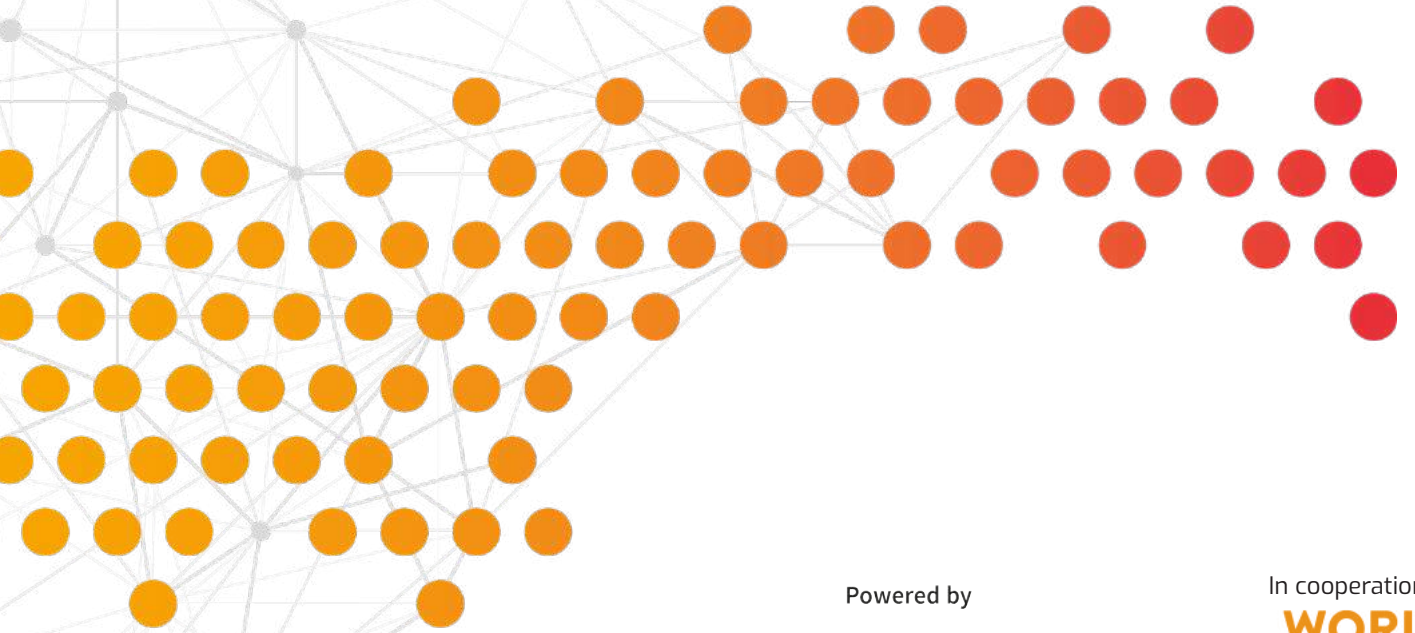
Start Up
Energy Transition
Global Innovation Platform

SET REPORT 2019-2021

Snapshot of the start-up energy ecosystem



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Executive Summary

The global energy sector is facing many emerging challenges. Arguably the most important and complex of these is addressing the sector's contribution to climate change. It has also sparked the emergence of new businesses offering innovative solutions to enable the transition towards sustainable energy worldwide.

The "SET Report 2019-2021: Snapshot of the start-up energy ecosystem" aims to highlight some of these businesses as well as key trends shaping the future of the sector. It also looks at the impact of the Start Up Energy Transition (SET) Award on its participants over the 2019 to 2021 period.

Analysing trends in different start-up ecosystems

The first part of the report showcases key similarities and differences between the start-ups in Energy and Mobility and those in other sectors. The analysis relies on the data collected from over 3,500 start-up ratings conducted by Early Metrics, a partner of the SET Award. The analysis showed that Energy and Mobility start-ups are generally more innovative and are able to secure more competitive advantages early on than the average. The quality of their management team is on par with the overall database average. However, they tend to struggle more than start-ups in other sectors when it comes to achieving their fundraising goals, growing their team and advancing their development roadmap at pace. Nevertheless, in absolute numbers, Energy and Mobility start-ups manage to raise more than start-ups in other sectors (€1.3m versus €910k raised on average within two years of the first rating).

Looking back at 3 years of SET Awards

The second chapter of the report focuses on the data collected through the applications to the SET Award between 2019 and 2021. The analysis showed that while the majority of start-ups applying came from Germany, the award attracted businesses from all continents, with a significant number from North America. The most common business models reported were direct B2B sales, SaaS, indirect sales and subscription models. The start-ups applying had on average two founders and the majority had teams of up to 20 employees.

To get a sense of the impact of the SET Award, a selection of winners from the 2019 and 2020 editions were interviewed (the 2021 winners had not been selected at the time of writing). The milestones reached since receiving their award are a testament to the quality of selection of this initiative and evidence of the strong potential for growth and innovation in the start-up ecosystem.

SET100: measuring the growth of the top 100 start-ups from the 2019-2020 editions

Lastly, the participants of the 2019 and 2020 editions of the SET Award were indexed in order to identify the top 100 start-ups in the cohort. Survival and growth following their participation in the award was then analysed. Among the key findings, 98% of the top 100 start-ups survived and 90% expanded to new regions or markets. On average, their teams grew by 150% and they raised €4.2m (excluding upper outliers). These impressive numbers show that the selected start-ups strongly outperformed the sector average, as seen in the first chapter of the report.

The testimonials shared by past winners further showcased the positive impact that the SET Award and platform has had on their trajectory. The access to a high-quality network was cited by many as one of the key benefits of participating in the SET Award.

The insights collected through this report show the importance of creating platforms for innovators to come together and connect with public and private stakeholders. The start-up ecosystem is a key source of innovative solutions for the energy sector, thus we are looking forward to seeing the SET Award being a stepping stone for even more game-changing businesses in the future.

About the SET Award

Start Up Energy Transition (SET) is a global innovation platform supporting innovation in the energy transition. The platform strives to establish deep, productive connections between established corporate players, the public sector, and the world of energy innovation. The goal? To rapidly scale the adoption of clean energy technologies while simultaneously increasing political will and public acceptance globally. The SET platform is powered by the Deutsche Energie-Agentur (dena) - the German Energy Agency in cooperation with the World Energy Council (WEC). The SET platform is supported by the German Federal Foreign Ministry for Economic Affairs and Energy.

Since its inception in 2016, SET continues to enable these connections through dena and WEC's unique position at the crossroads of the private and public sector. At its core, the SET platform is built on three pillars: The SET Award, SET Tech Festival, and a growing global network, which makes SET an important and well-recognized international platform for innovation in the energy transition.

For the last five years, SET has been supporting, promoting and creating opportunities for start-ups in the energy sector to scale up impact and accelerate the global energy transition in order to reverse climate change.

The Start Up Energy Transition Award is an international competition for start-ups and young companies worldwide working on impactful ideas affecting the global energy transition and climate change. In the last five years, the award has received more than 2300 applications from over 100 countries. In 2021, the award received 543 applications from 89 countries.


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Welcome to the SET Report 2019-2021

Over the past five years, the SET Award has brought together hundreds of innovative start-ups who are shaping the future of the energy sector and surrounding markets. Besides the support and visibility the award has given to many impactful entrepreneurs around the world, it has also allowed for the collection of invaluable data on the global Energy and Mobility innovation scene.

For the purpose of this report, we focused on the 2019, 2020 and 2021 editions of the SET Award as we have comparable data for these three years. By drawing from this wealth of data, as well as additional benchmarking data from the start-up rating agency Early Metrics, we aim to uncover major trends in the ecosystem.

Key goals

- Highlight key trends within the Energy and Mobility start-up ecosystem
- Analyse the journey and growth of SET Award finalists and winners
- Analyse key start-up success factors from the data collected through the SET Award throughout the years and from Early Metrics' database
- Showcase the impact of the SET initiatives on the progress of start-up participants in different innovation segments, one to two years after participating

Dataset

The data used for this report has been primarily sourced from the applications submitted by start-up candidates in the last three editions of the SET Award. Some past award winners were also contacted to provide testimonials on their experience with the SET Award and their subsequent development.

Additionally, benchmarking data on Energy and Mobility and other tech sectors was obtained through Early Metrics' start-up rating and backtesting process.

Start-up rating methodology

Early Metrics has been a partner of the SET Award for the past three years. The agency conducts start-up ratings using a proprietary scientific methodology, which was developed in partnership with academics and experts. This methodology was used for the purpose of the comparative analysis of Energy and Mobility start-ups in pages 8 to 15.

A rating measures a start-up's growth potential by analysing close to 30 qualitative and financial criteria. Once each criterion is scored, a weighted average is calculated, resulting in an overall score out of 100. The criteria are scored based on an interview with the founder(s) of the start-up, public and private documentation on the start-up, and market intelligence.

The criteria are divided into three key pillars of assessment, which all receive a score out of 100:

- **The management:** This rating pillar looks at the operational partners managing the start-up and assesses their compatibility with each other and with their business goals.
  Examples of management criteria: *time and financial commitment, complementarity of operational partners, technical and commercial skills...*

- **The project:** This second pillar focuses on the product or service created by the start-up and assesses the start-up's ability to fulfil its technical development and commercial roadmaps.
  Examples of project criteria: *level of innovation, speed of execution, product development stage, commercial stage, ability to finance the project...*

- **The ecosystem**: The last pillar analyses the market in which the start-up operates and the start-up's relations with other ecosystem players such as their suppliers and competitors.
  Examples of ecosystem criteria: *legal complexities in the market, market depth, dependency on suppliers or first clients, competitive advantages...*

To check and improve the predictive power of this rating methodology, Early Metrics has set up a backtesting process. It entails the analysis of the survival and growth of all rated start-ups 12, 24 and 36 months after their initial assessment. The data collected through this process also allows for the assessment of the start-up's ability to reach its fundraising goals (see page 14).

The start-up rating methodology is different from the indexing approach used by Early Metrics to determine the SET100 start-ups (see page 24).

How the Energy and Mobility sector compares

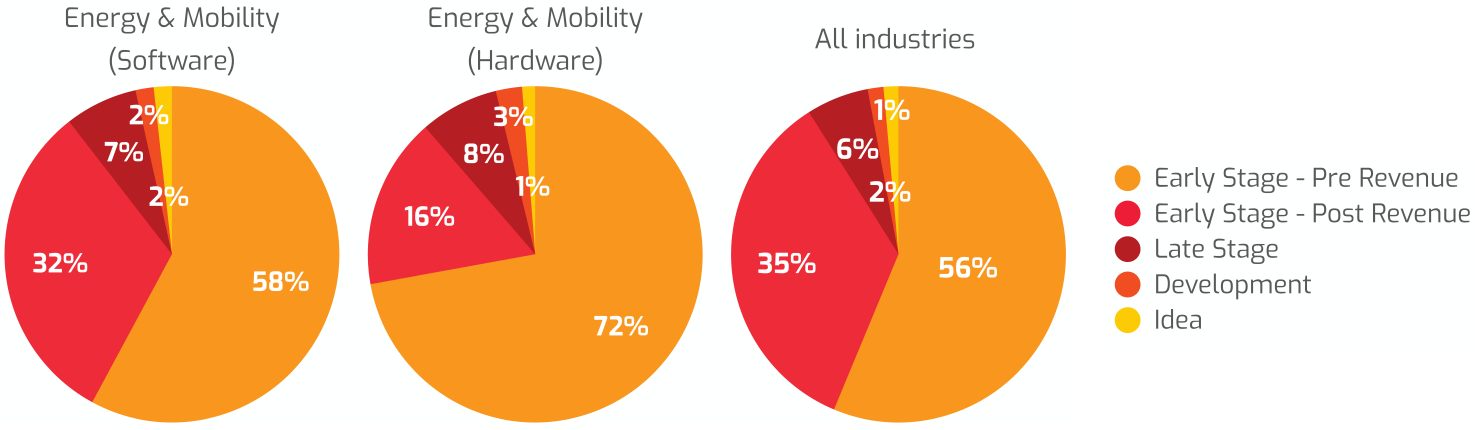
Thanks to the **data collected by Early Metrics from over 3,500 start-up ratings** (not including SET candidates), we can analyse how start-ups in the Energy and Mobility sector perform compared to the average in all sectors, including Fintech, eHealth and E-commerce (see appendix for the full list of 15 sectors). The rating methodology used was the same for all start-ups, regardless of their level of maturity, sector and type of product or service developed. The database of rated start-ups is separate from the database of SET Award candidates, which will be analysed in the subsequent chapters of the report. Before we dive into the broad trends emerging in the Energy and Mobility start-up market, let's take a look at the characteristics of the sample analysed.

Methodology

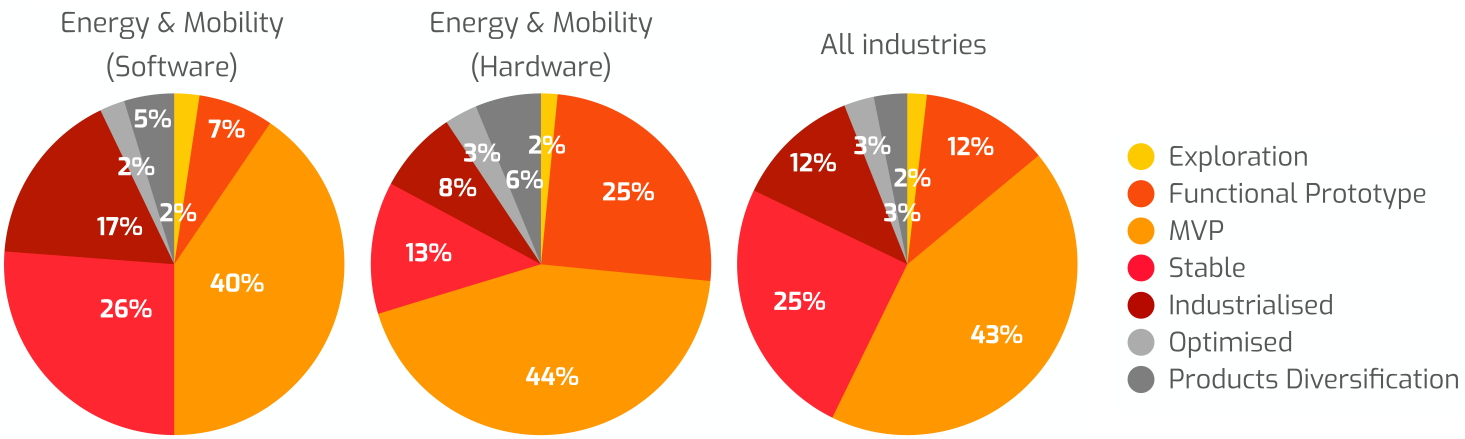
The Energy and Mobility sector represents 5.9% of the sample of start-ups backtested by Early Metrics. On average, Energy and Mobility start-ups rated by Early Metrics were less mature than those from other sectors: 63% of Energy and Mobility start-ups were pre-revenue compared to 57% overall. This may be due to longer development cycles required to create a marketable product.

58% of the start-ups in the Energy and Mobility sample mainly developed hardware, while the rest mainly developed software (42%) - see appendix for the full list of technologies included. On average, Energy and Mobility hardware start-ups rated by Early Metrics were less mature than the others. Pre-revenue start-ups represented 72% of the hardware sample, compared to 58% of the software sample and 56% of the overall database. Similarly, on the technical side, the hardware sample had a lesser proportion of start-ups with mature products and a higher proportion of start-ups at the functional prototype and MVP stage than the rest.

Commercial stage of development



Technical stage of development

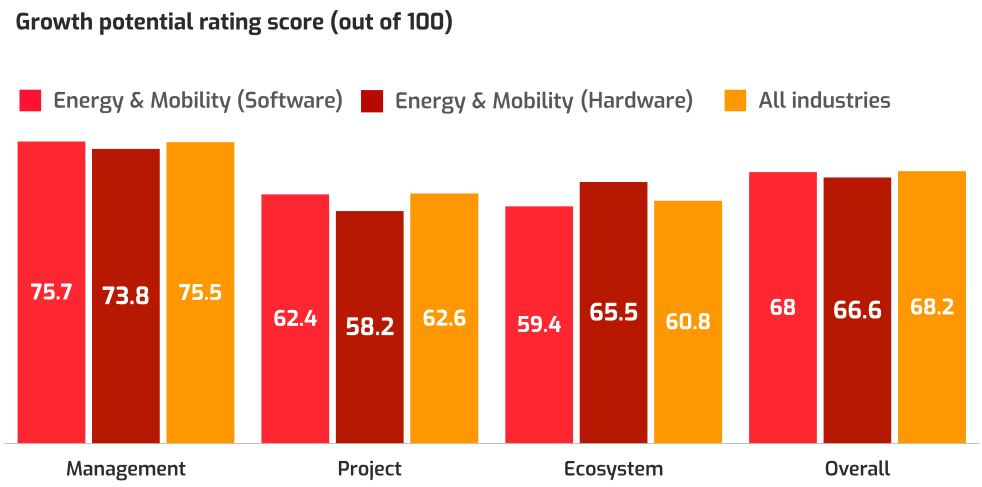


Rating distribution (growth potential score out of 100)

	Energy & Mobility *(Software)*	Energy & Mobility *(Hardware)*	All industries
Median	66.4	66.6	68.6
Average	66.6	68.0	68.2

The rating distribution shows that **Energy and Mobility start-ups have scored lower** than the industry-agnostic average. Overall, hardware start-ups received higher scores than software ones, even if they are less mature. This difference is mainly due to their performance on the ecosystem pillar (see bar chart below).

Rating comparison per key pillar of assessment



The bar chart above compares the scores out of 100 for each key rating pillar for Energy and Mobility start-ups versus the overall database. Looking at the Energy and Mobility sample as a whole, there is **no significant difference in the quality of the management**. In other words, Energy and Mobility founders are neither better nor worse than founders in other sectors.

The average scores received by software start-ups in the Energy and Mobility sector were overall aligned with the industry-agnostic average, with the biggest gap observed in the ecosystem pillar. **Hardware start-ups displayed greater differences in each key pillar of assessment** (see page 6) compared to the overall database, overperforming for the ecosystem score and underperforming in the management and project criteria.

How the Energy and Mobility sector compares

Key growth potential factors

FOCUS ON THE PROJECT

The project is the second most important pillar of assessment in Early Metrics' rating methodology (see page 6). Several criteria are scored in this pillar to measure the potential of a start-up's value proposition and its ability to deliver its technical and commercial roadmaps as planned.

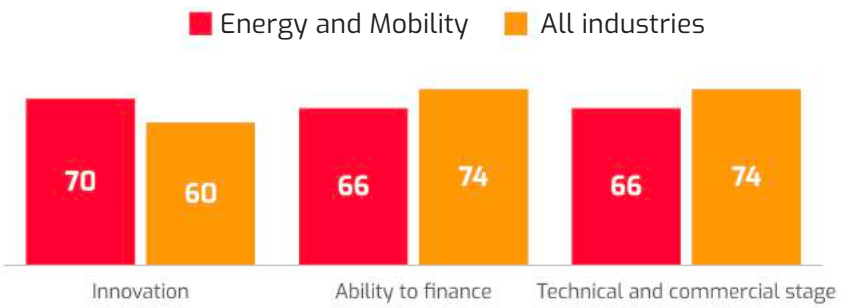
The methodology used to score the **level of innovation** was co-developed by Early Metrics and its scientific partner, the Conservatoire national des arts et métiers (Cnam). This standardised scoring system allows the comparison of innovation levels between start-ups from different sectors. The start-up's innovation is assessed based on three main sub-criteria:

Offer innovation:
How does the start-up differ from existing players in its value proposition, product features and use cases?

Process and technological innovation:
How does the start-up differ from existing players in the way the product or service is delivered? This includes organisational differences, technology-based innovation and resources used.

Location-based innovation:
Are there direct competitors in the start-up's home market?

Average score on three key project rating criteria out of 100



As shown in the chart above, Energy and Mobility start-ups tend to create products with a **higher level of innovation** than in other sectors. The product development can therefore be more intensive in terms of R&D. The length and complexity of the R&D can often require **large upfront investments**, which puts the start-up at risk if it doesn't find new funding on a regular basis.

Moreover, hardware start-ups need **several years to develop a market-ready and scalable product**. They must overcome many technical, commercial and regulatory hurdles before becoming sustainable. The overall project score in the growth potential rating is therefore affected by these factors (see appendix for hardware/software split).

Key growth potential factors

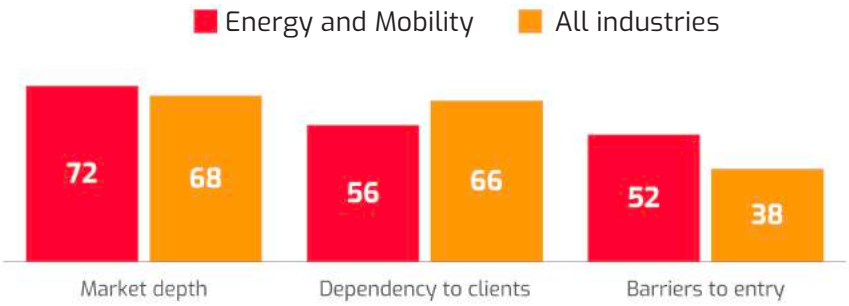
FOCUS ON THE ECOSYSTEM

The ecosystem or market is the third key pillar of Early Metrics' rating methodology (see page 6). The criteria scored for this pillar represent the start-up's market positioning as well as the market specificities that might affect its growth.

The scoring of the **market depth** criteria is based on a bottom-up approach, focused on the start-up's core business. Early Metrics first assesses the number of potential clients available to the rated company, using a proprietary dataset and business intelligence platforms. Then, this number is multiplied by the average revenue per client per year, supported by historical data to challenge the hypothesis. This provides a yearly market sizing assessment.

The **barriers to entry** criterion measures the competitive advantages secured by the rated start-up. These barriers include a range of aspects, such as registered patents and strategic partnerships with key suppliers, that the start-up might have put in place to protect its place in the market against newcomers. In other words, the more barriers to entry the start-up has built, the more difficult it will be for new competitors to gain market shares.

Average score on three key ecosystem rating criteria out of 100



Energy and Mobility start-ups seem to establish much **stronger barriers against new competitors than the average start-up**. As start-ups in these sectors tend to create proprietary processes and technologies, a strong advantage over newcomers is ensured once their product is developed.

On the other hand, Energy and Mobility value propositions are often B2B-oriented. This can create a strong **dependency on the start-up's first clients**, as these also act as key partners to finance the early R&D steps (see appendix for hardware/software split). If a start-up is too reliant on its first few clients, it may have trouble surviving if these clients were to terminate their relationship early on. A lower score on this rating criterion represents a higher level of dependency.

Top 5 success factors for Energy and Mobility start-ups

1 | **Commercial traction**

2 | **Technical and commercial stage of development reached**

3 | **Complementarity of skills and personalities within the team**

4 | **Competitive advantages secured, including patents and partnerships**

5 | **Ability to finance the development of the project**

According to Early Metrics' rating method and data, the five criteria above had the highest correlation with Energy and Mobility start-up survival and success.

As for any start-up in any sector, the success of an Energy and Mobility business is dependent on its capacity to **quickly reach a strong technical and commercial stage** of development. Many of the Energy and Mobility start-ups rated were developing very innovative proprietary processes or technologies. This entailed several years of development to create a market-ready and scalable product. Their ability to rapidly create MVPs and test their products was key to validate the market fit, as well as go through the appropriate compliance checks.

The **complementarity** of the management team in terms of skills and personalities is another key success driver for Energy and Mobility start-ups. This demonstrates the need for well structured founding teams, that master both technical and business skills. In fact, given the complexity of the addressed market and the innovative business models in the industry, **sales and marketing skills are a key differentiator for hardware start-ups** - as these skills are often absent in such start-ups at the early stages.

Finally, the ability of the start-up to **finance its development** is an important success driver. Energy and Mobility projects generally require a lot of R&D to develop innovative technologies that can meet regulatory requirements and stand out in an increasingly competitive landscape. This success is therefore highly correlated to the start-up's capacity to find the funds required for their oftentimes long product development cycles, reinforcing the need for previously mentioned business skills.

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How the Energy and Mobility sector compares

Survival, funding and real growth

Real growth realised by start-ups in the 24-month period following the initial rating

Rating Pillars	Team growth	Revenue growth	Fundraising vs. ambition
Energy and Mobility	58%	125%	33%
All industries	75%	148%	94%
Difference	*-17%*	*-23%*	*-61%*

The table above compares the **growth rate** observed on a selection of KPIs between Energy and Mobility start-ups and the overall sample of rated start-ups, two years after the initial rating was realised. It also shows how much money start-ups raised compared to their expectations at the time of the rating. The funding rounds recorded range from Seed to Series B. The sample includes both hardware and software companies (see appendix for the full list of technologies).

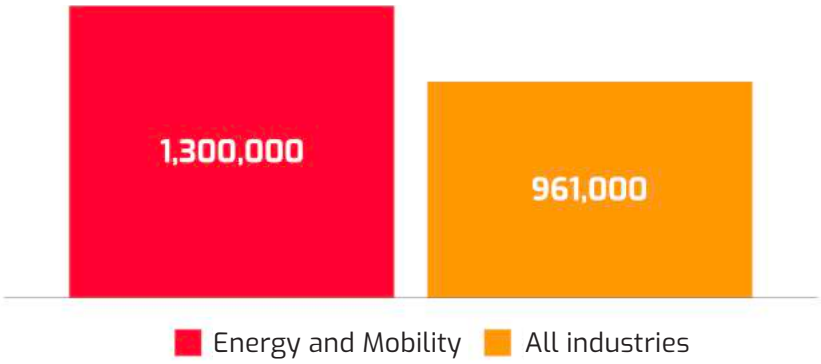
Energy and Mobility start-ups experienced **slower growth than the average**, both in terms of revenue (125% versus 148% average revenue increase) and team size (58% versus 75% average team growth). For some start-ups, this can be explained by longer development cycles, which postpone sales development. In turn, this aspect may limit revenue growth as well as the amount of money that Energy and Mobility start-ups can invest in recruitment. Nonetheless, they may be quite scalable since they often rely on a core technology that can become widespread once developed.

Moreover, the data highlights that Energy and Mobility start-ups have **significant difficulties in reaching their funding goals**. This doesn't mean that they raise lower sums than others (see next page), but that they **only raise a third of the amount they were looking for** on average. Energy and Mobility innovation is generally more capital intensive at early stages than other sectors, especially for start-ups developing hardware or facing tough regulatory restrictions. Some areas of these sectors, such as shared mobility systems, are also more competitive, making it potentially harder to secure the expected funding. Other common hurdles to securing funding highlighted by the ratings include an insufficiently innovative project, failure to demonstrate the validity of the business model, or the inability of entrepreneurs to defend their projects convincingly in front of investors.


Photocase/tiefpics

Funding

Average funding raised 24 months after the rating (€)



The chart shows the average sum raised in the two years following the first rating by Early Metrics, for hardware and software start-ups at all stages of maturity and funding (primarily Seed and Series A). While they might only raise 33% of their funding target, **Energy and Mobility start-ups still raise larger sums** on average than the standard (€1.3m versus €961k). As mentioned, the higher level of innovation required and the regulatory complexity of this sector compared to others (e.g. E-commerce, Edtech...) may explain both the higher funding goals and funding achieved by Energy and Mobility start-ups. As shown in the pie charts below, this does not have a significant impact on the survival of the start-ups.

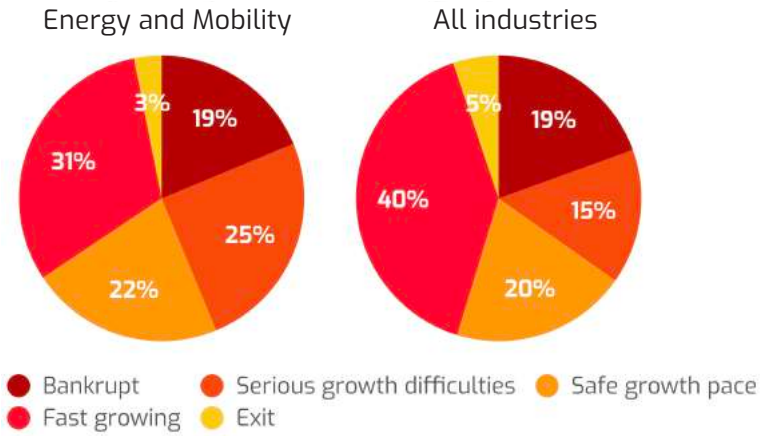
Survival and exit

Energy and Mobility start-ups don't experience a higher bankruptcy rate than other start-ups. The average bankruptcy rate of our sample is 20% within 2 years, meaning **one in five start-ups go bankrupt after the initial rating**. The exit rates are also similar; at 3% for Energy and Mobility start-ups compared to the overall average of 5%.

Although the survival rate of Energy and Mobility start-ups is close to the average, they are more likely to experience growth difficulties. **25% of young Energy and Mobility players face serious growth issues**, compared to 15% in the whole sample. This might be due to **failed funding rounds**, which would prevent such start-ups from financing their planned development roadmap and meeting their milestones as fast as start-ups in other sectors.

The table on the previous page highlighted that Energy and Mobility start-ups grew less in team size than the average. We can infer that these start-ups may have **struggled to find or attract the right talent**, more than start-ups in other sectors, which would then affect their growth rate too.

Start-up growth 24 months after the rating



Looking back at 3 years of SET Awards

2021 marks 5 years of the SET Award and 3 years of collaboration between SET and Early Metrics for the scoring and indexing of candidates. We decided to take this opportunity to look deeper at the data collected thus far, as well as to check in on the progress of past winners. This analysis covers the 2019, 2020 and 2021 editions of the SET Award as the same application process was used for these three years and therefore we can draw insights from a comparable dataset.

The SET Award is truly a global contest involving start-ups from all over the world with innovative technologies representing the whole value chain of the energy sector. By looking at its candidates and participants, we can get interesting insights into the state of the global Energy and Mobility start-up scene.

Dataset

- In the following section, we have aggregated all the data collected from the applications of 1175 start-ups for the 2019, 2020 and 2021 editions of the SET Award.
- We have analysed the main trends over these three years, such as the geographical spread of the start-ups, average company size, and their technical and commercial maturity.
- In parallel to this data analysis, we conducted qualitative interviews with selected entrepreneurs who had won a SET Award in 2019 or 2020, to highlight their journey since participating. The winners of the 2021 edition had not been announced at the time of the production of this report, hence they were not involved in the interviews.

Geographic spread of SET Award candidates

Start-ups from all around the globe have applied and participated in the SET Award. 102 countries were represented in the applications in the last three editions of the award. The top three countries by number of candidates in the overall 2019 to 2021 period were: Germany (174), USA (93), and Canada (71).

Application hotspots

The tables below present the top 10 countries per year in terms of the number of start-up candidates. While the volume of applications from Asia and Africa is on the rise, North America and Europe were still the most highly represented regions by the candidates of the last three SET Award editions.

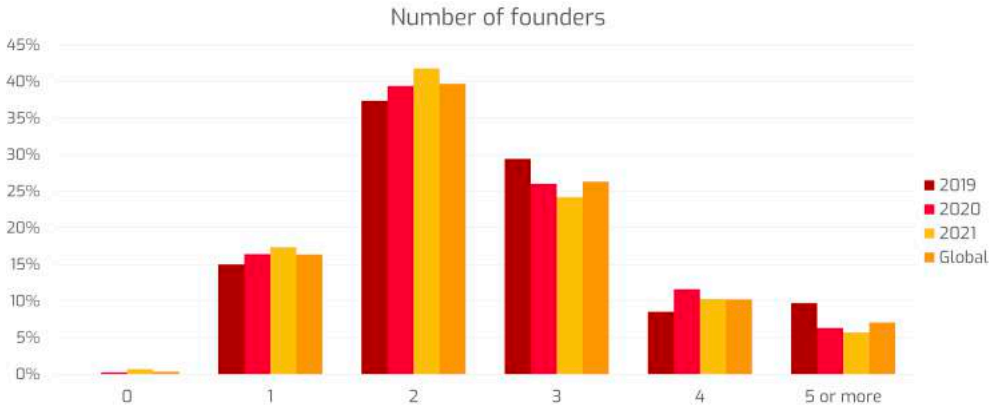
2019			
1.	**Germany**	**46**	**14%**
2.	**Canada**	**24**	**7%**
3.	**Sweden**	**23**	**7%**
4.	USA	23	7%
5.	Switzerland	17	5%
6.	France	15	4%
7.	UK	15	4%
8.	Nigeria	13	4%
9.	Australia	11	3%
10.	Israel	10	3%

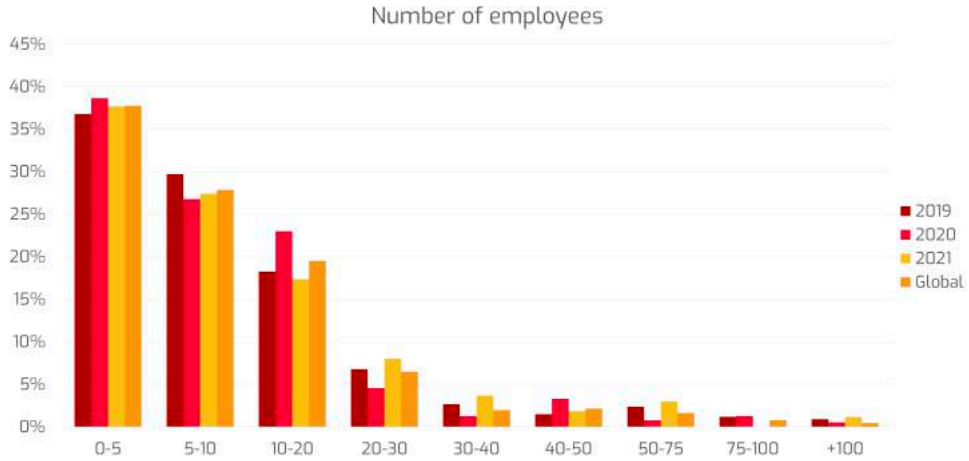
2020			
1.	**Germany**	**59**	**15%**
2.	**Canada**	**33**	**8%**
3.	**India**	**25**	**6%**
4.	USA	23	6%
5.	Switzerland	21	5%
6.	UK	15	4%
7.	Kenya	10	3%
8.	Singapore	10	3%
9.	Australia	9	2%
10.	France	9	2%

2021			
1.	**Germany**	**61**	**14%**
2.	**USA**	**46**	**11%**
3.	**Switzerland**	**23**	**5%**
4.	India	20	5%
5.	Netherlands	18	4%
6.	UK	15	3%
7.	Israel	14	3%
8.	Canada	14	3%
9.	France	12	3%
10.	Spain	12	3%

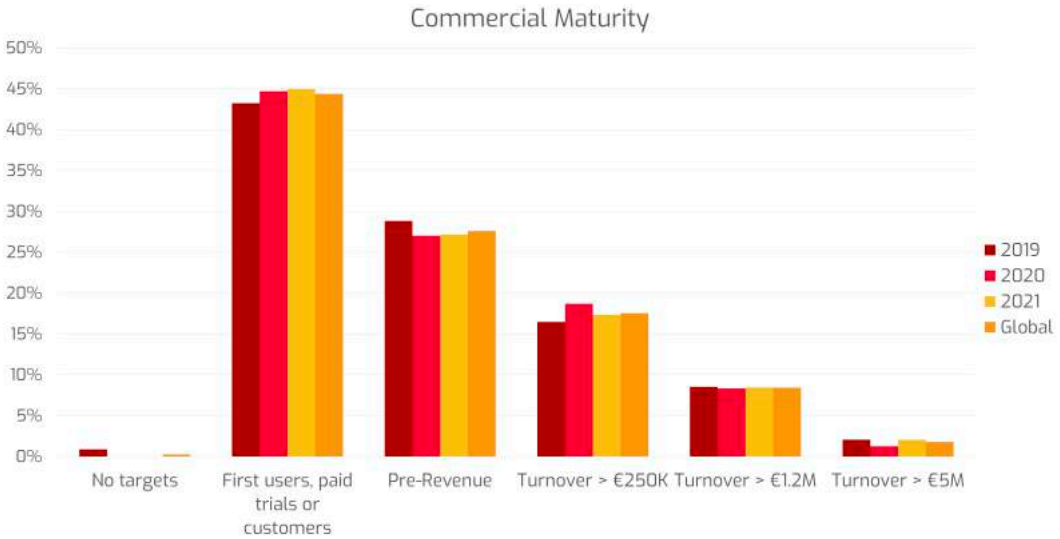
Looking back at 3 years of SET Awards

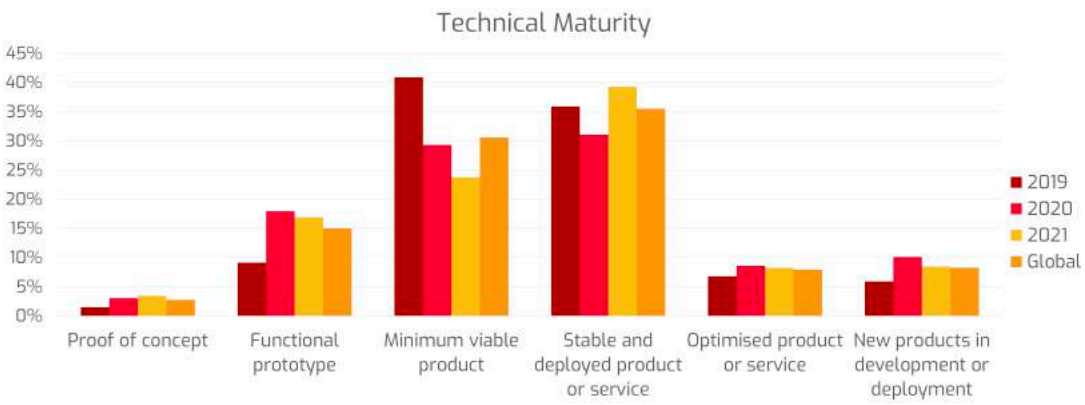
Team & Management





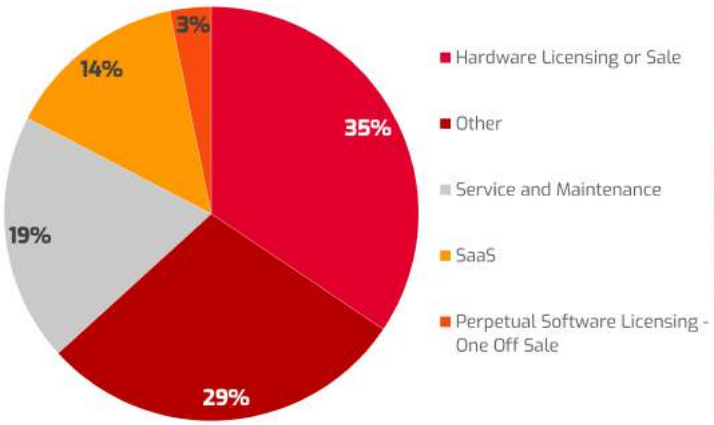
Technical & Commercial Development



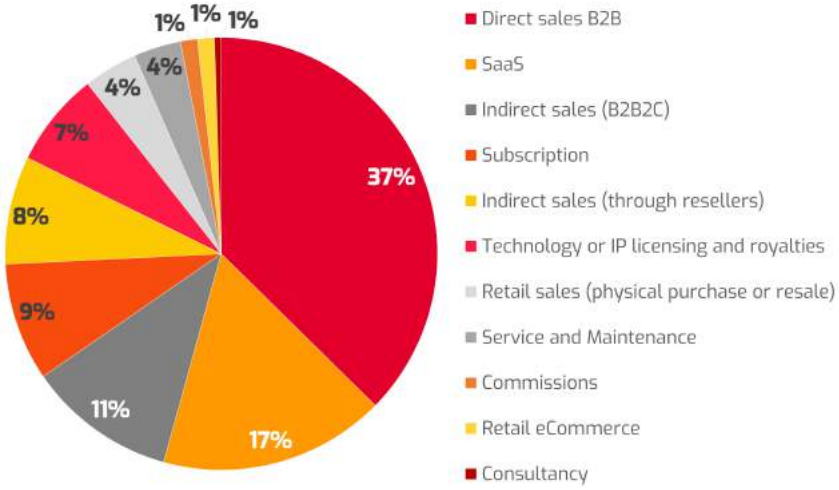


Most popular business models

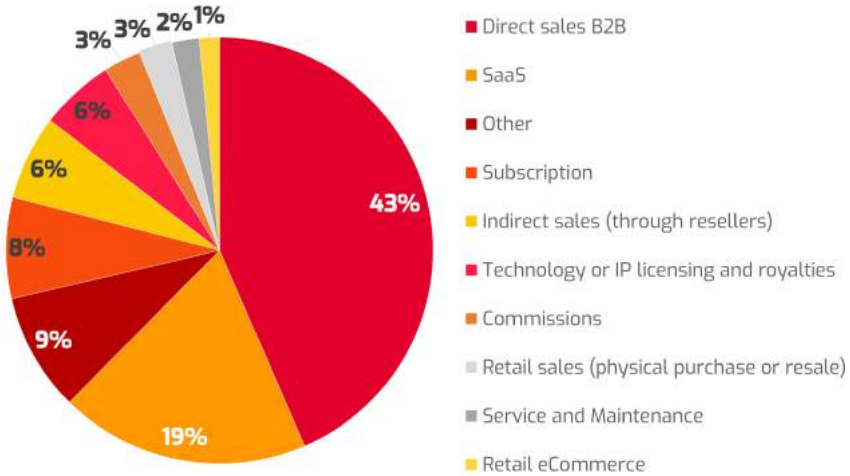
Business models 2019



Business models 2020



Business models 2021



The charts show the business model adopted by the start-ups, as self-reported in their application. The evolution throughout the years suggests that the SET Award attracted cohorts of applicants with a **greater variety of business models** in 2020 and 2021, compared to 2019. This may be due to the increasing visibility and popularity of the SET Award over the last three years.

dena/stageview

SET Award Winners: Where are they now?

Blixt

Blixt develops a fully solid state DIN format breaker to turn the fuse box into a smart device, sharing real-time electricity usage data. It ranked in the top 15% of applicants in 2019 and went on to win in the 'Energy Efficiency, Smart Devices & Storage' category.

Milestones since winning in 2019:

- Received pre-compliance reports meaning their circuit breakers have fulfilled all standards to be deployed from May 2021

Bodawerk

This Ugandan start-up develops innovative solutions for East Africa's most common transport vehicle: the Boda Boda. Bodawerk ranked highly amongst 2019 applicants and was awarded in the 'Innovative Mobility' category.

Milestones since winning in 2019:

- Grew their team tenfold in 2020
- Started their international expansion in the Asia Pacific region

eleXsys

By fortifying and stabilising the grid, eleXsys (by Planet Ark) allows significantly more energy from small, distributed renewable sources to flow into the grid in a safe and reliable manner. The Australian start-up won the award in the 'Smart Grids' category in 2019.

Milestones since winning in 2019:

- Expanded into four new countries
- Raised $10m, well above their target
- Plans to list on the LSE in 2021

Enerbrain

Enerbrain has developed plug & play energy retrofit solutions for large buildings that allow drastic cuts in consumption, using AI and IoT. The Italian start-up ranked in the top 10% of applicants in 2020 and went on to win in the 'Energy Efficiency Solutions' category.

Milestones since winning in 2020:

- Saw a 120% increase in the number of clients, one year after the award
- Started its international expansion in Western Europe and Asia

Enapter

Enapter develops and manufactures the patented anion exchange membrane (AEM) electrolysers for hydrogen production from water and electrical energy. The start-up was the winner in the 'Low-Carbon Energy Production' category in 2019.

Milestones since winning in 2019:

- Raised $4.7m in its Series A
- Acquired clients in 33 countries
- Opened its first serial fabrication facility in Pisa (IT) and plans underway for a mass production facility in Saerbeck (DE)

instagrid

instagrid develops portable battery power supplies, enabling clean energy to replace small combustion engines anywhere. In 2020, the German start-up received the SET Award in the 'Renewable Energies and Materials' category.

Milestones since winning in 2020:

- Completed a Series A round, raising €8.5m
- Completed the first batch of pre-orders of its portable power system in November 2020

dena/stageview

CASE STUDY: SwitchDin

In conversation with James Martin,
Comms Manager at SwitchDin
Winner 2020

SwitchDin ranked in the top 10% of applicants in 2020 and went on to win in the 'Digital Energy Systems' category. At the time, the company scored particularly highly on 'commercial activity', having already established a revenue-generating client base. How did you drive this positive commercial traction as a company still in fairly early stages?

From early on, SwitchDin focused on securing opportunities with a few high-impact clients. We achieved this by **focusing on key niche opportunities where there was tangible value**. In the early days, this often meant tackling the messy, unglamorous problems (such as how to connect and control inverters) that no one wanted to do, yet were often a requirement for unlocking more value. This approach meant we deferred working on some of the other flashy things which were perhaps more technically interesting or media-friendly (e.g. virtual power plants). In the end, however, because we focused on solving the core pain point, it meant we could progress to unlock these other value streams more effectively.

So unlike other sectors, **the start-up meme "fake it till you make it" just doesn't work in the electricity sector**. You need to deliver real value at each step - so start small and build from there.

What did you see as your strengths at the time of the award?

SwitchDin is in the right place at the right time. As a world leader in the uptake of rooftop solar, **Australia is ground zero for distributed energy**. This has meant that SwitchDin has been able to build its business with energy companies who are actually deploying it because they have pressing and real problems.

Additionally, while we do have competitors in both the 'upstream' distributed energy resource management system (DERMS) providers and the 'downstream' product integrators, this competition itself is a testament to the fact that we are one of the only software companies that are tackling the entirety of this quickly emerging new industry segment.

Have you identified any weaknesses?

Our industry is evolving quickly, and we are being pulled into new markets, which puts pressure on us to make decisions quickly and effectively. We don't have a crystal ball, so it's hard to be certain that the decisions we are making are all in the right direction. This is particularly true with regard to our choice of new partners and collaborators. On top of this, we are also growing rapidly, both in terms of our technology and our team, which is set to double to about 75 people by the end of 2021. All these things together mean that keeping true to our values and maintaining our positive culture are essential if we are to stay nimble and responsive to the market.

Did winning the SET award open up new opportunities?

Our participation in the SET competition and winning the SET Award has helped to raise our profile in Europe and bolster our credentials back home in Australia. We have a number of early stage successes with partners in Europe, which is a key market for us this year. The SET win has produced a flood of promising new opportunities, particularly in the UK and Italy. We had planned to spend considerable time in Europe to drive this growth; however, due to Covid-19, this has not been possible.

How do you feel your business has progressed since winning the award?

Since our win we've grown our team by 50% and have realised some exciting new partnerships and deals. Meanwhile, we've transformed the way we align our teamwork and strategy and this has prepared us for this growth phase. We've consolidated some key channels to focus on high growth opportunities in Europe and Australia. This has given us the bandwidth with some key clients to open up new segments (like the industrial energy sector), and new markets (like the US).

dena/stageview

dena/stageview

SET100 Start-ups 2019 - 2020

The SET100 is an annual compilation of the 100 best start-ups of the Start Up Energy Transition Award. It features the most innovative and promising start-ups that make the energy transition a fundamental component of their innovation.

Here we focused on the 100 best start-ups from 2019 and 2020 to show the concrete growth they have undergone in the period following their selection. We will look in particular at the differences in growth in the different categories of the award. The 2021 SET100 list was not yet compiled at the time of the production of this report, hence it is not included in this analysis.

Methodology

For this analysis, we first identified the top 100 companies among the 2019 and 2020 applicants, using the Early Metrics Index scores.

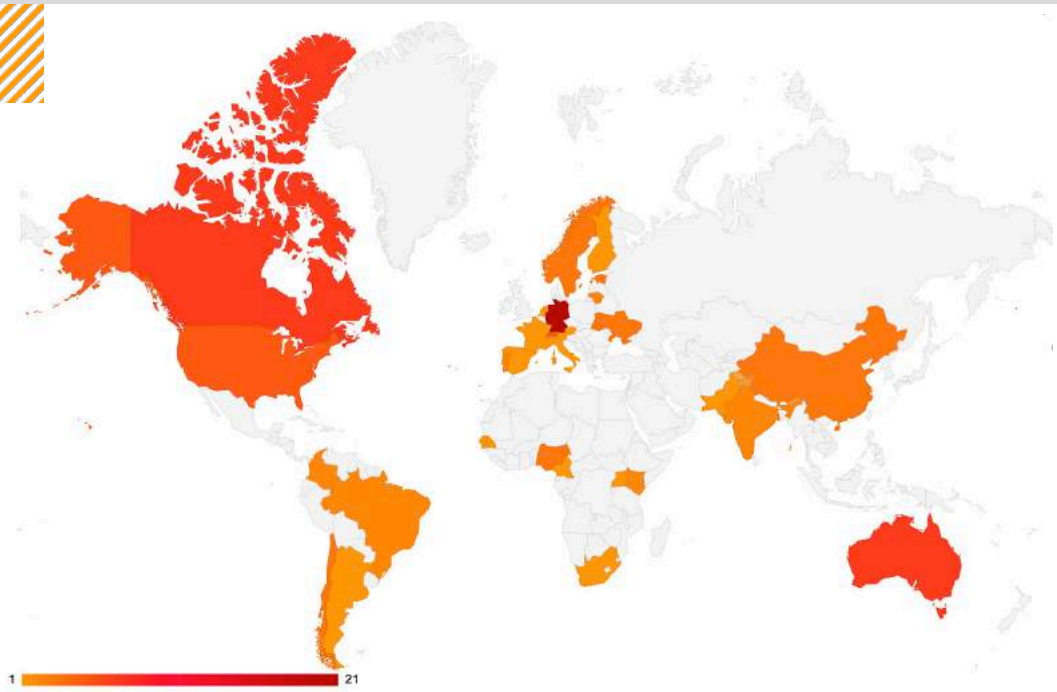
The scoring model for the Early Metrics Index is based on several criteria and reflects the growth, impact, adoption, scalability, market penetration, and innovation of the start-ups.

We then screened these companies and collected public data to determine whether they were still active or had gone bankrupt. For the ones that survived, we also collected key metrics on funding raised, team size and the number of clients.

Finally, we synthesised this data to identify the key trends among the best-scoring start-ups.

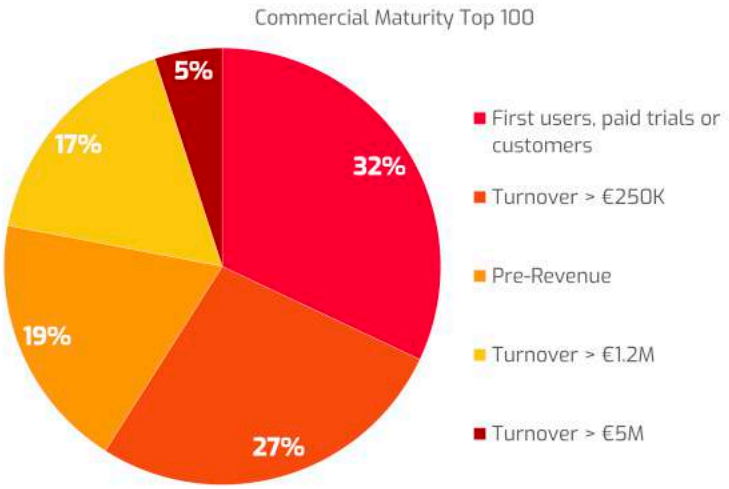
Geographic Spread

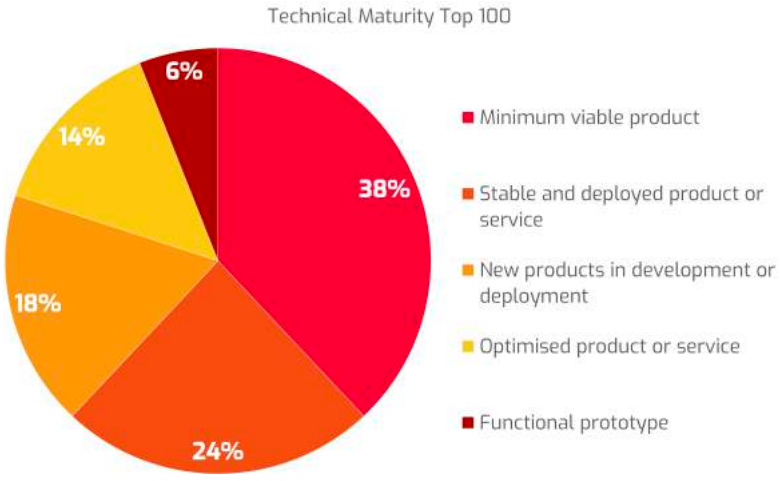
The geographical spread of the SET100 start-ups 2019-2020 is reflective of the application hotspots identified previously in the report (see page 17). The start-ups hail from 32 countries spanning multiple continents and with a particularly strong concentration in North America, Europe and Australia.



Commercial & Technical Development

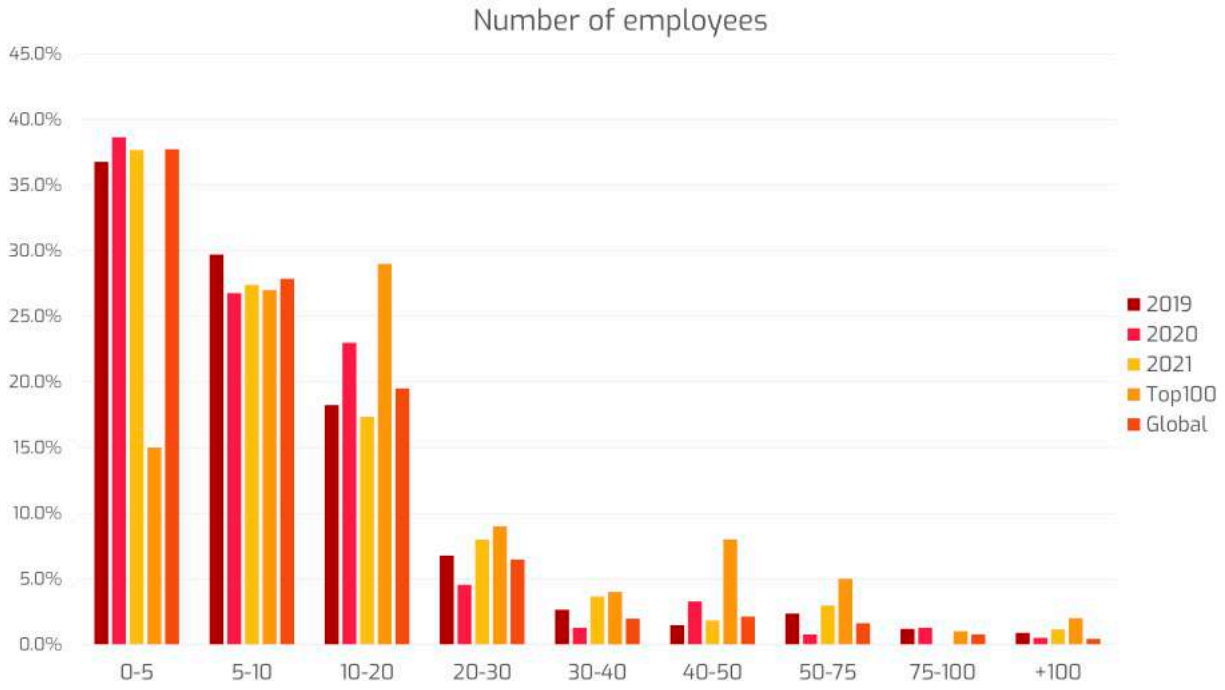
Compared to the overall sample of candidates analysed previously in the 2019-2021 period, the SET100 start-ups are on average more mature in terms of their commercial and technical stage of development. Nonetheless, many of them were still pre-revenue (19%) and at the MVP stage (38%), which shows that their innovativeness and team strengths compensated for their relative lack of maturity in their index score.





Team size

Just like in the sample of candidates from the 2019-2021 period, the SET100 start-ups had on average 2 founders. However, we do notice a difference in the size of the start-ups that made it into the SET100 versus those that did not. As shown in the chart below, 29% of start-ups in the SET100 had teams of 20+ employees; in the whole database of candidates from the 2019 to 2021 period, only 13% had teams of 20+.



dena/stageview

Start-up growth: Key observations

98%
Overall survival rate

90%
Expanded into a new country or region

150%
Average team growth

€150m
Largest funding round completed post-SET

25%
Raised funds after participating at SET

€4.2m
Average funding raised (ex. upper outlier)

Above we have some key statistics on the survival, growth and performance of the SET100 start-ups 2019-2020 in the period following their participation in the award. The majority of start-ups saw significant growth, especially in the team size. Several raised funds, with the mobility start-up Bolt raising the most (€150m). Just two start-ups went bankrupt after their participation in the SET Award; given the macro-economic context of 2020 and the usually low survival rate among the whole start-up ecosystem, a 98% survival rate is encouraging.

The growth and funding figures are particularly impressive when compared to those achieved by the sample of Energy and Mobility start-ups analysed on pages 12 and 13. This shows that the rigorous selection process for the SET100 was successful in identifying start-ups that could outperform the average and overcome common challenges met in this industry.

The impact of COVID-19

Although the numbers above are positive overall, the global pandemic has had an undeniable impact on the performance and development of start-ups in all sectors, including Energy and Mobility. To get a clearer picture of the challenges faced by these businesses, the SET team sent a survey to roughly 300 international SET100 alumni in their network in March/April 2020. 83 anonymous responses were received.

The results of the survey showed that most start-ups in the energy sector are facing negative implications due to the ramifications of COVID-19, but that many also see opportunities despite this.

The majority of the survey respondents, at the seed and Series A stage, identified sales, investment, internal productivity and networking opportunities as the areas affected the most and as the leading causes of negative impact on their business.

SET100 Start-ups 2019 - 2020

Growth realised after the SET Award per category of innovation

Energy Distribution and Storage

This category includes tech-savvy start-ups working on distribution and climate-neutral storage solutions for micro, mini, local, or system wide applications.

127%
Average team growth

659%
Average increase in number of clients

€7.86m
Average size of latest funding round

97%
Overall survival rate

"Winning had many concrete results, including access to an incredible network that Blixt still makes use of - potential investors, high level professionals, access to expert feedback on market strategy, tech roadmap, partnerships, etc."

Charlotta Holmquist,
CFO at Blixt
Winner 2019

Demand-side Innovation

This category includes start-ups developing smart devices, applications, materials, substitutes and behaviour-changing innovations that help promote and improve energy use.

170%
Average team growth

193%
Average increase in number of clients

€12.3m
Average size of latest funding round

97%
Overall survival rate

"Thanks to SET Award we are now recognised internationally, and it allows us to attract additional investors to help us grow faster, with a bigger impact on global CO2 reduction."

Francesca Freyria,
R&D at Enerbrain
Winner 2020

Clean Energy Generation

This category includes start-ups who are developing clean energy generation solutions that could help to decarbonise our most energy-intensive sectors, as well as those accelerating the adoption of new solutions through capacity building.

65%
Average team growth

313%
Average increase in number of clients

€6m
Average size of latest funding round

100%
Overall survival rate

"When we won, Christoph Frei, (former) Secretary General of the World Energy Council, told us 'your technology is game-changing and you need to think 100x bigger'. That changed the way we think about the potential of our business."

Richard Romanowski, Executive Director at eleXsys/ Planet Ark Power - *Winner 2019*

Quality Energy Access & SDG-7

This category includes start-ups creating diverse solutions for technology, financing, awareness and capacity building, that can reach far and wide, have a very clear social drive and most of all, aim to make a large impact.

163%
Average team growth

180%
Average increase in number of clients

€532k
Average size of latest funding round

100%
Overall survival rate

SET100 Start-ups 2019 - 2020

Smart Mobility & Transportation

This category includes start-ups enabling the adoption of electric vehicles, innovative sharing platforms, and the advancement of alternative modes of transportation with the goal to make mobility more accessible and affordable, while also reducing the impact on the environment.

226%
Average team growth

227%
Average increase in number of clients

€3.8m
Average size of latest funding round
(ex. outlier*)

100%
Overall survival rate

€150m
Raised by Bolt in 2020, the biggest sum raised by a mobility start-up in the SET100

"Since the SET award we have been able to eradicate, mitigate or compensate 100 weaknesses but also discovered 100 new ones. I believe it's a never ending journey of learning and change."

Jakob Hornbach,
CEO at Bodawerk
Winner 2019

dena/stageview

Conclusion

The goal of the "SET Report 2019-2021: Snapshot of the start-up energy ecosystem" was to provide insights into this rapidly evolving sector and the innovative businesses that are shaping its future.

The comparison of Energy and Mobility versus other start-up ecosystems yielded some interesting findings:

- Start-ups in Energy and Mobility generally develop more innovative products and services than those in other sectors.
- The data suggests that due to their higher level of innovation, these start-ups have more ambitious fundraising goals; many struggle to reach these goals, which then leads to slower revenue and team growth overall.
- While they may not fully reach their funding goals, Energy and Mobility start-ups secure larger amounts of funding on average compared to those in other sectors.
- One of their key strengths lies in their ability to protect their market share and position from new competitors through, among other strategies, patents and partnerships.

Given the growth difficulties observed in this ecosystem, the progress made by the SET100 is all the more impressive. Most of the top 100 participants to the 2019 and 2020 SET Award experienced strong growth after the award. 98% of the cohort survived - which is very encouraging considering the high bankruptcy rate among the general start-up ecosystem.

One in four start-ups raised funds after participating, with the mobility start-up Bolt landing a €150m round in 2020. SET100 start-ups in the "Energy Distribution and Storage" category experienced the biggest increase in the number of clients post-award. Meanwhile, start-ups awarded in the "Smart Mobility & Transportation" category saw the greatest growth in team size.

The interviews with past winners revealed that the SET Award was a pivotal moment for many. The exposure to key stakeholders in the venture capital, public sector, corporate and entrepreneurial scenes was perceived as a key benefit of the award.

By looking at the composition of the database of applicants over the last three years, we saw that the award attracts innovative companies from all continents. The start-ups applying are generally either at the MVP stage or at a stable and deployed stage. A range of business models are also represented in the database of candidates, with direct B2B sales, SaaS and indirect sales being some of the most popular ones.

SET is proud to support a growing number of innovators in the energy space from across the globe. By continuing to provide visibility and connections to top start-ups, we hope to accelerate the global energy transition and create more opportunities for sustainable innovation. Beyond the award, SET will continue to grow as a global innovation platform, to build bridges between public and private stakeholders operating for the betterment of the energy sector and related industries.

Appendix

Full list of sectors included in the “All industries” sample analysed in pages 5-9

- Agritech
- B2B software and solutions
- Biotech and Medtech
- Cleantech *(which includes Energy and Mobility)*
- Consumer goods and services
- E-commerce and Retail enablers
- Edtech
- eHealth
- Fintech and Insurtech
- Foodtech
- Information technology and Data
- Real Estate Smart buildings and Cities
- Robotics and Manufacturing
- Tourism and Leisure

Technologies included in the analysis in pages 5-9

Energy and Mobility
Software technologies

- Web platform
- Signal processing (video, image...)
- Mobile app
- Management software
- Data analytics and visualisation
- AI and machine learning
- SDK / API
- AR / VR
- Natural language processing
- Blockchain
- Virtual personal assistant
- Social network
- Wireless communication
- Biometrics
- Computer aided design and manufacturing

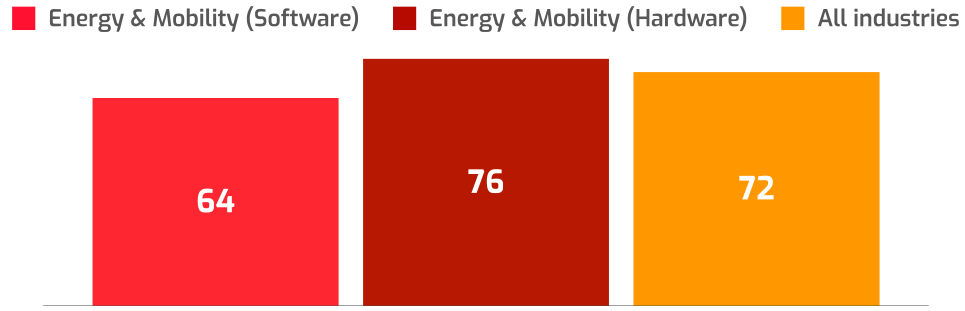
Energy and Mobility
Hardware technologies

- IoT & sensors and monitoring tech
- Non-connected hardware
- Consumables
- Wearables
- Small and micro electronics
- Robotics
- Autonomous vehicles including UAV
- Electricals
- 3D printing

Appendix

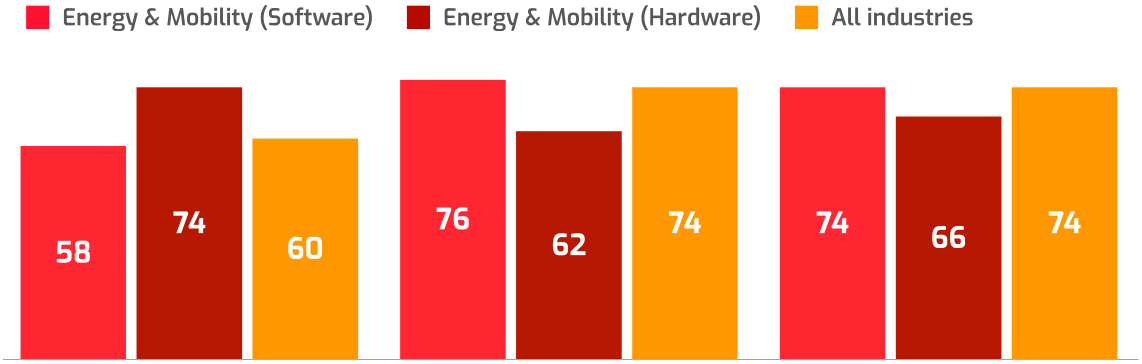
Performance on key rating criteria for Energy and Mobility start-ups (hardware/ software split)

FOCUS ON THE MANAGEMENT



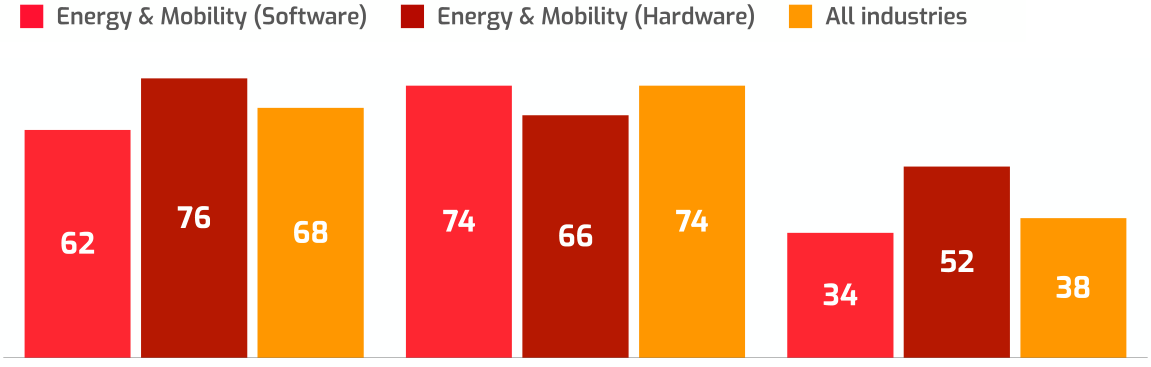
Average score for the 'team-project fit' rating criteria

FOCUS ON THE PROJECT



Level of innovation | Ability to finance the project | Technical and commercial stage

FOCUS ON THE MARKET



Market's depth | Dependency to supplier and partners | Barriers to entry