



Center for Engineering Logistics and Distribution (CELDi)

University of Arkansas/University of Oklahoma/University of Louisville/Oklahoma State University

Providing integrated solutions to the complex global logistics challenges facing U.S. industry

A National Science Foundation Industry/University Cooperative Research Center since 2001

Center Mission and Rationale

The Center for Engineering Logistics and Distribution (CELDi) is a multi-university, multi-disciplinary National Science Foundation-sponsored Industry/University Cooperative Research Center (I/UCRC). Research endeavors are driven and sponsored by representatives from a broad range of member organizations, including manufacturing, maintenance, distribution, transportation, information technology, and consulting. Our industrial partners serve as the “thought leaders” with strong ongoing financial commitment to logistics research. This partnership between academic institutions and industry represents the effective integration of private and public sectors to enhance the United States’ competitive edge in the global marketplace. CELDi emerged in 2001 from the Material Handling Research Center (founded in 1982) and The Logistics Institute (est. 1994) to provide integrated solutions to logistics problems, through research related to modeling, analysis, and intelligent-systems technologies.

Logistics research has been catapulted into prominence by driving forces such as the challenges brought about by e-commerce to deliver products in a timely fashion, the reality that competitive edges are now realized through execution and delivery, and the concern that supply chains have evolved into complex, multi-channel challenges of integrating what the industry terms “clicks and bricks.”

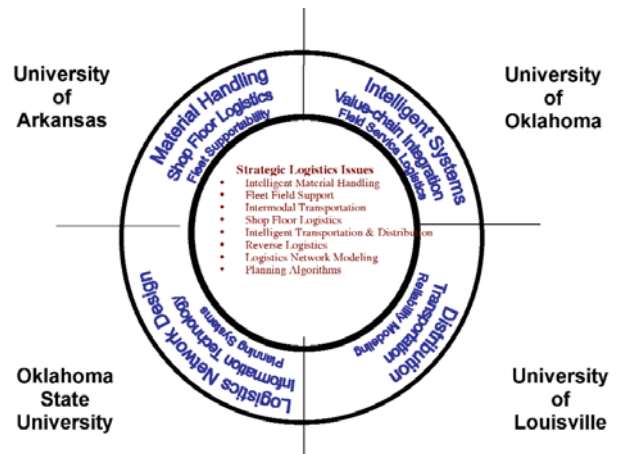
Research Program

CELDi helps industry partners excel by leveraging their supply chain to achieve a distinguishable, sustainable difference. Member companies realize a measurable return on their investment in the Center by creating competitive value chains, in terms of cost and service quality. Through basic research, collaborative applied research with industry, technology transfer, and education, CELDi is a catalyst for developing the engineering logistics methodology necessary for logistics value chain optimization. Within CELDi, the foci of the activities include but are not limited to:

- Value-adding processes that create time and place utility (transportation, material handling, and distribution)
- Value-sustaining processes that prolong useful life (maintenance, repair, and rework)
- Value-recovering processes that conserve scarce resources and enhance societal goodwill (returns, refurbishment, and recycling).

Center Organization

Four primary academic partners have joined together to merge unique research strengths that allow CELDi to surpass traditional research institutions that offer a compartmentalized approach to logistics research. Each institution brings complementary expertise to the organization, as shown in the diagram.



Corporate partners may choose from three levels of membership in CELDi: Full Membership, Associate Membership (for small companies with less than 50 employees), or Affiliate Membership.

Bi-annual joint meetings are held in the spring and fall, rotated among the four campuses. These meetings provide an opportunity to coordinate activities between researchers and the Industrial Advisory Board (IAB), which is comprised of a representative from each member company. The fall meeting focuses on the approval of the research agenda for the current academic year. The spring meeting provides an opportunity for members to interact with researchers from all four campuses, with top researchers and practitioners in the field of logistics, and with each other. Short courses are included in the spring forum for continuing education opportunities.

At all four campuses research activities, graduate and undergraduate course offerings, along with professional development and continuing education opportunities combine to form the foundation and structure for educating the next generation of engineers in logistics and distribution centers.



Bell Engineering Center, University of Arkansas

The **University of Arkansas (UA)** has a long-standing tradition in the logistics area through advanced research activities and educational programs. Through participation in the Material Handling Research Center and later The Logistics Institute, the UA has received over \$3M in industry-funded research sponsorship for material handling and logistics. Breakthrough methodologies in supply-chain management, shop floor logistics, and vehicle dispatching have been developed within the Department of Industrial Engineering at the UA. Transportation and Logistics is a primary emphasis area supported within the College of Engineering at the University.

The **University of Oklahoma (OU)** provides expertise and on-going research in intelligent systems for design and execution of intelligent transportation/logistics and real-time value chain processes. OU has also developed a strong program in maintenance logistics processes for complex systems and infrastructure. Affiliation with Oklahoma State University through the Oklahoma Transportation Center creates opportunities for additional research collaboration and industry cooperation. Intelligent transportation logistics is one of three strategic initiatives supported by the OU College of Engineering.

The **University of Louisville (UL)** names logistics as a primary research thrust for the entire university. UL researchers are involved in logis-

tics research with several transportation and material handling companies that are located in the Louisville area and nationwide. The application areas for current research include air, truck, and barge. UL research core competencies are in the field of Industrial Engineering, with a strong emphasis on simulation, optimization, and reliability/maintainability modeling.

The **Oklahoma State University** provides expertise and on-going research in Supply Chain/Logistics Network Design, Supply Chain/Logistics Information Systems, and Supply Chain/Logistics Planning. These three areas are supported with OSU's Center for Computer Integrated Manufacturing (CCIM) and



University of Oklahoma College of Engineering

the Supply Chain Design Lab (SCDL). OSU brings expertise in the areas of supply chain optimization, simulation, planning algorithms and object and data modeling.



Center Headquarters

Center for Engineering Logistics & Distribution
 University of Arkansas
 Dept. of Industrial Engineering
 4207 Bell Engineering Center
 Fayetteville, AR 72701
 Tel (479) 575-6029 • Fax (479) 575-8431
 Homepage: celdi.ineg.uark.edu

Center Co-Director: Dr. John R. English
 (479) 575-6029 • jre@uark.edu

Center Co-Director: Dr. Thomas L. Landers
 (405) 325-0986 • landers@ou.edu

Center Co-Director: Dr. G. Don Taylor
 (502) 852-2741 • don.taylor@louisville.edu

Center Co-Director: Dr. Ricki Ingalls
 (405) 744-6055 • ingalls@okstate.edu

Center Evaluator: Dr. Tom Jones
 (479) 575-6128 • twjones@comp.uark.edu