



DEVELOPING YOUTH TALENT INITIATIVE (DYTI)

2019-2020 Legislative Report

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DEPT. OF ECONOMIC DEVELOPMENT

INTRODUCTION

Implemented in 2015, LB 657 — the Nebraska Developing Youth Talent Initiative (DYTI) — created an industry-defined approach to introduce seventh and eighth grade students to occupations in the manufacturing and information technology (IT) sectors. The program has since expanded in focus to include careers in health care and engineering. By piquing interest among students in high-skill, high-demand industries and occupations at an early age, DYTI seeks to develop a youth talent pipeline into high school career and technical academies, post-secondary programs and employment across the state.

Workforce needs across the industry spectrum are evolving. Within manufacturing, for example — which alone contributes over \$13.5 million¹ to Nebraska's gross domestic product annually — looming retirements, public career misconceptions and the demand for advanced skillsets pose a talent shortage that requires collaboration on multiple fronts to address. To use another example, the IT industry and other sectors with high IT occupational densities will see an estimated 15% to 31%² increase in the demand for new employees by 2024. DYTI is intended to address such looming shortages while creating rewarding opportunities for the next generation of career-goers.

Eligible DYTI applicants include for-profit businesses or consortiums of businesses working in partnership with the public school system. Applying businesses must outline their goals and strategies for developing the future workforce by generating exposure and interest in the focus occupations — and their related skills, technologies and careers — among 7th and 8th grade students.

Applications to the DYTI program are independently scored by a committee of leaders from the Nebraska Departments of Economic Development (DED), Education (NDE) and Labor (NDOL). Scoring criteria include demonstration of the following:

- Impact on businesses, communities and students
- Program sustainability
- Evidence of regional workforce need and relevance of the proposed project to the need
- Clear goals and projected outcomes
- External evaluation plan
- Budget and project timeline

DYTI AWARDS AND DISBURSEMENTS

DED awards and administers \$250,000 in DYTI grants each year. Since 2015, nine companies and three consortiums have been awarded a grant (see below).

¹ US Department of Commerce, Bureau of Economic Analysis, <https://www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=2#reqid=70&step=1&isuri=1>

² NDOL, Office of Labor Market Information <https://networks.nebraska.gov/gsipub/index.asp?docid=4401>

2015-2016 Disbursements

Hollman Media (Kearney)	\$117,148
Flowserve (Hastings)*	\$120,881
TOTAL:	\$238,029

2016-2017 Disbursements

Distefano (Omaha)*	\$120,500
MetalQuest (Hebron)	\$121,343
TOTAL:	\$241,843

2017-2018 Disbursements

Aulick (Scottsbluff)	\$107,960
Becton Dickinson (Broken Bow)*	\$67,133
Cyclonaire (York)	\$59,847
TOTAL:	\$234,967

2018-2019 Disbursements

Nucor Detailing Center (Norfolk)	\$132,286
Reinke Manufacturing (Deshler)	\$132,224
TOTAL:	\$264,510

2019-2021 Awards

Orthman Manufacturing (Lexington)	\$125,000
Reinke Manufacturing (Deshler)	\$22,000
Vistabeam (Gering)	\$103,000
TOTAL:	\$250,000

(*) indicates consortium

Data on program impact is collected by the applicants and by external third-party evaluators. Schools collect quantitative data on enrollments and qualitative data on impacted areas difficult to examine numerically. External evaluators conduct pre- and post-project surveys to assess the program's impact on participating students' perceptions and knowledge of, as well as interest in pursuing careers in, the focus occupations.

2019-2020 PROJECT UPDATES

In 2019, contract periods were extended to allow companies two years for planning, training, purchasing equipment, creating curriculum, accomplishing milestones and measuring project impact. Although the three companies awarded in 2019 have not submitted their final reports, the current legislative report provides an update on all three projects — each of which has, notably, been impacted by the COVID-19 pandemic and subsequent switch to remote learning.

The following are project overviews and updates for 2019 DYTl recipients Orthman Manufacturing, Reinke Manufacturing and Vistabeam.

Orthman Manufacturing (Lexington); \$125,000:

The DYTl project implemented by Orthman Manufacturing — the “Mid-Nebraska Makerspace Lab (MNM)” — seeks to increase exposure to STEM and the manufacturing sciences among students, especially young women, attending schools in 11 south-central Nebraska counties. The project has also established connections between schools and businesses to enhance student awareness surrounding careers and educational requirements in the STEM and manufacturing sciences. Specifically, the project brings in area STEM professionals to coach students in the areas of college and career opportunities and completing STEM projects.

The project exposes students to STEM and manufacturing technologies via three mobile trailers transported to participating schools. The trailers contain 10 labs featuring STEM/Maker equipment, including but not limited to a vinyl cutter, CNC router, 3D printer, UAVs and a welding simulator. The Labs encourage students to develop STEM skills in the areas of communication, collaboration, creativity, critical thinking and innovation. Each trailer remains at the school for two weeks, when students participate in hands-on projects and establish coaching relationships with professionals from area businesses. An emphasis on fostering young women’s interest in STEM is supported by encouraging them to work together on activities. Prior to engaging with the trailers, teachers are provided training and instruction regarding project activities.

Original plans for the project involved 11 schools in the first year, including Burwell, Centura, Cozad, Gibbon, Grand Island, Kearney, Lexington, Northwest, Pleasanton, Riverside and SEM public schools. MNM was launched at six of the 11 schools between January 13, 2020, and March 17, 2020. Following March, the project was postponed due to the COVID-19 pandemic. However, at least 1,179 7th and 8th grade students were able to access MNM’s trailers and activities during their two months of operation.

Orthman Manufacturing has shared that, given the positive impacts experienced, it is unfortunate all 11 schools did not have access to MNM. They relayed a story, for example, about a challenge posed to Riverside students to create a 3D-printed mount for an RVR robot, which would pull a toy grain cart programmatically through a field. The students created a plan, then worked with local businesses on the challenge; using multiple MNM Lab resources, they created the printed model that could then be used to build the robot.

During the early stages of the pandemic, Orthman received a request to use some of the technologies in its MNM trailers to produce personal protective equipment (such as face shields, masks, etc.). This request was granted, and face shields for area medical staff were produced using supplies donated by area schools.

In the future, Orthman plans to ask students to record presentations featuring skills they developed or projects they completed while the trailer was at their school. These presentations will be reviewed to select recipients of the “Orthman Excellence Awards.” The awards will be presented at a capstone event in which students will be invited to tour

Central Community College's mechatronics program and learn about post-secondary opportunities in STEM and the manufacturing sciences.

Reinke Manufacturing (Deshler); \$22,000:

The DYTI project implemented by Reinke will feature a mobile trailer to facilitate hands-on engagements, giving 7th and 8th grade students from 10 area schools across three counties the opportunity to raise their levels of career awareness, especially within manufacturing and STEM base careers. The 10 impacted schools will include Beatrice, Southern, Freeman, Tri County, Diller-Odell, Meridian, Fairbury, Thayer Central, Deshler and Bruning-Davenport public schools.

The trailer will give students an opportunity to explore equipment, which does not exist in their schools, connected to high-demand occupations. One of the central components of the project involves fostering communication and connectivity between schools and local employers, including a consortium of 27 area businesses. A dedicated staff member will develop hands-on curriculum, train the teachers, instruct both teachers and students on the use of equipment, and organize and maintain said equipment.

Between July 1, 2019, and June 30, 2020, Reinke purchased an augmented reality welder to be included in the mobile trailer. This will allow Reinke and partners to give younger students the opportunity to explore welding as a career choice. The machine can also be utilized to help beginning welders learn technique, including travel speed, travel angle, work angle, body position and contact to work distance. The Miller AugmentedArc welder can perform multiple weld processes including Flux Cored (FCAW), MIG (GMAW), TIG (GTAW) and Stick (SMAW).

Successes of the project to date has included its dedicated instructor attended a welding class taught by Reinke at Southeast Community College; that instructor is now certified in welding. Reinke has also met with the Miller Welding Education Department to learn about its online curriculum and determine how it can best be applied in schools. Reinke and partners have developed an additional partnership with Matheson Gas to assist with the project. Unfortunately, Reinke did not receive the augmented reality welder until late March, 2020, after schools were shut down due to COVID-19. Additionally, summer programs were cancelled. Therefore, students have not yet utilized the welder equipment. Reinke's contract extends through June 30, 2021, and the implementation and evaluation teams will be measuring project impact throughout the upcoming school year.

Vistabeam (Gering); \$103,000:

The DYTI project implemented by Vistabeam will create an intentional, targeted IT career program at Gering Jr. High School through a new IT and STEM lab environment that will expose students to hands-on learning and career exploration in IT and STEM. Equipment includes innovative educational resources such as LEGO Education and

VEX Robotics classroom kits. The curriculum will focus on the development of critical, innovative and creative thinking skills.

The project will also feature programming involving guest speakers, student field trips/tours and week-long teacher externships at Vistabeam. Project goals include an increase in the number of students who ultimately pursue careers in IT and STEM related occupations; growth in the participation of women and minorities in IT and STEM fields in the region; an increase in IT and STEM literacy among all students, including those who do not pursue IT or STEM related careers; and, ultimately, an expansion of the IT workforce at Vistabeam Internet.

Prior to the project's postponement due to the COVID-19 pandemic, 200 students spent approximately two hours on field trips to Vistabeam to tour the office and tower site. Students were able to see and experience the range of operations at Vistabeam. Vistabeam's Chief Operations Officer and Gering Jr. High's STEM teacher collaborated on curriculum development, which will hopefully be implemented as students return to in-classroom learning.