

EXPLAINER

Interdisciplinary Elements of The National Career Clusters[®] Framework



This resource walks through the Cross-Cutting Career Clusters structure and other closely aligned Career Clusters to advance interdisciplinary programs of study. More detailed tools and guides can be found [here](#).

As the world of work becomes increasingly more interdisciplinary, so too should Career Technical Education (CTE) programs that prepare learners for that world of work. Each sector has functions, such as organizational operations, website development, and product sales, that are needed for organizations to be successful. These functions require both technical knowledge of the sector and specialized training from outside that sector. Similarly, every career pathway incorporates learning from related sectors, where transferable knowledge can bolster and strengthen that career trajectory.

One major innovation of the modernization of The National Career Clusters[®] Framework is the intentional de-siloing of many of the Career Clusters and the designation of some as Cross-Cutting Career Clusters. States and local education agencies have the flexibility to design secondary and postsecondary programs of study that meet the needs of the learners, families, and employers in their states, leveraging the Career Clusters as a model for organization.

These programs can and should demonstrate how skills and competencies overlap between and across Career Clusters and how learners can leverage these transferable skills to explore, access, or create future career pathways that are specific to their preferences, interests, and aptitudes.

This type of integration can be implemented using the Career Clusters through two key avenues: Cross-Cutting Career Clusters and interdisciplinary programs of study.

Cross-Cutting Career Clusters

Each of the 14 Career Clusters is built around an industry sector or combined sectors, and within each Cluster are Sub-Clusters that demonstrate smaller career groupings built around common career skills and credentials. While the Framework intentionally has no hierarchy, three of the Career Clusters—the Digital Technology Career Cluster, the Management & Entrepreneurship Career Cluster, and the Marketing & Sales Career Cluster—are identified as “Cross-Cutting Career Clusters,” meaning they have both careers as a standalone Career Cluster and specialized applications within every other Career Cluster, including the other Cross-Cutting Career Clusters.



Digital Technology

The Digital Technology Career Cluster focuses on developing digital systems for communication and data storage to connect communities, protect privacy, and modernize industries across the world of work. The skills developed by this Career Cluster, such as the use of artificial intelligence or drone technology, the configuration of apps and network systems, and the implementation of new digital tools, help drive innovation across all industries to tackle complex challenges and expand emerging opportunities in communities and economies.

Every sector requires employees skilled in both the use and application of these technologies, especially as new technologies are developed. Whether a professional is designing a new banking app, protecting the cybersecurity of a hotel, or expanding the use of robotics in a manufacturing facility, both the skills and an understanding of the context in which they are specially applied are often required for career success.



Management & Entrepreneurship

The Management & Entrepreneurship Career Cluster highlights the importance of the skills and knowledge needed to drive operational success across industries. These functions, including business information management, small business operations, administrative and human resource support, and project management, are required by all industries to ensure that, regardless of structure, size, or status, an organization can efficiently meet its goals, adapt to market change, and continuously improve and strengthen operations.

This Career Cluster also elevates the entrepreneurial skills needed in a dynamic economy. Whether individuals are starting their own child care facility, selling their own invention, leading a performing arts nonprofit, or managing project timelines for a construction firm, being successful requires business and operational skills as well as contextualized but content-specific knowledge of the sector.



Marketing & Sales

The Marketing & Sales Career Cluster demonstrates the value of promoting products and services, understanding consumer needs and protections, and driving sales for all industry areas. This Career Cluster is essential for all industries to create value, reach and engage target audiences, and achieve commercial success. Across all sectors, organizations are looking for professionals who have the skills to conduct market research, drive social media content and engagement, develop business copy, or enhance experiences for consumers.

However, to be most successful, these professionals also need to have the content expertise in the field in which they work to build the most effective case for their service or product, whether they are selling agricultural equipment, designing a new sustainability campaign, or marketing a new community health service.

Implementing the Cross-Cutting Clusters

Many statewide or local programs of study already incorporate elements of the Cross-Cutting Career Clusters through a specific course or as a unit of their standards. To comprehensively address the implementation of the Cross-Cutting Career Clusters, changes may need to be made to policy or practice ([read Advance CTE's recommendations](#)). Advance CTE encourages anyone designing programs of study to consider innovative ways to apply the Cross-Cutting Career Clusters. As a starting point, this brief explores two approaches:

1. Capstone or Fourth Course

Each Cross-Cutting Career Cluster can be approached in two directions: by concentrating in the Cross-Cutting Career Cluster with the capstone course(s) in another Career Cluster OR by concentrating in a Career Cluster with the capstone course(s) in the Cross-Cutting Career Cluster. In either case, a fourth course or capstone can be leveraged to enhance and contextualize learning to that point.

If a learner begins with the Cross-Cutting Career Cluster and takes a Digital Technology Career Cluster-embedded program of study, they could have an internship at a company connected more closely to the Supply Chain & Transportation Career Cluster to learn more about the applications in that field.

On the other hand, a learner in a postsecondary environmental protection program may take an additional, credited course in drone technology to learn how to leverage these tools for surveying, photography, and land management.



2. Fully Contextualized Course

Within each Career Cluster, programs of study could be designed to incorporate opportunities for learners in a specific career pathway to focus on one of the Cross-Cutting Career Cluster areas. Such a focus could then serve as a throughline for learners' program of study, allowing them to incorporate lessons learned into specific projects, work-based learning experiences, or other portfolio-building activities throughout their program.

For example, in a hospitality program, one learner might focus on the digital tools needed to expand or enhance experiences, one learner might concentrate on the daily operations of the sector, and a third might center their education on the promotion of the industry more broadly through digital and print campaigns. This type of full contextualization could have co-taught courses and leverage integrated curricular supports, or it could be implemented across learner levels.

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Interdisciplinary Programs of Study Across the Framework

While the Cross-Cutting Career Clusters were designed to be applicable to all other Career Clusters, many other Career Clusters are also closely connected. Given the ever more interdisciplinary nature of the world of work, many states or local secondary or postsecondary institutions may design programs that bridge two or more Career Clusters, whether they are Cross-Cutting Career Clusters or otherwise.

Local or regional labor markets or employers may also specifically require expanded programs that are interdisciplinary in nature. Advance CTE recommends that state agencies, local districts, and postsecondary institutions work together to ensure quality and accountability while still meeting the needs of all constituents, especially those of learners.

The following chart identifies which Career Clusters outside of the Cross-Cutting Career Clusters are most closely aligned according to labor data and could be explored further to design interdisciplinary programs of study. This list is not exhaustive. Anyone designing programs of study should consult their employer communities and labor market data to better define what types of interdisciplinary programs are best suited to their region.

Career Cluster	Related Career Cluster
Advanced Manufacturing	Agriculture; Arts, Entertainment, & Design; Construction; Energy & Natural Resources; Construction; Healthcare & Human Services; Supply Chain & Transportation
Agriculture	Construction; Energy & Natural Resources; Hospitality, Events, & Tourism; Supply Chain & Transportation
Arts, Entertainment, & Design	Advanced Manufacturing; Construction; Hospitality, Events, & Tourism
Construction	Advanced Manufacturing; Agriculture; Arts, Entertainment, & Design; Energy & Natural Resources; Supply Chain & Transportation
Education	Healthcare & Human Services; Public Service & Safety
Energy & Natural Resources	Advanced Manufacturing; Agriculture; Construction; Public Service & Safety; Supply Chain & Transportation
Financial Services	Healthcare & Human Services; Public Service & Safety

Career Cluster	Related Career Cluster
Healthcare & Human Services	Advanced Manufacturing; Education; Financial Services; Hospitality, Events, & Tourism; Public Service & Safety
Hospitality, Events, & Tourism	Agriculture; Arts, Entertainment, & Design; Healthcare & Human Services; Supply Chain & Transportation
Public Services & Safety	Education; Energy & Natural Resources; Financial Services; Healthcare & Human Services
Supply Chain & Transportation	Advanced Manufacturing; Agriculture; Construction; Energy & Natural Resources; Hospitality, Events, & Tourism

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