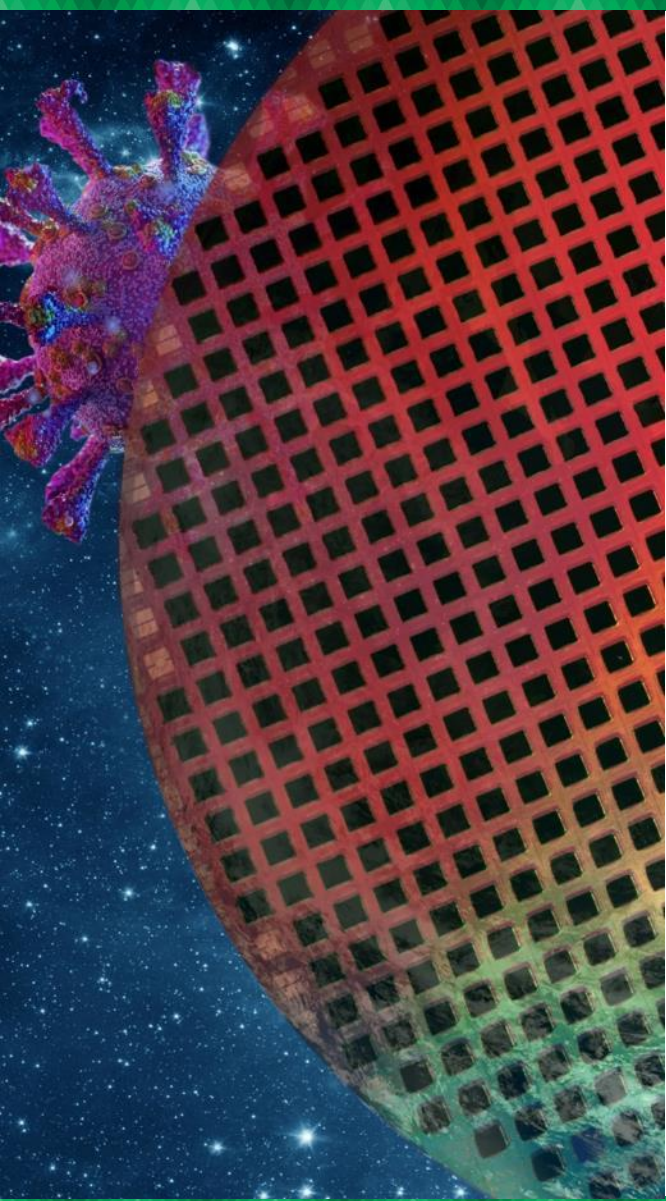




# INVESTOR PRESENTATION

May 2022

This presentation contains statements about management's future expectations, plans and prospects of our business that constitute forward-looking statements, which are found in various places throughout the presentation, including, but not limited to, statements relating to expectations of orders, net sales, product shipments, expenses, timing of purchases of assembly equipment by customers, gross margins, operating results and capital expenditures. The use of words such as “anticipate”, “estimate”, “expect”, “can”, “intend”, “believes”, “may”, “plan”, “predict”, “project”, “forecast”, “will”, “would”, and similar expressions are intended to identify forward looking statements, although not all forward looking statements contain these identifying words. The financial guidance set forth under the heading “Outlook” contains such forward looking statements. While these forward looking statements represent our judgments and expectations concerning the development of our business, a number of risks, uncertainties and other important factors could cause actual developments and results to differ materially from those contained in forward looking statements, including any inability to maintain continued demand for our products; failure of anticipated orders to materialize or postponement or cancellation of orders, generally without charges; the volatility in the demand for semiconductors and our products and services; the extent and duration of the COVID-19 pandemic and measures taken to contain the outbreak, and the associated adverse impacts on the global economy, financial markets, global supply chains and our operations as well as those of our customers and suppliers; failure to develop new and enhanced products and introduce them at competitive price levels; failure to adequately decrease costs and expenses as revenues decline; loss of significant customers, including through industry consolidation or the emergence of industry alliances; lengthening of the sales cycle; acts of terrorism and violence; disruption or failure of our information technology systems; consolidation activity and industry alliances in the semiconductor industry that may result in further increased customer concentration, inability to forecast demand and inventory levels for our products; the integrity of product pricing and protection of our intellectual property in foreign jurisdictions; risks, such as changes in trade regulations, conflict minerals regulations, currency fluctuations, political instability and war, associated with substantial foreign customers, suppliers and foreign manufacturing operations, particularly to the extent occurring in the Asia Pacific region where we have a substantial portion of our production facilities; our ability to mitigate the dislocations caused by the flood at one of our Malaysian production facilities, potential instability in foreign capital markets; the risk of failure to successfully manage our diverse operations; any inability to attract and retain skilled personnel, including as a result of restrictions on immigration, travel or the availability of visas for skilled technology workers as a result of the COVID-19 pandemic; those additional risk factors set forth in Besi's annual report for the year ended December 31, 2021 and other key factors that could adversely affect our businesses and financial performance contained in our filings and reports, including our statutory consolidated statements. We expressly disclaim any obligation to update or alter our forward-looking statements whether as a result of new information, future events or otherwise.

- I. Company Overview
- II. Market
- III. Strategy
- IV. Financial Update and Summary
- V. Appendix



# I. COMPANY OVERVIEW

## Corporate Profile

- Leading assembly equipment supplier with #1 and #2 positions in key markets. ~30% addressable market share
- Broad portfolio: die attach, packaging and plating
- Strategic positioning in substrate and wafer level packaging
- ~75% of systems used for advanced packaging applications
- Global operations in 6 countries; 2,308 employees. HQ in the Netherlands

## Financial Highlights

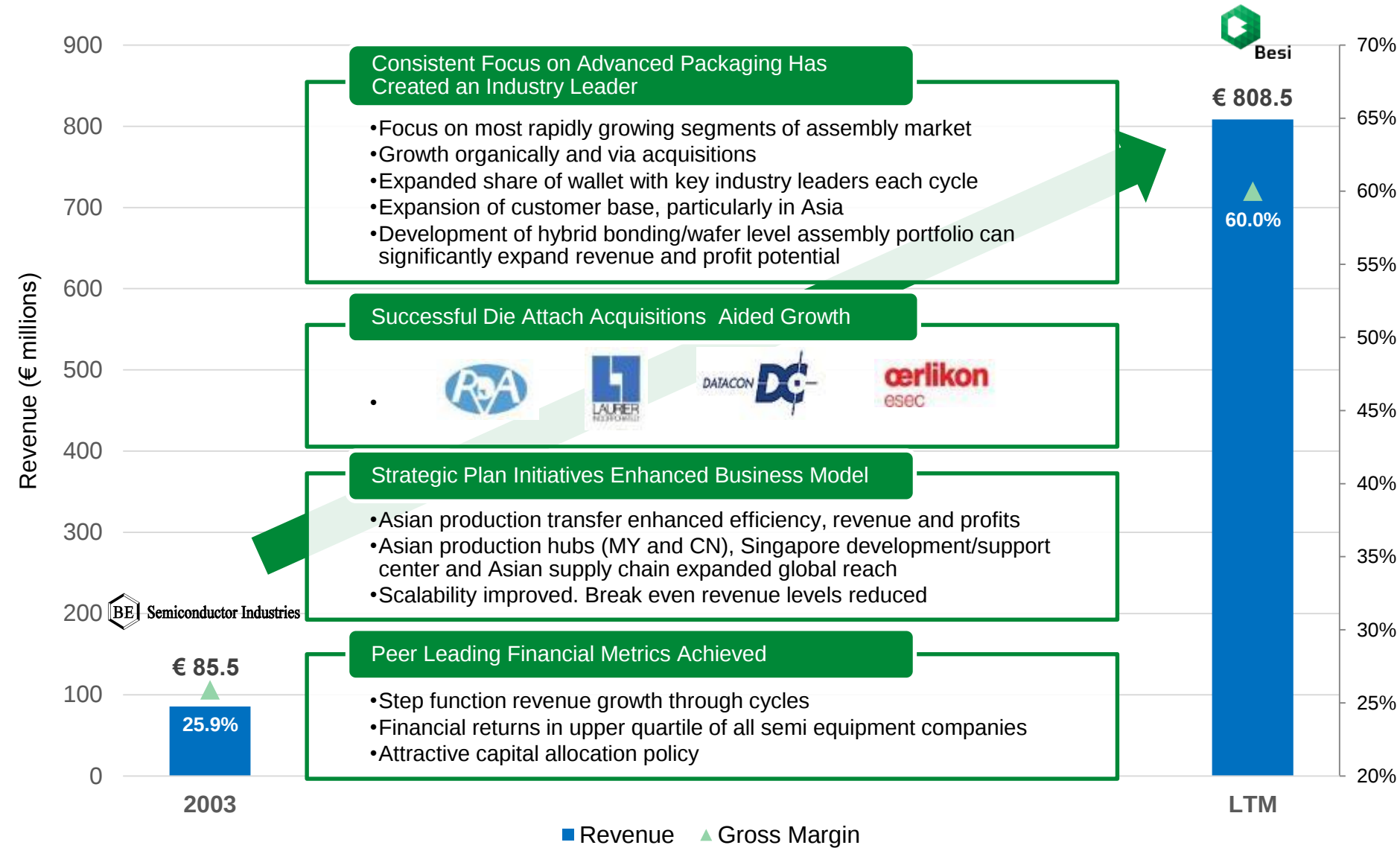
- LTM revenue and net income of € 808.5 million and € 312.4 million
- Cash/deposits at Q1-22: € 696.6 million
- Net cash/deposits at Q1-22: € 407.0 million
- € 1.2 billion of dividends and share repurchases since 2011\*

## Investment Considerations

- Leading position in advanced packaging. Ever more critical part of semi value chain
- Peer leading financial metrics
- Multiple growth drivers: Digital and cloud infrastructure build out, smart everything, 5G, AI, HPC, data centers, vehicle electrification
- Hybrid bonding adoption and expansion of wafer level assembly portfolio hold potential to significantly expand revenue and profit potential

\* Includes 2021 dividend payment of € 3.33 per share and share repurchases through April 30, 2022

# Company History



## Capital Allocation

**Attractive capital allocation program**

**€ 1.2 billion of dividends and share repurchases since 2011\***

**Represents ~25% of total revenue**

## Strategic/Financial

**Disciplined execution has created leader in advanced packaging**

**Superior through cycle financial performance vs. peers**

**Best in class financial metrics**

**Record 2021 results**

## Shareholder Return

**Superior Total Returns \*\*:**

- 55% (1 year)
- 357% (3 year)
- 498% (5 year)

**Consistent TSR outperformance vs. peers**

**Upper quartile ranking for all semi-equipment companies**

\* Includes share repurchases through April 30, 2022 and dividend paid of € 3.33 per share in May 2022

\*\* As of December 31, 2021

# Industry Leading Equipment Portfolio

## Die Attach (82% of 2021 Revenue)

### Multi-Module Attach



- 2200 evo
- 2200 evo *plus*
- 2200 evo *hs*
- 2200 evo *advanced*
- 2200 evo *hf* **New**

### Epoxy / Soft Solder



- 2100 hS
- 2100 hS *i*
- 2100 sD *advanced i*
- 2100 hS *ix* **New**
- 2009 SSI
- 2100 SSI **New**
- 2100 DS

### Flip-chip



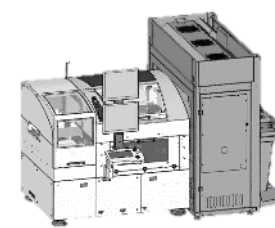
- 8800 CHAMEO *advanced / PLP*
- 8800 FC CHAMEO *Ultra* **New**
- 8800 FC Quantum *adv / sigma*
- 8800 FC Quantum *hs*
- 2100 FC *hs*

### Direct Lid Attach



- DLA
- TGB 2.0 **New**

### Embedded Bridge Attach



- DBA **New**

### Thermo Compression



- 8800 TC *advanced* (Substrate)
- 8800 TC *NEXT* (Chip to Wafer) **New**

### Hybrid Bonding



- 8800 CHAMEO *ultra plus* **New**

## Packaging & Plating (18% of 2021 Revenue)

### Leadframe Molding



- AMS-i**
  - MEMS
  - Sensors
- AMS-X** **New**
  - HD Leadframe
  - Power Devices

### Substrate Molding



- AMS-LM**
  - Substrate strip format
  - Exposed die

### Wafer & Panel Molding



- FML**
  - Wafer molding
  - Panel molding

### Trim and Form



- FCL-X/P**
  - Leadframe trim & form
  - Sorting

### Singulation

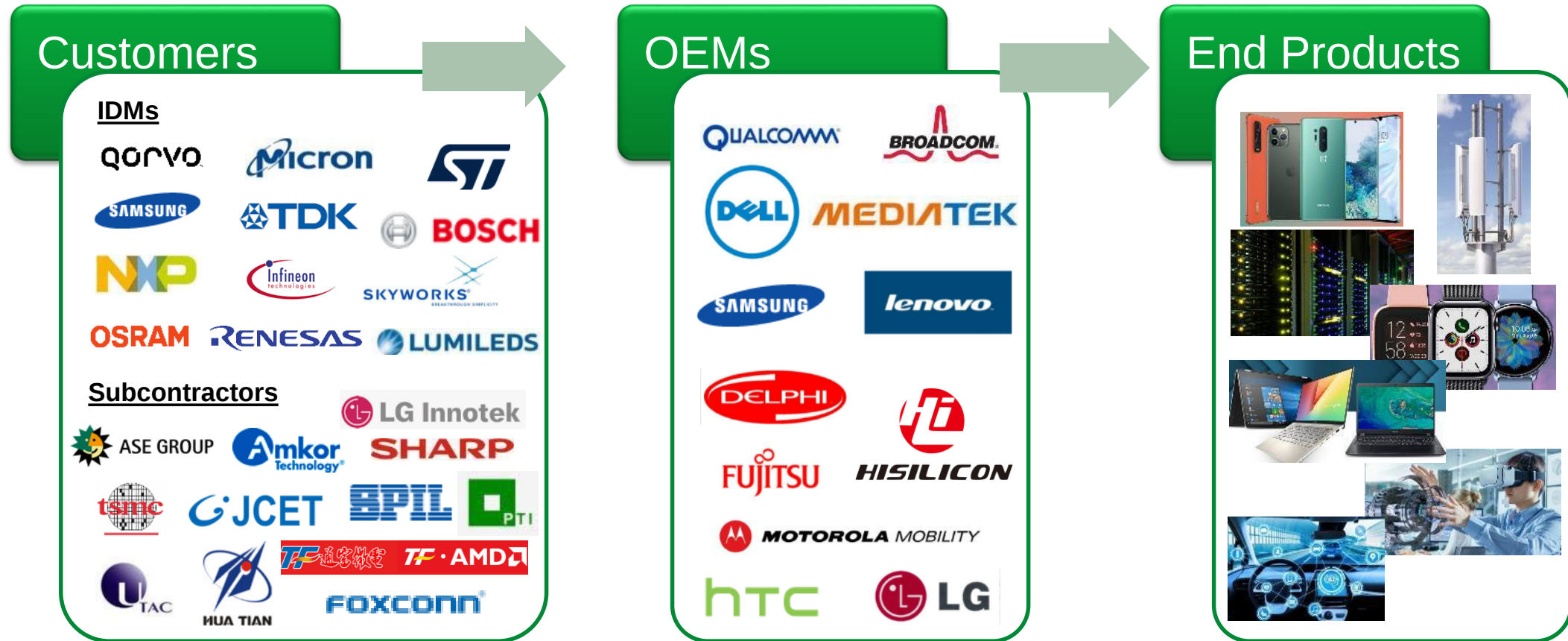


- FSL**
  - Substrate strip singulation
  - Sorting

### Plating



- Leadframe
- Solar
- Film & Foil
- Chemical Deflash **New**
- Wettable Flank **New**



- Diversified, blue chip customer base, top 10 = ~53% of 2021 revenue
- Leading IDMs and subcontractors. 55%/45% order split in 2021
- Also supply leading fabless companies: Qualcomm, AMD, Broadcom, MediaTek via subcontractors
- Long term relationships, some exceeding 50 years

# From Processed Wafer to Assembled Chip

## Semiconductor Manufacturing Equipment 2021: \$101.2B\*

Front end: \$88.9B  
(88%)

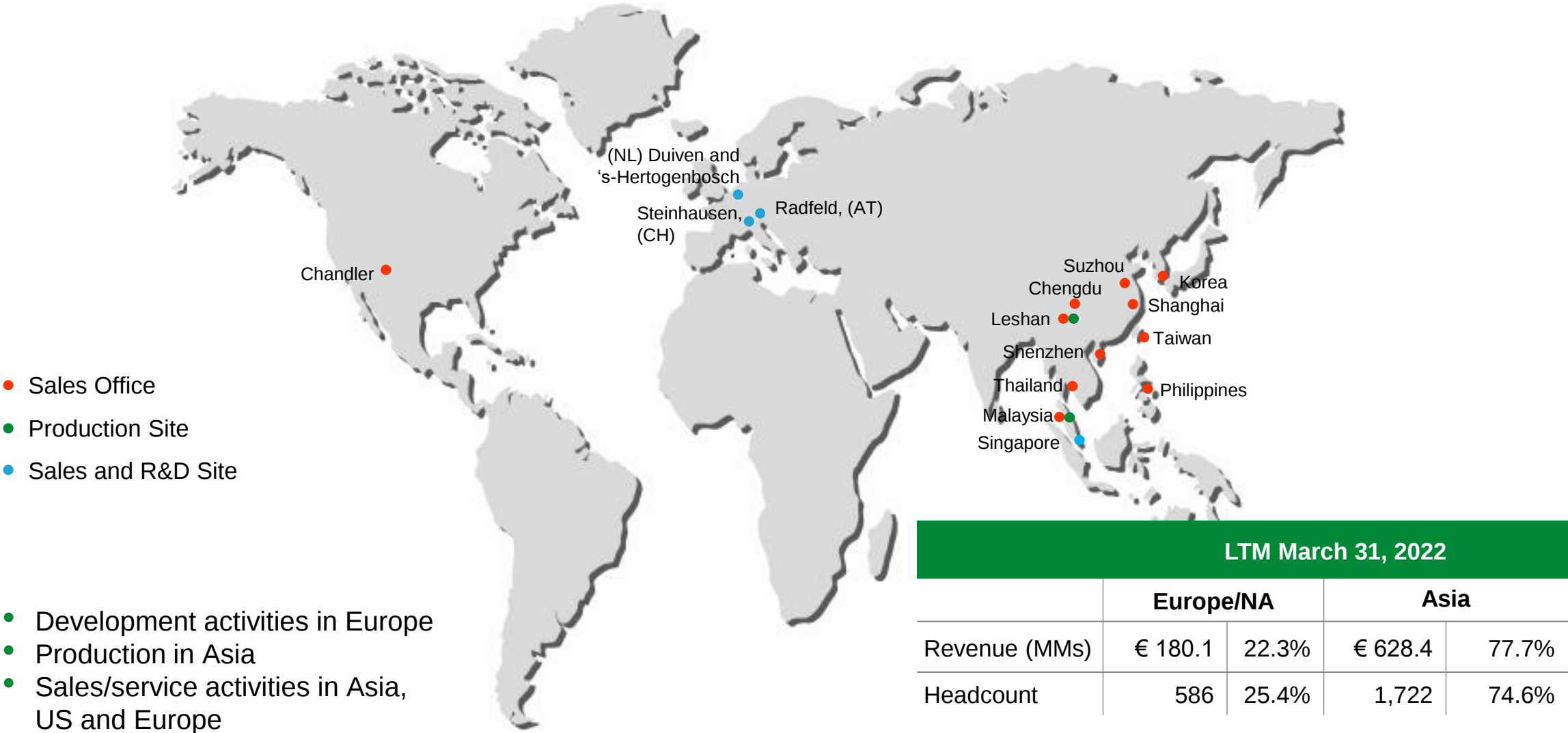
Assembly: \$6.5B  
(6%)

Test: \$5.8B  
(6%)

| Assembly Process                                             | Dicing | Die Attach                                                                            | Wire Bond | Packaging                                                                             | Plating                                                                             |
|--------------------------------------------------------------|--------|---------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Leadframe</b><br>Wire Bond                                | -      |    | -         |    |  |
| <b>Substrate</b><br>Wire bond                                | -      |    | -         |    | -                                                                                   |
| <b>Substrate</b><br>Flip chip/TCB                            | -      |  | -         |  | -                                                                                   |
| <b>Wafer Level</b><br>Hybrid, EMIB, TCB, Flip Chip,<br>FOWLP | -      |  | -         |  | -                                                                                   |

\* Source: Tech Insights, May 2022

# Current Operational Profile



# Summary Financials

| Year Ended December 31,<br>(€ millions, ex share data) | 2019  | 2020  | 2021         | Q1-21 | Q1-22         |
|--------------------------------------------------------|-------|-------|--------------|-------|---------------|
| Revenue                                                | 356.2 | 433.6 | <b>749.3</b> | 143.2 | <b>202.4</b>  |
| % seq. change                                          | -32%  | +22%  | <b>+73%</b>  | +12%  | <b>+18%</b>   |
| Orders                                                 | 348.7 | 472.1 | <b>939.1</b> | 327.1 | <b>204.8</b>  |
| Gross margin                                           | 55.8% | 59.6% | <b>59.6%</b> | 56.7% | <b>+60.1%</b> |
| EBITDA                                                 | 111.7 | 169.0 | <b>335.1</b> | 52.6  | <b>87.2</b>   |
| Pretax income                                          | 78.1  | 137.5 | <b>303.8</b> | 43.9  | <b>78.0</b>   |
| Net income                                             | 81.3  | 132.3 | <b>282.4</b> | 37.6  | <b>67.5</b>   |
| Net margin                                             | 22.8% | 30.5% | <b>37.7%</b> | 26.3% | <b>33.4%</b>  |
| EPS (diluted)                                          | 1.06  | 1.67  | <b>3.39</b>  | 0.47  | <b>0.81</b>   |
| EPS (basic)                                            | 1.12  | 1.82  | <b>3.70</b>  | 0.51  | <b>0.87</b>   |
| Dividend per share                                     | 1.01  | 1.70  | <b>3.33</b>  |       |               |
| Net cash & Deposits                                    | 130.3 | 198.7 | <b>370.4</b> | 216.2 | <b>407.0</b>  |

## Long term, step function growth in cyclical business

- Increased revenue, profitability and market share per cycle
- Peer leading financial metrics

## Strong upturn in 2021 despite supply chain disruptions

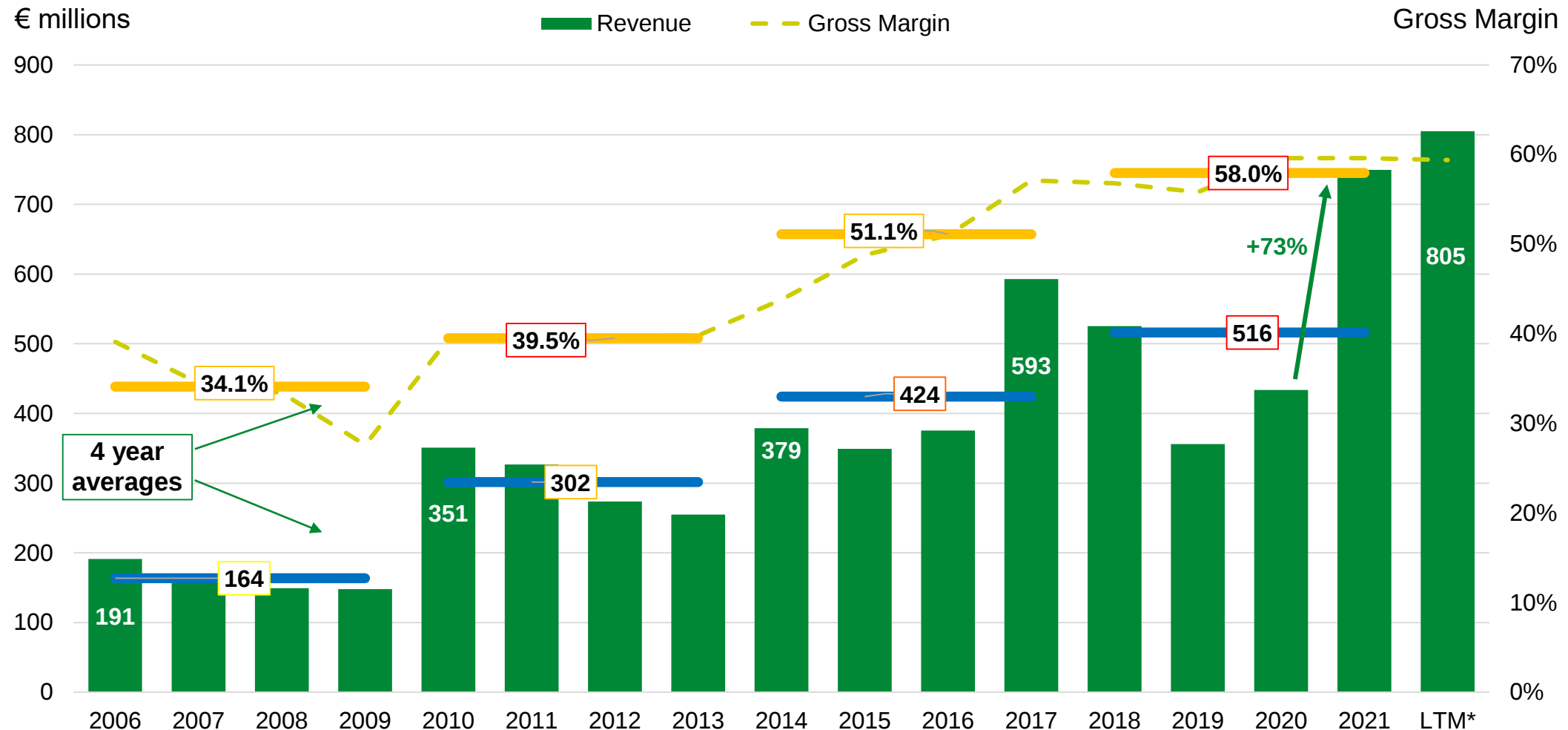
- Revenue and orders grew 72.8% and 98.9% vs. 2020
  - Across all end-user markets and geographies
  - Renewed mobile spending for 5G rollout
  - Order strength in computing and automotive H2-21
  - Accelerating hybrid bonding orders

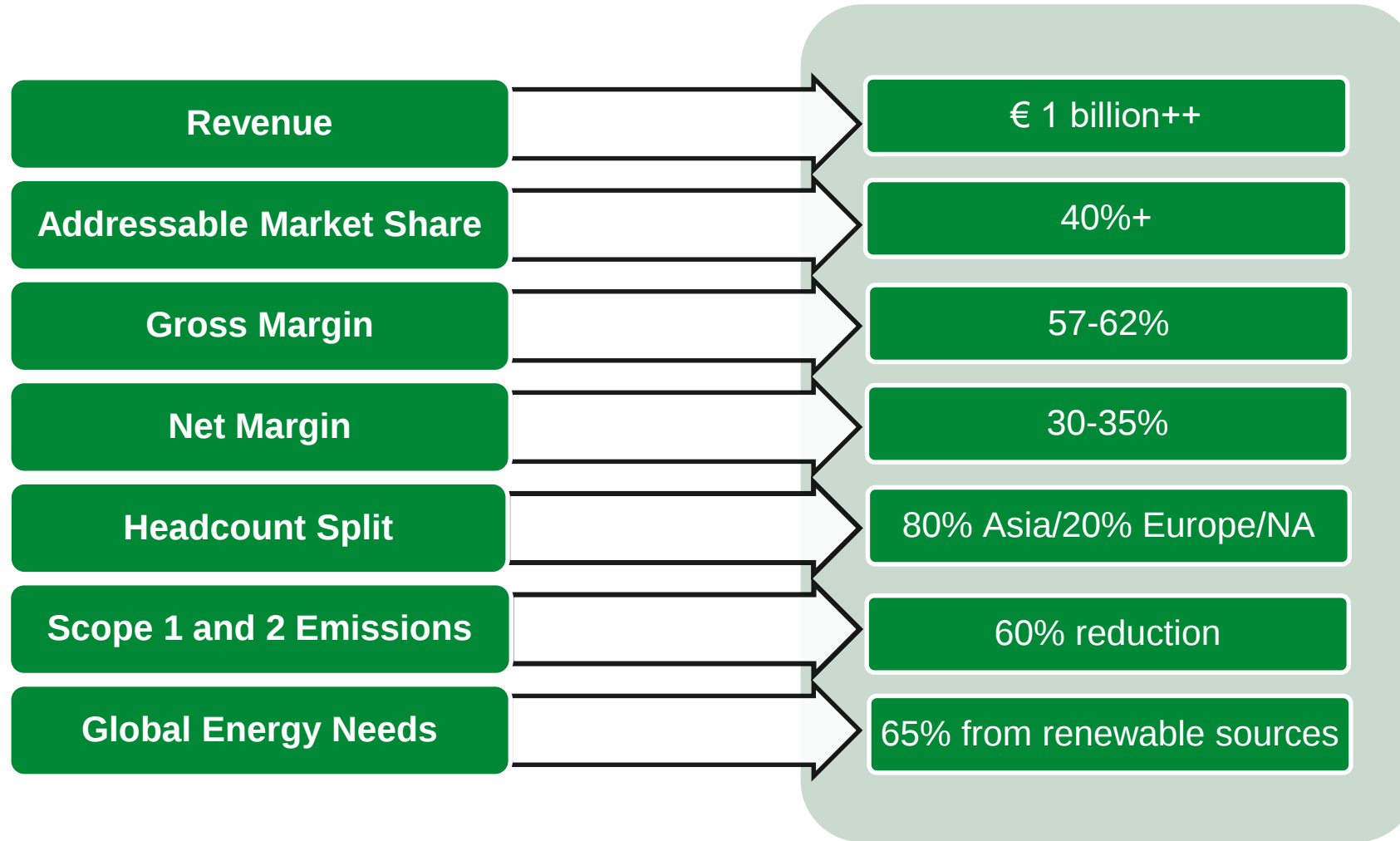
## Strong margins and profitability

- Peer leading gross margins due to strong market position and flexible Asian production/workforce
- Cost control efforts lead to significant operating leverage
  - Opex margins declined to 17.2% vs. 25.1% in 2020
- Net income of € 282.4 million up 113.5% vs. 2020
  - Net margins grew to 37.7%

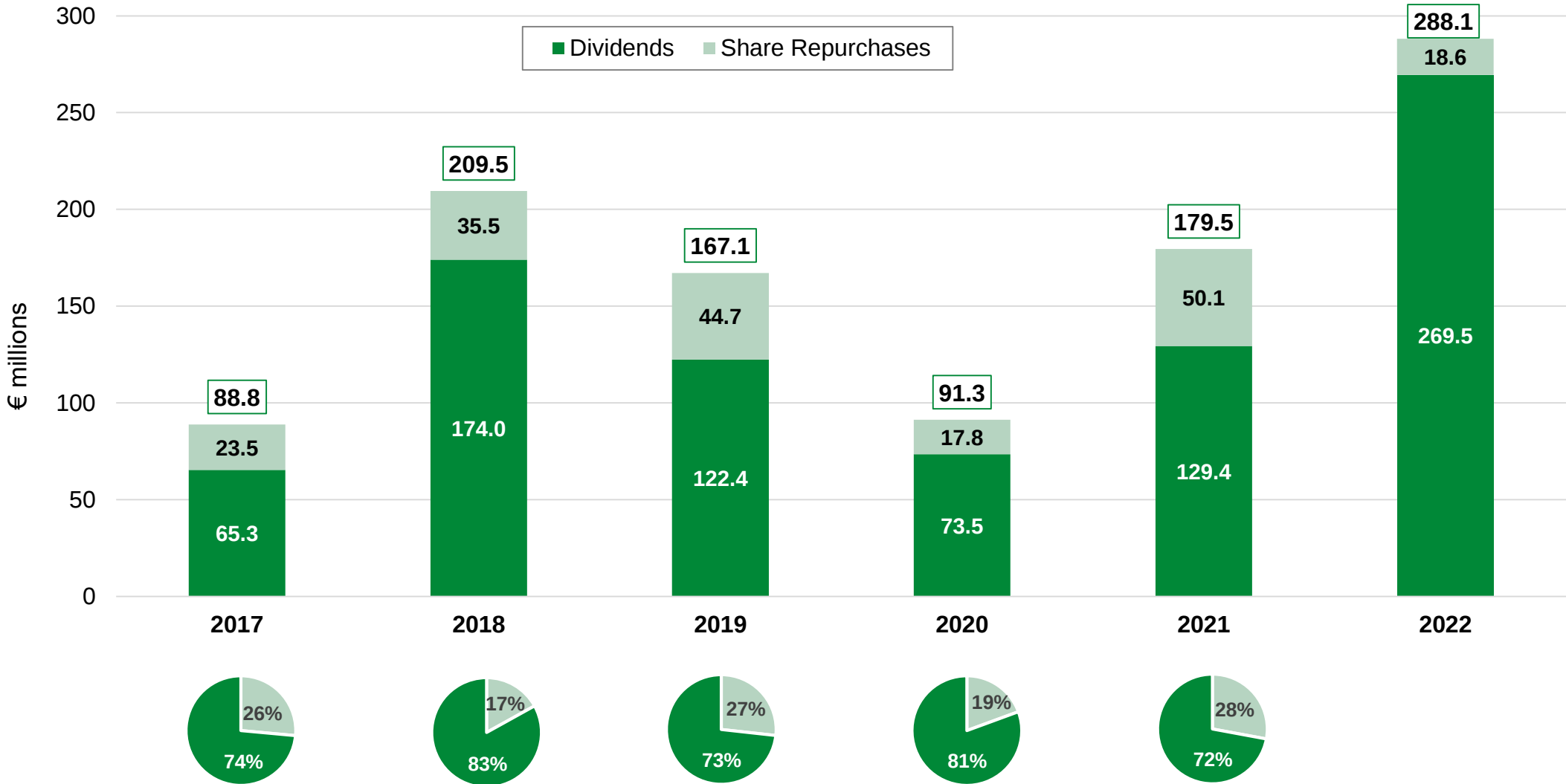
## Strong cash generation supports shareholder friendly capital allocation policy

# Through Cycle Revenue and Gross Margin Trends





# Shareholder Friendly Capital Allocation. €1.2 Billion Since 2011\*



\* Includes share repurchases through April 30, 2022



## II. MARKET

# What Drives Besi's Business?

Macro GDP  
trends

Selection of  
IDM and supply  
chain partners

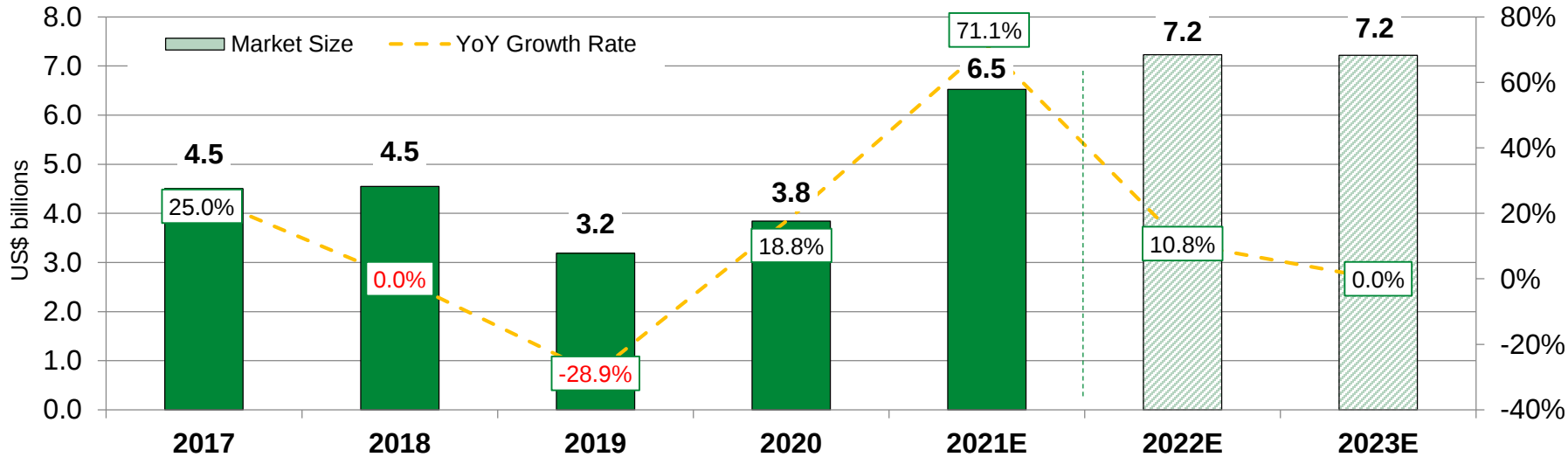
Timing of  
customer  
roadmaps

Meeting  
demanding  
technical specs

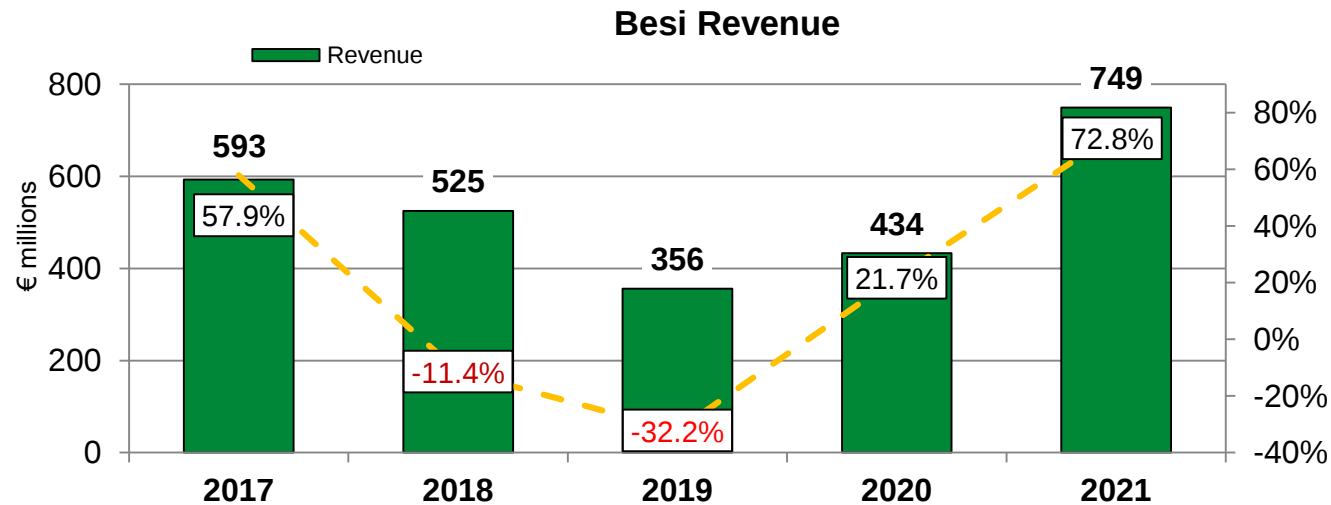
Performance in  
24/7 production  
environments

Competitive  
cycle times and  
scalability

# Assembly Equipment Forecast



Source: Tech Insights, May 2022. Assembly equipment revenue excludes hybrid bonding contribution and service revenue.



## +71.1% growth now estimated for 2021

- Upsized from 55.6% last quarter
- Market reached record \$ 6.5 billion

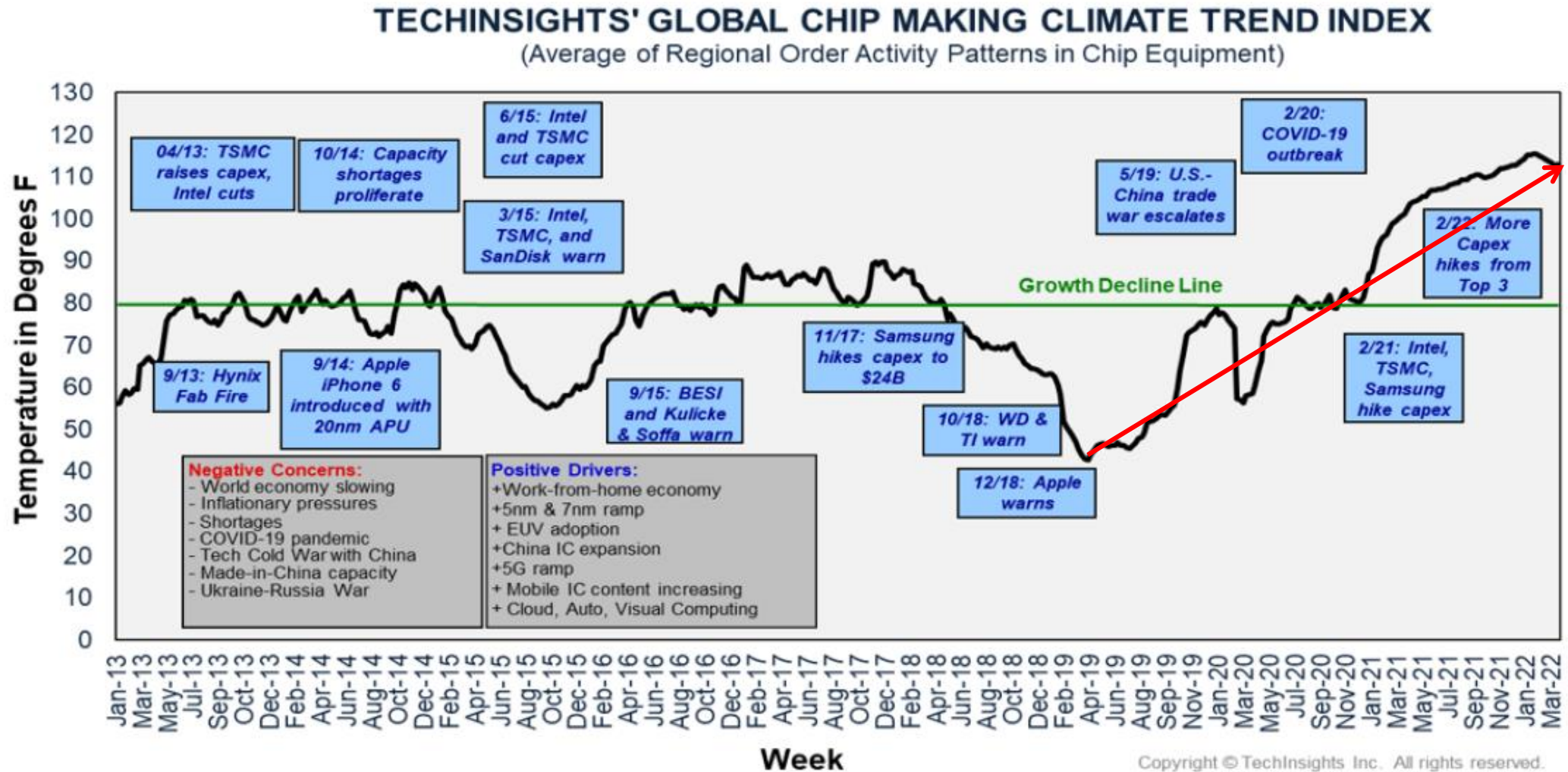
## Tech Insights expects market to reach \$ 7.2 billion in 2022 (+10.8%)

- Excluding hybrid bonding and spares/service revenue

## Strong secular market fundamentals:

- 5G, Datacenter, AI and HPC primary drivers
- Investment in new process technologies: hybrid bonding/CSP

# Industry Upturn Continues in H1-22

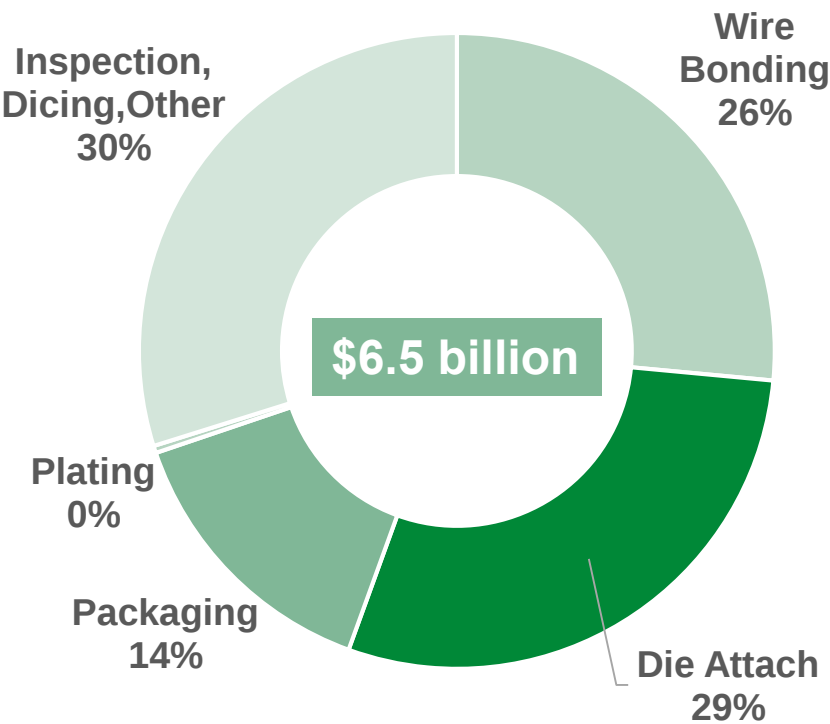


Source: Tech Insights, April 2022

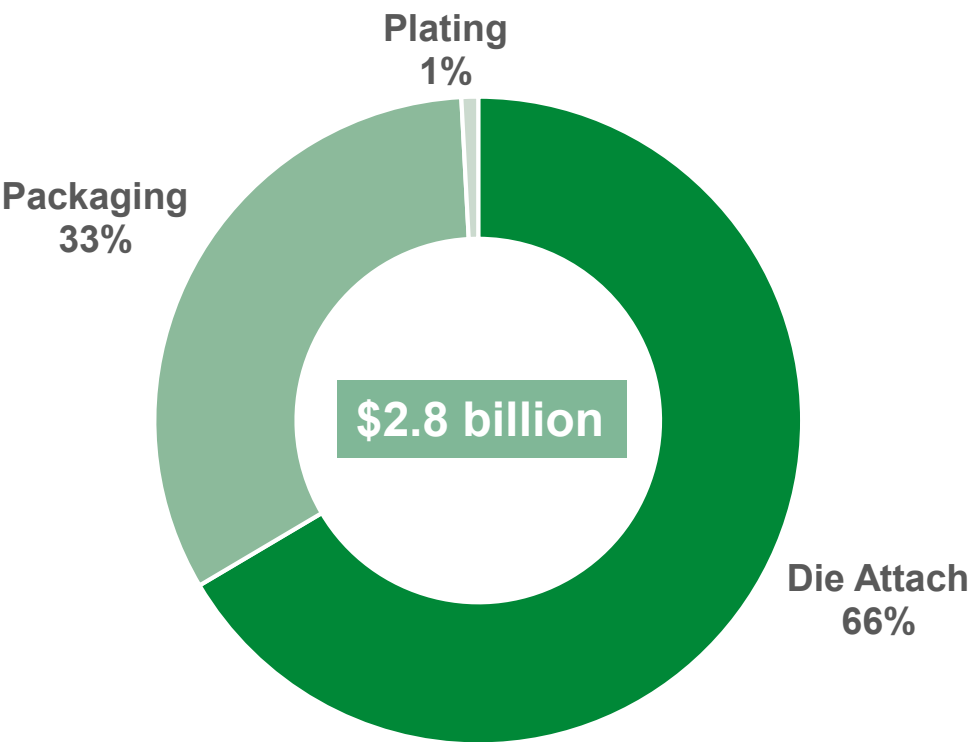
# Assembly Equipment Market Composition



Assembly Equipment Market (2021)

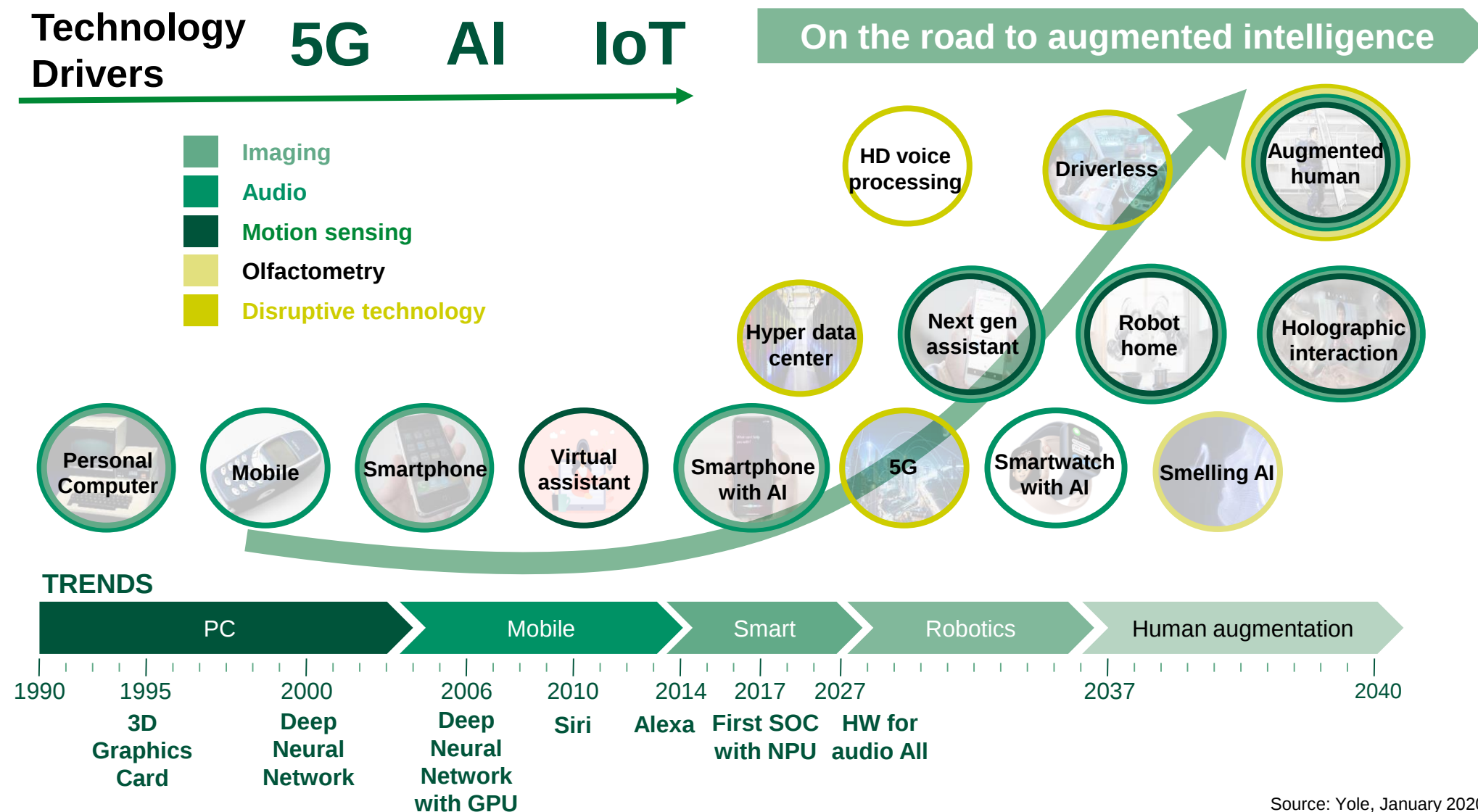


Besi Addressable Market (2021)



Source: Tech Insights, May 2022

# Digital Society Drives Greater Computing and Data Needs



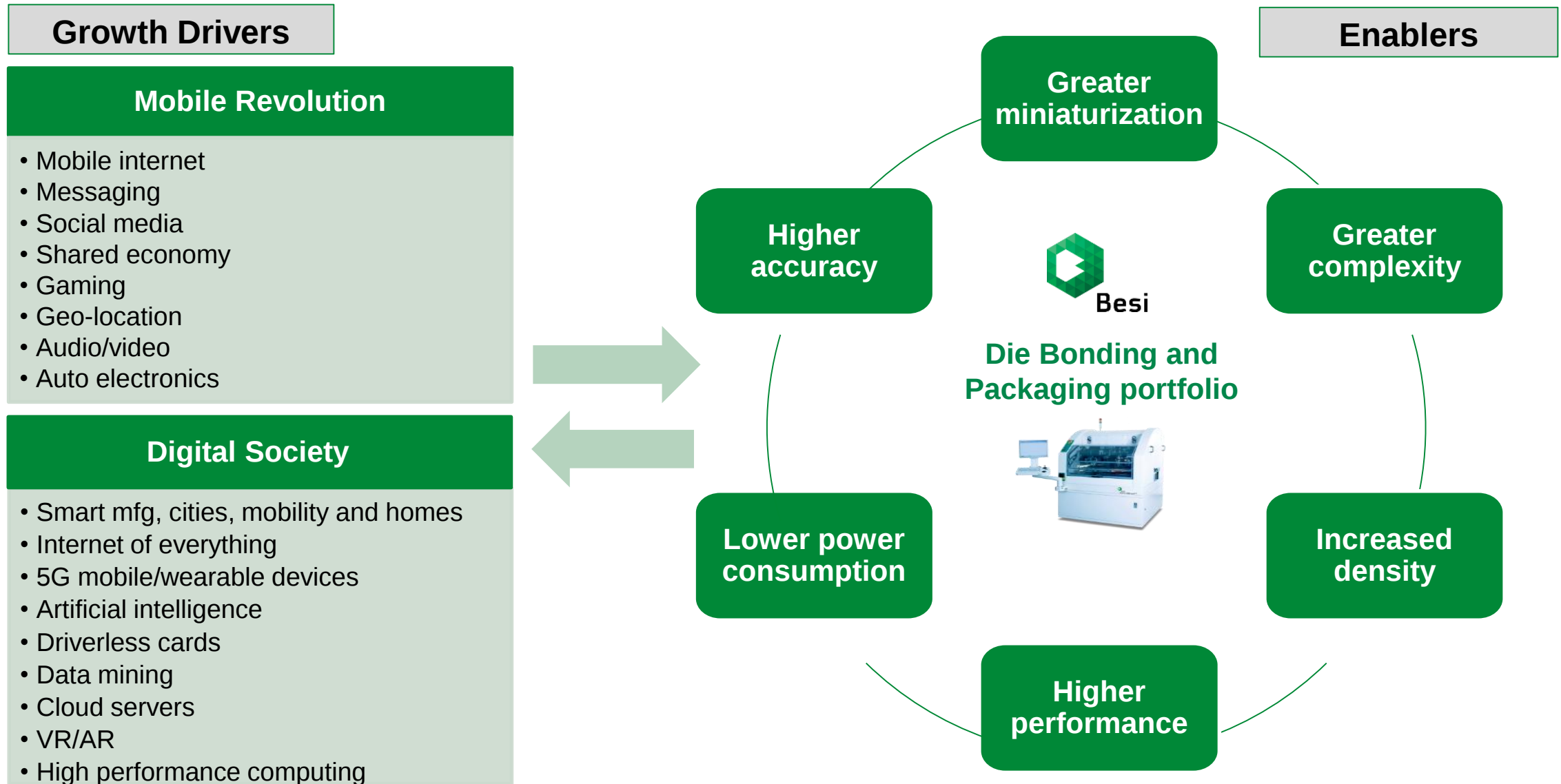
Source: Yole, January 2020

# Semiconductor Demand Growing as Everything Gets Smarter

| Semiconductor Content/Unit            | 2015    | 2020    | 2025E   | Δ'20-'25E |
|---------------------------------------|---------|---------|---------|-----------|
| High End Smartphone                   | \$100   | \$170   | \$275   | +61.7%    |
| Automotive (Global Average)           | \$310   | \$460   | \$690   | +50.0%    |
| Datacenter Server (CPU + Accelerator) | \$1,620 | \$2,810 | \$5,600 | +99.3%    |
| Smartphone (Global Average)           | \$2     | \$4     | \$9     | +125.0%   |

Source: Applied Materials, September 2021

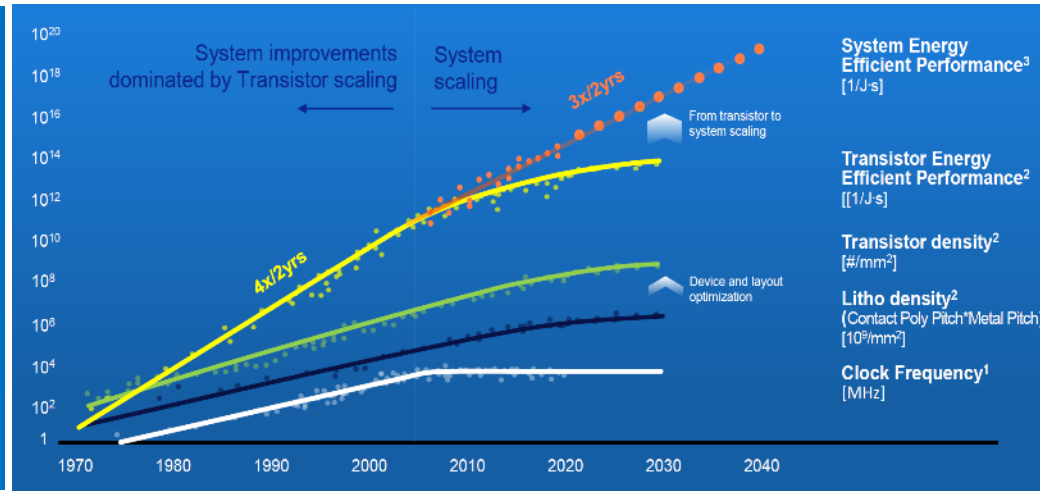
# Advanced Packaging Critical to Next Generation Applications



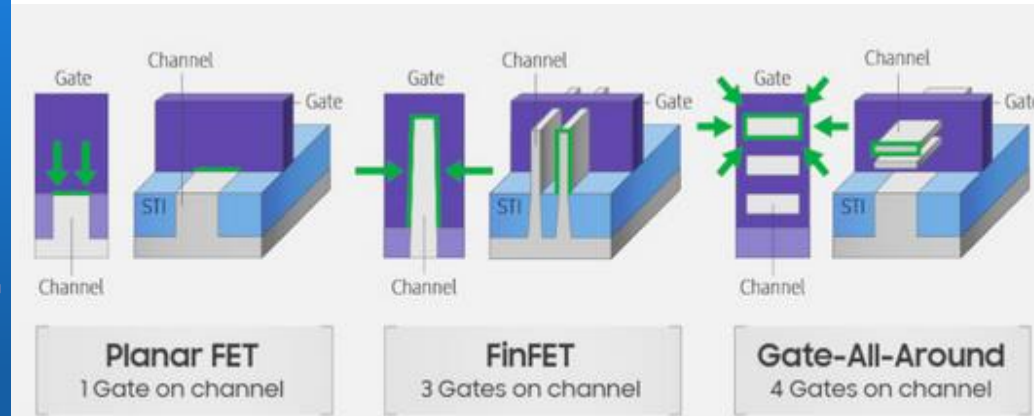
# Requiring Increased Density, Higher Accuracy and Smaller Form Factors for Next Generation Devices

## Front-End Wafer Fab

- Transistor scaling
- Lithography
- New 3D structures



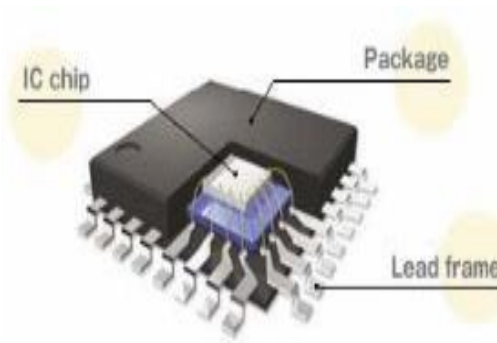
Source: ASML 2021



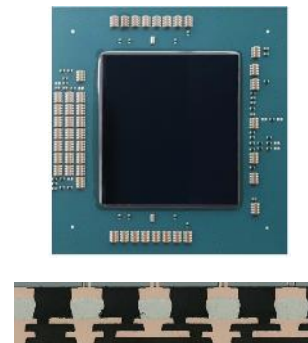
Source: Samsung

## Back-End Assembly

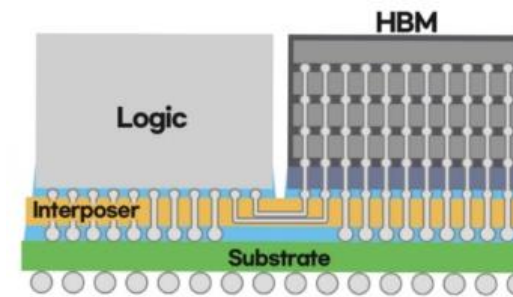
- More contacts
- Smaller pitches
- Thinner, denser and more complex packages
- Stacked 3D structures
- WLP/FOWLP packages



From simple wire bond

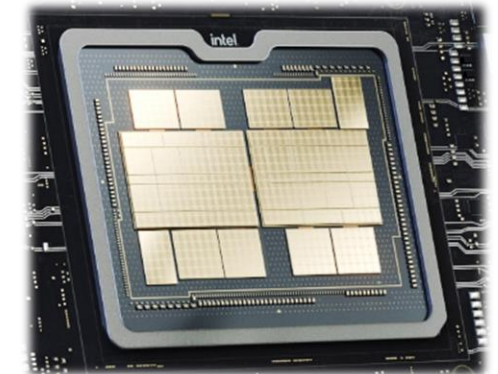


To flip chip and SiP



Source: Samsung

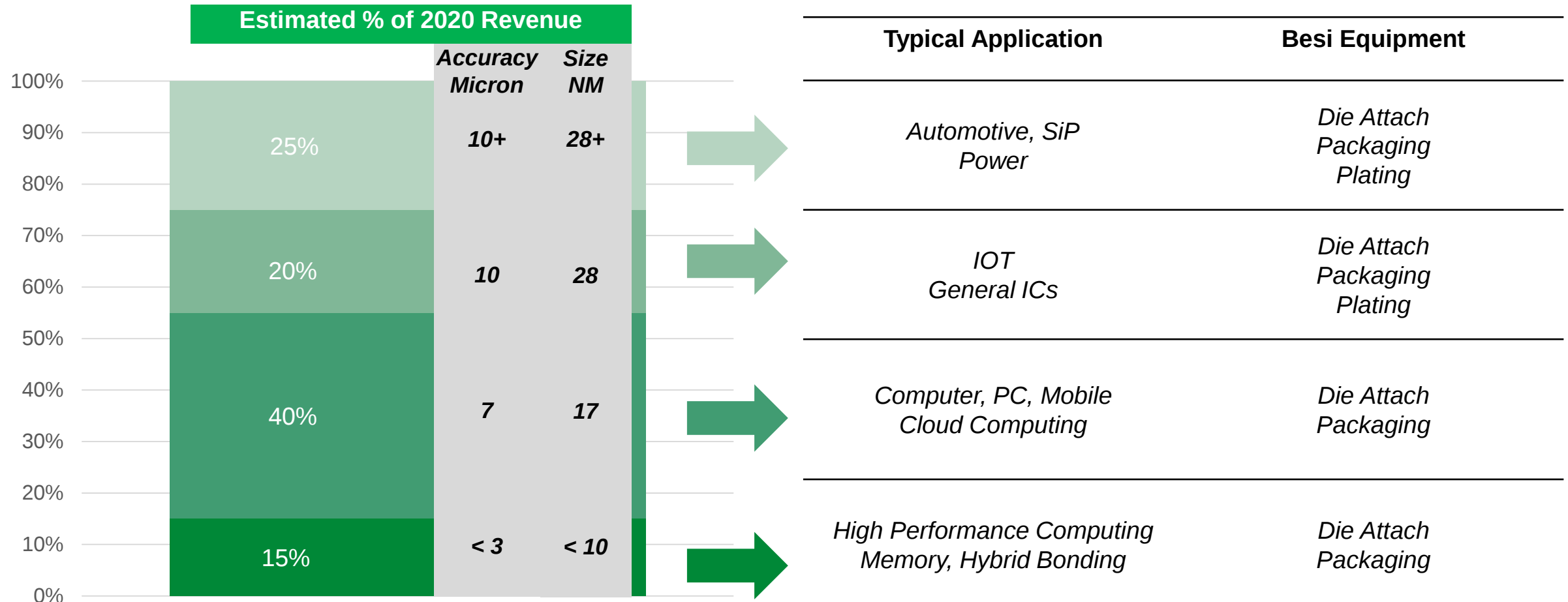
To complex 3D structures with TSVs, microbumps and thin dies



Source: Intel

To chiplet systems enabled by Hybrid Bonding

# Besi Portfolio Well Positioned by Node Size and Accuracy



- **75% of Besi equipment revenue advanced packaging as per VLSI definition**
- 55% equipment revenue is < 7 micron accuracy and < 17 nanometer node size
- Most rapidly growing market segment

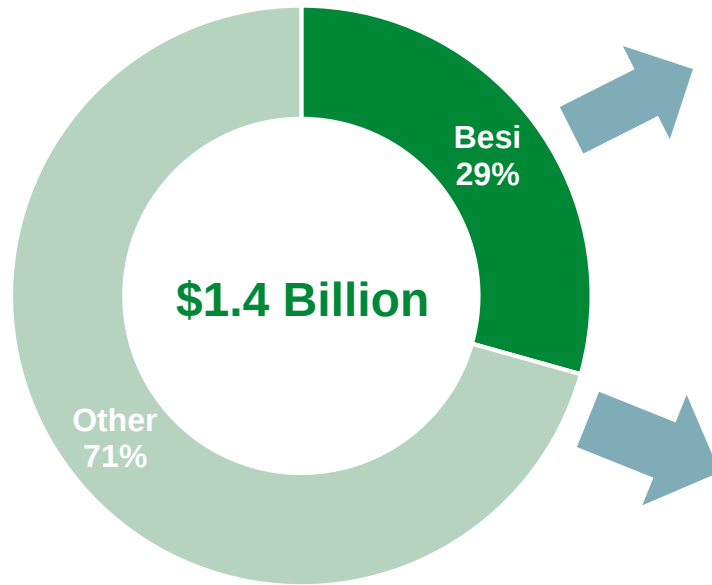
# Addressable Market Share Increasing, Particularly in Die Attach

|                                  | 2016         | 2017          | 2018         | 2019         | 2020         |  | Δ '20/'19      | Δ '20/'16      |
|----------------------------------|--------------|---------------|--------------|--------------|--------------|--|----------------|----------------|
| <b>Assembly Market (\$MM)</b>    | 3,587        | 4,503         | 4,391        | 2,998        | 3,603        |  | +20.1%         | +0.4%          |
| <b>Besi Market Share</b>         | <b>9.9%</b>  | <b>13.1%%</b> | <b>11.6%</b> | <b>10.8%</b> | <b>11.4%</b> |  | <b>+0.6pts</b> | <b>+1.5pts</b> |
|                                  |              |               |              |              |              |  |                |                |
| <b>Addressable Market (\$MM)</b> | 1,507        | 1,942         | 1,850        | 1,247        | 1,399        |  | +12.2%         | -7.2%          |
| <b>Besi Market Share</b>         | <b>23.7%</b> | <b>30.3%</b>  | <b>27.5%</b> | <b>25.9%</b> | <b>29.3%</b> |  | <b>+3.4pts</b> | <b>+5.6pts</b> |
|                                  |              |               |              |              |              |  |                |                |
| <b>Die Attach</b>                | <b>30.4%</b> | <b>38.2%</b>  | <b>33.2%</b> | <b>30.8%</b> | <b>36.8%</b> |  | <b>+6.0pts</b> | <b>+6.4pts</b> |
| <b>Packaging &amp; Plating</b>   | <b>13.6%</b> | <b>14.8%</b>  | <b>17.3%</b> | <b>17.0%</b> | <b>15.4%</b> |  | <b>-1.6pts</b> | <b>+1.8pts</b> |
|                                  |              |               |              |              |              |  |                |                |
| <b>% of Besi Revenue</b>         | <b>2016</b>  | <b>2017</b>   | <b>2018</b>  | <b>2019</b>  | <b>2020</b>  |  | <b>Δ 1yr</b>   | <b>Δ 4yr</b>   |
| <b>Die Attach</b>                | <b>75%</b>   | <b>82%</b>    | <b>76%</b>   | <b>76%</b>   | <b>82%</b>   |  | <b>+6pts</b>   | <b>+7pts</b>   |
| <b>Packaging &amp; Plating</b>   | <b>25%</b>   | <b>18%</b>    | <b>24%</b>   | <b>24%</b>   | <b>18%</b>   |  | <b>-6pts</b>   | <b>-7pts</b>   |

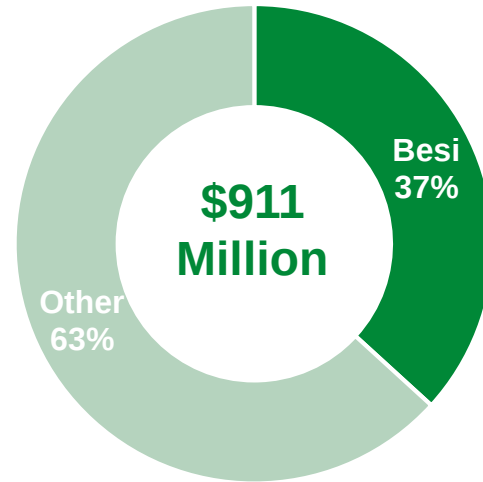
Source: VLSI, June 2021

# Leader in Addressable Market, Die Attach Market and Advanced Die Placement

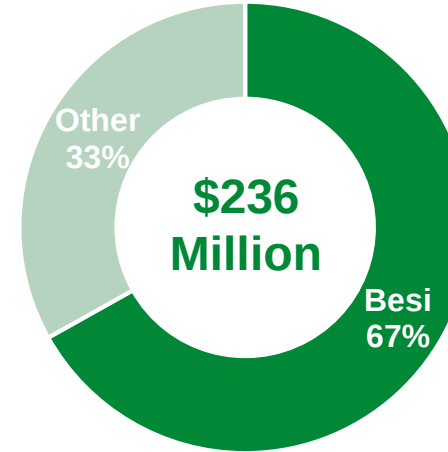
2020 Addressable Market\*



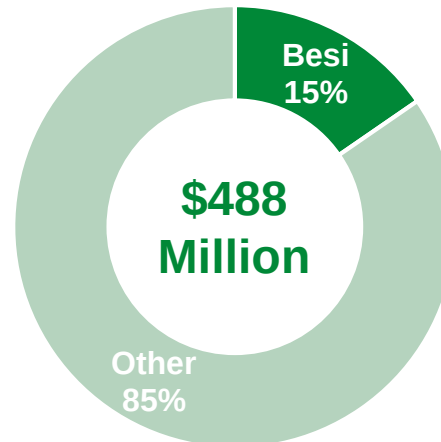
Die Attach  
(82% of Revenue)



Advanced  
Die Placement\*\*



Packaging & Plating  
(18% of Revenue)

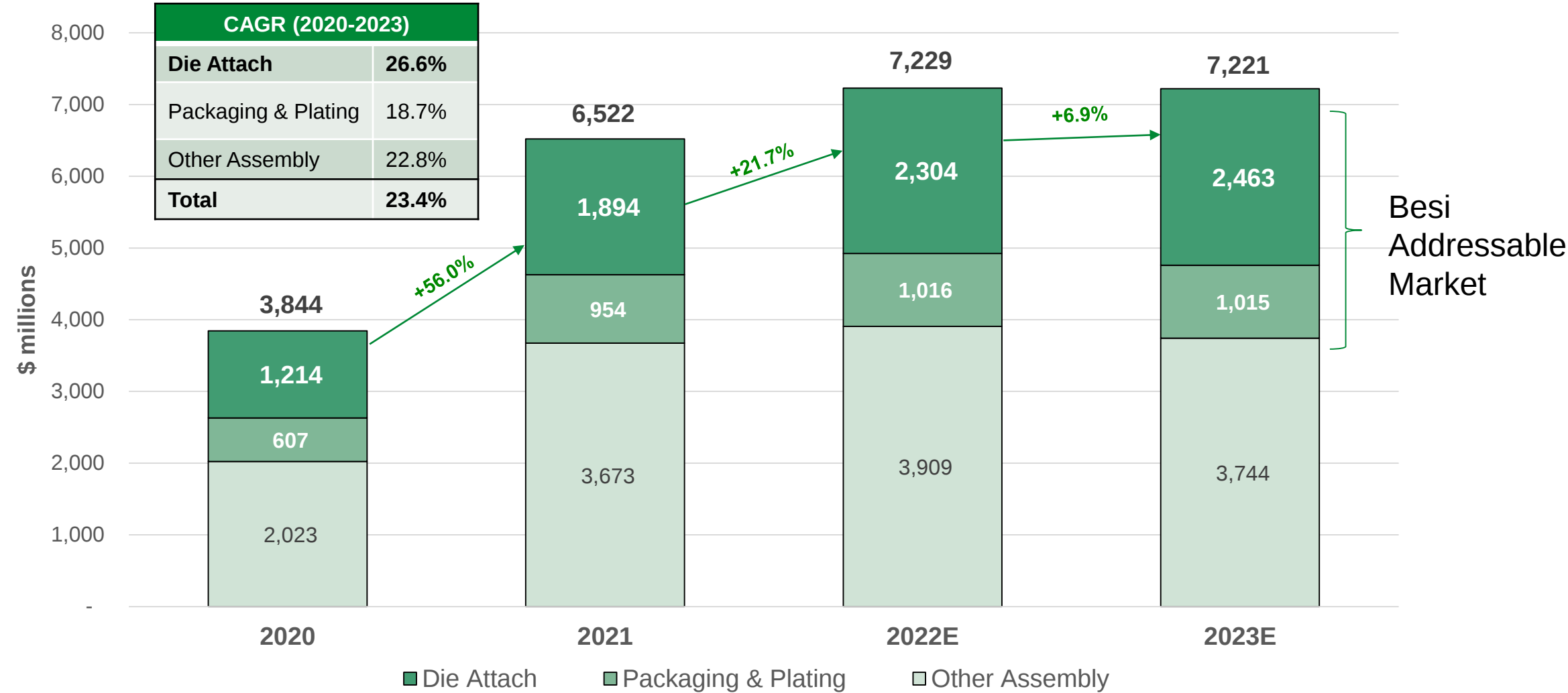


Source: VLSI, June 2021. Equipment only.

\* Excludes wire bonding, dicing, and other.

\*\* Advanced die placement defined as < 7 micron accuracy per VLSI.

# Growth Expected to Favor Besi's Product Portfolio, Particularly Die Attach

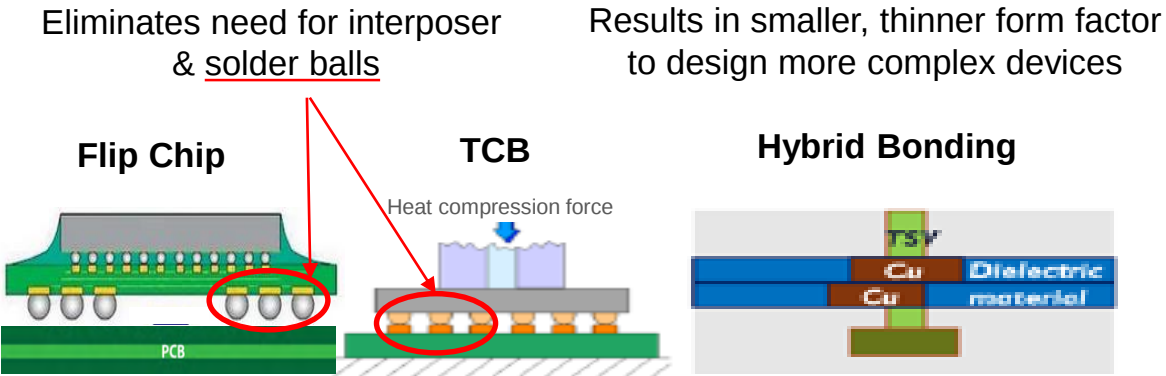


Source: Tech Insights, April 2022. Addressable market revenue excludes hybrid bonding contribution.

# Growth of Hybrid Bonding Reflects Industry Shift To Smaller, Integrated, Heterogeneous Chip Designs. Besi Has Leading Position

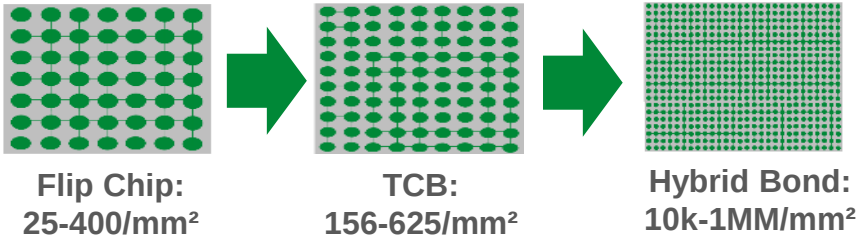


## Direct Cu-Cu Interconnect



## Ultra-High Bandwidth & Speed

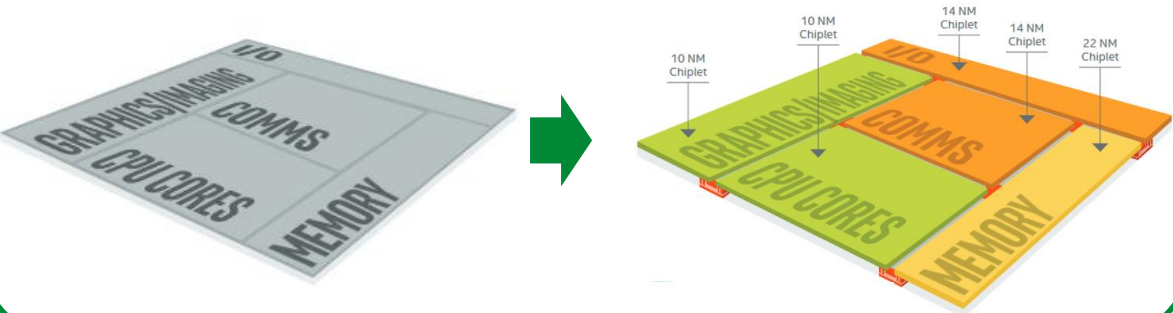
Contact density increased by factor of 1000x by eliminating solder balls, reducing distance between contacts & increasing speed & data transfer



Current design achieves 122 nano placement accuracy at 2,000 uph

## Design Flexibility

Hybrid bonding facilitates development of new 3D chiplet architectures and increased features/functionality in smaller form factor



## Lower Cost of Ownership

### Lower Cost of Ownership

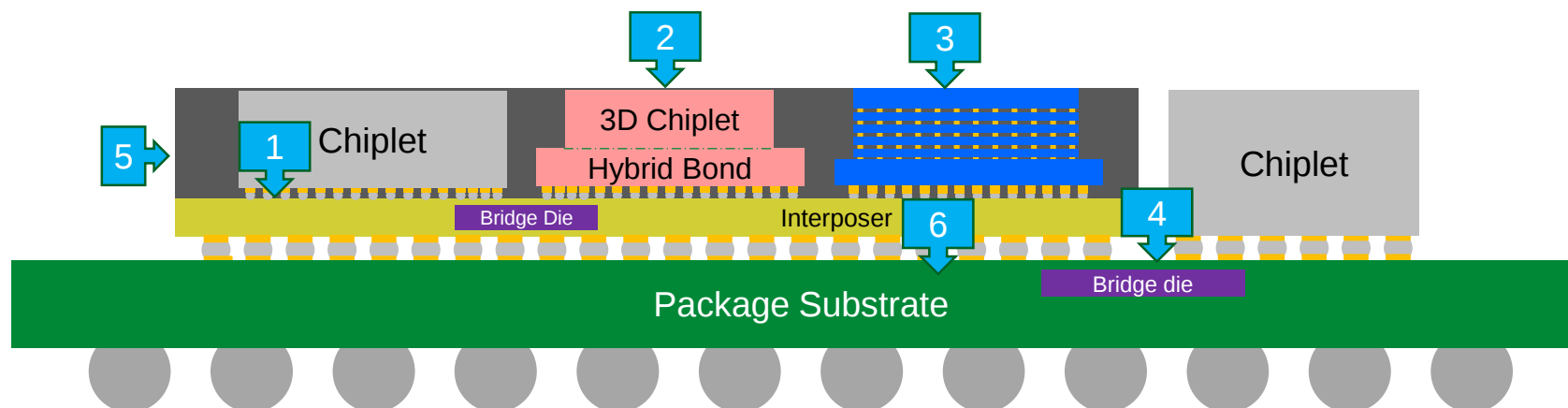
- Performance and functionality increased
- Fewer chips required
- Materials cost lower
- Cost per contact lower
- Lower heat dissipation
- Energy consumption lower

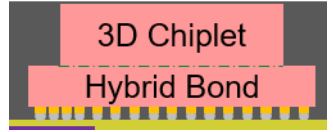
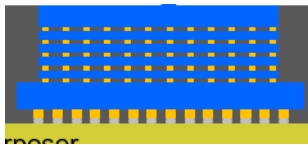
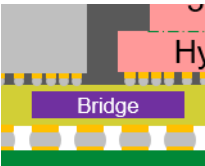
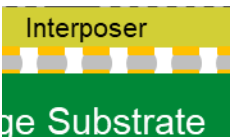
### Energy Efficiency

| Process    | Flip Chip | TCB       | Hybrid Bonding |
|------------|-----------|-----------|----------------|
| Energy/Bit | 0.5pJ/bit | 0.1pJ/bit | <.05pJ/bit     |

Smaller devices draw less electrical power

# Facilitates New 3D Structures and Growth Of Other Wafer Level Assembly Processes



| 1                                                                                 | 2                                                                                  | 3                                                                                   | 4                                                                                    | 5                                                                                    | 6                                                                                    |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Chip to Wafer TCB                                                                 | Hybrid Bonding                                                                     | High Bandwidth Memory Stacking                                                      | Embedded Bridge Die Attach                                                           | Wafer Level Die Molding                                                              | HD Interposer to Substrate                                                           |
|  |  |  |  |  |  |
| TC Next C2W                                                                       | 8800 Chameo Ultra Plus                                                             | 8800 TC Advanced<br>8800 Chameo Ultra+                                              | 8800 Chameo Ultra                                                                    | FML                                                                                  | 2200 evo                                                                             |

# Hybrid Bonding Adoption Leads to Higher Capital Intensity per UPH

## 8800 FC Quantum 3 micron accuracy



ASP: \$500k

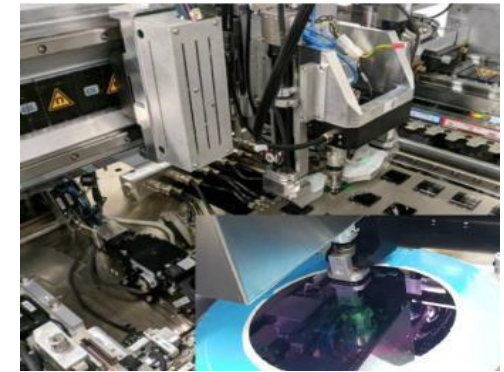
~9,000uph

## 8800 Ultra Accurate Chip to Wafer Hybrid Bonder <200 nanometer accuracy

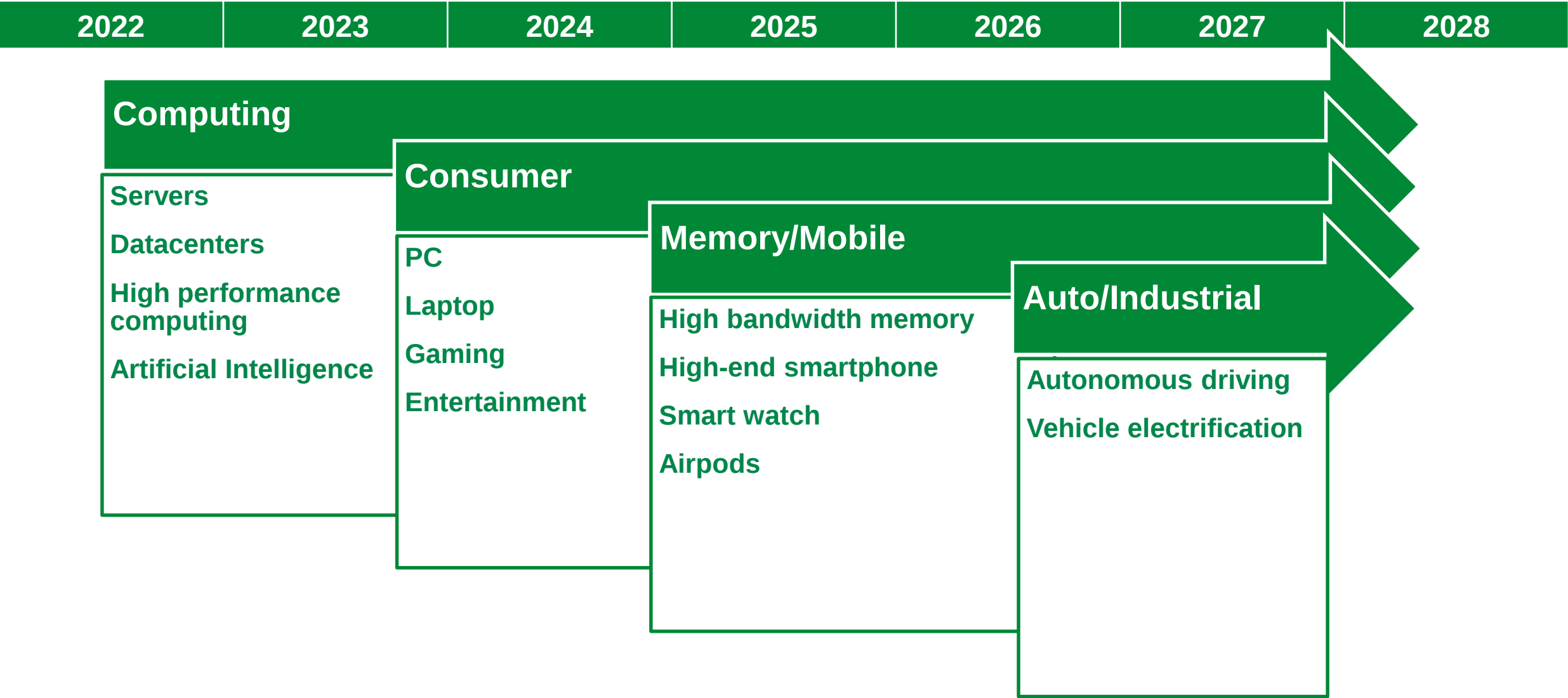


Pricing: \$1.5MM-2.5MM  
Configuration dependent

~1,500uph



# Estimated Timetable Per Application



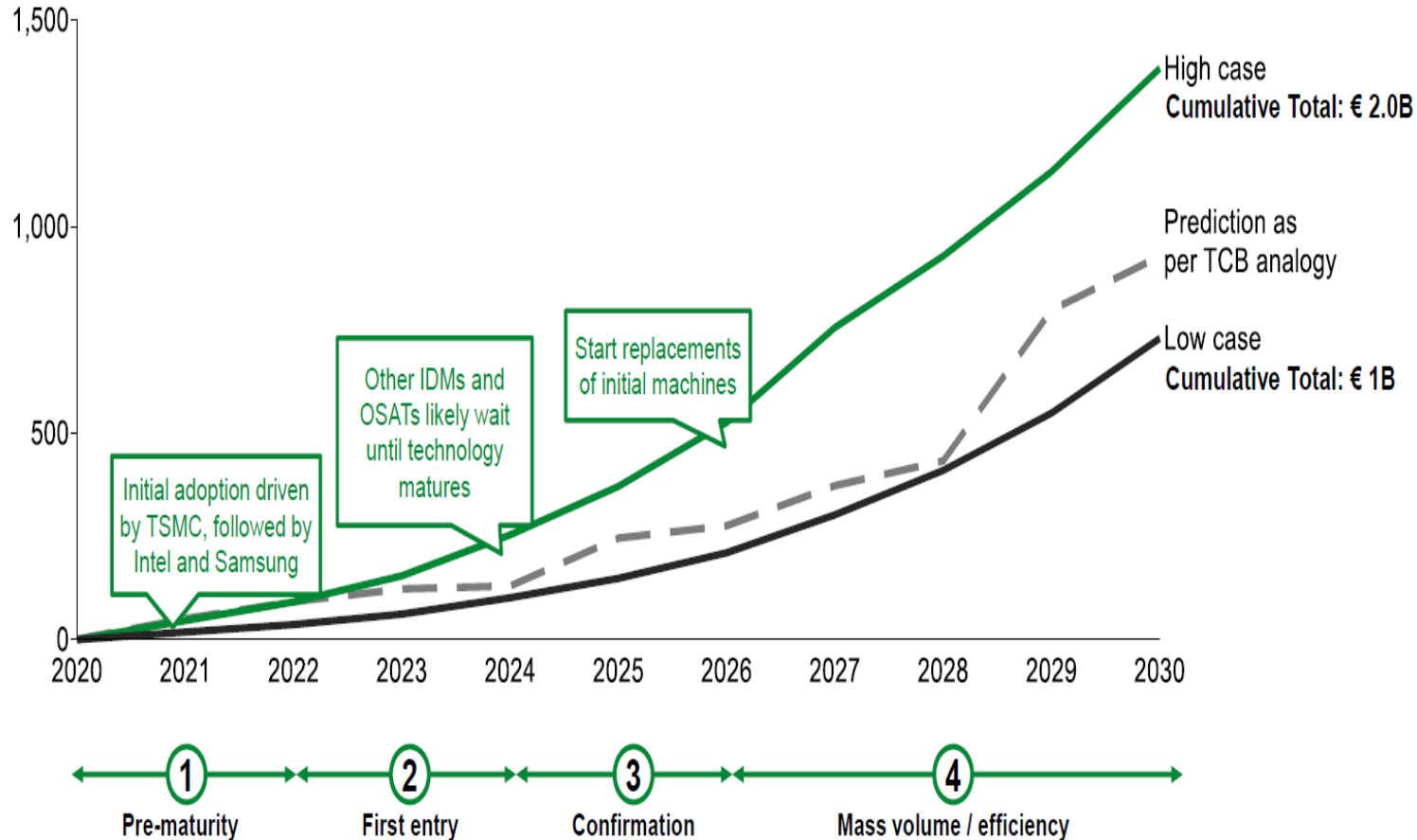
# Hybrid Die Bonding Market Estimate

## HYBRID BONDING

## EQUIPMENT MARKET

### June 2020 estimate

Total # of installed back-end machines for hybrid bonding



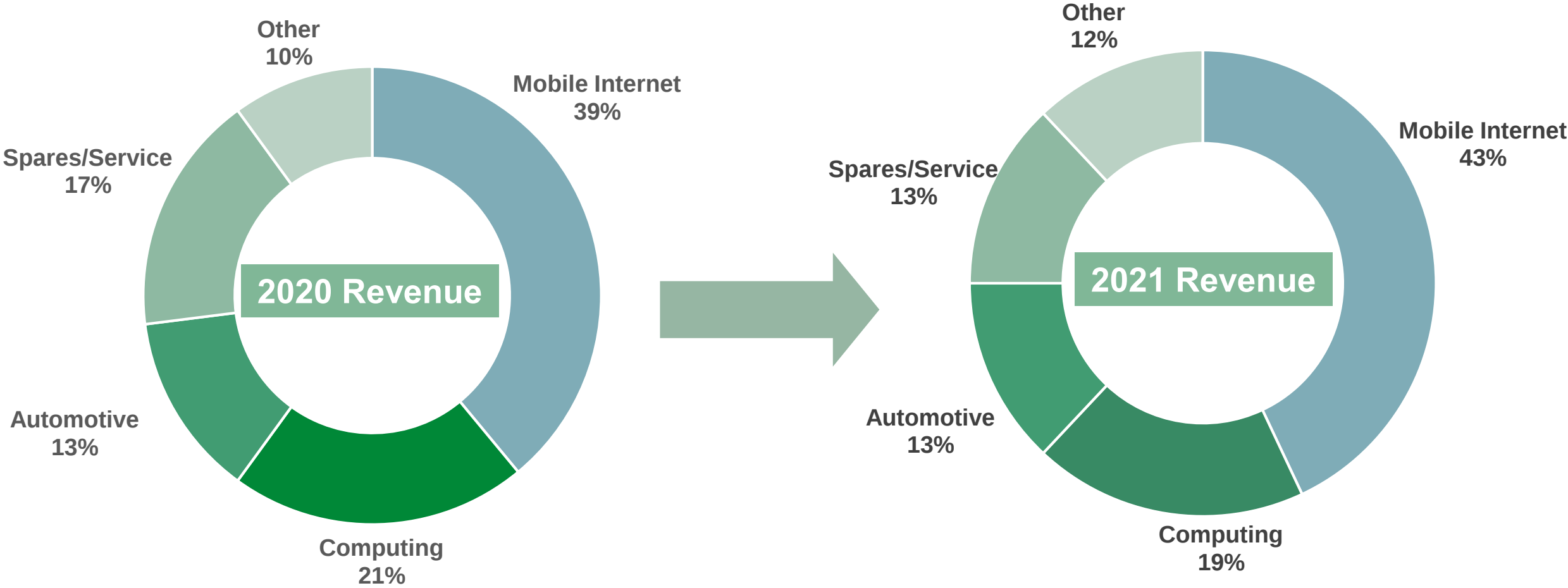
Source: Besi estimates

### Market tracking towards high case developed in June 2020

- High level of customer engagement
- Interest expressed by both logic and memory players
- AMD recently announced first hybrid bonded 3D chiplet-based processor
- Collaboration with Applied Materials enhances market position
- 2020 estimate confirmed with potential upside

### Forecast highly dependent on timing of:

- Successful design and development per IDM
- Customer roadmaps
- Performance in mass production environment



Source: Company estimates

# Mobile: Besi's Largest End-User Market



RF Front End  
Antennas  
GPS

RF  
Tranceiver  
Modem

Local  
Connectivity  
WiFi/NFC

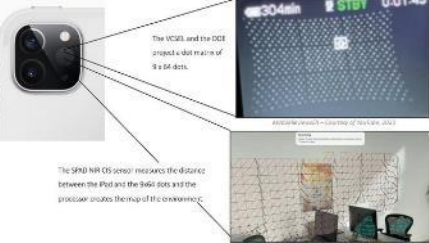
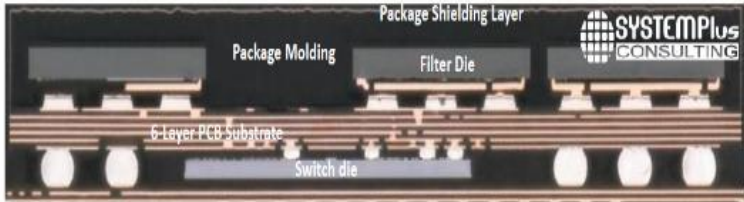
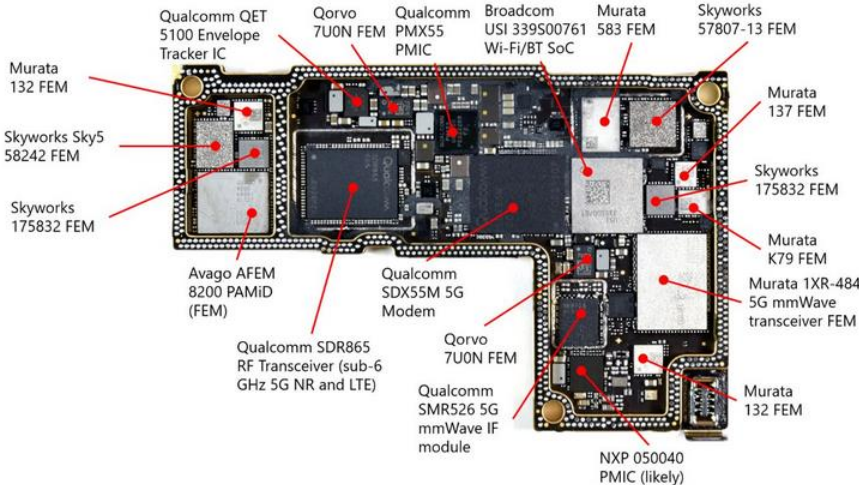
Microphone  
Cameras  
Sensors

Display  
TouchScreen

Power  
Battery

Memory

Application  
Processor



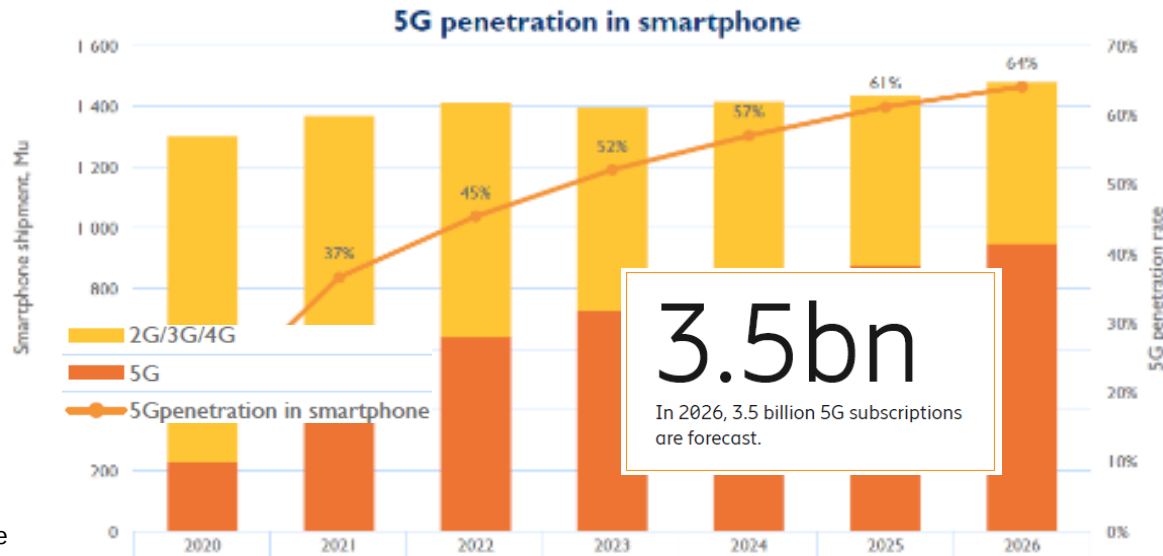
## Besi Involved in Almost All Components

| Main Components       | Besi system Utilized          |
|-----------------------|-------------------------------|
| Processor             | 8800CHM, MMS-LM               |
| DRAM Memory           | 2100sD, FSL                   |
| NAND Flash            | 2100sD, AMS-W/LM/FCQ8800      |
| PM IC                 | 2100sD, AMS-W/LM              |
| Motion coprocessor    | 2100sD, AMS-W/LM              |
| Gyroscope             | 2100xP, 2100sD, AMS-W/LM, FCL |
| 3-ax accelerometer    | 2200evo                       |
| barometric sensor     | 2200evo                       |
| Charging IC           | 2100xP, 2100sD, AMS-W/LM, FCL |
| Power Delivery IC     | 21000xP                       |
| Wireless charging IC  | 2100xP, 2100sD, AMS-W/LM      |
| Communications        | Besi system Utilized          |
| Wifi/Bluetooth module | AMS-W/LM / 2100HSi            |
| NFC                   | 8800FCQ, AMS-W/LM, 2009SSI    |
| LTE Modem             | 8800FCQ, AMS-W/LM             |
| Low Band LTE PAD      | 2200evo, FSL                  |
| Mid Band PAD          | 2200evo, FSL                  |
| High Band PAD         | 2100xP, 2100sD, AMS-W/LM      |
| RF Transceiver        | 2100xP, 2100sD, AMS-W/LM      |
| RF Receiver           | 2100xP, 2100sD, AMS-W/LM      |
| Envelop Tracking IC   | 8800FCQ, AMS-W/LM             |
| Antenna Switch        | 2100xP, 2100sD                |
| PA                    | 2100xP, 2100sD, AMS-W/LM      |
| PA Module             | 2200evo, 2100sD               |
| GSM PA module         | 2200evo, 2100sD               |
| Video/Audio           | Besi system Utilized          |
| Cameras Back side     | 2200evo                       |
| Cameras Front Side    | 2200evo                       |
| Face ID               | 2200evo                       |
| Image Sensor          | 2200evo                       |
| Dot Projectors        | 2200evo                       |
| 2+4 microphones       | 2100sD                        |
| Audio Codec           | 2100xP, 2100sD, AMS-W/LM      |
| Touch screen control  | 2100sD                        |
| Touch Transmitter     | FCL                           |
| OLED PMIC             | 2100xP                        |

Source: Unitedlex.com and ifixit.com and System plus

# Mobile: 5G Adoption Increasing Driven By New Smartphone Applications and Features

## Growing 5G Smartphone Penetration



Source: Yole

## 5G Infrastructure Expanding



Source: Intel

**Number of mobile phones sold per year fairly constant at ~1.7 billion**

- of which 80%+ are represented by smart phones

**Growth driven by new features and innovation:**

- 5G broader spectrum including mm waves
- More and better cameras
- Next generation face recognition
- Bio sensors
- Spacial sensors like Lidar
- Better displays and foldable
- More powerful application processors 5nm and 4nm
- More powerful modems 5nm technology
- Requiring denser packages

**Additional growth drivers:**

- Device to device
- Smart watches, earbuds etc.
- 5G infrastructure expansion

**Growth in new features and functionality requires new/advanced assembly systems**

- To achieve higher performance and more compact form factors

# Computing Demand Expanding Rapidly

## Advanced computing expanding to many commercial applications



AI/Vision/Recognition



Medical



Super Computers



Mobile Phones



Industry 4.0



Autonomous Driving

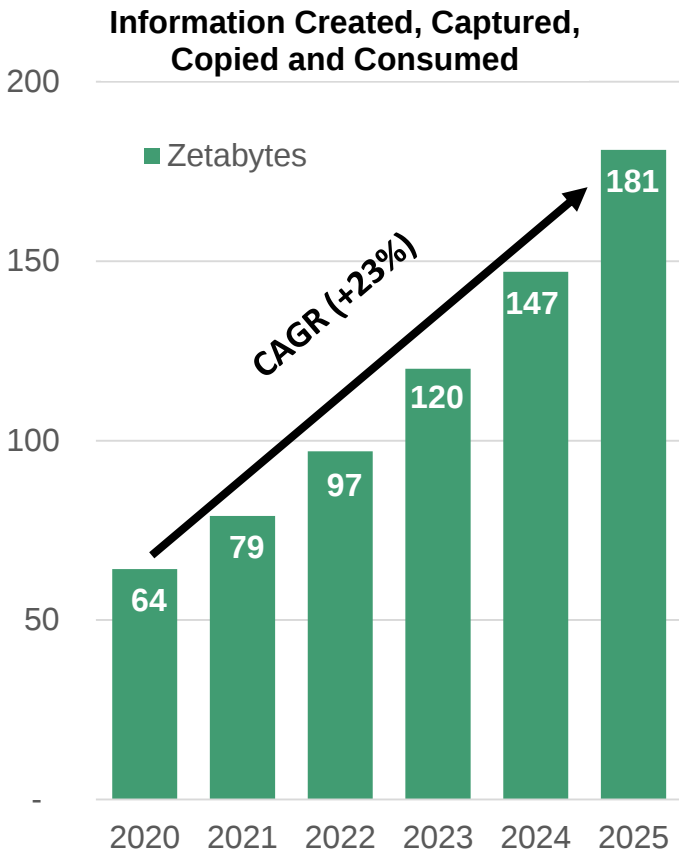


Datacenters



Laptops/Gaming/Engineering

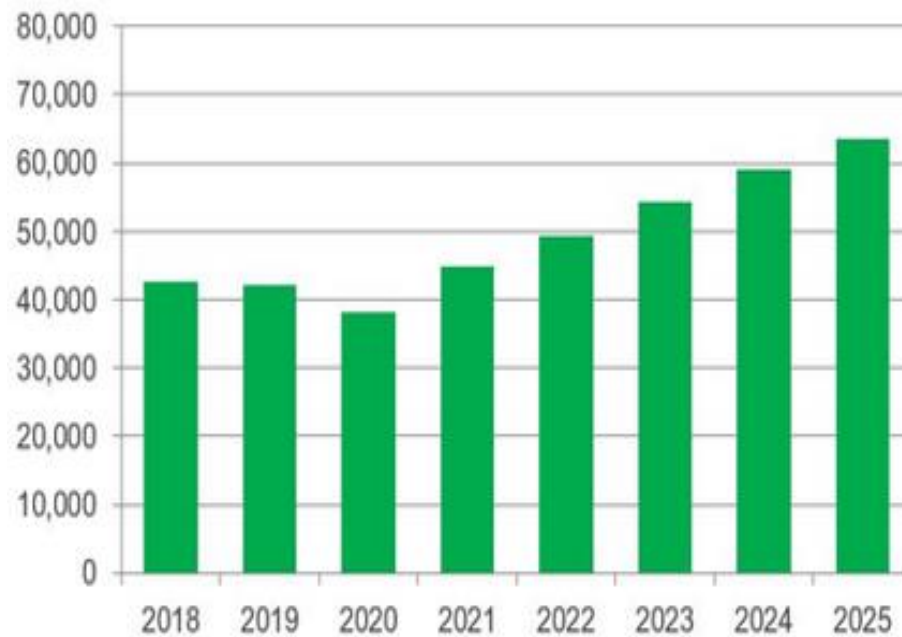
## Data volumes growing exponentially



Source: Statista, June 2021

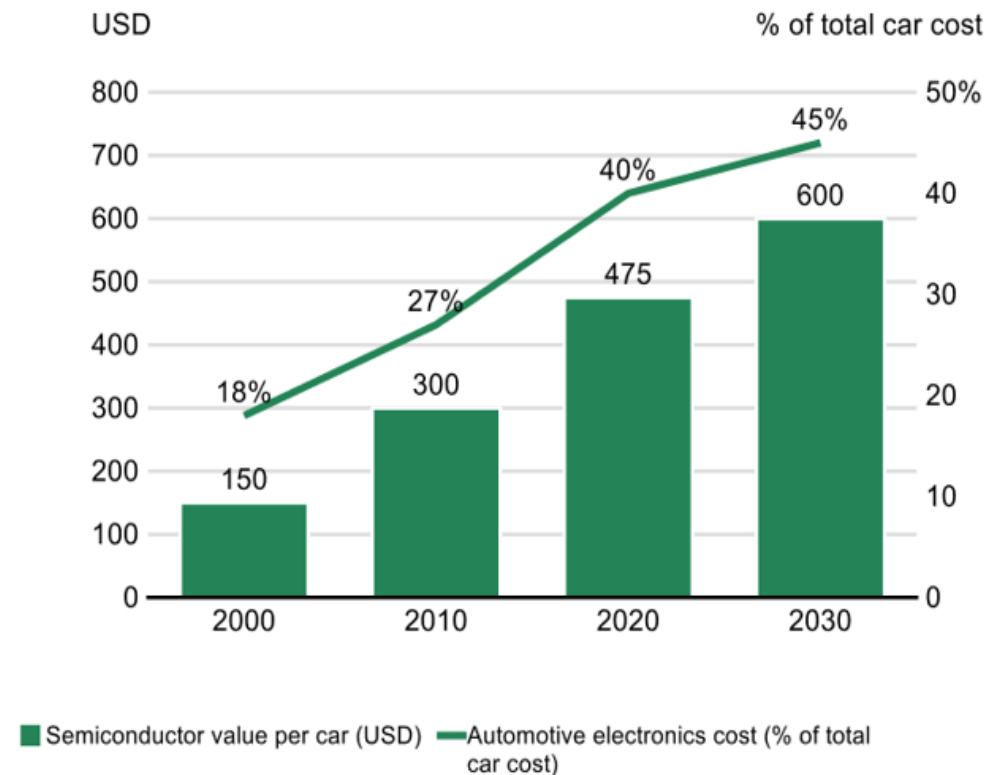
# Automotive: Semiconductor Content and Cost per Car Increasing

## Growth in Automotive Semiconductors



Source: IHS Markit, October 2020

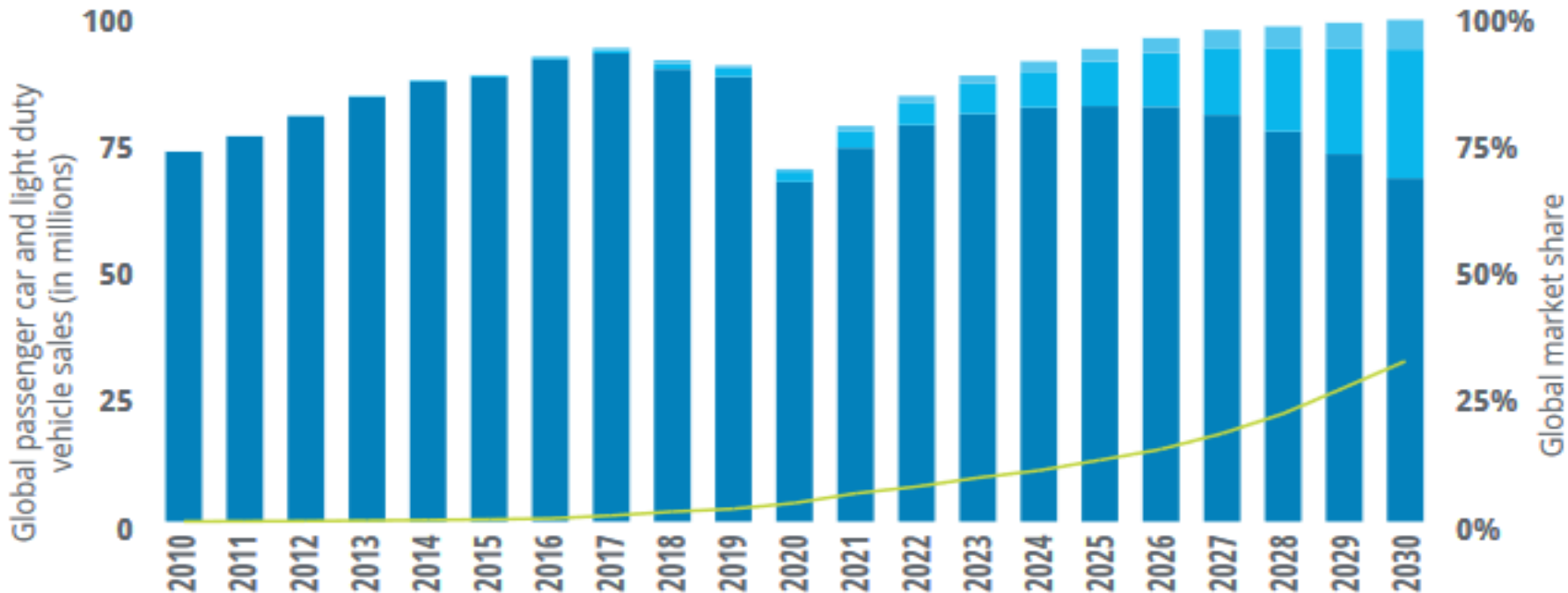
## Semiconductor Cost Content Per Car Is Increasing



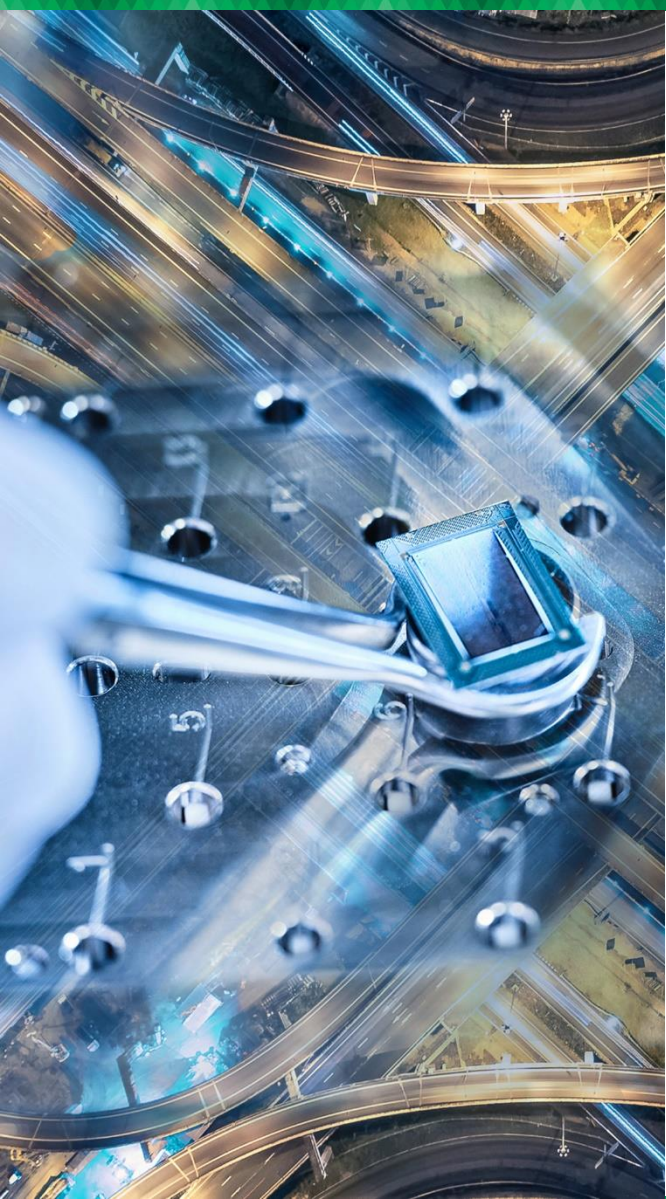
Source: IHS Markit and Deloitte Insights, July 2020

Outlook for annual global passenger-car and light-duty vehicle sales, to 2030

Global ICE Global BEV Global PHEV EV share



Source: Deloitte analysis, IHS Markit, EV-Volumes.com<sup>16</sup>



### III. STRATEGY



## Production

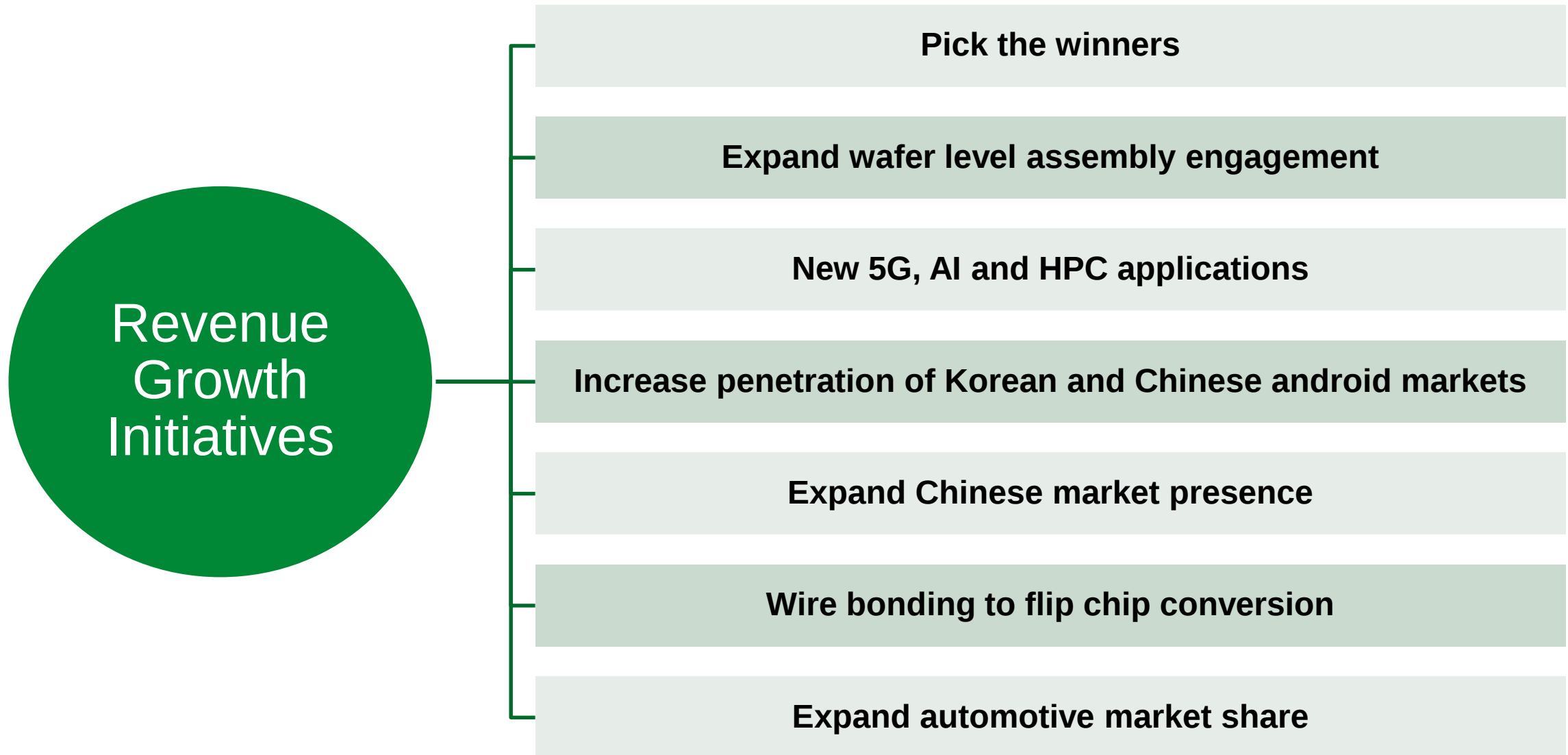
- Supply chain constraints and selected component shortages persist both at Besi and at customer manufacturing sites
  - Impacts H1-22 quarterly delivery schedules
- Began Hybrid Bonding shipments to customer in Q4-21
- Ramping capacity for 2022/2024 demand

## Development

- Gross R&D investment +26% in 2021
- Significant investment in wafer level assembly:
  - Hybrid Bonding, TCB Chip to Wafer and Embedded Bridge Die Attach
- Hybrid Bonding cluster tools available this year

## Organization

- Refined strategy 2021-2025 to support <10nm and existing portfolio
- ESG reporting expanded to comply with SASB
- Certain 2021 ESG metrics realized ahead of 2022 target



# Asian Production Transfer Has Improved Profitability and Cash Flow

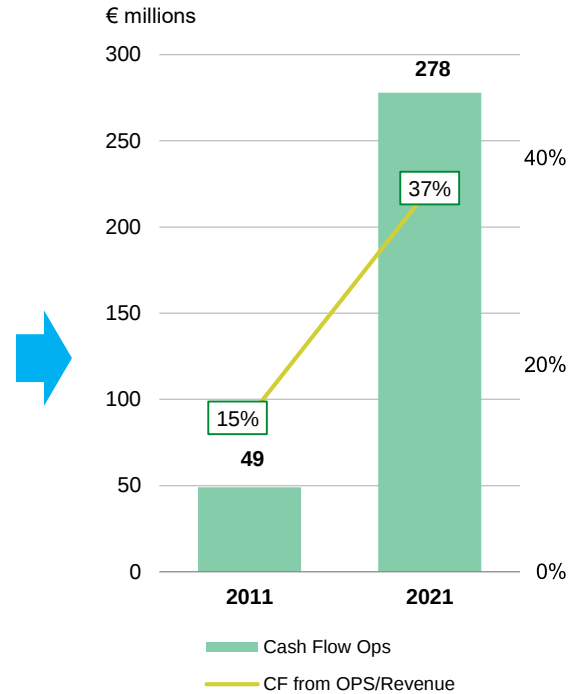
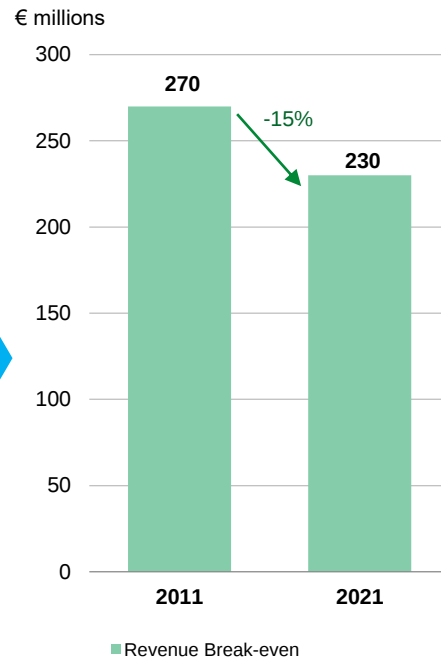
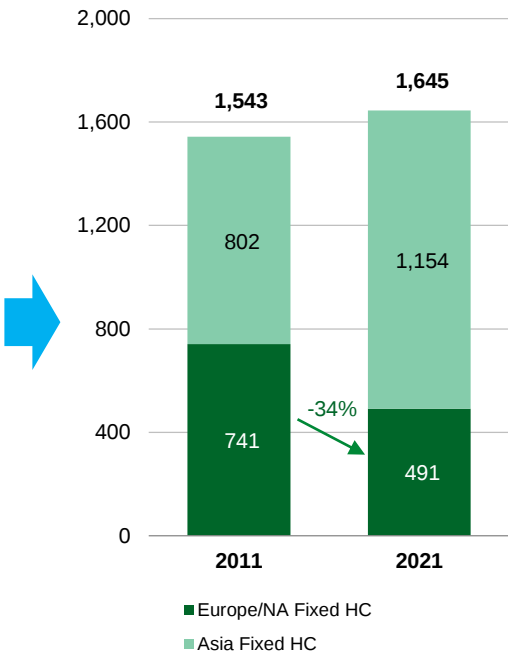
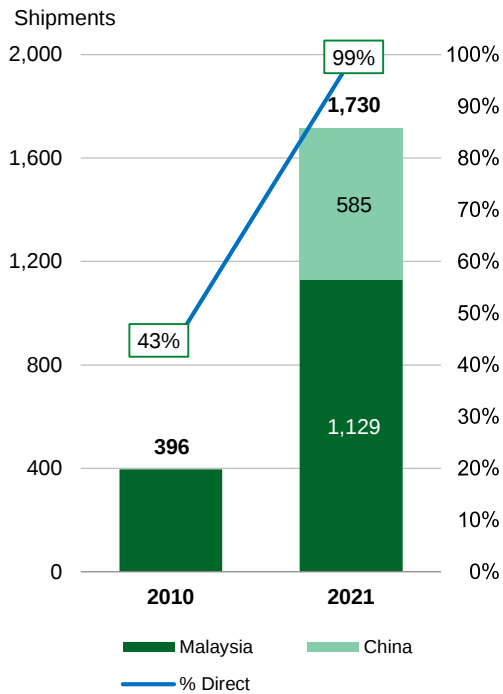


Asian Production Has Significantly Expanded

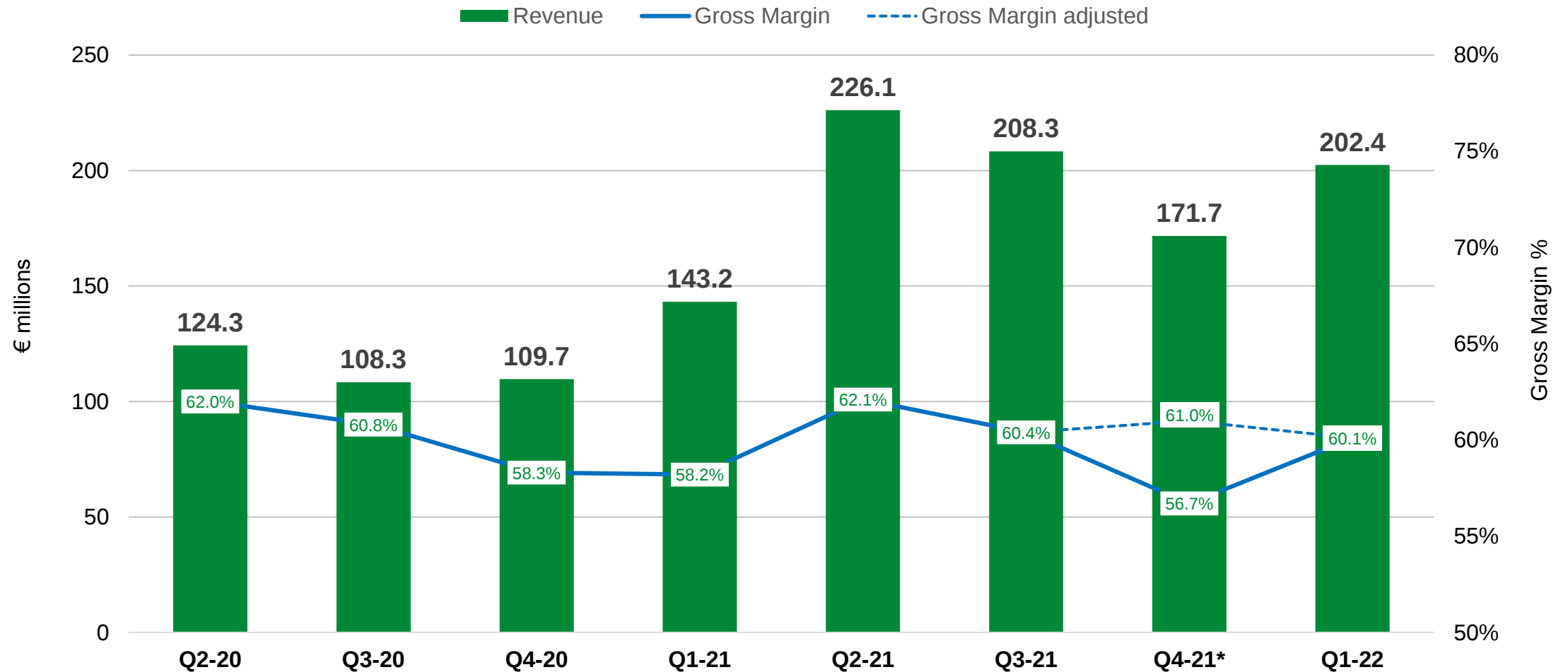
Leading to Lower Fixed European and NA Headcount

And Reduced Break Even Revenue Levels

And Improved Cash Generation

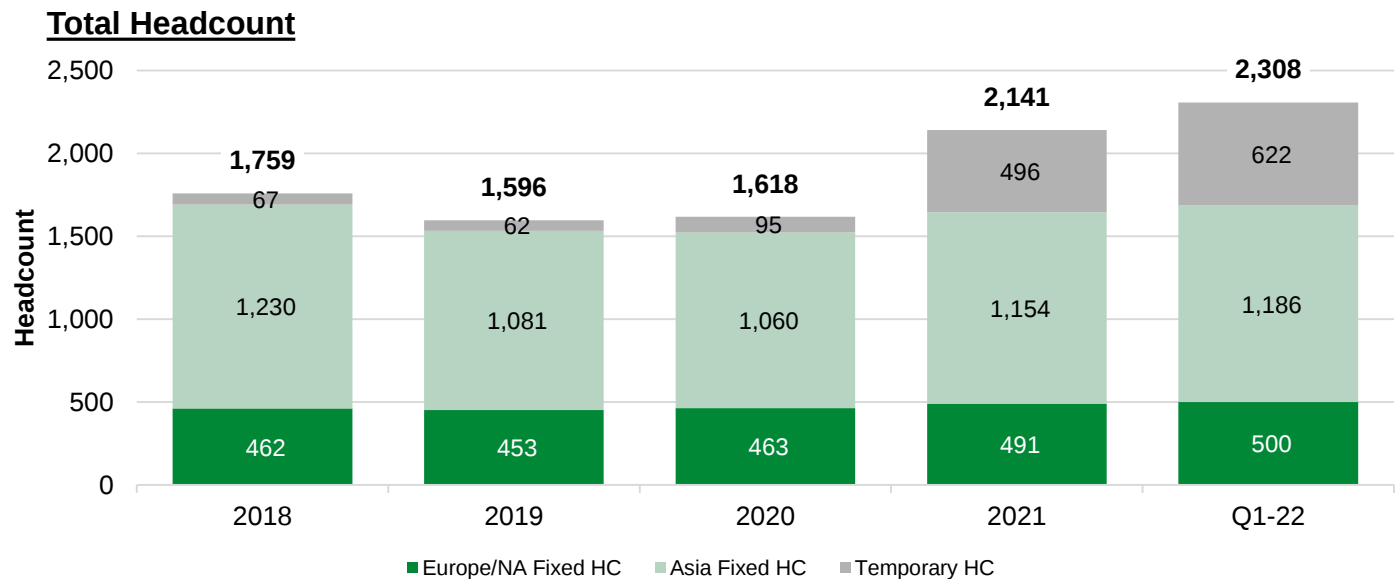
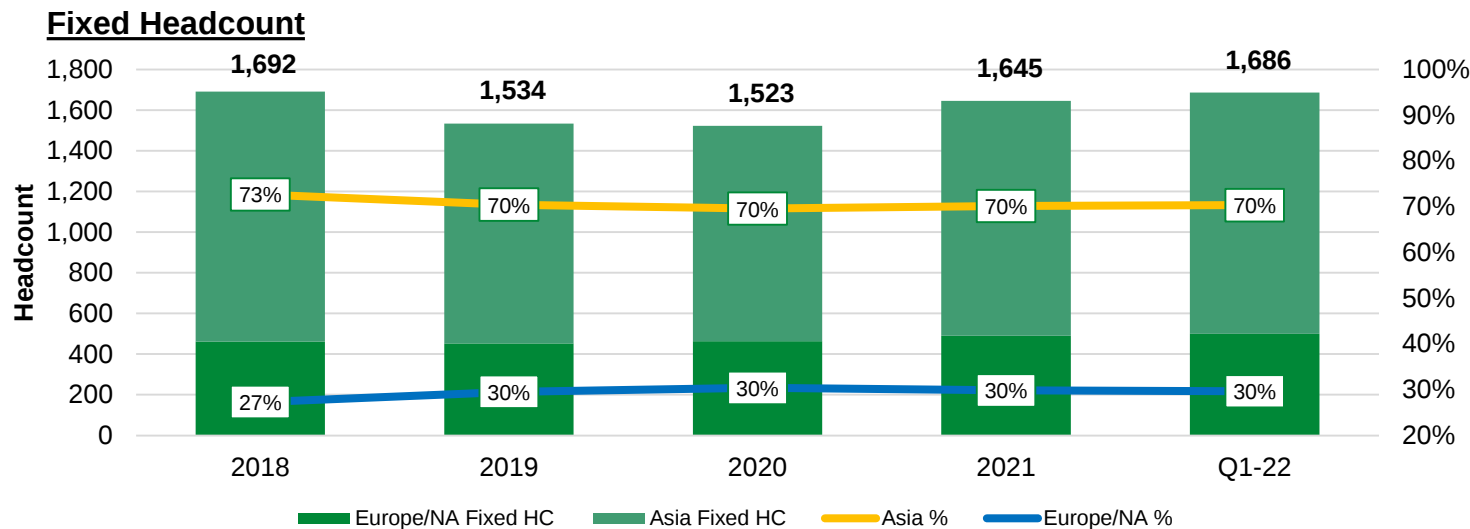


# Flexible Production Model Has Generated Consistent Gross Margins in Market Cycles



\* Includes € 7.4 million (4.3 gross margin point) inventory charge in Q4-21 related to a flood of one of Besi's Malaysian production facilities.

# Flexible Asian Workforce Has Significantly Enhanced Scalability



- Increasing fixed headcount to support R&D and service/support for wafer level assembly expansion
- Temporary Asian production HC growth helps support customer deliveries given supply chain issues

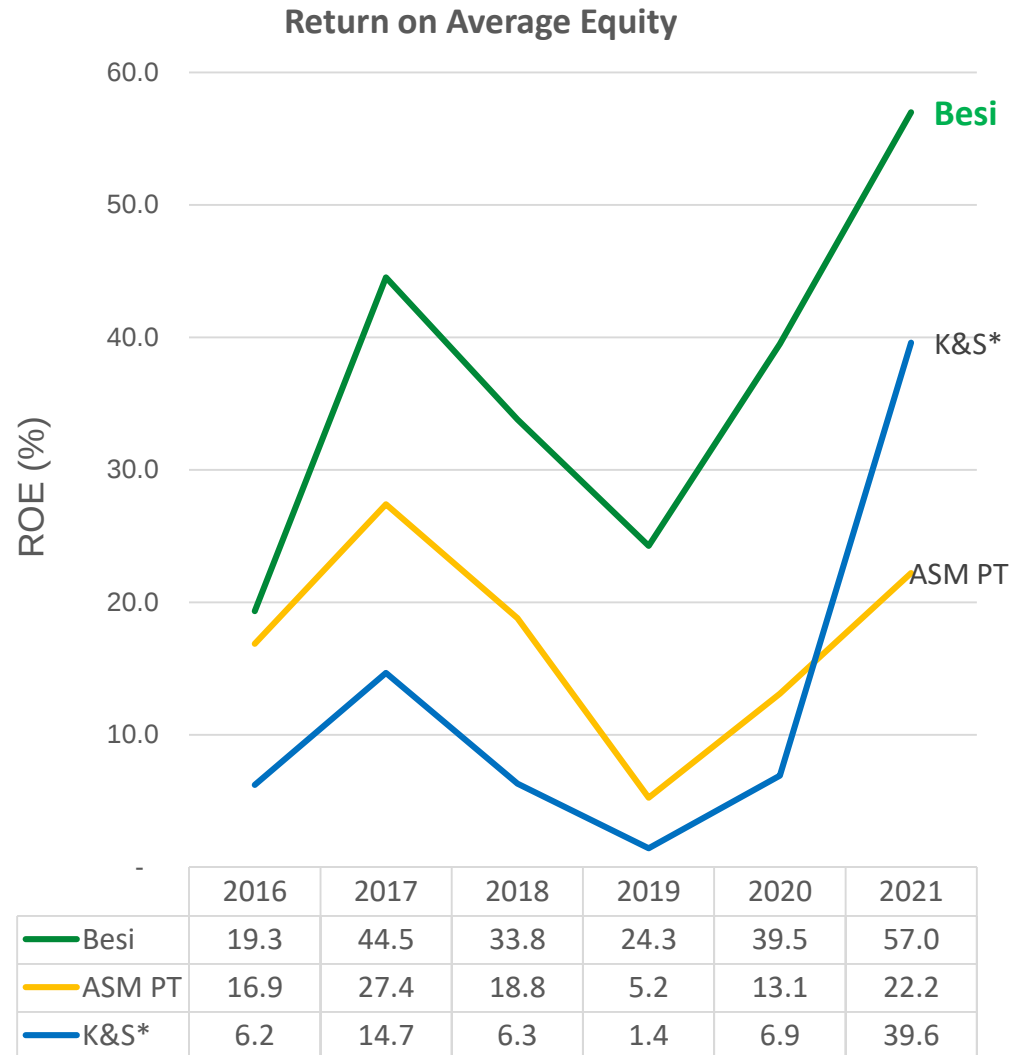
# Structural, Through Cycle Outperformance Achieved vs. Direct Peers



| Gross Margin         |       |       |                    |
|----------------------|-------|-------|--------------------|
|                      | 2016  | 2021  | Δ<br>2016/<br>2021 |
| Besi                 | 51.0% | 59.6% | +8.6%              |
| ASM PT<br>(Back end) | 43.4% | 43.8% | +0.4%              |
| K&S*                 | 44.8% | 45.9% | +1.1%              |

| Operating Margin     |       |       |                    |
|----------------------|-------|-------|--------------------|
|                      | 2016  | 2021  | Δ<br>2016/<br>2021 |
| Besi                 | 20.0% | 42.4% | +22.4%             |
| ASM PT<br>(Back end) | 20.6% | 22.4% | +1.8%              |
| K&S*                 | 8.6%  | 27.2% | +18.6%             |

\* K&S on fiscal year basis



**Besi's margins and ROE have exceeded direct peers through cycles:**

- Investment in business model has yielded high returns
- Structurally higher gross and operating margins over past five years
- Besi capital allocation strategy has also helped drive ROE outperformance

# Significant ESG Progress Achieved in 2021

| Process Pillar       | Progress                                                                       |
|----------------------|--------------------------------------------------------------------------------|
| Environmental Impact | Reduced Scope 1 & 2 and 3 emissions intensity by 27% and 4%, respectively      |
|                      | Relative reductions in fuel, energy, hazardous waste and water consumption     |
|                      | Launched sustainable design initiatives for die bonding platforms              |
| People Wellbeing     | Additional COVID-19 health and safety measures implemented                     |
|                      | Increased female and local management % and training hours                     |
|                      | High level of employee engagement and motivation identified in COVID-19 Survey |
| Responsible Business | Increased % of Purchasing Volume signed CFSI and SAQ                           |
|                      | 94% of Purchasing Volume compliant with RoHS directive, up from 92% in 2020    |

## Key Targets 2022

100% renewable sources for European energy needs

15% reduction in Scope 1 and 2 carbon emissions\*

Above-benchmark employee engagement

Increase training hours per employee

Compliance with SASB benchmark (2021)

TCFD compliance

## Key Targets 2030

65% renewable sources for global energy needs

60% reduction in Scope 1 and 2 carbon emissions\*

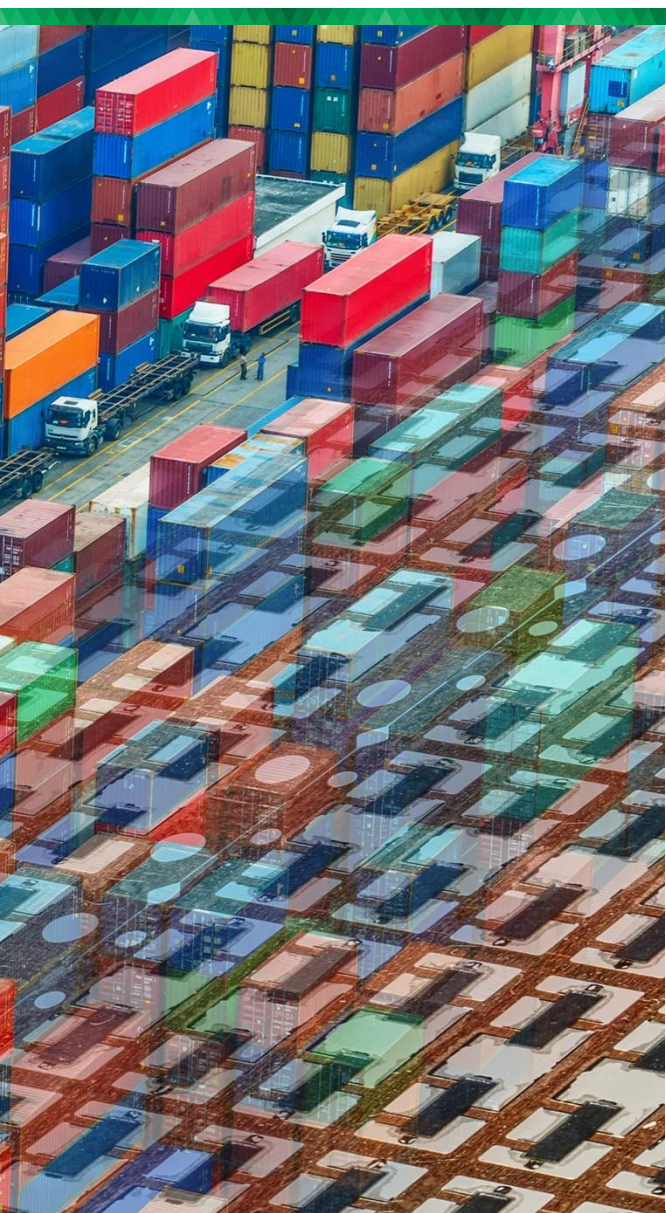
Reduce energy consumption

Decouple carbon footprint from revenue growth

80% vendor compliance with CFSI

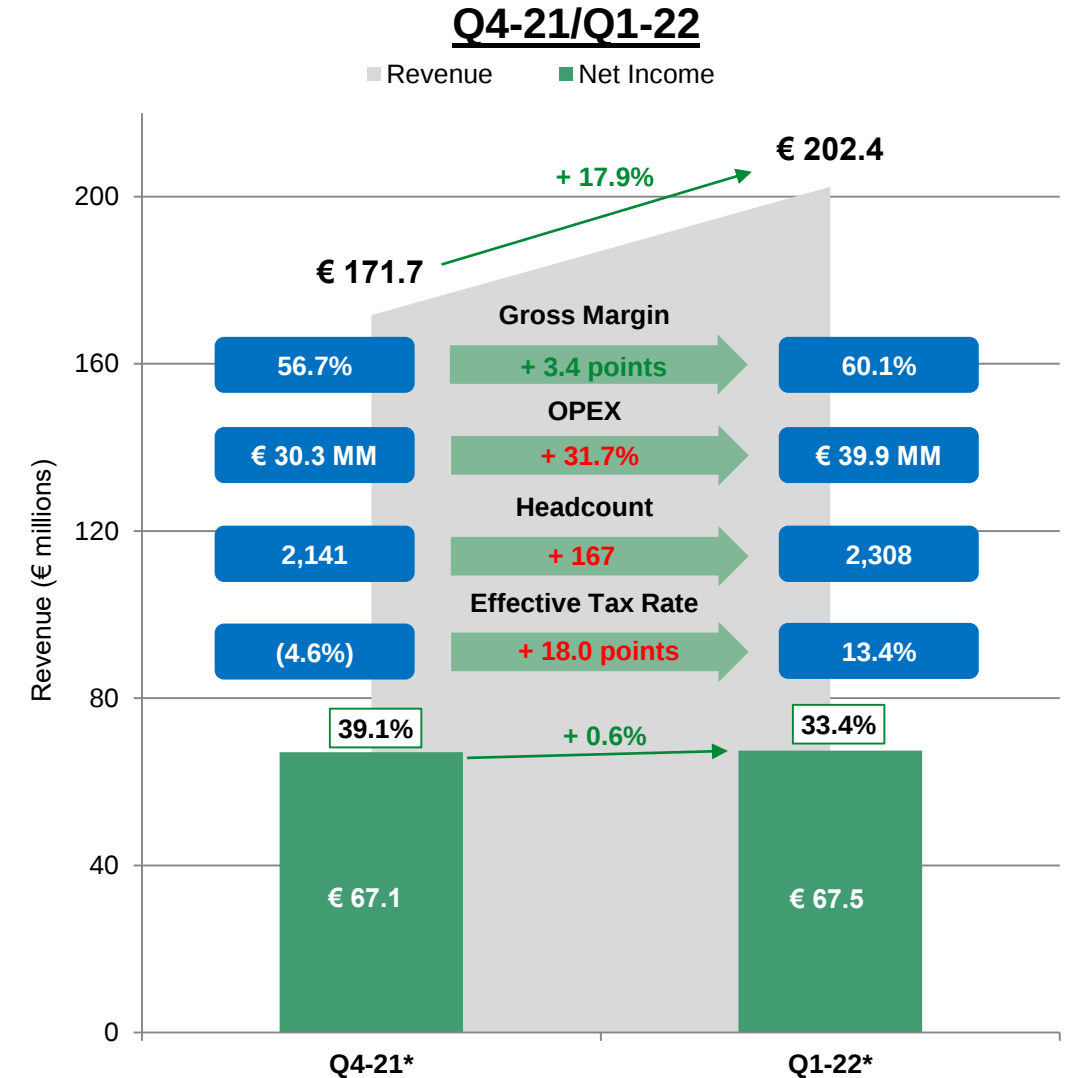
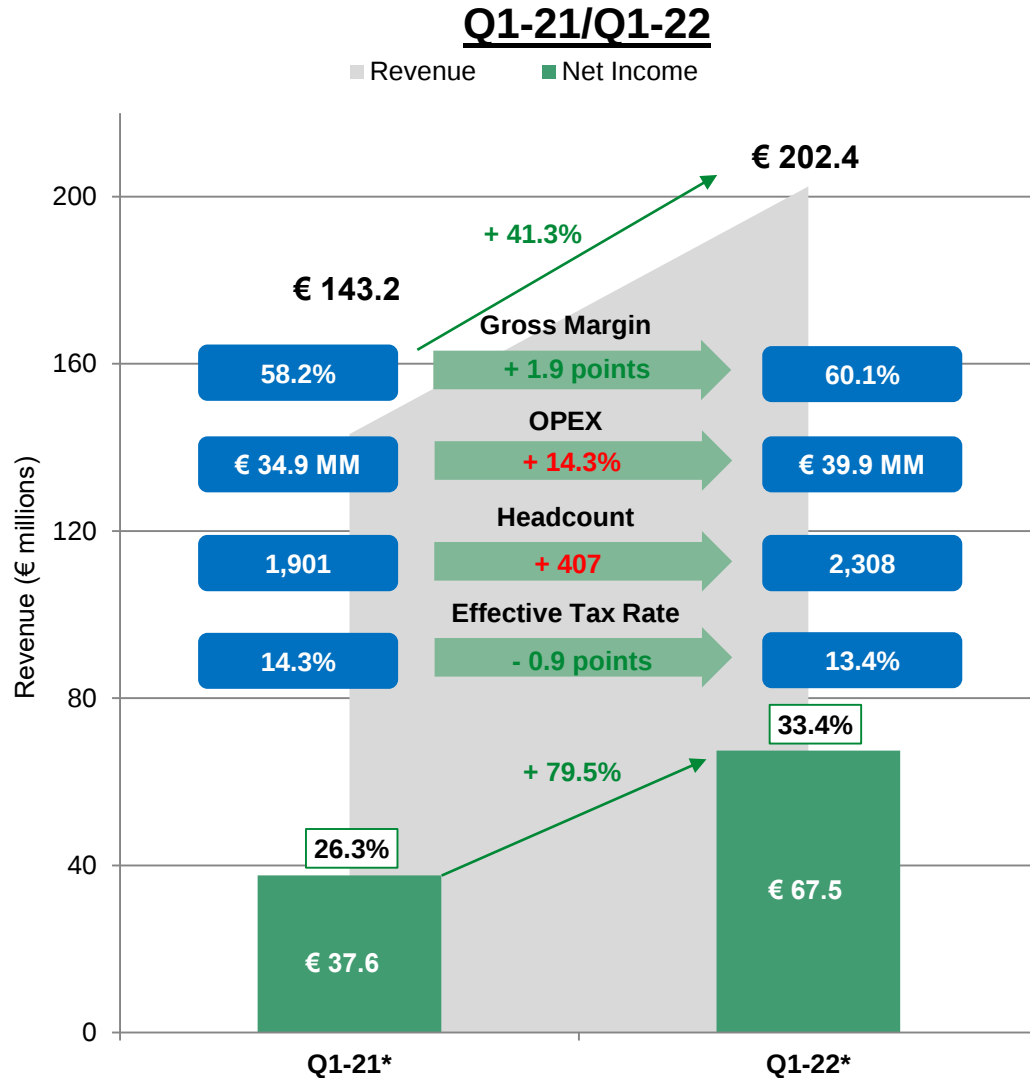
## Carbon Neutral By 2050

\* As per Greenhouse Gas Protocol. Targets relative to 2019 baseline data



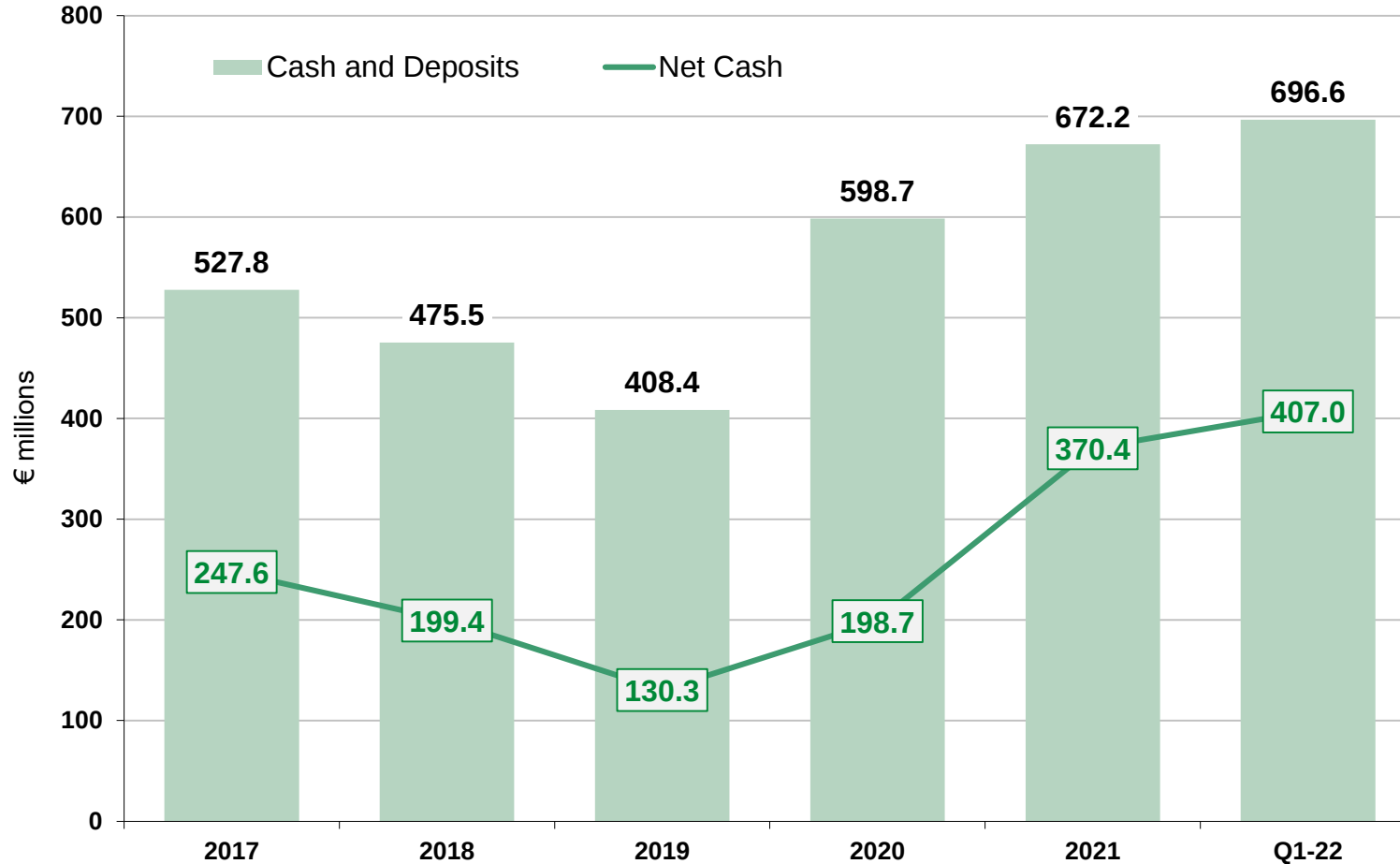
## IV. FINANCIAL UPDATE AND SUMMARY

# Strong Business Execution Keeps Profit Efficiency at High Levels



\* Excluding tax benefits, share-based compensation expense and one-time inventory charges in Q4, Besi's adjusted net income (net margin) would have been € 75.5 million (37.3%), € 66.3 million (38.6%) and € 47.4 (33.1%) million in Q1-22, Q4-21 and Q1-21, respectively.

# Liquidity Position Enhanced



## Q1-22 vs. Q4-21

- **Total cash up € 24.4 million (3.6%)**
  - +€ 45.0 million cash flow from operations
  - - € 14.1 million share repurchases
  - - € 5.7 million capitalized development
- **Net cash of € 407.0 million up € 36.6 million (+9.9%)**

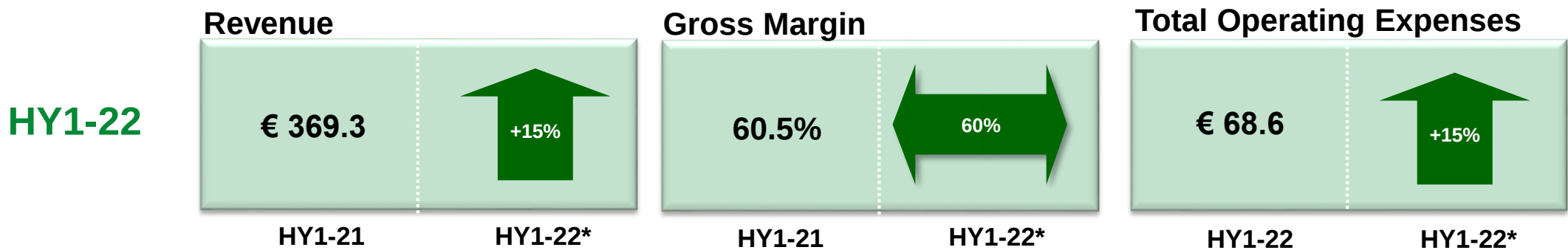
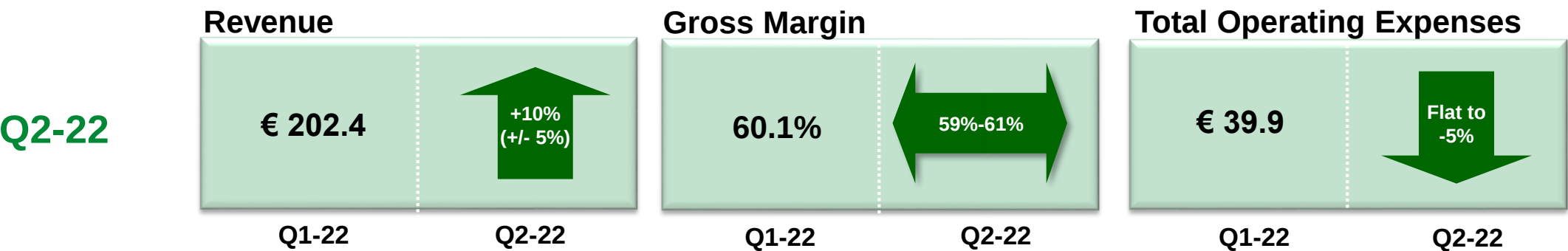
## Convertible Notes

- € 363.7 million of Notes outstanding at April 29, 2022
- 2024 notes reduced to € 36.3 million in April 2022
  - € 14.3 million converted in Q1-22
  - € 121.8 million converted in April
- € 175 million of 1.875% 2029 notes issued in April
  - Conversion price of € 115.50

# Guidance Q2-22 & H1-22



€ in millions



\* At midpoint of Q2-22 guidance

**Assembly market  
ever more critical in  
semiconductor value  
chain**

**Disciplined strategic  
focus has created an  
industry leader**

**Long term secular  
trends drive  
advanced packaging  
growth**

**Wafer level assembly  
new growth  
opportunity**

**Market presence has  
grown via key IDMs,  
supply chains and  
partners**

**Tech leadership and  
scalability result in  
superior financial  
returns**

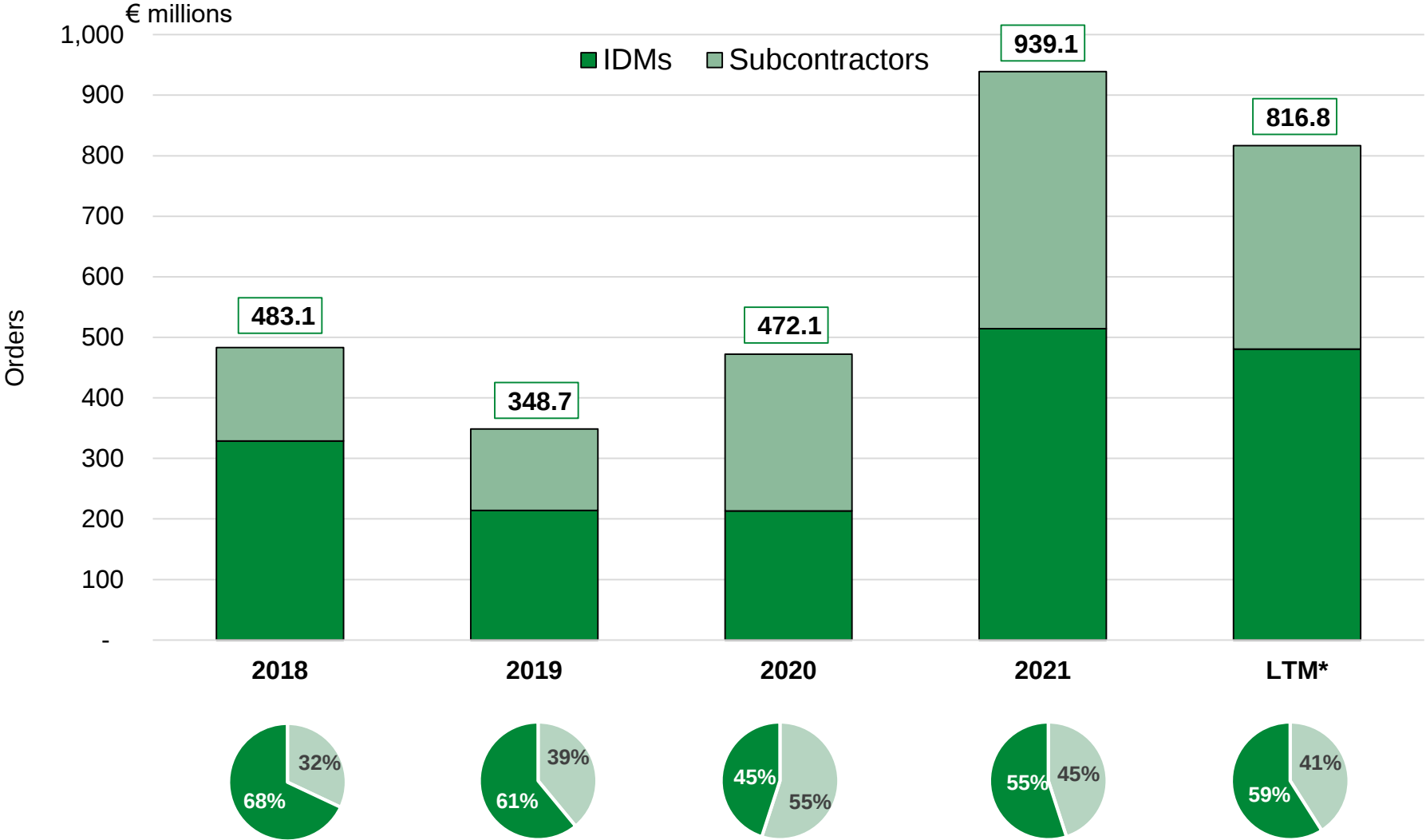
**Commitment to  
sustainable growth  
and fighting climate  
change**

**Attractive capital  
allocation policy**



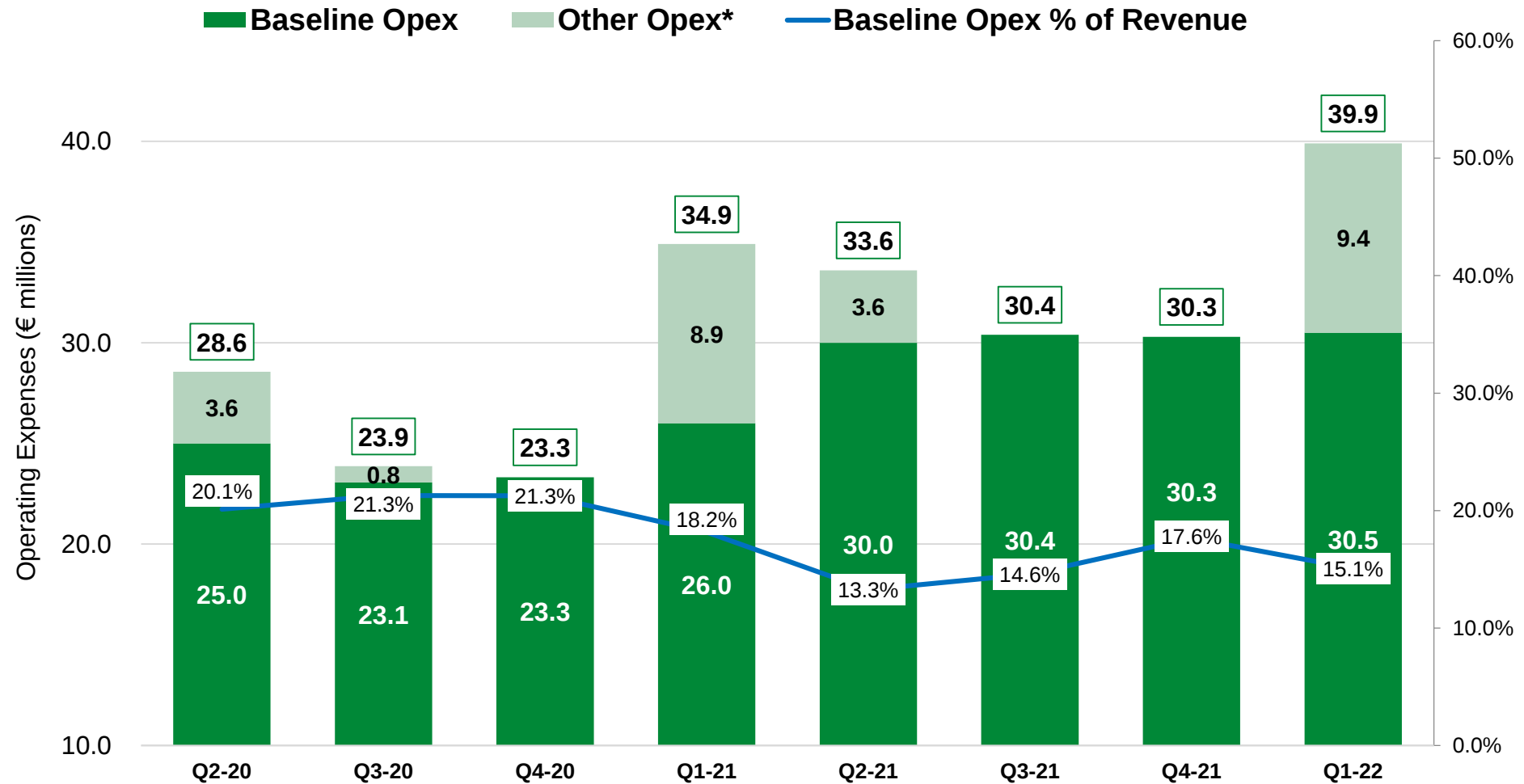
## V. APPENDIX

# IDM/Subcontractor Order Trends



\* Last twelve months ended March 31, 2022

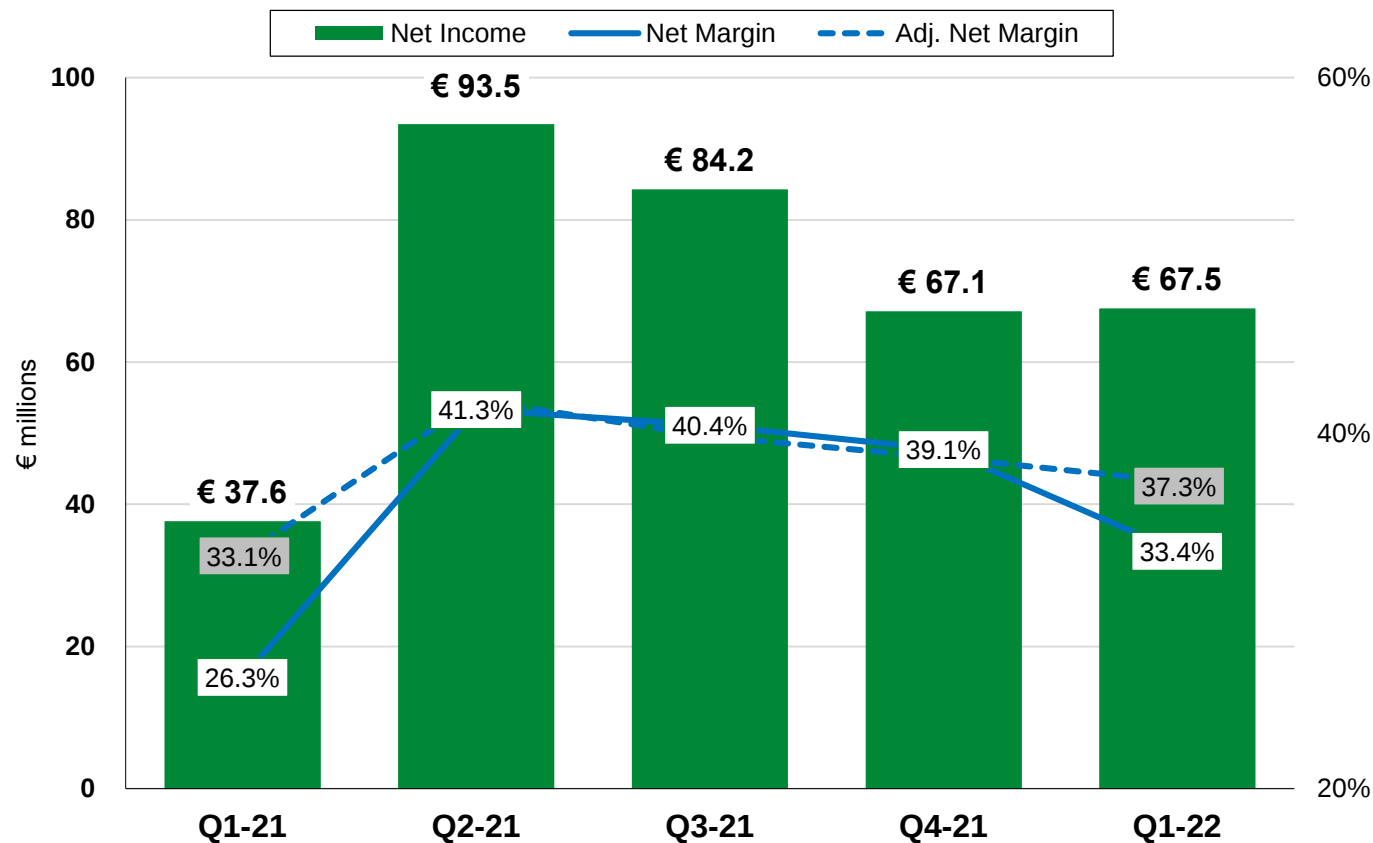
# Baseline Operating Expense Trends



\* Other Opex includes both short-term and long-term incentive compensation, seasonal effects, restructuring costs, net R&D capitalization/amortization and certain one-time items.

# Net Income Trends

Quarterly Trends



## Q1-22 vs. Q4-21

- € 67.5 million (+€ 0.4 million)
- +€ 9.2 million (+13.9%) on adjusted basis\*
  - +17.9% revenue increase
  - Baseline opex under control
- Adjusted net margin of 37.3%

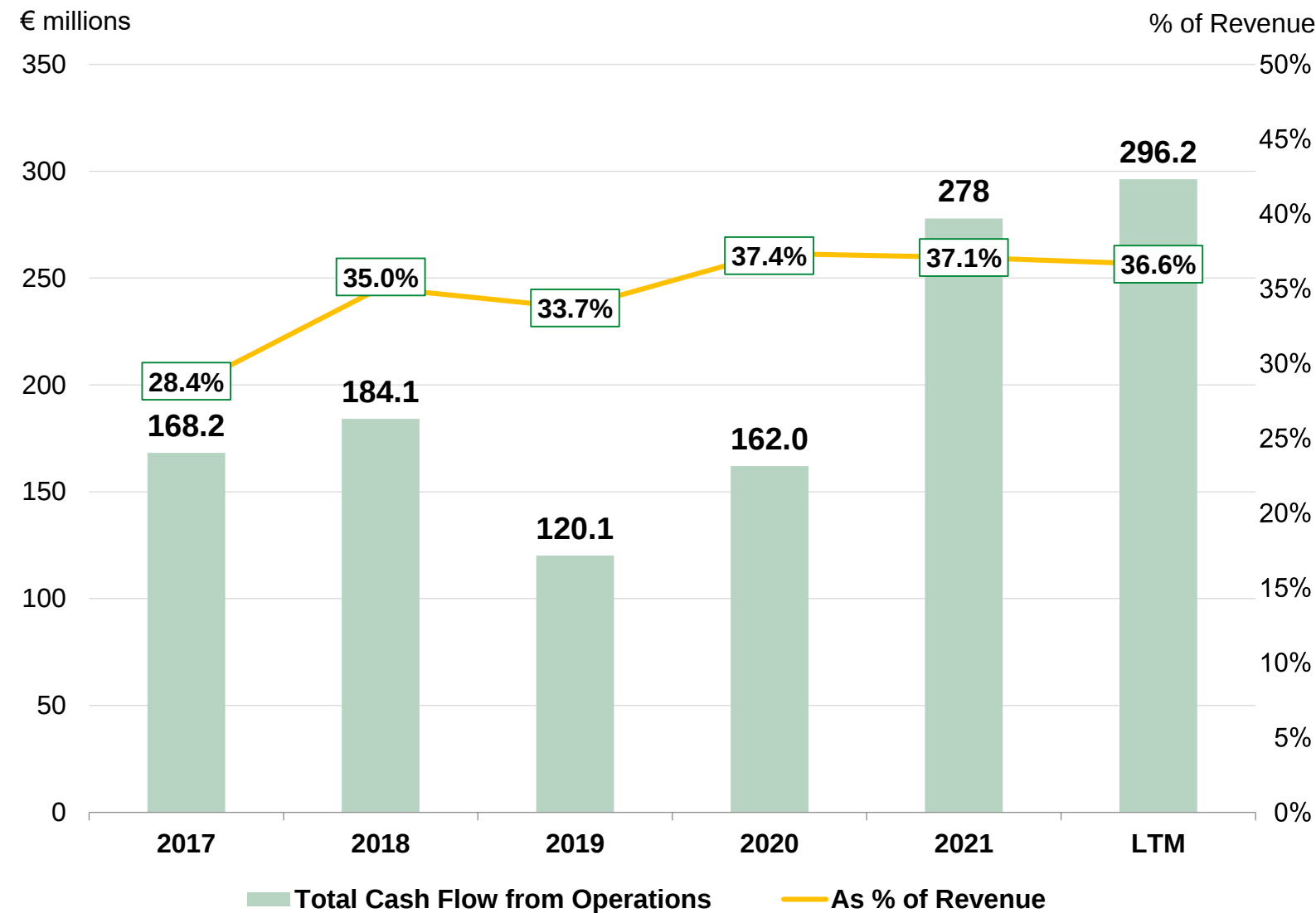
## Q1-22 vs. Q1-21

- +€ 29.9 million
- +41.3% revenue growth
- +1.9 point gross margin increase
- +Cost control overhead and fixed personnel
- Opex/revenue down from 24.4% to 19.7%

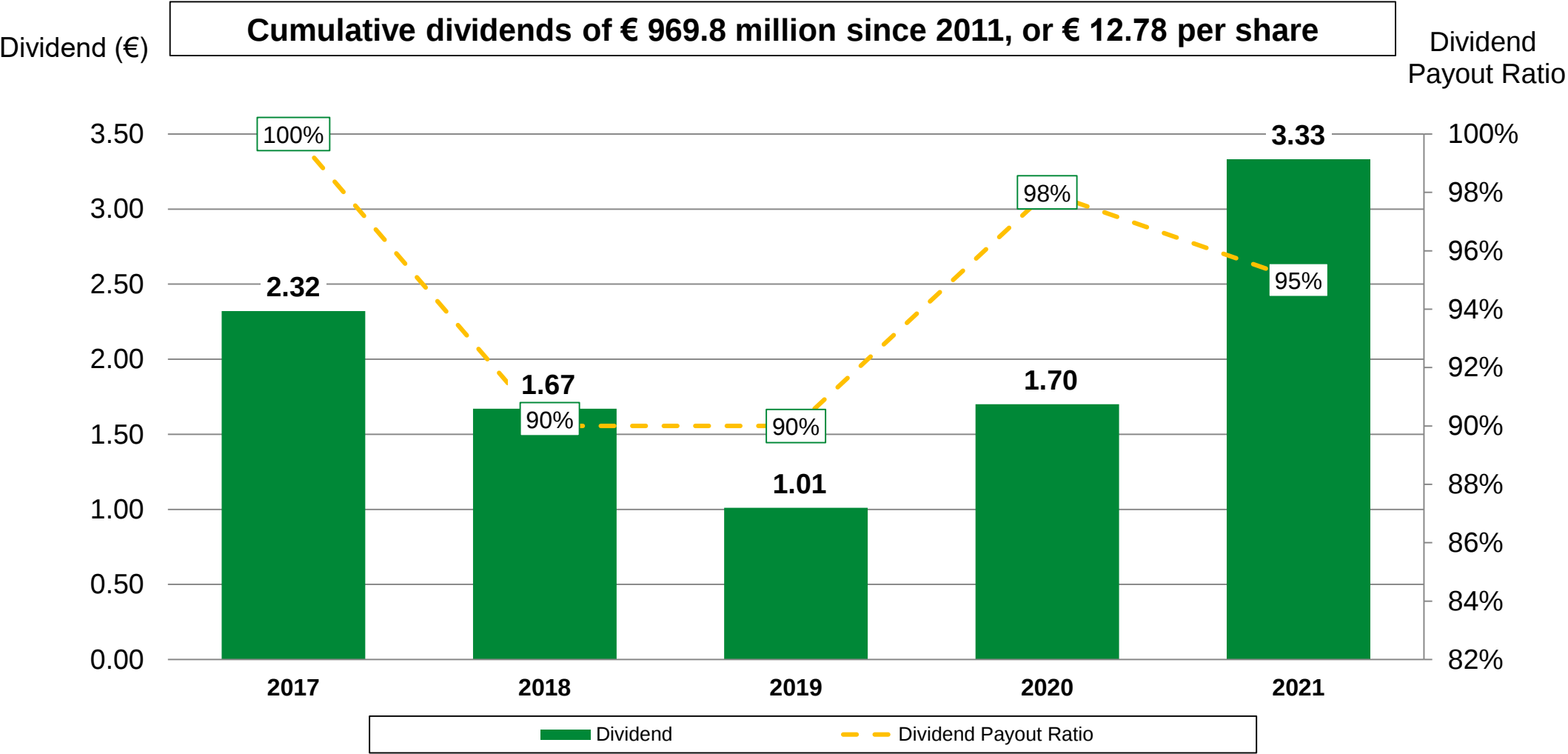
|        |        |        |        |        |                 |
|--------|--------|--------|--------|--------|-----------------|
| € 47.4 | € 94.7 | € 81.9 | € 66.3 | € 75.5 | Adj. Net Income |
| 33.1%  | 41.9%  | 39.3%  | 38.6%  | 37.3%  | Adj. Net margin |

\* Adjusted to exclude one-time flood related inventory impairment charge in Q4-21, tax benefits realized and share-based compensation expense in each of the respective periods.

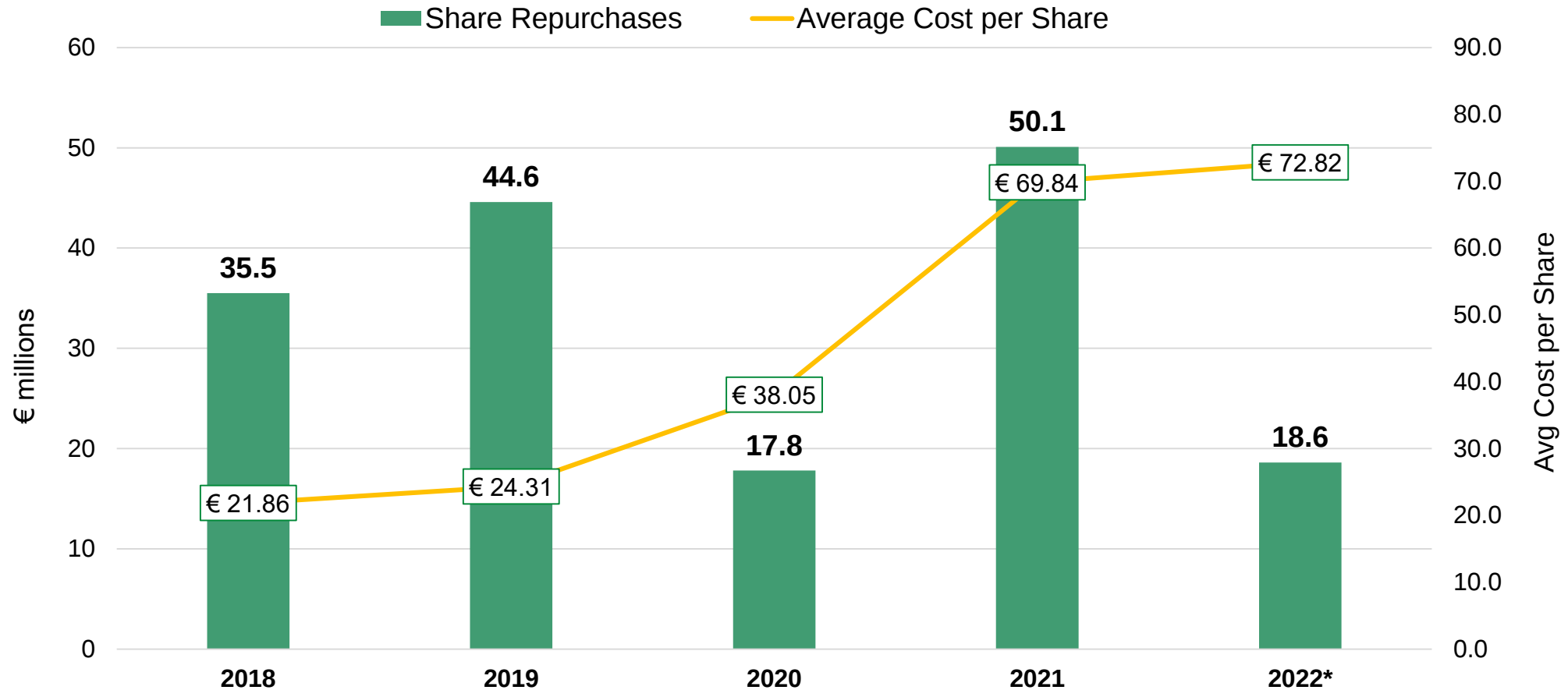
# Cash Flow Efficiency Trends



# Dividend Trends



# Share Repurchase Activity



- Approximately 220,000 treasury shares at April 30, 2022.
- Represents 0.3% of shares outstanding (81.1 million)
- Quarterly share repurchase increased to ~ € 25 million

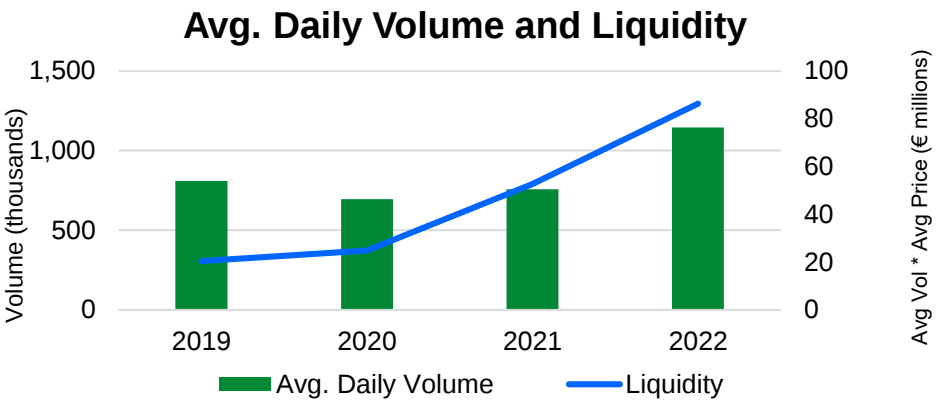
\* Share repurchases included up to April 30, 2022.

# Besi Market Cap & Liquidity Has Expanded Shareholdings Migrated from NL to US/UK over Past 5 Years

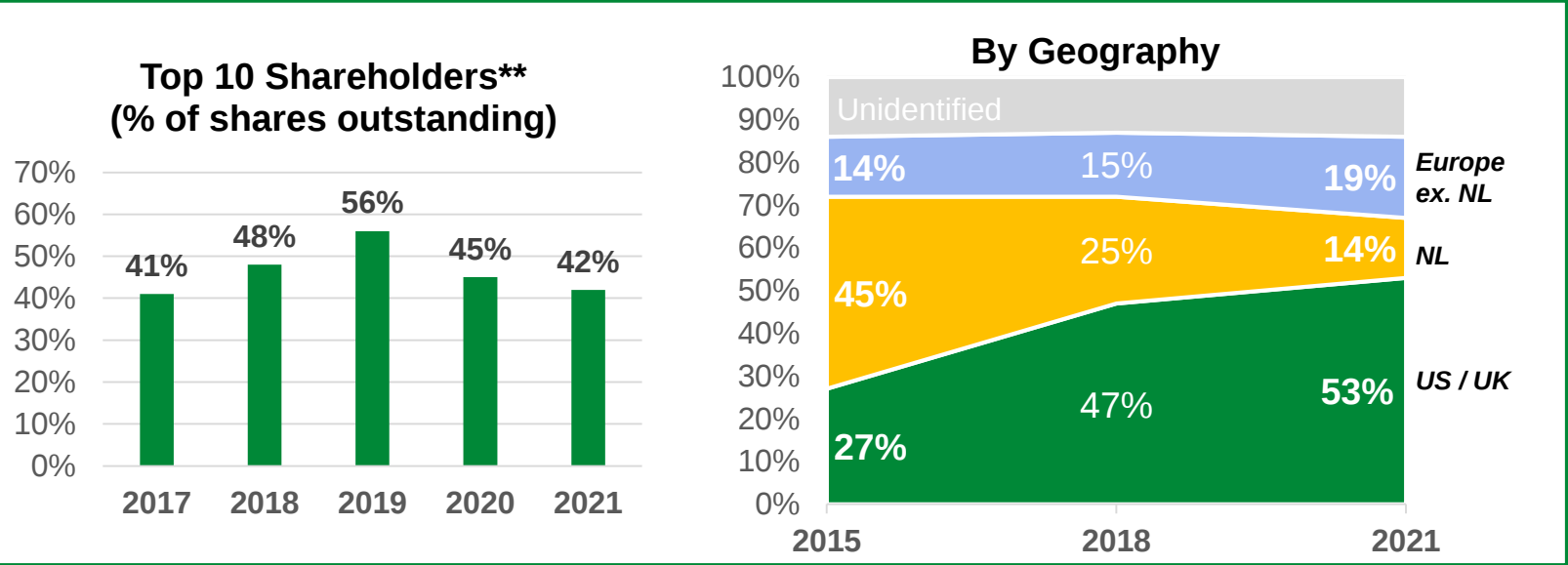


## Market Profile

|                    |                                                                                               |
|--------------------|-----------------------------------------------------------------------------------------------|
| Symbol/<br>Index   | <ul style="list-style-type: none"><li>• BESI</li><li>• Euronext AEX</li></ul>                 |
| Market<br>Cap*     | <ul style="list-style-type: none"><li>• € 4.8 billion<br/>(\$ 5.0 billion)</li></ul>          |
| Dividend<br>Policy | <ul style="list-style-type: none"><li>• Pay out 40-100% of<br/>net income per annum</li></ul> |



## Share Ownership



\* As of April 30, 2022 \*\* Besi estimates