AMPOWER INSIGHTS

Startups in Additive Manufacturing

Analysis of the global Additive Manufacturing startup landscape

INSIGHTS GAINED:

- Top regions for AM startups
- Funding volume of AM startups
- Supplier and user startups
- Investors and most notable AM startups

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COURTESY OF CONFLUX TECHNOLOGY PTY LTD

Insights gained

Top regions for AM startups
Funding volume of AM startups
Supplier and user startups
Investors and most notable AM startups

Management summary

Over the last decade there was a significant uptake of Additive Manufacturing usage in industrial applications. The versatile use of Additive Manufacturing in countless areas has led to the formation of many new companies that continued to drive innovation in this field. New products and services introduced by startups are revolutionizing the way AM is used. Examples of startups with high impact are CARBON, DESKTOP METAL, RELATIVITY SPACE and HUBS.

In this study, AMPOWER presents an overview of its research on the current AM startup landscape. For this study, 852 different AM startups from all over the world were investigated and evaluated. The period of interest was from 2011 to 2021. This analysis includes assessment of the regional distribution, time of formation, segmentation by activity and analysis about the financing structure. Furthermore, insights from investors and founders are provided.

The regional analysis shows that over the past decade most AM startups were founded in the EMEA region with a peak in 2014. The highest funding, however, are received by startups from AMER. Looking at the countries individually, the USA is leading in total numbers of startups while Israel has the highest ratio of startups to its gross domestic product.

Most AM startups are active in the supply chain providing hardware and services to end users. Startups using AM to create a unique product or service are mostly active in the verticals of consumer goods, medical devices and space. Here, startups active in space industry were able to collect the largest funding.

The financial analysis shows that most AM startups are funded through venture capital. The invested money has continuously increased to reach more than EUR 1 billion per year.

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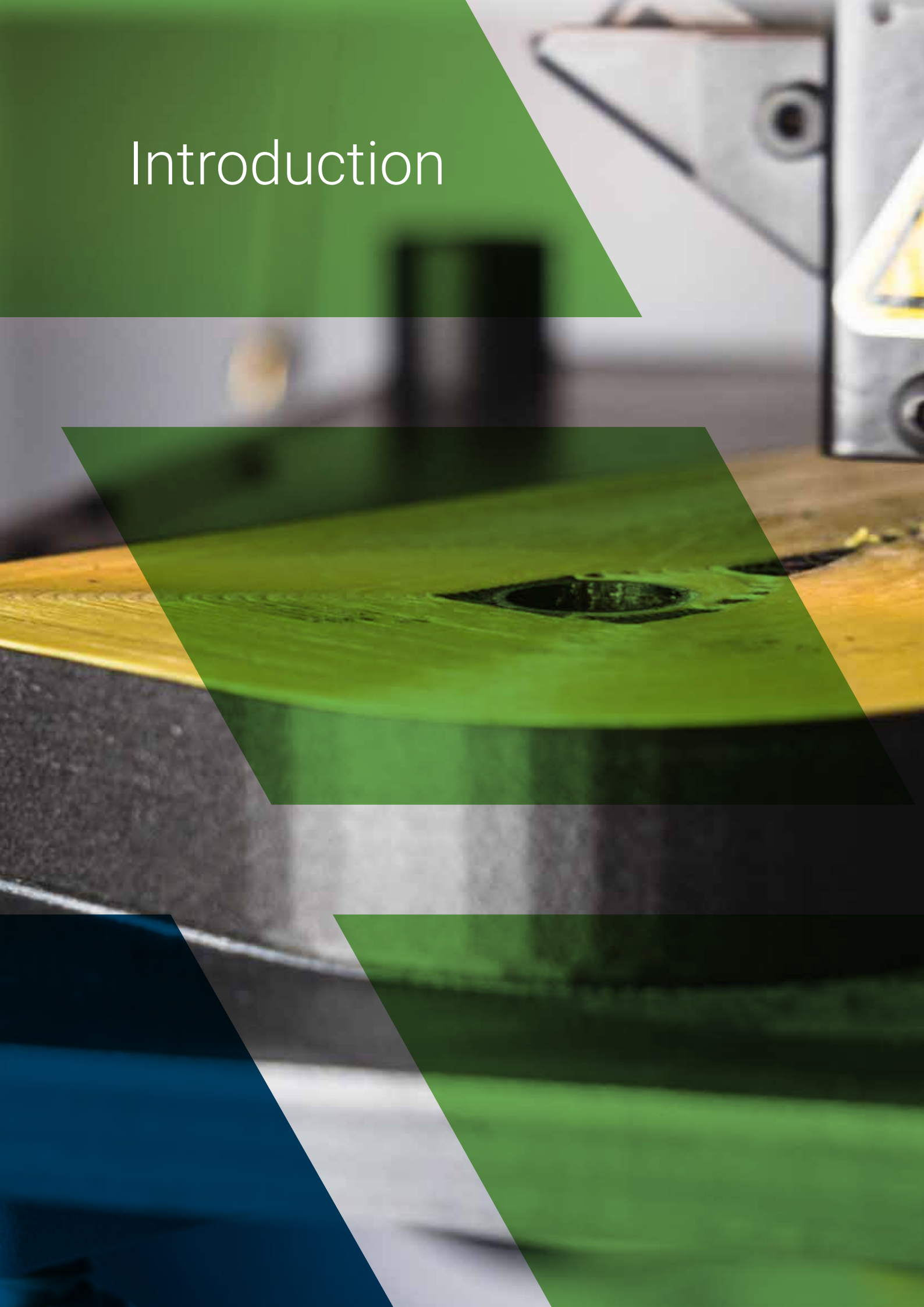
Content

About AMPOWER

AMPOWER is the leading consultancy in the field of industrial Additive Manufacturing. AMPOWER advises their clients on strategic decisions by developing and analyzing market scenarios as well as compiling technology studies. On operational level, AMPOWER supports the introduction of Additive Manufacturing through targeted training programs as well as identification and development of components suitable for production. Further services include the setup of quality management and support in qualification of internal and external machine capacity. The company was founded in 2017 is based in Hamburg, Germany.

Introduction



Technology acceleration through startups

The main principle of Additive Manufacturing was invented and patented more than three decades ago. Early adopters such as EOS, 3D SYSTEMS and STRATASYS successfully transformed the technical principle into a mature industry product. In the past decade, a new generation of startups emerged and introduced novel AM technologies and services, fueling further growth of the industry.

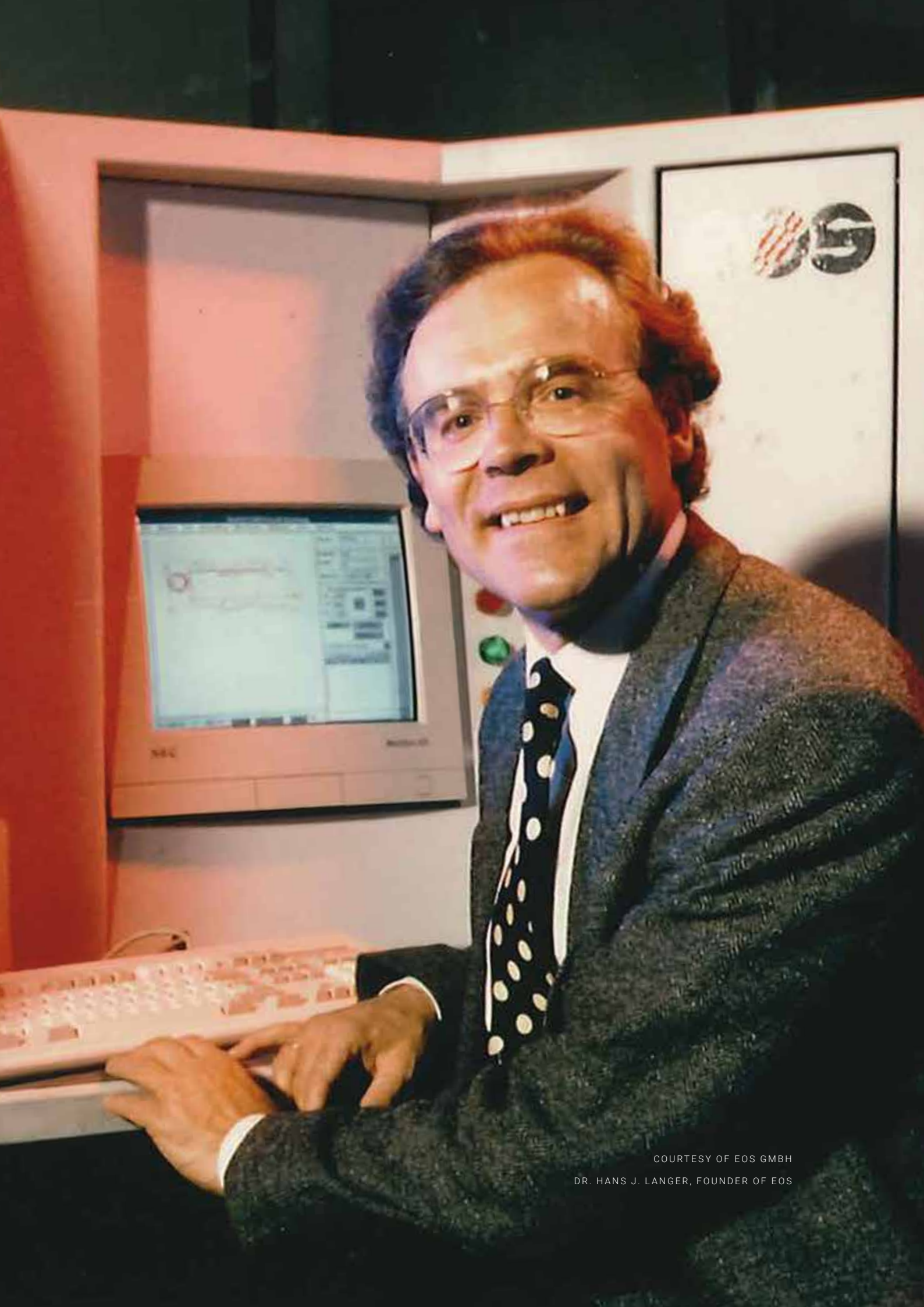
The Additive Manufacturing story started in the early 80s. In 1983 Charles Hull invented Stereolithography and is considered as the founding father of AM. At the end of the 80s, several companies such as EOS, STRATASYS and Hull's 3D SYSTEMS were founded and provided first AM machine hardware. These companies, once being the first startups in Additive Manufacturing, are now established players on the market.

In the 90s, additional AM technologies such as Powder Bed Fusion for polymers and metals as well as Binder Jetting were introduced. Their use was mainly in prototyping applications and the reach was still very limited. In the 2000s AM shifted to more industrial applications. For the first time, established traditional machine makers such as German machine tool manufacturer TRUMPF entered the market. However, the main focus of the AM industry was still limited to machine building in PBF and Material Extrusion technology for very low volume part production services.

Only in the last decade AM has established itself as a widely used manufacturing technology. Today, there is no major technology player without an Additive Manufacturing department. Parallel to the industrialization of manufacturing, a large amount of AM startups emerged in the last 10 years. Contrary to the early years the focus of the new players shifted from the development of industrial hardware for established AM technologies to new AM principles, software solutions and AM specific services and consumer products.

What is a startup?

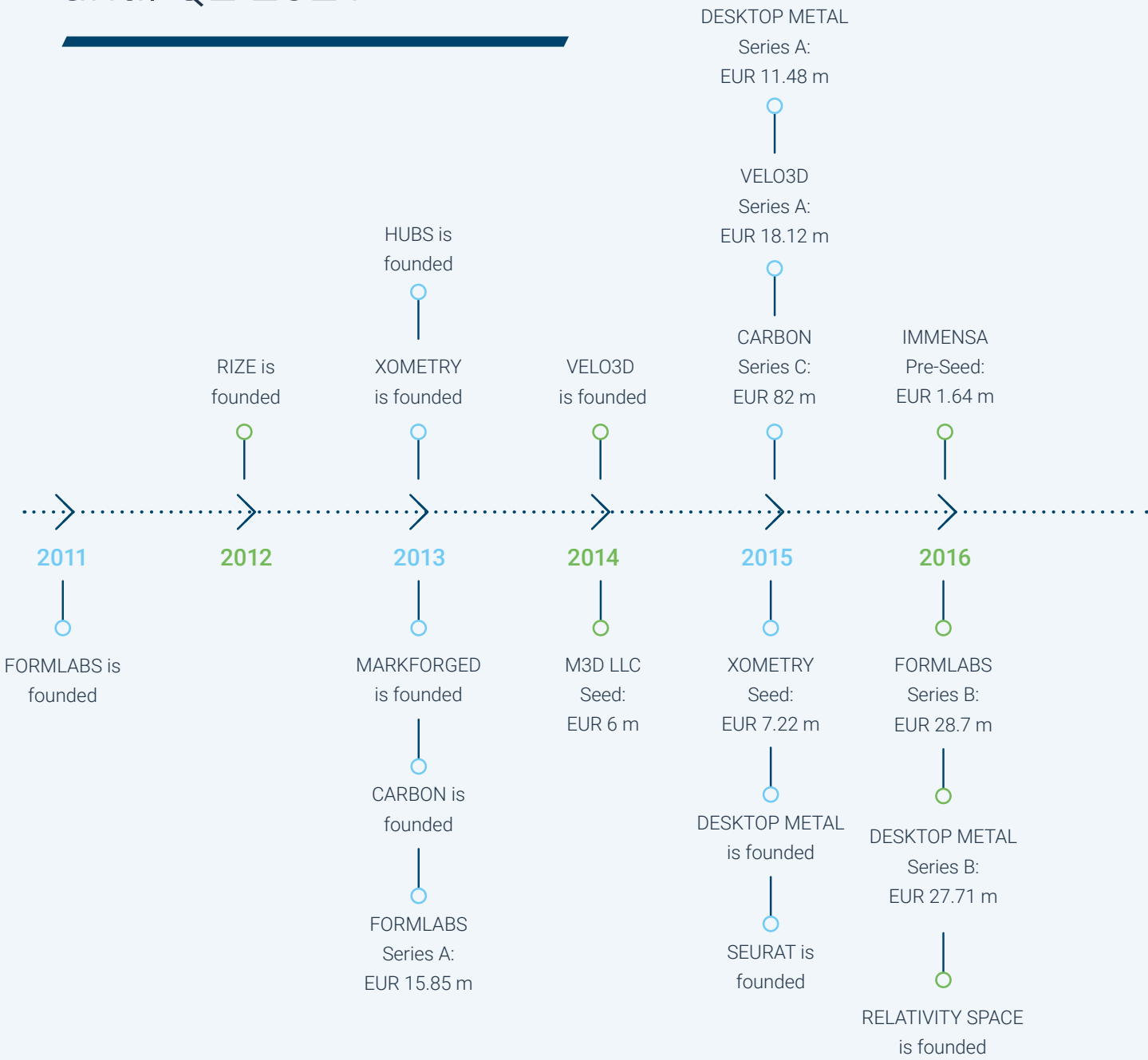
Startups are companies in the first stages of their operation. A startup has an innovative business idea or problem solution. It aims at growing strongly to achieve a high value. The intention of scaling quickly and thus achieving rapid growth in a short period of time is a characteristic of startups. Growth in combination with an innovative concept may lead to disruption of conventional business models. This often leads to startups that break up existing structures and replace them with their innovation within a few years.



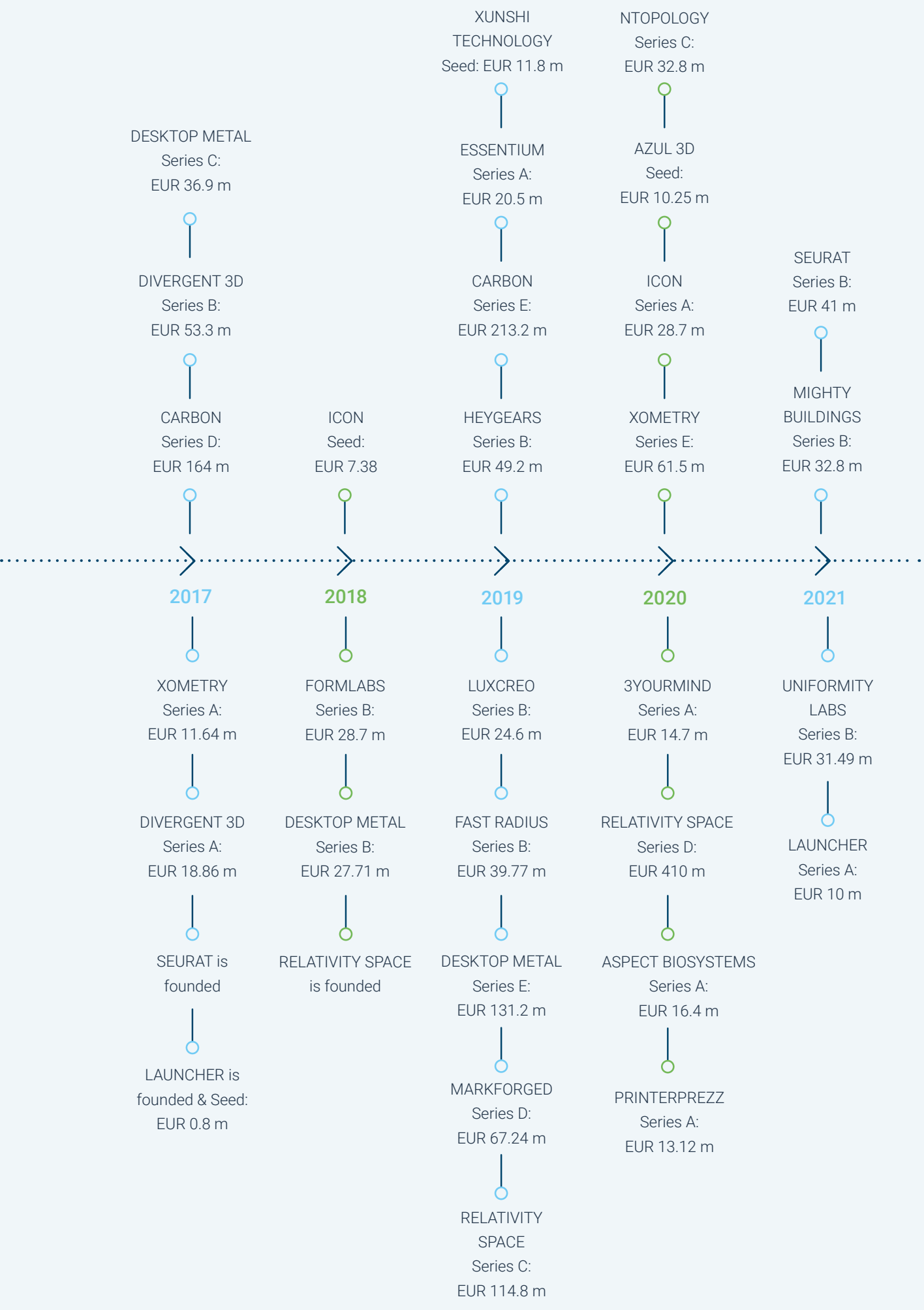
COURTESY OF EOS GMBH

DR. HANS J. LANGER, FOUNDER OF EOS

Selected milestones – until Q2 2021



AMPOWER


2017
XOMETRY
Series A:
EUR 11.64 m
DIVERGENT 3D
Series A:
EUR 18.86 m
SEURAT is
founded
LAUNCHER is
founded & Seed:
EUR 0.8 m
DESKTOP METAL
Series C:
EUR 36.9 m
DIVERGENT 3D
Series B:
EUR 53.3 m
CARBON
Series D:
EUR 164 m
2018
FORMLABS
Series B:
EUR 28.7 m
DESKTOP METAL
Series B:
EUR 27.71 m
RELATIVITY SPACE
is founded
ICON
Seed:
EUR 7.38
2019
LUXCREO
Series B:
EUR 24.6 m
FAST RADIUS
Series B:
EUR 39.77 m
DESKTOP METAL
Series E:
EUR 131.2 m
MARKFORGED
Series D:
EUR 67.24 m
RELATIVITY
SPACE
Series C:
EUR 114.8 m
XUNSHI
TECHNOLOGY
Seed: EUR 11.8 m
ESSENTIUM
Series A:
EUR 20.5 m
CARBON
Series E:
EUR 213.2 m
HEYGEARS
Series B:
EUR 49.2 m
2020
3YOURMIND
Series A:
EUR 14.7 m
RELATIVITY SPACE
Series D:
EUR 410 m
ASPECT BIOSYSTEMS
Series A:
EUR 16.4 m
PRINTERPREZZ
Series A:
EUR 13.12 m
NTOPOLOGY
Series C:
EUR 32.8 m
AZUL 3D
Seed:
EUR 10.25 m
ICON
Series A:
EUR 28.7 m
XOMETRY
Series E:
EUR 61.5 m
2021
UNIFORMITY
LABS
Series B:
EUR 31.49 m
LAUNCHER
Series A:
EUR 10 m
SEURAT
Series B:
EUR 41 m
MIGHTY
BUILDINGS
Series B:
EUR 32.8 m

Highly positive forecasts are driving company valuation despite lacking revenue streams

Strong 3D Printing growth projections along with promising technological advancements have led to high valuation especially of startups in the AM industry.

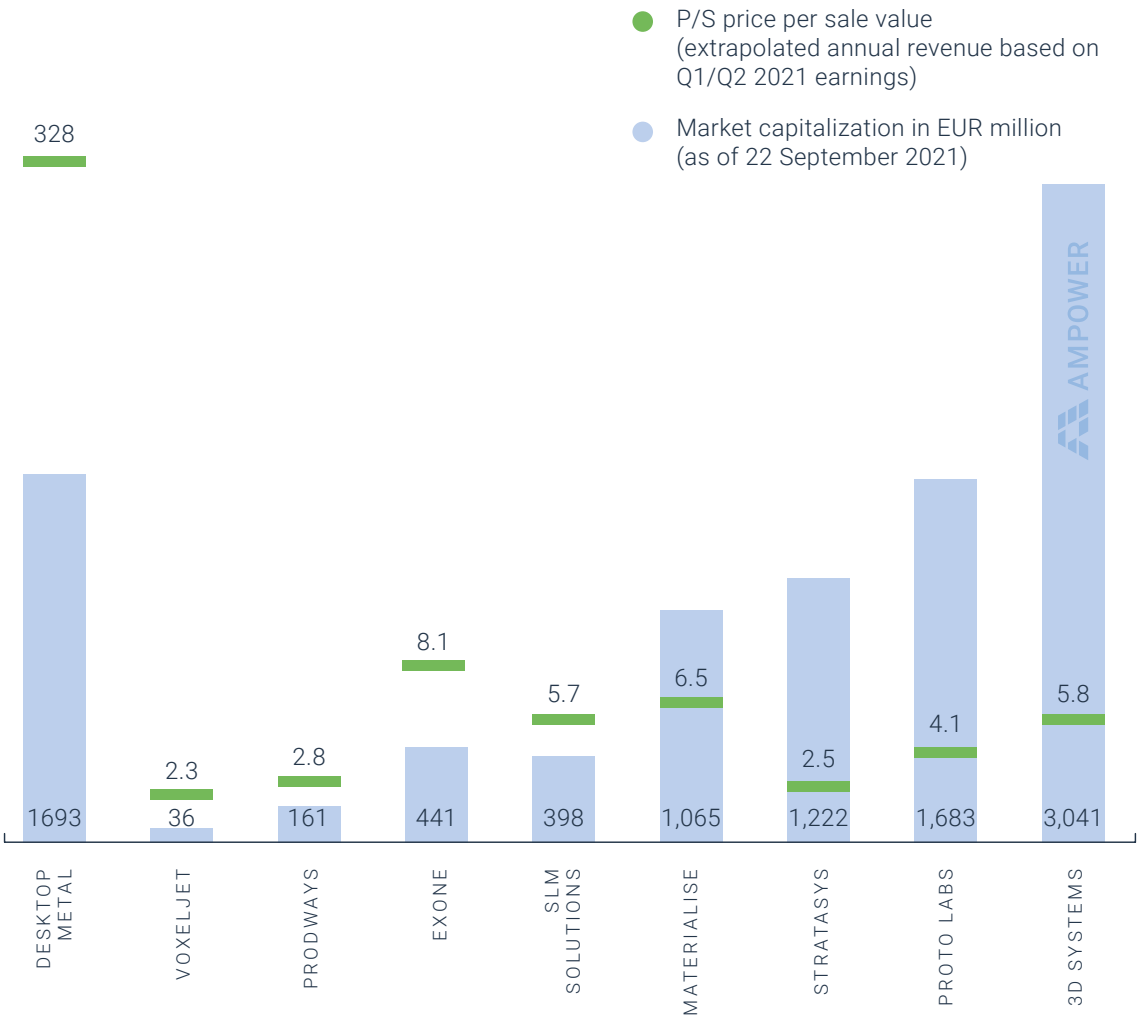
The market value of companies can be identified by several means. For publicly traded companies one simple method is the consideration of the market capitalization of its stock value. For non-public startups a possibility is to look at investor's valuation from the last funding round.

Looking at the current market capitalization of publicly traded AM companies 3D SYSTEMS has the largest valuation with EUR 3 billion. After the first AM hype in 2013/2014 3D SYSTEMS lost nearly 2/3 of its valuation now reaching a price per sale (P/S) value of 5.8. The established machine hardware for metal and polymer processes and its successful part manufacturing service are reflected in this valuation. In second place newly publicly traded DESKTOP METAL sits at nearly EUR 1.7 billion. This valuation represents a P/S of 32.8 and therefore the high expectations of investors in future success and revenue streams by the BJT technology. Noticeably, DESKTOP METAL had a market capitalization more than 4 times as high in the beginning of 2021, just shortly after going public.

Methodology and definitions

The study data has been gathered by desktop research (including public sources, disclosed information and acknowledged, public databases) and complemented by AMPOWER market knowledge and studies as well as qualitative and quantitative research. The funding sums are based on public announcements. The main closing date for the research was 15 May 2021. Thus, developments after this date might not be included. Any statements on future developments are based on predictions and expectations by the authors.The startup definition used in this study is based on the following criteria: Startups must be less than ten years old and must either be aiming for a planned growth in employees/revenue and/or be (highly) innovative with regard to their products/services or business models. The aim of this study is to look at the startup landscape in the AM market to gain insights into how this scene is developing. For this purpose, data was collected from 852 startups which were founded in the time span of 2011 to 2021. The startups considered had to supply AM hardware, software and services or be a user with a significant production share of Additive Manufacturing.

Valuation of public Additive Manufacturing companies



The P/S (price per sale) rating is derived by dividing the market capitalization by the sales or revenues over the last 12 months. For established industries such as medical or retail the ratings usually range between 1 to 5. Current P/S ratings of most publicly traded Additive Manufacturing companies are in the range of 2.3 to 8.1. This indicates a market with strong growth expectations by investors. Most of the listed companies have been active in the market for over 10 years and have an established product portfolio supporting these expectations. However, with the exception of PROTOLABS and MATERIALISE none of the here listed public companies currently generate earnings. It is expected, that with the economic recovery from the COVID pandemic and increasing use of AM in industry many AM players will write positive numbers in the near future. The strongest discrepancy between revenue and market valuation with a P/S value of over 30 can be seen at the startup DESKTOP METAL. The high ratio is explained by the early stage in the market with currently only few system sales and ongoing cost intensive product development. The recently announced takeovers of EXONE, ENVISIONTEC and AIDRO by DESKTOP METAL will increase revenues which will lower P/S ratings in the future. However, it remains to be seen, if DESKTOP METAL meets the high expectations of investors or if the trend of the deflation of the stock price over the last 6 months will continue.

Founding year and origin of AM startups

U.S. based startups can count on highest investment sums

Considering the worldwide total number of startups, the EMEA region, especially the EU and Israel have the strongest footprint. When it comes to investment volume, however, U.S. based startups have the best chances of securing significant funding rounds.

Venture capitalists in Europe tend to have much more conservative approaches and expect revenues early on before they consider significant investment volumes. This, however, does not seem to stop EMEA based founders from starting over 290 AM related startups in the past 10 years.

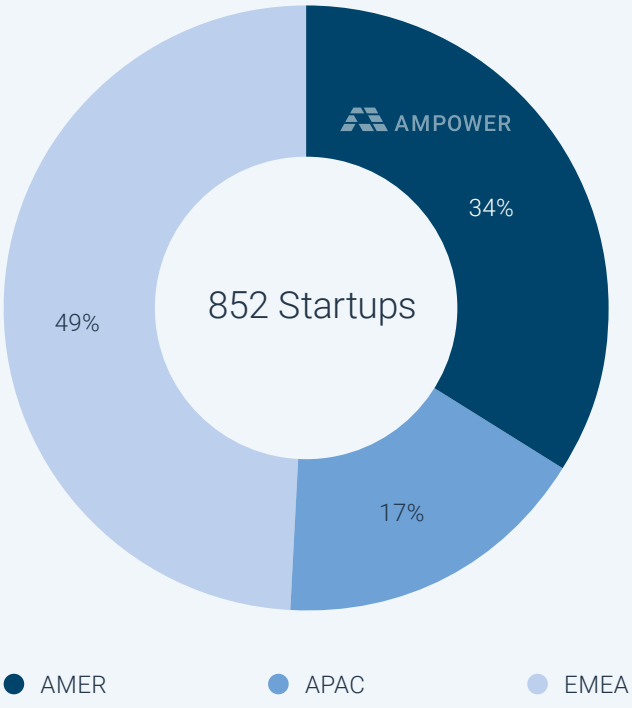
In EMEA startup origins are dominated by the countries Germany, UK, Netherlands and Israel. In the APAC region China, India, South Korea and Australia host most of the startups. AMER is clearly dominated by the 241 U.S. based startups established in the last 10 years. Historically and fueled by the U.S. economy, AMER startups are able to generate substantially higher venture capital rounds than those from regions of EMEA or APAC. Similar to many other industries, this also holds true for the Additive Manufacturing sector.

The AM startups from AMER region receive 72% of the total publicly announced VC-capital which corresponds to EUR 3,384 million. EMEA based startups announced capital investments of EUR 961 million in the same time frame, resulting in only 21% of the total volume. The investments in startups from the APAC region amounts to only 7% of all investments. The large total investment in AM startups from the AMER region consequently results in the highest average funding per startup.

With EUR 11.59 million the average startup from AMER region could announce nearly five-time higher funding than their counterparts from other regions. In EMEA the average funding lies at EUR 2.32 million, which is slightly higher than the average in the APAC region at EUR 2.17 million.

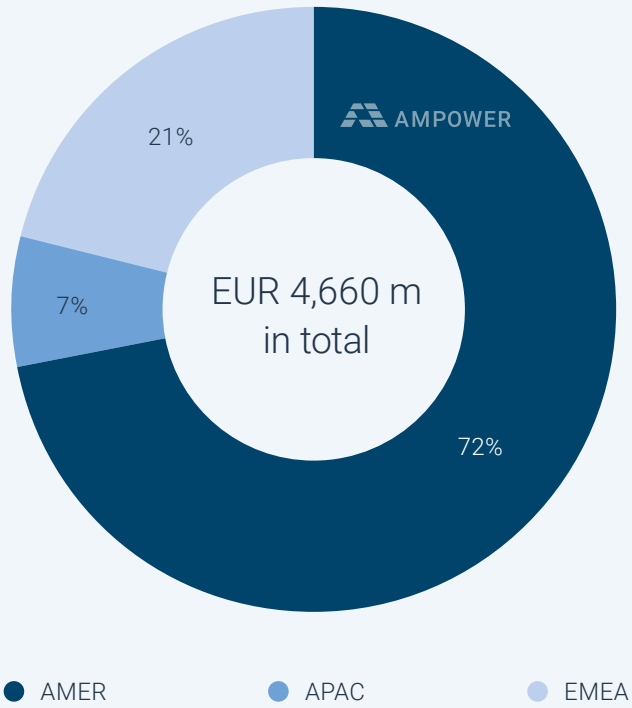
Regional distribution of AM startups

TIME PERIOD: 2011 – Q2 2021



Regional distribution of invested VC-capital

PUBLICLY RELEASED VC-ROUNDS TIME PERIOD: 2011 – Q2 2021



USA and Germany are home to 40% of all AM startups

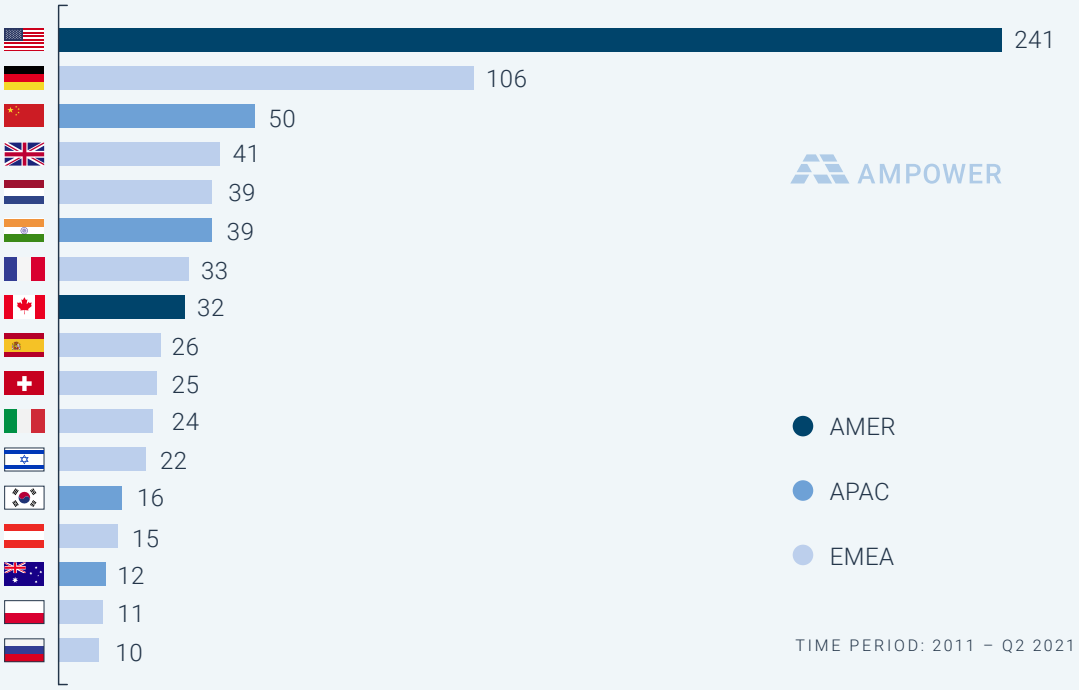
During the period under consideration, USA and Germany show the highest total numbers of startups. In relation to the GDP, however, Israel and the Netherlands come out ahead with the highest ratio for their Additive Manufacturing startups.

Historically, USA and Germany have the strongest global footprint in Additive Manufacturing. Home to the major industry leaders such as EOS, SLM Solutions, STRATASYS or 3D SYSTEMS those two countries were among the very early technology suppliers and innovators. This picture has not changed looking at the number of startups today.

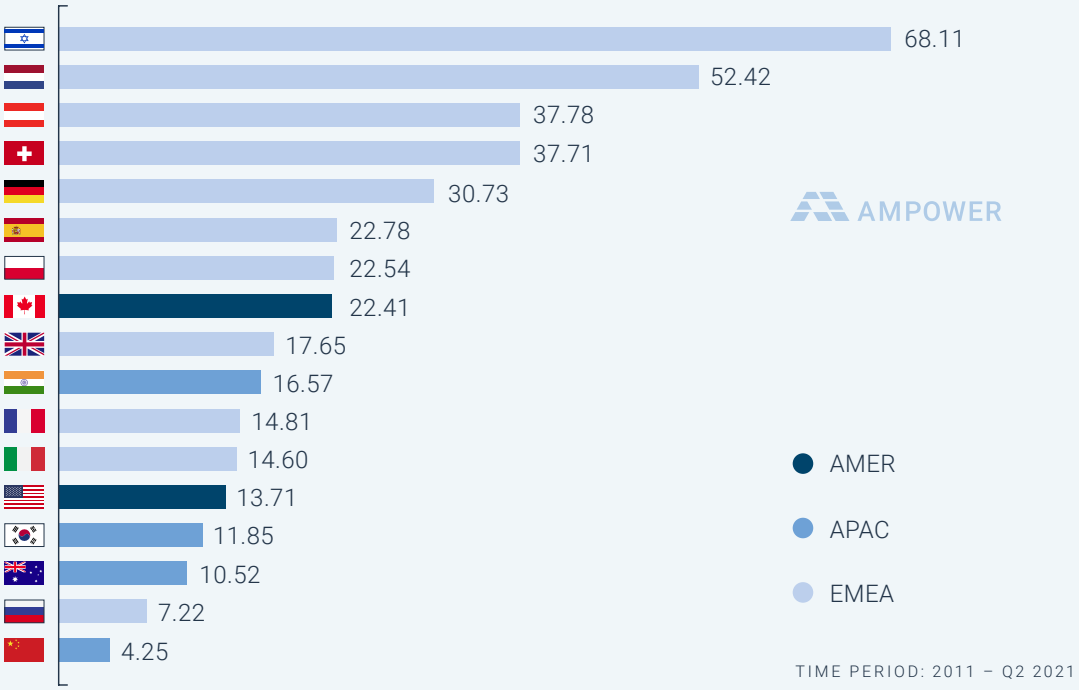
While the USA is the clear leader with 241 AM startups founded in the last decade. Germany ranks second with a total of 106 AM startups. Surprisingly, the gap to third placed China with 50 AM startups is considerably large. Considering the later entry of China into AM technologies but massive investments over the last 5 years, it is expected that the gap will close fast. Following the top 3 are mainly startups from the EMEA region with a few dozen AM startups per country each. Another way to identify strong AM regions besides the absolute number of startups is to consider the relation to the specific economic performance, such as the GDP. The graph displays the number of AM startups for every trillion EUR of the countries GDP. This approach provides a completely different picture. Here, Israel leads with 68 AM startups per trillion EUR GDP while the Netherlands ranks second with 52 startups, followed by a third place of Austria with 38 AM startups. In comparison to the leaders in absolute numbers of USA and Germany, these countries are considerably smaller in their economic performance, but have a far denser AM startup landscape. Remarkably, China is in this representation in last place with only 4 AM startups per trillion EUR of GDP.

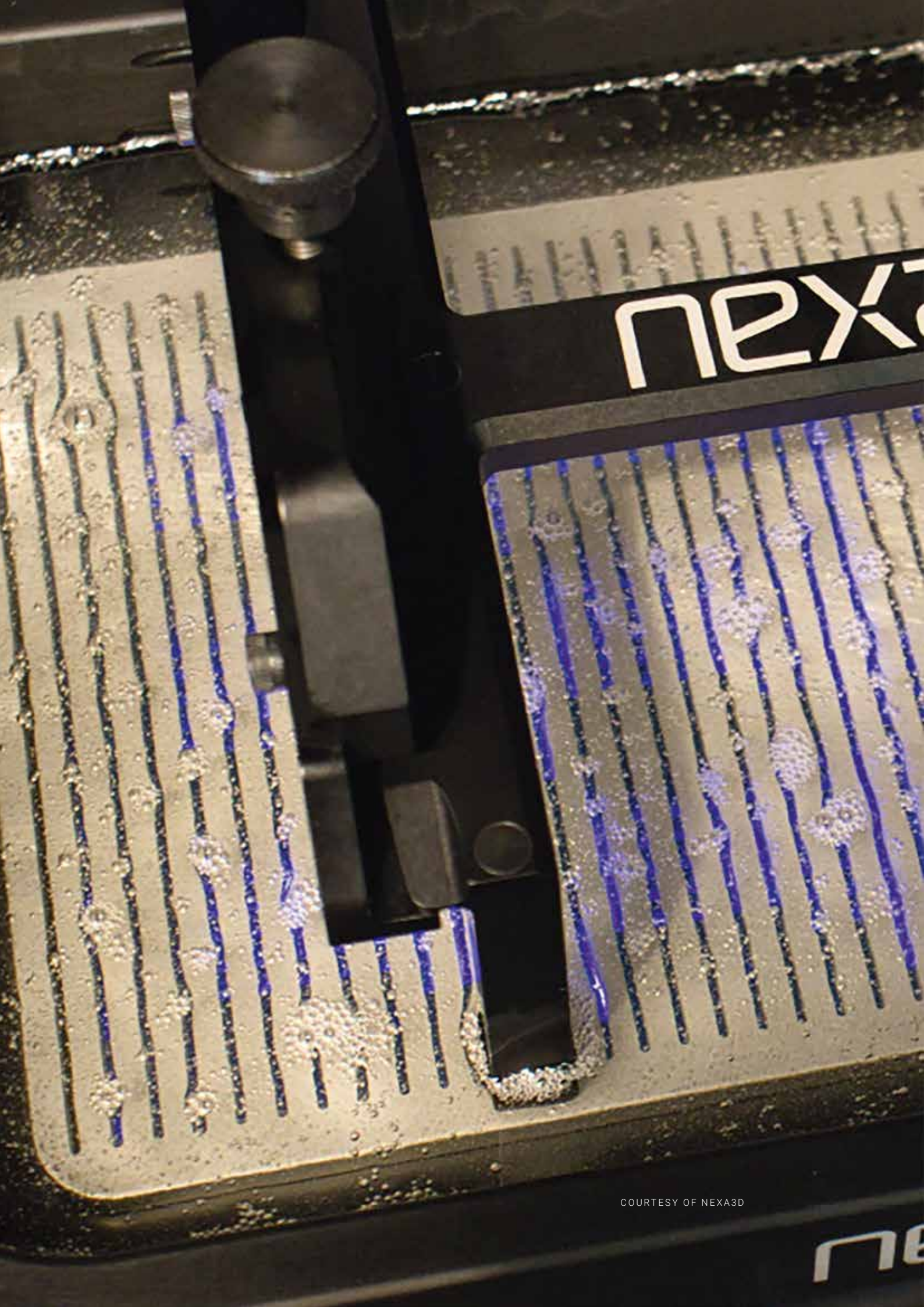
Both Israel and Netherlands are known to provide an environment to nurture startups in any technological field, being under the top 10 in many of the published rankings (e.g. STARTUPBLINK or CRUNCHBASE). Having this in mind it comes as a surprise that generally highly rated countries such as Australia or Singapore have a relatively low AM startup density. An explanation might be the lack of production technology focus in those regions.

Number of AM startups per country



Relative startup density
[Number of AM startups/GDP in trillion EUR]





COURTESY OF NEXA3D

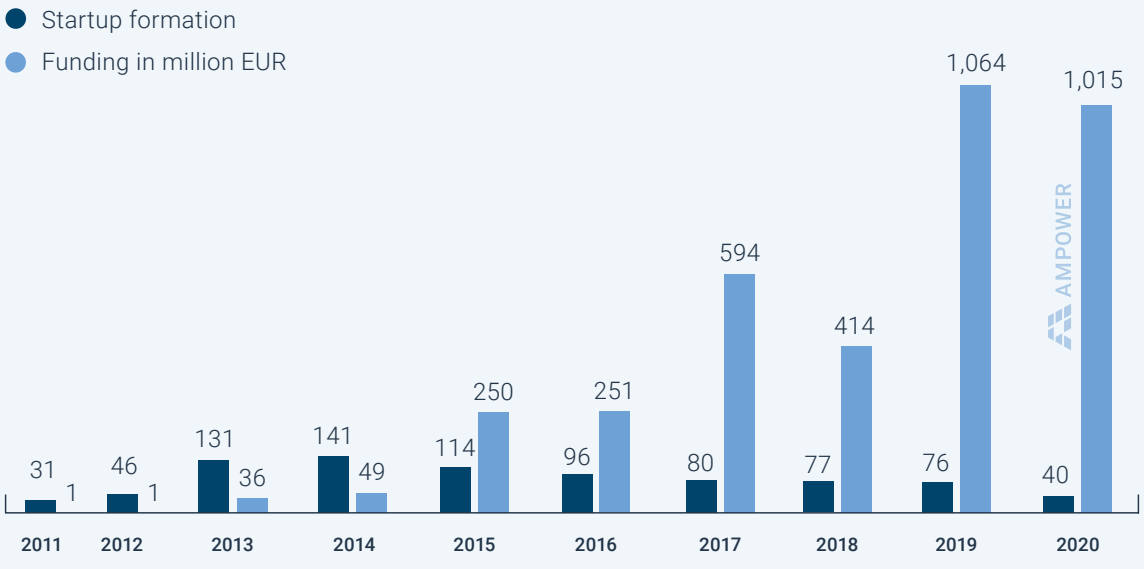
Height of AM startup formation in 2014

The peak of newly formed AM startups was reached in 2014 and has decreased steadily ever since. As many ventures remain in stealth mode for several years and can thus not be reported as founded, this tendency may have to be revised retrospectively.

The number of newly formed startups seem to decline since 2014. However, it should be noted that many startups prefer to operate in “stealth mode” for several years while being backed by nonpublic angel or university driven seed investments. This stealth mode enables the startup to develop prototypes and general proof-of-concepts without negative effects of public exposure at an early stage. Additionally, this timespan often serves for the necessary delay to protect the intellectual property of the innovation through patent registration or other means. As an example, DESKTOP METAL was founded in 2015, but it took two years before the startup emerged from stealth mode. VELO3D was in hiding from 2014 to 2018. In average, startups are running non-publicly for 1-2 years, which leads to a more careful read of the currently public number of startups.

Despite the decreasing number of new companies, the funding value continuously increased. This is manly driven by a small amount of companies, such as DESKTOP METAL, CARBON, HUBS and RELATIVITY SPACE emerging in the last 5 years and fueling extremely large expectations towards revolutionizing manufacturing and consequently demanding large investments.

Annual development of AM startup formation and funding



Financing

Venture capital is the dominant funding mechanism for Additive Manufacturing startups

Startups often receive financing from multiple investment types, starting with public funding or bootstrapping and later moving to venture capital.

The analysis shows, that multiple startups rely on funding mechanism besides VC especially in their early stages. Possible alternatives for financing in AM are a spin-off, crowdfunding, public funding, bootstrapping and corporate backed company formation.

A spin-off is the separation of an organizational unit from an existing corporate structure. A department or an entire business unit thus becomes an independent company. This is a typical approach for large corporations, who want to utilize the flexibility of the startup culture to develop new business models and products outside of the main company structures.

With crowdfunding a large number of parties or individuals have the opportunity to financially support a project and make its realization possible through swarm financing. This funding method is especially popular among user startups who create end products for consumers. The best example are sporting goods. Also, smaller consumer 3D printing systems are often seed financed by crowdfunding projects. In many cases, crowdfunding supporters buy the first products at a reduced rate with their up-front purchases.

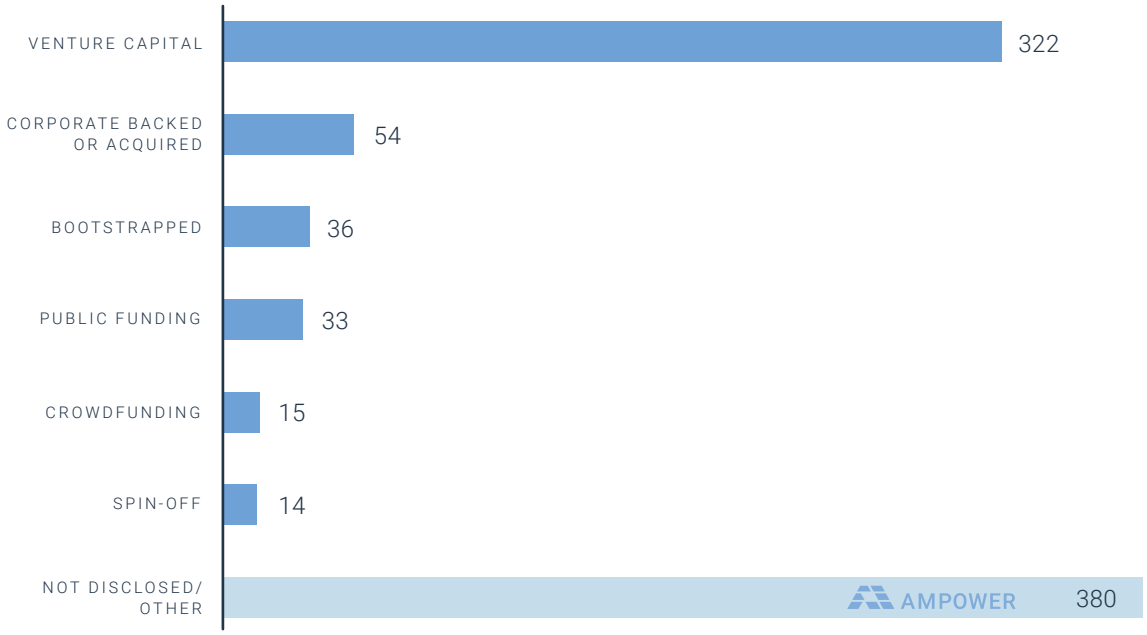
Public funding are grants awarded by the state or a public body to achieve specific political and economic goals. In most cases, this is the first funding for technical startups, who originate from a university or public institution. It can provide the environment to develop a proof-of-concept before pursuing venture capital.

Bootstrap financing means using a founder's own capital or resources to incorporate and operate a venture. This is usually the case for founders with strong family capital or less capital-intensive ventures.

Corporate backed or acquired startups are supported or acquired by a larger company. This approach is similar to spin-offs with the difference of a much closer connection between the corporate and the startup.

The largest group of startups in this analysis falls into the group of undisclosed funding sources. Especially young startups are often supported by angel investors or private equity. These investments are unknown to the public. Even if the total funding sum may be reported, investors may stay anonymous.

Source of financing [Number of AM startups]



TIME PERIOD: 2011 – Q2 2021

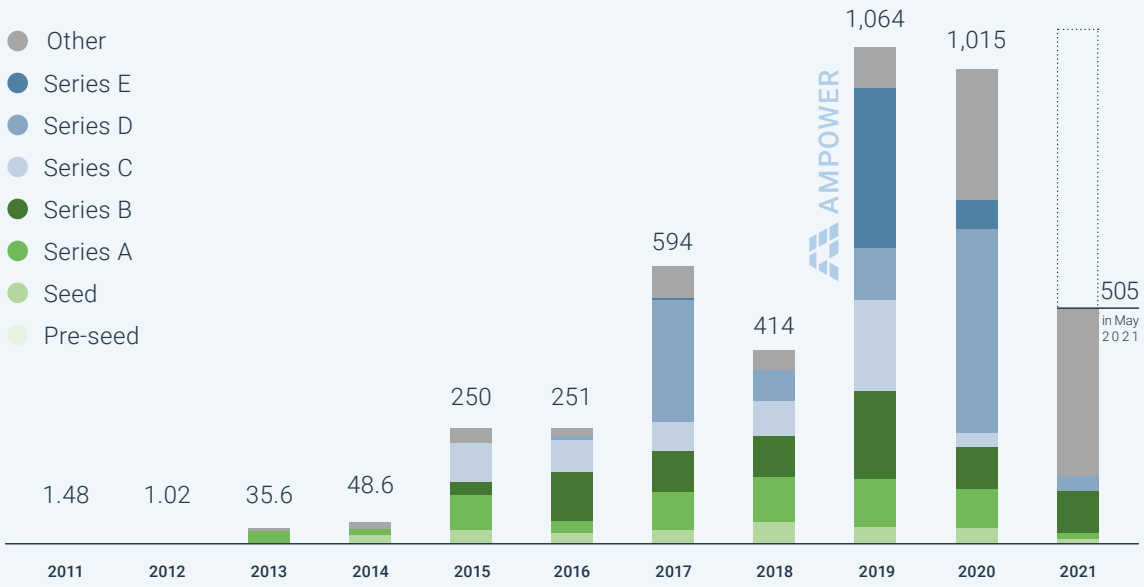
COURTESY OF HEADMADE MATERIALS

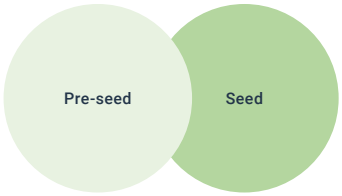
Steady increase of investments in AM startups over the last 10 years

The funding rounds documented in the last decade steadily increased in total volume with the exception of the years 2018 and 2020. Exceptionally high investments in each of the previous year, led to a decline in 2018 and 2020. In 2017 CARBON alone generated a series D investment of EUR 164 million. Similar in 2019, CARBON and DESKTOP METAL together raised over EUR 340 million in series E funding. Nonetheless, the general trend shows and increasing interest in investing into AM technologies and services.

While series A to E funding rounds are usually very well documented due to public announcements, seed and pre-seed funding is not necessarily made public. For CARBON or DESKTOP METAL, for example, the series A was the first documented funding round. The order of funding is also not always the same. Some companies published multiple series A or series B funding rounds while others skip stages in between. The initial pre-seed and seed funding is essentially needed by all startups to enter the market with its first product or service. The sum and funding mechanism can vary highly from bootstrapping to VC funding of multiple millions. Series A and B rounds are often used to fund longer development cycles or establish the startup in the market. Many startups fail in raising a Series A round and run out of funds in this stage. Series C, D and E rounds are only secured by a handful of startups and increase in volume substantially. Typically, Series C rounds are the last financing rounds of startups. In this stage the product and service should be established in the market and starts turning a profit soon. Series D and E funds are raised to finance aggressive growth, development of complex hardware or prepare for an IPO.

Annual funding of AM startups [EUR million]



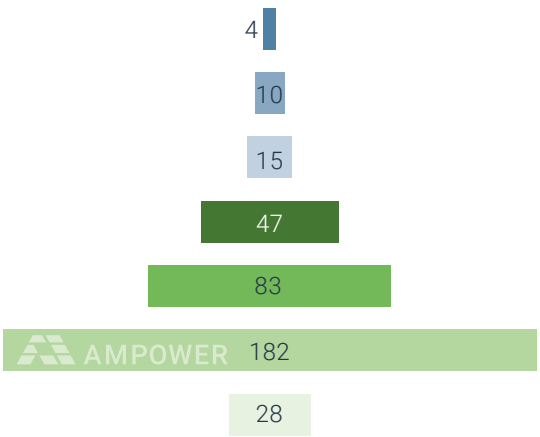


Pre-seed are relatively small (around EUR 0.6 million or less), early (pre-product), and typically followed by a larger seed round within 12 months (EUR 1 to 2.5 million).

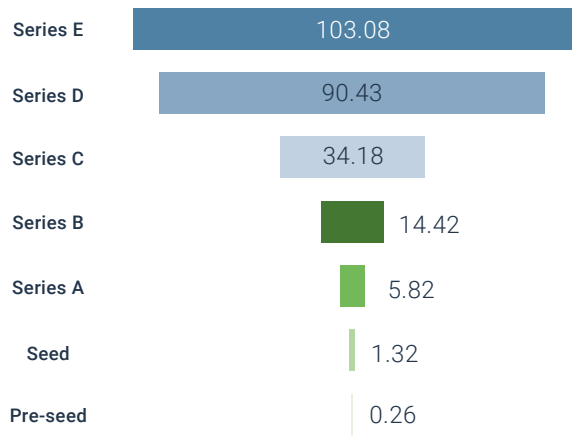
Series A and B rounds typically include exchange of funding for shares. The funded company is most likely in the startup stage during this round, investing is still considered high risk.

Generally, series C and D occur when the company has proved its success within its market, increased its market share, scaled up, or developed new services or products, and wants to make acquisitions of competing companies.

Number of funding rounds



Average value of funding round [EUR million]



TIME PERIOD: 2011 – Q2 2021

Selected AM investors

In the past 10 years over 400 different investment institutions provided more than EUR 3.5 billion of funds for AM startups.

The venture capital structure is highly divers with only few sources focusing completely on Additive Manufacturing. Investment companies such as AM VENTURES or NADDCON offer early seed investments specifically in AM startups and additionally an industry related network and knowhow.

The second group of investors are public institutions such as the HIGH-TECH GRÜNDERFONDS in Germany. They are often involved in seed funding for academia startups. The much larger share of investments, however, comes from institutional VC firms such as STANLEY VENTURES, KHOSLA VENTURES, SOSV or Y COMBINATOR. Besides capital, they also offer a network and environment of other startups which helps companies to grow faster. Their target is to grow companies to high value and ultimately follow an exit strategy.

Corporate venture capital firms such as GE VENTURES or UPS VENTURES mostly pursue a startup investment strategy that fits into the corporate portfolio. Automotive VC investments in AM focused on innovative AM technologies, that enable new automotive applications or improved their cost-efficiency.

In the past years, successful 3D Printing veterans sometimes re-invested their private capital into 3D Printing companies, namely Dr. Hans Langer, Dr. Frank Herzog or Avi Reichental.

The last notable group of investment institutions are banks or financial investment firms who focus completely on return of investment and offer no additional support for startups. In larger and especially late-stage investment rounds they are often involved, but are never active as lead investor.

Y COMBINATOR

Is a US seed money startup accelerator which launched more than 2,000 companies such as STRIPE or AIRBNB. Y COMBINATOR invested in numerous 3D printing startups. The most prominent one is RELATIVITY SPACE where the investment proceeded until series C.

KHOSLA VENTURES

Supports from seed to late series D investments with its most prominent portfolio member VELO3D. With AREVO and DIGITAL ALLOYS two more hardware AM startups are in KHOSLA VENTURES portfolio

HIGH-TECH GRÜNDERFONDS

Is a public institution dedicated to support high-tech startups in Germany. With 6 engagements in Germany, the institution is among the most active investors in 3D Printing in this country. The funding does not only support early seed investments, but also later series A and B stages.

STANLEY VENTURES

TECHSTARS

Are among the most active venture capital sources in the US for early funding rounds. Their largest engagement is currently with EVOLVE, a hardware provider industrializing a new polymer Additive Manufacturing technology.

AM VENTURES

Is one of the few investors completely focused on Additive Manufacturing. Its formation goes back to Hans Langer, one of the early pioneers of Additive Manufacturing and founder of established market leader EOS. Currently, 15 companies are supported by AM VENTURES.

SOSV

Is among one of the largest global investment firms with multiple activities in Additive Manufacturing. The most prominent investment in 3D Printing was made in FORMLABS.

Startups along the value chain

Supplier startups focus on hardware and services

Hardware startups lead in numbers and also receive in comparison high investments. Long development periods and need for equipment require significant funding to enable succesful operation.

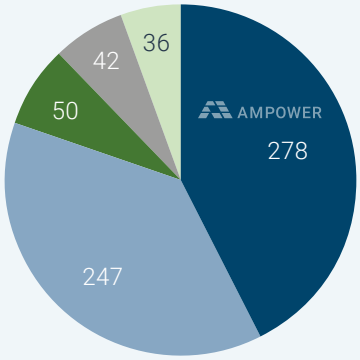
Startups within the Additive Manufacturing supply chain are segmented into the groups of hardware, service, software, material and platforms. These startups are either developing along a technology breakthrough that enables higher productivity or new material systems. Examples are CARBON or DESKTOP METAL. Or they address a specific pain point, where the innovation can greatly increase the customer satisfaction, such as HUBS by enabling faster online purchases.

While hardware and service startups are nearly equal in numbers, the average funding of service startups is significantly less. This can be explained by the far less bound capital of service startups along a much shorter time to market.

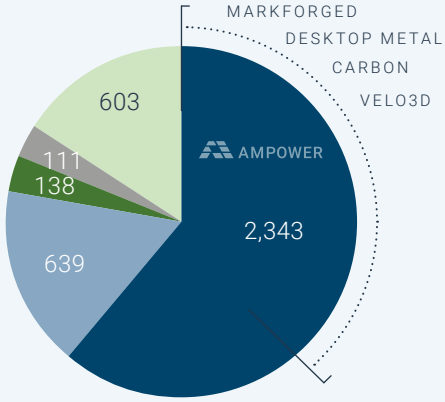
Development phases of service startups are often shorter as they rely on available technology. Moreover, revenue can be quickly generated, usually within the first years of business. Hardware startups need several years until first systems are ready to be sold to the market, which generates long term and high developments cost.

The high average funding of AM platforms is driven by the significant funding HUBS and XOMETRY were able to secure. These two startup are responsible for almost 70% of the funding in this segment. The investors have high expectations in platform business models as they tend to have very high return on investment and low operation cost over time.

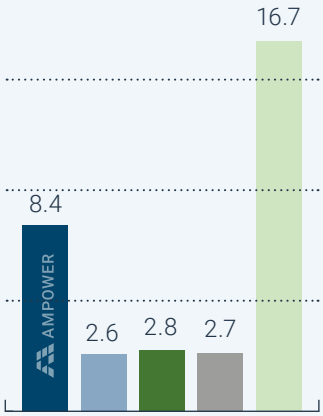
Number of startups



Funding in million EUR



Average funding million EUR



Hardware Service Software Material Platform

TIME PERIOD: 2011 – MAY 2021

Major AM startups in the supply chain:

DESKTOP METAL
Founded: 2015 **Country:** USA
Type: Hardware **Funding sum:** EUR 584 million

Description: DESKTOP METAL is a supplier for Binder Jetting and Metal FDM systems

CARBON
Founded: 2013 **Country:** USA
Type: Hardware **Funding sum:** EUR 560 million

Description: CARBON offers resin based Additive Manufacturing systems with DLP technology

HUBS
Founded: 2013 **Country:** Netherlands
Type: Platform **Funding sum:** EUR 249 million

Description: HUBS is an online platform for custom part manufacturing, including CNC machining, 3D printing, injection molding and sheet metal fabrication

MARKFORGED
Founded: 2013 **Country:** USA
Type: Hardware **Funding sum:** EUR 172 million

Description: MARKFORGED is developing Additive Manufacturing systems based on the FDM technology with a focus on filled filaments

XOMETRY
Founded: 2013 **Country:** Netherlands
Type: Platform **Funding sum:** EUR 162 million

Description: XOMETRY is an online marketplace for on-demand manufacturing, offering conventional as well as Additive Manufacturing technologies

VELO3D
Founded: 2014 **Country:** USA
Type: Hardware **Funding sum:** EUR 127 million

Description: VELO3D offers Laser Powder Bed Fusion systems with focus on a technology approach that allows printing with less supports

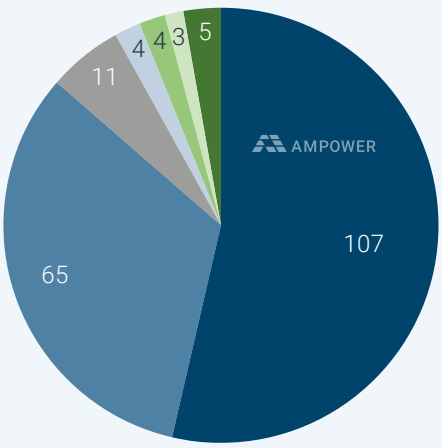
AM user startups for consumer goods, medical and space applications receive majority of funding

Additive Manufacturing allows new product design and services which are utilised by startups to provide innovative solutions. These AM user startups can be found in all industries providing industrial solutions and consumer products from metal and polymers.

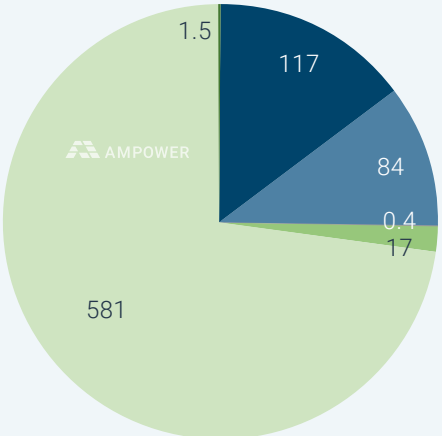
The adoption of Additive Manufacturing proves to be challenging for many established user. The simultaneous change of production technology, material properties and part design creates complexity, requires high investments and commercial incentives for a successful introduction. This offers startups the opportunity to provide innovative products and services that disrupt their respective industries by leaving the well-trodden paths. To be considered an AM user startup in this study, the product or service provided must be utilized by 3D printing technologies or the end product has to include a significant percentage of additively manufactured parts.

Consumer goods, medical and space startups dominate those new user markets in terms of funding. In total, almost 200 startups developed new products around prosthesis, sports equipment or spacecrafts, that wouldn't have been possible without Additive Manufacturing. Leveraging a variety of AM technologies from Powder Bed Fusion, Wire Arc Energy Deposition, or Vat Polymerization technologies, the products and services of those companies are superior to their conventional counterparts through their radically optimized designs and properties. These startups were able to generate funding of nearly EUR 800 million in the past decade.

Number of startups



Funding in million EUR



Consumer goods Medical Industrial Energy Dental Space Other

Notable AM user startups

RELATIVITY SPACE
Founded: 2016 **Country:** USA
Type: Space **Funding sum:** EUR 562 million

Description: RELATIVITY SPACE is building rockets for space exploration using AM technology for major components like tanks and thrusters

MIGHTY BUILDINGS
Founded: 2017 **Country:** USA
Type: Consumer goods **Funding sum:** EUR 62.2 million

Description: MIGHTY BUILDINGS is a construction technology company creating homes using 3D-printing, robotics, and automation

UNYQ
Founded: 2014 **Country:** USA
Type: Medical **Funding sum:** EUR 19.3 million

Description: UNYQ produces individual products for prosthetics using mainly a variety of polymer 3D printing technologies

SWISSTO12
Founded: 2011 **Country:** Switzerland
Type: Space **Funding sum:** EUR 16.5 million

Description: SWISSTO12 supplies printed radio frequency antenna, waveguide, filter and integrated subsystems for space and telecommunications applications

URBAN ALPS
Founded: 2014 **Country:** Switzerland
Type: Consumer goods **Funding sum:** EUR 7.6 million

Description: URBAN ALPS prints mechanical keys including a security code on the inside of the key which is invisible to cameras or scanners

OPEN BIONICS
Founded: 2014 **Country:** United Kingdom
Type: Medical **Funding sum:** EUR 7.3 million

Description: OPEN BIONICS is a prosthetics company developing assistive devices that enhance the human body using 3D printing technology

Outlook

How do you see the 3D Printing startup landscape develop in the next decade?

"If we look on the last few decades, the 3D printing market has been shaped by leaders that emerged in the 80's or 90's and entrenched their leadership in the decades since. The decade between 2010-2020 saw a big disruption in this picture, as startup such as Carbon, Formlabs, Velo3D and Desktop Metal emerged and are reshaping the future of 3D printing. The opportunity for disruption and the large market opportunity are attracting also large industrials into the 3D printing world and the last decades saw HP and GE moving into the market. HP has introduced a massively innovative technology in the form of MJF, while GE consolidated existing technology players.
I believe the three driving forces for startups in the market are still in play in the decade of 2020-2030: Large market opportunity, opportunity for disruption by innovation, absence of giant dominant players stifling competition. In fact, one could argue, these forces are even stronger in this decade that in the previous one, and the commercial success of the new entrants in the last decades is likely to pull in a lot of startup activity in the coming decade. Another important advantage that these new startups will have is the creation of an environment of multiple public companies with an ability and appetite for acquisitions of new players in the space. This will overcome one of the challenges the 3D printing industry has in the past: limited exit options. Those options will become almost 10x more diverse in 2025 than they were in 2015."

BENNY BULLER

CEO and Founder of VELO3D

"If the momentum and innovative strength in the field of Additive Manufacturing methods continues despite the pandemic and short-term cooling of the market, 3D printing will be an integral part of industrial production in ten years' time. However, there is a long ahead. The technology is still at the beginning of its possibilities, and much remains undiscovered. This makes it all the more important now that we build on the high level of innovation and patents, and find and fund the most promising ideas and teams. Because based on the pioneering work done over decades, especially in the area of metal 3D printing, the local startup landscape has an excellent starting position."

FRANK HERZOG

CEO of HZG GROUP and NADDCON

"Startups will continue to play a vital role in the development of the Additive Manufacturing industry as they are the fast movers in this game. Young companies can quickly adopt technologies and develop AM-based businesses from scratch instead of having to transform a large organization. A big advantage in today's fast world. Hence, we at AM Ventures are convinced that we will see some very big companies emerge from today's startup scene with a continuing trend of global M&A activity throughout the coming quarters."

ARNO G. HELD

Managing Partner AM Ventures Management GmbH

"We saw many startups emerge recently in the Additive Manufacturing field, that failed because they did not have a significant USP on the market. For the coming years, we expect that those startups, that solve specific customer problems, will be successful and make it to significant market growth."

DR. PETER GUGGENBACH

Chief Growth Officer at SWISSTO12

"The 3D printing startup market is healthy as ever, and certainly benefiting from improving technologies and economies of scale as well as renewed interest in the 3DP/AM industry driven at least in part by shifting perceptions due to to COVID-19 pandemic. We see increased investment, valuation, and M&A nearly across the board. Asimov's relative focus on medical and dental applications has proven to be a good strategy. Other areas where we see notable activity recently are in space, aerospace, software and electronics."

TYLER BENSTER

General Partner at ASIMOV VENTURES

"Having been one of the pioneers in the AM software startup landscape, we see that this is a fast-growing segment. Many companies from the "old industry" now realize that they can only leverage the full potential of 3D printing by working with trusted Startups."

STEPHAN KÜHR

CEO and Co-Founder of 3YOURMIND

About the authors

Dr.-Ing. Maximilian Munsch

Maximilian is a professional user of Additive Manufacturing since 2007. In his first affiliations he acquired extensive knowledge in Laser and Electron Beam Powder Bed Fusion for medical applications. He was responsible for the installation and qualification of AM production lines, today turning out over EUR 10 million in revenues, and supported multiple implant manufacturers, among others, setting up a qualified LB and EB-PBF production for regulated applications.

Matthias Schmidt-Lehr

Matthias successfully led multiple projects in Additive Manufacturing with focus on business case and strategic development for AM users as well as system and material supplier. With a history in management consulting he has a wide experience in business development, strategy development and communication. At AMPOWER he led multiple projects concerning DED, BJT and Metal FDM as well as a wide range of polymer AM technologies.

Dr.-Ing. Eric Wycisk

Since 2008 Eric successfully supports OEMs from aerospace, medical and automotive to identify Additive Manufacturing applications and implement production capacities in their regulated environments. With a background in topology optimization, titanium alloys and fatigue he is focused on achieving the maximum part performance with the right AM technology.

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Find market numbers and technology insights in the new AMPOWER Report

The AMPOWER Report provides the most detailed and comprehensive analysis of the state of the AM industry and its projected growth. Additionally, the report provides a deep dive into each metal and polymer Additive Manufacturing technology. The AMPOWER Report captures the current state of the metal AM industry and additionally provides a 5-year outlook based on expectations of suppliers as well as users in this highly dynamic market environment.

Read the full report today:

www.additive-manufacturing-report.com

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AMPOWER

AMPOWER GmbH & Co. KG
ZAL TechCenter
Hein-Saß-Weg 22
21129 Hamburg
Germany

+49 (0) 40 99999 578
info@ampower.eu

www.ampower.eu