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CTO SURVEY RESULTS, FALL 2016

THE VIEW OF FINNISH CTOS ON THE LATEST R&D TRENDS

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Survey design: Spinverse, Tekes, T&T

SPINVERSE

Tekes

CONTENT

- Survey respondents
- Topic of the CTO Survey 2016:
  Open Innovation 2.0 is it done in Finland: Main results
- General Findings from yearly R&D Figures

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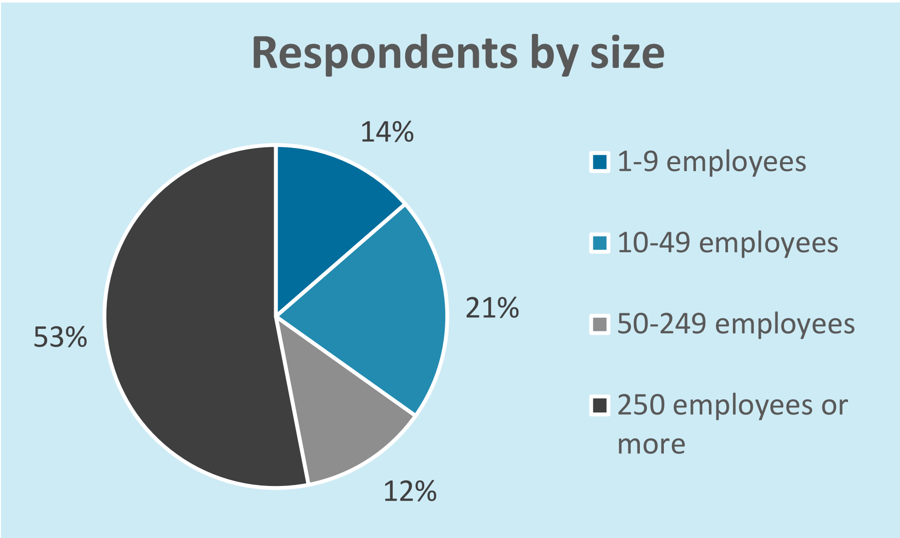
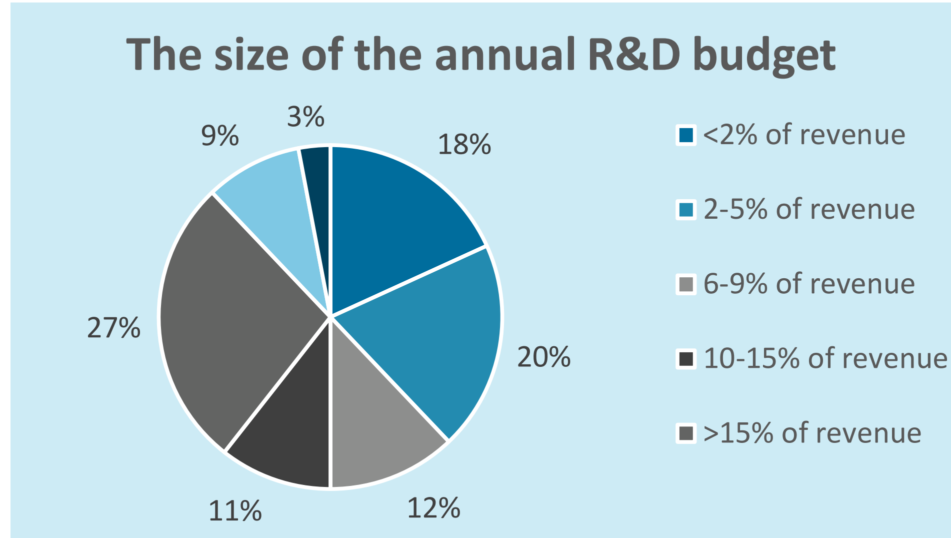
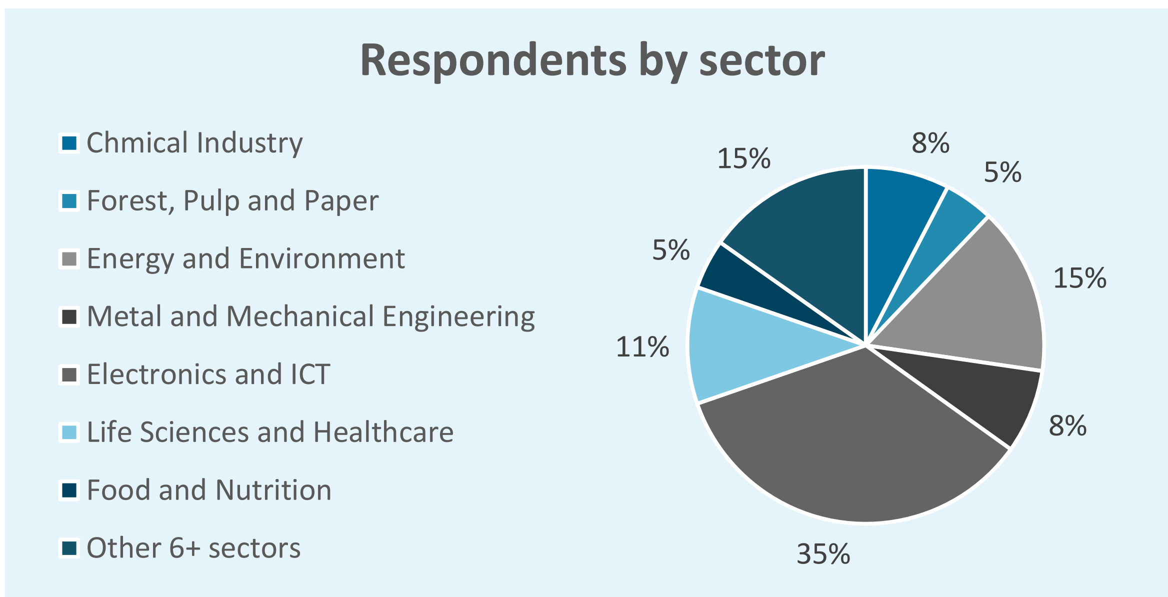
THE SURVEY RESPONDENTS REPRESENT THE FINNISH INDUSTRY COMPREHENSIVELY







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OPEN INNOVATION 2.0

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TOPIC OF CTO SURVEY 2016:
HOW DO YOU MAKE INNOVATIONS?
WITH WHOM DO YOU COLLABORATE?

Research institutes

Start-Ups

Customers

Other industries

Subcontracting

Small companies

Competitors

Citizens

FINNISH CTO'S BELIEVE THAT OPEN INNOVATION BRINGS SUCCESS AND VALUE

Success is best achieved by collaborating across different industries

73% of CTOs

Being open and sharing ideas with external parties ensures success

75% of CTOs

We see value in involving customers, partners or competitors in our R&D.

95% of CTOs

From Interviews: The key drivers of collaboration are getting new ideas from both tech providers and clients – it is difficult to do disruptive innovations only within your organisation

FINNISH CTO’S EXPERIMENT WITH CUSTOMERS, AND THEIR ORGANISATIONS GIVE SUPPORT FOR COLLABORATION

We ensure success in R&D by experimenting early on with customers.

89% of CTOs

Our organization provides internal support in interacting with customers, partners, or even competitors.

72% of CTOs

Our organization is capable of building trust among customers, partners, or competitors

93% of CTOs

From Interviews: Finding and maintaining right partners is still very ad-hoc and depends on the individuals in the company.

HOWEVER, OPEN INNOVATION 2.0 AWARENESS AND SUPPORT DOES NOT TRANSLATE INTO PRACTISE YET

- 46% agree that by subcontracting, we ensure efficient development while avoiding ideas leaking to competitors
- Only 38% know how to incentivize customers, partners, or competitors to collaborate.
- Only 37% believe that organizational incentives encourage to involve customers in development.

From Interviews: In practice, much of the partnering is done by subcontracting. Not a win-win risk-sharing manner.
Also start-up collaboration around Slush-type of activities is pop.

THE ECOSYSTEM NEEDS INTERNATIONAL NETWORKING, COLLABORATIONS AND MATCHING – WHO WILL BE THE DRIVER?

The most important activities for companies in the Finnish ecosystem concern:

Research and university collaboration	78 %
International networking	72 %
SME and big company collaboration	66 %

Companies value university collaboration in Finland
- and are concerned about the public funding

ADDITIONAL DATA

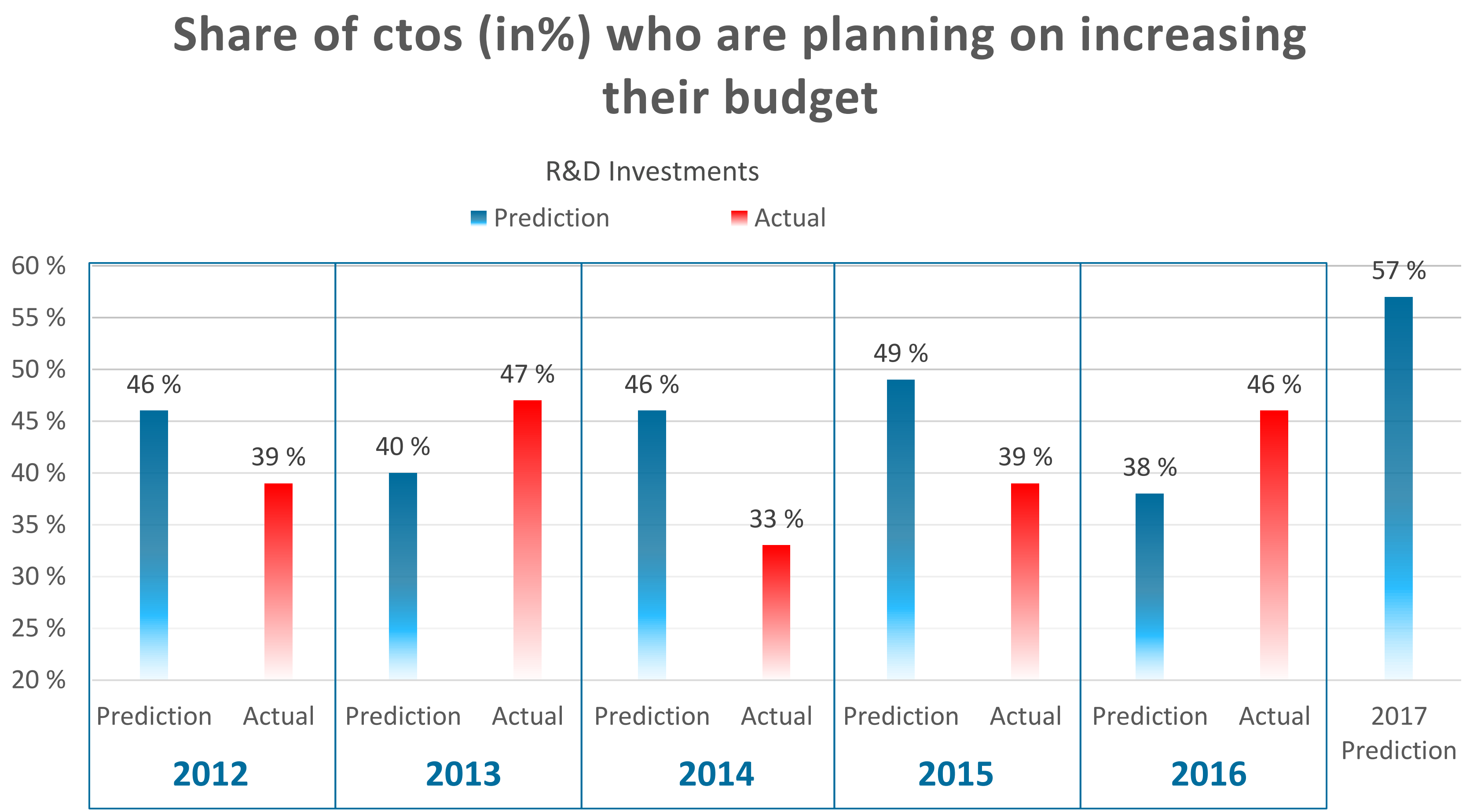
EXECUTIVE SUMMARY OF YEARLY TRENDS

- The vast majority of companies report their improved products or solutions to generate significant profit on a **very short timeframe**.
  - 52% of companies expect significant profit already next year, while 33% expect results in the next three years
- The statistics highlight the increased need for **faster development cycles** and quick transfer of technology to profits
- Companies own R&D budgets will be increased, but the decrease in public funding causes challenges
- **How to balance short-term** profitability needs **and long-term** innovation needs?
- Role of governmental agencies:
  - 53% of the companies believe that cross-disciplinary collaboration is encouraged by governmental agencies.
  - However, 20 % of the companies do not feel that the governmental agencies successfully engage stakeholders in a shared vision and ensure commitment to collaborate

  → Who drives open innovation?

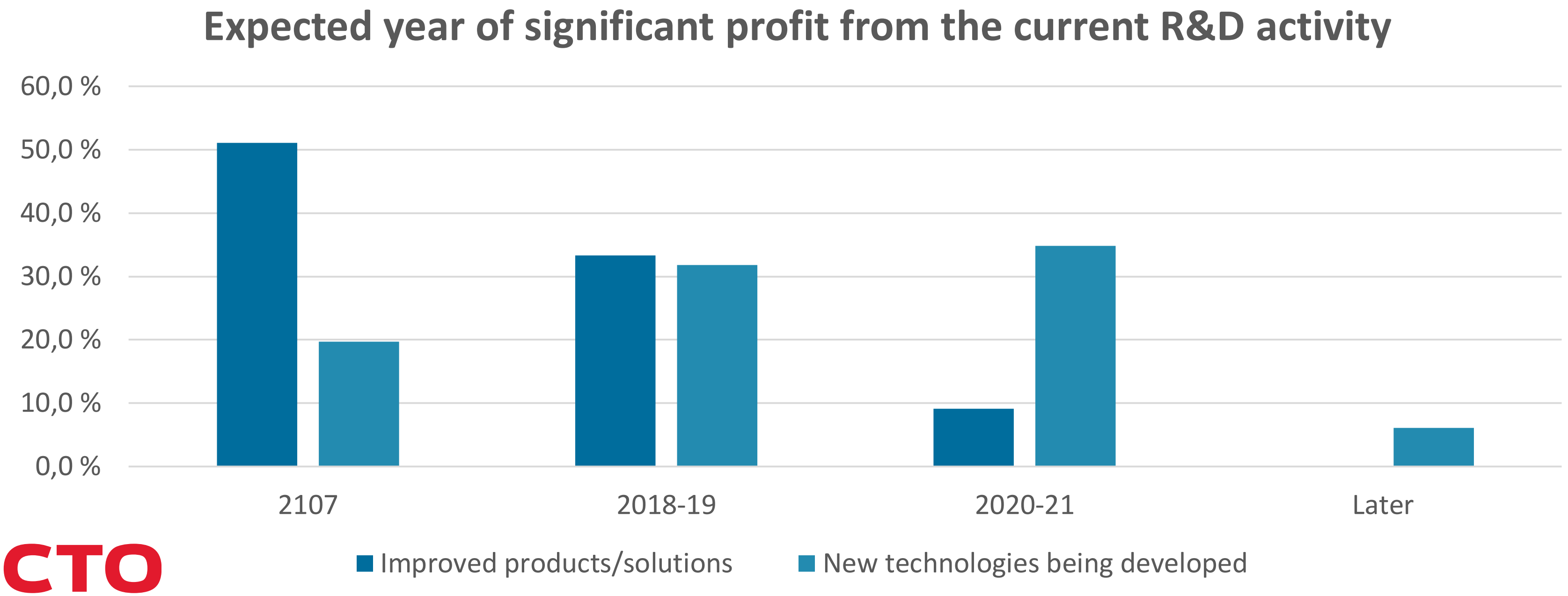
YEAR 2016 WAS GOOD: ALMOST HALF OF THE CTOS HAD AN INCREASE IN R&D BUDGET –

FIRST TIME EVER THE YEAR TURNED OUT BETTER THAN PREDICTED



ARE WE TOO SHORT-SIGHTED: IMPROVING PRODUCTS IS EXPECTED TO GENERATE PROFIT IN 2017, NEW TECH A FEW YEARS LATER

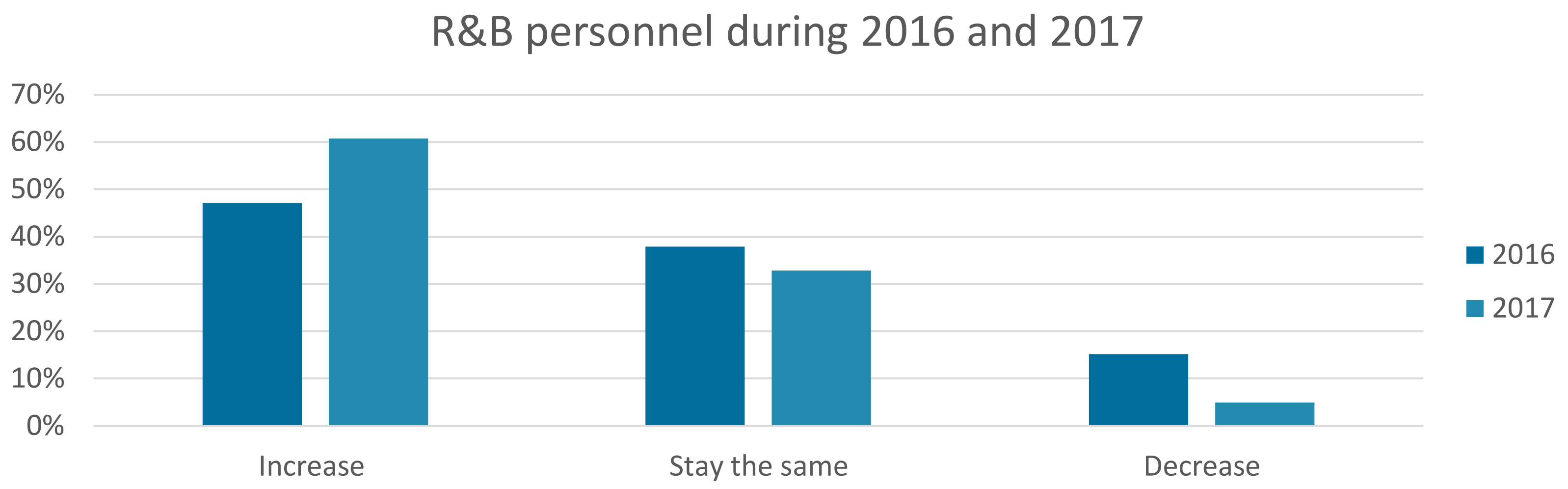
- majority of companies expect **significant profit from new in few years (compared to previous**
- The statistics highlight the **increased need for faster development** cycles and quick transfer of technology to profits



ROLE OF GOVERNMENTAL AGENCIES

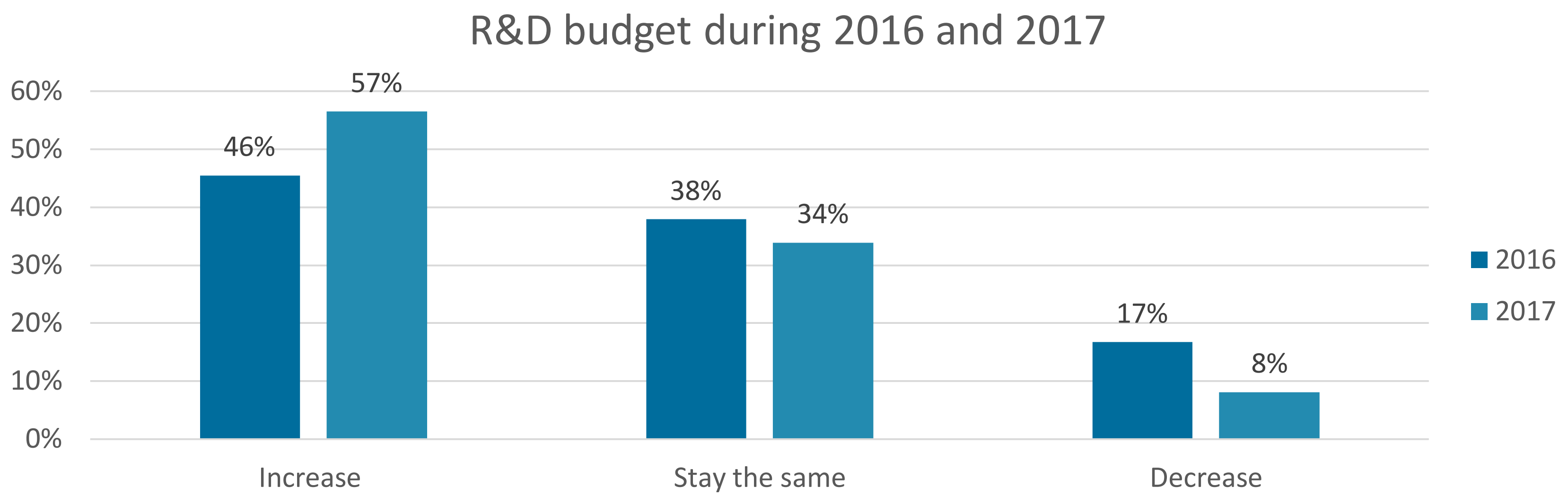
- 56% of the companies feel it is desirable to have governmental agencies **direct research, development, and innovation activities** through national focus areas
  - The national focus areas of governmental agencies have matched 53% of the companies innovation endeavors
- **Innovation support** by governmental agencies provides noticeable benefit to 59% of the companies and over half of them strongly agrees with this statement
- 53% of the companies believe that **cross-disciplinary collaboration is encouraged** by governmental agencies.
  - However, 20 % of the companies do not feel that the governmental agencies successfully engage stakeholders in a shared vision and ensure commitment to collaborate

THE NUMBER OF R&D PERSONNEL



- The majority of companies, 47%, reported the number of R&D personnel to have increased during the year 2016.
  - This suggests that extensive cuts in universities have meant new opportunities for researchers in the private sector.
  - 61% of companies further expect to be able to increase their R&D personnel in the year 2017

R&D BUDGET

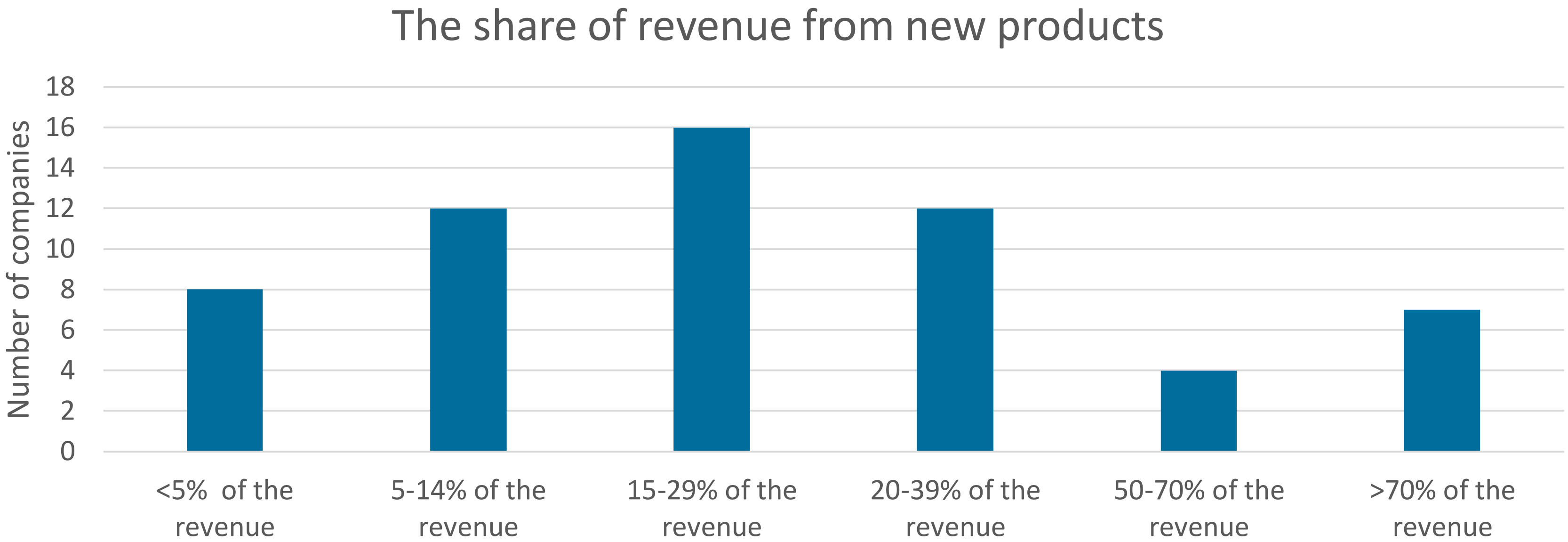


During the year 2016, only 16.7% of companies reported a decrease in their R&D budget whereas 45.5% reported their R&D budgets as to have increased.

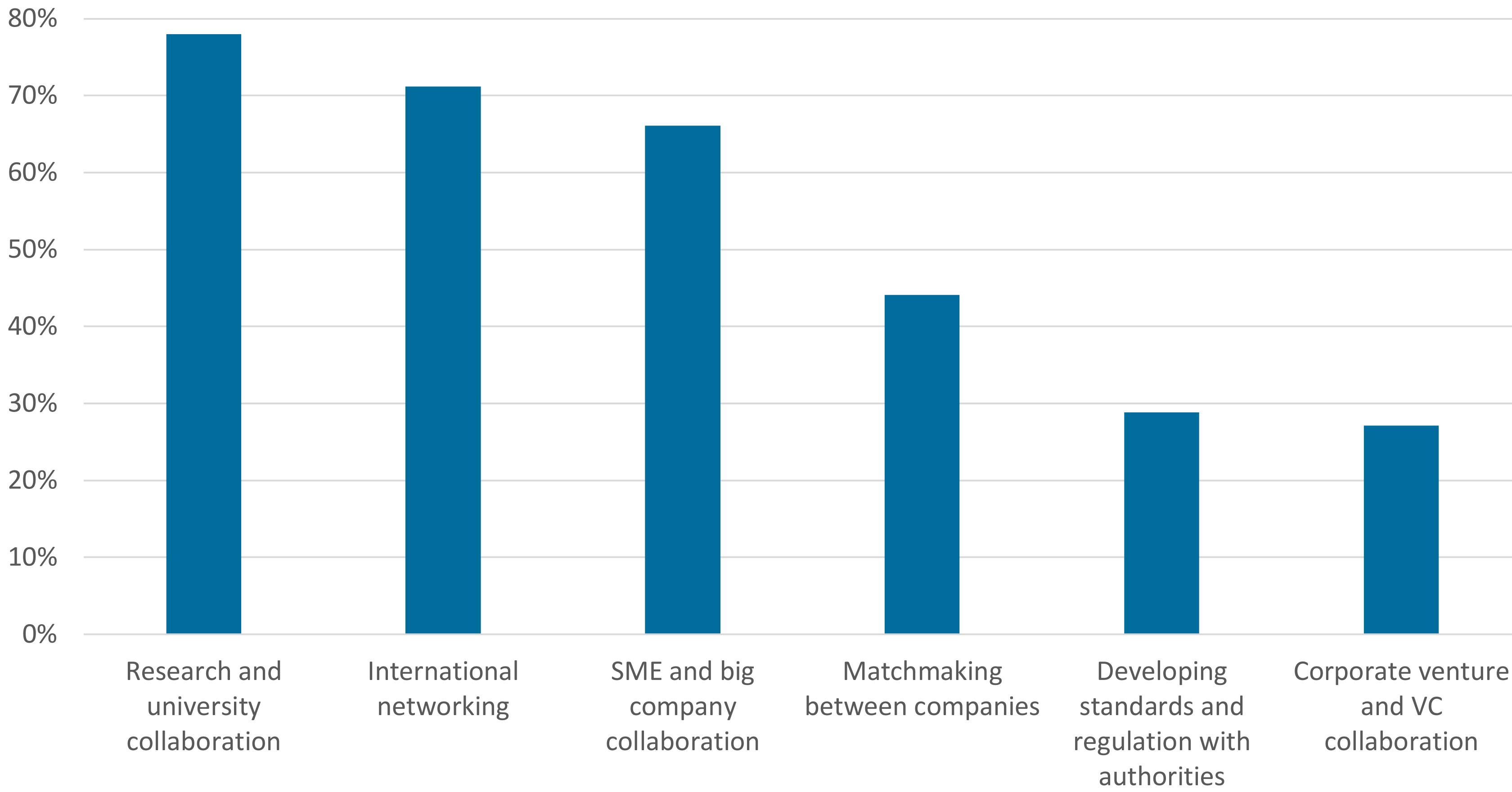
- During the year 2016, the number of new R&D projects supported by public funding instruments were decreased for 24.2% of companies and increased for 28.8% of respondents. 37.9% of companies reported them to have remained unchanged.

THE SHARE OF REVENUE FROM NEW (THE RECENT 5 YEARS) PRODUCTS VARIES STRONGLY

- The number of companies for each category from <5% to >70% of revenue from new products varies between 4 and 16 companies
- Median in 15-29% from new products



IMPORTANT ACTIVITIES IN THE FINNISH ECOSYSTEM



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Almost 80% of the respondents see *research and university collaboration* as an important factor in the Finnish ecosystem

CHALLENGING TOPICS IN THE CURRENT OPERATING ENVIRONMENT

CHALLENGING TOPICS IN THE CURRENT OPERATING ENVIRONMENT

Fierce price competition and heavy regulatory burden

Market entry barriers are relatively high. This impedes speed to market and calls for extensive market demonstration efforts. The resulting situation requires investment in working capital.

Balancing between short-term profitability needs and long-term innovation needs

Fast pace of the product development in order to meet customer requirements and reach the market before the competitors

The radical and rapid cut of public funding in Finland affects the public funding possibilities especially in actions in Finland