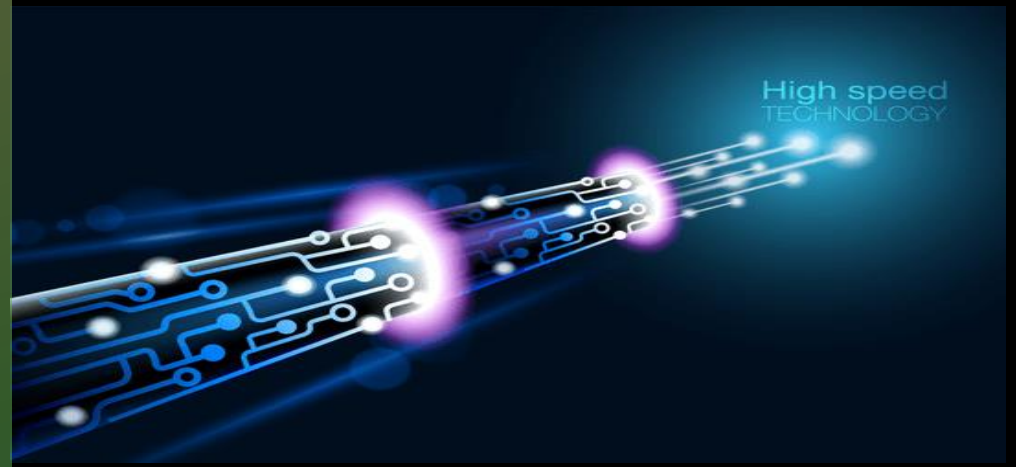
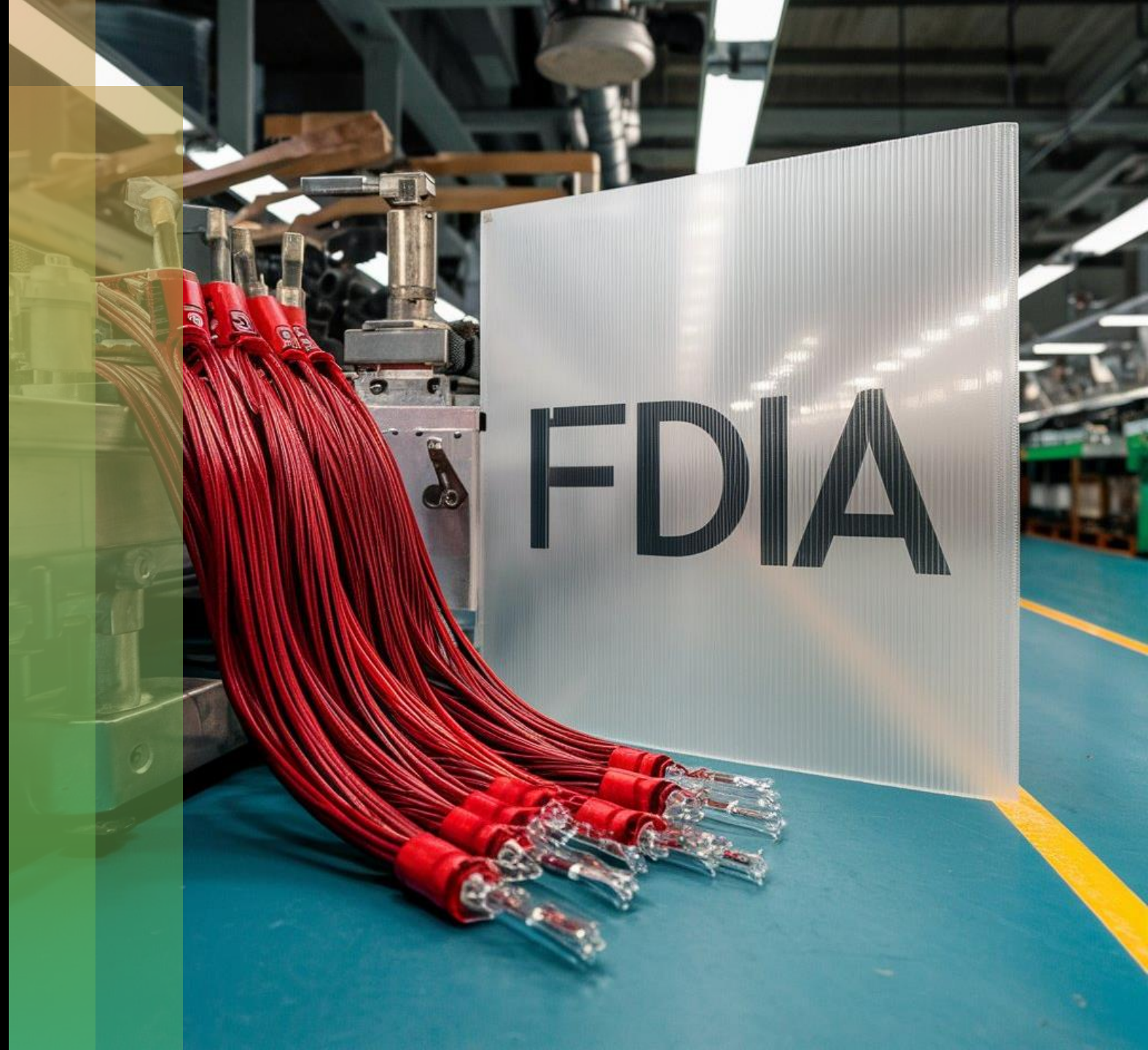


- FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE REPRESENTED BY:
- PRESIDENT: LAWYER VINCENZO CORTEGIANI
- GENERAL DIRECTOR: DR. FABIO ROSATI
- SECRETARY - PROJECT MANAGER: DR. LUCA ROSATI
- WE PROVIDE CONSULTACY SERVICE FOR CONSTRUCTION THE ETHICAL FIBER OPTICAL FACTORY IN ORDER TO SPIN-OFF THIS INNOVATIVE PROJECT.OUR ASSOCIATION BRING DEVELOPMENT WHERE THERE IS NONE BY CREATING HI-TECH PROJECTS & RENEWABLE ENERGY COMMUNITY (REC)!

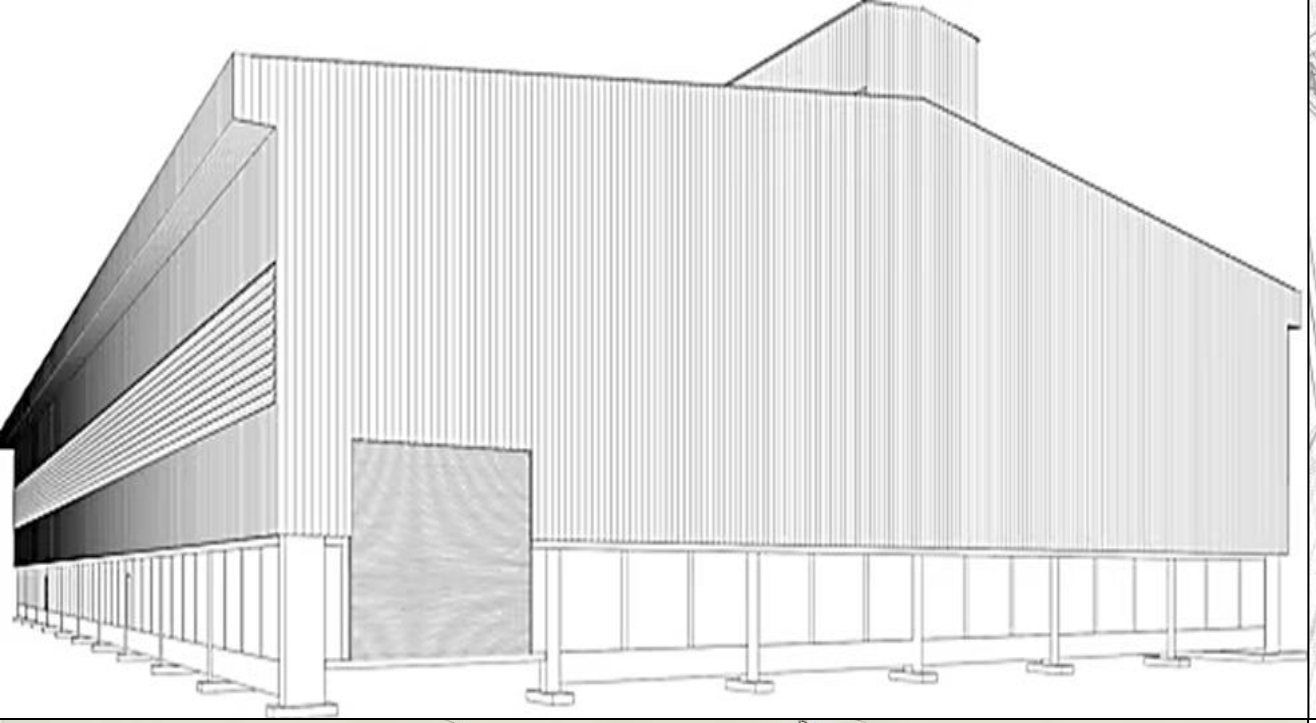
Website: www.fdiangopermanente.pt/index.html
Projects & videos:www.fdiangopermanente.pt/download.html
Email: incubator@fdiangopermanente.pt
Email:eu.secretary@fdiangopermanente.pt

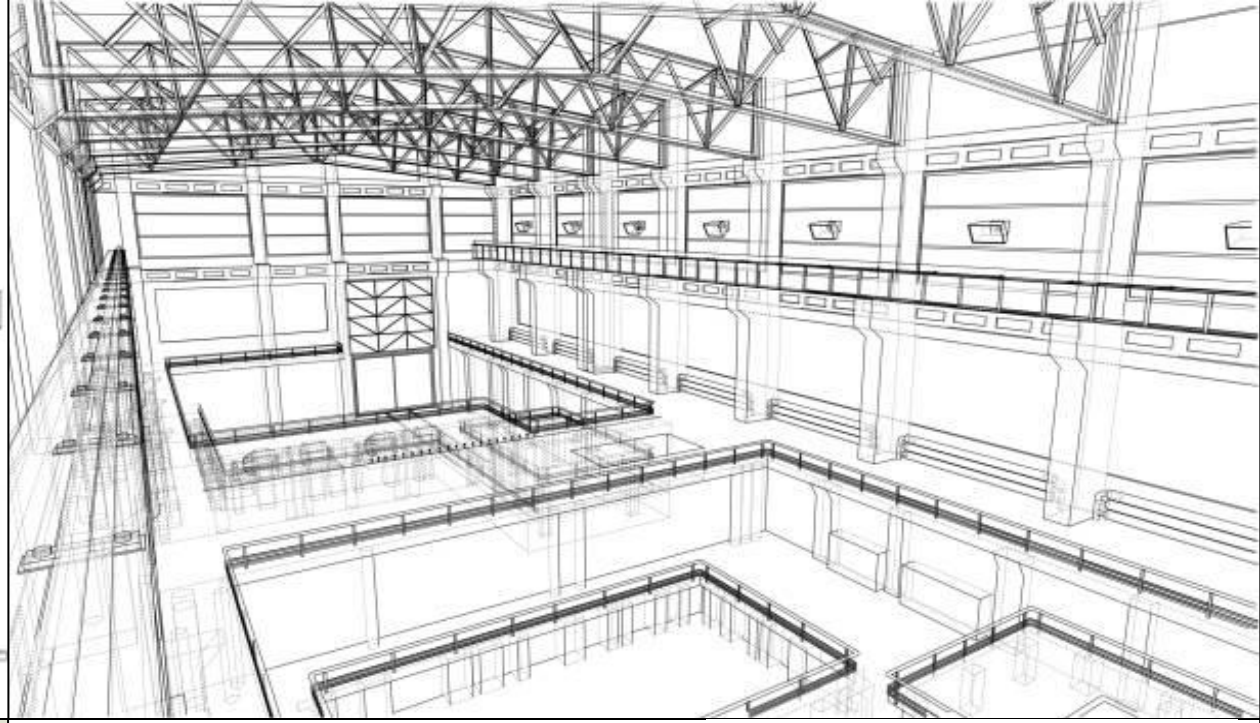
SPIN-OFF NEW FIBER OPTIC ETHICAL FACTORY

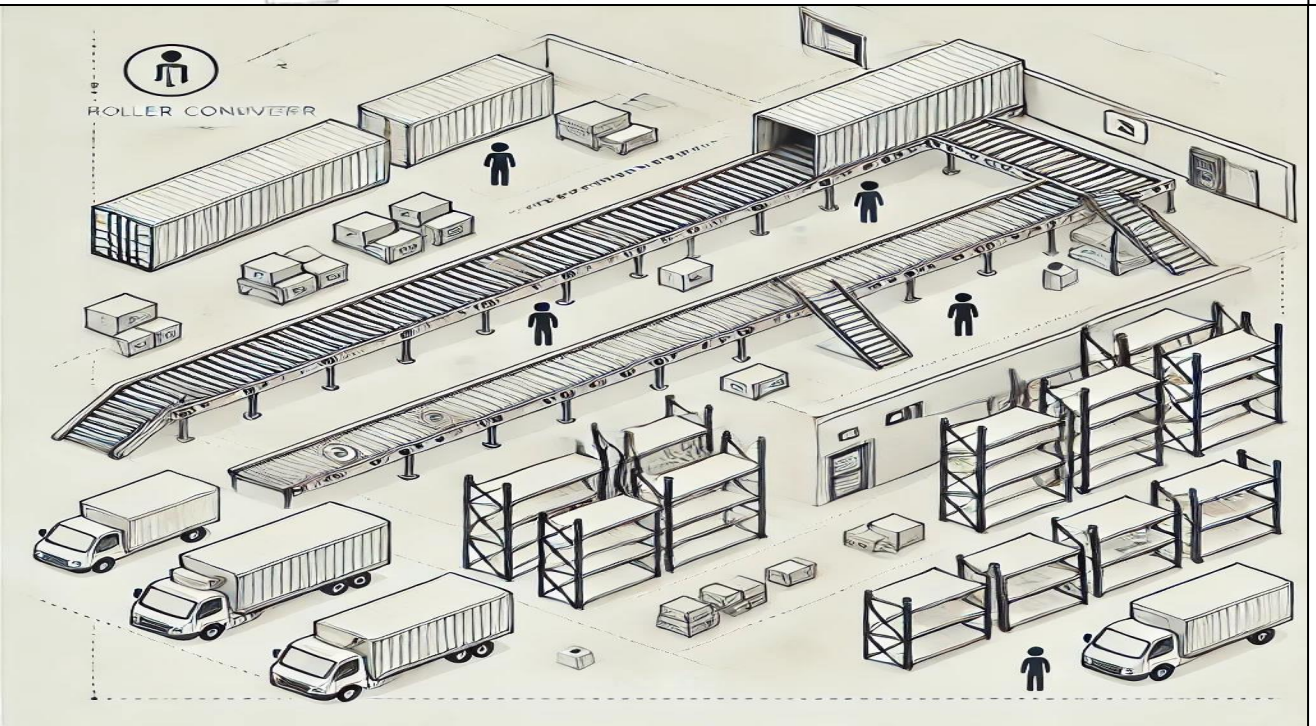
- **PRODUCTION CAPACITY:** AS A POTENTIAL ROAD MAP GOAL, ABOUT **50,000 KM** OF CABLES ANNUALLY. THIS LAYOUT NOT ONLY SUPPORTS HIGH-VOLUME, EFFICIENT PRODUCTION BUT ALSO INTEGRATES SPACES FOR RESEARCH, QUALITY ASSURANCE, AND OPERATIONAL SUPPORT, ALIGNING WITH A HUMANITARIAN INCUBATOR MODEL THAT EMPOWERS RURAL DEVELOPMENT AND SUSTAINABLE GROWTH.



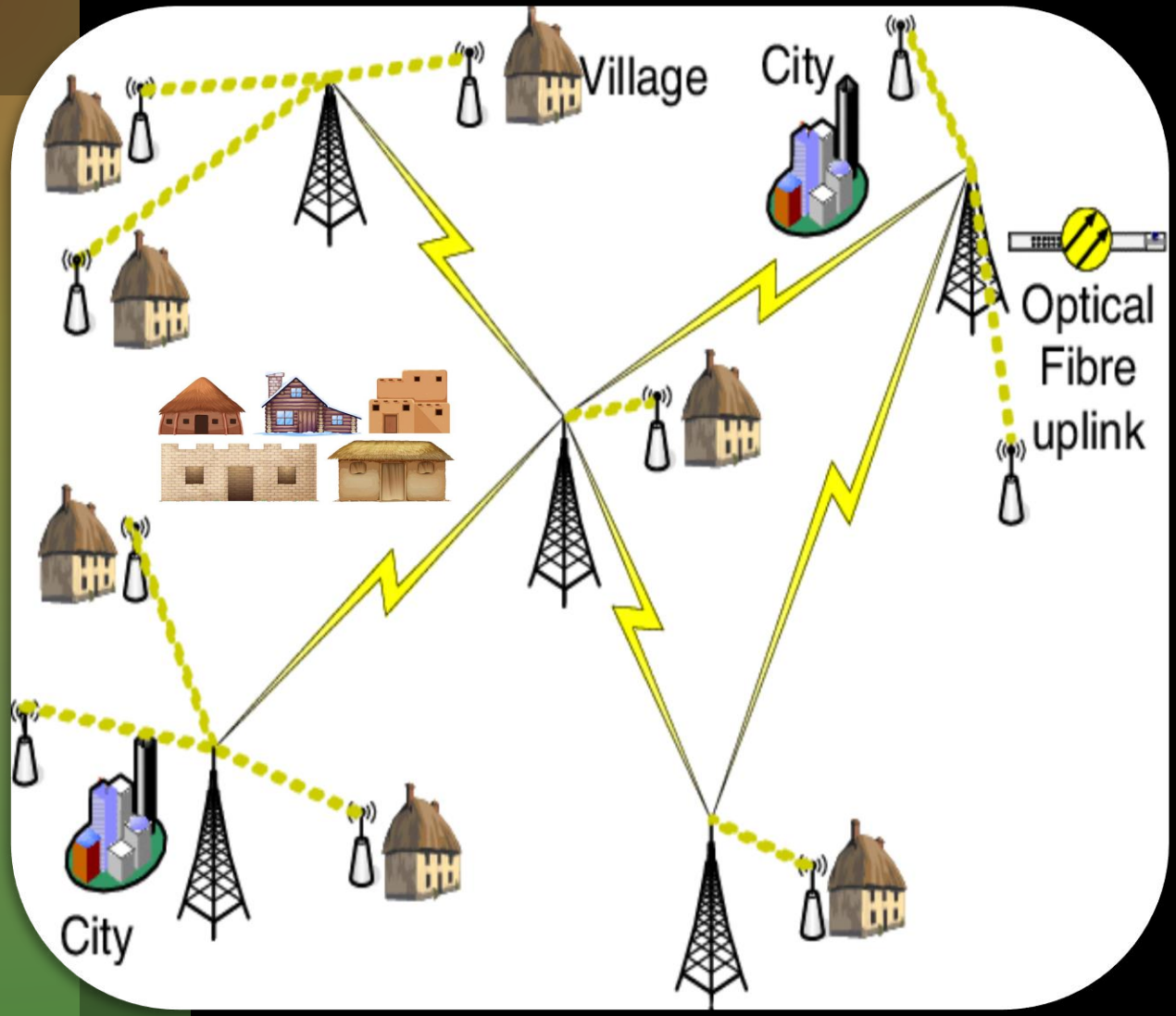
- BASED ON THE PROJECT'S VISION CREATED BY FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE ,THE ETHICAL FACTORY COVERING 100,000 SQUARE METERS . WE HAVE PROPOSED THE FUTURE FLOOR PLAN LAYOUT THAT BALANCES PRODUCTION, STORAGE, QUALITY CONTROL, AND SUPPORT FUNCTIONS:
- PRODUCTION AREA (≈50%): ABOUT 50,000 SQM DEDICATED TO CORE MANUFACTURING PROCESSES, INCLUDING AUTOMATED DRAWING, COATING, SPLICING, AND ASSEMBLY LINES. THIS SPACE IS OPTIMIZED FOR CONTINUOUS PRODUCTION FLOW WITH DESIGNATED ZONES FOR EACH STAGE.
- MATERIAL STORAGE AND LOGISTICS (≈20%): AROUND 20,000 SQM FOR RAW MATERIAL INVENTORY, FINISHED GOODS WAREHOUSING, AND STREAMLINED INBOUND/OUTBOUND LOGISTICS TO ENSURE A SMOOTH SUPPLY CHAIN.
- QUALITY CONTROL AND R&D (≈10%): ROUGHLY 10,000 SQM ALLOCATED FOR TESTING LABS, QUALITY ASSURANCE, AND INNOVATION CENTERS, ENABLING ONGOING PROCESS IMPROVEMENTS AND PRODUCT DEVELOPMENT.
- ADMINISTRATIVE AND SUPPORT AREAS (≈10%): APPROXIMATELY 10,000 SQM FOR OFFICES, MEETING ROOMS, TRAINING CENTERS, AND OTHER ADMINISTRATIVE FUNCTIONS TO SUPPORT OPERATIONS AND MANAGEMENT.
- ANCILLARY SERVICES (≈10%): ABOUT 10,000 SQM FOR EMPLOYEE FACILITIES, MAINTENANCE WORKSHOPS, UTILITIES, AND OTHER ESSENTIAL SERVICES THAT ENSURE SMOOTH OPERATION AND A SAFE WORKING ENVIRONMENT.





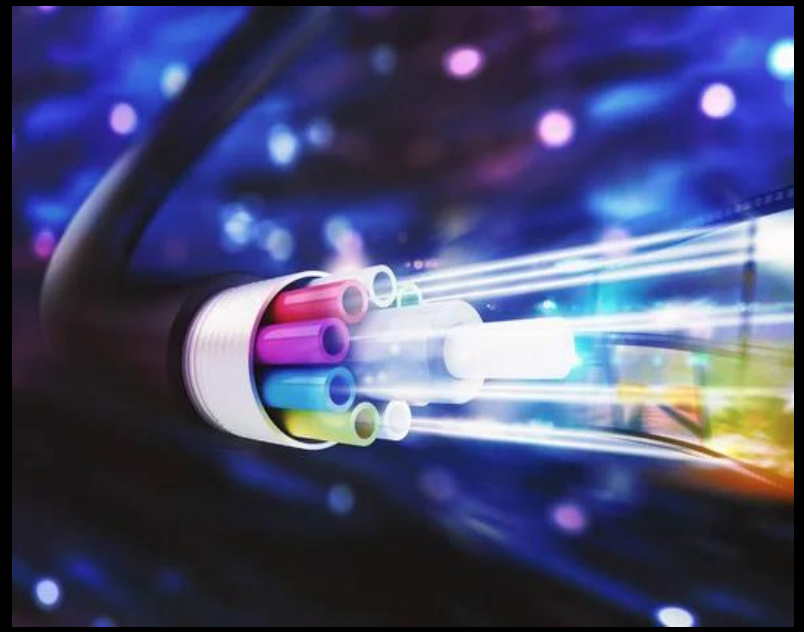

ROLLER CONVEYER


2 black and white
2 fiber optic lines



FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE BRING DEVELOPMENT WHERE THERE IS NONE BY CREATING INNOVATIVE PROJECTS!

FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE CONNECTING COMMUNITIES, EMPOWERING PROGRESS



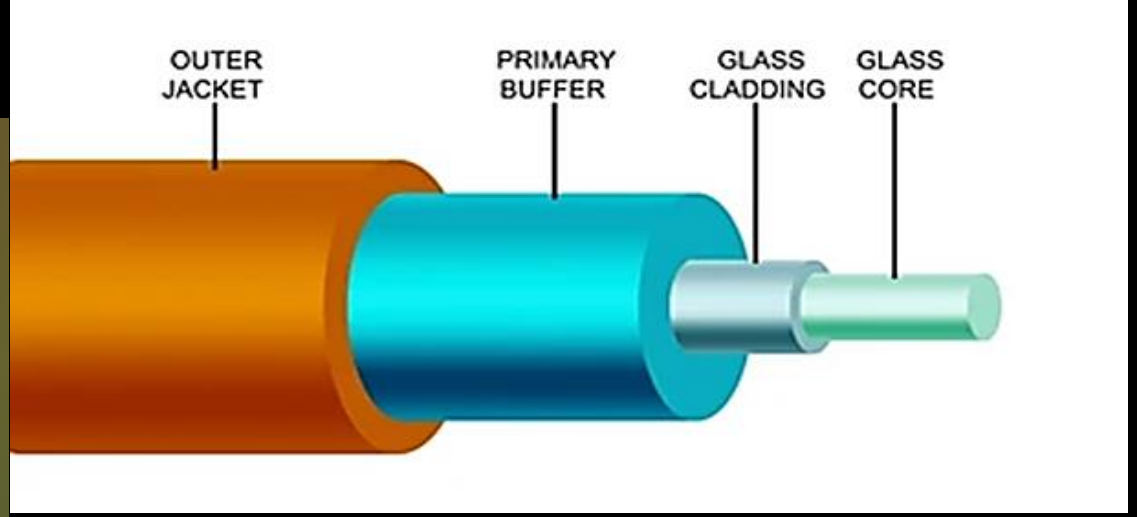
Implementation of integrated & interconnected infrastructure aimed at achieving social, humanitarian, economic and territorial progress and cohesion.

Enabling communication system through installation of local loop transmission lines. Completing the intraregional fiber-optic backbone network. Provide global systems mobile voice signal and pubblic access broadband to the population.

SPIN-OFF INNOVATIVE ETHICAL FACTORY

- **This engineers are the Italian partners of FDIA NGO, we will implement a wide range of skills:**
- SPIN OFF INNOVATIVE FACTORY FOR A AFRICAN RENEWABLE ENERGY COMMUNITY;
- INFORMATION PROCESSING;
- INTEGRATED SYSTEMS;
- INDUSTRIAL AND TELECOMMUNICATIONS SYSTEMS;
- AUTOMATED TEST EQUIPMENT DEVICES.

- THE ACTIVITIES OF OUR RESEARCH AND INNOVATION DEPARTMENT ALLOW US TO REMAIN CONSTANTLY UPDATED AND TO FACE CHALLENGES IN CUTTING-EDGE SECTORS WITH DETERMINATION AND COMPETENCE, AS ALREADY HAPPENS IN CONSOLIDATED FIELDS.
- THE DEVELOPMENT CAPABILITIES POSSESSED BY GENERAL CONTRACTORS ARE SUPPORTED BY HIGH-QUALITY TOOLS, WHICH GUARANTEE RAPID EVOLUTION OF THE PROJECT, ALSO CHARACTERIZED BY A HIGH DEGREE OF RELIABILITY AND ADAPTABILITY FOR OUR DONORS/INVESTORS.



CORE: IT IS THE CENTRAL PART OF THE FIBER, MADE OF GLASS OR HIGH-PURITY PLASTIC, THROUGH WHICH LIGHT SIGNALS PROPAGATE.

CLADDING: IT SURROUNDS THE CORE AND HAS A LOWER REFRACTIVE INDEX, ALLOWING TOTAL INTERNAL REFLECTION THAT KEEPS THE LIGHT INSIDE THE CORE.

PROTECTIVE COATING (COATING OR BUFFER): LAYER OF POLYMERIC MATERIAL THAT PROTECTS THE CORE AND THE CLADDING FROM PHYSICAL DAMAGE AND HUMIDITY.

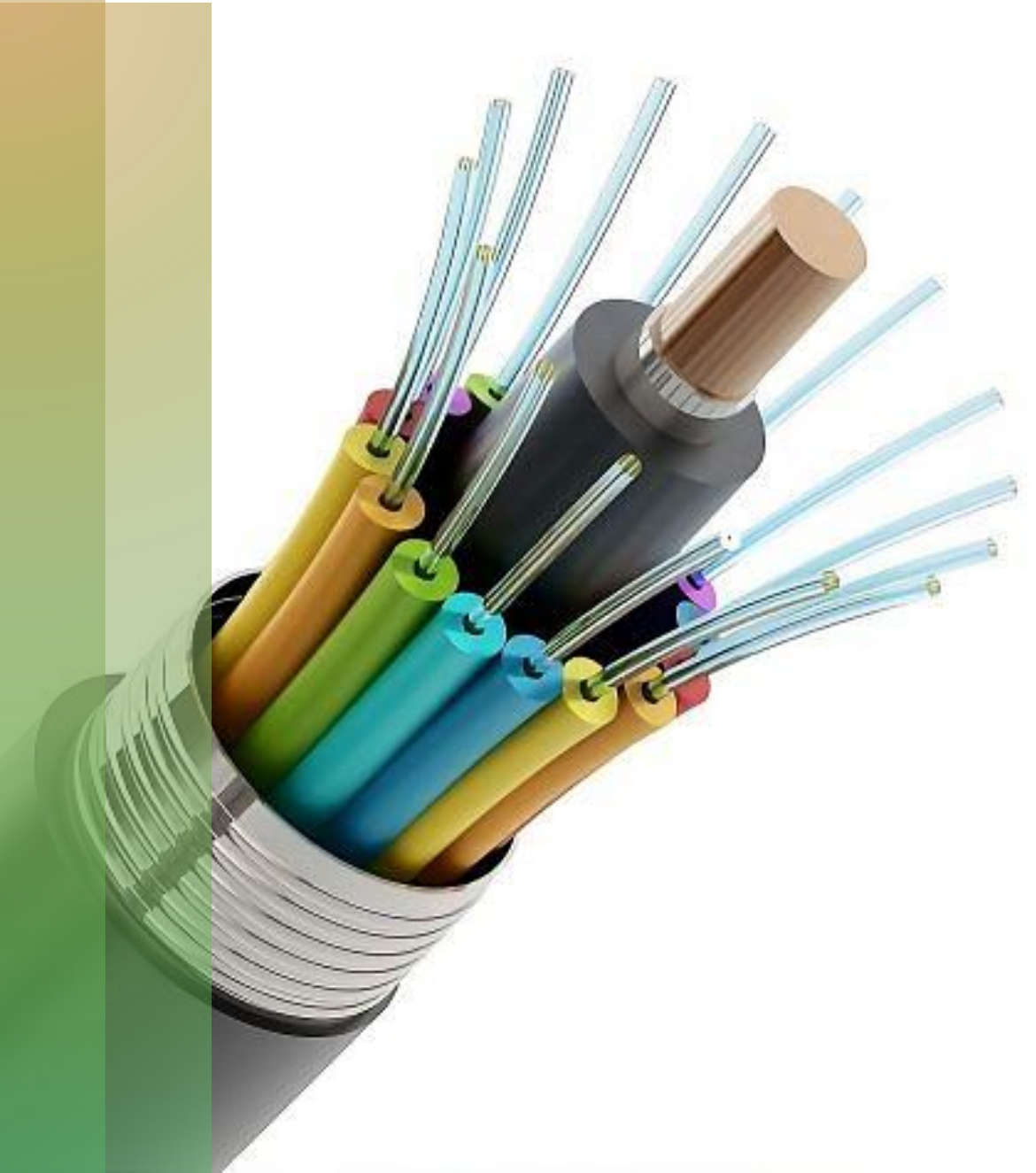
OUTER SHEATH (JACKET OR SHEATH): MORE RESISTANT COVERING THAT PROTECTS THE FIBER FROM ENVIRONMENTAL AGENTS AND MECHANICAL STRESS.

CREATE A RENEWABLE ENERGY COMMUNITY

OUR PROJECT AIMS TO THE PRODUCTION AND SUPPLY IN FUTURE THE FIBER OPTICAL AND COPPER CABLES TO THE AFRICAN RURAL VILLAGES. THE LARGEST COMMUNICATIONS NETWORK IN ANY COUNTRY IS THE PUBLIC TELECOMMUNICATIONS NETWORK. CABLING REPRESENTS THE VAST MAJORITY OF THE TOTAL INVESTMENT APPLIED TO THESE FREQUENTLY COMPLEX TRANSMISSION PATHS

SPIN-OFF INNOVATIVE FACTORY

- **The FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE represented by the Executive President Lawyer Vincenzo Cortegiani, General Director Dr. Fabio Rosati and Project manager secretary Dr. Luca Rosati.**
- **FDIA-NGO is a humanitarian association committed to promoting social well-being, announces its ambitious future project aimed at creating a renewable energy community. Through project funding, the association intends to donate electricity and a stable internet connection to the community that will need it, thus contributing to the development of a sustainable and inclusive model. This initiative aims not only to improve the quality of life of the inhabitants, but also to promote access to digital technologies and to promote an environmentally friendly and socially responsible energy future. This project has not yet been definitively realized, we are in the first step of work.**



OPTICAL FIBER

- **DATA ON THE INTERNET**

With the use of optical fiber technology, you may connect to the Internet and send massive amounts of data quickly.

COMMUNICATIONS AND TELECOMMUNICATIONS

Fiber optics have grown in importance over the past few decades as a part of the communications and telecoms industry.

Optical fiber is used in phone networks, the internet, and undersea links across continents, and the industry is growing.

More than 80% of Internet traffic, TV content, and phone calls now go on optical fibers, which are gradually taking the place of conventional copper telephone wires in the global infrastructure.

TECHNICAL AND PRODUCTION ASPECTS OF THE FUTURE FACTORY

PRODUCTION TECHNOLOGY:

DETERMINE THE MOST ADVANCED TECHNOLOGIES FOR MANUFACTURING FIBER OPTIC CABLES, INCLUDING PRE-FORMING, EXTRUSION AND COATING. CONSIDERING SPLICING TECHNIQUES AND QUALITY TESTING.

PRODUCTION CAPACITY:

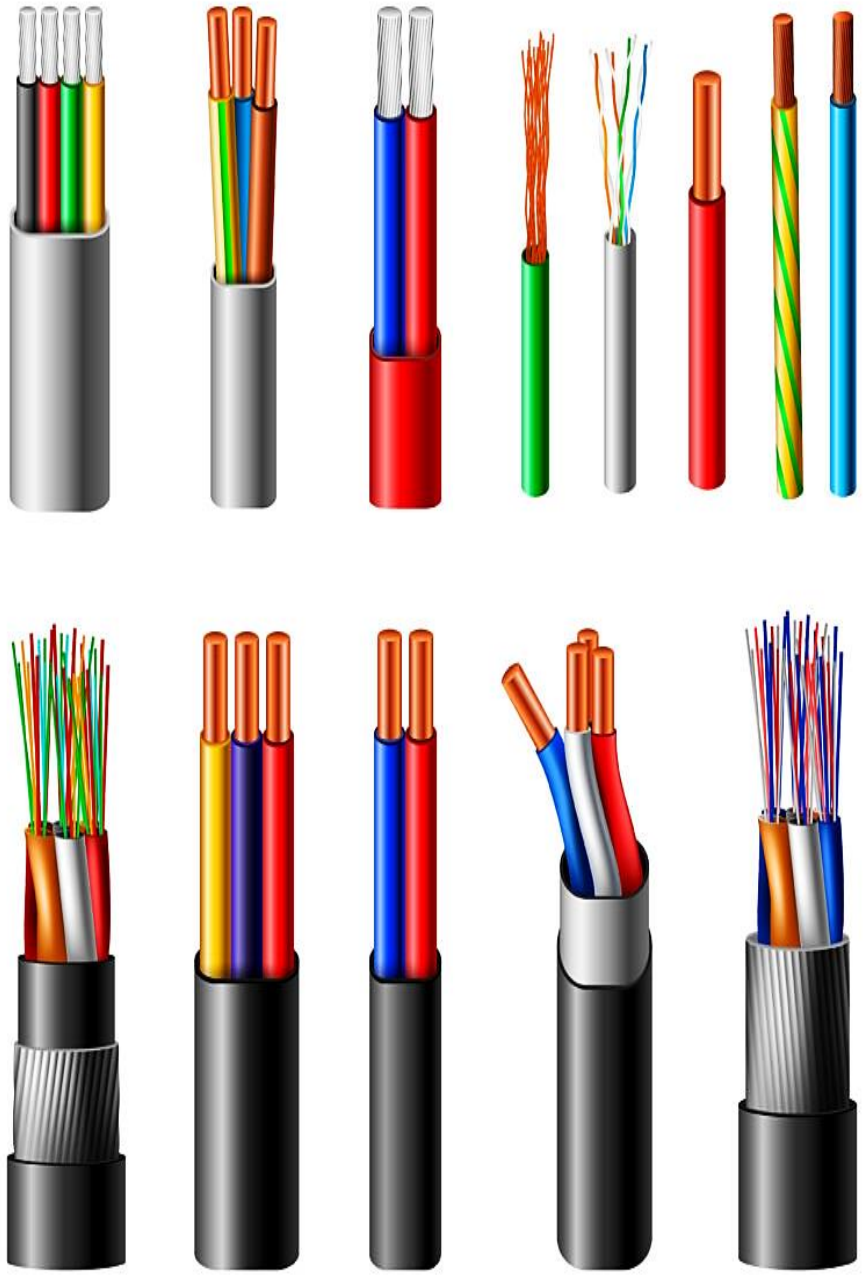
CALCULATE THE PRODUCTION VOLUME NEEDED TO SATISFY THE IDENTIFIED MARKET, BALANCING FIXED AND VARIABLE COSTS. CONSIDERING THE OPTIMIZATION OF PRODUCTION PROCESSES TO REDUCE SCRAP AND WASTE.

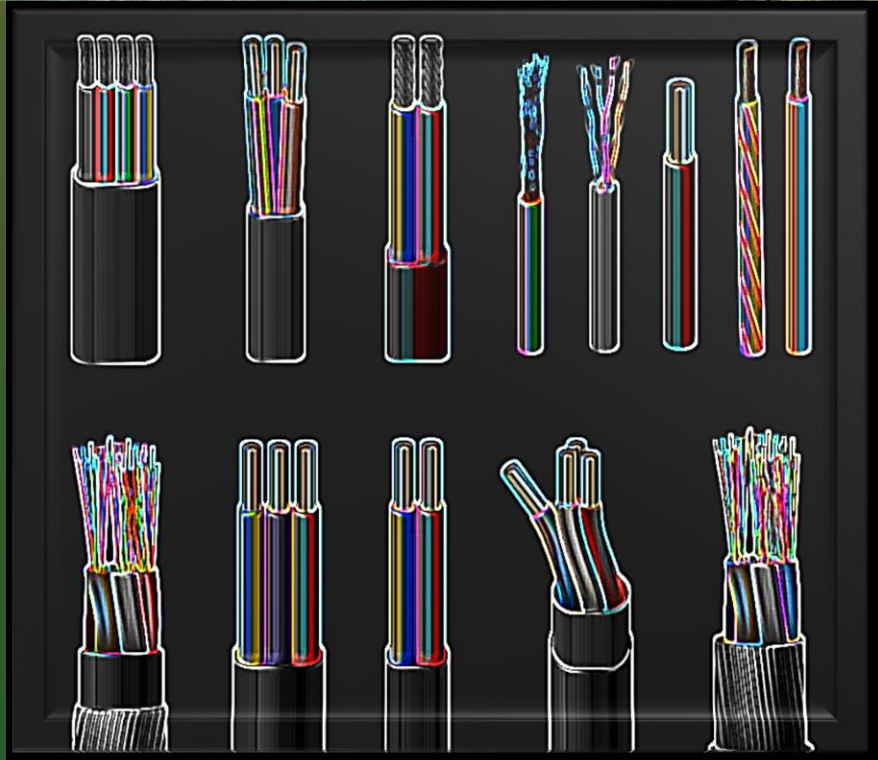
INFRASTRUCTURE AND PLANTS:

EVALUATE THE CHOICE OF LOCATION BASED ON FACTORS SUCH AS LOGISTICS, ACCESS TO RAW SUPPLIES (E.G. PLASTICS AND PRE-FORMED GLASS), ENERGY COSTS AND LOCAL REGULATIONS. FORECAST THE TECHNICAL SPECIFICATIONS OF THE PLANTS, FROM FIBER PROCESSING MACHINES TO QUALITY CONTROL LINES.

AUTOMATION AND CONTROL:

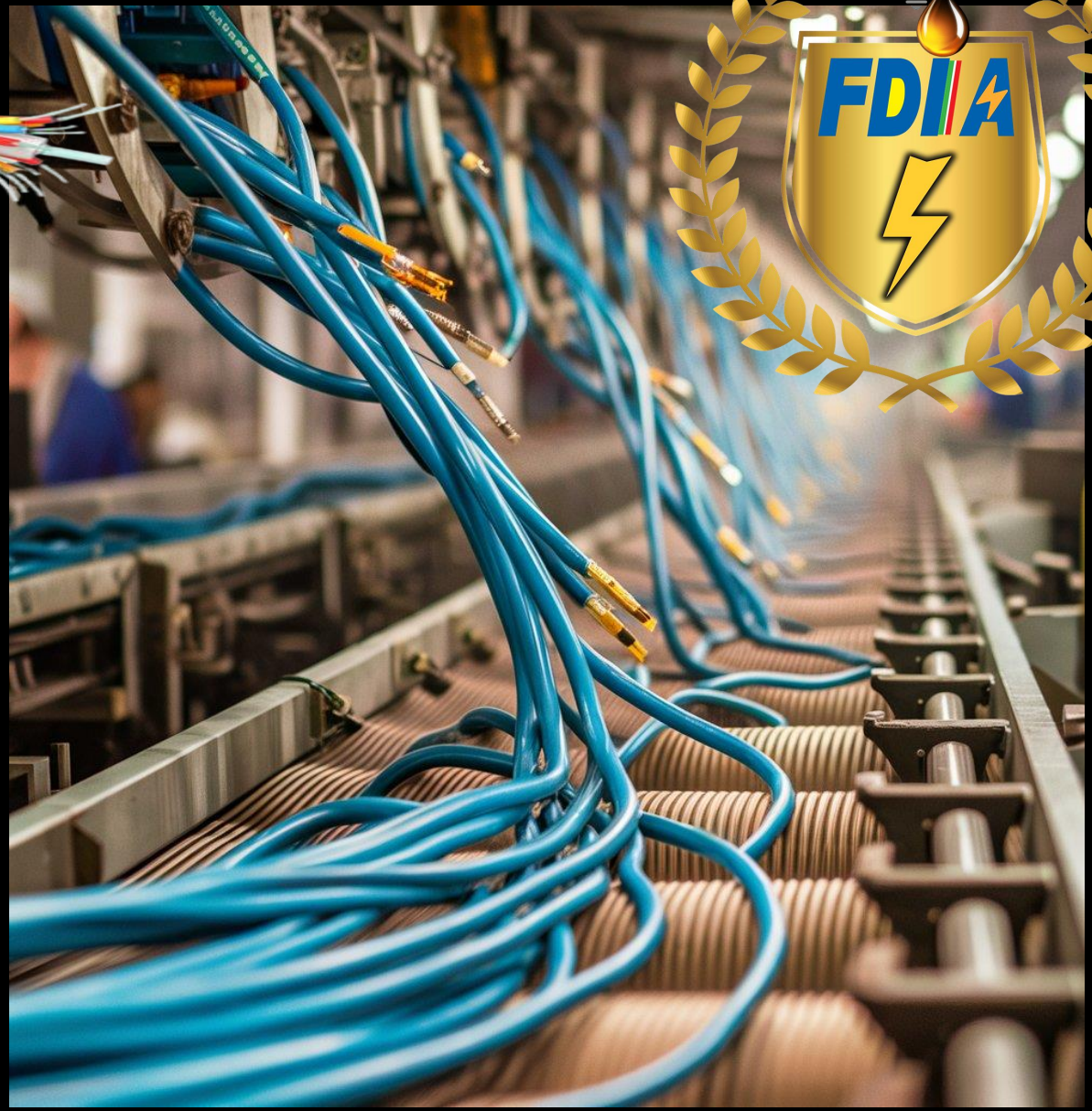
EXPLORE AUTOMATION AND DIGITALIZATION SOLUTIONS TO ENSURE EFFICIENCY, ERROR REDUCTION AND REAL-TIME MONITORING OF PRODUCTION.





- OVER THE PAST SEVERAL YEARS, THERE HAVE BEEN MAJOR IMPROVEMENTS TO THE MATERIALS USED TO ENCAPSULATE THE INTERNAL PERMANENT WIRES.POLYVINYL CHLORIDE (PVC) WAS ONCE THE STANDARD MATERIAL, BUT THERE HAS BEEN A NOTICEABLE SHIFT TOWARD A VARIETY OF MATERIALS THAT ARE GENERALLY CATEGORIZED AS LOW FIRE DANGER, LOW SMOKE, AND ZERO HALOGEN.
- WHILE VARIOUS STANDARDS EXIST FOR MANAGING THE IMPACT OF FIRE ON WIRES INSIDE BUILDINGS, RELATIVELY FEW OF THEM ARE REQUIRED UNTIL THE EUROPEAN UNION'S CONSTRUCTION PRODUCTS DIRECTIVE TAKES EFFECT. NONETHELESS, A LOT OF MAJOR USERS NOW REQUEST LOW-FLAMMABILITY, ZERO-HALOGEN CABLES AS AN ADDITIONAL LAYER OF PROTECTION FOR THEIR OWN FACILITIES, IT ASSETS, AND STAFF.

- THE 50/125 µM AND 62.5/125 µM FIBERS SHOW INCREASING COSTS LEADING TO THE RELATIVELY EXPENSIVE LARGE CORE DIAMETER, HIGH NA FIBERS SUCH AS THE 200/280 µM DESIGNS.
- FOR A GIVEN FIBER THE ADDITION OF A SECONDARY COATING (TAKING THE OPTICAL FIBER TO PERHAPS 900 µM IN DIAMETER) IS A SEPARATE PROCESS WHICH MUST BE UNDERTAKEN PRIOR TO FINAL CABLING).THE OPTICAL FIBER SPAN IS THE MOST BASIC CABLING COMPONENT BETWEEN TWO POINTS WHICH CAN BE CONSIDERED TO BE INDIVIDUALLY ACCESSIBLE. USING THIS DEFINITION A JUMPER CABLE OR A PATCH CABLE IS AN OPTICAL FIBER SPAN. BOTH ARE INDIVIDUALLY ACCESSIBLE FROM BOTH ENDS VIA THE DEMOUNTABLE CONNECTORS ATTACHED TO THE SIMPLEX OR DUPLEX CABLE FORMATS.



- All optical fiber communication assumes a common format. Information is transmitted from one location to another by the conversion of an electrical signal to an optical signal, the transmission of that optical signal along a length of optical fiber and its reconversion to an electrical signal. This communication may take place between two or more locations, creating the concept of a network of communicating centres or nodes. These nodes may be close together, as in transport sector, or many kilometres apart as in a telecommunications network. It is useful therefore to produce some definitions to allow standardization of terms within this text.

Supply Chain and Production Line for Optical Fiber Cables

Production Chain:

- From preform to optical fiber (MCVD, OVD techniques)
- Stages: drawing, coating, splicing, and connectivity

Materials and Technology:

- Optimization of the refractive index profile (core and cladding)
- Control of attenuation, dispersion, and non-linear phenomena

Automation and Digitalization:

- Real-time monitoring using optical sensors and machine learning
- Automated inspection systems (OTDR, interferometers)

Quality Control and Certifications:

- Certificates of conformance for geometry, bandwidth, and refractive index
- Adoption of international standards (ISO 9001, ISO 14001)

Integration of the Supply Chain:

- Coordination among raw material suppliers (preform glass, polymer materials)
- Optimized logistics and distribution to ensure continuity and quality

Innovation and Maintenance:

- Use of high-precision splicing techniques and modular connectors
- Integrated sensors and predictive analytics for proactive maintenance

This structure provides a clear and concise overview of the supply chain and production line, highlighting the key points for the development and quality control of optical fiber cables.

It also supports a humanitarian vision by empowering rural business incubators and fostering sustainable development within local communities.

- The capacity of the medium to transmit data is measured by its bandwidth.Faster data injection while preserving allowable error rates at the point of reception is possible with larger bandwidths. The significance was evident for the telecommunications sector: the requirement for individual transmitting devices decreases with transmission channel bandwidth. Compared to their bulkier copper counterparts, optical fiber elements have much larger bandwidths, and their deployment has led to a significant reduction in cable size while boosting data carrying capacity.A third benefit adds to this: optical fiber made of glass or, more frequently, silica is an electrically non-conductive material, meaning that crosstalk between components has no effect on it.

- THE ADVENT OF GIGABIT AND TEN GIGABIT ETHERNET HAS SHOWN THAT 62.5/125 FIBER HAS LONG SINCE RUN OUT OF STEAM IN BACKBONE APPLICATIONS, AND WHAT WERE ONCE 2000 METRE BACKBONES SUPPORTING 100 MB/S, HAVE NOW BEEN REDUCED TO FIFTY METRES OR LESS WHEN TRYING TO COPE WITH TEN GIGABIT ETHERNET. ONLY SINGLE MODE FIBER, WITH ITS NEAR INFINITE BANDWIDTH, CAN EVER BE DESCRIBED AS FUTURE-PROOF

ROADMAP FUTURE FACTORY

THESE CRITERIA ARE AS FOLLOWS:

- STANDARDIZATION OF FIBER TYPE SUCH THAT TELECOMMUNICATIONS PRODUCT CAN

BE USED IN ALL APPLICATION HUMANITARIAN AREAS;

- REDUCTIONS IN THE COST OF OPTO-ELECTRONIC CONVERTERS BASED UPON LARGE VOLUME USAGE;

- A WIDESPREAD REQUIREMENT FOR THE DATA TRANSMISSION AT SPEEDS

THE CABLE MANUFACTURER IS IN BUSINESS TO PRODUCE CABLE. IT IS NOT THEIR RESPONSIBILITY TO GUARANTEE ITS ABILITY TO BE INSTALLED OR JOINTED ORTERMINATED WITH THE CONNECTORS CURRENTLY AVAILABLE.

THE CHARACTERISTICS OF A USER-FRIENDLY CABLE INCLUDE: READILY STRIPPED SHEATH MATERIALS; FIBERS THAT ARE UNIQUELY RECOGNIZED THROUGH COLOR OR ALPHANUMERIC ADDRESSING; AND EASILY STRIPPED PRIMARY AND SECONDARY COATINGS.

WHETHER THEY ARE JUMPER CABLES OR FIXED CABLES (INTERNAL OR EXTERIOR), THE INCLUSION OF THESE ELEMENTS IN CABLE DESIGNS MAKES THE WIRES MORE EASIER TO INSTALL, JOINT, OR TERMINATE, SAVING A SIGNIFICANT AMOUNT OF TIME.

FUTURE SCENARIO OF CERTIFICATION

- WITH REGARD TO THE OPTICAL SPECIFICATION IT IS IMPORTANT TO OBTAIN (BY DETAILING THE REQUIREMENT WITHIN THE PURCHASE ORDER)

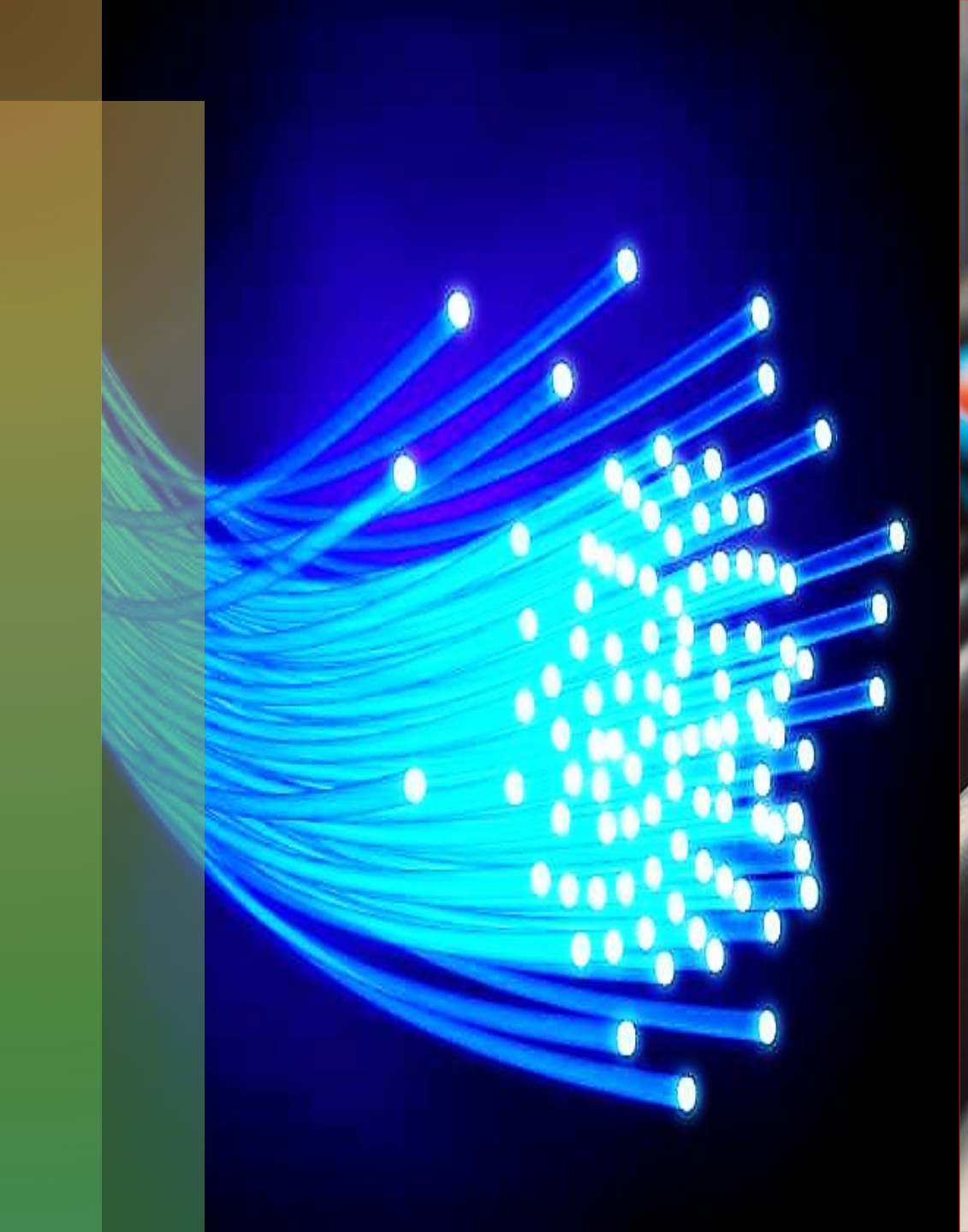
- CERTIFICATES OF CONFORMANCE FOR FIBER GEOMETRY AND NUMERICAL APERTURE (AT THE DESIRED OPERATING WAVELENGTHS).

- CERTIFICATES OF CONFORMANCE FOR FIBER BANDWIDTH (AT THE DESIRED OPERATING WAVELENGTHS).

- CERTIFICATES OF CONFORMANCE FOR REFRACTIVE INDEX OF THE OPTICAL CORE (AT THE DESIRED OPERATING WAVELENGTHS) ISO 9001 FOR QUALITY, ISO 14001 FOR THE ENVIRONMENT) AND THAT THE PRODUCTS COMPLY WITH INTERNATIONAL REGULATIONS.

PRODUCTION LINES

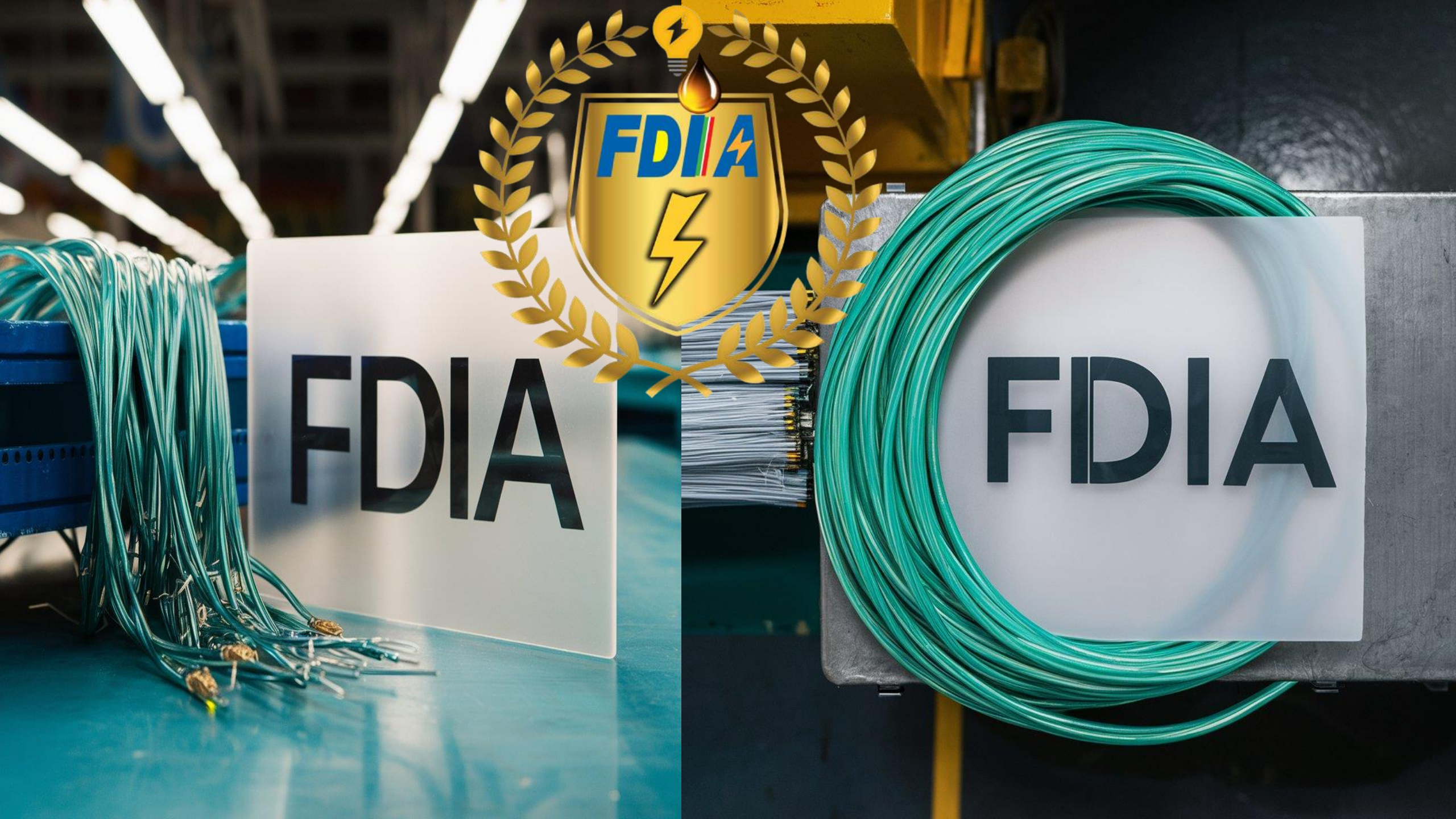
- *The production lines will be state-of-the-art facilities capable of producing approximately*
- *50,000 km of cables per year.*

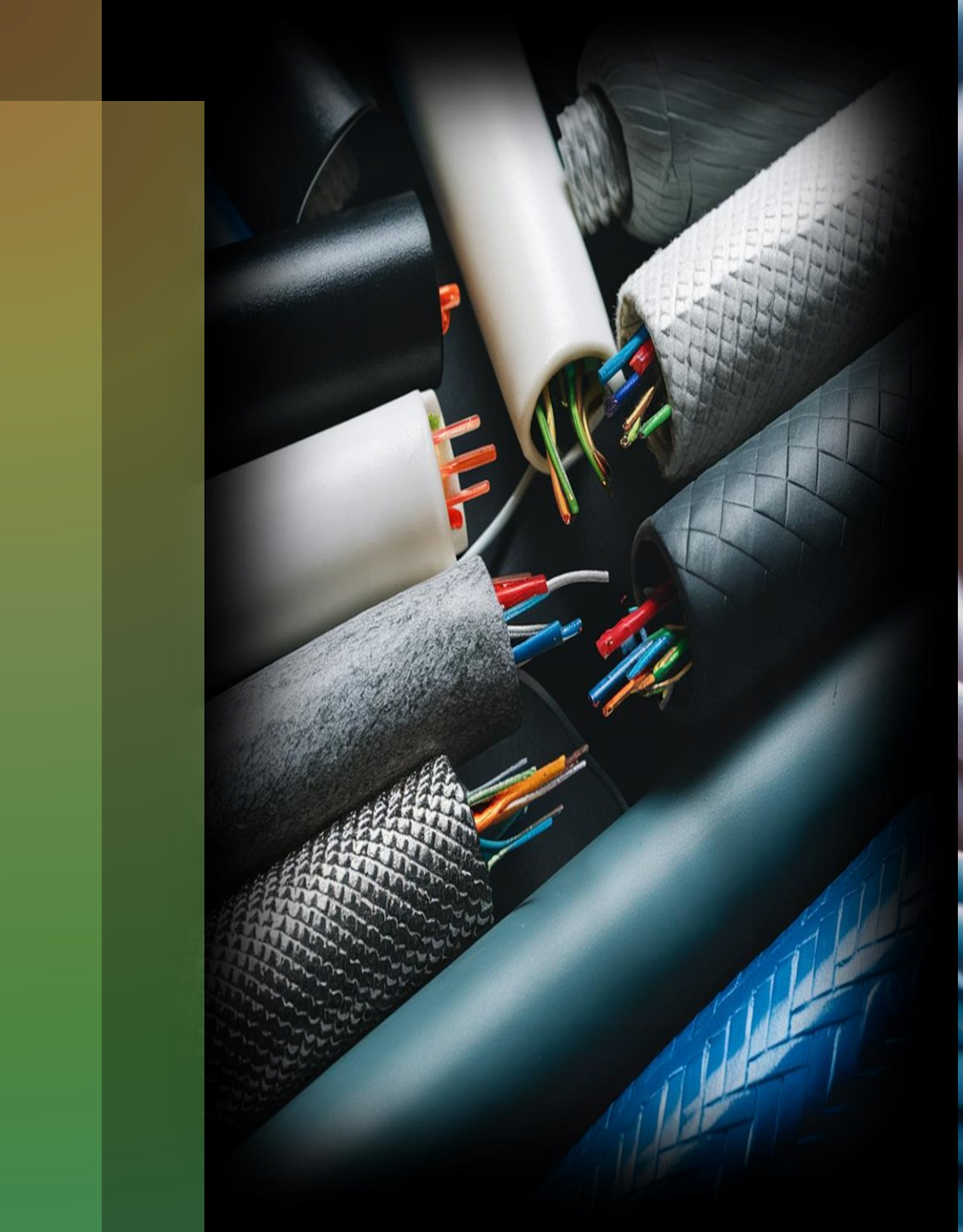



FDIA

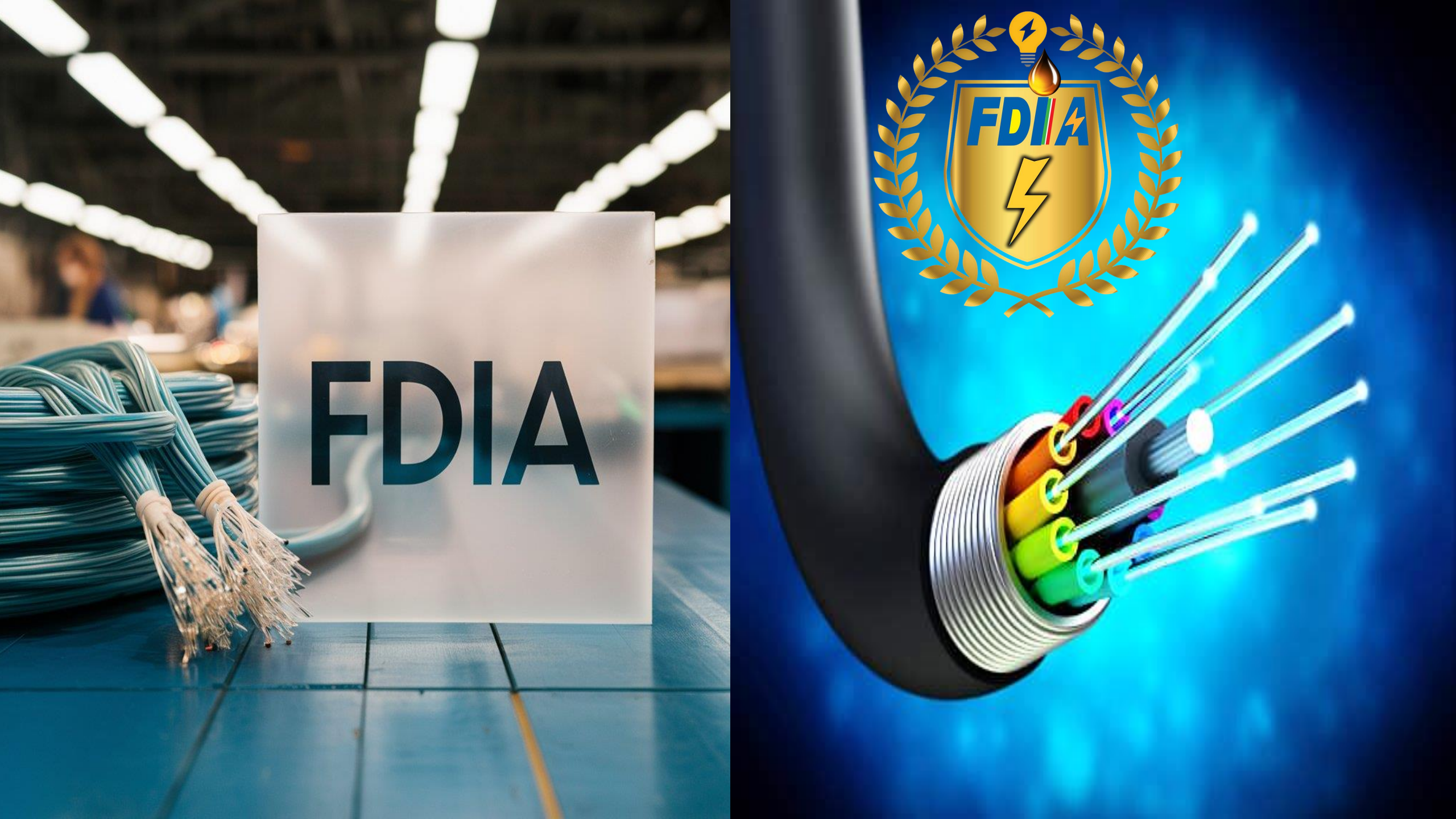
HUMANITARIAN SCENARIO

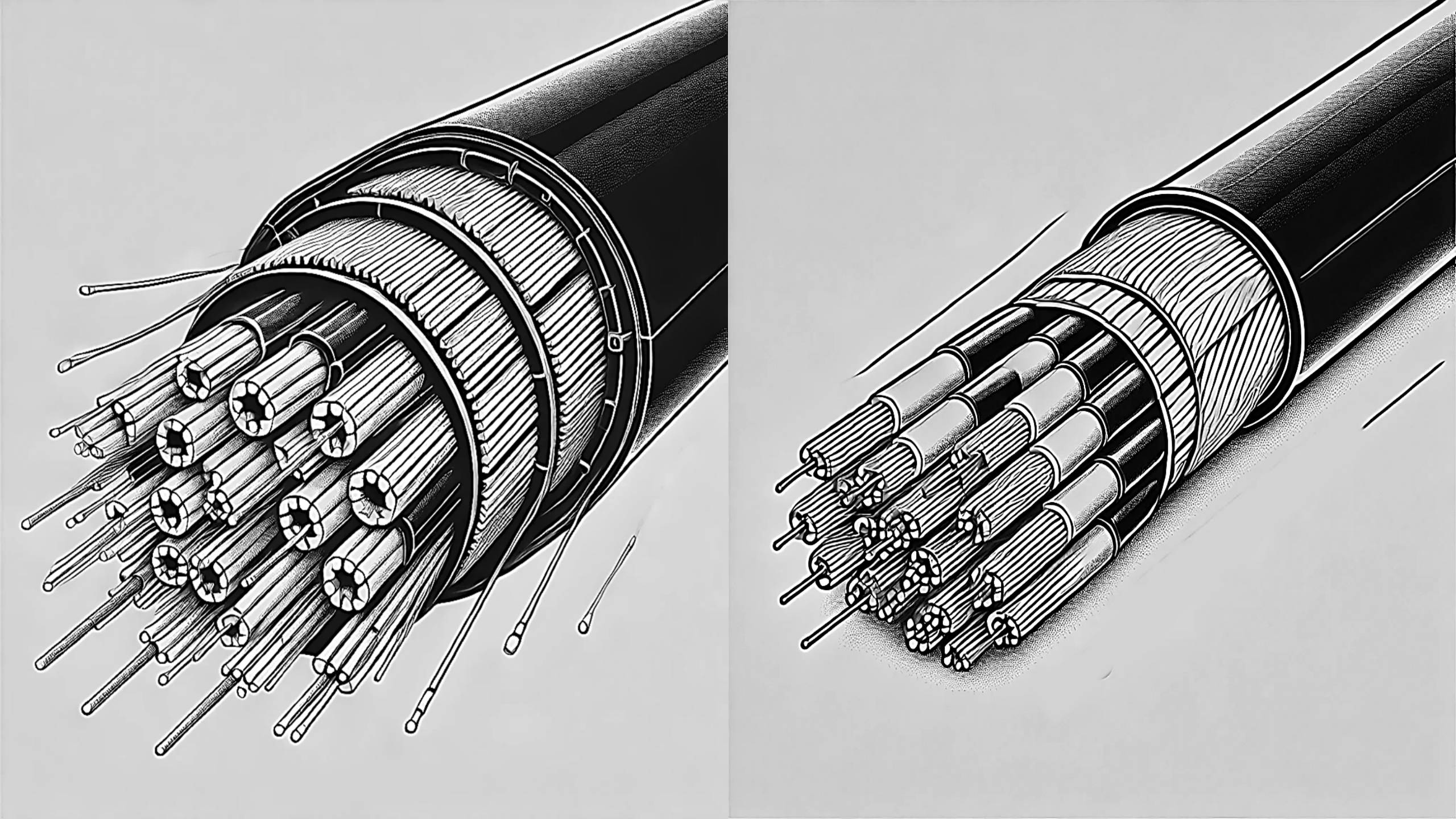
- Digital Infrastructure: Strengthen internet and mobile network coverage for better communication and economic integration.
- Rural Electrification & Connectivity: Extend electricity grids and mobile networks to remote African areas.
- Small & Medium Enterprises (SMEs): Support local businesses with project finance, training, and technology.
- Industrialization: Promote manufacturing and value-added African industries to reduce reliance on raw material exports.
- African real economy:create better & support African real & local economy


FDIA
FDIA
FDIA




FDIA


FDIA
FDIA

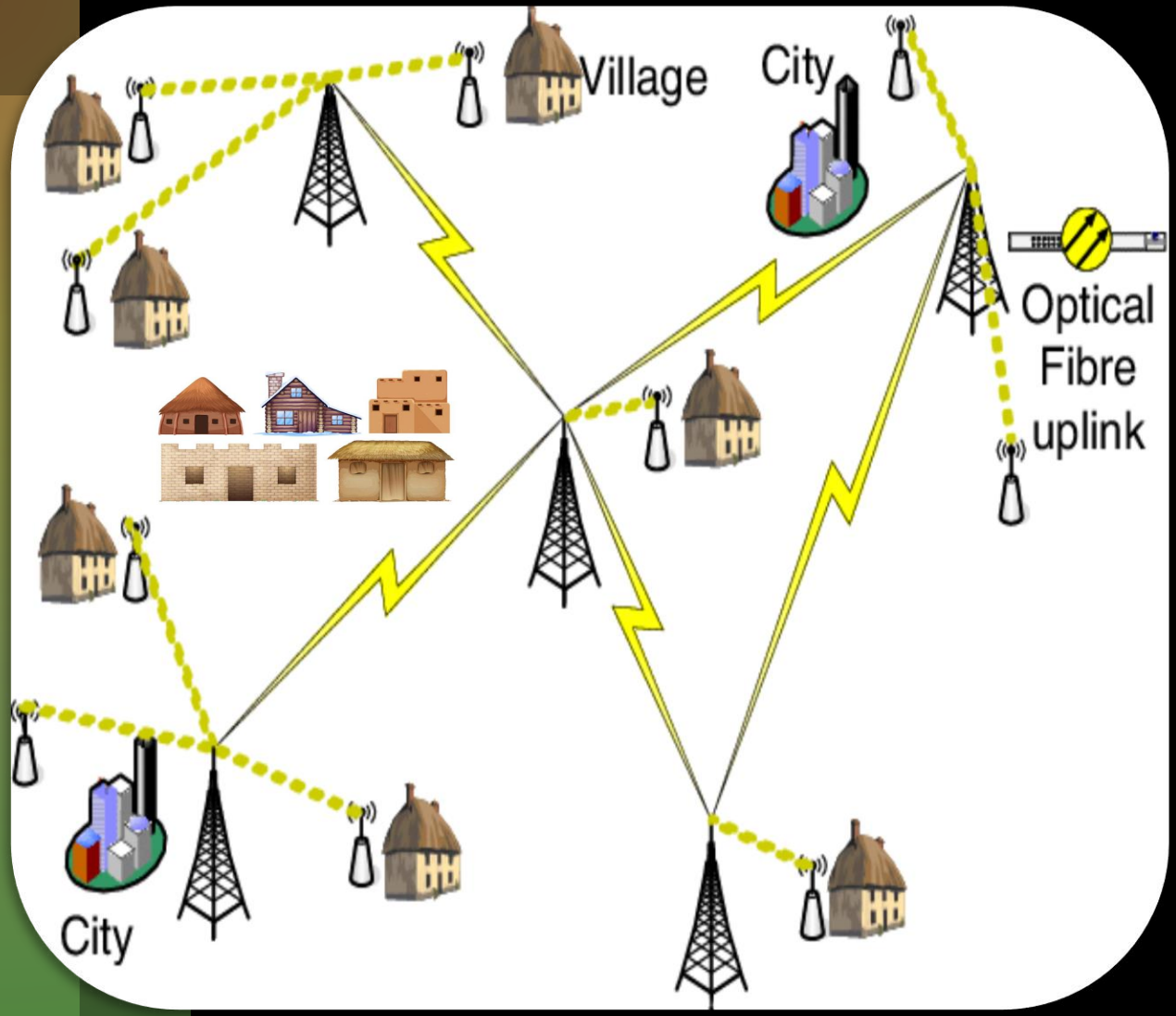



FDIA

HUMANITARIAN SCENARIO

- A HUMANITARIAN PLAN FOR CONSTRUCTION FACTORY IN A RURAL AREA TO BE DEFINED.THAT IT IS A FORMAL STATEMENT OF GOALS, REASONS THEY ARE ATTAINABLE, AND PLANS FOR REACHING THEM. IT MAY ALSO CONTAIN BACKGROUND INFORMATION ABOUT THE FEASIBILITY STUDY
- ATTEMPTING TO REACH THOSE GOALS. A VERY WELL ARTICULATED BUSINESS PLAN CAN STAND AS A STRONG DOCUMENT TO
- OUR ASSOCIATION SUPPORT THE RURAL & URBAN DEVELOPMENT
- WORK VIA THE TECHNICAL CONSULTANCY OF THE PROJECT DEVELOPER FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE REPRESENTED BY PRESIDENT LAWYER VINCENZO CORTEGIANI,GENERAL DIRECTOR DR. FABIO ROSATI and SECRETARY PROJECT MANAGER\ DR. LUCA ROSATI

FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA,
FDIA -REPRESENTAÇÃO PERMANENTE



FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE BRING DEVELOPMENT WHERE THERE IS NONE BY CREATING INNOVATIVE PROJECTS!


FDIA

SUPPLIER/STARTUP INCUBATOR

IT IS REPRESENTED BY PHARMA1HUMANITAS HOLDINGS LTD

Head-quarter:20 WENLOCK ROAD LONDON ENGLAND N1 7GU

Website: https://www.pharma1humanitas.com/index.html
Catalogues:https://www.pharma1humanitas.com/download.html
Projects:https://www.pharma1humanitas.com/password.html
Videos: https://www.pharma1humanitas.com/holding.html
Email:pharma1humanitas@gmail.com

PROJECT OWNER/PROJECT DEVELOPER

FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA - REPRESENTAÇÃO PERMANENTE REPRESENTED BY:
PRESIDENT: LAWYER VINCENZO CORTEGIANI
GENERAL DIRECTOR: DR. FABIO ROSATI,
WEB-SITE DESIGNER/PROJECT DESIGNER: DR. LUCA ROSATI

Permanent Headquarters:Portugal, AV 5 DE OUTUBRO, 63 R/C - CODIGO POSTAL 1050-048,R/C, LOJOA 1 E 3,LISBOA, distrito de Lisboa, concelho de Lisboa, freguesia de Avenidas Novas.

FUNDACIÓN DEMOCRÁTICA ITALO AMERICANA, FDIA -REPRESENTAÇÃO PERMANENTE ©

Website: www.fdiangopermanente.pt/index.html
Projects & videos:www.fdiangopermanente.pt/download.html
Email: incubator@fdiangopermanente.pt
Email:eu.secretary@fdiangopermanente.pt