SYN BEE

D2.4 A database of non-dilutive funding sources

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

Grant Agreement: 101100509

DOC. REFERENCE	D2.4 A database of non-dilutive funding sources
RESPONSIBLE	Da Vinci Labs
AUTHOR(S)	Alexandra Chukas (Da Vinci Labs)
DATE	10/01/2024
STATUS	Final Version
DISSEMINATION LEVEL	CONFIDENTIAL

The following table describes the main changes done in the document since it was created.

Revision	Date	Description	Author (Organisation)
1.0	January 2024	Creation	Alexandra Chukas (DVL)

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.

Executive Summary

The permanent high need and scarcity of financial resources for the young high tech companies have been largely recognized in the economic literature. While several models of entrepreneurial financing are available to startups: Venture Capital (VC), together with business angels, occupies a position of the primary source of early-stage funding, jointly constituting up to 90% of the available capital.

Non-dilutive funding (notably grants and subsidies) represents one of the important factors, helping to attract VC on both micro- and macro-economic scales. Therefore, the SYNBEE partners considered that to facilitate the community fundraising overall, we should start by facilitating access to non-dilutive funding as one of the key future enablers.

To constitute this database, we have screened (and continue to screen on regular basis) a plethora of funding agencies' webpages, work programmes, news across European countries, but also globally, because some calls are available to entities situated anywhere.

We have constituted a back office database with over 600 calls for proposals, observed in the space. And we have put together an online-available database with currently open calls for proposal.

We anticipate this database will help the community to save time on search for funding opportunities, as well as eligibility check (key eligibility points are raised in the database), and decision making (we provide a digest about the budget, funding rate, success rate, call deadline and perimeter of the expected proposals).

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

Table of Contents

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

DISCLAIMER

THIS DOCUMENT IS PROVIDED "AS IS" WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NONINFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY WARRANTY OTHERWISE ARISING OUT OF ANY PROPOSAL, SPECIFICATION OR SAMPLE. Any liability, including liability for infringement of any proprietary rights, relating to use of information in this document is disclaimed. No license, express or implied, by estoppels or otherwise, to any intellectual property rights are granted herein. The members of the Extending Synthetic Biology Entrepreneurial Ecosystems ("SYNBEE") do not accept any liability for actions or omissions of SYNBEE members or third parties and disclaims any obligation to enforce the use of this document. This document is subject to change without notice.

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.

INTRODUCTION

The permanent high need and scarcity of financial resources for the young high tech companies have been largely recognized in the economic literature (Oaket, 1995; Egeln et al., 1997; Guidici & Paleari, 2000; Schröder, 2011). While several models of entrepreneurial financing are available to startups: banks (Rogers, 2014; de Bettignies & Brander, 2007), private equity (Mills, 2011), crowdfunding (Ordanini et al., 2011; Profatilov et al., 2015; Walz & Hirsch, 2019; Collins & Pierrakis, 2012; Belleflamme et al., 2013), sovereign funds (Neckebrouck et al., 2018), grants (Hughes, 1997); in Europe, Venture Capital (VC), together with business angels, occupies a position of the primary source of early-stage funding, jointly constituting up to 90% of the available capital (Gompers & Lerner, 2001; Fairchild, 2011; Kerr et al., 2014; Sohl, 2007; Ho & Wong, 2007).

VC represents a "professionally managed pool of capital that is invested in equity-linked securities of private ventures at various stages in their development" (Sahlman, 1990). VC plays a key role in driving economic growth by fostering innovation and entrepreneurship (Kenney, 2011; Samilla & Sorenson, 2011; Timmons & Bygrave, 1986). Non-dilutive funding (notably grants and subsidies) represents one of the important factors, helping to attract VC on both micro- and macro-economic scales. Therefore, the SYNBEE partners considered that to facilitate the community fundraising overall, we should start by facilitating access to non-dilutive funding as one of the key future enablers.

To constitute this database, we have screened (and continue to screen on regular basis) a plethora of funding agencies' webpages, work programmes, news across European countries, but also globally, because some calls are available to entities situated anywhere.

We have constituted a back office database with over 600 calls for proposals, observed in the space. And we have put together an online-available database with currently open calls for proposal.

We anticipate this database will help the community to save time on search for funding opportunities, as well as eligibility check (as key eligibility points are raised in

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.

the database), and decision making (we provide a digest about the budget, funding rate, success rate, call deadline and perimeter of the expected proposals).

NON-DILUTIVE FUNDING : GENERALIST VIEW

NON-DILUTIVE FUNDING BACKGROUND

Non-dilutive funding has a rich history, tracing back to ancient times when rulers and institutions sponsored artists, scholars, and explorers without seeking ownership stakes. In the 16th century, European patrons supported arts and literature. During the Age of Exploration, monarchs funded expeditions, laying the groundwork for systematic government funding of innovation. The Industrial Revolution saw industrialists like Carnegie and Rockefeller supporting educational institutions. Government funding surged during the World Wars, fostering technological advancements.

Post-World War II, agencies like the US National Science Foundation (NSF) propelled scientific knowledge and technology. The Space Race in the 1950s and 1960s fueled government funding for space exploration. In the latter 20th century, universities, research institutions, and non-profits played a growing role in non-dilutive funding. In the 21st century, it gained importance in addressing global challenges, with government agencies, accelerators, and incubators supporting startups.

During crises, public funding rescues sectors and large organizations, as seen in the substantial subsidies to global banks during the 2008-2010 financial crisis. Industries like agriculture, defense, and aerospace receive consistent public sponsorship.

Recent years have witnessed non-dilutive funding addressing sustainability, climate change, and social impact. Private foundations, associations, and industries allocate funds based on their mission and vision. The digital age brought crowdfunding platforms, allowing individuals to contribute to various projects.

The evolution of non-dilutive funding reflects a shift from royal patronage to systematic government programs, philanthropic initiatives, and contemporary support for innovation. It underscores society's acknowledgment of the importance of providing resources without demanding equity ownership, contributing to research, development, and societal progress.

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.

TYPES OF NON-DILUTIVE FUNDING

Non-dilutive funding refers to financial resources acquired by a company without relinquishing ownership or equity, thereby averting shareholder dilution. It can originate from various sources:

Government Grants and Subsidies:

Governments offer grants and subsidies to promote research, development, innovation, and entrepreneurship. These may be proposed at national, regional, or local levels and administered by intermediaries.

Industrial Sponsorships:

Corporations launch calls for proposals to address specific technological challenges, stimulating external innovation. These grants help industries stay at the forefront of innovation and can lead to external collaborations.

Foundations, Associations, and Non-profits:

Organizations aligned with specific societal challenges offer non-dilutive funding based on their mission. Examples include the Michael J. Fox Foundation and the Bill and Melinda Gates Foundation, aiming to create public benefits.

Crowdfunding:

Crowdfunding allows fundraising without dilution (not to confuse with dilutive crowdfunding, which also exists), targeting specific audiences emotionally connected to a cause or seeking to contribute to innovative ideas. Startups, like Healthy Mind, have successfully used crowdfunding for development.

Prizes and Awards:

Companies or individuals can receive non-dilutive funding through prizes or awards, recognizing excellence in research, dedication to societal challenges, and inspiring future generations. The Breakthrough Prize in Fundamental Physics is an example.

Overall, non-dilutive funding sources span diverse organizations globally. They provide financial support without demanding ownership, with offerings ranging from small grants to substantial amounts, covering various topics and technology readiness levels. Figure 1

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.

provides an illustrative, non-exhaustive snapshot of the current grant funding landscape in the life science field.

Figure 2_ Non-dilutive funding landscape in Europe: example of the life science field (Source: Author's own work).

ROLE OF NON-DILUTIVE FUNDING (MACRO LEVEL)

Grants and subsidies serve pivotal roles in supporting diverse aspects of a company's development. Summarizing their significance as manifestations of non-dilutive funding, they play multifaceted roles:

Reducing Initial Financial Burden:

For startups and small businesses, obtaining grants and subsidies eases the financial strain of early-stage development. This enables the allocation of resources to critical areas like product development, market entry, and scaling, fostering company survival.

Driving Research and Innovation:

Grants and subsidies, whether thematically neutral or focused on specific strategic areas, fuel research, technological innovation, and development. Calls for proposals facilitate groundbreaking technologies and projects addressing societal challenges.

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

Facilitating Risky Projects:

Public or non-profit funding sources support projects with high technical or market risk, providing essential capital for exploring groundbreaking ideas and technologies that private investors might hesitate to fund.

Enhancing Entrepreneurship and Boosting Innovation Ecosystems:

Grants and subsidies encourage entrepreneurship by bridging the gap between initial seed funding and self-sustainability. Some grants offer entrepreneurial coaching or mentoring, contributing to a vibrant innovation ecosystem by supporting research institutions, incubators, accelerators, and collaborative networks.

Promoting Economic Growth and Job Creation:

Governments employ grants and subsidies to stimulate economic growth, create jobs, and attract excellent researchers and engineers. Programs like Marie Sklodowska-Curie actions contribute to workforce mobility and regional development.

Encouraging Collaboration:

Certain grants and subsidies mandate collaboration between companies, research institutions, and stakeholders. This fosters knowledge transfer, resource pooling, and expertise sharing, contributing to sector-wide advancements.

In conclusion, grants and subsidies are instrumental in supporting companies through various developmental stages, fostering innovation, economic growth, and collaboration. Their role in nurturing entrepreneurship underscores their significance in the funding landscape and the broader economy.

ROLE OF NON-DILUTIVE FUNDING (MICRO LEVEL)

Entrepreneurs, benefiting from non-dilutive R&D grants, highlight the critical role of such funding in their businesses. The reasons for considering non-dilutive funding are diverse and include:

Addressing Costly and Risky Projects:

Non-dilutive funding becomes vital for projects requiring substantial resources and posing high risks, covering expenses like personnel, equipment, and intellectual property. Funding rates vary, offering relief from financial constraints.

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.

Overcoming Private Sector Underinvestment:

Non-dilutive funding helps counter underinvestment in early project stages, addressing market externalities and encouraging exploration of innovative ideas without private investor hesitancy.

Boosting Company Reputation and Valuation:

Obtaining non-dilutive funding enhances a company's reputation, validated through peer reviews, and positively influences valuation. Studies link the acquisition of grants to increased company worth and long-term growth.

Communicating Success:

Announcing non-dilutive funding plays a positive role in communication, signaling success and competence to the broader community.

Strategic Planning and Team Cohesion:

The grant-writing process stimulates strategic planning, prompting teams to consider regulatory aspects and alliances. It facilitates detailed budgeting, identifies missing roles, and demonstrates the team's cohesion and capacity to mobilize.

Valuable Feedback and Preparation for Pitches:

Proposal evaluation provides valuable feedback on research methodology and business plans, aiding strategy refinement. This process prepares companies for subsequent pitches with various funding providers.

Signaling Effect and Track Record:

Winning competitive grants signals credibility, methodological robustness, and market potential, building a track record of achievements and external recognition.

Negotiation Leverage with Venture Capitalists:

Non-dilutive funding offers negotiation leverage with venture capitalists, showcasing alternative funding sources and potentially leading to more favorable terms and valuations.

While some argue that grants may create financial slack, stifling resourcefulness, the benefits are evident in strategic growth, reputation building, and positive market perception.

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.

Non-dilutive funding is a valuable asset for companies seeking multifaceted support without relinquishing ownership.

NON-DILUTIVE FUNDING FOR SYNTHETIC BIOLOGY IN EUROPE

NON-DILUTIVE SYNBIO LANDSCAPE: NEED FOR ADJUSTMENT

eureKARE and Da Vinci Labs have produced a map (Figure 2) of non-dilutive opportunities across European countries to identify which countries propose which types of calls relevant for synbio community. In some countries multiple calls exist not specifically dedicated to synbio, meaning that the synbio solutions compete with broader deeptech solutions. Synthetic biology often has longer development timeline and therefore might be less attractive for financial institutions, therefore in a competition with other deeptech solutions it might look less competitive (or less priority). Whereas in other countries financial agencies start to use the term "synthetic biology", "bioengineering" directly in the call description, specifically attracting this type of technologies to apply. We highly encourage all the European countries to follow their example to incentivize the EU synbio community.

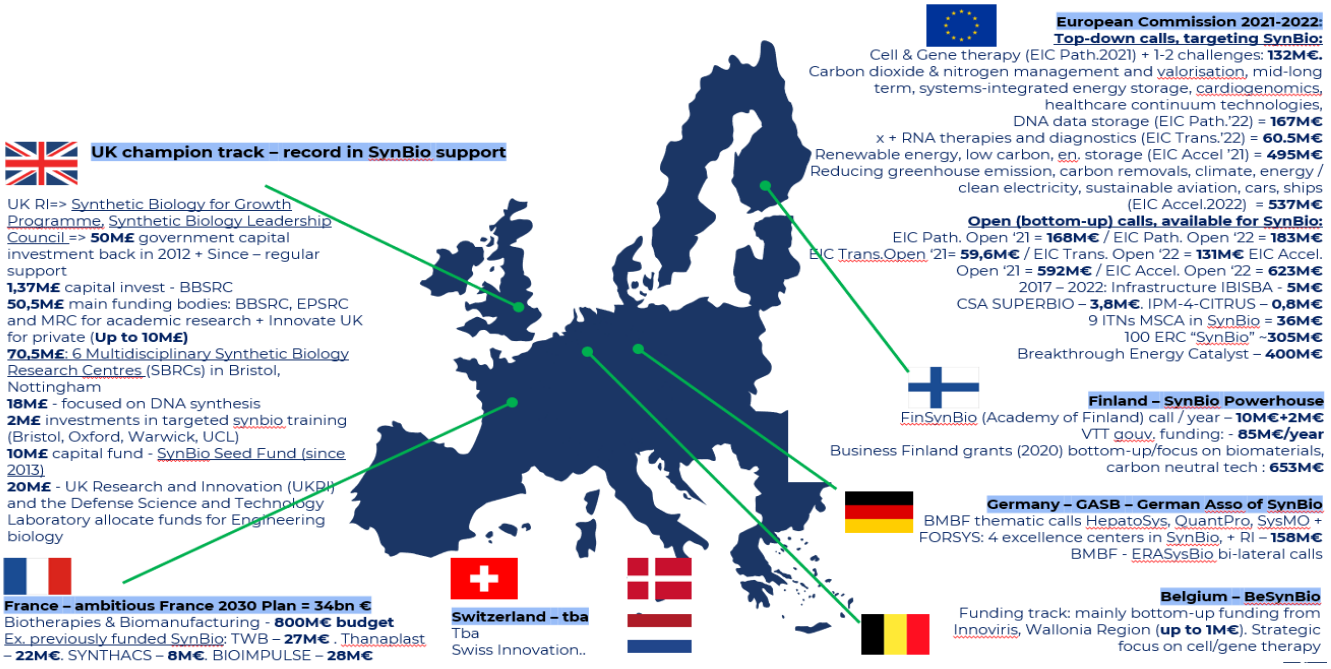

Figure 2_Favourable non-dilutive context for SynBio in Europe (Source: Author's own work, consolidated using Cordis database and websites of the national funding agencies of the European countries).

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

NON-DILUTIVE FUNDING MAP

A database of non-dilutive funding opportunities relevant for the synthetic biology community has been consolidated. The database back office with other 600 positions is available on the SYNBEE SharePoint (Table 1).

Table 1_Non-dilutive opportunities in synthetic biology available for European stakeholders.

Funding agency	Title of grant	Type	Amount	Date	Domaine	Comments	Geography
Foundation of the Berlin House of Representatives	Grant Programme	Grant	1630 €/month	Friday, December 15, 2023	Bottom-up	Duration: 10 months. 15 fellowships granted each year. Rather PhD	Germany
European Commission	Horizon Europe – CEF Energy: Cross-border renewable energy projects	Grant	100-350k€ (1m€ total budget). 50% funding rate	Tuesday, January 9, 2024	Energy		
Bpifrance	Industrialisation et capacité santé 2023	Grant	Budget: Min 2M€ (4M€ pour collab).	Tuesday, January 9, 2024	Bioproduction	Mono-partenaire/collaboratif	France
European Commission	Improvement of light harvesting and carbon fixation with synthetic biology and/or bio-inspired/biomimetic pathways for renewable direct solar fuels production	Grant	4m€ (2 projects will be funded)	Tuesday, January 16, 2024	Energy	novel in-vivo or in-vitro biochemical and/or bio-inspired/biomimetic pathways for solar fuel production with increased efficiency in comparison to light and dark reactions of natural photosynthesis by synthetic biological and/or bio-inspired/biomimetic approaches. The aim is to achieve a significant improvement of components of both, light harvesting and carbon fixation, which are rate limiting for the conversion of solar energy to renewable fuels. TRL1-2 to go to TRL 3-4	
EUREKA	Food tech call on alternative proteins for R&D and innovation	Grant	~250k€	Monday, February 26, 2024	Food	Sweden (Vinnova): Maximum 50% of the entire project costs, max 3 million SEK (~€250,000). Israel (Israel Innovation Authority): Information about grant, payment of royalties and maximum budget should be obtained by the applicant at the national funding body. Switzerland (Innosuisse): A total of maximum 70% of the project costs can be covered by Innosuisse. No maximum budget provided. Funding rate: Sweden (Vinnova): SMEs max 50%, Large companies max 30%,Universities and research institutes max 100%. Israel: max 50%. Switzerland (Innosuisse): Start-ups max 70%, SMEs max 50%, Large companies max 25%, Universities/research organizations max 100%. Project duration: max 36 months. Consortium: Organisations based in a minimum of two unrelated entities of Israel, Sweden and/or Switzerland	Switzerland, Sweden, Israel
European Commission	MSCA Postdoctoral Fellowship	Grant	186k€	Wednesday, September 11, 2024	Bottom-up		Europe
National Institute of Biomedical Imaging and Bioengineering (NIBIB); National Eye Institute (NEI); National Institute on Aging (NIA); National Cancer Institute (NCI)	Bioengineering Partnerships with Industry (U01 Clinical Trial Optional)	Grant	Not limited	26/09/2023; 24/05/2024; 26/09/2024	Health	Research partnerships formed by academic and industrial investigators to drive the development and speed the adoption of promising bioengineering tools and technologies that can address important biomedical problems for which insufficient or no solutions exist. Funding may be requested to develop, adapt, enhance, optimize, validate, or otherwise accelerate the adoption of promising biomedical engineering solutions, but not for support of commercial production or later stage (Phase II or Phase III) clinical trials. Non-US eligible to apply	Global
National Cancer Institute (NCI); National Institute of Neurological Disorders and Stroke (NINDS); Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)	Bioengineering Research Grants (BRG) (R01 Clinical Trial Optional)	Grant	Not limited	05/06/2023; 05/10/2023; 05/02/2024; 05/06/2024; 05/10/2024; 05/02/2025; 05/06/2025	Health	multidisciplinary bioengineering approach to the solution of a biomedical problem; and 2) integrate, optimize, validate, translate or otherwise accelerate the adoption of promising tools, methods, and techniques for a specific research or clinical problem in basic, translational, or clinical science and practice. An application may propose design-directed, developmental, discovery-driven, or hypothesis-driven research and is appropriate for small teams applying an integrative approach to increase our understanding of and solve problems in biological, clinical, or	Global

The database available for consultation by the community only contains the currently open calls and now contains 127 calls for proposals.

The F6S designers' team has searched for the most optimal way to expose the database on the SYNBEE website to make this information available for the broader community, and thus to attract more traffic to the SYNBEE website. They decided to expose it in an AirTable mode (Figure 3).

During the next months it will be important to continue to update the database, as such tools quickly become obsolete, and it is necessary to permanently monitor the field to stay up to date. We have considered to involve the community players to nurture the database.

One of the objectives of the consortium is to use this database to identify calls for proposals relevant for the consortium to sustain the SYNBEE activities beyond the project lifetime. Each time when a relevant call is identified, the consortium discussed a possibility to apply, means to do that and other partners to attract.

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

	Funding agency	Title of grant	Type	Amount	Date	Domaine	Comments	Geography
76	Bpifrance	Industrialisation et capacité...	Grant	Budget: Min 2M€ (4M€ po...	Tuesday, January 9, 2024	Bioproduction	Mono-partenaire/collabora...	France
77	European Commission	Improvement of light harve...	Grant	4m€ (2 projects will be fun...	Tuesday, January 16, 2024	Energy	novel in-vivo or in-vitro bio...	
78	EUREKA	Food tech call on alternativ...	Grant	~250k€	Monday, February 26, 2024	Food	Sweden (Vinnova): Maximu...	Switzerland, Sweden, Isr...
79	European Commission	MSCA Postdoctoral Fellows...	Grant	186k€	Wednesday, September 11,...	Bottom-up		Europe
80	National Institute of Biome...	Bioengineering Partnership...	Grant	Not limited	26/09/2023; 24/05/2024; 2...	Health	Research partnerships form...	Global
81	National Cancer Institute (...	Bioengineering Research G...	Grant	Not limited	05/06/2023; 05/10/2023; 0...	Health	Encourage collaborations b...	Global
82	UKRI	AHRC responsive mode: st...	Grant	300k£-1,5m£ (80%)	Wednesday, July 12, 2023	Arts and humanities	How about a proposal on t...	UK
83	UKRI, FNR	AHRC Responsive Mode: C...	Grant	300k£-1,5m£ (80%)	Wednesday, July 12, 2023	Arts and humanities	Cooperation UK - Luxembo...	UK, Luxembourg
84	Breakthrough Energy Catal...	Breakthrough Energy Catal...	Grant	depending on the project (...	on rolling basis untill 31/12...	Carbon removal, energy,...	Clean Hydrogen (Clean H2)...	Europe
85	Engineering and Physical S...	EPSRC synthetic biology po...	Grant	any (80% of costs)	On rolling basis	Bottom-up	You must have either: a Ph...	UK
86	Engineering and Physical S...	EPSRC postdoctoral fellows...	Grant	any (80% of costs)	On rolling basis	Bottom-up	energy, mathematical scien...	UK
87	Bpifrance	Aide pour le développeme...	Reimbursable advance o...	3M€	On rolling basis	Bottom-up	la réalisation et la mise au ...	France
88	Bpifrance	Aide pour la faisabilité de l'...	Subsidy or reimbursable...	50K€ - 1M€	On rolling basis	Bottom-up	Eligibles: Etudes d'évaluati...	France
89	Région IDF	Innov'up	Subsidy. Funding rate : 2...	Up to 500K€ in sub. / up to...	On rolling basis	Bottom-up	Bottom-up. Test de faisabili...	France
90	Bpifrance	Aide au partenariat technol...	Subsidy or reimbursable...	50K€	On rolling basis	Bottom-up	Eligibles: recherche de part...	France
91	Bpifrance	Diagnostic Partenariat Tech...	Subsidy 50% of the total...	12.5	On rolling basis	Bottom-up	Montage des consortia EU ...	France
92	Bpifrance	Diag Europe	Subsidy of 50% of the pr...	10K€	On rolling basis	Bottom-up	Montage des projets EIC-A...	France
93	Bpifrance	Aide au développement de...	Subsidy + reimbursable ...	2M€	On rolling basis	Bottom-up	Taux de financement: 45% ...	France
94	Bpifrance	Bourse French Tech	Bourse (70%)	30k€	On rolling basis	Bottom-up	Eligible: startups ou physic...	France
95	Bpifrance	Bourse French Tech Emerg...	Bourse (70%)	90k€	On rolling basis	Bottom-up	Startups. Les dépenses éligi...	France
96	AID - AGENCE DE L'INNOV...	RAPID (Régime d'APpui à l'...	Subsidy. Funding rate d...	tba	On rolling basis	Bottom-up	Innovation duale. Mono-pa...	France
97	Biotechnology and Biologic...	BBSRC international travel ...	Grant	3k£	On rolling basis	Bottom-up	BBSRC funded researchers	UK
98	Engineering and Physical S...	EPSRC network grant	Grant	any (80% of costs)	On rolling basis	Bottom-up	Network grants are for rese...	UK
99	Innovate UK, Arts and Hum...	Knowledge Transfer Partner...	Grant (50-70%)	100-200k£	On rolling basis	Bottom-up	Open to businesses or not-...	UK

Figure 3_Non-dilutive funding database available to the community on the SYNBEE website.

In the frame of the same task we also go beyond what has been planned in the DoA. We notable internally analyse relevant calls and brainstorm around a possibility to put together collaborative R&D consortia to reply to specific highly relevant calls. To do this, we produce a digest 1-pager file (Figure 4), shared with relevant stakeholders and discussed on case by case basis.

Improvement of light harvesting and carbon fixation with synthetic biology and/or bio-inspired//biomimetic pathways for renewable direct solar fuels production (ID: HORIZON-CL5-2024-D3-01-04)

DL: 16/01/2024. 4M€ (2 projects) TRL level: 3-4 by the end of the project

Within the expected outcomes, they want to see at least 3 of these:

1. Availability of disruptive and sustainable solar fuel technologies in order to accelerate the replacement of fossil-based energy technologies with more efficient use of primary solar energy in solar fuel production.
2. Reduced cost and improved efficiency of solar-based renewable fuel technologies and their value chains by addressing rate-limiting steps in the solar fuels value chain.
3. Increase technology leadership, competitiveness and technology export potential of European industry in possibly game-changing solar fuel and synthetic biological technologies.
4. Enhanced sustainability of solar fuels, taking fully into account circular economy, social, economic and environmental aspects in line with the European Green Deal priorities.
5. Reinforced European scientific basis and European export potential for renewable energy technologies through international collaborations (e.g., the AU-EU Climate Change and Sustainable Energy partnership, the missions and innovation communities of Mission Innovation 2.0).
6. Increasing the European energy security and reliability by improving the solar fuel conversion efficiency as well as maintaining and fostering the European global leadership in affordable, secure and sustainable solar fuel technologies.

Scope:

- Novel in-vivo or in-vitro biochemical and/or bio-inspired/biomimetic pathways for solar fuel production with increased efficiency in comparison to light and dark reactions of natural photosynthesis by synthetic biological and/or bio-inspired/biomimetic approaches. The aim is to achieve a significant improvement of components of both, light harvesting and carbon fixation, which are rate limiting for the conversion of solar energy to renewable fuels.

The non-dilutive funding opportunities are being systematically promoted in SYNBEE social media channels, such as X (Twitter) and Linked'in.

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

REFERENCES

1. Belleflamme, P. L. (2013). Crowdfunding: Tapping the right crowd. *Journal of Business Venturing, 29*, 585–609.
2. de Bettignies, J.-E., & Brander, J.A. (2007). Financing entrepreneurship: Bank finance versus venture capital. *Journal of Business Venturing, 22*, 808–832 .
3. Egeln, J. L. (1997). Firm foundations and the role of financial constraints. *Small Business Economics 9 (2)*, 137–150.
4. Fairchild, R. (2011). An entrepreneur's choice of venture capitalist or angel-financing: A behavioral game-theoretic approach. . *Journal of Business Venturing, 26*, 359–437.
5. Gompers, P., & Lerner, J. (2001). The venture capital revolution. *Journal of Economic Perspectives. 15(2)*, 145-168.
6. Ho, Y.-P. & Wong, P.-K. (2007). Financing, regulatory costs and entrepreneurial propensity. *Small Business Economics, 28(2)*, 187-204.
7. Hughes, A. (1997). Finance for SMEs: A UKperspective. *Small Business Economics, 9*, 151–166.
8. Kenney, M. (2011). How Venture Capital Became a Component of the US National System of Innovation. *Industrial and Corporate Change 20 (6)*, 1677– 1723.
9. Kerr, W. R. (2014). The consequences of entrepreneurial finance: Evidence from angel financings. . *Review of Financial Studies., 27*, 20–55.
10. Mills, L. (2011). Raising Capital in the United Kingdom. *London: Bloomsbury Information Ltd. In Financing and Raising Capital* , 41-44.
11. Neckebrouck, J. M. (2018). Governance implications of attracting external equity investors in private family firms. *Academy of Management Perspectives, 35(1)*, 25–44.
12. Oakey, R.P. (1995). High-Technology New Firms: Variables Barriers to Growth. *London: Chapman & Hall*.
13. Ordanini, A. M. (2011). Crowd-funding: Transforming customers into investors. . *Journal of Service Management, 22*, 443–470.
14. Profatilov, D. A. (2015). Crowdfunding: Online charity or a modern tool for innovative projects implementation? . *Asian Social Science, 11*, 146–151.
15. Rogers, S. (2014). Entrepreneurial finance: Finance and business strategies for the serious entrepreneur. *New York: McGraw-Hill Education*.
16. Sahlman, W. (1990). The structure and governance of venture-capital organizations. *Journal of Financial Economics, 27(2)*, 473-521.

Funded by the European Union under the Grant Agreement No 101100509. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neitherthe European Union nor the granting authorities can be held responsible for them.

17. Samila, S., & Sorenson, O. (2011). Venture capital, entrepreneurship, and economic growth. *Review of Economics and Statistics 93(1)*, 338–349.
18. Schröder, C. (2011). Financial system and innovations: determinants of early stage venture capital in Europe. *Springer Berlin Heidelberg*, 127-158.
19. Sohl, J. E. (2007). The organization of the informal venture capital market. . *Handbook of research on venture capital*, 347–370.
20. Timmons, J., & Bygrave, W. (1986). Venture Capital's Role in Financing Innovation for Economic Growth. *Journal of Business Venturing 1 (2)*, 161– 176.

Funded by the European Union under the Grant Agreement No 101100509.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA).
Neitherthe European Union nor the granting authorities can be held responsible for them.