



# FRAMOS MARKET STUDY 2016/18

# TEACHING MACHINES TO SEE AND THINK



- 35 years of imaging experience with deep knowledge **from sensor to system**
- Headquartered in Munich, local subsidiaries in CA, UK, FR, IT and Asia
- Broad portfolio, technical support and development capabilities
- Around 100 experts support customers, OEM's, system integrators and researchers with imaging technologies
- Imaging Experts Academy



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# THE STUDY: GOALS & BASICS



- Status of the imaging market
- Receive reliable forecast on
  - Technical development
  - Market needs
- Show the perspectives of both manufacturers and camera users
- Identify future trends

- Online survey in cooperation with:

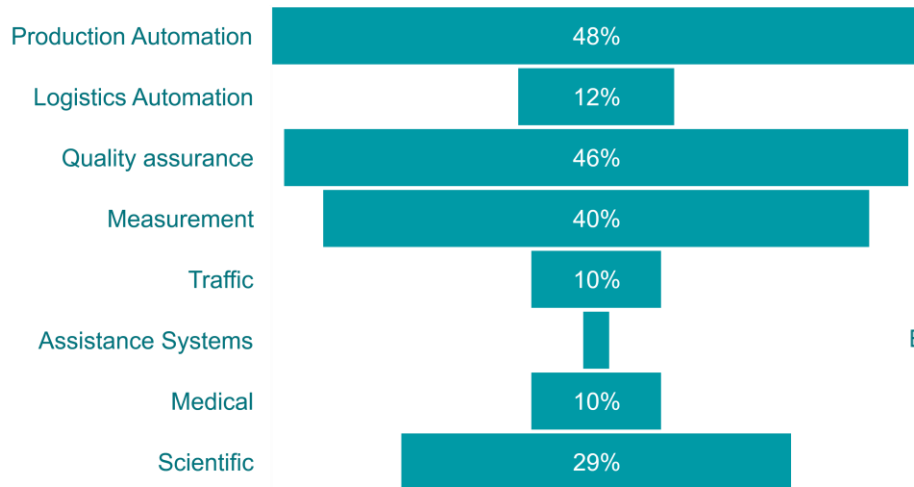


- 60 participants
- 19 countries - mainly Europe and America
- Results weighted by production and purchasing volumes

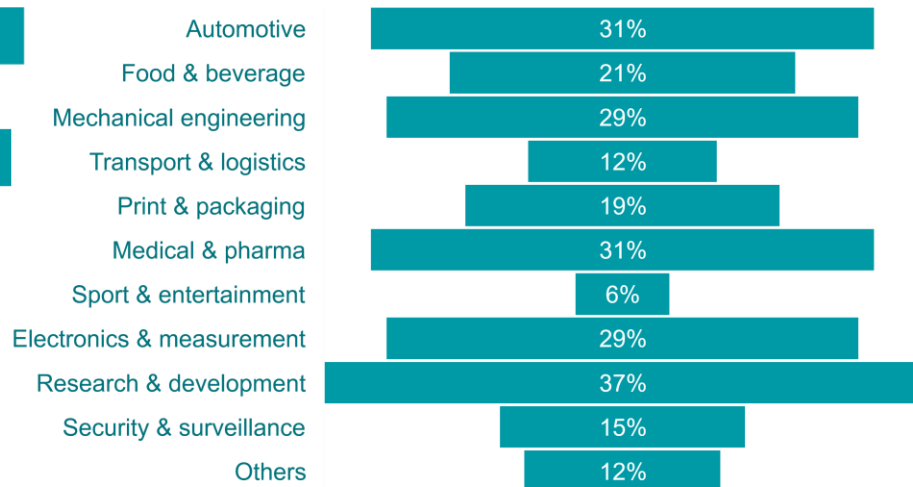
# RESULTS: SMART FACTORY & SCIENCE



## Applications



## Industries

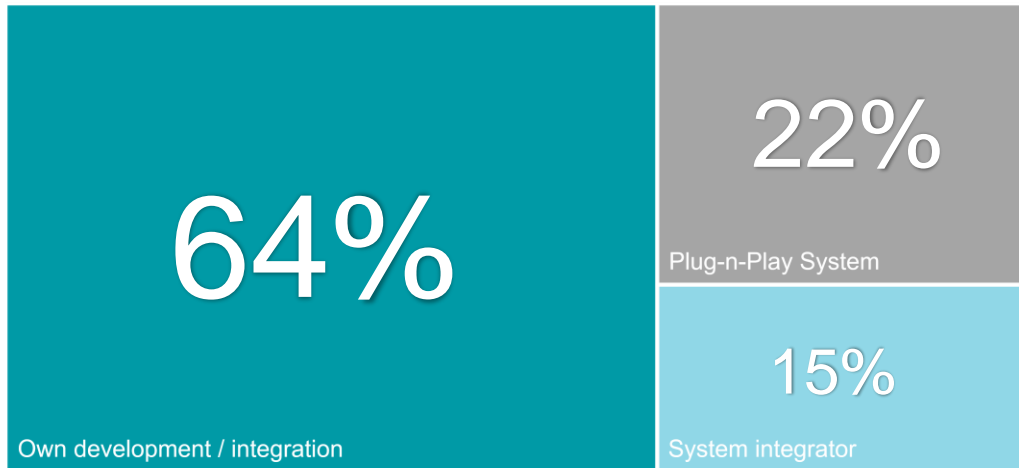


# INVEST & IMPLEMENTATION

**90% of the user want to invest in imaging!**

**100% of manufacturers predict growth.**

■ Own development / integration
 ■ System integrator
 ■ Plug-n-Play System



Users need:

- Intelligent systems
  - Easy Embedding
  - Individualization
- for complete linking of production and processes

# WHAT CAMERA USERS WANT ...

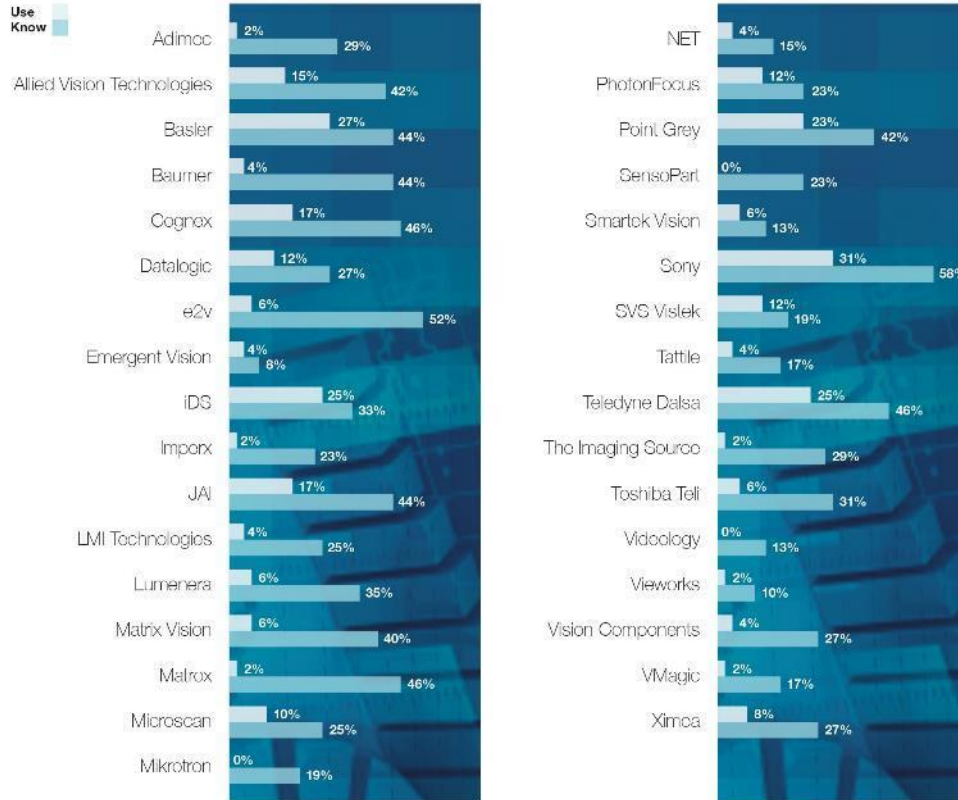


- Only small increase for smart cameras, due to complexity & knowledge
- Intuitive and self-learning needed → easy implementation, configuration
- Goal is to receive intelligent cameras, usable for non-specialists. ROI of the system is important to automate the value chain and to grow.
- Strong and stable mid-price range, good portion expensive cameras → individualization beats price! But: cheap cameras are as well a market.

# CAMERA – BRAND AWARENESS



What camera brands do you use or do you know?



## Users:

- Sony (58%) & e2v (52%) = best known camera brands
- Matrox, TDD & Cognex 46%
- Sony cameras are mostly used (31%)
- Basler (27%), TDD and IDS (25%)

# SENSOR – TECHNOLOGY



- **85% CMOS sales, users on their way till 2018 (already in design phase)**
- Focus: Small sensors, high resolution, increased speed!
- Death of smallest resolution – 1MP: decrease 30% to 10% - shift to 3MP
- Predicted growth between 5 and 10 MP (up to ¼ share)
- Global shutter is main read-out technology
- Size: 41/49% in small sensors between 1/3" and ½" (OEM driven)
- Speed: main sector between 25 and 60 fps, increase for 60-100 & 100-200fps



# MARKET DRIVERS



- Embedded Systems for Smart Factory / IoT
- Simple system integration, usability for non-programmers
- Self-implementation of intelligent systems (customizable)
- Interface standards & security
- Profitability & scalability important for SME → analysis for ROI
- Further technical development
- Focus on precision & robustness

# SUMMARY



- Imaging turns to automation / digitalization → part of IoT
- Specific relevance for augmented reality / digital guidance
- Huge potential: Assistance / autonomous systems in traffic and logistics
- Driver for Automation, robotics & human-machine-collaboration
- Deep learning with potential to grow through strategic decision making

Imaging has left the niche:

- part of automation and robotics across the entire digital supply chain
- Visual sensor systems let machines see and think

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