NAVAJO TECHNICAL UNIVERSITY

Endless Possibilities:

World class technology infrastructure, laboratories, and research

Aimed at providing solutions to long-term tribal challenges

A BUILDING LIST OF STEM DEGREES:

BUILD IT AND STUDENTS WILL COME FOR THE POSSIBILITIES

ABET Accredited Engineering Programs

- Includes Industrial, Electrical,
- Mechanical, Environmental, and Chemical Engineering disciplines

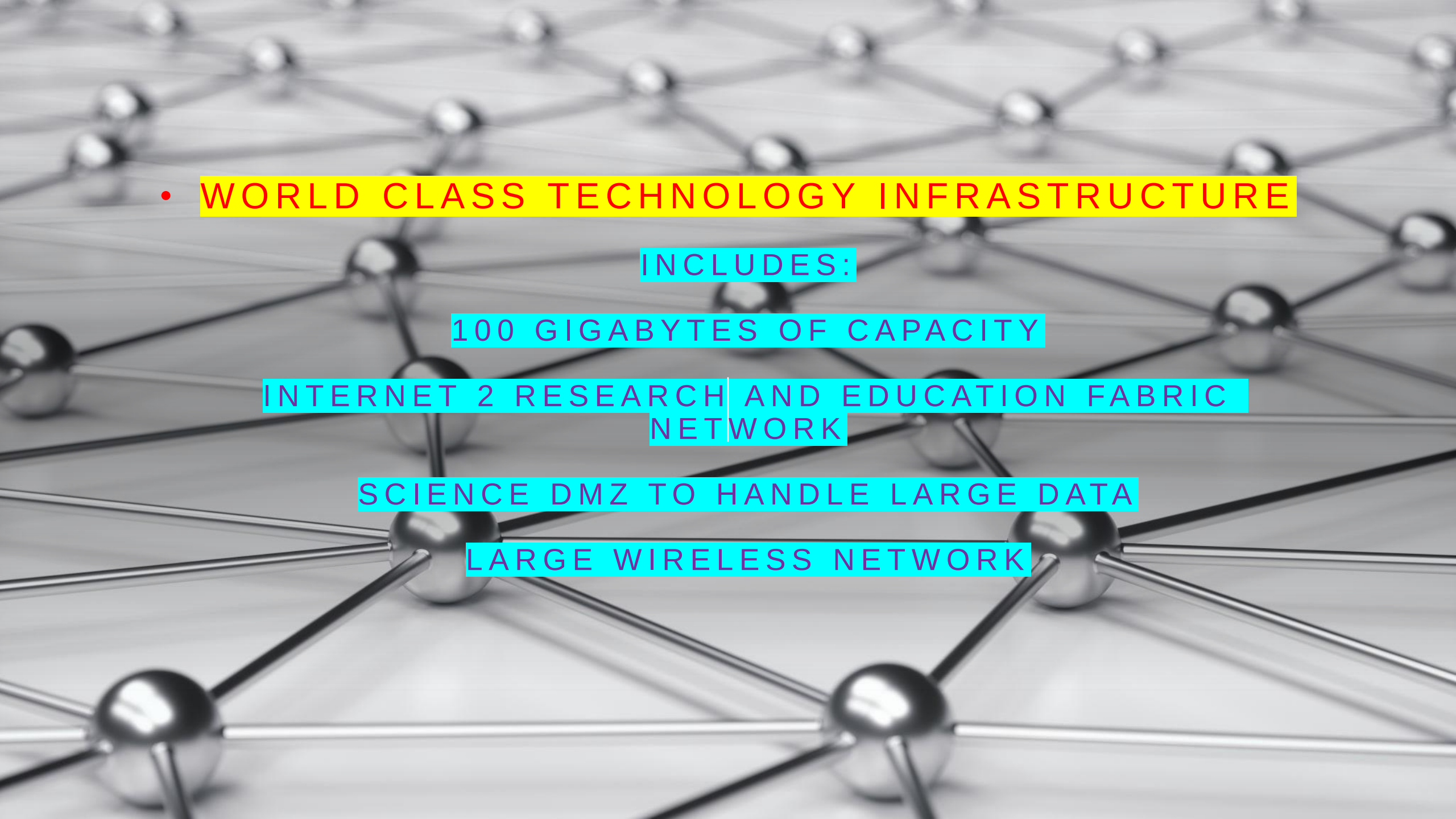
Ten Associate Degree Programs

Nine Baccalaureate Degree Programs

One Master’s Degree Program

MAJOR RESEARCH LABORATORIES

- Center for Advanced Manufacturing
- Center for Metrology Research
- Navajo Environmental Center
- Two Chemistry Laboratories
- Environmental Chemistry Laboratory
- Two Biology Laboratories
- Multiple Computer and Computational Laboratories



- WORLD CLASS TECHNOLOGY INFRASTRUCTURE

INCLUDES:

100 GIGABYTES OF CAPACITY

INTERNET 2 RESEARCH AND EDUCATION FABRIC NETWORK

SCIENCE DMZ TO HANDLE LARGE DATA

LARGE WIRELESS NETWORK

SOME PRINCIPLES BEHIND STEM DEVELOPMENT AT NTU

STUDENTS ARE MORE LIKELY TO LEARN WHEN CURRICULUM INCLUDES EXPERIENTIAL ELEMENTS;

INTERNSHIPS
RESEARCH PROJECTS
PROJECTS IN THE COMMUNITY
CAPSTONE PROJECTS IN PARTNERSHIP WITH THE TRIBAL OR PRIVATE SECTORS
CLASSROOM PROJECTS AND DEMONSTRATIONS
INTRA AND INTERCOLLEGIATE COMPETITIONS

NTU ADDRESSES NEEDS RELATED TO ECONOMIC DEVELOPMENT IN PARTNERSHIP WITH THE NAVAJO NATION

NAVAJO CULTURE EXPRESSED THROUGH NATIVE WAYS OF KNOWING IN SCIENCE, MATH, AND CREATIVITY IS A KEY COMPONENT OF NAVAJO EDUCATION

NEW WEALTH IS CREATED AT THE EDGES OF TECHNOLOGY

GOALS BEING PURSUED

- Creation of undergraduate and graduate degree programs developed to further needs identified by either the Navajo Nation's President, its legislature, or the strategic economic development plans of the Division of Economic Development.
- Development of a world class technology infrastructure to serve the university and the Navajo Nation.
- Development of a research/academic component to the university designed to achieve partnerships with private industry and further the creation of intellectual property that can be used for economic development for the Navajo Nation.
- Development of an experiential component through both degree programs and research efforts that can result in high skill/high wage careers for students and an entrepreneurial culture on the Navajo Nation that results in the creation of new industries and businesses.

GOALS BEING PURSUED

- Creation of an intellectual-properties infrastructure based upon models in California, Wisconsin, New York, South Carolina, Massachusetts, and elsewhere that have resulted in major economic phenomena like Silicon Valley and the North Carolina Triangle.
- Development of business incubators with an educational and capital creation components that can help both students and Navajo entrepreneurs succeed in establishing new businesses/industries related to NTU research and/or STEM.
- Leverage developments like those the university has achieved in the areas of digital manufacturing, metrology, engineering, automotive technology, chemistry, biology, and information/computer/computational technology into income generating activities that provide high skill/high wage jobs for NTU students.
- Develop new curriculum that inspires students toward STEM careers that have a high employment growth potential.
- Work with high schools to attract to students to STEM and build basic skill to encourage STEM success.

MODEL USED FOR BUILDING A BRIDGE BETWEEN NAVAJO AND WESTERN WAYS OF BUILDING KNOWLEDGE

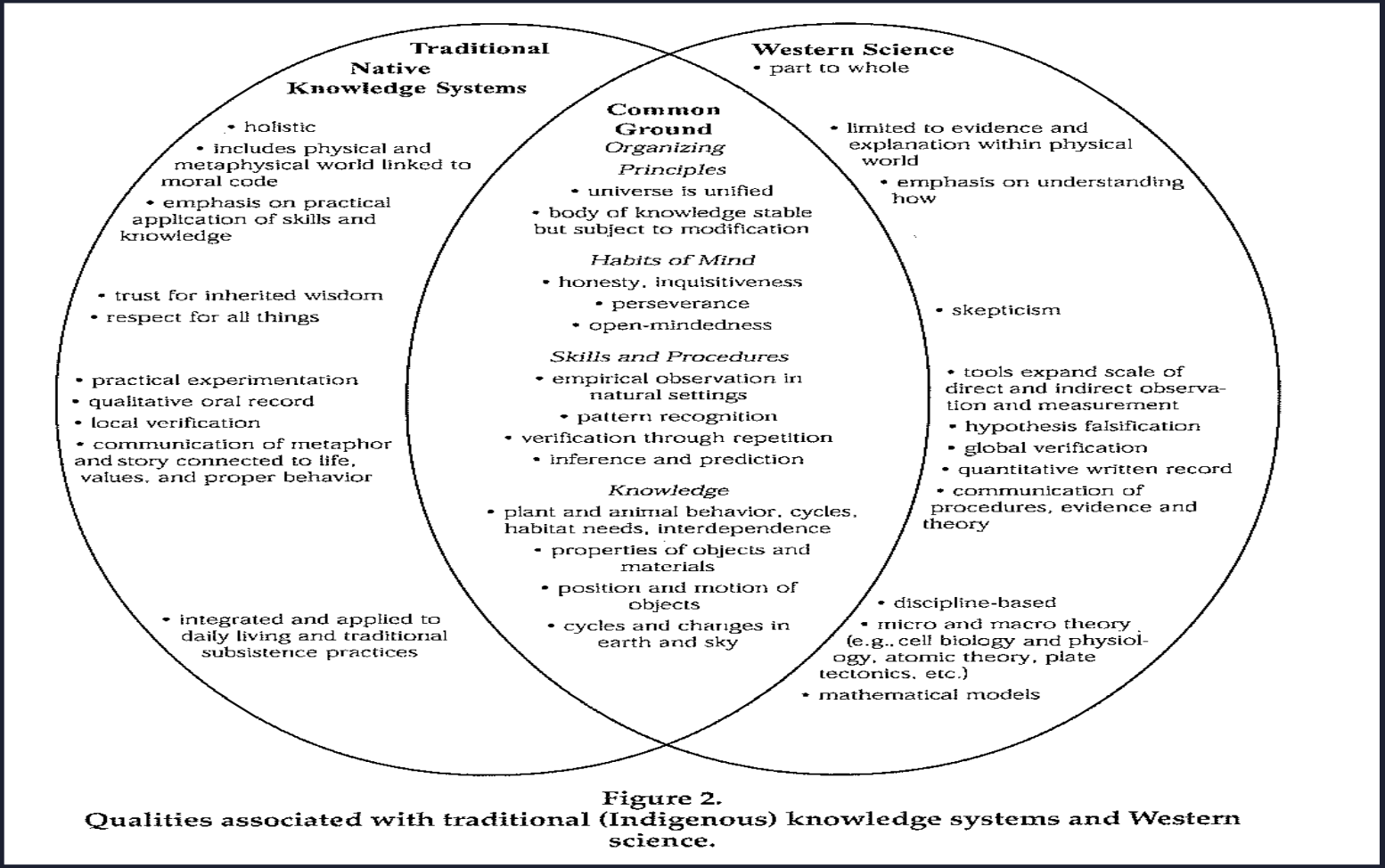


Figure 2.
Qualities associated with traditional (Indigenous) knowledge systems and Western science.

Barnhardt and Quawgley

AREAS WHERE PARTNERSHIPS ARE POSSIBLE

WE ARE ALWAYS LOOKING FOR INTERNSHIP POSSIBILITIES FOR STUDENTS IN RESEARCH AND PRODUCT DEVELOPMENT AREAS

WE ARE CURRENTLY ESPECIALLY INTERESTED IN DEVELOPING A PARTNERSHIP BETWEEN AUTOMOTIVE TECHNOLOGY AND ELECTRICAL ENGINEERING AND BATTERY DEVELOPMENT

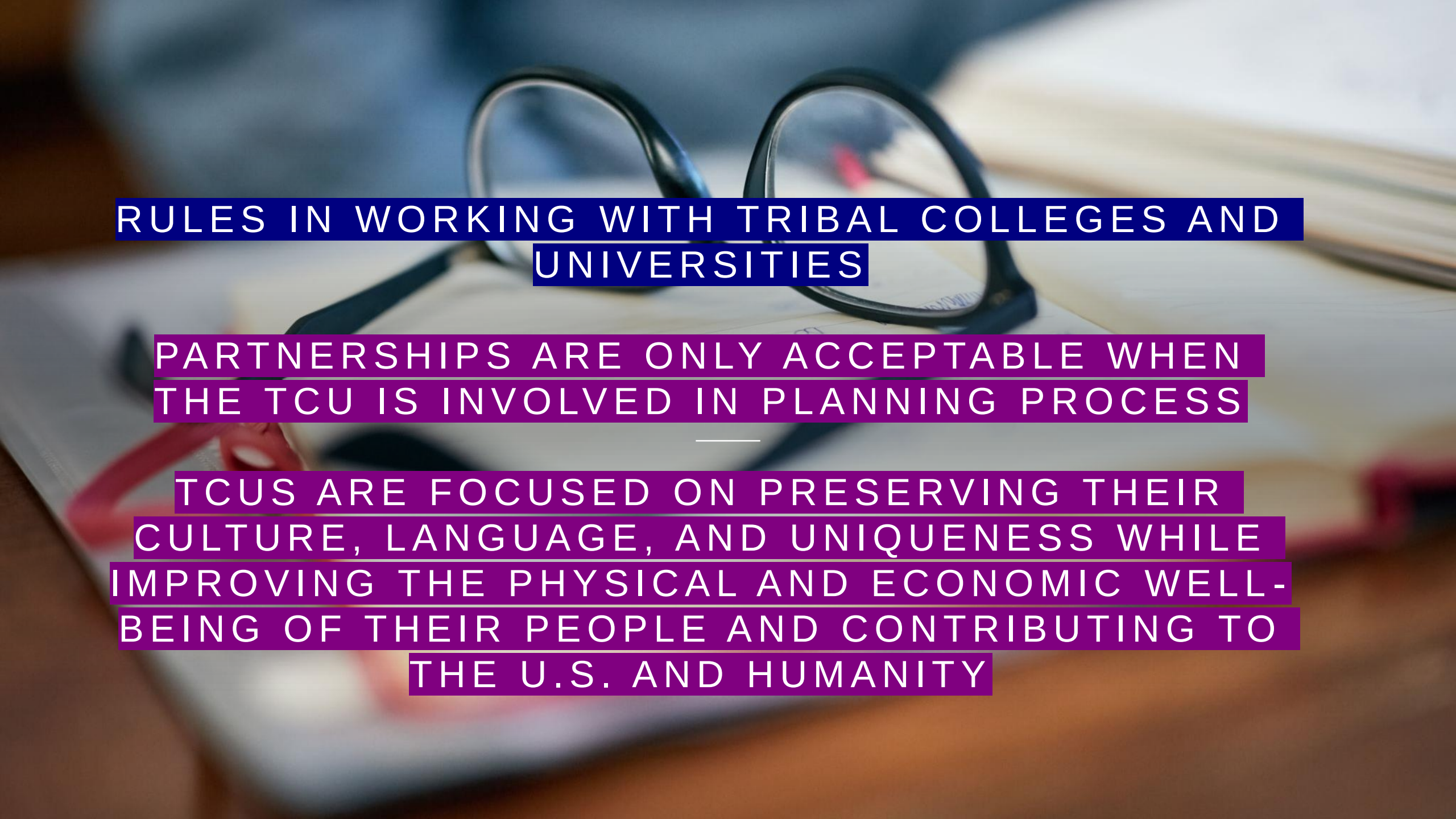
WE COULD USE HELP DEVELOPING OUR INTELLECTUAL PROPERTIES INFRASTRUCTURE

WE ARE INTERESTED IN ARTIFICIAL INTELLIGENCE

WE ARE ALWAYS LOOKING FOR PARTNERSHIPS THAT INVOLVE STUDENTS WITH THE PRIVATE SECTOR

ANY PARTNERSHIPS THAT LEAD TO NAVAJO ECONOMIC DEVELOPMENT IN A VARIETY OF SECTORS IS WELCOME

RESEARCH PARTNERSHIPS WITH FACULTY CAN BE DEVELOPED BETWEEN FACULTY MEMBERS



RULES IN WORKING WITH TRIBAL COLLEGES AND UNIVERSITIES

PARTNERSHIPS ARE ONLY ACCEPTABLE WHEN THE TCU IS INVOLVED IN PLANNING PROCESS

TCUS ARE FOCUSED ON PRESERVING THEIR CULTURE, LANGUAGE, AND UNIQUENESS WHILE IMPROVING THE PHYSICAL AND ECONOMIC WELL-BEING OF THEIR PEOPLE AND CONTRIBUTING TO THE U.S. AND HUMANITY

AMERICAN INDIANS WANT TO CONTRIBUTE TO SCIENCE AND TECHNOLOGY THROUGH THE TCUS

- Creativity results from blending knowledge, facts, research, and even more abstract qualities like human insight, conversation, collaboration, and emotions into a new whole. As a result, NTU believes that its enterprise has a creative contribution to offer the world through its application of its people's way of looking at the universe and its wonders through a Navajo lens, a prism that comes from a different place than traditional Western science. In pursuing this creativity, we expect our research and education efforts in science and technology to result in an increasing well-being for the Navajo and other native and indigenous peoples as well as the United States as a whole.