Form Name:	Noble County READI Proposal
Submission Time:	July 13, 2021 4:07 pm
Browser:	unknown / unknown
IP Address:	64.184.117.153
Unique ID:	835121850
Location:	41.359199523926, -85.43049621582

Noble County READI Proposal

Project or Program Contact Information

Project/Program Name	Industry 4.0 Robotics and Smart Factory Lab
Project/Program Contact	Gary Gatman
Project/Program Contact Email	gary@noblecountyedc.com
Project/Program Contact Phone	(260) 399-0671
Relationship to Project/Program	Convener/partner in the Industry 4.0 initiative

Project or Program Location

Address	Community Learning Center (CLC) 401 E. Diamond Street Kendallville, IN 46755
County	Noble

Project or Program Details

What type of project/program?	Both
What is the duration of the project/program?	Capital portion of the project completed by July 2022. Programming continues annually thereafter.
Is this a hybrid project and program?	Yes
Select project/program focus areas. (You can select multiple)	Grow the Workforce

Share a description of the project/program.

Industry 4.0 - the fourth industrial revolution - is the digital automation of traditional manufacturing and industrial practices, using modern smart technology. At its core, Industry 4.0 is a digitally connected manufacturing environment that will require workers to have both technical skills related to a specific job or process (welding or machining) and advanced technology skills that range from basic spreadsheets to advanced skills such as robotic programming and monitoring. Having an Industry 4.0 program is essential to the growth and prosperity of Noble County and the northern tier of the northeast Indiana region. Data in Noble County highlights the urgency to create this Industry 4.0 learning lab. With 122 manufacturers in Noble County, 40% of all Noble County jobs are in manufacturing, giving the county the 4th highest concentration of manufacturing jobs in the nation. And local manufacturers are increasingly implementing Industry 4.0 technologies to automate specific manufacturing processes. Thus far in 2021, Noble County manufacturers have invested roughly $20 million in new equipment and space to support advanced manufacturing processes. With this investment, the need for workers with more advanced skills is increasing.

The Community Learning Center (CLC), in Kendallville, is uniquely located to serve a 5-6 county area in Northeast Indiana through a new Industry 4.0 robotics and automation learning lab. This Industry 4.0 learning lab is being set up to serve high school students through the Impact Institute CTE program and adult learners through Freedom Academy. These two organizations bring a level of stability to this program and allow for access to students/learners from the five-county area already served by these two organizations. With the EDC as a partner, this will open doors even further to incumbent worker training opportunities. The CLC will be the convening local space for all of these partners, and this is where the lab and associated classrooms will be created to accommodate these talent development programs. Equipment has been identified for the lab and will include FANUC robotics, Amatrol smart factory mechatronics training carts, smart sensors, RFID product identification equipment, ethernet network communications equipment, and a range of digital technologies that are found in most Industry 4.0 processes.

Why is this project/program regionally significant?

Although the project will be housed in Noble County, manufacturers in multiple counties will benefit since Freedom Academy and the Impact Institute both serve students/learners in a five-county area. Moreover, the Industry 4.0 talent pipeline that will come from this learning lab will generate a higher skilled workforce that is prepared to meet the challenges of modern-day smart manufacturing. This will benefit the region as these workers will certainly commute across county lines and be retained to live/work/play in all parts of northeast Indiana.

How does this project/program relate to the identified focus area(s)?	To meet the workforce needs of advanced manufacturers, Noble County must grow its workforce both in terms of its size and its skill level. Other efforts are being undertaken to grow the size of the workforce (such as expanded housing developments). However, the Industry 4.0 learning lab is the signature component of the county's strategy to grow the workforce in terms of skills. With over 400 manufacturing jobs open in Noble County as of this submission, the county must create a talent development system to upskill and retain existing workers and teach the next generation of workers the skills required by 21st century manufacturers. To do anything else would place at risk the largest and highest paying employment sector in the county.
What is the project/program timeline?	The capital portion of the project will be completed no later than July of 2022. The partners have worked extensively on this aspect of the project and have an itemized list of equipment required to properly equip the Industry 4.0 learning lab. This equipment has been identified through a combination of site visits to similar programs, discussions with local manufacturers, and discussions with equipment vendors. Because the specific equipment needs of this effort are already known, if funded through READI Indiana, all capital equipment purchases could be made almost immediately. The program portion of the project will launch in the spring/summer of 2022 and continue on an annual basis thereafter. The expectation is that Freedom Academy will run 4-6 Industry 4.0 classes per year with adult learners and the Impact Institute will serve CTE students from the 13 school systems it supports.
List the partners involved in this project/program.	Partners include the Community Learning Center in Kendallville (the CLC) which is where the Industry 4.0 learning lab will be housed. Importantly, the CLC will also own the equipment so that it may be used for additional purposes going forward (such as offering summer robotics camps to middle school students to create experiential career awareness opportunities for these youth). Freedom Academy and the Impact Institute are also partnering and will coordinate actual instructional activities for adult and high school students. The Dekko Foundation is a key partner through the extensive support they provide to both the CLC and Freedom Academy and have been at the table since the first meeting on this effort. And the EDC is a key partner as it brings industry to the table. Of note, conversations have occurred with the Don Wood Foundation about this project/program and there appears to be considerable interest at that foundation to also be a partner going forward.

Project or Program Finances

Upload a file with project/program finances.	https://www.formstack.com/admin/download/file/10972985485

What is the sustainability of the project/program? Share your 3-year plan.	While this project starts with an investment in capital equipment, sustainability revolves around the continued utilization of the equipment that is to be purchased. Both Freedom Academy and the Impact Institute (CTE program) have long histories of training students and will bring that experience to this effort. The Impact Institute, for instance, provides CTE programming to students from 13 school corporations across the northern third of the northeast Indiana region and has long-standing referral processes with each of these school corporations. Similarly, Freedom Academy has worked with manufacturers across multiple counties and will bring these relationships to the Industry 4.0 learning lab. In addition, the EDC has been working and talking with manufacturers across Noble County who have consistently been expressing needs for this kind of talent development capacity. The EDC will aggressively work to connect these manufacturers to Industry 4.0 training opportunities when available. With all three of these organizations working collaboratively in support of the Industry 4.0 learning lab, there is a high level of confidence that the learning lab will see significant utilization.

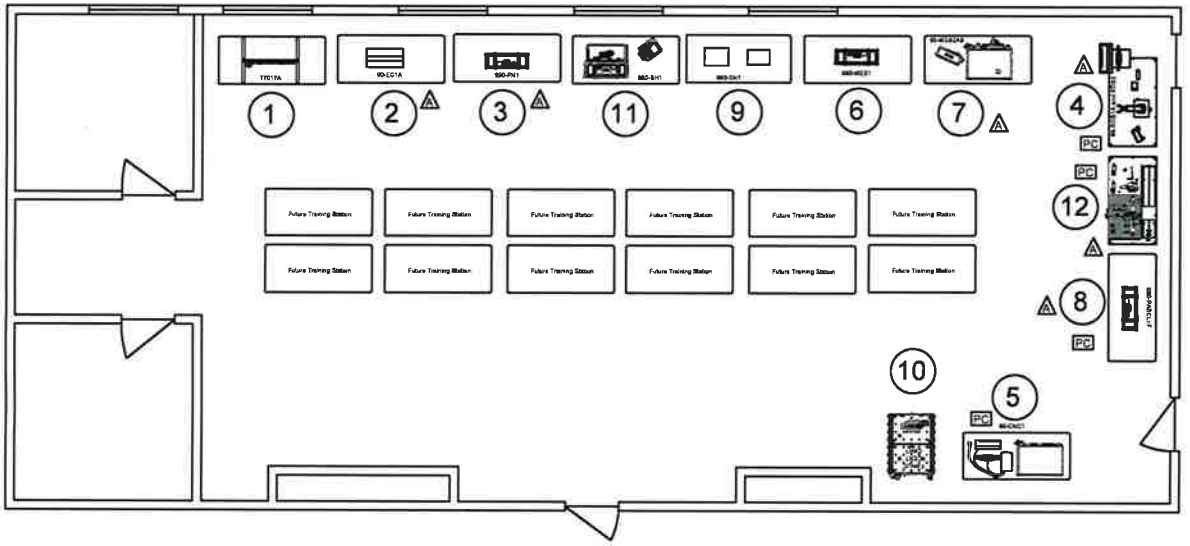
Describe the return on investment for this project/program.	The return on investment for this effort will revolve around 2 key metrics: Metric #1: With the Industry 4.0 learning lab in place, 40-50 adult learners and 25-40 CTE students will be instructed in critical Industry 4.0 skills each year. Over the next decade, then, the lab will have the capacity to teach Industry 4.0 skills to a minimum of 650 and a maximum of 900 individuals. This will have a significant impact on the manufacturing sector in Noble County (and the surrounding counties) which will have, for the first time, a pipeline of workers with advanced Industry 4.0 skills. Related to this, the Industry 4.0 learning lab will partner with The Smart Automation Certification Alliance (SACA), iCert4.0 and/or other organizations that develop and manage Industry 4.0 micro-certifications for a wide range of industries. As such, the learning lab will produce graduates with a documented mastery of key Industry 4.0 skill sets. Metric #2: Because Industry 4.0 and smart manufacturing jobs pay higher wages, the individuals completing these talent development activities will be positioned to earn higher wages and improve their standard of living. Early discussions with manufacturers in the county suggest that wages for Industry 4.0 related occupations pay $4-$8/hour more than more traditional manufacturing jobs. Beyond these metrics, other outcomes from this investment will include: (1) with Industry 4.0 skills in the workforce, Noble County and the region will be better positioned and have greater opportunities to attract expansions and additions to our manufacturing sector, (2) talent retention efforts will be significantly enhanced as workers become equipped with modern day manufacturing skills and earn higher wages, and (3) with high school students being trained on Industry 4.0 skills on an annual basis, the effort is essentially ensuring a pipeline of young talent to meet the future needs of advanced manufacturers in the county.

Project or Program Assets

Share an image of the project/program. (Option 1)	https://www.formstack.com/admin/download/file/10972985488
Share an image of the project/program. (Option 2)	https://www.formstack.com/admin/download/file/10972985489
Share an image of the project/program. (Option 3)	https://www.formstack.com/admin/download/file/10972985490

FREEDOM ACADEMY - Room 100
Industry 4.0 Lab - Courses 1-4

65' 0"



27' 6"

PC DEDICATED PC

⚠ CLEAN / DRY COMPRESSED AIR (SEE REQUIRED)

Approx. 1788 SF Lab

PC NOTE: Need 6) PC's to run the Pegasus Simulation Software (14554-HS)

ITEM	ITEM	QTY	REQUIREMENTS
1	T7017A w/ 82-610	1	AC/DC ELECTRICAL (NEMA 5-15P, 120 VAC , 2 AMP, 60Hz, SINGLE PHASE)
2	90-EC1 w/ 82-610	1	ELECTRIC RELAY CONTROL (NEMA 5-15P, 120 VAC , 2 AMP, 60Hz, SINGLE PHASE)(<1 CFM @ 100 psig)
3	990-PN1 w/ 82-610	1	PORTABLE PNEUMATICS (2 CFM @ 100 psig)
4	96-ROB1A and 2A	1	ROBOTICS SYSTEMS 1 & 2 (NEMA 5-15P, 120 VAC, 6 AMPs , 60Hz , SINGLE PHASE) (1 CFM @ 100 psig)
5	96-CNC1D	1	CNC MACHINES 1 (NEMA 5-15P, 120 VAC, 10 AMPS, 60Hz, SINGLE PHASE)
6	990-ME51 w/ 82-610	1	PORTABLE MEASUREMENT SYSTEMS
7	95-MS82AB w/ 82-610	1	SKILL BOSS SMART FACTORY (NEMA 5-15P, 120 VAC, 2 AMPs , 60Hz , SINGLE PHASE) (2 CFM @ 100 psig)
8	990-PABCL1F w/ 82-610	1	PORTABLE ALLEN BRADLEY PLC (NEMA 5-15P, 120 VAC , 2 AMP, 60Hz, SINGLE PHASE) (1 CFM @ 100 psig)
9	990-SN1 w/ 82-610	1	PORTABLE ELECTRIC SENSORS (NEMA 5-15P, 120 VAC , 1 AMP, 60Hz, SINGLE PHASE)
10	FANUC - CERT CART	1	FANUC CERTIFICATION CART (SEE ATTACHED)
11	990-BH1 w/ 82-610	1	PORTABLE HYDRAULICS (NEMA 5-15P, 120 VAC , 6 AMP, 60Hz, SINGLE PHASE)
12	TABLETOP MECHATRONICS - SMART FACTORY	1	TTM SMART FACTORY w/ 88-200-3 (NEMA 5-15P, 120 VAC, 8 AMPs , 60Hz , SINGLE PHASE) (5 CFM @ 100 psig)

AMATROL

MS

SCALE	DATE	DRAWN BY
1/16" = 1'	2/20/20	

Industry 4.0

The Future of Workforce Training

Industry 4.0 Defined

Industry 4.0 - the fourth industrial revolution - is the digital automation of traditional manufacturing and industrial practices, using modern smart technology. At its core, Industry 4.0 is a digitally connected manufacturing environment where machines create and share information to increase productivity and efficiency. Components of Industry 4.0 include:

- Optimized logistics and supply chains
- Autonomous equipment and vehicles
- Robots and Cobots
- Additive manufacturing (3D printing)

Industry 4.0 Defined

A key component of Industry 4.0 is the Industrial Internet of Things (IIoT) - a network of connected equipment and devices that store and exchange information through the cloud. Growing uses include:

- location tracking
- Real-time optimization of production processes and operations (machine learning)
- predictive maintenance on equipment
- energy management
- autonomous manufacturing

Workforce Implications

An Industry 4.0 workplace will require workers to apply a combination of skills:

Technical skills related to a specific job or process, such as welding components or changing tools on machines

IT skills that range from basic spreadsheets and accessing interfaces to advanced skills such as programming and analytical skills.

Implications for Noble County

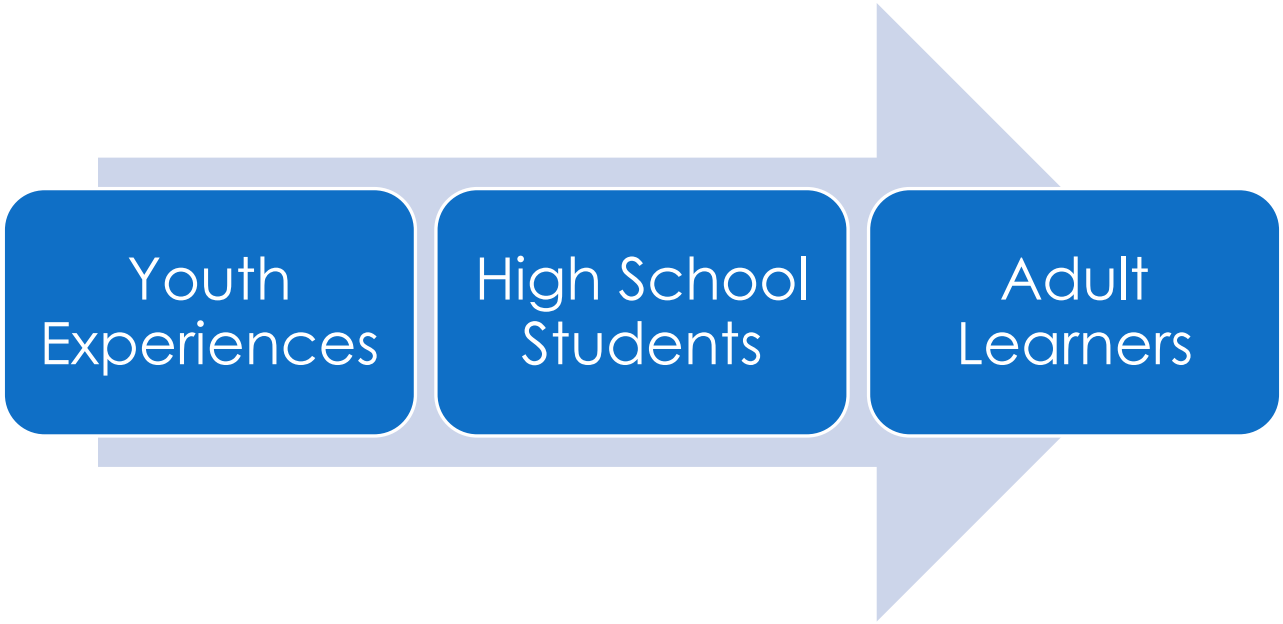
Noble County is home to 122 manufacturing operations	Nearly 10,000 individuals in Noble County work in the manufacturing sector	Average annual earnings for manufacturing workers is approaching $50,000

The Imperative

To support our critical manufacturing sector and ensure a thriving economy, Noble County must develop an Industry 4.0 talent development system for youth and adults. Noble County must be capable of addressing future manufacturing workforce needs.

The Vision

Build an Industry 4.0 talent development system in Noble County



Partners include the EDC, Impact Institute, Freedom Academy, Dekko Foundation, the Community Learning Center and others.

The Plan

- Design and equip a workforce program that teaches critical Industry 4.0 skills – mechatronics, industrial control systems, industrial robot operations and programming, and the Industrial Internet of Things
- Identify space and renovation needs at the CLC to house program
- Seek industry input on curriculum/equipment needs
- Build a farm system – create robotics camps, clubs, activities to engage/inspire young learners

The Plan

- Partner with The Smart Automation Certification Alliance (SACA) or iCert4.0 - organizations that develop and manage Industry 4.0 micro-certifications for a wide range of industries.
- Develop strategies and identify opportunities to secure funding


What is Industry 4.0?
Big Data and Analytics
Autonomous Robots
Simulation
Horizontal and Vertical System Integration
Industrial Internet of Things (IIoT)
Cybersecurity
The Cloud
Additive Manufacturing
Augmented Reality

Industry 4.0 Robotics and Smart Factory Lab

Project Cost/Budget – Construction Projects (if applicable)

Description		Cost – Fiscal Year 2021	Cost – Fiscal Year 2022	Cost – Fiscal Year 2023	Cost – Fiscal Year 2024	Totals Per Category	% of Total Expense
Acquisition/Rights-of-Way Expense		$ -	$ -	$ -	$ -	$ -	#DIV/0!
Design/Inspection Expense		$ -	$ -	$ -	$ -	$ -	#DIV/0!
Legal/Financial Expense		$ -	$ -	$ -	$ -	$ -	#DIV/0!
Infrastructure Construction Cost		$ -	$ -	$ -	$ -	$ -	#DIV/0!
Building Construction Cost		$ -	$ -	$ -	$ -	$ -	#DIV/0!
Other Construction Costs		$ -	$ -	$ -	$ -	$ -	#DIV/0!
Project Construction Expenses Totals per year		**$ -**	**$ -**	**$ -**	**$ -**		
Total Construction Expenses Project Cost (all fiscal years)		**$**			**-**		

Project Cost/Budget – Programs (if applicable)

Description		Cost – Fiscal Year 2021	Cost – Fiscal Year 2022	Cost – Fiscal Year 2023	Cost – Fiscal Year 2024	Totals Per Category	% of Total Expense
Remodel of Space- Renovate 1915 1st Floor at CLC to house Industry 4.0 lab	Renovate 1915 1st Floor at CLC to house Industry 4.0 lab	$ 250,000	$ 118,143	$ -	$ -	$ 368,143	32%
Furnishings			$ 13,000	$ -	$ -	$ 13,000	1%
Equipment- Itemized list including Smart Factory tables,	Itemized list including Smart Factory tables, FANUC		$ 775,300		$ -	$ 775,300	67%
		$ -	$ -	$ -	$ -	$ -	0%
Project Program Expense Totals per year		**$ 250,000**	**$ 906,443**	**$ -**	**$ -**		
Total Program Expenses Project Cost (all fiscal years)		**$**			**1,156,443**		

Funding Source

Description		Cost – Fiscal Year 2021	Cost – Fiscal Year 2022	Cost – Fiscal Year 2023	Cost – Fiscal Year 2024	Totals Per Category	% of Total Expense
READI Funds $	READI Indiana		$ 232,700	$ -	$ -	$ 232,700	20%
Private/Philanthropic Funds $ - LOI submitted to Don Wood	LOI submitted to Don Wood Foundation, Dekko	$ 250,000	$ 573,743	$ -	$ -	$ 823,743	71%
Local Government Funds $			$ 100,000	$ -	$ -	$ 100,000	9%
Project Income Totals per year		**$ 250,000**	**$ 906,443**	**$ -**	**$ -**	**$ 1,156,443**	
Total Project Income (all fiscal years)		**$**			**1,156,443.00**		
Total Project Cost (all fiscal years; Construction Expenses + Program Expenses)		**$**			**1,156,443.00**		