African European Maker Innovation Ecosystem

Funding Mechanisms for Makerspaces and Open Source Projects For Africa and Europe

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GreenTec Capital Africa Foundation

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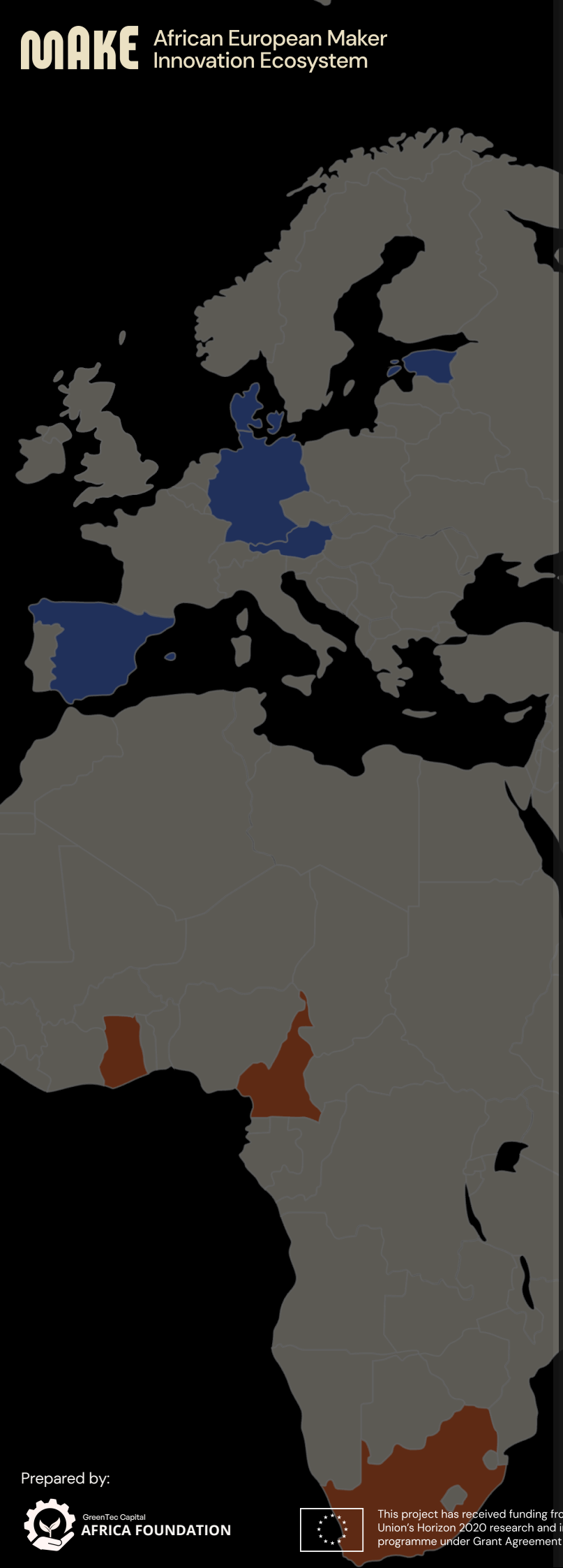
MAKE African European Maker Innovation Ecosystem



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MAKE African European Maker Innovation Ecosystem

In the rapidly evolving landscape of makerspaces and open-source innovation, **securing the right funding and support is crucial for growth, sustainability, and impact.**

Makers and makerspaces often operate with limited cash resources, relying on open-access principles that prioritize shared hardware, software, and knowledge. This openness brings immense value but also presents unique financial and operational challenges, as traditional funding models can fall short of supporting the collaborative, resource-intensive nature of these spaces.

Recognizing these distinct needs, this guide has been crafted with makers, by makers, and with the support of their facilitators and a team of experienced venture builders. The objective is to enrich the understanding and appreciation of funding strategies that extend beyond conventional avenues, inviting makerspaces to consider new approaches to customer engagement, market access, distribution, partnerships, and adjacent opportunities.

The insights shared here are designed to inspire makers to explore alternative funding mechanisms and leverage untapped resources that align with their mission of innovation and collaboration. From grants and corporate partnerships to innovative revenue streams and community-backed projects, this guide opens up a world of possibilities tailored to the specific demands of the maker community. With practical, relatable examples and actionable advice, we aim to empower makerspaces to strengthen their financial strategies, build resilient infrastructures, and ultimately expand their reach and influence in their communities and industries. This guide is a call to embrace creative, sustainable funding approaches that are as innovative as the projects that come to life within makerspaces.

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Makerspaces and Funding Mechanisms in the Ecosystem of Open Hardware and Open Innovation

Makerspaces are collaborative environments where individuals can access tools, technology, and community support to turn creative ideas into practical projects. By pooling resources and expertise, these spaces lower the barriers to entry for entrepreneurs, hobbyists, and students who might otherwise lack the means to bring their concepts to life. Makerspaces often function as business incubators, providing hands-on support to members as they transform ideas into tangible products or prototypes. This role, however, requires substantial financial backing to cover infrastructure, events, and training initiatives to nurture participants' skills and support the ecosystem's growth.

Alternative Funding Mechanisms for Makerspaces in Europe and Africa

Grants from Governments and International Organizations:

European Union (EU) Grants:
Makerspaces in Europe benefit from programs like Horizon Europe and NextGenerationEU, which fund research and community-driven projects that align with EU priorities. These grants support infrastructure, innovation, and sustainability initiatives.
The Horizon Europe program offers financial support for research and innovation projects, and makerspaces involved in these projects can apply.
Many local governments also provide innovation grants for tech hubs and community projects. The European Commission offers various funding opportunities financed by the 2021-2027 Multiannual Financial Framework and NextGenerationEU, supporting projects that align with EU policies.

African Grants from NGOs:
nternational bodies like the UNDP and African Development Bank offer grants tailored for innovation, education, and social development, especially for makerspaces focused on community impact in Africa. These grants often emphasise sustainable development and community projects, making makerspaces a strong fit.
The United Nations Development Programme (UNDP) frequently funds projects that align with their sustainable development goals. Foundations and organizations like The Travis Foundation also support open-source projects, while the Prototype Fund in Germany backs public interest tech, including open-source initiatives.

Corporate Sponsorships and Partnerships:

Corporate Sponsorship and Partnership In EU:
Corporations in tech and manufacturing often support makerspaces through sponsorship, providing expertise and equipment in exchange for community engagement, visibility, and potential innovations.
This model benefits both parties, as companies may collaborate with makerspaces by offering advanced machinery, tools, and running joint workshops or innovation challenges. Some corporations also sponsor open-source projects that align with their products, ensuring sustainability and sometimes gaining early access to features or influence on the project's roadmap.

Corporate Sponsorship and Partnership In Africa:
Local businesses can also support makerspaces, gaining access to skilled talents and innovative solutions while aligning with Corporate Social Responsibility (CSR) goals. Partnerships with local businesses or multinationals in Africa, as seen with Kenya's Gearbox, allow makerspaces to showcase innovations, fostering relationships with potential investors. In some cases, African governments recognize the potential of makerspaces and offer financial support either directly or through innovation hubs, as seen with the South African government's support for innovation hubs and incubators that benefit makerspaces.

Membership Fees and Workshop Revenues:

Membership Fees and Workshop Revenues in EU:
Many makerspaces operate on membership models, offering tiered access to tools and resources. Membership fees support daily operations and help retain members through community-driven innovation. Makerspaces often sustain their daily operations through membership fees. These fees can vary based on the services offered, from basic access to specialized equipment or mentorship sessions.

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A makerspace might offer tiered memberships, with different levels of access and benefits based on the fee structure.
Makerspaces can also offer specialized courses, ranging from beginner workshops to advanced certification courses, leveraging the unique equipment and expertise available. A makerspace might also partner with industry experts to offer a comprehensive course on IoT (Internet of Things) technologies.

Membership Fees and Workshop Revenues in Africa:
Workshops and training sessions, such as those offered by Kumasi Hive in Ghana, provide revenue while promoting maker culture, drawing participants from various industries to specialised courses on topics like drone technology and digital fabrication.
Charging a monthly or annual fee for access to the makerspace, its tools, and resources can be a steady source of income. For Instance, The MakerSpace Foundation in South Africa offers different membership tiers with varying benefits.

Crowdfunding:

Crowdfunding in EU (European Union):
Platforms like Kickstarter and Indiegogo allow makerspaces to gain public support for specific projects. They allow makerspaces to present their projects to the public, garnering financial support from those who see value in the initiative. A makerspace aiming to create a new community program might launch a campaign on platforms like Kickstarter or Indiegogo. These platforms provide an opportunity for makerspaces to raise funds by presenting their vision to the public, allowing them to gauge interest and receive community backing.

Crowdfunding in Africa:
African platforms like Thundafund cater to regional needs, helping raise awareness and funding for local initiatives. Thundafund is an African crowdfunding platform where makerspaces can present their projects. Crowdfunding platforms also enable creators to raise small amounts of money from a large number of people. Open-source developers can present their projects and ask the community for financial support. Platforms like Kickstarter or Indiegogo can be used to fund specific features or versions of an open-source project.

Product Sales and Equipment Rentals:

Sales of products and equipment rentals in the EU:
Makerspaces can commercialize successful prototypes or open-source products developed within their communities, creating revenue streams that support further development. Products or prototypes developed within makerspaces can be commercialized, either by the makerspace itself or in partnership with members. A makerspace might develop a unique eco-friendly product, selling it online and through local stores.

Renting out facilities or specialized tools, such as 3D printers or CNC machines, fosters ties with local artisans, startups, and businesses. Renting out facilities or specific tools can be a revenue source and can also foster connections with local artisans and businesses. A makerspace might offer daily rentals of its 3D printers to local designers or startups.

Sales of products and Services in the Africa:
Makerspaces can also commercialize some of the innovations developed within their walls, either by selling products or offering services like 3D printing to the public. Fablab Rwanda offers digital fabrication services for a fee.

Collaborative Projects and Local Community Support:

Projects in Collaboration and Community Support in EU:
Collaborations with educational institutions or research organisations can bring both funding and technical resources, as seen in examples of makerspaces partnering with universities for joint research projects. Collaborations can involve joint research, product development, or community initiatives, bringing in both funding and expertise. A makerspace might collaborate with a local university or research institution on a specific project, receiving funding and resources in return.

Projects in Collaboration and Community Support in Africa:
Local community engagement, including events like tech fairs or fundraisers, helps strengthen support and generate resources, especially in regions where traditional funding is scarce. Makerspaces often serve as community hubs, and engaging with the local community can lead to various forms of support, from material donations to volunteer time. A community initiative might organize a local tech fair or fundraiser to support a makerspace's new program or project. Makerspaces can also partner with schools and universities, offering students practical experience while receiving financial or material support. For example, Woelab in Togo has collaborated with local schools to promote the maker culture among students.

Donations and Philanthropy:

Donations Support in EU:
Individuals or organizations might provide donations, either monetary or in-kind, seeing value in the community-centric, innovative nature of makerspaces. Donations can be in the form of equipment, funds, or other resources that support the growth and sustainability of the makerspace. An entrepreneur might donate equipment or funds to a makerspace that aligns with their values or interests, helping to expand the makerspace's capabilities and reach.

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Donations and Philanthropy in Africa:
Some philanthropists and organisations are keen on supporting innovative and community-driven projects in Africa. These donors see the potential of makerspaces to foster innovation, education, and economic growth. For example, The African Development Bank has initiatives that support innovation and entrepreneurship in Africa, offering both financial support and resources to help local makerspaces and entrepreneurs thrive.

Competitions and Challenges:

Many organisations and institutions sponsor innovation challenges with monetary rewards. Makerspaces can encourage their members to participate, offering them the chance to showcase their skills and innovative ideas on a larger stage.

Funding innovation challenges in Africa:
Competitions like the Hult Prize, which often focuses on African issues, offer substantial rewards and address topics that resonate with the community. These challenges not only provide financial benefits but also enhance the reputation of the makerspaces involved, attracting new members, partnerships, and resources. Additionally, they create a collaborative atmosphere, where participants work together to develop impactful solutions to real-world problems.

Collaboration with Educational Institutions:

Makerspaces can partner with schools and universities, offering students practical experience while receiving financial or material support. These partnerships introduce students to hands-on skills and creative problem-solving, enhancing their academic experience with real-world applications.

Collaborations with African Institutions:
For example, Woelab in Togo has collaborated with local schools to promote the maker culture among students, sparking interest in technology and innovation at a young age. Such collaborations not only provide essential resources and visibility for makerspaces but also build a pipeline of future innovators and skilled workers. By fostering a culture of shared knowledge and resources, these partnerships strengthen community ties, encourage mentorship, and create mutually beneficial learning environments.

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Networking: Investor Opportunities for Makerspaces

To drive innovation and expand their impact, makerspaces can benefit significantly from engaging with well-established investor networks. Below is an overview of key networks offering potential partnerships and funding opportunities for makerspaces in Europe and Africa:

Seedstars Africa Ventures:

A venture fund supporting early-stage businesses across Africa, Seedstars Africa Ventures focuses on sectors like energy, fintech, and education. It offers both funding and operational support, prioritizing local innovations and scalable solutions.

European Innovation Council (EIC) Fund:

Part of the Horizon Europe program, this EU-backed fund provides support to start-ups and SMEs working on cutting-edge technology and innovation. It collaborates with private investors through co-investment initiatives, driving the commercialization of groundbreaking ideas.

Boost Africa Initiative:

This collaborative initiative between the African Development Bank and the European Investment Bank funds high-potential start-ups and small businesses in Africa. With an emphasis on social and environmental impact, Boost Africa channels investments into ventures with transformative potential.

Trusted Investors Network (Europe):

Dedicated to early-stage tech innovation, this network co-invests in start-ups and SMEs across Europe. By bridging funding gaps through public-private partnerships, it fosters growth in promising ventures while mitigating risks.

African Angel Investor Networks (AAIN):

AAIN supports early-stage ventures in Africa by connecting them with angel investors. This network emphasizes mentorship and funding in technology and impact-driven sectors, fostering entrepreneurial growth across the continent.

Impact Hub Network:

With locations worldwide, including Europe and Africa, Impact Hub connects entrepreneurs, funders, and innovators. It offers collaborative spaces, networking opportunities, and funding avenues tailored to social impact projects, making it a valuable resource for makerspaces.

Strategies for Makerspaces to Leverage Networking

To capitalize on these networks and enhance their funding potential, we find the following strategies and activities beneficial and strongly recommend that makerspaces adopt them as much as it suits their specific needs:

Participate in Ecosystem Events

Engage actively in conferences, webinars, and matchmaking events hosted by networks such as Seedstars, EIC, or local Impact Hub chapters. These gatherings provide valuable opportunities to connect with investors and collaborators.

Develop Investment Readiness

Craft compelling investment pitches and measurable impact statements. Clear communication of value propositions and success metrics increases the likelihood of securing funding.

Engage in Collaborative Platforms

Leverage online platforms and directories to identify relevant investors and partners. Building a strong digital presence can help makerspaces attract stakeholders globally.

Explore Innovative Funding Models

Consider hybrid funding mechanisms combining grants, equity, and debt. This approach diversifies funding sources, reduces risks for investors, and provides a stable financial base for makerspaces.

Networking is a critical pillar for the growth and sustainability of makerspaces, not merely a support mechanism. By fostering connections with diverse stakeholders, makerspaces can unlock funding, drive innovation, and amplify their impact. Proactively engaging with investor networks, exploring hybrid funding models, and participating in collaborative ecosystems are essential steps toward a sustainable and scalable future for the makerspace community in Europe and Africa.

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Maker Perspectives: Evidence-based

Urs Gaudenz
GaudiLabs LLC

Gaudi Labs operates as a family-run venture with a strong emphasis on open knowledge and collaborative innovation. Their business model includes:

Product Innovation:
They develop and sell open-source scientific instruments, such as the OpenTheremin, a music instrument, and other biotech tools like the PocketPCR, a low-cost USB-powered PCR thermocycler.

Consulting Services:
Gaudi Labs offers consulting services, leveraging their expertise in micro-engineering and open-source hardware to assist clients in developing customized solutions.

Community and Collaboration:
They maintain a strong focus on building and nurturing a community of users and collaborators, engaging in open innovation and knowledge sharing to drive the development and dissemination of their projects.

Educational Initiatives:
Gaudi Labs provides educational resources and workshops, aiming to democratize access to scientific tools and promote hands-on learning experiences.

Role as a Makerspace:
Engages in the makerspace community through micro-residencies, allowing for cross-collaboration and skill-sharing within their ecosystem.

Potential Exit Strategies:
Prefers independence and has no plans for investor-driven exits.

Business Model & Unique Proposition
Operates with a balance of product innovation and open sharing, particularly in science and music equipment. Open hardware for specific scientific purposes (like PCR spectrometers and diagnostic devices) allows them to tap into the biotech and education sectors. They emphasize community-driven design improvements, selling through online platforms and engaging with academic networks.

Revenue Streams
Diverse revenue streams include online product sales (e.g., Open Theremin music kits), consulting, and collaborations for specific scientific and biotech equipment. Revenue largely stems from international customers in regions such as the U.S., Asia, and the Global South.

Customer Relationships and Market Approach
Connects with customers through online sales channels (Etsy, eBay), social media, and academic publishing. They aim to support research-driven and lower-resource markets, especially in biotech, education, and low-cost diagnostic tools, with a specific focus on the U.S. and Asia.

Financing Strategies
Self-financed (bootstrapped) and avoids traditional investors due to limited interest from venture capital in open hardware and software models. They favor organic growth and community support rather than external funding.

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Maker Perspectives: Evidence-based

Roldan Descamps
Mekanika

Mekanika focuses on developing open-source machines for CNC milling and screen printing. Their business model encompasses:

Product Development and Sales:
They design and sell machine kits that are user-friendly, high-performing, and modular, allowing users to customize or upgrade tools according to their needs. These kits are primarily sold through their online platform.

Open-Source Philosophy:
Mekanika provides open-source plans for their machines, enabling users to build or modify the equipment independently. This approach fosters a community-driven environment where users can contribute to and benefit from shared knowledge.

Educational Resources:
They offer free educational content, including video tutorials and technical guides, to assist users in effectively utilizing their tools and enhancing their creative processes.

Community Engagement:
Mekanika actively engages with its user community, encouraging feedback and collaboration to drive continuous improvement and innovation in their product offerings.

Business Model & Unique Proposition
Focuses on a machine library designed with 80% standard industrial components, which raises the entry barrier but ensures longevity and quality, offering a warranty double that of competitors. Their business model includes servicing and community-based support, with unique additions (add-ons and new versions) designed to retain and upsell customers.

Revenue Streams
Primarily generates revenue through machine kits, servicing, and community-focused offerings. Additional revenue stems from upselling add-ons and newer versions.

Customer Relationships and Market Approach
Employs inbound marketing and has implemented a CRM system, which allows segmentation and data mining, helping them target schools, individuals, small businesses, and engineering teams. Mekanika's customer strategy fosters a collaborative approach, encouraging users to create add-ons and feed them back to the community.

Financing Strategies
Utilizes a mix of debt, convertible loans, and equity financing. They've raised around $1.2 million, largely from private equity and family offices, achieving profitability by their fifth year.

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Challenges and Insights on Open Hardware Funding Mechanisms

Interviews with open hardware and innovation professionals at Mekanika and Gaudi Labs highlight unique challenges and strategies for funding open-source and open-hardware initiatives:

Self-Funding and Community-Driven Models:

Gaudi Labs, for instance, avoids traditional investors due to a lack of interest in open hardware from mainstream investors, relying instead on bootstrapping and community support. This self-funded approach aligns with their commitment to innovation without external pressures.

Mekanika, on the other hand, successfully leveraged equity funding and convertible loans, raising $1.2 million to fuel growth. Their approach illustrates how open-source businesses can attract impact-focused investors by proving market viability and aligning with community and sustainability goals.

Product Sales and Consultancy as Revenue Streams:

Both companies emphasize diverse revenue channels, from online product sales to consulting and offering open hardware tools for sectors like biotech and education. For example, Gaudi Labs provides open-source biotech tools and diagnostic devices tailored for education and resource-limited areas, addressing specific community needs while generating revenue.

Membership, Customization, and Community Involvement:

A strong community ecosystem is essential, with both companies encouraging users to co-create and offer add-ons. Mekanika's model, where customers build upon basic CNC kits to create specialized tools, fosters loyalty and continued engagement.

This dynamic approach allows makerspaces and open-source initiatives to benefit from community-driven innovation, reducing R&D costs and enhancing customer satisfaction.

Crowdsourcing and ICO Models for Future Expansion:

Mekanika is considering an Initial Coin Offering (ICO) or token-based crowdfunding to further expand their funding base, reflecting how open hardware companies explore alternative finance models in the digital age.

"Open hardware flourishes through **inventive funding** and **community power**, proving that impactful **innovation can thrive beyond traditional investors.**"

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Expanding Private Investment Opportunities

Makerspaces and open hardware platforms represent unique ecosystems that foster innovation, collaboration, and creativity. However, their funding mechanisms often rely on public grants, crowdfunding, membership fees, and workshop revenues, as detailed earlier. To ensure their sustainability and scalability, it is crucial to explore the untapped potential of private investment opportunities while addressing the challenges associated with this funding avenue.

Awareness-Raising for Private Investors

One key challenge in attracting private funding is the lack of awareness about makerspaces among private investors. During investor trips, it became evident that many investors are unfamiliar with the concept of makerspaces, their contributions to innovation, and their potential as fertile grounds for emerging startups. To bridge this gap, there is a pressing need for awareness-raising efforts, such as:

- Showcasing Success Stories: Highlighting companies and products that have emerged from makerspaces to demonstrate their viability and profitability.
- Engaging Industry Leaders: Inviting influential industry leaders to experience the makerspace environment firsthand, fostering partnerships and sponsorships.
- Targeted Investor Outreach: Organizing dedicated sessions during investor trips to educate them about makerspaces and their role in nurturing early-stage innovation.

Private Investors' Focus: Companies Deriving from Makerspaces

Private investors are primarily driven by the potential for financial returns. While makerspaces provide invaluable infrastructure and community support, investors are more interested in the companies and innovations that emerge from these ecosystems. For this reason, it may be more effective to focus on connecting investors directly with the startups and ventures originating from makerspaces rather than the makerspaces themselves.

Opportunities to engage private investors could include:

- Pitch Events and Demo Days: Tailored events where companies showcase their innovations to potential investors. These events should highlight the business potential of the ventures while providing clear value propositions.
- Collaboration Models: Facilitating partnerships between private investors and makerspaces to co-create innovation programs or accelerator initiatives.
- Success Metrics: Establishing measurable outcomes from makerspaces that resonate with private investors, such as the number of startups launched, patents filed, or products commercialized.

Challenges and Considerations:

While pitch events and investor collaborations are promising, they are not without challenges:

- One-Size-Fits-All Concerns: Pitch events may disadvantage companies that operate within the open-sharing ethos of makerspaces. Such ventures may struggle to compete with better-funded entities from venture studios or large-scale innovation hubs. This could stifle creativity and limit participation from companies that prioritize community-driven innovation over rapid scalability.
- Scalability Readiness: A critical question is whether founders emerging from makerspaces are prepared and willing to scale their businesses. Observations from previous references suggest that some founders are not yet ready for this leap, either due to resource constraints or philosophical alignment with the open-sharing model. Addressing this readiness gap will be vital to ensuring successful investor engagement.
- Risk of Exploitation: Open hardware companies may face competitive disadvantages if their ideas are co-opted by larger players with greater funding. This underscores the need for makerspaces to consider protective mechanisms, such as intellectual property strategies or tailored funding models, to safeguard creativity.

Collaborations with African Institutions

For example, Woelab in Togo has collaborated with local schools to promote the maker culture among students, sparking interest in technology and innovation at a young age. Such collaborations not only provide essential resources and visibility for makerspaces but also build a pipeline of future innovators and skilled workers. By fostering a culture of shared knowledge and resources, these partnerships strengthen community ties, encourage mentorship, and create mutually beneficial learning environments.

In order to get the most from them, private funding models must be designed to balance investors' profit motives with the makerspaces' mission of fostering community-driven innovation.

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Conclusion and Future Prospects for Open Innovation in Makerspaces

The path forward for makerspaces, particularly those focused on open hardware and innovation, lies in a balanced funding strategy that includes traditional mechanisms like grants and corporate partnerships while embracing community-driven funding models. The interviews underscore that open-source and open-hardware ventures, though often challenging to fund through conventional channels, thrive by prioritizing community collaboration, adaptable revenue models, and building partnerships with like-minded organizations.

By fostering an environment where users actively contribute to product development, makerspaces can cultivate sustainable ecosystems that support not only their operations but also the broader goals of innovation, education, and economic empowerment. This collaborative approach is crucial for makerspaces across Europe and Africa, as they continue to redefine traditional funding models in favor of more inclusive, community-focused mechanisms.

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