European Copper Institute
Copper Alliance

ENERGY MANAGEMENT SYSTEM ADOPTION AMONG SMES IN THE EU

Online Survey Results

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BACKGROUND AND METHODOLOGY

In the context of the next revision of the European Energy Efficiency Directive (particularly Article 8 on energy audits and energy management systems), Europe wants to develop programmes that encourage SMEs to implement energy efficiency measures and further explore their potential towards energy savings.

With this survey, the European Copper Institute would like to identify issues SMEs face with implementing energy audits and energy management systems, and map the benefits and barriers they perceive.

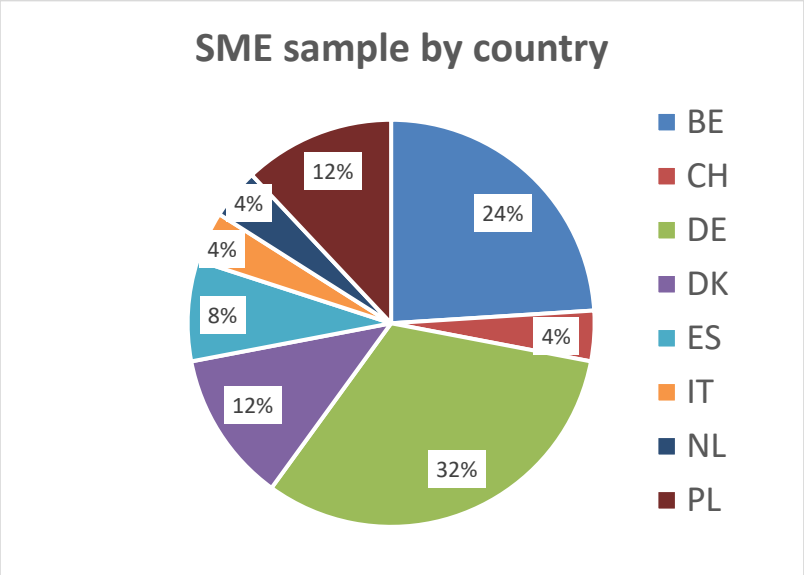
These findings are based on an online survey sent to over 300 individual SME companies across several industrial sectors (metals, electronics, automotive, chemical, food, textile, etc.) and countries, with the help of pan-EU industry sector associations, industrial networks and their respective national member associations or partners, plus some regional SME organizations and ESCOs who were asked to forward the questionnaire to relevant companies.

The online survey link was open between November 2020 and March 2021. The overall response rate was lower than expected – probably due to the Covid-19 situation and the many other priorities these businesses had to deal with to survive.

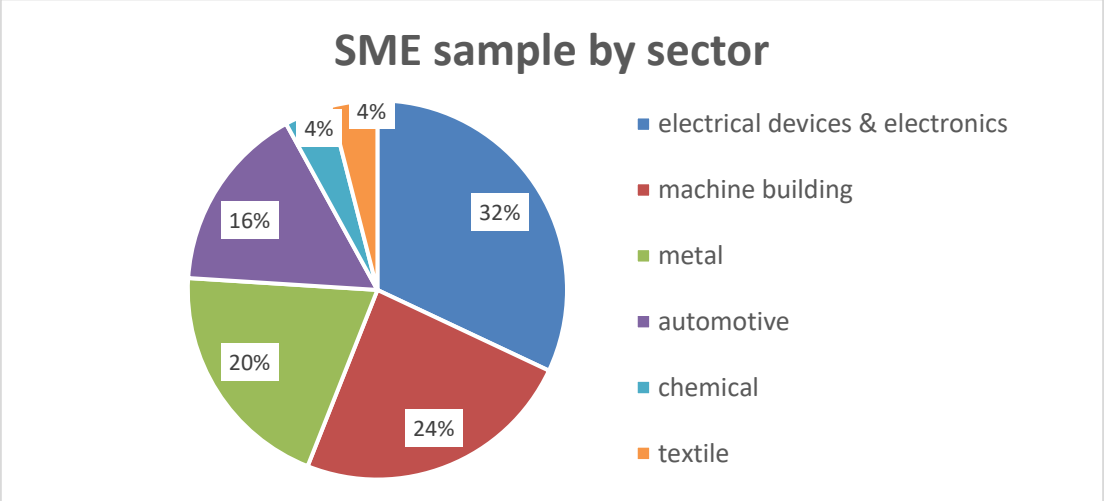
Hence, *nota bene*: these findings are based on a sample of n=25 and rather of qualitative nature than high statistical evidence, however they show sound directions and highlight relevant issues for further considerations at governments who want to make their industrial EE policy a success and better engage SMEs.

FINAL SAMPLE

- This analysis is based on a **final sample of n=25,** individual SME voices who have completed the online survey between November 2020 and March 2021.



- The SMEs in our sample are companies mainly from sectors **electrical & electronics** (n=8), **machine building** (n=6) , **metal** (n=5) and **automotive** (n=4), only one SME respectively from **chemical** (n=1) and **textile** (n=1).



There was no single dedicated ***„Energy Manager“*** among the respondents, their functions were mainly:

- ***„General Mng“*** = 36%,
- ***„Business Development/ Sales Mng”*** = 24%,
- followed by ***„Plant / Production Mng“*** = 16%
- and ***„SHE/ Environmental Mng“*** = 16%.

Concluding that energy management at SMEs is only a side issue at the management team.

Importance of Energy Efficiency

Relatively high importance, 60% of SMEs have rated „Energy Efficiency“ as a 4 or 5 on our 1-5 scale

Q) Please rate the overall importance of „energy efficiency“ compared to other company goals (e.g. quality control, safety at work, environmental compliance, etc.) on a scale from 1 to 5 where 1= no importance and 5=high importance

mean Ø = 3,7

Energy costs as a % of the total company annual expenditures was considered as relatively low:

- **almost half of the SMEs stated: < 5%** (= 48% of companies),
- only a few SMEs stated 5%-10% (=12% of companies),
- none stated more than 10%.

Total annual Energy Consumption

The companies in our sample reported a wide range of annual energy consumption for their production site:

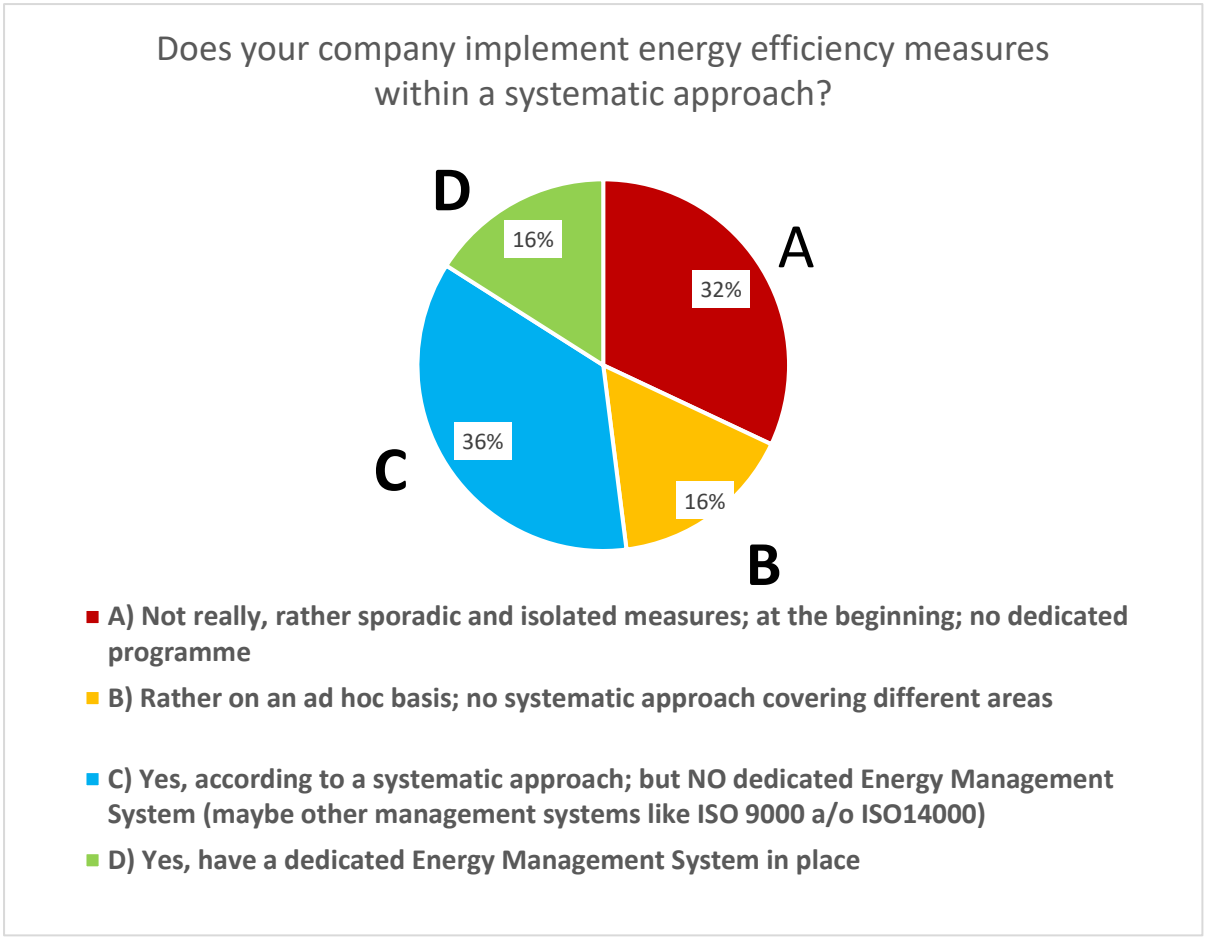
- some SMEs on the lower end stated 10 – 15 MWh
- most were in the ballpark of some hundreds MWh
- very few SMEs on the upper end stated 3 -4 GWh

Status of uptake Energy Management Systems

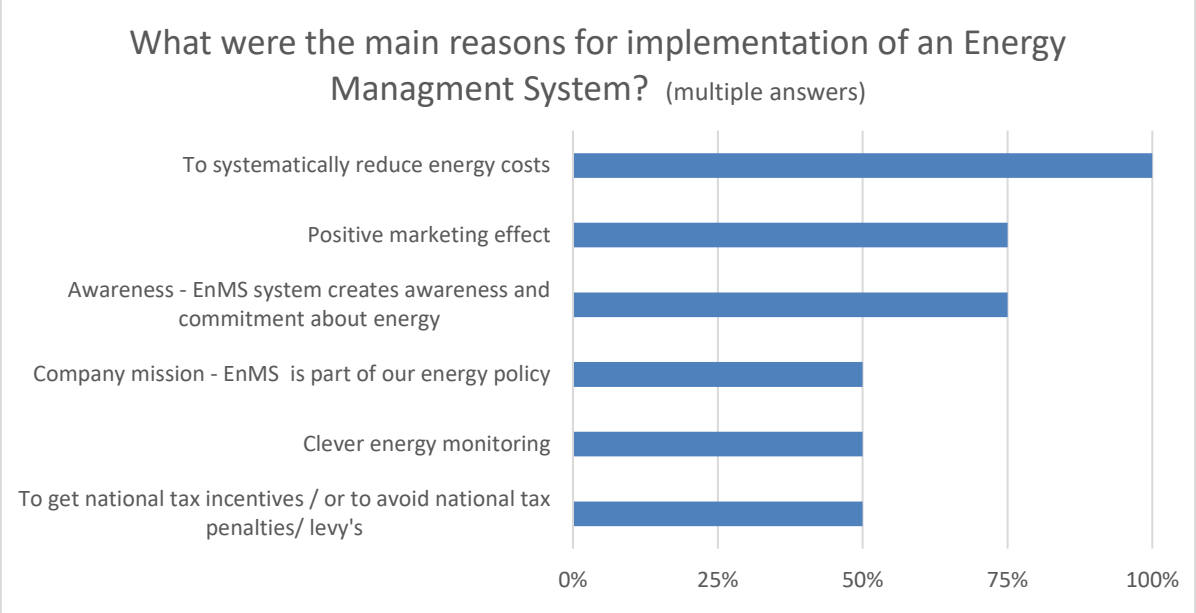
Definition of “Energy Management System” in our Survey:

“We refer with the term Energy Management System not to a software or other tool to track energy consumption, or smart metering, etc. - but to a real management system including a systematic guideline, documentation, training of staff, management commitment, audits/reviews, etc.”

Only few SMEs (16%) stated to have an Energy MS in place (cited ISO50001 either fully certified or if not certified at least following the framework guidelines)

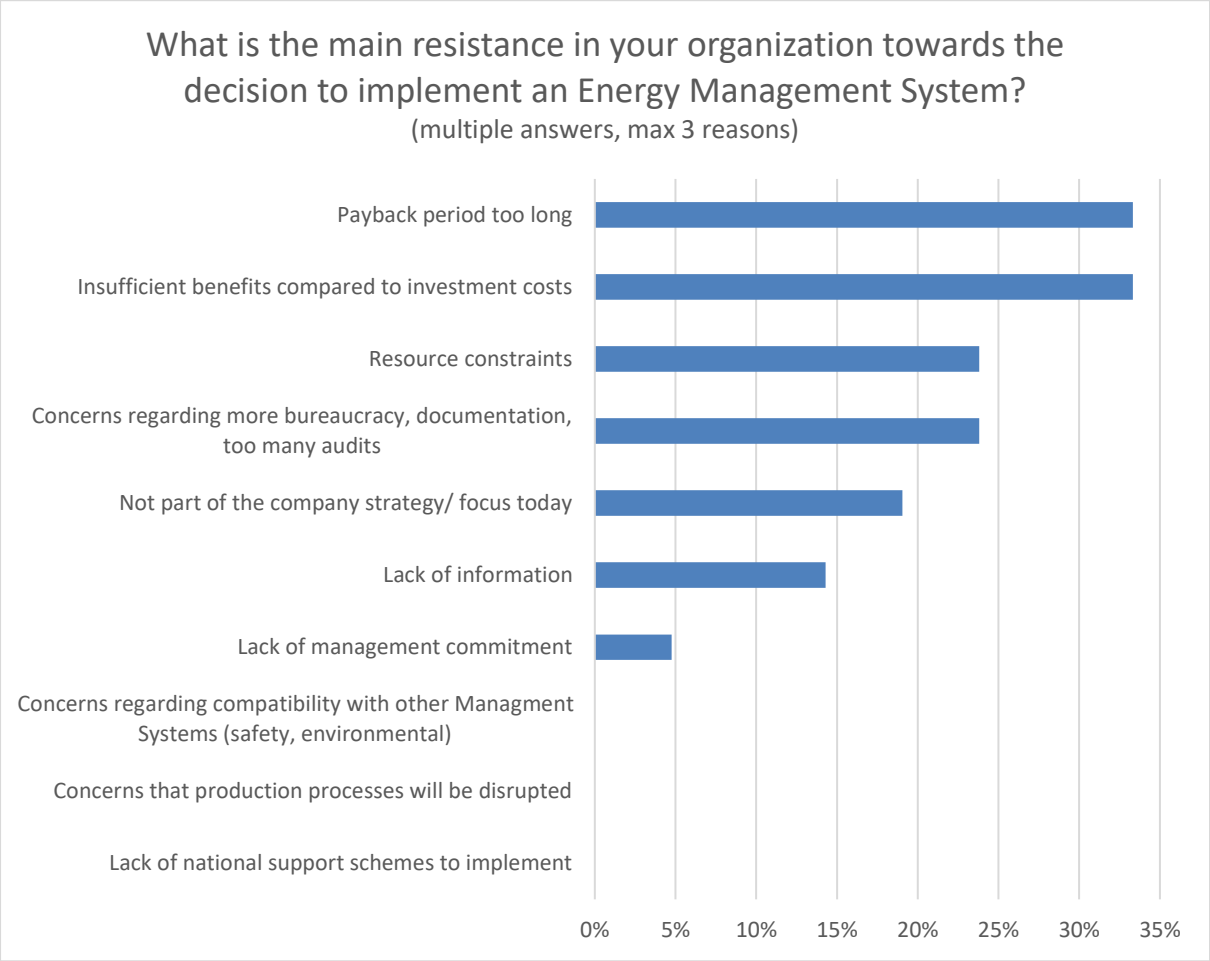


Main reasons for implementing a dedicated Energy MS*:*



Surprisingly the time between the final decision from these companies' top management to go for an ISO50001 management system and its final implementation is said to be only 1 to 2 years.

Main reasons for the other SMEs **why NOT implementing a "real" Energy MS:**

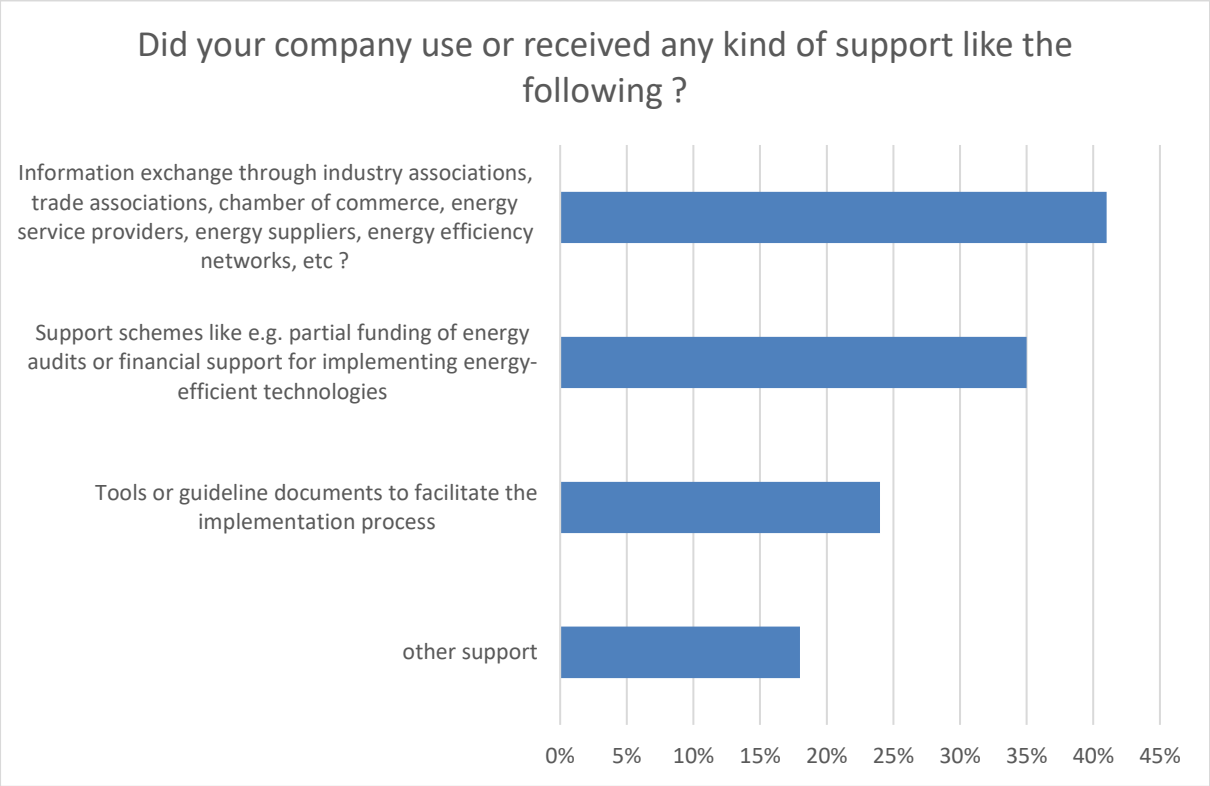


It seems hard for SMEs to really assess the payback of implementing another Management System (beside the existing quality and environmental management systems also now on Energy) from scratch – with resources and external consultancy, etc involved vs the immediate effect of quantifiable energy and monetary savings.

Other than with simple energy efficiency "measures", e.g. replacement of older motors, pumps or fans, where there are tools and calculation examples available to prove the direct return on the investment in new and more efficient equipment.

CURRENT ENERGY EFFICIENCY MEASURES

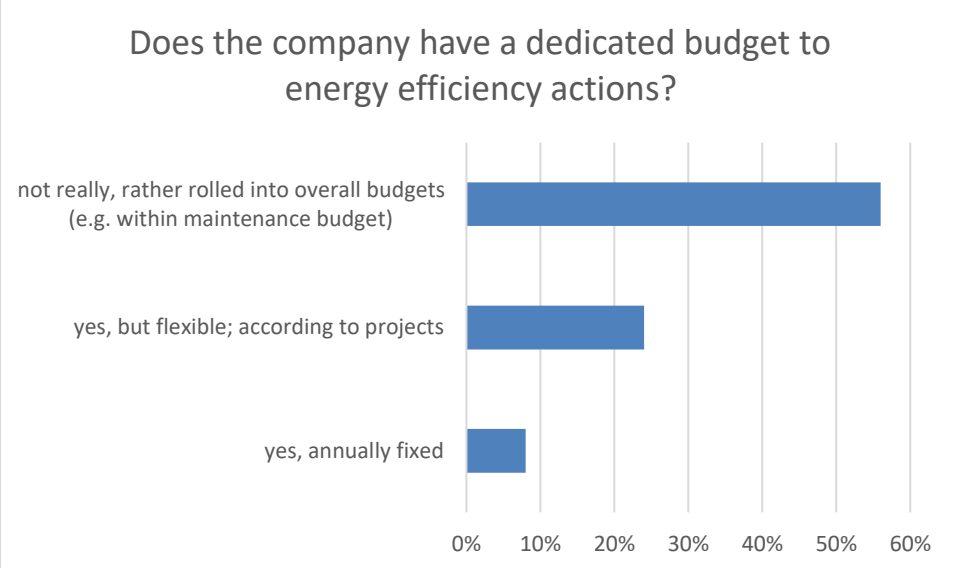
What was the support when dealing in general with Energy Efficiency Measures?



- **"Other support" here mentioned refers universally to support by external Energy Consultants**

HOW DO THEY PLAN & MONITOR THEIR MEASURES?

- Most often no dedicated energy efficiency budget



Rough estimate on the spending on energy efficiency actions/ measures **CUMMULATED over the last 5 years** was:

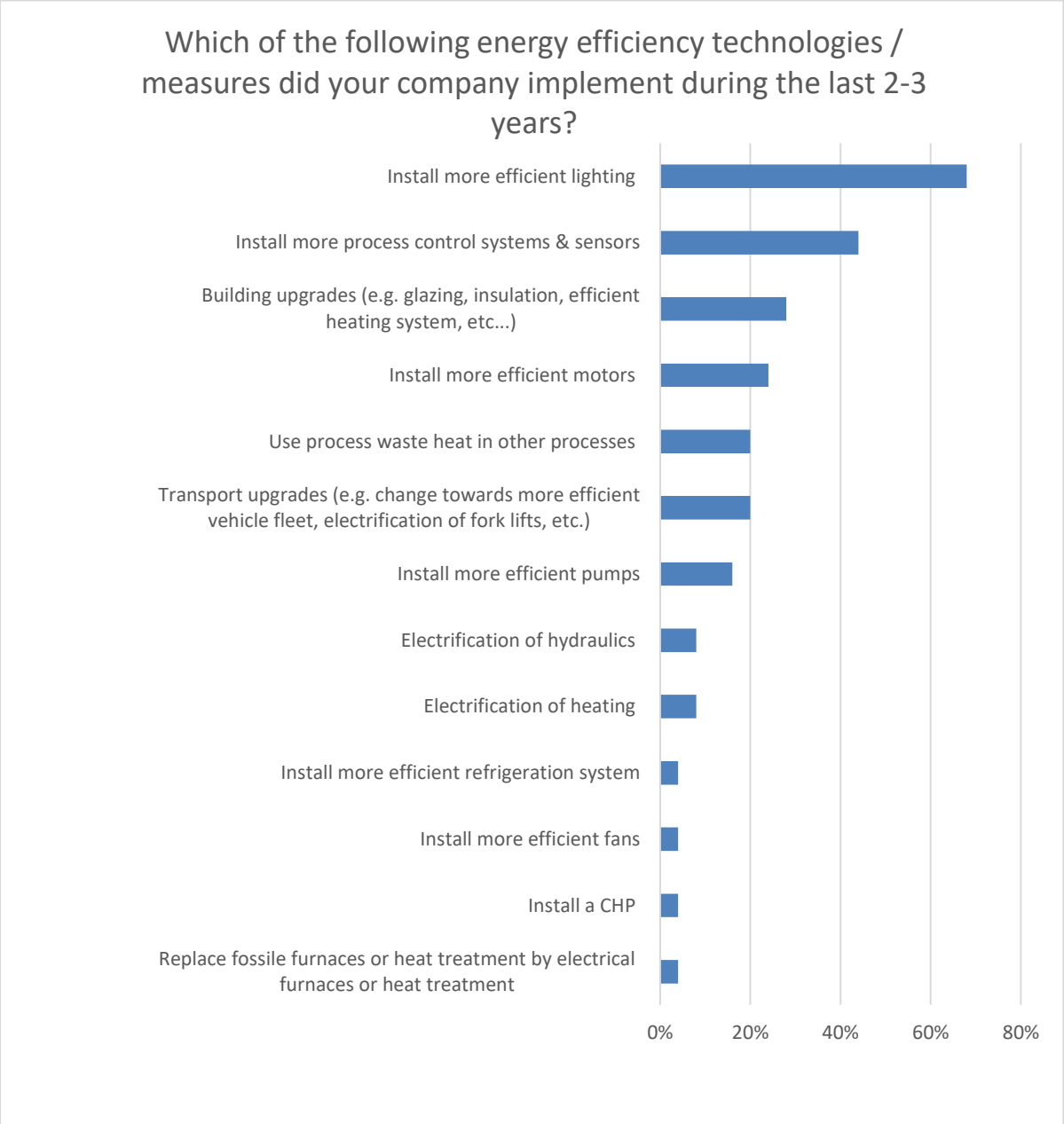
- mainly **50k – 100k €** (total for 5 years**)** spendings **= 52% of companies**
- only few stated **100k – 250k €** total spendings **= 16% of companies**
- remaining portion (32% of companies) stated *"don't know"* or *"no answer"*

Monitoring the success of their energy efficiency measures is rather rudimentary: monthly or annually comparing the energy consumption bill with the production output figures.

Particular software to track their energy consumption was mentioned only by few companies:

- Power Manager (by Siemens)
- Siemens B-Data
- eCon (subsidiary of German utility Mannheimer MVV)
- Dashboard energy provider (by Scholt Energy)
- é.VISOR (by Limón)
- ViCon (by ViFlow)

RECENT ENERGY EFFICIENCY MEASURES & TECHNOLOGIES



Apparently, the SMEs in our sample did look in the last couple of years rather into low-hanging fruits of building upgrades (e.g. LED lighting) as well as in the obvious need for digitalization “Industry 4.0” as a main driver). However, at least 20% to 25% have made also energy saving improvements in their processes themselves.

The required payback period for investments in energy efficiency was stated to be relatively short:

- mainly **3-5 years = 36% of companies**
- or even shorter, **1-2 years = 28% of companies**

Some particular project examples mentioned so far:

- Install LED lighting inside factory buildings
- Change of external lighting on plant areal
- Install a smart building control system
- Replace fossil fleet by green vehicles (hybrids / EVs)
- Use excess (residual) process heat in other areas of the company
- Install electrical boilers

With estimated project investment costs between less than 10 k€ on the low end to over 100 k€ on the upper end.

UNMET NEEDS WITH TRAINING & INFORMATION ON ENERGY MS

- **Only 48%** of respondents are satisfied with the currently available Energy Management training and support materials.

What are preferred channels for training and information on energy efficiency?

- Definitely through the internet (e.g. webinars or newsletters)
- Preferred from their industry sector specific associations
- Live events (when again feasible) should include examples from similar kind of companies and sector best practices
- Local language preferred

BRIEF CONCLUSIONS

Although the topic “energy efficiency” is recognized as an important one on the agenda of SMEs, they are facing issues to dedicate sufficient resources – there is hardly an “energy manager” in place, mainly these topics are dealt by 1-2 individuals on top management level beside their other functions. Plus, most SMEs don't see the immediate benefit of a systematic approach towards energy management.

Even with the evident goal to improve their energy efficiency through direct actions, SMEs only rudimentary monitor or evaluate the result of an implemented energy efficiency measure, by comparing annual of monthly energy consumption figures to the production output.

When SMEs consider energy efficiency investments, they first look in the building-related options, such as better insulation and glazing, and more efficient space heating and lighting, and only few companies consider process-related energy consumption as a primary target for measures.

Digitalization, and more in particular the transition towards Industry 4.0, is a driver for SMEs to look into energy efficiency and hit two birds with one stone.

Another point, at least in our sample, is that the cost of energy compared to all running costs seems relatively low, hence their current energy efficiency measures are targeting low-hanging fruits with short-term payback terms. It seems very hard for SMEs to assess the costs and time efforts to implement a “real” energy management system (even more to go towards full ISO50001 certification) versus the payback and accumulated energy savings that could be justified running such an energy management system. Tax avoidance and cost cutting are the drivers for SMEs to invest in energy management. Hence, materializing energy efficiency investments is key in support programmes.

However, beside the main objectives why considering an energy management system, which is to systematically reduce their energy costs, many SMEs also recognize non-energy benefits such as marketing effects and greater awareness about energy.

Most SMEs implementing energy efficiency measures lean on external support: information through associations, service providers, and dedicated networks, and financial support via support schemes.

Still a lot of guidance and more information on best practices and roadmap and methodology why and how successfully to implement an energy management system is needed – preferably through their sector specific industry associations, to be tailor made to their businesses and processes, and in local language.