

LPKF LASER & ELECTRONICS AG | NOVEMBER 2022

COMPANY OVERVIEW & STRATEGY



LPKF AT A GLANCE

A LEADING TECHNOLOGY COMPANY IN LASER-BASED MANUFACTURING SOLUTIONS



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BUSINESS STRUCTURE

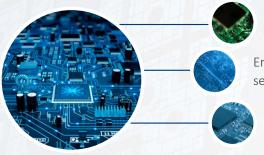
FOUR BUSINESS UNITS, TWO NEW BUSINESS INITIATIVES



4

MARKETS AND MEGATRENDS MARKET GROWTH IS DRIVEN BY GLOBAL MEGATRENDS

MINIATURIZATION



Increasing density in electronics packaging drives need for precision manufacturing tools

End of Moore's law drives need for novel semiconductor packaging solutions

High density design of electronic devices drives need for precision plastic welding

CONNECTIVITY



drives need for novel display design and manufacturing solutions

Continuous innovation in mobile devices

Growth and increasing complexity in RF solutions drives need for rapid prototyping

CARBON NEUTRALITY



Increasing share of solar power in energy production drives need for high volume, high precision manufacturing tools

E-mobility drives demand for battery pack manufacturing tools

Energy consumption of manufacturing processes and end products of increasing importance

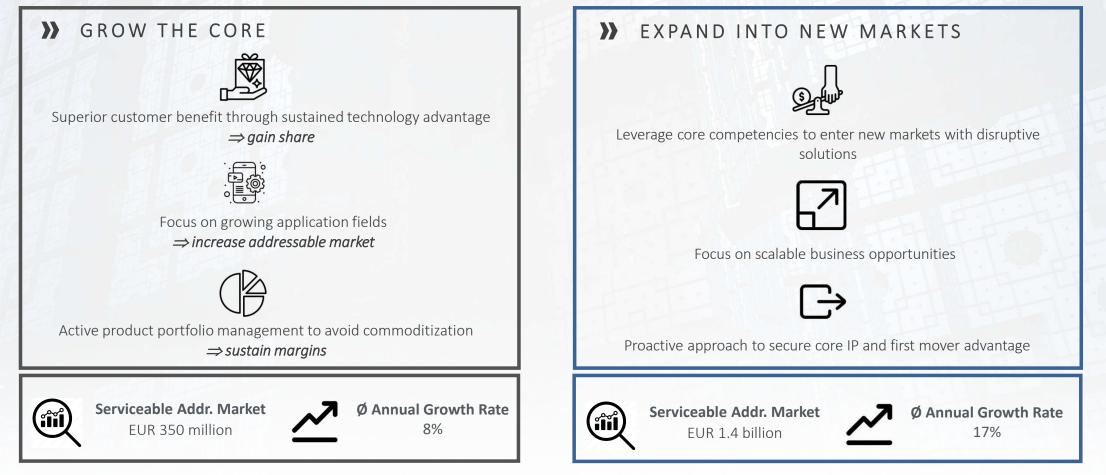
AGING POPULATION



Increasing demand for medical devices and consumables drives need for efficient manufacturing solutions

Drug development and personalized medicine drives need for efficient single cell analysis

GROWTH STRATEGY CONSISTENT APPROACH ACROSS BUSINESS UNITS



COMPANY POSITIONING ENABLERS AND KEY SUCCESS FACTORS



INNOVATION

We are innovation leaders and always ahead of the curve



MARKET AND TRENDS

We know the needs of our markets and pick up on new trends at an early stage



ENTREPRENEURIAL BOLDNESS

Our actions are characterized by entrepreneurial action and courage



SIMPLIFICATION

Increasing digitization helps us to improve efficiency



SMART PEOPLE

Our success is shaped by our employees and their knowledge



RESPONSIBLE ACTING

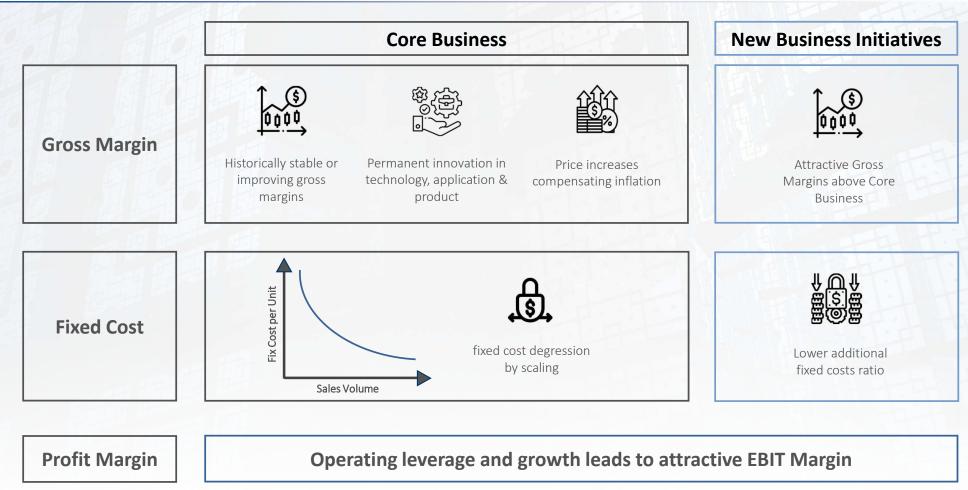
We act in partnership and responsibly



We identify new markets and trends at an early stage. We want to develop and invest courageously into disruptive new technologies to provide a superior customer benefit. Our actions are targeted at long term sustainable growth. To achieve this, we drive the following initiatives:

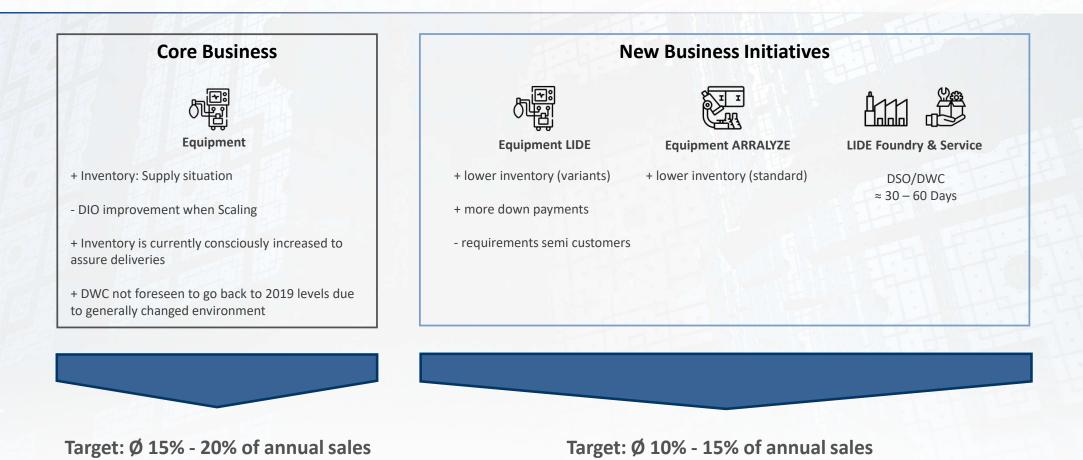
- Increased market focus through a businessdriven organization structure, a new marketing setup and an aligned IP management
- Implementation of modern IT systems to support market forecasting and operations
- Set up of a process improvement program called "Simplify" to strengthen scalability and agility
- Establishment of long-term talent management

STABLE GROSS MARGIN AND FIXED COST DEGRESSION IN CORE & NEW BUSINESS



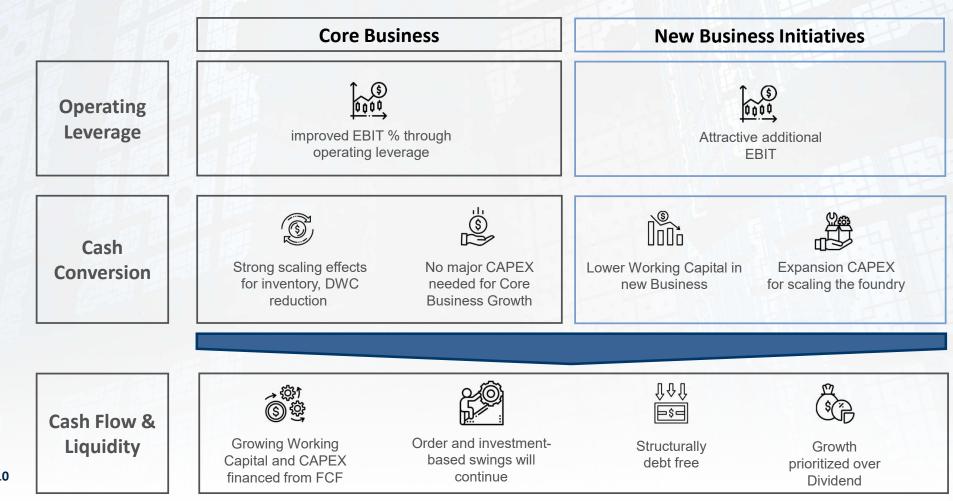
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ATTRACTIVE CASH CONVERSION CYCLE scaling and operational measures in core and growth areas



Ξ

SCALING BUSINESS OPERATIONS AND FINANCIALS **GROWTH IN CORE AND NEW BUSINESS FINANCED OUT OF CASH FLOW**



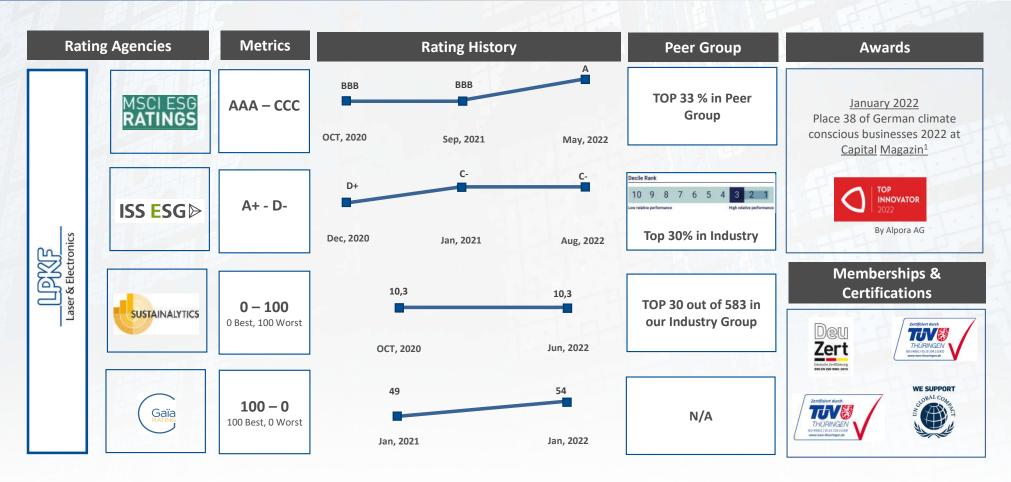
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LPKF'S ESG SCOPE BEAMING SUSTAINABILITY – OUR HOLISTIC SUSTAINABILITY APPROACH

WE SUPPORT



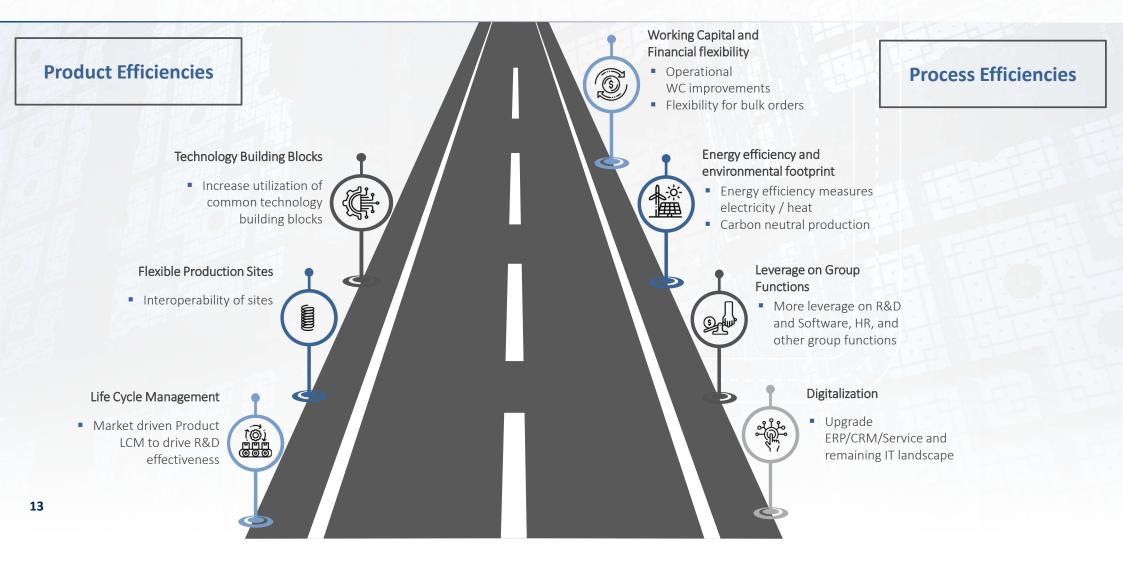
SUSTAINABILITY RATINGS CONTINUOUS INCREASE IN RATINGS

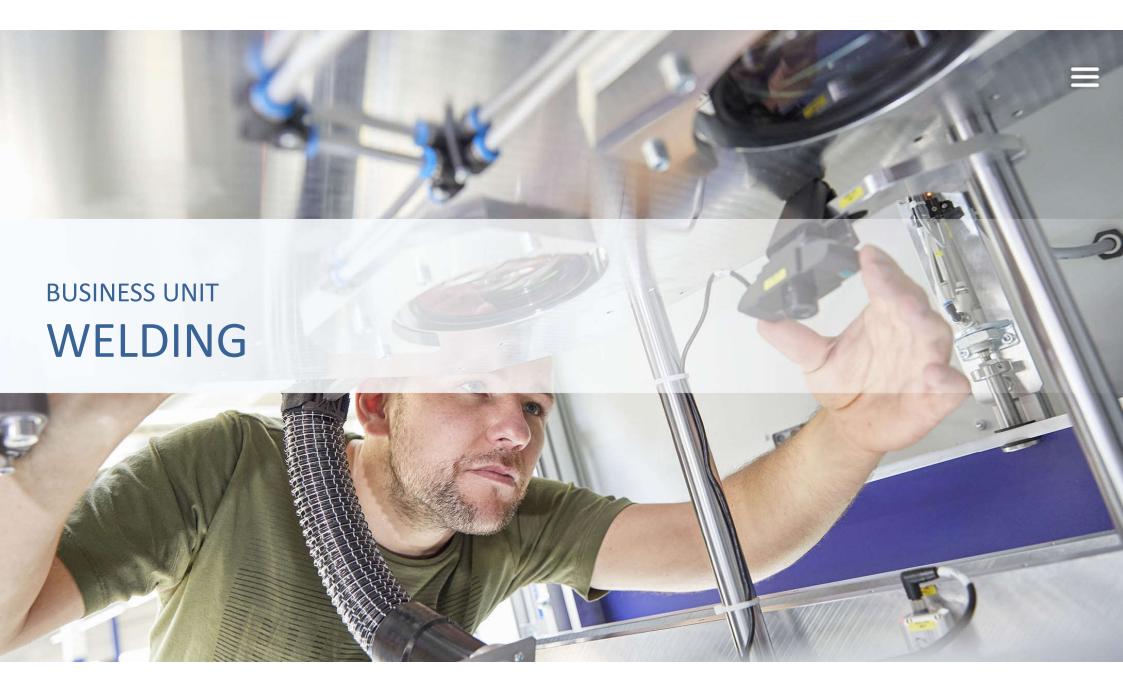


WE SUPPORT

1) Source: https://www.capital.de/wirtschaft-politik/deutschlands-klimabewusste-unternehmen-2022

ROADMAP FOR SCALING LPKF BUSINESS KEY INITIATIVES TO LEVERAGE THE OPERATING MODEL

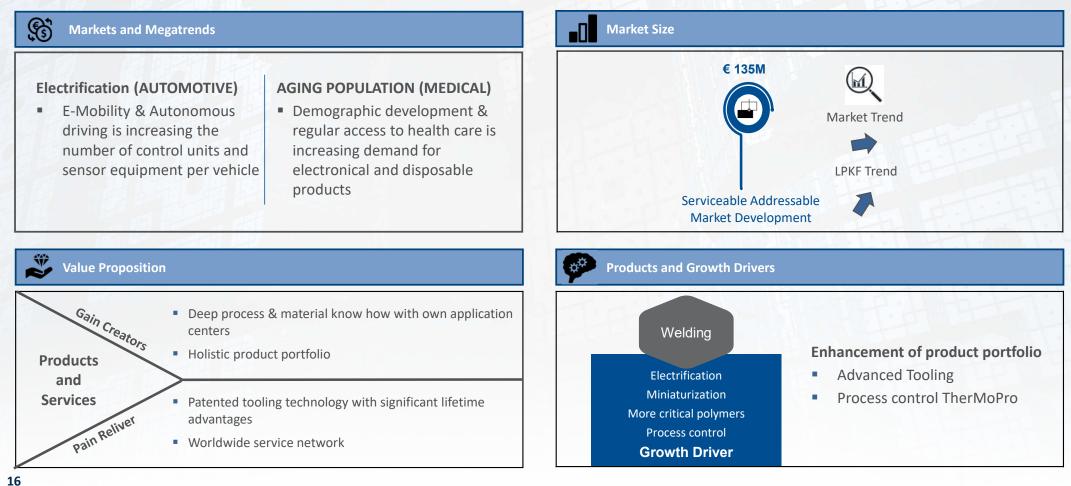




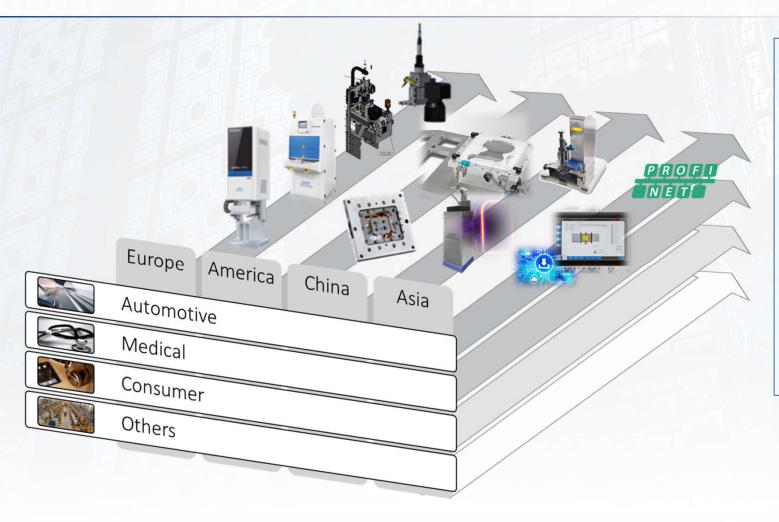
BUSINESS UNIT WELDING



BUSINESS UNIT WELDING MARKETS AND VALUE PROPOSITION



TARGET MARKETS AND INDUSTRIES 4 + 4 + TECHNOLOGY FOCUS // PILLAR GROWTH STRATEGY



TECHNOLOGY ROADMAP

- Maintain best in class machine & tooling portfolio
- Patent protected technologies
- Complementary technologies, e.g., process monitoring
- Advanced and sustainable software architecture

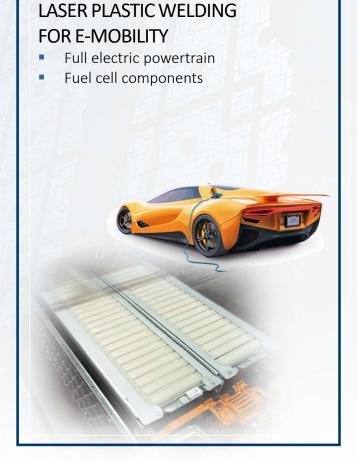
4 REGIONS

- Strengthen local presence & capabilities
- Comply with market-specific requirements
- Leverage strength in global customers

4 INDUSTRIES

- Comply with industry-specific requirements
- Develop Application & Customer groups globally

GROWING BUSINESS IN E-MOBILITY SEGMENT



UNIQUE WELDING SYSTEMS FOR MASS- AND PROTOTYPE PRODUCTIONS

- LPKF patented wobble weld function
- Stand alone system PowerWeld 3D8000
- LPKF patented servo clamping modules



LPKF PROCESS CONTROL FOR 100% QUALITY CONTROL

- Using thermocam. / pyrometer and software algorithm – developed by LPKF
- Detailed inspection of welding quality



GROWING BUSINESS IN MEDICAL INDUSTRIES

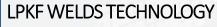


GROWING BUSINESS IN ELECTRONICS SEGMENT



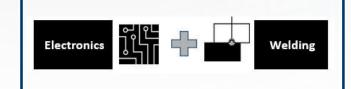
 Further development of application concepts for electrification & miniaturization





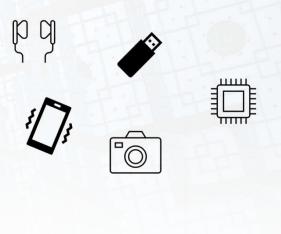
- Developed in 2020
- Synergies of LPKF business units WELDING + ELECTRONICS





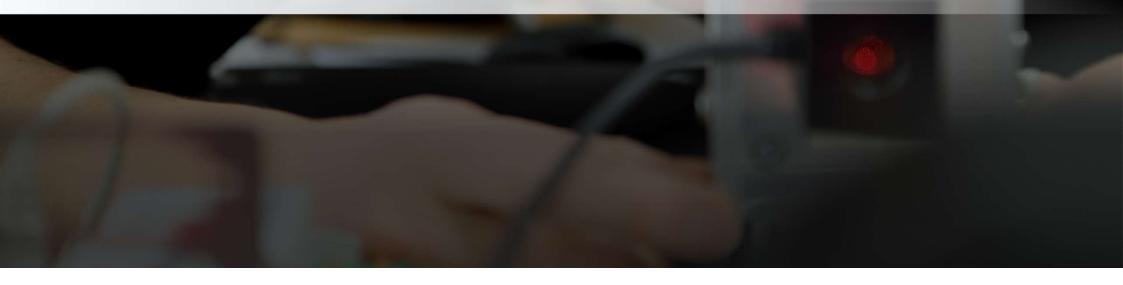
FIRST APPLICATION IN SERIAL PRODUCTION

- First successful customer project from consumer electronics industries
- Established in 2021
- Further projects in the pipeline





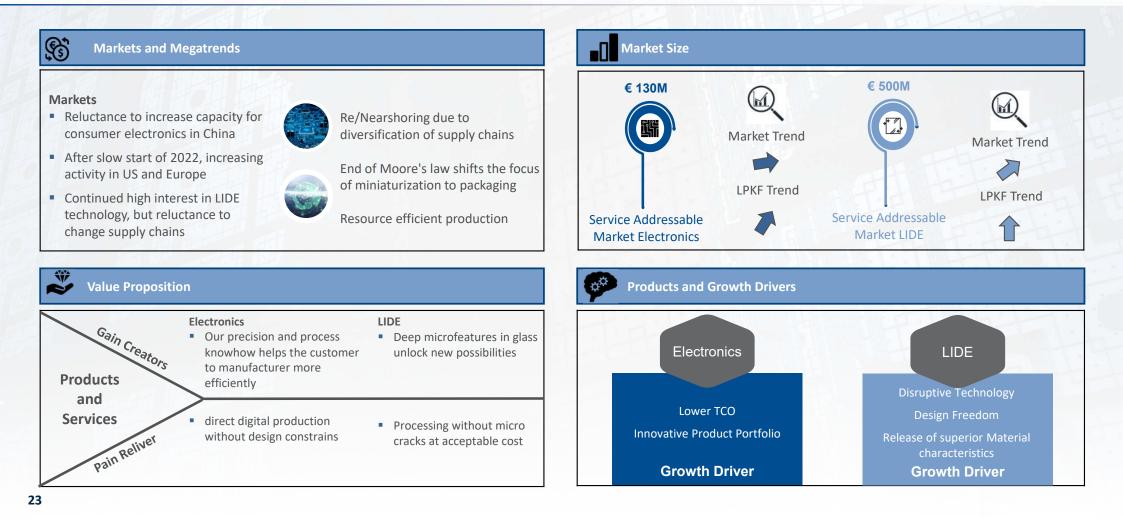
BUSINESS UNIT ELECTRONICS



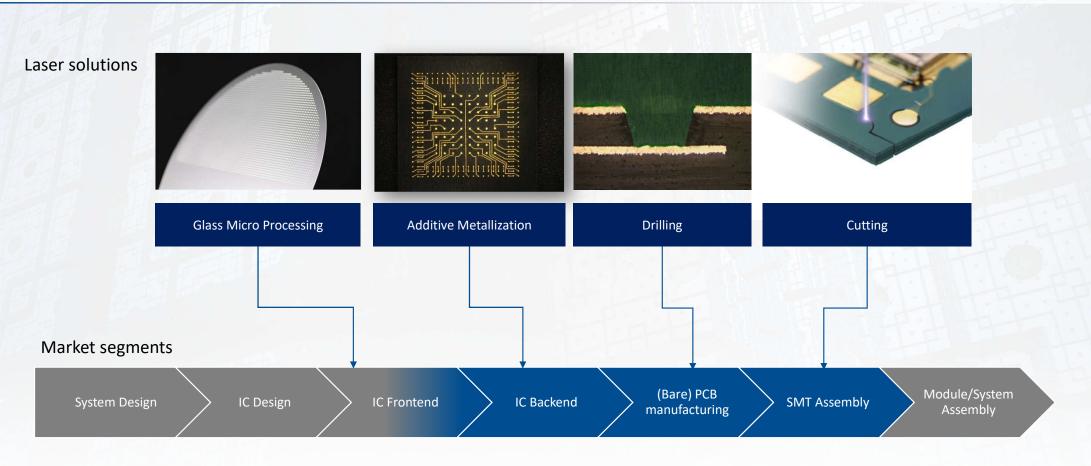
ELECTRONICS AT A GLANCE



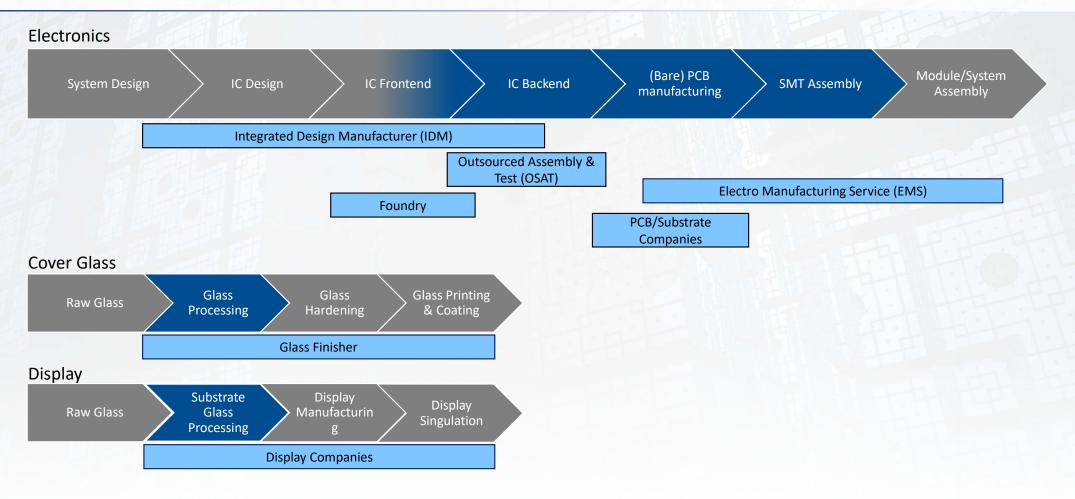
BUSINESS UNIT ELECTRONICS MARKETS AND VALUE PROPOSITION



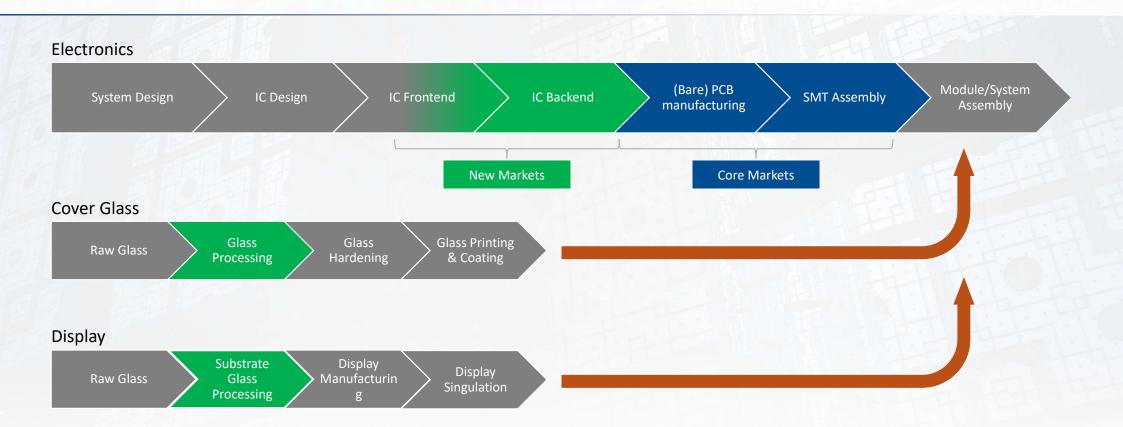
LASER SOLUTIONS FOR ELECTRONICS MANUFACTURING



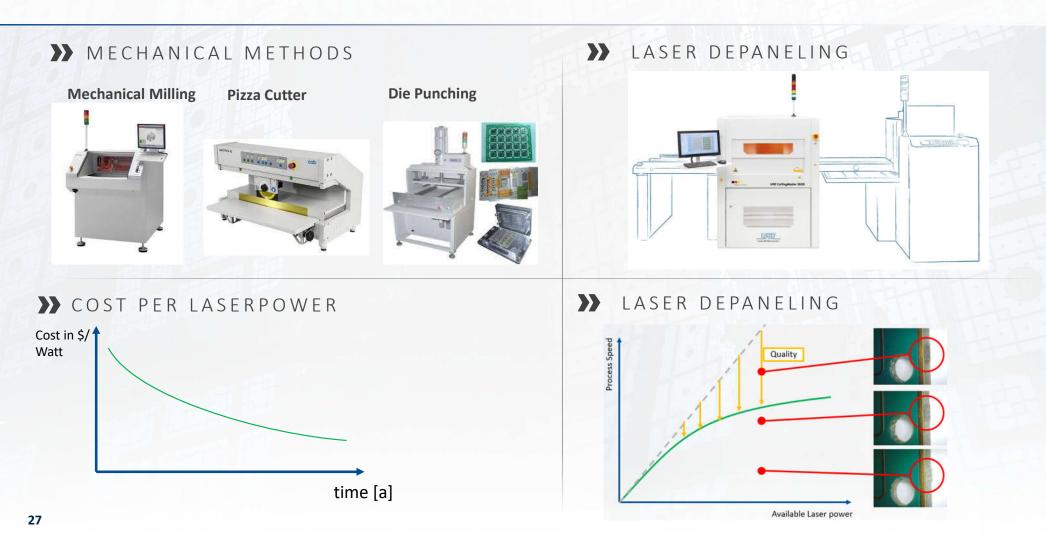
OUR CUSTOMER GROUPS



EXPANSION OF PRODUCT OFFERING



LASER DEPANELING REPLACES MECHANICAL SOLUTIONS



TENSOR TECHNOLOGY LPKF'S SOLUTION TO THE LASER POWER DILEMMA

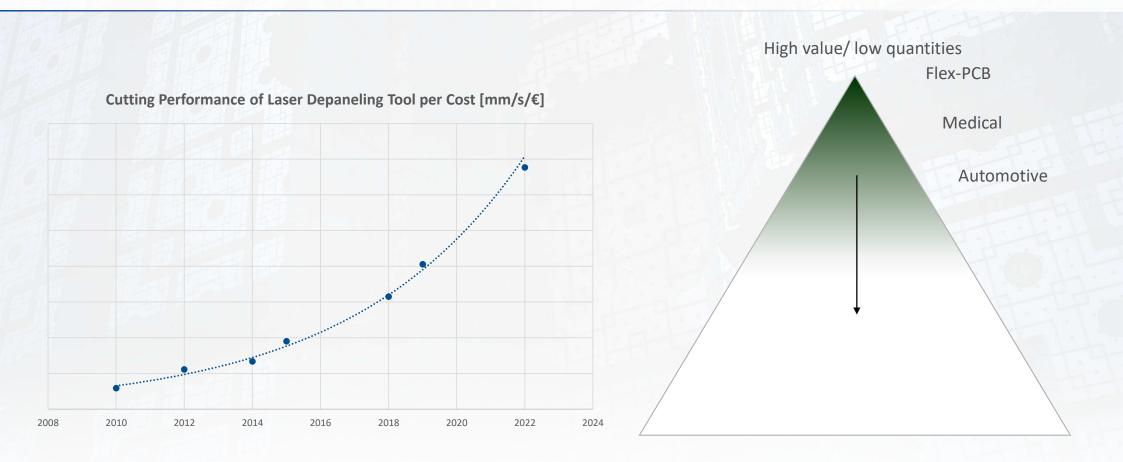
 Approach: keeping quality at higher laser powers by high-speed beam deflection

LPKF Tensor

- Supplementary component of our beam delivery system
- Purpose: efficient and clean application of all of the available laser power
- Patented technology based on LPKF LIDE technology
- Up to 70% faster than competitors in the same performance class



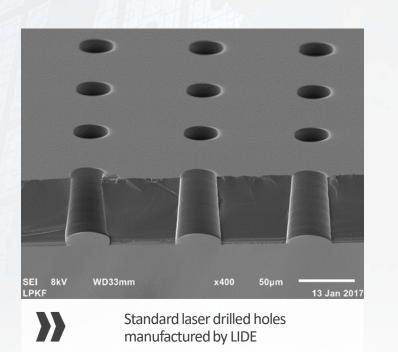
LASER DEPANELING GAINING MARKET SHARE

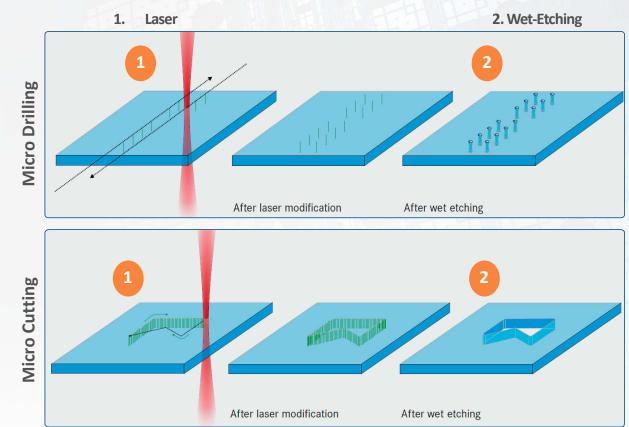


NEW BUSINESS INITIATIVE LASER INDUCED DEEP ETCHING (LIDE)



LASER INDUCED DEEP ETCHING





LIDE COMMERCIALIZATION STRATEGY WE ADAPT FLEXIBLY TO DIFFERENT CUSTOMER SEGMENTS AND APPLICATIONS



DISPLAY AND SEMICONDUCTOR BUSINESS STATUS OF BUSINESS DEVELOPMENT

First LIDE equipment delivered for production of display backplanes

JDA with major mobile display manufacturer running

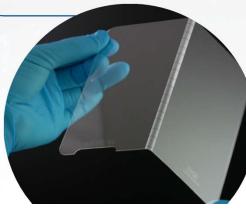
First LIDE equipment delivered for mass production of wafer level packaging components

Umbrella supply agreement concluded with major semiconductor OEM

Multiple projects on TGV with major OEMs

Projects on other application with major OEM

Continued high sample rate





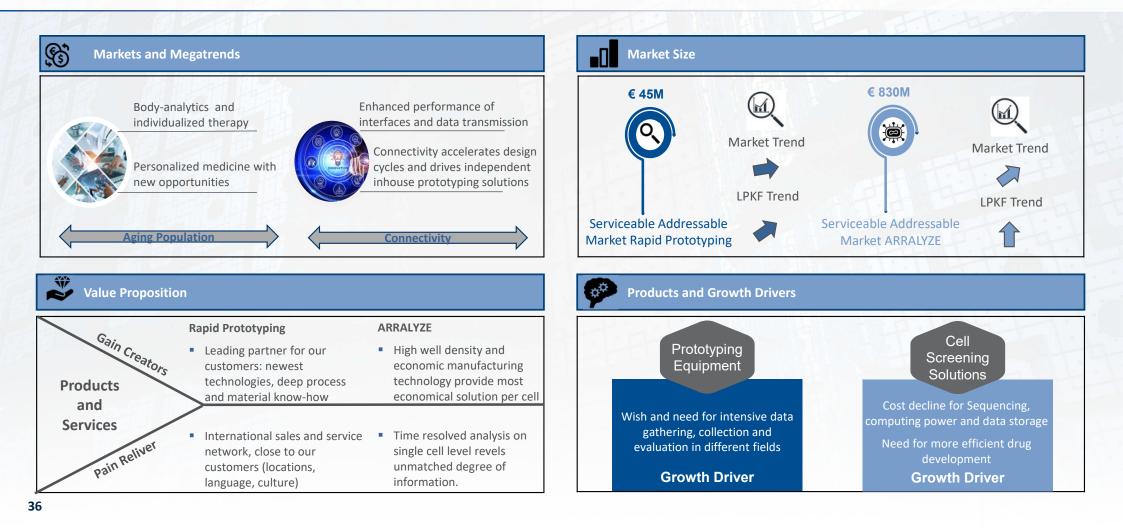
BUSINESS UNIT



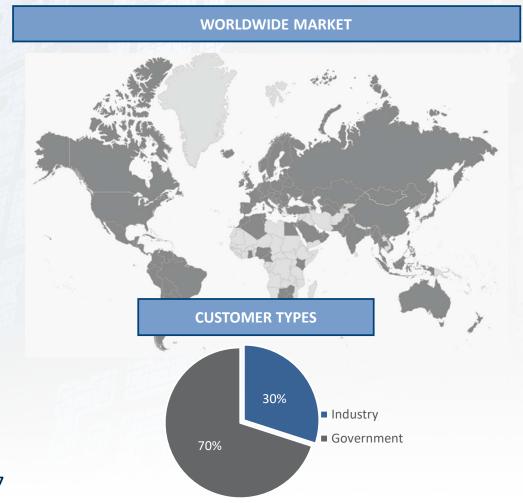
DEVELOPMENT AT A GLANCE KEY FACTS



BUSINESS UNIT DEVELOPMENT MARKETS AND VALUE PROPOSITION



REGIONS AND CUSTOMERS - RAPID PROTOTYPING

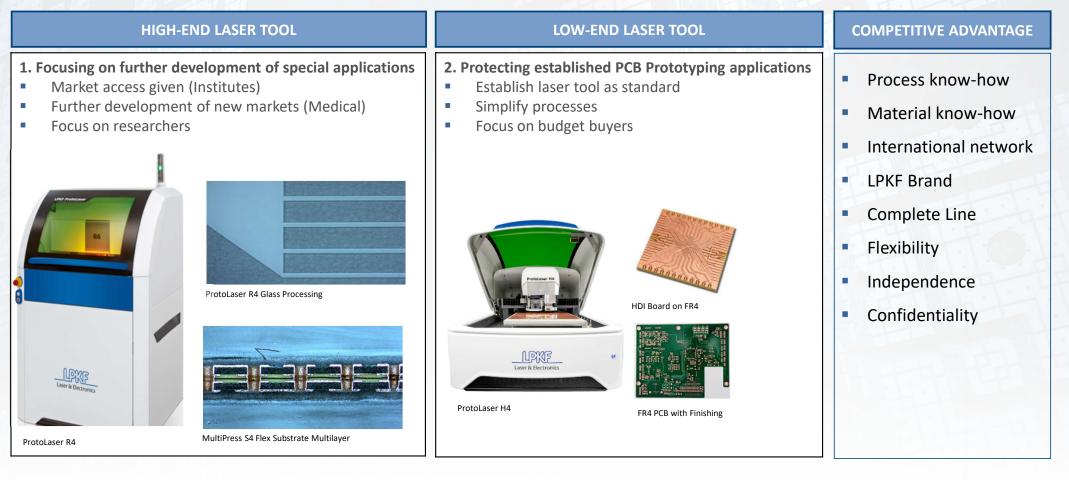


CHALLENGE FOR CUSTOMERS

WHY RAPID PROTOTYPING?

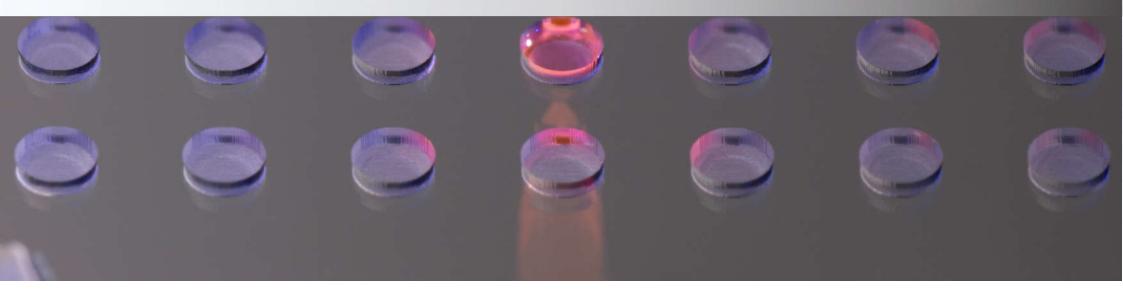
- Time to market: increasing time pressure
- Security: protection of design layout / IP
- Flexibility: several iteration steps necessary
- Quality: high expectations towards geometric accuracy
- No waste: proof of concept before investment
- Plannable costs: internal order handling
- Autonomous responsibility: maintain control of process
- No chemicals: environmental awareness

GROWTH DRIVERS - RAPID PROTOTYPING





NEW BUSINESS INITATIVE



WHY SCREENING LARGE CELL POPULATIONS

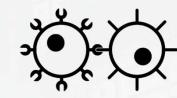
Applications that require to screen single cells:



CLD



mAb

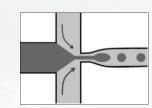


Cell Therapy

Common technologies for single cell screening:

SynBio





Cytometry

Droplet technology

Enclosed wells

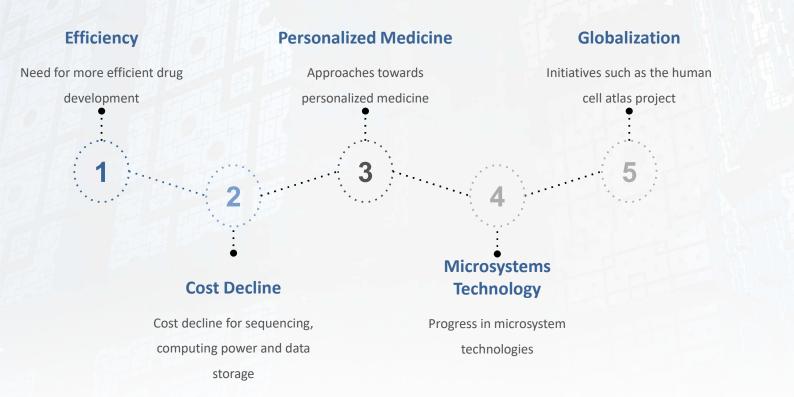


Open wells

What makes a good cell screening technology:

- allows for large numbers of cells per experiment
- low cost per cell
- gentle to cell
- as close to in-vivo as possible
- allows for functional assays
- easy to use

MARKET DRIVERS AND TRENDS

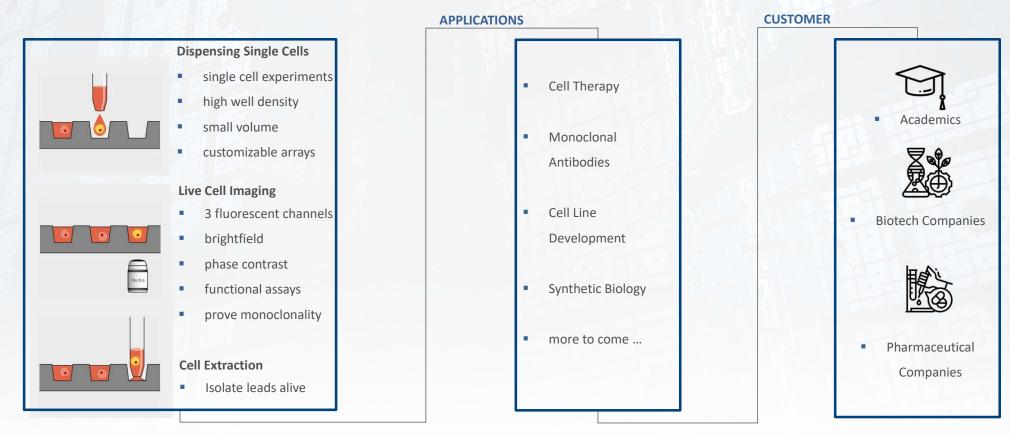


ARRALYZE's Solutions

- Best cost/cell
- Seamless and automated process
- Deeper analysis on single cell level
- Shortening time of discovery
- Isolating hits alive

WHAT IS ARRALYZE

>> ARRALYZE is a Digital Cell Biology Platform for Discovery, Development and Delivering of Cell-Based Products.



>> ARRALYZE enables to screen huge cell populations, identify the cells of interest and isolate them.

>> PRODUCTS PORTFOLIO



- CellShepherd[®]
- Stand-alone workstation
- Dispensing, imaging and isolation of cells

Consumables

- Standardized arrays
- Customizable arrays
- Works seamlessly with CellShepherd[®]

Software

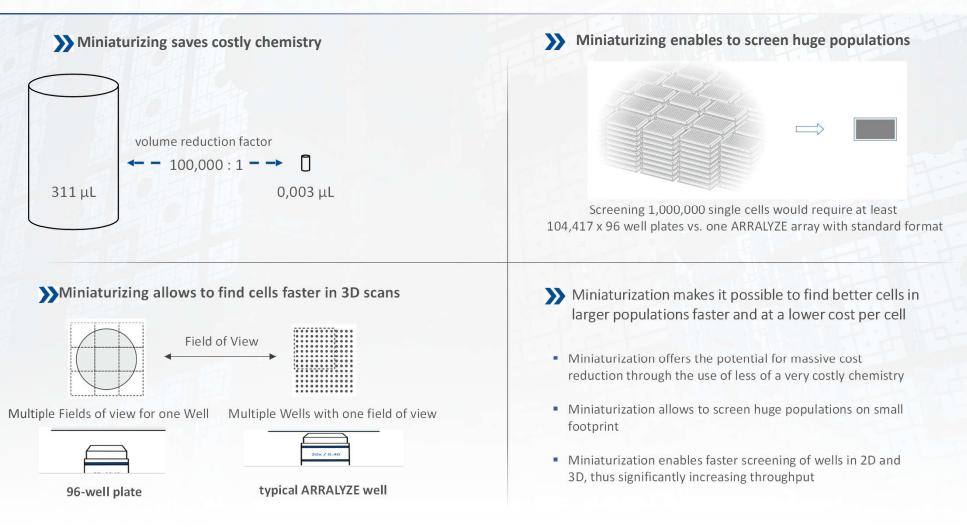


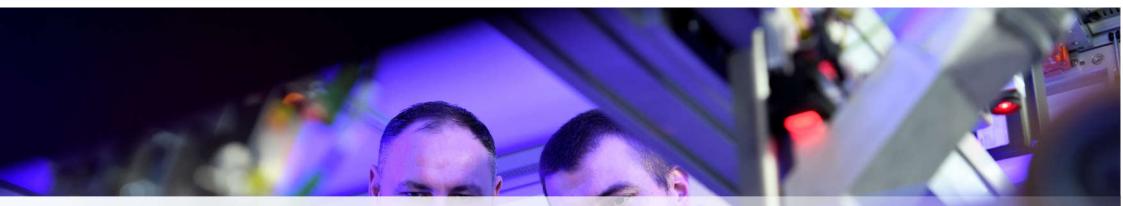
Basic software licence

- Sophisticated software routines
- Specialized machine learning algorithms

Development of a holistic product portfolio

THE COMPETITIVE ADVANTAGE OF ARRALYZE





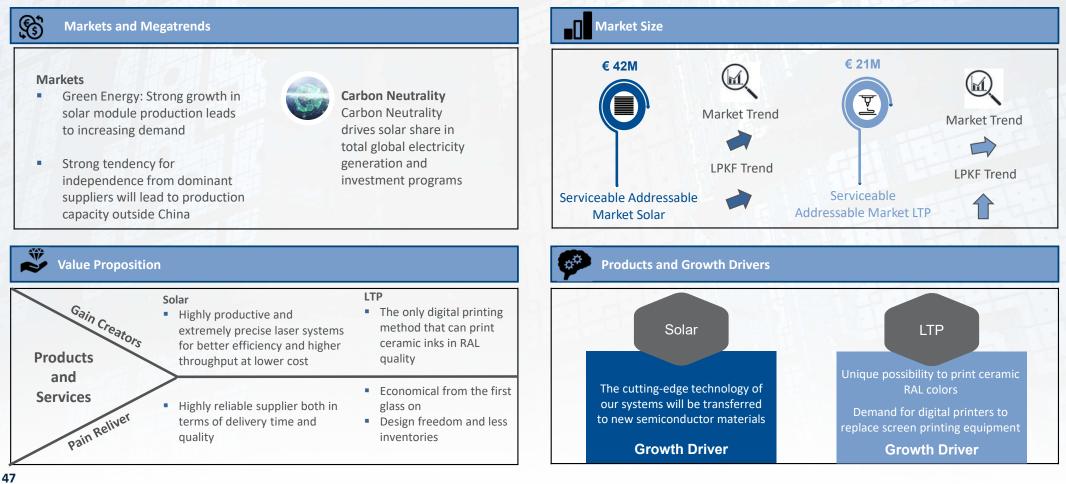
BUSINESS UNIT



BUSINESS UNIT SOLAR



BUSINESS UNIT SOLAR MARKETS AND VALUE PROPOSITION



SOLAR MARKET ENERGY DEMAND AND CARBON NEUTRALITY

- Solar market passed the 1 TW threshold of installations in May 2022
- It took 16 years to install 500GW but only a little more than 3 years to double this value
- Solar power Europe predicts global solar to more than double to 2.3TW in 2025
- The share of thin film solar is stable in a growing market
- Additional opportunities due to Perovskite semiconductor materials entering the thin film market
- Perovskite technology offers higher potential efficiencies at lower cost giving the potential of an increased share of thin film at the total solar market



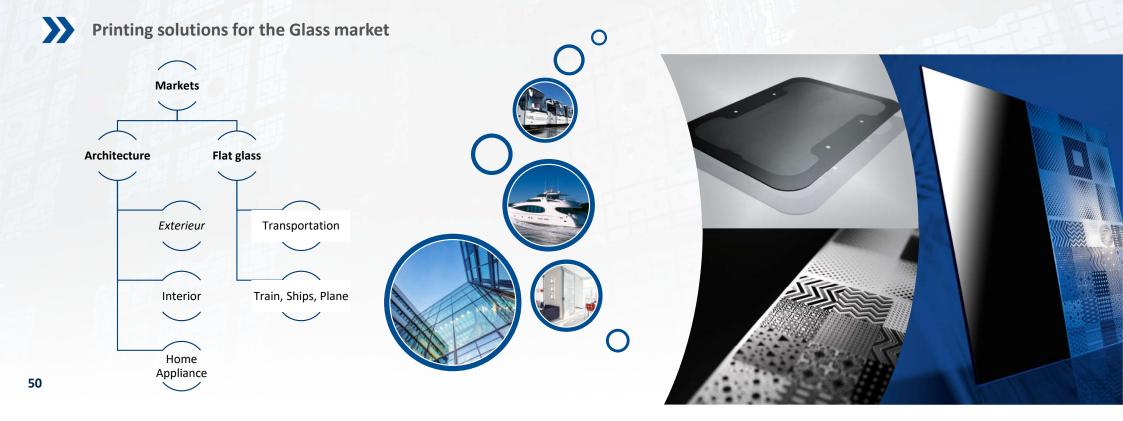
VALUE PROPOSITION

- Highly productive systems offering short cycle times on large formats are in the market
- Productivity increase with latest generation: 40%
- Reduction of dead zone with latest generation: 15%
- The technology platform for CdTe serves disruptive technologies such as Perovskite semiconductor materials in the same way



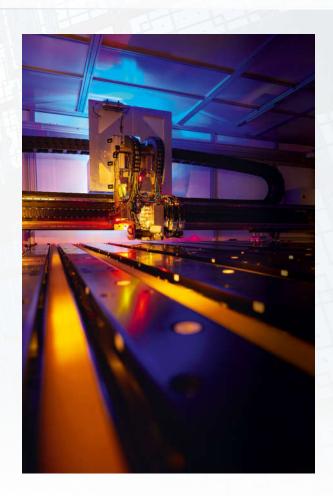
PRINTING SOLUTIONS FOR THE GLASS MARKET

- Laser Transfer Printing is the digital printing solution for ceramic inks
- Market introduction of the new Novaprint machine at Glasstech 2022



VALUE PROPOSITION

- LTP is the only digital printing process to produce color fastness
- Guaranteed comparability of color shades to analog printing processes (screen printing, roller coater)
- Layer thicknesses up to 80 µm in one printing process -Inkjet applies 1µm per print process
- Flexibility in the architectural field is unique
- Fast model changeover without time-consuming machine setup



CURRENT TRADING & FINANCIALS



CURRENT TRADING MARKET DEVELOPMENT & ENVIRONMENT

- Electronic Manufacturing Market still slow due to component shortage and market uncertainty
- Strong demand in Prototyping, Solar, Battery Packs and Medical
- Some cautiousness at customer side to implement disruptive changes in supply chain

Market Situation

- Good market response to new product launches (e.g., Tensor Systems, Prototyping)
- LIDE now in operation for low volume applications, development projects with high volume customers on track
- ARRALYZE test phase with three beta customers has started
- New Product Line LTP (Laser Transfer Printing) launched

- Ukraine war: no direct impact yet, but global economic slowdown will affect our markets
- Shortage in key components causes delays, but no disruption
- Further increase in working capital to ensure delivery security
- China's zero-COVID policy repeatedly caused closures of critical infrastructure

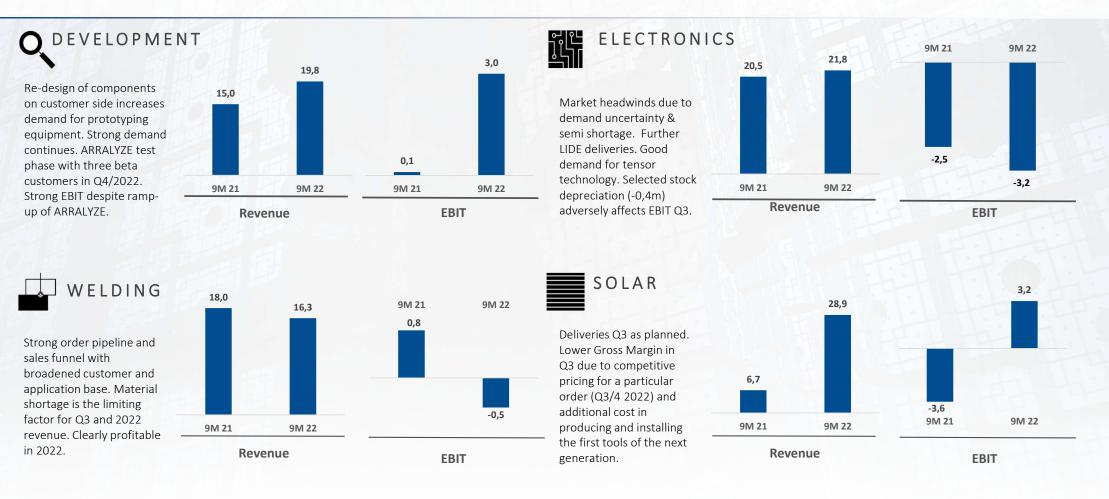


Business Development



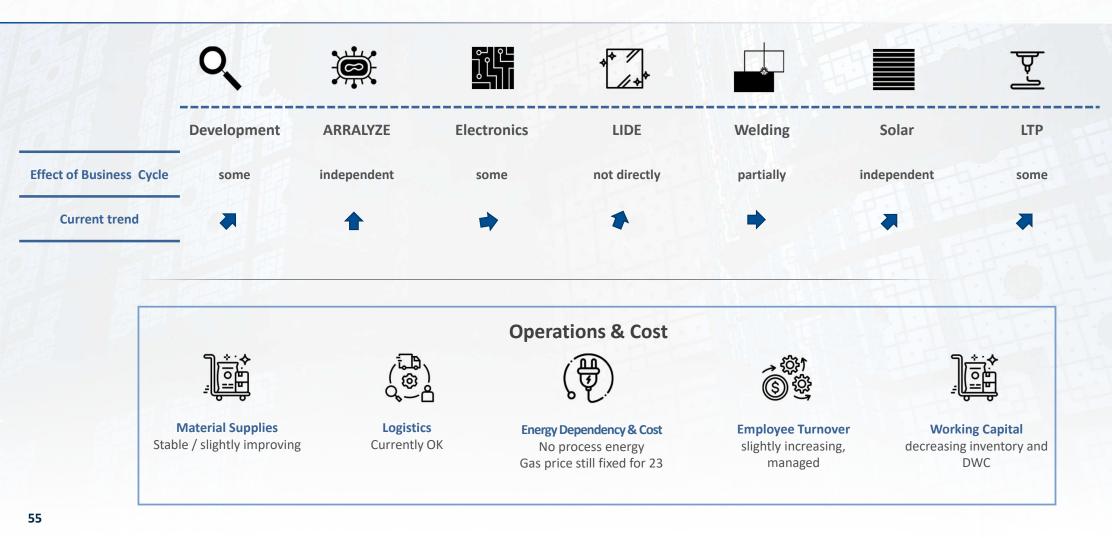
Supply Chain

ENHANCED SALES AND RESULTS IN 2022 PROFITABILITY DRIVEN BY SALES; INFLATION ROLLED OVER IN PRICING

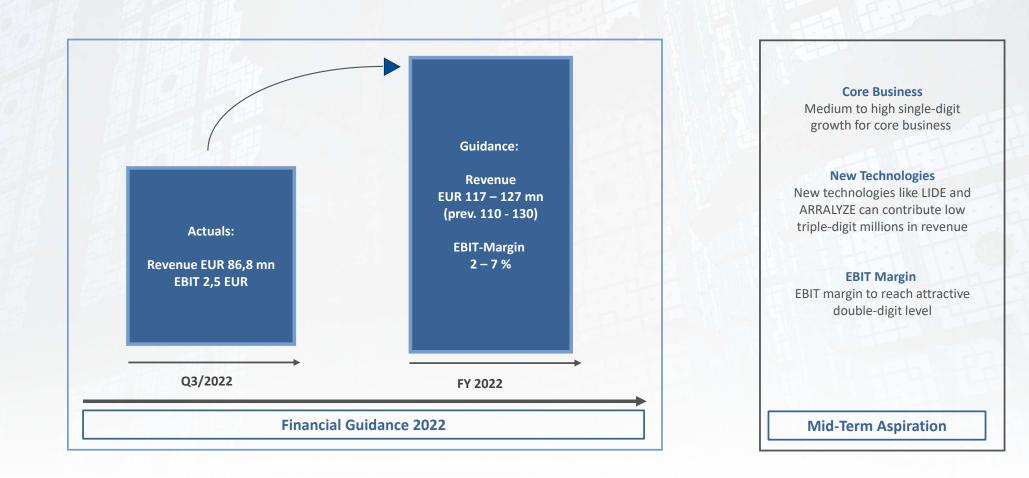


RESILIENCE AND BUSINESS TRENDS

LPKF IS PREPARED FOR A RECESSION SCENARIO, CURRENT TRENDS STILL POSITIVE



2022 GUIDANCE AND MID-TERM ASPIRATION GUIDANCE 2022 CONFIRMED



NVESTMENT HIGHLIGHTS WHY INVEST IN LPKF?



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WHERE YOU CAN MEET US UPCOMING EVENTS AND RELEASES

Reporting Dates

March 23, 2023Annual Financial Report 2022April 27, 20233-Month Financial Report 2023July 27, 2023Half-yearly Financial Report 2023October 26, 20239-Month Financial Report 2023

Annual General Meeting

May 17, 2023

Conferences & Events November 29, 2022

December 6, 2022

More information on LPKF on - www.LPKF.com/investor-relations

RELATIONS TEAM

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