Section 2: Career Clusters

Career and technical education’s direct and explicit focus on preparing students for specific ranges of occupations has resulted in a long history of interest and involvement in educational, occupational, and industrial classification systems. These systems have been used to organize career and technical education into categories for a variety of purposes. The following is a brief overview of various the systems used by career and technical educators in Iowa today.

National Career Clusters

Career clusters provide a way for schools to organize instruction and student experiences around 16 broad categories that together encompass all occupations from entry through professional levels. The clusters are groupings of careers with similar skills or common themes based on industry groups. They assist students, parents, employers, and those in the educational system understand how curriculum relates to the career opportunities from which students will choose and for which schools must prepare them. Career clusters can be divided into smaller categories of more than 81 career pathways that each serve as the foundation for numerous career specialties.

The 16 career clusters are: Marketing, Sales, and Service; Business, Management, and Administration; Information Technology; Finance; Agriculture, Food, and Natural Resources; Arts, Audio/Visual Technology, and Communications; Hospitality and Tourism; Law, Public Safety, and Security; Government and Public Administration; Education and Training; Human Services; Health Sciences; Transportation, Distribution, and Logistics; Manufacturing; Science, Technology, Engineering, and Mathematics; Architecture and Construction. See Appendix A for descriptions of the clusters.

Career clusters evolved from a variety of taxonomies. In the late 1990s, efforts to replace traditional “vocational” categories with alternative clustering systems gained momentum as the vision for career and technical education supplanted vocational education. In 1994, the National Skills Standards Board (NSSB) was authorized by Congress to develop a voluntary national system of skills standards and a taxonomy of 15 industry sectors was created. A second cluster model was developed and promulgated by the U.S. Department of Education Office of Vocational and Adult Education (OVAE). The OVAE effort resulted in the adoption of the 16 career clusters in 1999. The cluster model encompasses various levels that can be divided into progressively specific categories, each with common knowledge and skills required for occupational specialties within the category. The skill and knowledge statements within each cluster (and the pathways within them) can be used to organize curriculum and develop assessments. The knowledge and skill statements were validated by employers and educators allowing for durable, nationally-portable competencies. The alignment of instruction to cluster knowledge and skills creates a fundamentally different type of instruction where academic and technical instruction are blended, education is put in a relevant context, and transitions among learner levels are seamless. In 2000, Iowa served as a lead state with Idaho in working with a broad-based advisory committee to identify curriculum frameworks, pathway and foundation knowledge and skills, and supporting materials for the Agriculture, Food, and Natural Resources Career Cluster. In 2001, OVAE required states to begin reporting enrollment data disaggregated by the 16 career clusters for Perkins accountability requirements. The National Association of State Directors of Career and Technical Education Consortium (NASDCTEc) took over the career clusters effort in 2002 and renamed it the States’ Career Clusters Initiative. Within the 16 career clusters, a total of 81 career pathways were developed, each with knowledge and skills statements that build on the clusters’ foundational knowledge and skill requirements. Sample plans of study for each the pathways were released in December 2006.

In recent years, there has been a movement to reorganize career and technical education around the career clusters. With Perkins IV legislation, there has been considerable discussion about how the current system in Iowa might be integrated with the career clusters.
**Iowa Career Pathways**

Sometimes referred to as career fields or as Iowa career clusters, Iowa career pathways (Iowa Code, §256.38) are a smaller set of six broad career areas developed during the late 1990s by the Iowa School-To-Work Office and the Iowa Association of Business and Industry (ABI). The career pathways were created and adopted prior to development of the national career clusters and to serve a similar purpose. The Iowa pathway effort was to identify knowledge and skills necessary for employment in a given occupational area and develop three tiers of competencies verified by employers. Iowa career pathways differ from the 81 national career cluster pathways discussed in the previous section. The 16 national career clusters can be grouped together based on commonalities and folded into the larger Iowa career pathways (which serve as superclusters).

The six career pathways are: Business, Information Management, and Marketing; Agriscience and Natural Resources; Arts and Communications; Family, Consumer, and Human Services; Health Sciences; Engineering, Industrial, and Technology Services.

**Traditional Service Areas**

Iowa Code §256.11(5)(h) organizes secondary and community college career and technical education (vocational technical education) into six service areas. These six areas are: Agriscience and Natural Resources (Agriculture Education); Business and Information Technology (Business and Office Education); Engineering and Industrial Technology (Industrial Education); Health Sciences (Health Occupations Education); Family and Consumer Sciences (Home Economics Education); Marketing (Marketing Education).

**Targeted Industry Clusters**

Three targeted industry clusters were identified and supported by the Iowa Department of Economic Development because of their potential for growth and the creation of high paying jobs. Industry clusters consist of businesses enterprises and nonbusiness organizations bound together by buyer-supplier relationships, common technologies, common buyers or distribution channels, or common labor pools. Iowa’s three targeted industry clusters are: Life Sciences (including production agriculture, value-added processing, pharmaceuticals, and biotechnology); Advanced Manufacturing (involving the rapid introduction of new processes including metal manufacturing and heavy machinery manufacturing) and Information Solutions (including financial services and information solutions). Industry clusters match subsets of individual career clusters. For example, the Life Sciences industry cluster would consist of subsets of the Agriculture, Food, and Natural Resources cluster, the Science, Technology, Engineering and Mathematics Cluster, and other career clusters.
The 16 career clusters can be collapsed into six (6) career pathways/fields and the six (6) service areas recognized in Iowa Code.
Iowa Career Cluster Framework

In this section, the network systems career pathway is used as an example to explain the Iowa Career Cluster Framework and the different levels of common skills and knowledge required at each level.

Foundational knowledge and skills form the base for all occupational areas.

Iowa Career Pathway (Supercluster) Level
Iowa Career Pathways/Fields represent the skills and knowledge, academic and technical, that all students in the field should achieve regardless of the clusters in the Iowa Career Pathway/Field.

Career Cluster Level
Represents the skills and knowledge, academic and technical, that all students in the cluster should achieve regardless of the career pathway selected.

Pathway Level
Represents the skills and knowledge, academic and technical, necessary to pursue a full range of career opportunities within a pathway.

Specialty Level
Represents the full range of career specialties/occupations at all levels of education within each pathway (not all possible job opportunities are shown in this example).