

## **Innovation Technology Campus (ITC) of Wichita State University**

Wichita State University (WSU) is developing a 21<sup>st</sup> century technology campus that weaves together in one site university research, technology transfer, graduate and undergraduate education, and new business innovation and entrepreneurship. The ITC will be located to the east of the current campus. It will house private enterprises, academic programs, joint university-private enterprise ventures, and support facilities in a beautiful park-like atmosphere.

The mission of the ITC is to provide a venue for researchers and technologists from private enterprise to work closely with faculty and students from WSU to create and deploy globally competitive technologies in critical areas related to aerospace, bio-medical engineering, software and software engineering, and human factors psychology. A primary purpose of ITC is to expand the economic base of the Wichita metropolitan area through economic diversification and new business formation. The ITC also will house the Barton School of Business, with its nationally renowned entrepreneurship program and the experiential engineering laboratories of WSU's College of Engineering. Over time, it is expected that additional academic research facilities also will be located on this campus.

The ITC will build on the tremendous strengths of the university and especially on its globally recognized National Institute for Aviation Research (NIAR). Moreover, WSU has a long background in working with the business community of Kansas. For example, in aviation research, WSU is nationally ranked third overall and first in research dollars generated from business contracts. In addition, WSU's Advanced Networking Research Institute (ANRI) and programs in computer science and computer engineering have on-going relationships with businesses nationally and in the local community. And, our research center for Human Factors has contracts with some of the largest electronics technology companies in the world. Among this program's most important contributions has been development of the human interface for controlling aviation drones.

ITC will be developed in phases based on demand. It will involve both university-funded facilities and facilities developed by private enterprise under university contract. Phase I of ITC is planned to begin construction in 2015 with the first facility occupied in 2016. This first phase will involve two technology buildings (Technology I and Technology II), the Barton School of Business, and parking facilities. The main entrance for the campus will be off of 17<sup>th</sup> Street with a new campus road acting as the main artery of the campus.

The first building to be constructed will be Technology II. It is planned to be located on the current Wheatshocker site and it is expected to be a building of 140 to 160 thousand square feet. Approximately 80,000 square feet will be dedicated to undergraduate engineering experiential learning laboratories and support facilities. The remainder of the building will house an entrepreneurial innovation incubator and research laboratories for private businesses that need to co-locate with university researchers.

The ITC represents an important development for WSU and the metropolitan area. It is the embodiment of the university's new strategic plan and mission. It provides significant opportunities for expanded R&D and technology transfer. Both graduate and undergraduate students will greatly benefit

through employment opportunities, participation in on-going research, and in support for developing their own businesses. WSU aspires to be a global leader in experiential education, and ITC provides an exceptional venue in which university students can “do as well as learn.” The Integrated Technology Campus is a unique and highly valuable asset to the region and the state. It has the potential to become the engine of innovation that can drive much of the state’s economy well into the next century.

### Academic Importance

By design, the ITC strongly supports the technology transfer, research, and core education functions of the university. Businesses can only locate on the campus if they commit to a strong on-going relationship with the university. This will enhance the capacity of the university to address applied research and development needs of business and speed the transfer of new technologies and processes to the private sector. In addition, co-location increases the potential for funded research, intellectual property development, and the likelihood of successful new technology business formation. Experience from other universities show that campuses such as the ITC:

- Increase the ability to recruit and retain global class faculty.
- Act as a locus for development of patents and intellectual property that can affect prosperity.
- Substantially increases funded research, especially with regard to research sponsored by private enterprise.
- Support and encourage business spin-outs that produce revenue for the university through licenses or shares of successful enterprises.
- Foment innovation by creating an environment rich in resources that encourage and support collaboration and joint research.

From a student perspective, TC presents un-paralleled opportunities for students:

- Post-doctoral students in engineering, software and computing, and human factors psychology have opportunities to develop and work on projects that can result in publications, patents, and contacts that can result in permanent career placement or development of new technology-based enterprises.
- Doctoral and master’s students can work in laboratories on critical new technologies that can result in dissertations, professional publications, and contacts that can result in career placements, access to additional education, or development of new technologies that can produce new technology-based enterprises.
- Undergraduate students can work in laboratories as assistants and learn new techniques and experiences that can result in undergraduate research projects and experiential education that

creates deeper learning while providing experiences that increase their competitiveness in the workforce.

From the perspective of the university, ITC:

- Promotes the university's core mission and all strategic goals and KBOR's "Foresight 2020" strategic plan.
- Directly supports KBOR's goal of increasing educational attainment in the state by providing opportunities for educated students to continue living and working in Kansas. It does little good to educate the state's population if people have to leave state to find suitable work.
- Encourages increased enrollment and student retention by creating unique opportunities to learn, apply that knowledge, and gain employment to support their education.
- Supports cross-disciplinary work involving Fairmount College of Arts and Sciences, the Barton School of Business, and the College of Engineering to promote innovation, support business development and provide enhanced educational opportunities for students from all three colleges.
- It formally links WSU's nationally renowned entrepreneurship program with technology innovators in engineering, human factors, and software development.
- Increases institutional impact on the state, region, community, and university neighborhood.
- Encourages developments near the university that enhance university competitiveness and quality of life.
- Strongly supports enhancement of the university's reputation in the state, nation, and globally.
- Provides new revenue streams to support enhancement of university quality.

The ITC is a critical university strategy that promotes all aspects of the university's academic mission and which enhances its academic reputation and assures that it develops as an increasingly critical player in the future of the state.

### **Economic Impact**

Development of ITC is a critical action for increasing the competitiveness of the south-central Kansas region. This region currently represents 26 percent of the total state economy. Moreover, the Wichita MSA currently is third nationally in the percentage of its metropolitan GDP that is derived from global trade and it is third nationally in the percentage of its workforce that is composed of engineers.

Unfortunately, the area's economy also is highly dependent on manufacturing in only one industrial sector—aviation—which is subject to massive increases in competition both within the US and globally.

For example, Ohio and North Carolina both are making major investments in aviation and those investments in Ohio are directly competitive with those in Kansas. Likewise, China, Brazil, the European Union, and Canada are making very significant investments in aviation companies and technologies which compete directly with industries in Kansas. And, while the market for civilian aircraft is expected to expand dramatically over the next decade, this competition is a direct threat to the continued economic health of the state.

The ITC is focused on economic diversification through attracting, developing, and supporting technology-based businesses that address needs in a wide range of markets in addition to aviation. It also provides a venue to support development of new technologies for aviation, especially aviation software, and for developing additional partnerships between the university and the important national security work headquartered at McConnell Air Force Base. Further, Wichita has been subject to very significant economic swings due to its heavy reliance on one economic sector (general aviation and aircraft). The ITC will act as the metropolitan area's hub for creating and supporting technologies in economic sectors that have the potential to reduce these swings by adding businesses with different employment cycles than that which characterizes aviation. This should, over time, moderate unemployment and economic disruption associated with single-industry cycles.

With regard to employment, current state data show that the top 20 categories of jobs available in the state are not focused on technology innovation and global competitiveness. Seventeen of the top twenty categories pay less than the state median wage and many do not even require a high school diploma. The ITC creates a crucial opportunity to create high paying competitive jobs that both increase the median income of the area and which promote other job growth. Technology researchers are paid substantially above the state median wage with leading researchers achieving salaries three to six times that median. Likewise, national data show that jobs related to electronics and software technology pay 17 or more percent higher than the median. And, depending on the specific technologies involved, each technology job has a multiplier of 2.5 to 4.5. That is, for every technology job created, another 2.5 to 4.5 jobs are created in the economy. This can dramatically impact the unemployment and long-term employment prospects in Wichita.

In addition, developments such as the ITC act as magnets for other economic development. Typically, other technology businesses can benefit by being located near those in the ITC and because of the substantial increase in employment in the area, it is typical for support businesses, ranging from business services to restaurants and hotels to locate near the campus. This provides additional jobs, but it also increases the desirability of the university and encourages additional enrollment—which itself produces jobs.

WSU is located in a low-income, high minority section of Wichita. Creating an economic engine in this quadrant of the city can be expected to enhance opportunities for local residents and improve the economic future of the area. Many business spinouts choose to locate near the university that spawned them to maintain their connections with researchers and graduate students even when those businesses are too large to remain on the campus itself.

## Leveraging State Resources

The State of Kansas has already made significant investments in WSU that will be leveraged by development of the ITC. First, Kansas has provided on-going support for NIAR. This development leverages that investment by encouraging location of businesses within the state that use NIAR's research capacities. Likewise, by encouraging existing enterprises in the region to innovate, and supporting that innovation, the state increases the likelihood that important employers will not follow the example of Boeing and relocate out of state.

Also, the first building to be constructed (Technology II) will house experiential engineering labs for undergraduate students that will support rapid expansion of the number of undergraduate engineering students following the state's mandate. In addition, non-state matching funds will be used to construct a wing of the building that will house a new technology incubator and private enterprise research facilities. Both the incubator and research facilities will provide employment and internship opportunities for students, making WSU a much more attractive option for engineering students.

The second building to be constructed (Technology I) will be the showplace of the campus. The university will own a minority percentage of that facility to house its campus and economic development staff, and private investors will be sought to construct and own the rest of the building under a lease-purchase contract. This will encourage development of public-private partnerships and assure that the ITC remains focused on the changing nature of the marketplace.

Overall, creating the ITC has the potential to be the most significant economic and educational development strategy undertaken by Wichita State University in its history. As it becomes more successful, it will create substantial numbers of high paying jobs, attract and retain technology-based businesses, spinout new technology businesses, and support enrollment growth that is so critical in meeting KBOR's and the University's strategic goals. The Innovation Technology Campus can become the crown jewel in the state's strategy for increasing business competitiveness and increasing the quality of life for its citizens.