

**The Louisiana Enterprise Center (La E-Center) for
IT Education, Research, and Business Development**

A Joint Proposal from:

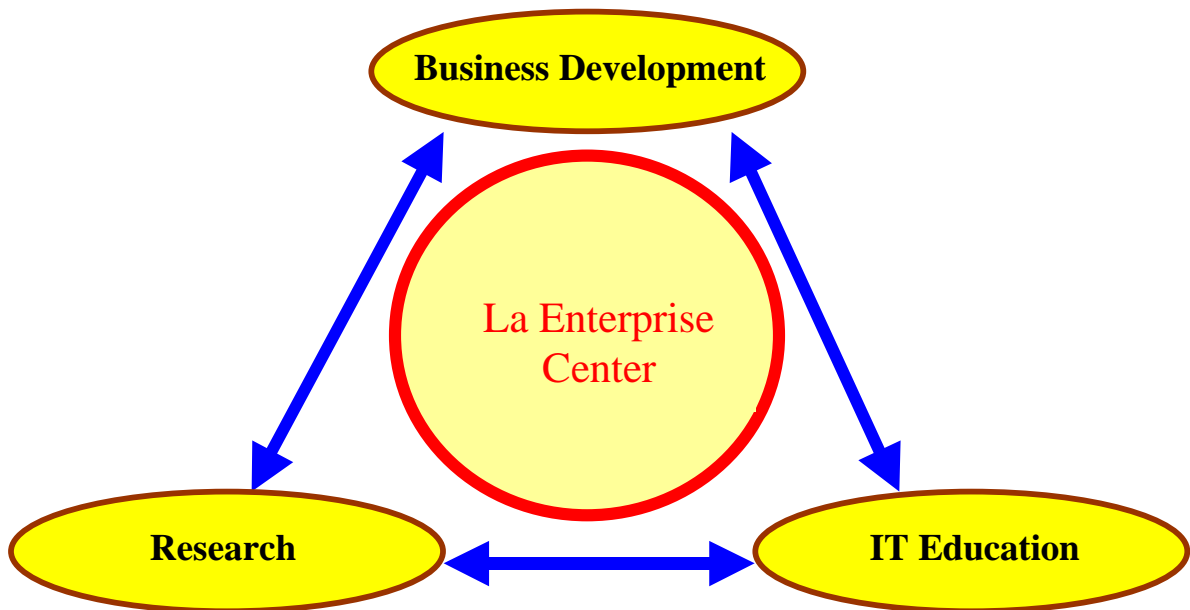
**Industr. & Manuf. Systems Engin. (IMSE) Dept., Computer Sci. Dept.,
Electrical & Computer Engin. Dept.,
Instit. for Entrepreneurial Edu. & Family Business Studies,
and the Office of Computing Services at LSU**

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1. Introduction

It has been often claimed that new knowledge and inventions in the 20th century have exceeded those of all earlier centuries combined. This creates new challenges to universities in how to adapt rapidly and educate students in the new knowledge. This situation has been accelerated even more with the advent of the Internet and the World Wide Web. In recent years industry has been lamenting that universities are not producing graduates that effectively meet their needs. Many companies have responded to this situation by establishing training institutions of their own. Other companies partner with a select set of universities to deliver education to their employees that they consider relevant to their needs. Finally, many companies choose to relocate to regions in the country that are closer to universities that do meet their needs. This is how the “Silicon Valley” and “Research Triangle” research/industrial communities have been created.

One area in which industry is in direct need and for which universities have been unable to meet is for people that can deliver whole enterprise automation solutions to organizations. Today many industries, State and local governments, and profit or non-profit organizations need people with the following qualifications:

- (1) Have a broad understanding of how the enterprise functions.
- (2) Understand the relationships among different organizational functions within an enterprise and how different enterprises interact with each other.
- (3) Have the problem skills to model, simulate, and develop solutions that can address the needs of an entire enterprise or some subsets of it.
- (4) Have the capability to use advanced computational tools or develop new ones tailored to the specific needs of an enterprise of interest.

In summary, new graduates must possess skills that currently are taught separately in engineering, computer science, and business departments.

The proposed **Louisiana Enterprise Center** (or **La E-Center** in short) squarely aims at meeting the above needs in a comprehensive and sustainable manner. It will be based on expertise currently dispersed in a number of academic departments and units at LSU, along with support from the IT Initiative by Louisiana Governor Foster.

2. Mission and Objectives of the Louisiana Enterprise Center

The **mission** of the **La E-Center** will be to:

Educate students and people that already work in profit and non-profit organizations in IT (information technology) subjects related to their enterprises.

Conduct high quality applied and basic research on subjects related to the application of IT methods to modern enterprise problems.

Assist in the creation of new businesses and enhance the operation of existing businesses by providing them with IT support and training of their people or new graduates.

Therefore, the main objectives of the **La E-Center** are:

(i) For IT Education:

- Undergraduate and Graduate education and curriculum development
- Distance Learning
- Associate degrees
- Entrepreneurial Education
- Continuing Education

(ii) For IT Research:

Conduct applied and basic research in the following focus areas:

- Business and Enterprise Modeling
- Simulation
- Data Modeling and Data Mining
- E-Commerce Application (security, encryption, search engines, etc)
- Internet Application

(iii) Business Development:

- IT and business skills support for existing businesses
- IT and business skills support for existing non-profit organizations
- IT and business skills support for State and local governments
- IT and business skills support for new startups

All the above are presented graphically in Figure 1.

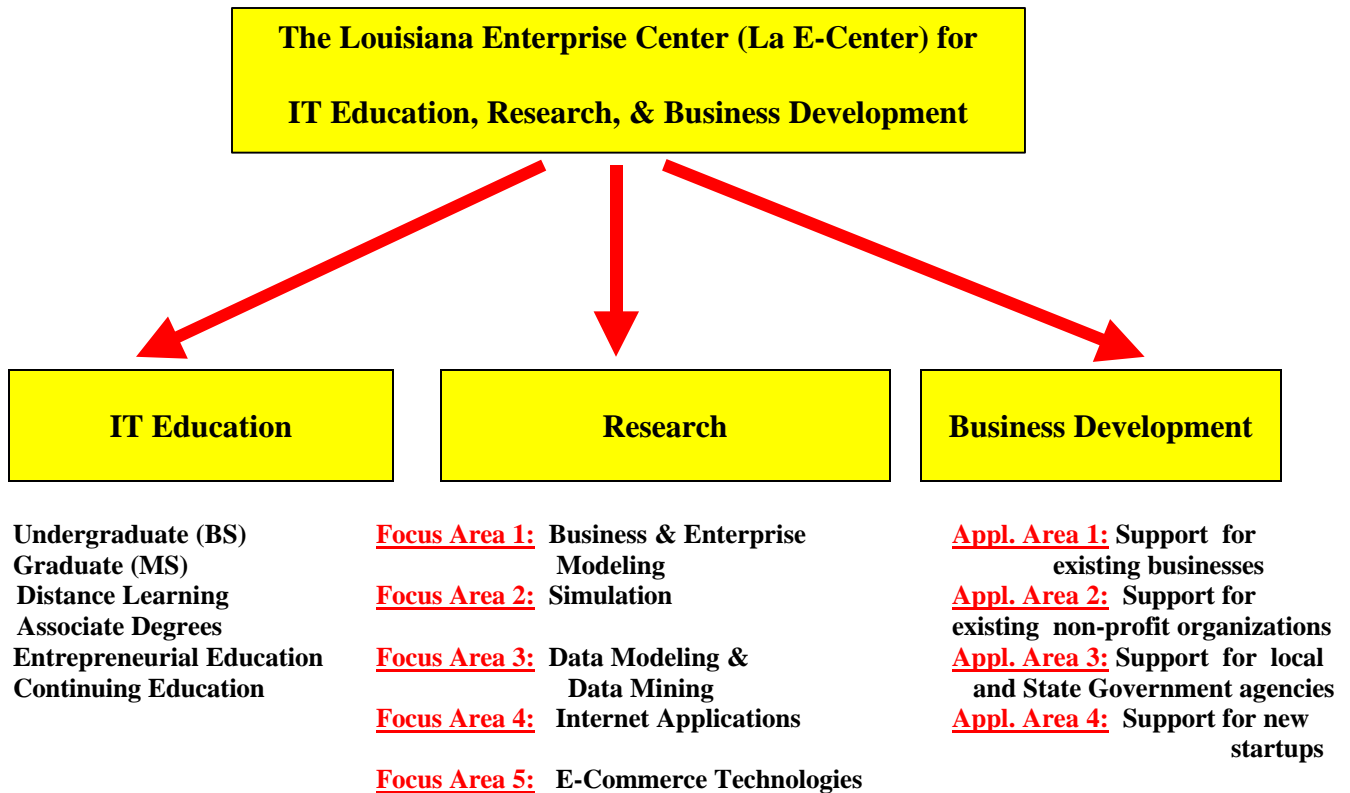


Figure 1: Diagram of the Functions of the Louisiana Enterprise Center

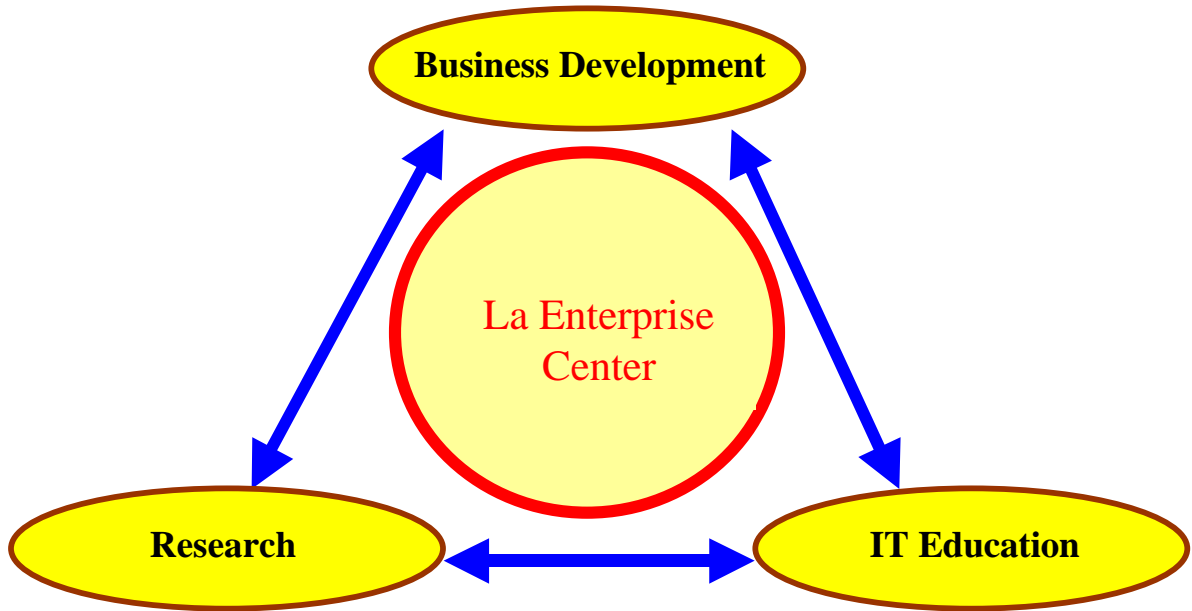


Figure 2: The Louisiana Enterprise Center (La E-Center) Operational Philosophy

Figure 2 illustrates that the Business Development, Research, and IT Education will be the three major activity areas of the **La E-Center**. Each component is an indispensable part of a “three leg stool” for achieving the mission of the **La E-Center**.

3. Implementation Plan

The **La E-Center** initiative is centered around complementary expertise areas of faculty on a number of departments and units in the Colleges of Engineering, Basic Sciences, Business Administration, and experts at the Office of Computing Services at LSU. This faculty and staff members will work closely with the new faculty to be hired as part of this initiative.

Faculty Participants and Requested Positions:

For the Industr. & Manuf. Systems Engin. (IMSE) Department:

- Drs. T.W. Liao and E. Triantaphyllou on data modeling and data mining
- Dr. G.M. Knapp for education and data modeling, e-commerce, and software development
- Dr. B.R. Sarker on supply chain management
- Dr. T.G. Ray on education activities and business development
- A faculty position to be filled in the area of simulation (currently open and advertised)
- A faculty position in general IT areas (currently open and advertised)

Number of requested new faculty positions for the IMSE Department = 2:

- One of the requested positions will be on data mining and information systems
- and the second on supply chain management and e-commerce systems

For the Electrical and Computer Engineering Department:

Drs. S. Kak, J. Ramanujam, and R. Vaidyanathan on security and cryptography, search engines, web design for e- and m-commerce, and software support for mobile computing.

Number of requested new faculty positions for the E&CE Department = 2:

One of the requested positions will be on web design for e- and m-commerce and the second on software support for mobile computing

For the Comp. Science Department:

Drs. S.S. Iyengar and J. Chen for data modeling and data mining

Drs. D. Carver and D. Kraft for advanced software systems and information retrieval systems

Number of requested new faculty positions = 2:

One of the requested positions will be on warehousing and databases and the second on information and retrieval systems

For the Institute for Entrepreneurial Education and Family Business Studies:

Dr. E. Watson (currently at SAP and also at the ISDS Department) for enterprise modeling

Dr. J.F. Hair for entrepreneurial education and business development

Number of requested new faculty positions = 2:

One of the requested positions will be on enterprise modeling and the second on information systems for new businesses

For the Office of Computing Services at LSU:

Drs. C.M. Hadden, E. Icaza, and Ron Hay on business and enterprise modeling and the Internet applications

Number of requested new staff positions = 1:

This staff member will be in charge of the software developments and administration of the computing systems involved.

Notes:

- (1) Half of these positions will be for faculty with **joint appointments** in 2 academic departments or units simultaneously.
- (2) This proposal also requests to support 20 graduate students (GAs) per year, starting in the spring of 2002 with 10 GA positions. We strongly anticipate that additional students will be supported by the participating industrial partners after the second year.

That is, this proposal requests the funding of a total of eight new faculty positions, 1 new staff position for the Office of Computing Services at LSU, and 20 graduate students per year and 10 GA positions for the spring of 2002.

Participating Major Industrial Partners:

We are in contact with a number of leading industries critical to our initiative. Most of these companies have tentatively agreed to closely collaborate with us in pursuing the goals of the **La E-Center**. Some of these companies are:

SAP and Popkin Corporation:

For Business and Enterprise Modeling and also data modeling and data mining and Internet applications. Furthermore, SAP is willing to provide us with **\$1 million support** in the form of software and services if this proposal is funded. Dr. E. Watson is currently at SAP plus two of our own graduate students; one from the IMSE Department and the other from the CS Department. For more information on the Popkin Corp. please visit: <http://www.popkin.com>

Arena Corporation: For simulation.

Oracle Corporation: For data modeling and data mining. One of the recent IMSE Ph.D. graduates is currently at Oracle Corp.

ADOBE Corporation: For Internet applications

Participating Louisiana Industries and Organizations:

- 1) Avondale Shipyards
- 2) Martin Marietta
- 3) Woman's Hospital in Baton Rouge
- 4) Dept. of Economic Development of the State of Louisiana

In addition to the above companies and organizations, we have received very strong expressions of interest from the Louisiana Technology Park for providing our services to their clients.

4. Management Plan

The **La E-Center** will be headed by a **Center Director**. This position will rotate among faculty from the participating LSU academic departments and units. The Center's Director will be reporting to the Deans of Engineering, Basic Sciences, and Business Administration, the Director of the Center for Applied IT and Learning, and to the LSU Vice-Chancellor for Research. The first Director will be Dr. Tom G. Ray.

The Director will be assisted by an **Executive Committee** comprised by representative faculty from the 3 center divisions: (1) IT Education, (2) Research, and (3) Business Development. The initial composition of the Executive Committee will be as follows:

For **IT Education:** Drs. T.G. Ray, G.M. Knapp, R. Hay, and S.S. Iyengar
For **IT Research:** Drs. T.W. Liao, E. Triantaphyllou, S. Kak, and S.S. Iyengar
For **Business Development:** Drs. T.G. Ray, J.F. Hair, and R. Hay

Furthermore, the functions of the Center Director and the Executive Committee will be assisted by an **Industrial Advisory Board** to be comprised by representatives of the participating industrial partners and organizations.

5. Summary

We strongly feel that LSU and the State of Louisiana should seize the opportunity to support the creation of the proposed **La E-Center**. This center has the potential to become a strong player for IT education, research, and business development for the State of Louisiana and also regionally and nationally. The participating faculty and staff members from the 5 academic departments and units at LSU, have complementary areas of expertise in key IT subjects. They, along with the requested new IT personnel, will become an important factor for achieving many of the goals of the Governor's IT initiative. As the following selected references strongly suggest, enterprise systems based on IT methods are at the very heart of any modern profit or non-profit organization that wishes to excel in today's ultra-competitive environment.

References

1. **Memorandum on Scalable Enterprise Systems**, Directorate of Engineering, National Science Foundation, Arlington, VA, February 5, 1999.
2. **Visionary Manufacturing Challenges for 2020**, National Research Council, National Academy Press, Washington, DC, 1998.
3. **Research Issues and Opportunities in Scalable Enterprise Systems**, National Science Foundation Panel, Directorate for Engineering, Arlington, VA, April 26-27, 1999.
4. **Vision 2020 for Louisiana**, Governor Mike Foster's Initiative for the State of Louisiana, 1999.
5. **Web sites** of the participating major industrial partners.