENTIFYING IBM'S CORE COMPETENCIES

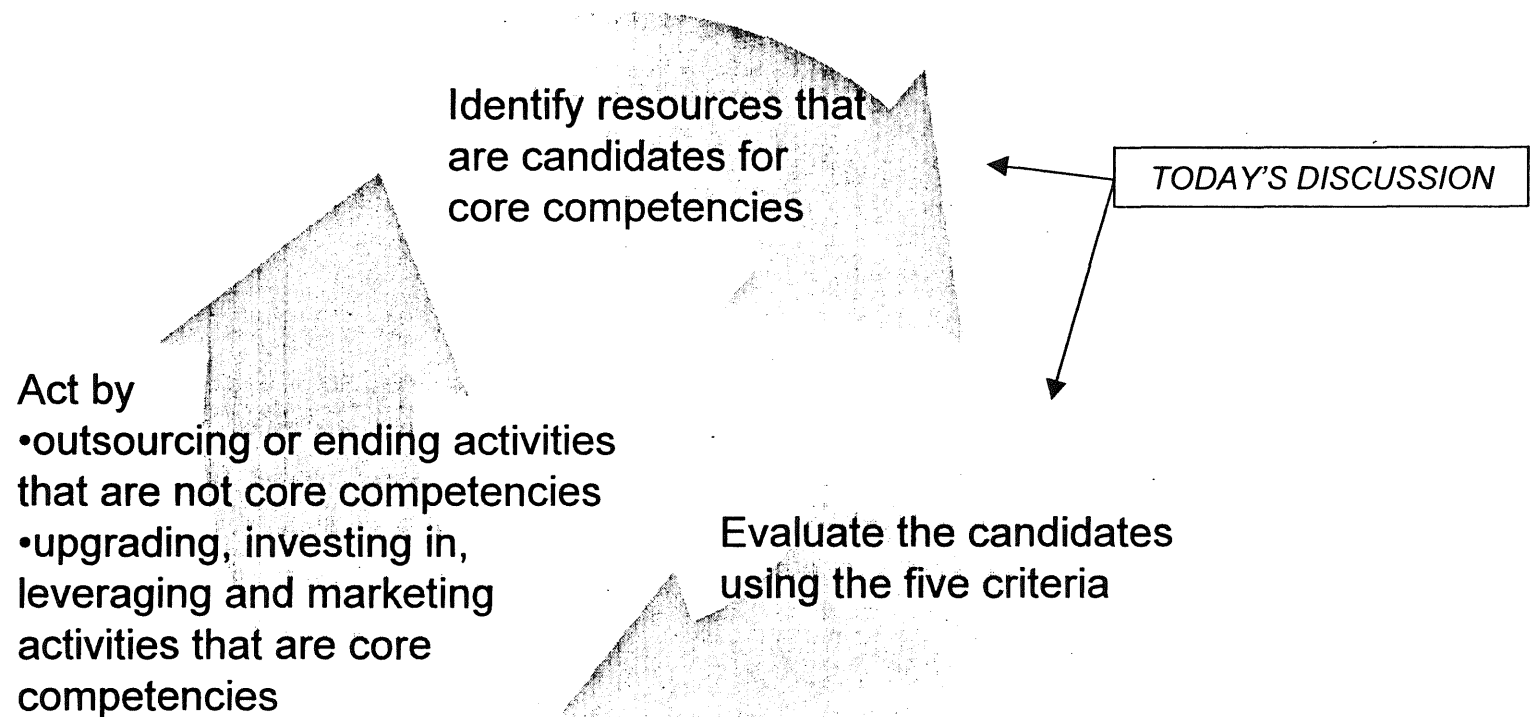


	<u>Inimitable</u>	<u>Appropriable</u>	<u>Durable</u>	<u>Non-substitutable</u>	<u>Competitively Superior</u>	<u>Comments</u>
Comprehensive IT expertise	✓	✓	✓	✓	✓	Leverages its expertise from designing and manufacturing hardware and software by offering outsourcing services.
Technological R&D	✓			✓	✓	Allows it to stay on the forefront of new products and technologies. Even IBM can be leapfrogged by technology, however.
Maintaining Global Reputation and Customer Relationships	✓	✓	✓	✓	✓	"No one ever got fired for buying IBM"
Expanding Scope of Operations		✓	✓		✓	Can support desktop, servers, LANs, WANs, mainframe and many other resources.

Source: consultant's analysis

Developing core competencies requires an explicit strategy. Management of core competencies is on-going. The activities of an organization and the environment in which it functions are always changing, so identification, evaluation and other management of core competencies must occur on a periodic basis.

A CORE COMPETENCE STRATEGY FOR INTERTECH

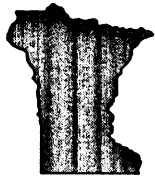


TODAY'S DISCUSSION

- Introduction--the Challenge for InterTech
- A Very Short Course on Core Competencies
- Applying the Concepts
- **Developing InterTech's Core Competencies**
 - **Candidates for Core Competencies**
 - **Aspects of the Competencies**
 - **Evaluating the Competencies**
 - **Using the Competencies**
 - **Next Steps for Core Competencies**

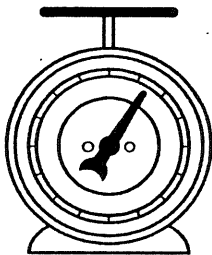
We have identified the three themes listed below as candidates for core competencies at InterTech. As we shall see, none of them in itself is a core competence. However, each is composed of many sub activities, some of which are core competencies. Later we will discuss ways to improve these activities so that they may be called core competencies.

CANDIDATES FOR CORE COMPETENCIES AT INTERTECH



Serving the State

InterTech has several advantages and disadvantages stemming from its status as a state agency. We will describe how this status leads to some competencies that are not available to competitors.



Maintaining Efficient Operations

As the recent GartnerGroup study demonstrated, InterTech runs its operations very efficiently. We analyze the various operating activities that contribute to this competency.



Aggregating Demand

Procuring services and managing vendors is only one way that InterTech aggregates demand for its customers. We will explore other opportunities to aggregate demand and their implications for InterTech.

We refer to the first theme as “serving the state.” While we talk about InterTech having private sector competitors, these competitors obviously operate under rules and assumptions that are completely different from any state agency. So what advantages might accrue to InterTech because of these difference?

ASPECTS OF SERVING THE STATE



Why a state agency?

- Interoperability of computing platforms
- Single telecomm network
- Trust of other state agencies (takes no profit, understands constraints)
- Security

Agency operating constraints

- Serve at pleasure of the governor
- People who resist change may sometimes try to “wait out” policy changes from elected officials
- Legislature influenced by lobbyists

Unique staffing opportunities

- Egalitarian atmosphere where workers can take responsibility for projects and on-going duties
- Motivation of staff may be public service, job security and/or lower stress environment
- Technical training is excellent, allowing those who start in operations to move up
- Good continuity of staff resulting in long-term customer relationships and institutional history
- Lower staffing expenses as noted in GartnerGroup study

Serving the state, which includes staffing practices, could become a core competence for InterTech. In the table below, a check mark indicates that InterTech's way of delivering the activity fulfills the criterion at the top of the column. Further support for how each criterion was applied can be found in the appendix.

HOW SERVING THE STATE BECOMES A CORE COMPETENCE



	<u>Inimitable</u>	<u>Appropriable</u>	<u>Durable</u>	<u>Non-substitutable</u>	<u>Competitively Superior</u>	<u>Comments</u>
Understanding State Agencies	✓		✓		✓	State agencies function under budgetary constraints and other requirements that an outside vendor may not clearly understand.
Motivating Staff	✓	✓	✓	✓	✓	Culture allows staff to take ownership of projects and on-going duties. As a state agency, staff is motivated by more than just pay increases or promotions.
Offering Technical Training		✓	✓	✓		Staff are encouraged to obtain state-of-the-art training in many areas. Staff also trains the staff of other agencies through seminars, etc.
Developing Careers		✓			✓	Some workers who started in operations have progressed to professional positions. This builds loyalty to InterTech and results in highly competent staff.
Building Continuity of Staff	✓	✓	✓		✓	Long service provides InterTech with institutional memory and solid relationships with other agencies.

Valuable Core Competence:
Motivating Staff

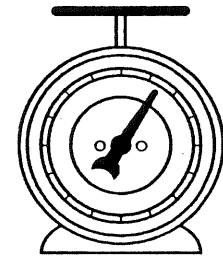
Source: consultant's analysis

The second theme is “managing efficient operations.” InterTech is rightly proud of how well they manage their operations. For many customers, however, this proficiency simply qualifies InterTech to provide service, rather than making them the ultimate choice. Efficient operations are a necessary but not sufficient aspect of running most businesses.

ASPECTS OF MAINTAINING EFFICIENT OPERATIONS

GartnerGroup Study

- NOW index for the data network indicates network operations cost 15% of the average amount other organizations spend (top decile of entire database)
- Voice overall CPM is 21.7% above peer group average, but long distance has been renegotiated
- NOW index for mainframe indicates cost is 72% of average amount other organizations spend (top 15% of entire database)



Stewards of Valuable Assets

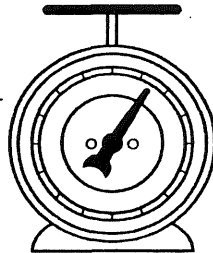
- Operate and maintain sophisticated operations centers housing millions of dollars of telecomm and computer equipment, owned by InterTech and other State agencies
- Manage telecomm equipment at many locations around the State
- Provide access to and security for irreplaceable State data and software

Diverse and Complex Activities

- Proactively monitor and manage systems 24/7, notifying users of any problems with their applications
- Develop high levels of automation
- Concentrated use of a single vendor's product (e. g., all routers come from Cisco, all storage managed using SAMS by Sterling)
- Manage complex projects, including installation of networks, devices and applications software.
- Train all personnel
- Maintain documentation for each platform and ingrain this often overlooked task as part of the culture
- Identify and solve problems with systems, often using interdisciplinary teams

The most important aspects of efficient operations already are core competencies at ITG. In the table below, a check mark indicates that InterTech's way of delivering the activity fulfills the criterion at the top of the column. Further support for how each criterion was applied can be found in the appendix.

HOW MAINTAINING EFFICIENT OPERATIONS BECOMES A CORE COMPETENCE



	Inimitable	Appropriable	Durable	Non-substitutable	Competitively Superior	Comments
Holding Down Costs	✓	✓	✓	✓		Through thin staffing, lower wages, buying one type of brand of technology and other means, the organization has successfully kept costs low.
Monitoring and Managing Systems 24/	✓	✓	✓	✓	✓	While private-sector competitors can deliver this service, agencies who build their own systems in-house usually can't.
Developing High Levels of Automation		✓	✓		✓	Automating production helps keep costs low but requires deep understanding of systems.
Managing Complex Projects			✓	✓	✓	Superior project management techniques exist in both Telecomm and Computer Services.
Identifying and Solving Problems	✓	✓	✓	✓	✓	Problem identification and resolution requires deep understanding of all systems; they often require interdisciplinary teamwork.

problem management.

certainly true if competitors are agencies

Valuable Core Competencies:
Monitoring and Managing Systems
Identifying and Solving Problems

Source: consultant's analysis

The third theme is “aggregating demand.” In many ways, this is the most fundamental core competence for InterTech, because it most closely describes its mandated activities in both Telecomm and Computer Services.

ASPECTS OF AGGREGATING DEMAND



Technology Leadership

- Goal is to maintain and operate the sole network for the State
- Goal is to achieve interoperability between all platforms
- Provide some customers with needed infrastructure that would be too expensive to provide individually (e. g., network connections, disaster recovery)
- Products and services offer cost leadership because of economies of scale
- Partner with other agencies to provide best possible solutions (Connecting Minnesota, relationships with customers when implementing large systems, new products)
- Closer relationship with O/T, under the same Deputy Commissioner

Finance

- Revolving fund financing means customers pay costs that vary based on the services they receive
- Customers want fixed cost because of general fund financing
- Large agencies “carry” small agencies because rates include high-cost services provided to smaller agencies as overhead
- Cost accounting must accurately reflect services provided
- Billing for services must be timely and accurate

Customer Service and Satisfaction

- Must understand customer needs well enough to provide solutions that really are in demand
- In computer services, not just selling CPU cycles but value-added services

Aggregating demand is a nearly a core competence, but its value to both InterTech and its customers could be increased. In the table below, a check mark indicates that InterTech's way of delivering the activity fulfills the criterion at the top of the column. Further support for how each criterion was applied can be found in the appendix.

HOW AGGREGATING DEMAND BECOMES A CORE COMPETENCE



	<u>Inimitable</u>	<u>Appropriable</u>	<u>Durable</u>	<u>Non-substitutable</u>	<u>Competitively Superior</u>	<u>Comments</u>
Managing for Economies of Scale	✓	✓	✓	✓	✓	Has negotiation skills for dealing with vendors and management skills for containing costs.
Providing Needed Infrastructure	✓	✓	✓	✓	✓	Proactively searches for opportunities to upgrade facilities in a cost effective way. Equipment and service is kept up to appropriate technological standard.
Translating between Revolving and General Funds	✓	✓	✓	✓		Must manage capacity so that customers pay a predictable amount each year. Accurately allocates costs to those who receive services.
Partnering with other Agencies	✓	✓				Takes leadership role in providing agencies with the technology resources they need for new projects and products.
Understanding Customers' Needs	✓	✓	✓	✓		Provides customers with products and services they want as well as need. Makes customer business processes more robust or simpler.

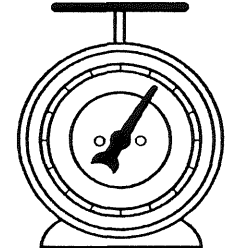
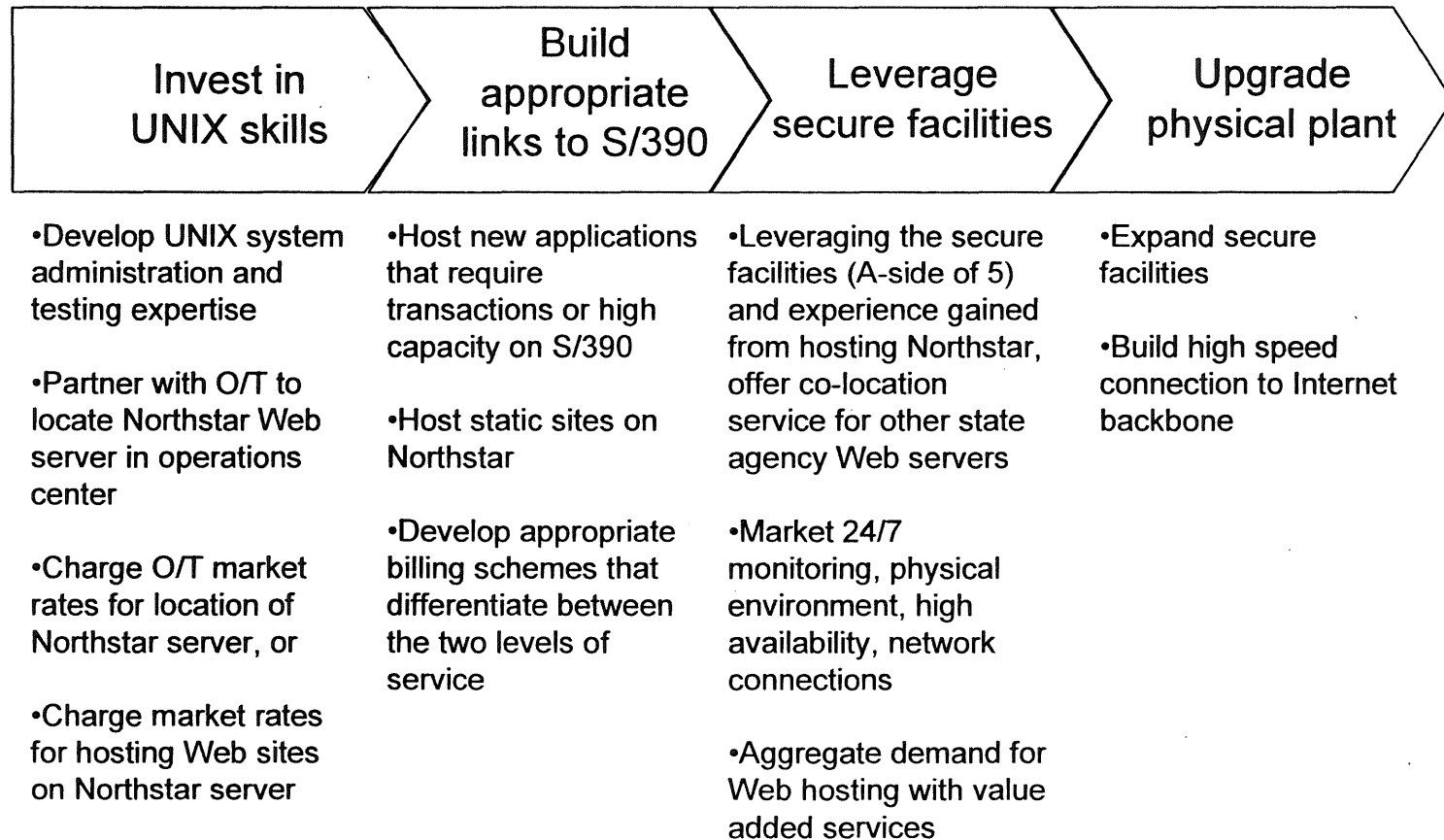
*are
understanding
state agencies
in p. 26*

Source: consultant's analysis

**Valuable Core Competencies:
Managing for Economies of Scale
Providing Needed Infrastructure**

InterTech could use its ability to serve the state, its efficient operations and its competence in aggregating demand to move into a new market in Web server co-location. As state agencies' use of the Web becomes more sophisticated, demand for more computing-intensive services and 24/7 monitoring will increase.

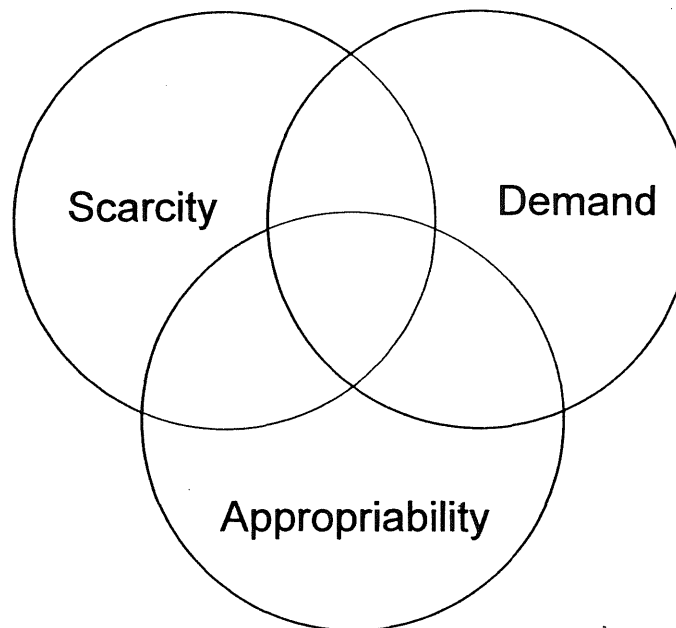
EXAMPLE OF USING INTERTECH'S COMPETENCIES



Several next steps could help InterTech understand its core competencies better. Each of these steps is related to one of the value drivers for core competencies. Some of them can easily be structured as short projects and assigned to members of the marketing team or outsourced to consultants. (Some of the market research and marketing studies are classic business school problems for which MBAs are prepared.) Others of these steps require careful thought on the part of senior managers and an informed assessment of what is possible for a state agency.

NEXT STEPS FOR CORE COMPETENCIES

Market research can uncover what products and services other organizations currently offer, including pricing and convenience to customers.

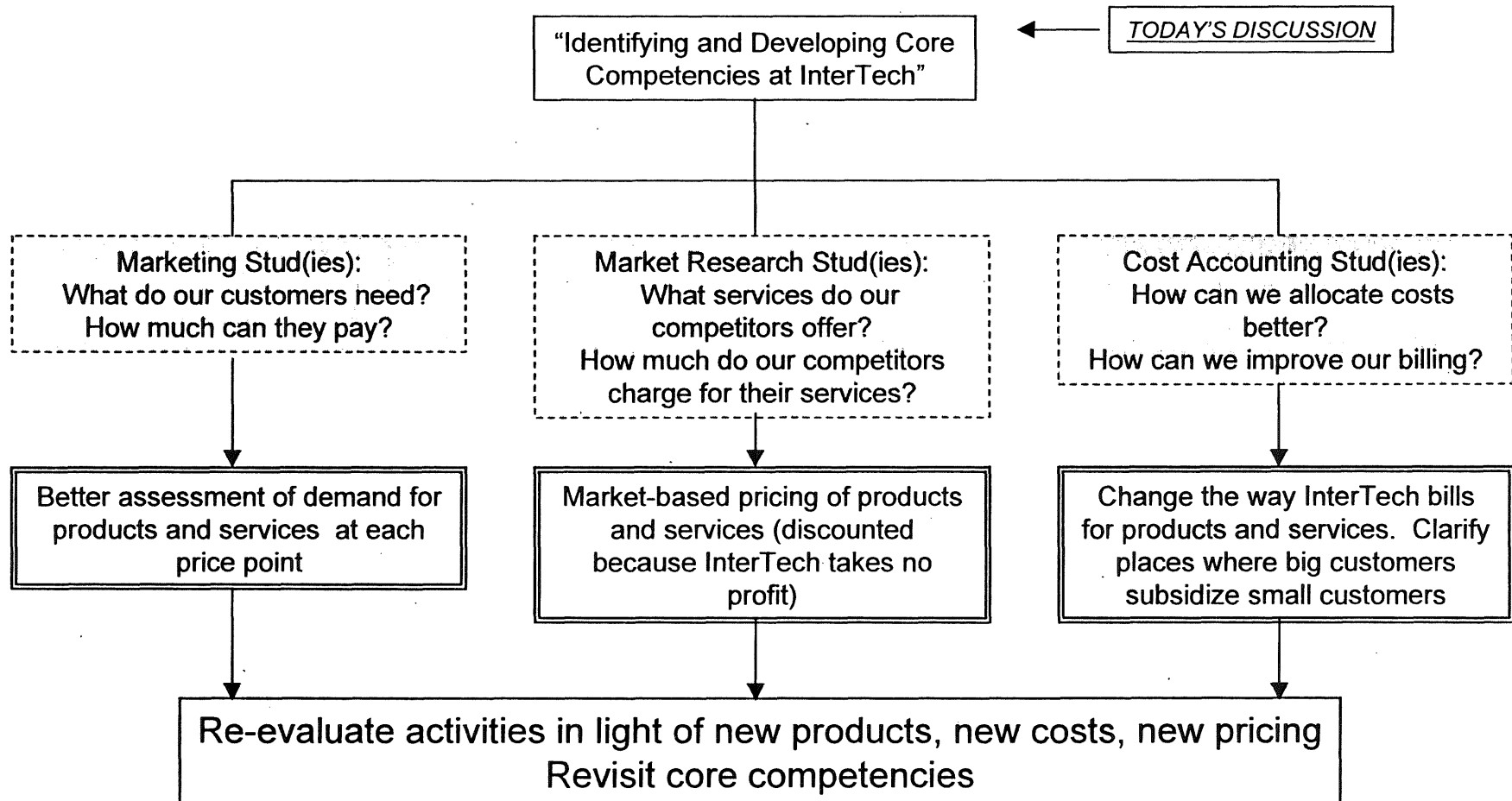


*Marketing studies could determine what state agencies demand. Each should have a prioritized list including cost, service, reliability.
Note: their demands may be different from what InterTech currently can provide!*

Managers need to think through several questions. How can InterTech charge for some of the valuable services it provides? Is a change in its charter necessary?

These next steps are diagrammed below. Pursuing these steps, along with some of the others mentioned before, may go along way toward strengthening InterTech's core competencies. For example, improving cost accounting and billing will help in translating between revolving fund billing and general fund constraints, part of the "Aggregating Demand" theme.

NEXT STEPS FOR CORE COMPETENCIES (CONT.)



APPENDICES

Appendix A. Detail on InterTech's Core Competencies

Appendix B. Informational Resources

Appendix A: Detail on InterTech's Core Competencies

Serving the State

	Inimitable	Appropriable	Durable	Non-substitutable	Competitively Superior	Suggestions for InterTech
Understanding State Agencies	Private-sector competitors would have a hard time understanding the constraints placed on state agencies. ✓	It's not clear that agencies appreciate InterTech's understanding.	Understanding state agencies is part of InterTech's culture, so it is durable as well. ✓	Substitute: a flexible private-sector firm bent on accommodating even those agency constraints it doesn't understand.	Outsiders would need time to develop an understanding of state government. ITG could improve its understanding with a CRM program. ✓	Appropriable: improve public relations targeting other state agencies. Hire a lobbyist on staff?
Motivating Staff	Other organizations motivate staff, but none can routinely tell staff that they have the opportunity to make a huge impact on the state through technology. ✓	InterTech reaps the benefits of motivating staff by producing superior service that keeps customers coming back. ✓	Motivating staff is part of InterTech's culture, so it persists through time. ✓	There is no substitute for motivating staff. Without it, an organization will fail in its goals. ✓	InterTech's ability to motivate staff without paying top dollar gives them a competitive edge. ✓	Maintain this core competence.
Offering Technical Training	Most technology firms offer some type of on-the-job training	Since employees are retained, ITG gets the benefit of training. ✓	Training programs, after development stage, provide lasting benefits. ✓	Hiring experienced staff is no substitute, since technology changes. ✓	Program is not formal and lacks budget.	Inimitable: further outreach to other agencies technical staff.
Developing Careers	Many organizations have formal career development programs.	ITG benefits by retaining employees. ✓	Need formal programs and career paths.	Substitutes: job security or training that an employee could take elsewhere.	ITG's successfully moves operations personnel to professional positions. ✓	Durable: identify career paths.
Building Continuity of Staff	Difficult to accomplish in high-tech when employees are only salary-motivated. ✓	ITG's staff has relationships with staff from other agencies that give the organization an advantage ✓	Benefit lasts as long as tenure of key staff. ✓	Substitute: undisputed technical expertise, even if it was from more temporary employees.	Institutional memory gives ITG an advantage in dealing with other agencies. ✓	Non-substitutable: develop joint ventures with other agencies that require depth of knowledge about the partner.

Appendix A: Detail on InterTech's Core Competencies

Maintaining Efficient Operations

	Inimitable	Appropriable	Durable	Non-substitutable	Competitively Superior	Suggestions for InterTech
Holding Down Costs	GartnerGroup study indicates that few can perform as well for as little cost. ✓	Benefits go to ITG in the form of more customers and more confidence from state decision-makers. ✓	Partly a cultural aspect that lasts from year to year; buying the same brand or type of technology also contributes. ✓	There is no substitute for keeping costs low. ✓	It's not clear that billing and accounting practices always allow lower expenses to translate into lower costs for customers	Non-substitutable: pass low costs on to customers. Competitively Superior.: use Internet to provide telecomm consulting services to outlying customers.
Monitoring and Managing Systems 24/7	While private-sector firms could deliver this service, few other state agencies could. ✓	ITG can charge either directly or indirectly for this service. ✓	ITG must run its operations center 24/7 into the foreseeable future. ✓	No substitute for customers whose applications must run all the time. ✓	Systems are available more than 99% of the time. ✓	Maintain this core competence.
Developing High Levels of Automation	Many other operations centers have successfully automated.	ITG benefits from cost saves. ✓	Once a process is automated, it can run until the technology is obsolete. ✓	Substitute: manual controls.	Automation is more reliable and cost-effective than alternatives. ✓	Inimitable: what could ITG automate that others could not?
Managing Complex Projects	Performed by most private- and public-sector organizations.	ITG benefits from the outcome, but not from the process.	Once project management techniques have been ingrained, they can be repeated within an organization. ✓	Alternative is missed deadlines and incomplete work. ✓	Superior project management techniques exist in both Telecomm and Computer Services. ✓	This may be a core competence, but its value is reduced because it is a requirement.
Identifying and Solving Problems	Requires deep understanding of ITG's systems, possessed only by ITG. ✓	Benefits go to ITG in the form of higher system availability. ✓	Technology skills exist in inter-disciplinary teams that are part of ITG culture. ✓	No substitute for maintaining systems at all times. ✓	High systems availability indicates competitive superiority. ✓	Maintain this core competence.

Appendix A: Detail on InterTech's Core Competencies

Aggregating Demand

	Inimitable	Appropriable	Durable	Non-substitutable	Competitively Superior	Suggestions for InterTech
Managing for Economies of Scale	Few other state agencies can achieve scale. Private providers would keep the benefits for themselves. ✓	ITG benefits by fulfilling its mandate from the executive branch. ✓	Once scale is achieved, it usually lasts a long time. ✓	There is no substitute for economies of scale. ✓	ITG has negotiation skills in dealing with vendors and management skills for containing costs. ✓	Maintain this core competence.
Providing Needed Infrastructure	No other state agency or private provider would provide the infrastructure. ✓	ITG benefits by fulfilling its mandate from the executive branch. ✓	Infrastructure is very durable. ✓	No substitute for appropriate infrastructure. ✓	Proactively searches for opportunities to upgrade facilities in a cost-effective way. ✓	Maintain this core competence.
Translating between Revolving and General Funds	Other providers do not understand the funding constraints of state agencies. ITG can sell them just the capacity they need. ✓	Customers are satisfied when their funding constraints can be met. ✓	This is a durable skill. ✓	For state agencies, there is no substitute for this translation. ✓	It's not clear that ITG always excels at allocating capacity and giving agencies a fixed cost estimate.	Competitively Superior: perform cost accounting study to improve estimates. Study methods of private firms that look for errors in telco billing for a cut of the savings.
Partnering with other Agencies	No other agency or private sector organization can fill this role. ✓	ITG benefits by strengthening its relationships with other agencies. ✓	The ability to form partnerships could become more durable.	Substitute: the other agency goes its own way.	It's not clear that ITG has done this well in the past.	Implement outreach and customer support.
Understanding Customers' Needs	Agencies understand their own needs, and so can private-sector providers.	ITG benefits by satisfying its customers. ✓	The customer relationships developed can last a long time. ✓	There is no substitute for understanding customers wants and helping to deliver solutions for them. ✓	ITG sometimes offers what it has rather than what customers say they want.	Improve communications and customers' understanding of ITG's offerings.

Appendix B. Informational Resources

People Interviewed

<i>Name</i>	<i>Division, Bureau or Department</i>
Babcock, Bob	Business and Information Services
Dziewerczynski, Greg	Business and Information Services
Favia, Judith	Business and Information Services
Bengtson, Beth	Computer Operations
Carlson, Mark	Computer Operations
Edin, Renee	Computer Operations
Ryan, Bob	Computer Operations
Tomczyk, Bill	Computer Support Services
Stedman, Steve	Department of Revenue
Huck, Shari	Financial Management
Olsen, Bob	Information Systems
Schuft, Beverly	Technology Management Bureau
Cox, Russ	Telecommunications
Jones, Diane	Telecommunications
Karki, Myron	Telecommunications
Neumann, Barb	Telecommunications
Ritari, Gary	Telecommunications
Schnellman, Bill	Telecommunications
VanHook, John	Telecommunications

Articles

- Hostage, G. M., *Quality Control in a Service Business*, Harvard Business Review, July-August, 1975. Describes how Marriott maintains superior service through its staffing programs.
- Gabor, Andrea, *Rochester Focuses: A Community's Core Competence*, Harvard Business Review, July-August, 1991. Describes how Rochester, NY, defined its core competence.
- Prahalad, C. K., and Gary Hamel, *The Core Competence of the Corporation*, Harvard Business Review, May-June, 1990. The seminal article on core competence.
- Collis, David J., and Cynthia A. Montgomery, *Competing on Resources: Strategy in the 1990s*, Harvard Business Review, July-August, 1995. Describes what makes a resource or core competence valuable.

Appendix B. Informational Resources

Web Sites

<i>Description</i>	<i>URL</i>
<u>Corporate Sites of Potential Competitors</u>	
AboveNet Communications corporate site. Describes company, services, technical information on its network, etc.	http://www.abovenet.com
IBM corporate site. Describes global services and other outsourcing services offered.	http://www.ibm.com/services
EDS corporate site. Describes services it offers to government agencies.	http://www.eds.com/industries/government/
Unisys corporate site. Describes products for the public sector.	http://www.corp.unisys.com/unisys/PSMSGweb.nsf/
Computer Science Corporation site. Describes its work for federal government.	http://www.csc.com/industries/federal/overview/
**Press release on a commercial web site belonging to a firm called, ironically, Intertech. Describes US telecommunications billing solutions provider market. References a Frost and Sullivan study.	http://www.winin.com/tobin/news/N545.cfm
	http://www.frost.com
<u>Sites Relating to Core Competency</u>	
Oak Ridge National Laboratories site. They describe their core competencies, using slightly different criteria.	http://www.ornl.gov/publications/core/intro.html
**Excellent article describing strategic marketing and its relationship to core competence.	http://expert-market.com/client/seminars/gbs-s.html
Axiom corporate site. Axiom provides computer services such as information technology outsourcing services to clients in the US and Europe. They describe their core competencies, but not rigorously.	http://www.axiom.com/about/about-about.asp
<u>Other Sites</u>	
**Everything about Web publishing and relational databases, from setting up pages to creating server architecture, to insuring system reliability and availability. Phillip Greenspun, a professor of computer science at MIT, who has a successful consulting business building Web sites for corporations, writes most articles.	http://photo.net/wtr/

****Highly Recommended**