BGSU

The College of Technology Architecture and Applied Engineering

February
2019

⊞ SHP

Participants

BGSU

Jennie Gallimore	Dean of College of Technology, Architecture and Applied Engineering
Kip McDowell	Assistant Director of Labs and Facilities
MD Sarder	Chair of Department of Engineering Technologies
Mikhail Shilov	Instructor, Program Coordinator Engineering Technology
Laney Fugett	Senior Lecturer, Department of Visual Communication and Technology Education
Arsenio Rodrigues	Director of School of the Built Environment
Pam Keppler	Sr. Secretary, Department of Construction Management

SHP

Jeff Parker	Director of Visioning
Brady Mick	Director of Strategic Design
Mary Lee Schott	Director of Higher Education, Interior Design

Project Vision Statement

The BGSU The College of Technology Architecture and Applied Engineering (CTAAE) visioning team envisions the future as follows:

DRIVING GROWTH in the CTAAE will be ignited when students see the connectivity between their **REAL WORLD EXPERIENCE** and the concepts and theories that **FOSTER INNOVATION**.

Building a new level of **COMMUNITY** within the building will immerse students in their natural **DRIVE, ENERGY and CURIOSITY** and explore meaning by engaging in the deep **EXPERTISE** of the faculty.

While the building design is **ADAPTABLE and INTEGRATED** with today's tools and technologies of learning, the design will anticipate **INTERCHANGEABILITY and MODULARITY** in preparing for future dynamic, entrepreneurial and creative technologies.

ACTIVE LEARNING will accentuate the critical thinking, soft skills, and life-long learning behaviors that industry and work requires.

Cultural Change

CTAAE will succeed in cultural change by:

- Being a dynamic, entrepreneurial and creative place to teach and learn
- Emphasizing the importance of being on the leading edge
- Promoting leaders as mentors who are good coordinators and organizers
- Focusing on attracting the best faculty and students

The Design in Supporting the Future

CTAAE building will drive new teaching and learning results defined as being:

Non-Linear

Curiosity-Driven

Self-Guided

Just In Time

Online Actuated

Lab Actuated

Collaborative

Gamified

Virtually-Connected

The design team will be informed by all of these parameters to achieve the best possible future results.

An Outline of the Visioning Process

The world is changing. The way we live, work and learn is being profoundly impacted by the technology we create and use. The information revolution is over, as we carry in our pockets information that is freely and readily available at our finger tips. Learning is evolving with these changes, but it is probable that the environments designed for the present will no longer meet the needs of the future.

Visioning is a point in the design process to ask future thinking questions, and to explore the potential value of incorporating some of the resulting answers into the design process.

On January 15 and 16, 2019, seven representatives of the College of Technology participated in 6 hours of visioning. SHP brought to the team questions and tools of engagement designed to provoke ideas, possibilities, and personal insights among the team members.

The goals of the renovation for the CTAAE are deep and varied. When considering a vision for the future the first determination is, "How far into the future?" The change impact of this projection of time is immense. For we who are considering the future, it is likely that we personally may not experience the fullest impact of the design results when that future arrives.

Visioning is a process intent on forgoing our limitations today, in order to explore open ended possibilities and designs appropriate for those who follow us.

What follows in the document is a synopsis of the experience, discussions and results of the visioning session. It is our intent at SHP to creatively utilize the vision results in the design process. The vision will balance with the resources available, including time, budget and existing conditions. We believe that design is a critical component of your ability as current and future faculty, administrators, and students, in fulfilling the mission of the school to "Make Makers."

The way we live, work and learn is being profoundly impacted by the technology we create and use.

Visioning Session Exercises

Projected Life of the Design	Participants were asked to identify the number of years the building should function. The average was 34 years.
Biggest Challenges	Participants each identified the two most prevalent current challenges. All were collected, discussed and sorted into key categories.
Cultural Exercise	Participants completed a competing values cultural assessment tool. The results were mapped and analyzed during the session.
Teaching & Learning Today & Tomorrow	Participants recorded their top three changes between how curriculum is delivered today versus the future. All were collected, discussed and sorted into key categories.
Top Design Drivers	The results of the above exercises were compiled into a list of key ideas and definitions to be used in the design process. This list was compiled into a single written vision statement.
Traits & Characteristics of Future Workers	Participants were asked to identify the traits and characteristics industries need from future graduates. All were collected, discussed and sorted into key categories.
Image Exercise	Participants were provided identical decks of inspirational images, and were asked to identify an image that best represented each of the design drivers. Their selected images were mounted to a worksheet and were displayed together so common themes could be discussed.

*It is our intent at SHP to creatively utilize the visioning results in the design process.*

Table of Contents

Work needs workers who are maturely able to synthesize results in a complex integration of people in relationship with their technologies.

CTAAE is intending to grow from the current successes in teaching doers, into a college delivering deep learning in Making Makers. Making Makers encompasses an ideal of exceeding the rote and response education of training alone, to a non-linear pursuit of teaching students how to become future workers producing results based on the soft skills of people in an integrated reality using their technology.

Both skill and knowledge are essential to produce actions that create economic value. Many schools are focused on one or the other. What corporate and industry organizations require are those people who can use skills AND intellectual knowledge in tandem.
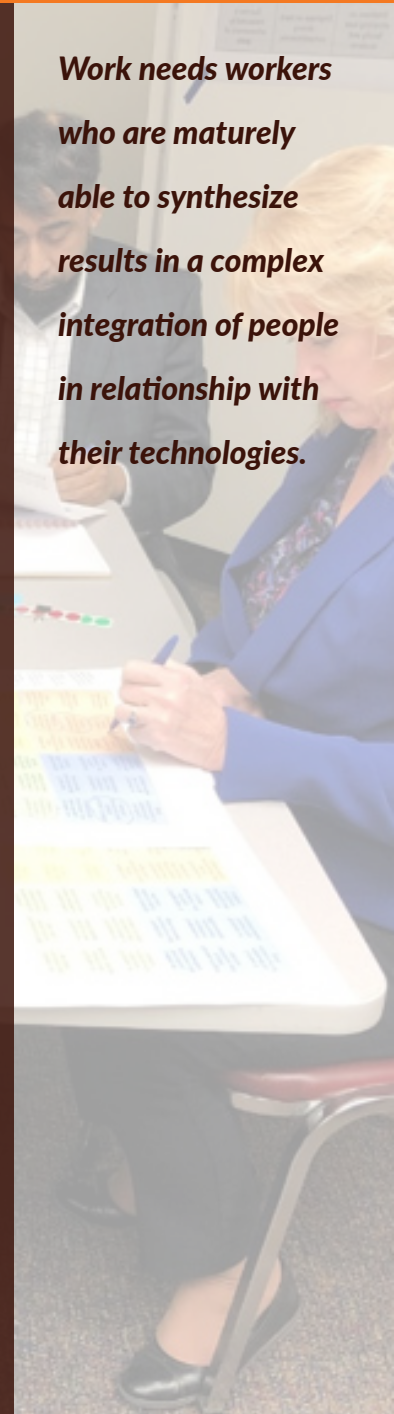
Making Makers: Essay

Making Makers is the ultimate pursuit of teaching lifelong learning through high degrees of intrinsic curiosity, critical intelligence, and interpersonal cognition.

Work needs workers who are maturely able to synthesize results in a complex integration of people in relationship with their technologies. So much of the current thinking on the work of the future is focused on training technologist for technology. Simultaneously, there is constant noise in social media regarding artificial intelligence, machine learning, and virtual reality replacing the value of people working.

Futurist Brian David Johnson projects that automation will reduce worker skills to three distinct categories: "Thinkers" will solve the problems and design the future of technology, defining the tools and processes that drive work and industry; "Doers" will manipulate technologies to produce results, replacing those who perform physical labor; and "Fixers" will keep the systems in operation, but are currently on a path toward being replaced by additional automation of "technology designed to fix technology".

While it seems that these three categories will remain separate, the truth is that the most valuable workers will integrate all three aspects of work with technology- along with two human core characteristics that computers and technology are not likely ever to replace from humans: emotional intelligence and cognitive synthesis.

The binary language of '1s' and '0s' will be incapable of producing results in a level of complexity that people can produce. Only people are able to anticipate the creative emergence of solutions to problems that cannot be predicted based on past results. Only people can actively integrate the social dynamics required in teamwork to agilely adapt to an ever changing context of work.

The vision for CTAAE is intent on preparing learners for a world of work that will thrive on increased interpersonal skill required to engage in the natural development of high performing teams. BGSU College of Technology vision includes the need for critical thinking in the synthesis of understanding and using complex systems for the expansion of future productivity to create business value. Making Makers is the ultimate pursuit of teaching lifelong learning through high degrees of intrinsic curiosity, critical intelligence, and interpersonal cognition.

The Vision Statement

The visioning team provided insights from their combined experience, insights and creative thinking to define the need for the CTAAE redesign.

DRIVING GROWTH in the CTAAE is ignited when students see the connectivity between their **REAL WORLD EXPERIENCE** and the concepts and theories that **FOSTER INNOVATION**.

By building a new level of **COMMUNITY** within the building, students will immerse in their natural **DRIVE, ENERGY, and CURIOSITY**, and explore meaning by engaging in the deep **EXPERTISE** of the faculty.

While the building design is **ADAPTABLE and INTEGRATED** with today's tools and technologies of learning, the design will anticipate **INTERCHANGEABILITY and MODULARITY** in preparing for future dynamic, entrepreneurial and creative technologies.

ACTIVE LEARNING will accentuate the critical thinking, soft skills, and life-long learning behaviors that industry and work requires.

The vision statement incorporates many aspects of the college's future. The vision is designed to concisely extract the words that best describe the business, the people, the context and the environments of the future college. When combined, each of these design drivers are intended to set a new context that, when acted upon in design, will transform the college today into a form that has higher value in the future.
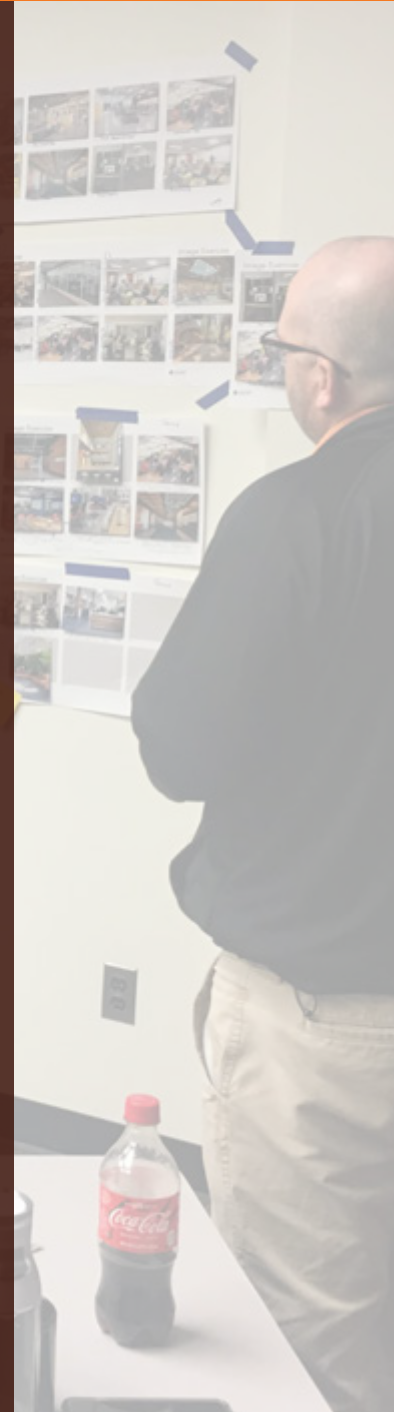
The vision is designed to concisely extract the words that best describe the business, the people, and context and the environments of the future college.
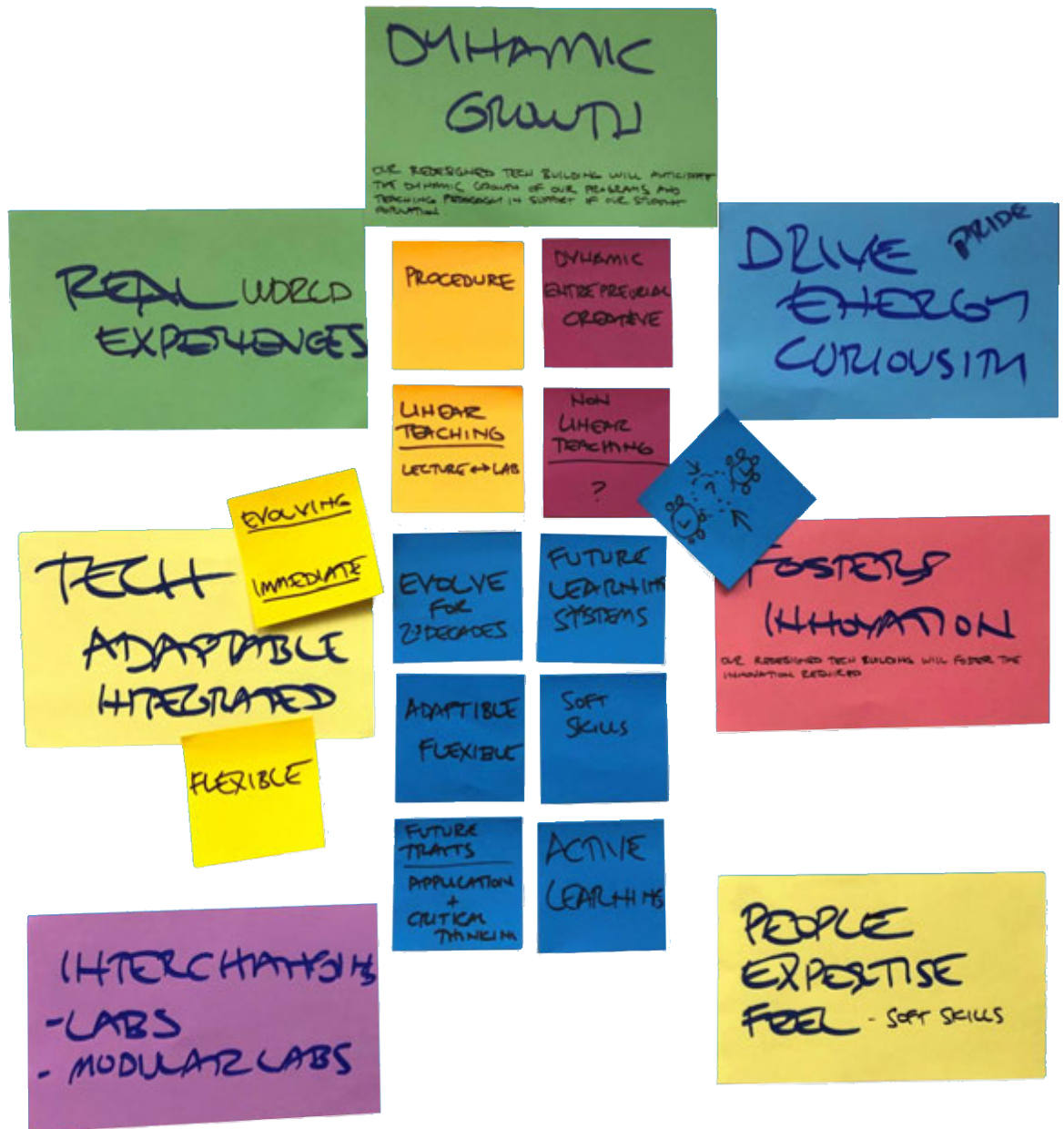
Design Drivers

Within the vision statement are words and phrases that communicate the key ideas required to drive design decisions. Each of these design drivers will be used to measure all design decisions and align with schedule, budget and the potential behavioral change of the current building occupants.

The following list and definitions of each of these eight design drivers intend to add value to the graphic representation of the vision, and eventually to the design. Our goal is to show how and where the following design drivers of the project are being fulfilled within the development of the design.

- **Dynamic Growth:** It is the intent of the college to grow within the university. The growth potential of the building should be analyzed throughout the development of the design.

- **Real World Experiences:** It is the intent of the college to 'Make the Makers' of the future in technology industries. The building should respond to real world experience in both the labs, by the equipment provided for hands-on use, and the curriculum developed for critical thinking.

- **Fosters Innovation:** Since knowledge for knowledge's sake is now integrated into individual learning via our technology, the design should accentuate student and faculty interaction through active participation and collaboration.

- **People Expertise:** A goal of the design is to enable heightened interactions between people in order to share and build expertise. The learner interaction should be accentuated in the configuration of the design.

Each of these design drivers will be used as measures of success in making all design decisions that align with the functional aspects of the project.
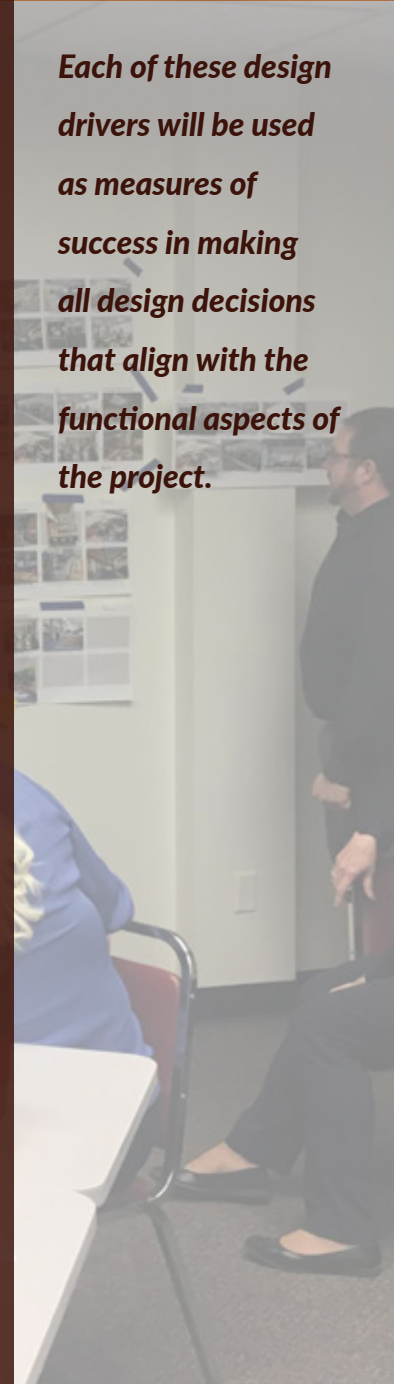
- **Drive Energy and Curiosity:** Design for visibility and exposure of the learner's process is important to connecting the departments of the college together. The goal is to cross pollinate the learning activities for students.

- **Build Community:** The future in work is less individual productivity and more team productivity and problem solving. The past attributes of individual learning in isolation should be redirected to a community based experience of new learning environments.

- **Technology Integrated & Adapted:** The tools and technologies needed today outpace the current context that the building can support. The design should be set to integrate near term technology solutions while building an infrastructure backbone that is adaptable to future, currently unknown technologies.

- **Interchangeability:** As the teaching and learning systems progress toward non-lineal approaches, the multi-function usability of the new environments are to be considered throughout the development of the design.

Teaching & Learning
Today & Tomorrow

How teaching and learning are accomplished today often does not align with future needs. Through a deeper understanding of the potential gap, the design has an opportunity to reset the physical spaces; the types of furniture and equipment; and the technology of the building. Adopting teaching and learning methods that are integrated with the vision of the college are equally as important. In the end, that shift will establish the true measure of the projects success.

The visioning team participated in a display teaching exercise based on two provoking questions:

1.   How is teaching/learning accomplished today?
2.   How should teaching/learning be accomplished in the future?

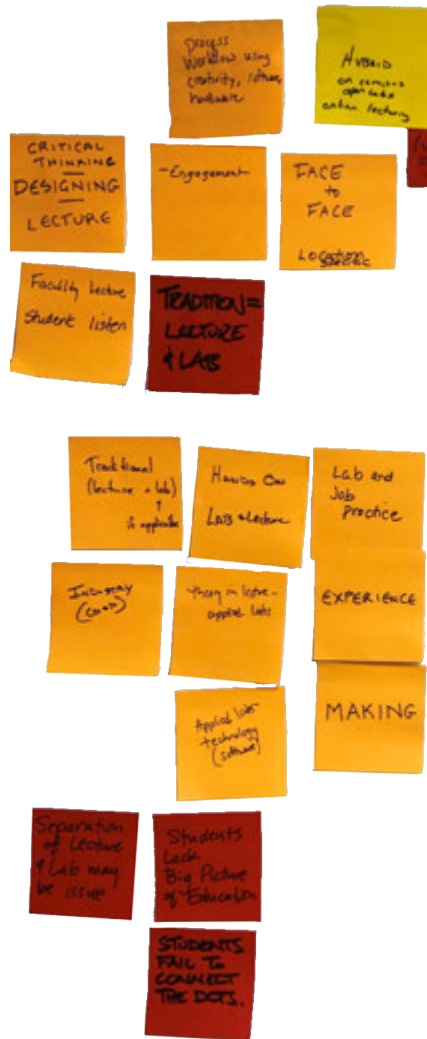Below is a synopsis of the results:

Teaching and Learning Today

Today's traditional lecture and lab learning formats often create separations that cause learners' fail to see the big picture. The linear delivery of curriculum creates learning environments of low engagement and perceived misses in relevance. Although skills are increased, understanding is limited due to the physical separation of lecture content from lab practice.

Teaching and Learning Tomorrow

A non-linear approach to teaching and learning will fill the need for new behaviors and practices designed to accentuate learning curiosity, self-guided learning and just in time learning. By accentuating efficient (online) delivery of lecture content, the lab experience will focus on actual practice. Additional learning experience will be augmented in spaces for collaboration, play, serious 'gaming' ideals and virtual connectivity.

Learning Today

Future

Learning Today (left column):

- Process Workflow using creativity, software, hardware
- HYBRID on campus open lab online lecture
- CRITICAL THINKING — DESIGNING — LECTURE
- Engagement
- FACE to FACE Logistic
- Faculty lecture Student listen
- TRADITION = LECTURE & LAB
- Traditional (lecture + lab) + ? applied
- Hands On Labs + Lecture
- Lab and Job Practice
- Industry (cost)
- theory in lecture - applied labs
- EXPERIENCE
- Applied with technology (software)
- MAKING
- Separation of Lecture & Lab may be issue
- Students Lack Big Picture of Education
- STUDENTS FAIL TO CONNECT THE DOTS.

Future (right column):

- serious gaming (virtual collaborative training)
- SERIOUS GAMING
- NON-LINEAR LEARNING to concepts (Lectures need not be repeated)
- More online
- Multimedia approaches
- DIGITAL
- Virtual technology to interact (Hands on)
- DISTANCE
- Any time Any place
- REMOTE LABS contrast Lecture
- Areas set up like industry to conduct simulations (hands on)
- Virtual Classrooms / LABS
- Collaboration spaces (student to student, faculty to faculty, student to faculty)
- Share best practices
- Collaborate Play Fun!
- 24/7 LABS
- OPEN LABS?
- INDUSTRY Partnerships University Partners
- Innovative, engaging
- TiE - it - Up Lab
- problem solving using available resources - student fun (flow)
- THINKING MAKING
- Use methods & process of critical thinking
- More clarification of objective/goals
- What if Centralized Practice
- SOFT SKILL SIDE
- SNACKS VS. FEASTS
- JUST IN TIME LEARNING

13

Image Exercise

Space drives behaviors. The qualities of the space designed, the configuration and interrelationships of the spaces function and the actions people take with the furniture, fixtures and equipment incorporated into the spaces, all affect outcomes. Design tuned to future teaching and learning behaviors identified in the vision has the responsibility to carefully prepare for the future changes in learning. Those behavioral design components that accelerate new results are of the highest value. Those that continue today's successful results are important to take to the next level of design. Those behavioral design components that impede future progress should be considered aside from the main goals of a strategic design.

The visioning participants were provided a set of inspirational imagery to relate their developing vision to real world pictures. The goal was not to relate personal preference for such attributes as color, texture, finishes and architecture. The goal was to look at the images to see the represented context, functional configurations and the actions of people in the spaces. Using the prompts of the vision statement and design drivers, each vision participant was invited to find a representative image to express each of the characteristics intended to guide the design. Of the 84 images in the deck, seven were used multiple times to express various vision attributes:

- Dynamic Growth & Real World Experiences

- Foster Innovation

- People Expertise

- Drive Energy & Curiousity

- Build Community

- Tech Integrated & Adaptable

- Interchangable

These images represent:

- **Changeable space**
- **Story telling**
- **Display**
- **Presentation**
- **Industry**
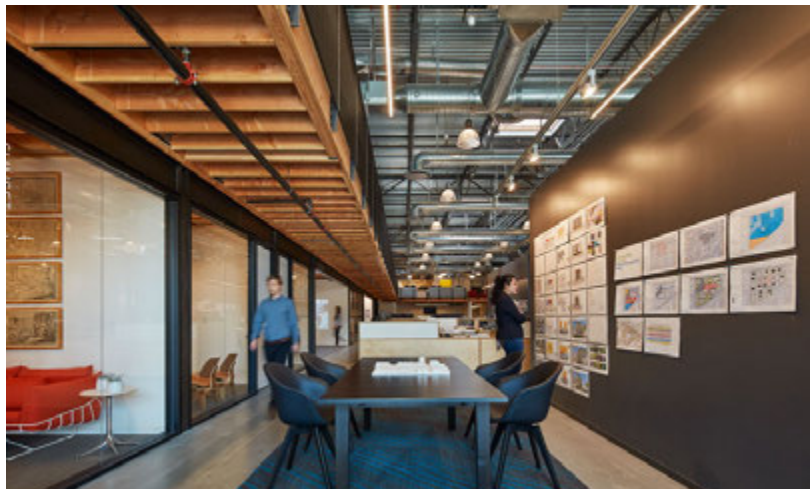
Foster Innovation

These images represent:

- **Engagement**
- **Action**
- **Multiple use**
- **Multiple function**

These images represent:

- **People interacting**
- **Soft skill**
- **development**
- **Casual**
- **Small group**
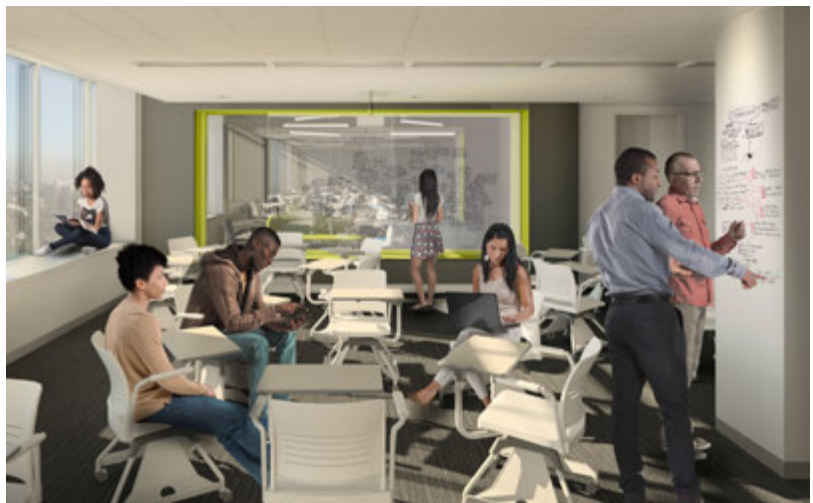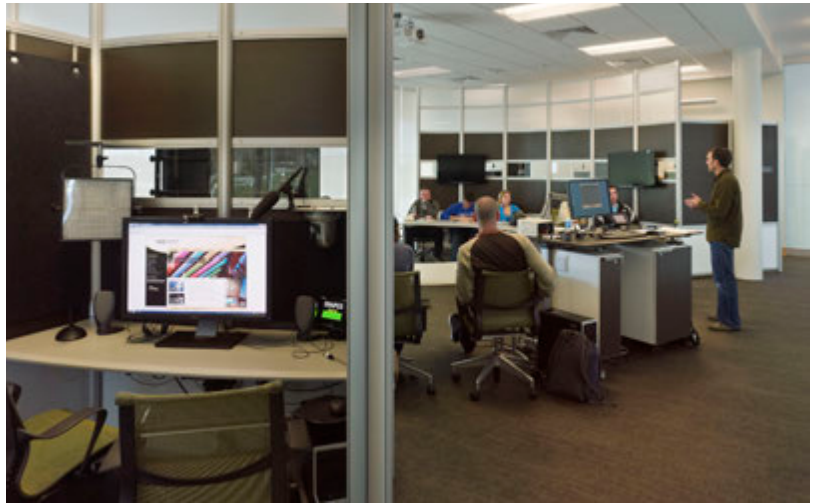
Drive Energy & Curiosity

These images represent:

- **Transparency**
- **Insight**
- **Visibility**
- **Sharing**

These images represent:

- **Shared experiences**
- **Casual**
- **Comfortable**
- **Friendly**
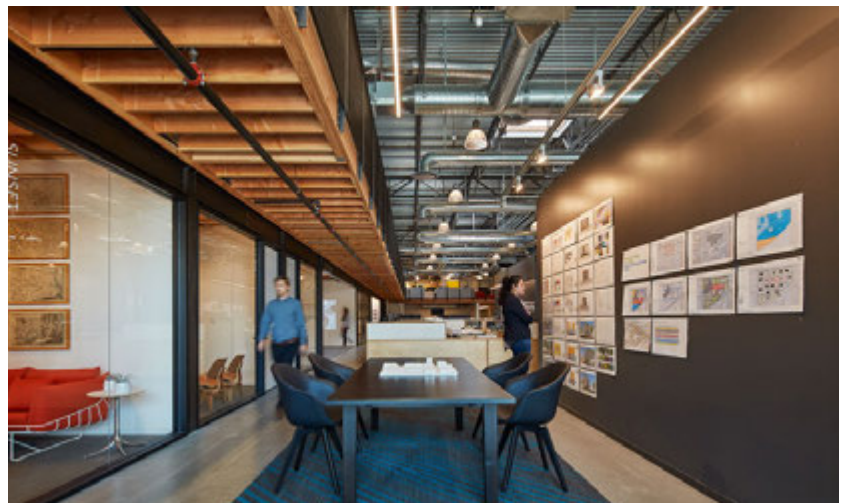
Tech Integrated & Adaptable
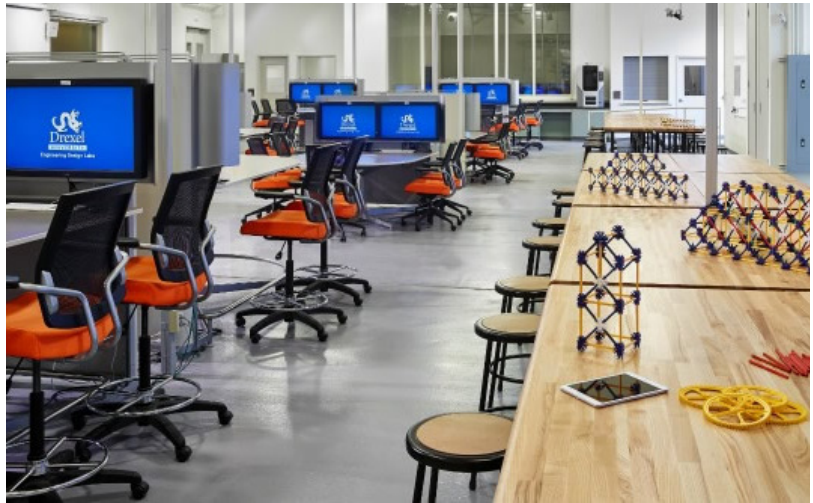

These images represent:

- **Tech ready**
- **Connected**
- **Future tech**
- **Multi-use**

These images represent:

- **Ready**
- **Cross functional**
- **Open**
- **Flexible**

What Do These Images Mean?

Based on the results of the groupings, the visioning participants require a space with the following attributes:

QUALITY LEARNING SETTINGS: Sound design principles such as bringing natural light inside, using the power of nature through color and form and bringing warmth and comfort to the finishes and furniture. The building itself should include a story that says "technology" to all.
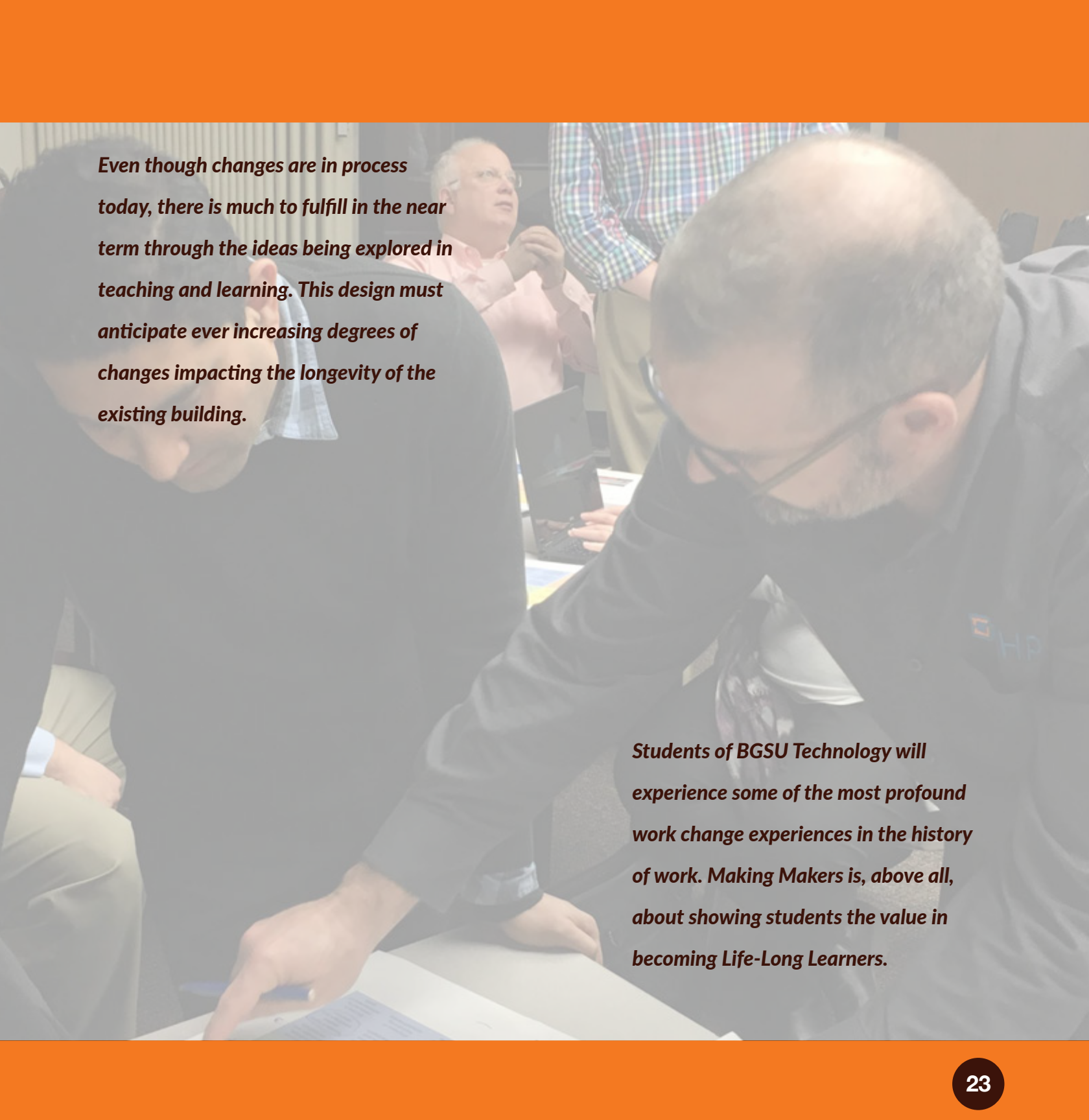
PEOPLE DYNAMICS: The design must consider the value of connected space; idea places; the exchange of information and expansion of knowledge; and the power of a community of teaching and learning.

FIXED AND AGILE SETTINGS: While past principles of space assignment and ownership will extend into the future of higher education, spaces open to serendipitous, adhoc and virtual connection will increase and add new value moving forward.

LEARNING PROCESS CHANGE: The design must anticipate the coming era of :

- Micro learning

- Distance learning

- Automated learning

Even though changes are in process today, there is much to fulfill in the near term through the ideas being explored in teaching and learning. This design must anticipate ever increasing degrees of changes impacting the longevity of the existing building.

Students of BGSU Technology will experience some of the most profound work change experiences in the history of work. Making Makers is, above all, about showing students the value in becoming Life-Long Learners.

Culture in Design

The Competing Values Cultural Assessment is designed to display a gap between today's attributes and those needed for future results. The tool is built from four diverse quadrants, each expressing difference and often competing behaviors values.

- A **HIERARCHICAL** culture is defined as a set of behaviors focused on process, procedure, rules, chains of command and sign-offs. These attributes are excellent for securing principles of operations, predictability and delivery of results

- A **MARKET** culture is defined as a set of behaviors focused on results, winning, competitiveness and overall economic gain. These are attributes that are central to dynamic growth, market penetration and timely action.

- An **INNOVATION** culture is defined as a set of behaviors focused on ideation, entrepreneurial actions, intrinsic initiative and failure as a positive action toward future results. These behaviors are vital when the solutions to past challenges are no longer good predictors for future results.

- A **COMMUNITY** culture is defined as a set of behaviors where people matter most, leaders are mentors, actions are guided by the collective good, and conflict is honored by appreciation. These are attributes that are important for social cohesion, empathy and guided participation.

CULTURE CHANGE MAP
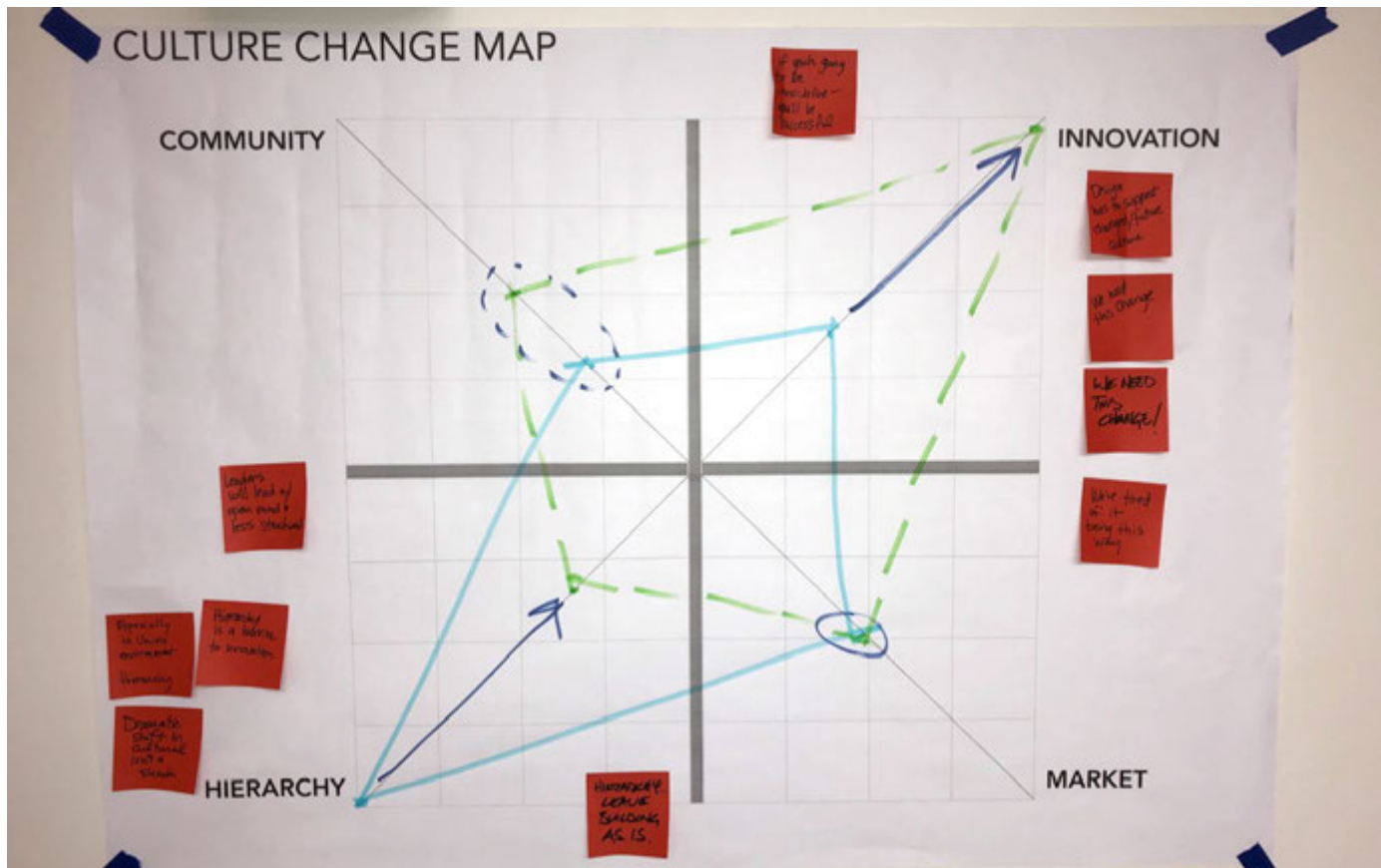
The results of the CTAAE visioning session indicate that hierarchy represents the greatest cultural attributes today. Through a repositioning of the hierarchical attributes, the team sees value in increasing the cultural innovation and community attributes. The degree of change indicated in the results would suggest a **cultural paradigm shift** is in effect.

Since culture, at its baseline, indicates the memories of how teaching and learning has occurred in the past, the degree of change between hierarchy and innovation represents a shift that will occur over multiple stages.

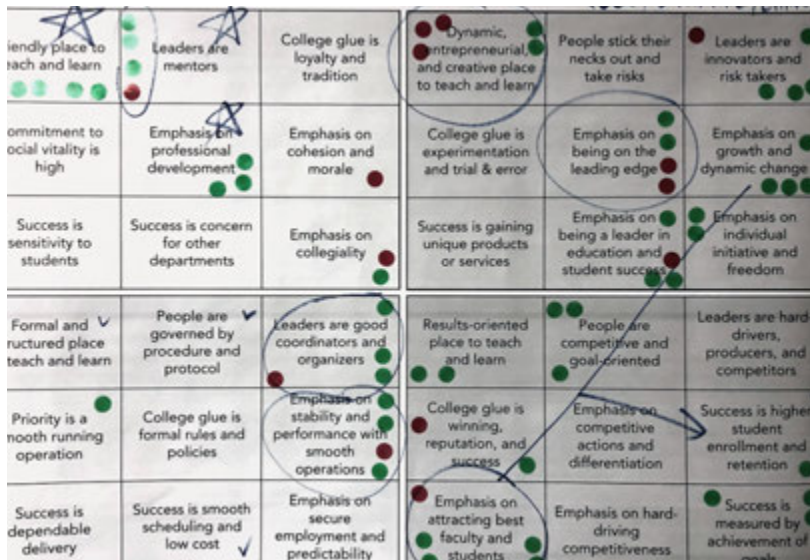Community   Innovation
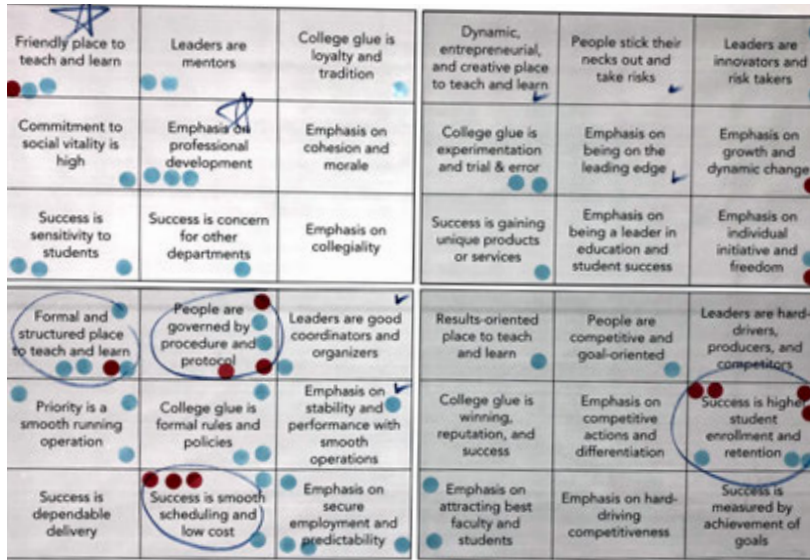
Hierarchy   Market

Culture: Current

Community   Innovation

Hierarchy   Market

Culture: Preferred

The cultural exercise creates a gap analysis between today and the future. Because session participants are given a finite number of responses (they choose 9 out the 36 boxes to represent where they believe they are today and 9 out 36 boxes to represent where they see the future), the tool must balance between the current results and the preferred results. This balance results in a change that is graphed and analyzed during the session. Below are the key cultural statements that inform what attitudes and behaviors should START, what should STOP and what the culture would benefit from KEEPing. The design will focus on creative solutions that can support the goals for cultural change.

CULTURAL CHANGE

START: We will change our college culture by increasing our future emphasis on:

- Being a dynamic, entrepreneurial and creative place to teach and learn
- Being on the leading edge of technology education
- Our focus on stability, performance and smooth operations

STOP: We will change our college culture by decreasing our past emphasis on:

- People being governed by procedure
- Success being smooth scheduling and low cost
- Success being measured by market penetration

KEEP: We will change our college culture by reinforcing our current emphasis on:

- Leaders being good coordinators and organizers
- Being a friendly place to teach and learn
- Attracting the best faculty and students
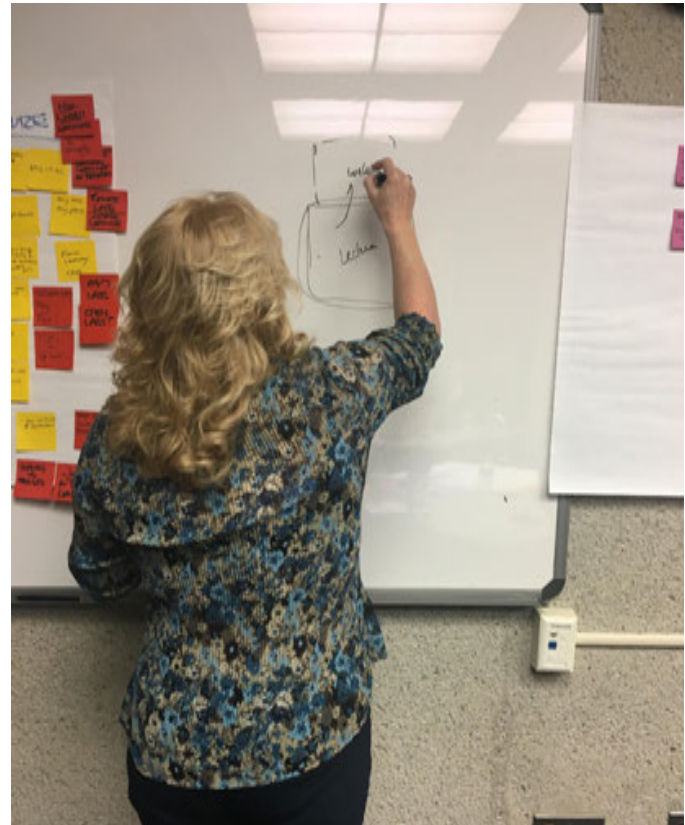
Interestingly, the group agreed if hierarchy were maintained, the current building design might not need a significant design change. Overall, the group believed that change is overdue at the college and that the dramatic shift is not a surprise.

TRAITS & CHARACTERISTICS:

TECH. SKILLS
- Hands-on/Real World Experience
- Expertise in your chosen career path
- Industry Skills - Hands on
- SUBJECT MATTER EXPERTS
- Technically Skilled

COLLAB
- Team players
- Good Team mate
- Team work
- Collaboration with others
- COLLEGIAL & COLLABORATIVE

PROB SOLV
- Problem Solving (open ended problems)
- Problem Solving
- Can solve problems
- Thinking/working through a problem - Problem Solving
- PROBLEM SOLVERS
- Problem Solver

ADAPT*
- Professional
- Professional Communication (written, verbal, small group)
- Passion/Work Ethic for career choice
- Reliable   Reliable

EMPOWERED
- Take Initiative
- Decision making
- Decision making
- Independent Leaders
- Recognize working with a global workforce/nature

COMM
- Communication (Oral & written)
- Communicator oral, written
- Project management
- Soft skills (communication)
- Listener!
- People skills

GROWTH MINDSET
- Curious
- Open to Continual learning
- Willing to Continue Learning
- Ready to learn (new skills & tools)
- VERSATILE LEARNERS

(pink column at right)
- LIFELONG LEARNER
- CURRICULUM REDESIGN
- TEAM TEACHING ACROSS CURRICULUM
- TERRITORIAL TO PLAN W/ NEW WAYS OF TEACHING
- STRENGTH OF TEAMS
- AWARE GLOBALLY - SOCIETY - DIVERSITY - INCLUSION
- FUNCTIONAL ABILITY
- PROBLEM SOLVING - ITERATION
- CONFLICT MGMT
- CURIOUS
- MATURE

In order to understand more about the educational purpose of the CTAAE, the visioning team defined the key tactics and characteristics needed from the BGSU students in the workforce. They were:

Technical Skills
To be most productive, industry needs students to have the technical expertise required to be productive. This expertise includes hands-on and real world practical experience as subject matter experts.

Collaborative
Team work is core to the future of productivity. Students require expertise in collaborative behaviors in working with diverse teams of people solving difficult problems together.

Problem Solving
Critical thinking is a hallmark of problem solving. Teaching the ability to step outside the status quo of problems in order to see innovative solutions is a premium value in work both today and tomorrow.

Growth Mindset
Industry values those who are driven to fulfill their natural curiosity to learn beyond the parameters of "the job". Intrinsically motivated learners will have a greater value in their work and to the organization for which they are working.

Empowered
The nature of leadership in work has already changed. The times when leaders would set the initiative and managers would direct the employees to march in time has changed. Work is complex and problem solving requires personal initiative.

Communication
Use of language in all its forms is both an art and a science. Industry needs workers who are capable in the technical skill of communication, along with the creative power of language as a vital asset in collaboration and problem solving.

Adults
Professionalism in work represents table stakes for entering the workforce. Reliability and work ethic are paramount behaviors expected from all professionals. Passion is a subset of professionalism. When a student enters a job they love with people they trust and are positively challenged, that individual consistently delivers the highest engagement and results in their work.

The College of Technology The Current Context	People Today		Dedicated CR's	Dedicated Labs	
				Computer	Equip
Construction Management	200	250	1	1	2
Engineering Technology	300	350	1	1	5
Electronics					
Mechanical					
Mechatronics/Robotics					
Quality Systems (online)					
Systems Engineering (soon)					
Aviation (off campus)					
Visual Communication & Technology (VCT)	250	350	1	2	4
Management & Tech (online)					
Learning Design (online)					
Program Support	40	50	1	1	0
Tech Store	Faculty		Grid*	Grid*	
Undergraduate Student Services					
Administration					
Faculty Offices					
Totals:	790	1000	4	5	11

* A Grid space is open for scheduling across the campus

Macro Strategic Program

The CTAAE is currently successful. Despite the limitations of the current building on evolving teaching and learning processes, learners continue to expect the college to help them prepare for their future work life. At the same time, the college must grow and evolve Growth is directly tied to future of learning. To anticipate the growth potential from a redesign of the current building, it is vital to understand building supply and demand.

The visioning team constructed a high level chart that illustrates the macro provisions of the building today. This knowledge will be used in the design programming phase of the process to maximize the potential of the building.
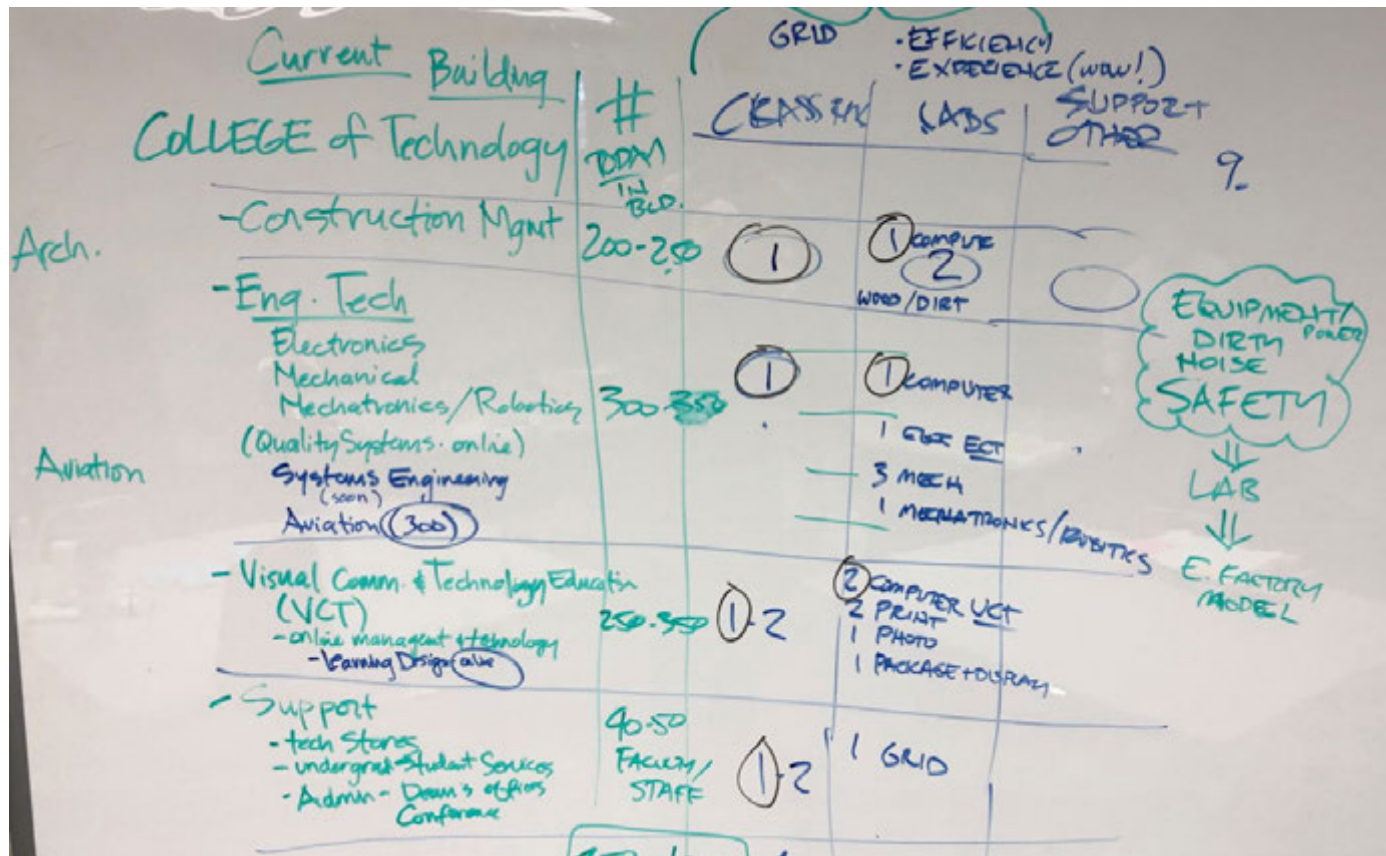
The Biggest Challenges

Achieving visioning results through creative design has the responsibility to manage "the possible" with "the resources available". This management not only includes **budget and schedule**, it also includes the **adaptive potential of the people** using the building today in anticipation of the people gaining value from the building in the future. The vision team projected the life of the redesign to an average of 34 years in the future. For comparison, it is difficult to imagine a 34 year lifespan for the building with no modifications when you consider the pace of change in our lives over the past 34 years.

There are examples of built environments that have a level of flexibility and adaptability ingrained in the design to anticipate such duration of use. **A stage and theater** environment is an example. The infrastructure of a stage is designed in anticipation for many plays to be performed over time. Yet a stage, in itself, does not usually have an experiential design that stands alone without the action of the play being performed. **An art gallery** is another example, in that the design is usually a backdrop without much expression that is able to house the art displayed so the work stands on its own.

The visioning team identified other potential challenges that will impact the team's ability to realize the vision. Of all factors identified, **technology change** was the most prevalent. Sometimes it is not clear if technology change isn't the tail wagging the dog, however the impact on social systems, communication behaviors, transportation, commerce, and frankly most all aspects of living, working and learning are profound. One truth has been clear in the past two decades; if people are buying the technology there must be value in experiencing the changes that result.

The visioning team also identified the changing expectations of your students and the industries you are preparing them for. "What will work be" is a core question being asked across all industries. "How will learning occur" is another. The answers to these questions tend to break down the traditional methods of education delivery into non-lineal, self-directed learning. This change includes not only learning, it includes changing behaviors from faculty and professionals, pointing to an expansion in the principles of **lifelong learning**.

Finally the team identified the potential infrastructure **limits of the building** itself. Not only are there questions regarding the allotment of area to the programs being taught, there are questions about the image, called 'The Brand', of the building. Changing the image that the building presents is an architectural challenge that will require study in alignment with the budget, schedule and return on investment.

The balance of these challenges in consideration of the design alignment with the vision is a opportunity worth investigation for BGSU's Technical College building. The visioning team has a strong sense that this current project is a "**once in a lifetime**" change to take this building into the future. The anxiety to get the vision into the design results is high, yet the reality in most any change from a current to a future higher value context is worthy of opportunity this project presents.
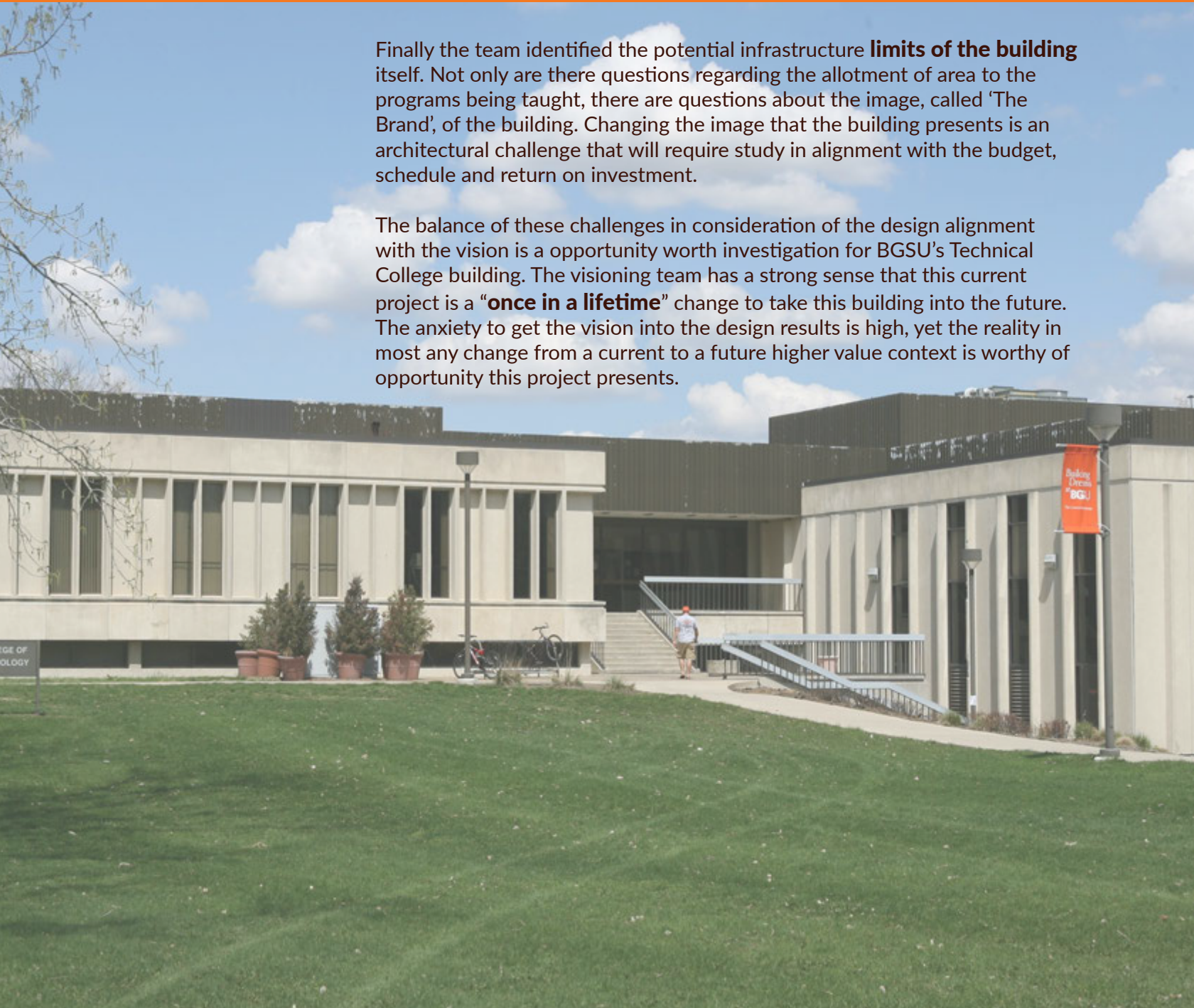
Focus Groups

On February 12ᵗʰ and 14ᵗʰ, SHP conducted four focus groups with 46 representatives of the college, including 4 current students, 6 industry leaders, and 36 faculty and administrative staff. To engage with the groups SHP used display thinking and the cultural assessment tools. In summary, the results of the sessions concurred with the results of the January leadership visioning session. Below is a summary of the focus group results in each category explored.

1.   How long should the design be expected to function?

Each participant was asked to quantify how long the new building design should be expected to function. A number of years was written on a post-it note and grouped, and the average came to 24 years. The result of this question in the leadership visioning session was 34 years. The longevity of this amount of time was discussed, and the prevailing belief is that technology would substantially change before a future investment would be made in the building. Thus, the current design for learning environments should strategically include flexibility and adaptability; building in as much low impact modification to the built environments as feasible.
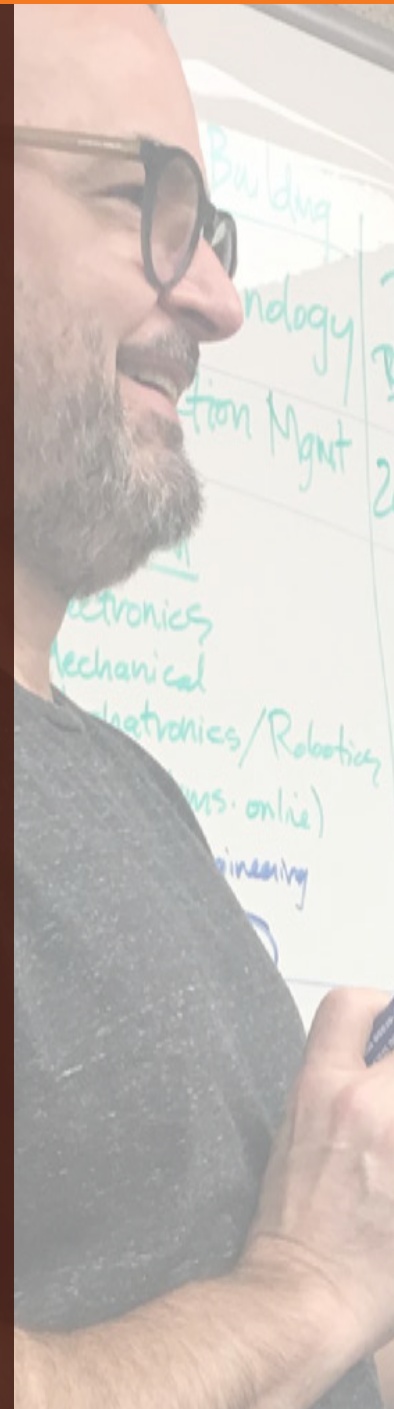
2.   What are the biggest challenges to achieving this design?

TECHNOLOGY

While the CTAAE is intent on the hands on education of future industry technologists, the unknown nature of the future of technology was cited as the potential biggest challenge to the design results.

TEACHING

On-line / virtually delivered learning was cited as a change challenge. Today the distribution of learning is built around two hours of lab experience for every onw hour of lecture.

SPACE AVAILABLE

The 1972 design has been modified and restricted within and around competing departmental functional needs. Isolation and segmentation has been the results.
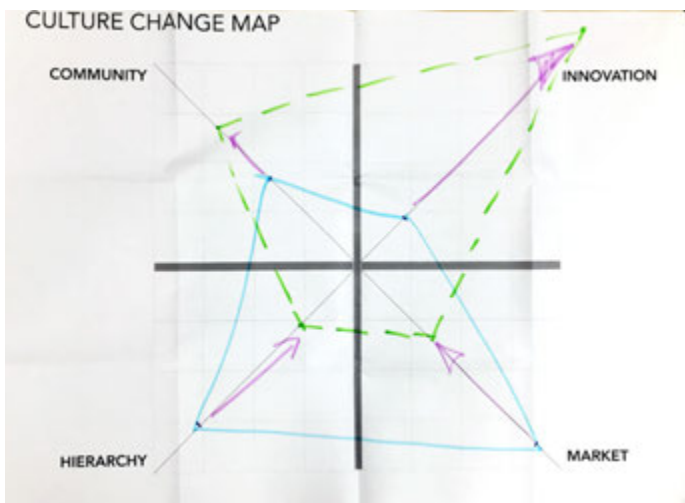
CHANGE

Potential barriers may exist concerning administration support, faculty engagement, student expectation and industry needs. Each of these change perspectives will create tensions in the opportunity for the new building design to achieve the vision.
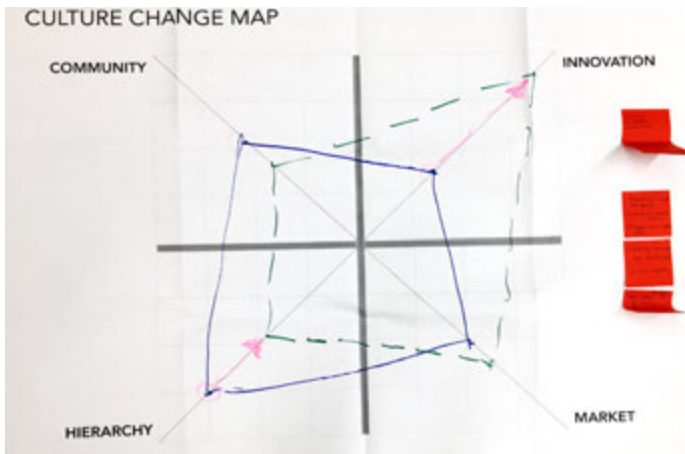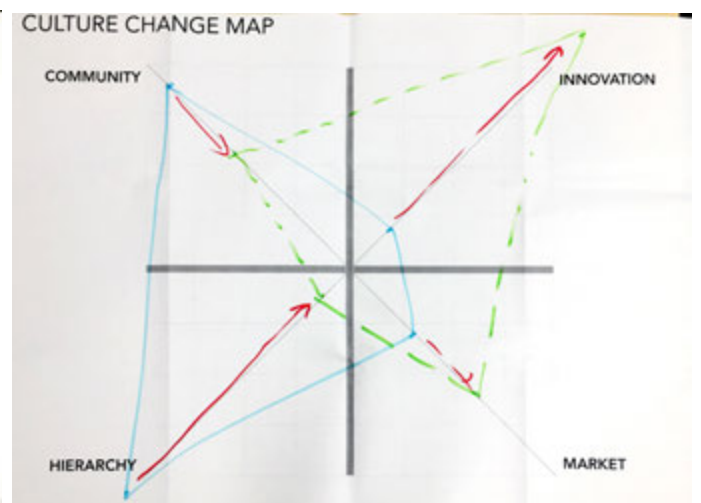
Group 1
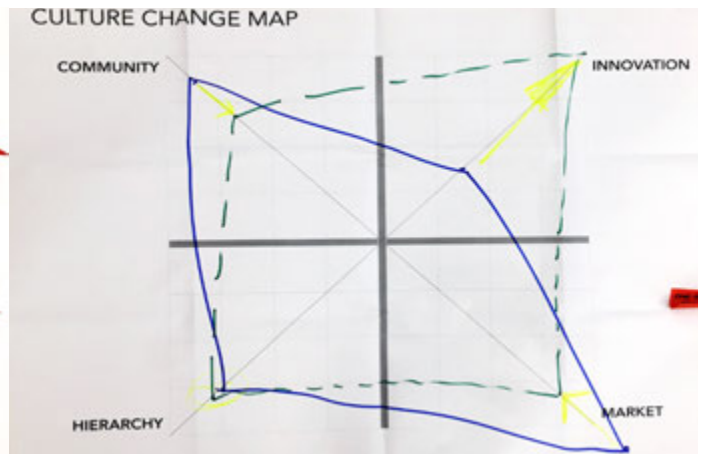
Group 2

Group 3

Group 4

3.   Cultural Assessment

The identical competing values cultural assessment tool was run with each focus group. While minor variations were identified inside the four quadrants, the overall direction of the results aligned with the leadership visioning session results. While hierarchy represents the greatest cultural attributes today, the future includes a significant shift into the innovation quadrant.

Because culture at its baseline indicates memories of past teaching and learning, the degree of change between hierarch and innovation represents a paradigm shift that will require multiple states of change. Highlights from the results include:

- Changing from "Success is smooth scheduling and low cost" to becoming a "Dynamic, entrepreneurial, creative place to teach and learn" while maintaining the importance of "Success is market share and market penetration".
- Changing from "People are governed by procedure" to achieving an "Emphasis on being a leader in education and student success" while maintaining the importance of being a "Friendly place to teach and learn".
- Reorienting from "Organization glue is formal rules and policies" to "Leaders are good coordinators and organizers" while increasing "Emphasis on professional development".

Leadership

To be a leader in a learning environment means to be a motivator and to make use of one's own independence. A leader is a self-starter, someone who gives back to the community and is an example to others. He or she is a person who is confident in his or her abilities and also helps others become confident in their abilities.

Adaptable

Adaptable learners are active thinkers and creative problem solvers. To adapt is to not only accept change but to embrace it, work with it and create from it. Those who adapt are lifelong learners that consistently ask questions, research and desire for continued advancement. They are always questioning answers and use critical thinking skills on a daily basis. Those who are adaptable might not always take the easiest route to find a solution but by exploring options, failing, and learning along the way they come up with unique resolutions.

Future/ Forward Thinking

A successful learner is one who is thinking forward towards his or her future. Someone who is forward thinking is preparing to enter the professional world. He or she must be consistent and high performing in his or her work. Additionally, a forward thinking learner is passionate about his or her future career and do so by showing dedication in his or her work.

Collaboration

Collaborative learners are willing to work with others as a team. As a team, people must utilize strengths and recognize weaknesses within themselves and others. When working together one must recognize what is best for the 'whole' or the community and not wnecessarily for themselves. To have successful collaboration, teammates must be humble and honest with themselves and others about their skill sets.

Knowledge and Skills

Knowledge and skills in technology are important to have in the learning environment. To have these skills and knowledge is to have the correct understanding of the information presented. One must not only have the intelligence to find a solution but also know how to research and strategize in innovative ways. Those who have elaborate and hands-on experience have this knowledge.