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D8.8 Dissemination, Communication and Engagement Report v3

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Executive summary

This report, “D8.8 Dissemination, Communication and Engagement Report v3”, is the continuation of “D8.3. Dissemination, Communication and Engagement Report” and “D8.7 Dissemination, Communication and Engagement Report v2”, delivered in WP8 “Dissemination, Communication, Exploitation, Sustainability, and Market Validation” of the Horizon 2020 project “Safe-DEED (grant number 825225). It is an update of the ongoing outreach activities of the project and summarizes the attempts to disseminate outcomes and insights from the project to the scientific, business, and industrial, as well as general audience.

Engagement, visibility, and outreach were specifically important aspects in this project. This resulted in the development of artifacts usable and useful for an interested audience. Therefore, the project produced and delivered a wide range of resources, such as a set of demonstrators or educational material. The educational material targeted both a technical audience and a non-technical audience. The former benefits from the documents containing technological and algorithmic details for the technical resources of Safe-DEED, i.e. privacy-preserving technologies, multi-party computation, or private set intersection. The latter target, for example, a business-related audience, giving them the necessary tools to develop their own data-driven business ideas, business models, and innovation. For example, the data-driven business model toolkit, developed in “D2.3 Business model decision support tool”, supports innovators and entrepreneurs in the conceptualization and implementation of their own businesses.

Safe-DEED produced a variety of different resources for dissemination, communication, and engagement, including the data-driven business model toolkit, video lectures, webinars, or the professional partners community. The latter is an effort to bring together stakeholders from the area to exchange ideas, express needs of their domain, and have a platform to interact with partners along the same value chain or industrial domain.

The report is separated along its three major target areas, consequently divided into the following three major sections:

- **dissemination**, summarizing scientific publications, presentations at conferences and workshops, as well as the outreach to a broader market,
- **communication**, listing material to inform the interested audience as well as a summarization of achieved KPIs, and
- **engagement**, containing activities explicitly conceptualized to increase interactivity between Safe-DEED and stakeholders.

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1 Introduction

Safe-DEED develops technologies and processes crucial for a data-driven economy. The privacy-enhancing technologies developed within the project ensure a higher adoption rate of data-driven approaches and reduce the barrier for inclusion into business and industry processes. While the development of the technologies and processes is a highly important task per se, the visibility, communication, and education involving them is almost similarly important. Therefore, Safe-DEED has put substantial resources into its dissemination activities. Dissemination, as well as communication and increasing engagement, are not only targeted towards a scientific, and thus already aware and highly capable audience. While Safe-DEED mostly addressed professionals, we also targeted a broader audience, e.g. students at educational organizations. Furthermore, Safe-DEED aimed to involve stakeholders from business and industry and familiarize them with the latest and cutting-edge technologies and methodologies required to successfully implement innovative business ideas and operational processes.

This report focuses on the description of all activities and resources produced to increase visibility, communicate results, and engage stakeholders. The project produced a wide variety of approaches and resources to fulfil its visibility and outreach goal. This included video lectures, webinars, demonstrators, toolkits for data-driven businesses, or a stakeholder community.

In this report, we start with a description of publication activities, presentations at conferences and workshops, as well as hosted events, in Section 2 of this report. Subsequently, we describe the successful effortsour attempts to inform a wider audience about Safe-DEED in Section 3. Given the pandemic situation, the focus here is mainly on online and virtual material, despite being planned differently in the grant agreement (which was written before the pandemic). In Section 4, we describe our engagement attempts, specifically the creation and activities of the professional partners community (PPC). This network and platform had the goal of bringing together stakeholders of the same value chain and/or industrial/business domain and interact towards the support and creation of data-driven businesses. We conclude the report with a summarizing statement in Section 5.

2 Dissemination

Safe-DEED tried to reach a diverse audience, including the industry, scientific community, and education. Safe-DEED researchers published scientific articles in journals, conferences, and workshops. Furthermore, workshops helped to further disseminate the outputs of Safe-DEED and familiarize the community with them, e.g. in events for students at educational institutes. In the following, we describe these dissemination activities and separate them along these categories:

- **Conferences and events**, listing both scientific and industrial events where the outputs and results of Safe-DEED were presented.
- **Scientific publications**, i.e. the bibliography of articles accepted in peer-reviewed outlets.
- **Broader community and industrial market**, where we describe attempts to reach a more general audience as well as industry and business.

2.1 Conferences and Events

Safe-DEED researchers were present at numerous national and international events. Due the Corona pandemic, we had to move them online. However, this did not prevent us from hosting lively and interactive events. The events typically attracted 30-100 participants. However, there were also events attracting a significantly higher number of participants, e.g., the 27th European Conference on Information Systems in Stockholm, with more than 500 participants. It was crucial not only to publish at scientific outlets, but also to raise a general awareness about the Safe-DEED outcomes. Therefore,

we also held workshops to educate stakeholders in the usage of Safe-DEED tools, e.g. the data-driven business toolkit, where professionals and researchers of the project actively participated, by presenting either their scientific work or other Safe-DEED output.

Table 1 is a complete listing of the events.

where professionals and researchers of the project actively participated, by presenting either their scientific work or other Safe-DEED output.

Table 1 : The list of events and conferences with active participation by Safe-DEED researchers (continued from “D8.8 Dissemination, Communication and Engagement Report v2”).

Title of event/conference	Date	Location	Type of activity	Type of audience reached	Estimated # persons reached	Additional information	Person(s) in charge	Related WP
Pricing and Revenue Management Summit	22.2.2019	Munich	Publication in Conference proceedings/Workshop	Industry, Customers	50	http://www.gor-ev.de/3923-2	Seula Lee (IFX)	7
AI Law & Ethics Conference	28.2.2019	Brussel	Publication in Conference proceedings/Workshop	Scientific Community, Policy Makers	50	https://www.law.kuleuven.be/citip/en/news/item/citip-conference-through-the-looking-glass-of-ai-platforms-between-global-governance-and-techno-regulation-28-02-2019-leuven	Alessandro Bruni (KUL)	3
Workshop "Towards Value-Centric Big Data: Connect People, Processes and Technology"	2.4.2019	Brussel	Publication in Conference proceedings/Workshop	Scientific Community, Policy Makers, Customers	50	https://www.eventbrite.com/e/towards-value-centric-big-data-connect-people-processes-and-technology-tickets-57526205429	Alessandro Bruni (KUL)	3
Kick-off Workshop: InDI - Industrial Data Initiative	3.4.2019	Linz	Other	Industry, Customers	50	https://www.biz-up.at/veranstaltungen/InDi_Kick-off/	Mihai Lupu (RSA)	8

Data Governance Conference	4.4.2019	Vienna	Other	Industry, Policy Makers, Customers	100	https://www.adv.at/Events/Event-Items/Data-Governance-2019	Mihai Lupu (RSA)	8
2nd International Data Science Conference 2019	22.-24.5.2019	Salzburg	Publication in Conference proceedings/Workshop	Scientific Community, Business Experts	100	https://idsc.at/recap-idsc19/	Mihai Lupu (RSA)	4
27th European Conference on Information Systems	8.-14.06.2019	Stockholm	Publication in Conference Proceedings	Scientific Community (higher education, Research)	>500	http://ecis2019.eu/	Mark de Reuver (TUD)	2
Annual Privacy Forum	13.-14.6.2019	Rome	Other	Industry, Customers	100	https://privacyforum.eu/	Evangelos Kotsifakos (LST)	8
4th IEEE European Symposium on Security and Privacy	17.-19.6.2019	Stockholm	Other	Researchers and practitioners in computer security and electronic privacy	100-150	https://www.ieee-security.org/TC/EuroSP2019/index.php	Sebastian Ramacher (KNOW)	5
Theory and Practice of Multi-Party Computation (TPMPC) 2019	17.-20.6.2019	Tel Aviv	Other	Scientific Community, Customers, Industry	150-200	http://www.multipartycomputation.com/tpmpc-2019	Lukas Helminger (KNOW)	5
EURO 2019 – 30th EUROPEAN CONFERENCE ON OPERATIONAL RESEARCH	23.-26.6.2019	Dublin	Other	other	>100	https://www.euro2019dublin.com	Hans Ehm (IFX)	7
Big Data Value PPP	26.-28.6.2019	Riga	Other	Research, Industry	100	http://www.bdva.eu/	Ioannis Markopoulou	8

							s (FNET) / Noreen Berger / Patrick Ofner (KNOW)	
e-SIDES Workshop at BDV PPP Summit	27.06.201 9	Riga	Other	Other	50	http://www.bdva.eu/node/1217	Ioannis Markopoulo s (FNET)	
Data-Driven Future Forum 2019	4.7.2019	Graz	Other	Industry, Customers	100	https://www.know-center.tugraz.at/reger-austausch-data-driven-future-forum-2019-rund-um-aktuelle-big-data-und-ki-trends-und-entwicklungen/	Patrick Ofner (KNOW)	8
32nd Bled eConference – Humanizing Technology for a Sustainable Society	16.- 19.07.201 9	Bled	Publication in Conference Proceedings	Scientific Community (higher education, Research)	>200	http://press.um.si/index.php/ump/catalog/book/418	Gert Breitfuss (KNOW)	2
42nd International ACM SIGIR Conference on Research and Development in Information Retrieval	21.- 25.07.201 9	Paris	Publication in Conference proceedings/Worksho p	Scientific Community (higher education, Research)	75	https://sigir.org/sigir2019/	Mihai Lupu (RSA)	5
Data Science International Summer School	16.- 24.8.2019	Bucharest	Other	Scientific Community (higher education, Research)	30	https://datascience.ase.ro/	Mihai Lupu (RSA)	8
9th IFAC Conference MIM 2019	28.- 30.8.2019	Berlin	Other	other	>100	https://blog.hwr-berlin.de/mim2019/	Hans Ehm (IFX)	7
Handeln mit Big Data. Vom Technologie-Showcase zur	18.9.2019	Vienna	Other	General Public	170	https://conferences.data	Mihai Lupu	8

Profitablen Wertschöpfung						intelligence.at/	(RSA)	
6th Innovation in Information Infrastructure workshop	18.- 20.09.2019	Surrey	Publication in Conference Proceedings	Scientific Community (higher education, Research)	>70	https://www.surrey.ac.uk/events/20190918-6th-innovation-information-infrastructures-iii-workshop	Mark de Reuver / Wirawan Agahari (TUD)	2
Imagine19 – Artificial Intelligence Fachkonferenz (Workshop)	22.10.2019	Vienna	other	General Public	35	https://www.seidlerconsulting.at/veranstaltung/en/a-intelligence-22-10-2019/	Mihai Lupu (RSA)	8
NIEDERÖSTERREICH-DATUM MIT BIG DATA EXPERTEN	3.10.2019	St. Pölten	Other	General Public	30	https://www.dataintelligence.at/	Mihai Lupu (RSA)	8
THREE DECADES @ THE CROSSROADS OF IP, ICT AND LAW	4.10.2019	Leuven	Other	Academia, Lawyers, Public Servants	>120	https://www.law.kuleuven.be/citip/en/30-years-icri-cir-citip/agenda	Alessandro Bruni (KUL)	3
European Big Data Value Forum 2019	14.- 16.10.2019	Helsinki	Other	Scientific Community (higher education, Research)	200	https://www.european-big-data-value-forum.eu/	Mihai Lupu (RSA)	8
IEEE/WIC/ACM International Conference on Web Intelligence	14- 17.10.2019	Thessaloniki	Publication in Conference proceedings/Workshop	Scientific Community (higher education, Research)	50	https://dl.acm.org/citation.cfm?id=3360918	Alexandros Bampoulidis (RSA)	5
Austrian ICT delegation to China	17- 22.11.2019	Hangzhou, Jiaxia, Shanghai, Nanjing, Beijing	Other	Scientific Community, Business community	100	Part of the ICT Delegation of the Austrian Ministry of Transport, Innovation, and Technology,	Mihai Lupu / Peter A. Bruck (RSA)	8

		China				visiting research centres and companies across China.		
15th International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM) 2019	8.-11.12.2019	Maryland	Other	Other	100	http://meetings2.informs.org/wordpress/wsc2019/masm/	Hans Ehm (IFX)	8
TRUSTS kick-off meeting	23.-24.01.2020	Hannover	Other	Business & Scientific community	20	https://www.trusts-data.eu/kickoff-meeting-hannover/	Evangelos Kotsifakos (LST) / Mark de Reuver (TUD) / Alexandros Bampoulidis (RSA) / Ioannis Markopoulos (FNET) / Patrick Ofner (KNOW)	8
KRAKEN (BroKeRage and MArKet platform for pErsoNal data)	05.03.2020	Graz	Other	Business & Scientific community	10	https://www.krakenh2020.eu/	Lukas Helminger (KNOW)	5
42nd European Conference on Information Retrieval (ECIR)	14-17.04.2020	Online	Publication in Conference proceedings/Workshop	Scientific Community (higher education, Research)	100	https://ecir2020.org/	Alexandros Bampoulidis (RSA)	4
33rd Bled eConference – Enabling Technology for a	28.-29.06.2020	Online	Publication in Conference	[Scientific Community (higher	>200	https://press.um.si/index.php/ump/catalog/	Wirawan Agahari	2

Sustainable Society	0		proceedings/Workshop	education, Research)]		book/483	(TUD) / Gert Breitfuss	
The 14th International Conference on Research Challenges in Information Science	22.-25.09.2020	Online	Publication in Conference proceedings/Workshop	Scientific Community (higher education, Research)	100	http://www.rcis-conf.com/rcis2020/	Alexandros Bampoulidis (RSA)	5
KNOW-Center Summer Academy: Privacy-Preserving Analytics and Quantum Computing	07.10.2020	Online	Other	Business & Scientific community	40	https://www.know-center.tugraz.at/academy-sessions/privacy-preserving-analytics/	Lukas Helminger (KNOW)	5
The core of TRUSTS: Innovating European data markets through trust, security, and federation	29.10.2020	Online	Other	Business & Scientific community, Journalists	50	https://www.trusts-data.eu/event/1555/	Ioannis Markopoulos (FNET)	8
European Big Data Value Forum 2020	3.-5.11.2020	Online	Other	Scientific Community (higher education, Research)	200	https://www.european-big-data-value-forum.eu/	Hosea Ofé (TUD)	8
Lecture Industrial Management	12./18.12.2020	Graz	Lecture	Students	30	n.a.	Gert Breitfuss, Leonie Disch (KNOW)	2
3rd Think Tank in Life Sciences	23.06.2021	Graz	Workshop	Business & Scientific community	50	https://www.humantec hnology.at/en/news/news/single-view?tx_news_pi1%5Baction%5D=detail&tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Bnews%5D=282&cHash=90ad33fd12	Gert Breitfuss (KNOW)	2

						13cded7afbaed10877955d		
Lecture Data Driven Services Development	18.06/ 22.10.202 1	Graz	Lecture	Students	25	https://operations.uni-graz.at/de/neuigkeiten/detail-1/article/data-driven-service-development/	Gert Breitfuss, Leonie Disch (KNOW)	2
Lecture MSc/MBA Service Engineering	07.10.202 1	Graz	Lecture	Students	15	n.a.	Gert Breitfuss, Leonie Disch (KNOW)	2
Plattform I4.0 Event	17.11.202 1	Graz	Workshop	Business & Scientific community	26	https://plattformindustrie40.at/event/datengetriebe-geschaeftsmodelle-im-einsatz/	Gert Breitfuss (KNOW)	2

2.2 Scientific Publications

In the following, we give an overview of the scientific publications achieved in Safe-DEED. Researchers have published scientific articles, and the work has also proven useful for PhD and master theses. The following subsections give details on these activities.

2.2.1 Scientific Articles

We divide the list of scientific articles produced in Safe-DEED and separate them by accepted and upcoming publications. This list is continued from the one given in the previous deliverable “D8.7 Dissemination, Communication and Engagement Report v2”. The respective Safe-DEED page¹ also provides this list.

- **Accepted publications:**

- Taha A.A., Bampoulidis A., Lupu M. (2019) Chance influence in datasets with a large number of features. In: Haber P., Lampoltshammer T., Mayr M. (eds) Data Science – Analytics and Applications. Springer Vieweg, Wiesbaden. https://doi.org/10.1007/978-3-658-27495-5_2
- Mihai Lupu, Alexandros Bampoulidis, and Luca Papariello. 2019. A Horizontal Patent Test Collection. In Proceedings of the 42nd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR' 19). Association for Computing Machinery, New York, NY, USA, 1213–1216. DOI: <https://doi.org/10.1145/3331184.3331346>
- Faber R., de Reuver M. (2019) Consumer Studies on Digital Platforms Adoption and Continuance: a Structured Literature Review, In Proceedings of the 27th European Conference on Information Systems (ECIS), Stockholm & Uppsala, Sweden, June 8-14, 2019. ISBN 978-1-7336325-0-8 Research Papers.
https://aisel.aisnet.org/ecis2019_rp/121
- Albrecht M.R. et al. (2019) Feistel Structures for MPC, and More. In: Sako K., Schneider S., Ryan P. (eds) Computer Security – ESORICS 2019. ESORICS 2019. Lecture Notes in Computer Science, vol 11736. Springer, Cham. https://doi.org/10.1007/978-3-030-29962-0_8
- Agahari W., de Reuver M., Fiebig T. (2019) Understanding how privacy-preserving technologies transform data marketplace platforms and ecosystems: the case of Multi-Party Computation. Presented at the 6th Innovation in Information Infrastructure Workshop, Surrey, UK.
- Alexandros Bampoulidis, Ioannis Markopoulos, and Mihai Lupu. 2019. PrioPrivacy: A Local Recoding K-Anonymity Tool for Prioritised Quasi-Identifiers. In IEEE/WIC/ACM International Conference on Web Intelligence - Companion Volume (WI '19 Companion). Association for Computing Machinery, New York, NY, USA, 314–317. DOI: <https://doi.org/10.1145/3358695.3360918>
- Papariello L., Bampoulidis A., Lupu M. (2020) On the Replicability of Combining Word Embeddings and Retrieval Models. In: Jose J. et al. (eds) Advances in Information Retrieval. ECIR 2020. Lecture Notes in Computer Science, vol 12036. Springer, Cham. https://doi.org/10.1007/978-3-030-45442-5_7
- F. De Prieëlle, M. De Reuver and J. Rezaei, “The Role of Ecosystem Data Governance in Adoption of Data Platforms by Internet-of-Things Data Providers: Case of Dutch Horticulture Industry,” in IEEE Transactions on Engineering Management, doi: <https://doi.org/10.1109/TEM.2020.2966024>.
- Breitfuss G., Fruhwirth M., Pammer-Schindler V., Stern H., Dennerlein S. (2019) The Data-Driven Business Value Matrix - A Classification Scheme for Data-Driven Business Models, In Proceedings of the 32nd Bled eConference – Humanizing Technology for a Sustainable Society, Bled, Slovenia. DOI: <https://doi.org/10.18690/978-961-286-280-0>

¹ safe-deed.eu/category/publications, last accessed Nov 12, 2021.

- Bouwman, H., de Reuver, M., Heikkilä, M. et al. (2020). Business model tooling: where research and practice meet. *Electron Markets* 30, 413–419. <https://doi.org/10.1007/s12525-020-00424-5>
- Breitfuss, Gert & Fruhwirth, Michael & Wolf-Brenner, Christof & Riedl, Angelika & Reuver, Mark & Ginthoer, Robert & Pimas, Oliver. (2020). Data Service Cards - A Supporting Tool for Data-Driven Business. In *Proceedings of the 33rd Bled eConference*. <https://doi.org/10.18690/978-961-286-362-3.40>.
- Agahari, Wirawan. (2020). Platformization of data sharing: Multi-party computation (MPC) as control mechanism and its effect on firms' participation in data sharing via data marketplaces. In *Proceedings of the 33rd Bled eConference* <https://doi.org/10.18690/978-961-286-362-3.49>.
- Bampoulidis A., Bruni A., Markopoulos I., Lupu M. (2020) Practice and Challenges of (De-) Anonymisation for Data Sharing. In: Dalpiaz F., Zdravkovic J., Loucopoulos P. (eds) *Research Challenges in Information Science. RCIS 2020. Lecture Notes in Business Information Processing*, vol 385. Springer, Cham. https://doi.org/10.1007/978-3-030-50316-1_32
- Maria Eichlseder and Lorenzo Grassi and Reinhard Lüftenegger and Morten Øygarden and Christian Rechberger and Markus Schafneger and Qingju Wang (2020). An Algebraic Attack on Ciphers with Low-Degree Round Functions: Application to Full MiMC. *Cryptology ePrint Archive*, Report 2020/182.
- Alexandros Bampoulidis, Alessandro Bruni, Lukas Helminger, Daniel Kales, Christian Rechberger, Roman Walch (2021). Privately Connecting Mobility to Infectious Diseases via Applied Cryptography, <https://arxiv.org/abs/2005.02061v3>, last accessed November 29, 2021.
- Lukas Helminger, Daniel Kales, Sebastian Ramacher, Roman Walch (2021). Multi-Party Revocation in Sovrin: Performance through Distributed Trust. *Topics in Cryptology – CT-RSA 2021*.
- Wirawan Agahari, Riccardo Dolci, Mark de Reuver (2021). Business model implications of privacy-preserving technologies in data marketplaces: The case of multi-party computation. *29th European Conference on Information Systems – Human Values Crisis in a Digitizing World*.
- Abbas, A. E., Agahari, W., van de Ven, M., Zuiderwijk-van Eijk, A. M. G., & de Reuver, G. A. (Accepted and forthcoming). Business Data Sharing through Data Marketplaces: A Systematic Literature Review. *Journal of Theoretical and Applied Electronic Commerce Research*.
- **Upcoming:**
 - (In preparation) Does Multi-Party Computation Enhance Perceived Security and Trust in Data Sharing in Supply Chains? Vidyottama Faujdar, Wirawan Agahari, Mark de Reuver, Tobias Fiebig
 - (Under review) “Whispering in the Tubes: The confidentiality of communication principle in the 5G era” Alessandro Bruni, Peggy Valcke, 2021, Open Research Europe (EC)

2.2.2 Theses

Safe-DEED produced two PhD theses and nine master theses. Topics and authors are detailed below.

- **PhD theses:**
 - Agahari, W. Platformization of data sharing: Secure multi-party computation as platform control and its effect on firms' participation in data sharing via data marketplaces, TU Delft
 - Helminger, L. Privacy Enhancing Technologies from Cryptography: Strengths, weaknesses, and interplay of Differential Privacy, Secure. Know-Center GmbH/Graz University of Technology
- **Master theses:**
 - Kumar, J. (2019). Enabling Data Marketplaces with Multi-Party Computation (MPC): An Exploratory Study investigating the Implication of the Maturation of Multi-Party

- Computation (MPC) technology to the Architecture and the Threat Landscape of the Data Marketplaces. MSc thesis, Delft University of Technology
- Kashyap, M. (2019). Effectiveness of Market Segmentation techniques using Data Sharing in the Telecom industry. MSc thesis, Delft University of Technology
 - Faujdar, V. (2019). Customer Acceptance of a Revenue Management Platform with Multi-Party Computation: Application of Multi-Party Computation to Revenue Management in the Semiconductor Industry. MSc thesis, Delft University of Technology.
 - Prlja, E. (2019). Discovering Business Models of Data Marketplaces. MSc thesis. Graz University of Technology
 - Dolci, R. (2020). Realising platform control in data marketplaces through Secure Multi-Party Computation: A qualitative study exploring the use of Secure Multi-Party Computation (MPC) as an instrument for realising platform control in data marketplaces. MSc thesis. Delft University of Technology.
 - Petronia, M. (2020). Multiparty Computation: The effect of multiparty computation on firms' willingness to contribute protected data. MSc thesis. Delft University of Technology.
 - Steiner, P. (ongoing). Covert Security with Public Verifiability for Mobile Contact Discovery. MSc thesis. Graz University of Technology
 - Grass, A. (ongoing). Private Selective Aggregation. MSc thesis. Graz University of Technology
 - Holzknicht, F. (ongoing). Private Computations Using Android. BSc thesis. Graz University of Technology

2.3 Broader Community and Industrial Market

As described in D8.7, Safe-DEED has already organized two business-related workshops: the “Business Model Workshop” in Barcelona (May 27, 2019) and Graz (Nov 6, 2019). The goal of these workshops was to collect input and feedback for the data-driven business model tools. These tools, including the Data Map, the Data Service Cards, and the Data-driven Business Canvas, were further developed throughout the project. Ultimately, Safe-DEED researchers Gert Breitfuss (KNOW), partially supported by Leonie Disch (KNOW), presented the final versions in two workshops (the “3rd Think Tank in Life Sciences” on June 23, 2021, see Figure 1, and the “Plattform I4.0 Event” on Nov 17, 2021) and in student lectures (the “Lecture Industrial Management” on Dec 12/18, 2020, the “Lecture Data Driven Services Development” on June 18 and Nov 22, 2021, see Figure 2, and the “Lecture MSc/MBA Service Engineering” on Oct 7, 2020).

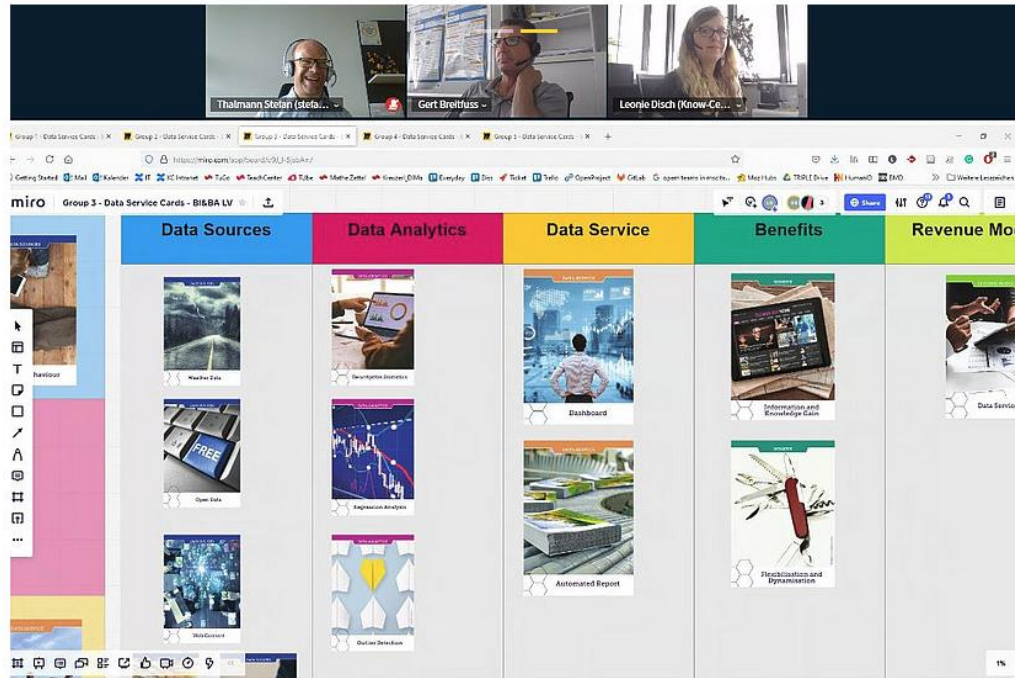


Figure 1: The data-driven service card used in the 3rd Think Tank in Life Sciences (23.07.2021).

(Pic Source: https://www.humantechnology.at/en/news/news/single-view?tx_news_pi1%5Baction%5D=detail&tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Bnews%5D=282&cHash=90ad33fd1213cded7afbaed10877955d)

Data-Driven Service Development

Freitag, 18.06.2021



Gastvortrag von Gert Breiffuss und Leonie Disch vom Know-Center GmbH

Figure 2 : DDBM Tools used in the lecture Data Driven Services Development

(Pic Source: <https://operations.uni-graz.at/de/neuigkeiten/detail-1/article/data-driven-service-development/>)

Another important dissemination activity included the establishment of the Safe-DEED Professional Partners Community. This community helps stakeholders interested in Safe-DEED to familiarize themselves with the developed technologies and fosters networking among them. Details about the community are given in Section 4.1 on p. 32.

2.3.1 KNOW Center Summer Academy

The Safe-DEED partner KNOW held this series of webinars in summer 2020. The topics cover a broad range of Big Data and Artificial Intelligence topics, such as federated machine learning or quantum machine learning. Besides these topics, the academy also included a webinar on privacy-preserving analytics, which is highly relevant in the context of Safe-DEED.

2.3.2 Safe-DEED Closing Event

The project will be closed with the Safe-DEED closing event, a one-day event covering a broad variety of Safe-DEED related topics. Project researchers will present their results and insights. The event will take place on Dec 2, 2021, Park Inn by Radisson Leuven, Martelarenlaan 36, B-3010 Leuven. It is both physical and online. The Centre for IT & IP Law at KU Leuven, Belgium, hosts the event. Table 2 represents the agenda of the event.

Table 2: The agenda of the Safe-DEED closing event.

Time	Activity	Topic	Speakers
08.30-09.00	Registration		
09.00-09.20	Welcome	<ul style="list-style-type: none"> • Safe-DEED Consortium Coordinator • EC P.O. • KU Leuven-CiTiP Representative 	Gert Breitfuss Stefano Bertolo Prof. Thomas Margoni
09.20-09.30	First morning block Introduction	Overview of the regulatory framework of the Data Economy ecosystem	Julie Baloup
09.30-10.15	Legal aspects of data of the Data Economy	Data Ownership challenges in Data Market Joint controllership CiTiP White Paper on DGA	Prof. Thomas Margoni Stephanie Rossello & Pierre Dewitte Charlotte Ducuing
10.15-10.50	(introduction to) keynote speaker	ELI/ALI Data Principles	Prof. Matthias Storme Prof. Christiane Wenderhorst
10.50-11.10	Response	Addressing ELI Principles	Prof. Alain Strowel
11.10-11.25	Q&A session	First block Q&A session	
11.25-11.45	Break		
11.45-11.55	Second block Introduction	Introduction of the second part of the morning session and its keynote speakers	<i>Expert from the TU Delft partner</i>
11.55-13.00	Beyond legal challenges	Technical keynote speakers	Dr. Claudia Werker Dr. Ais Connolly Lukas Helminger
13.00-13.20	Keynote speaker	The Impact of Data Marketplaces on Fundamental Rights: current and proposed EU policy	Massimo Attoresi
13.20-13.30	Q&A session	Second block Q&A	
13.30-14.30	Lunch		
14.30-14.40	Session introduction	Introduction of the afternoon session by KU Leuven	Dieter Decraene
14.40-15.00	Afternoon Keynote speaker	Legal and Ethical challenges of the DataVaults project	Marina Cugurra
15.00-16.20	Safe-DEED, a story of success	Presentations of project results by Safe-DEED partners 20' each	Dr. Mark de Reuver (or one of his team) Dieter Decraene Mihnea Tufis Lukas Helminger
16.20-16.30	Break		
16.30-17.00	Success Stories: Safe-DEED and beyond	TRUSTS and Safe-DEED professional partners: 20' each + 10' Q&A	Professional partners involved in the two projects: Ioannis Markopoulos & Evangelos Kotsifakos Bert Utermark

17.00	Closing	Safe-DEED Closing	Dr. Stefan Gindl
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3 Communication

In this section, we describe communication activities to inform the general and scientific audience about the outcomes of the project. We used a combination of online and printed material. Given the Covid situation, the online presence became more and more important. As every project, Safe-DEED features a project website as well as respective social media channels, specifically Twitter and LinkedIn. They are completed by video lectures and webinars. The massive online learning platform edX² host multiple of these educational videos, which increases their visibility and reach.

In the following, we explain each of these aspects in more detail.

3.1 Updates to the Project Website

We provide a wide variety of material to disseminate the knowledge and outcomes of the project. Foremost, Safe-DEED has a website³ with all relevant content and updates about events and activities of the project, as well as all resources such as publications and deliverables. Deliverable D8.7 provided the website status by the end of November 2020. In the meantime, the following pages have been added to the website:

- **Business model tools⁴:** The business model tools is a toolkit consisting of the “Data map”, the “Data service cards”, and the “Data-driven business canvas”.
- **FAQ⁵:** This FAQ covers legal aspects of multi-party computation.
- **Video lectures⁶:** the video lectures cover the topics “The value of data”, “Data marketplaces”, “Ethical guidelines”, “The protection of personal data”, “The free flow of non-personal data in the EU”, “The valuation of data”, “Organizational trust”, “Encryption”, “Legal Q&A”.
- **Webinars⁷:** these educational videos explain the topics “Legal aspects of data sharing platforms”, “Privacy preservation in data markets”, “Business aspects of data markets”.

3.2 edX Massive Online Learning

An important aspect of the educational outreach in Safe-DEED was the massive online learning using the platform edX⁸. The platform, which has its origin at MIT and Harvard, gives the following usage numbers in its 2021 impact report⁹:

- 110 million enrollments by 2020,
- 35 million registered online learner, with 85.000 online learners per day,
- 39 million hours of consumed video material, and
- 15.000 instructors.

Given these impressive numbers, the edX platform was the logical choice as an educational platform. Safe-DEED material was included in the two courses “The Value of Business Models” and “Business

² <https://www.edx.org/>, last accessed Nov 16, 2021.

³ <https://safe-deed.eu/>, last accessed Nov 16, 2021.

⁴ <https://safe-deed.eu/data-driven-business-model-tools/>, last accessed Nov 15, 2021.

⁵ <https://safe-deed.eu/legal-faq-mpc/>, last accessed Nov 15, 2021.

⁶ <https://safe-deed.eu/video-lectures/>, last accessed Nov 15, 2021.

⁷ <https://safe-deed.eu/webinars/>, last accessed Nov 15, 2021.

⁸ <https://www.edx.org/>, last accessed Nov 16, 2021.

⁹ <https://www.edx.org/edx-impact-report-2021>, last access Nov 16, 2021.

Model Implementation”. The former had 26.000 enrollments on the launch day, the latter had 17.000 enrollments. Figure 3 shows the screenshot of instructions on data-driven business models, included in the course “The Value of Business Models”.

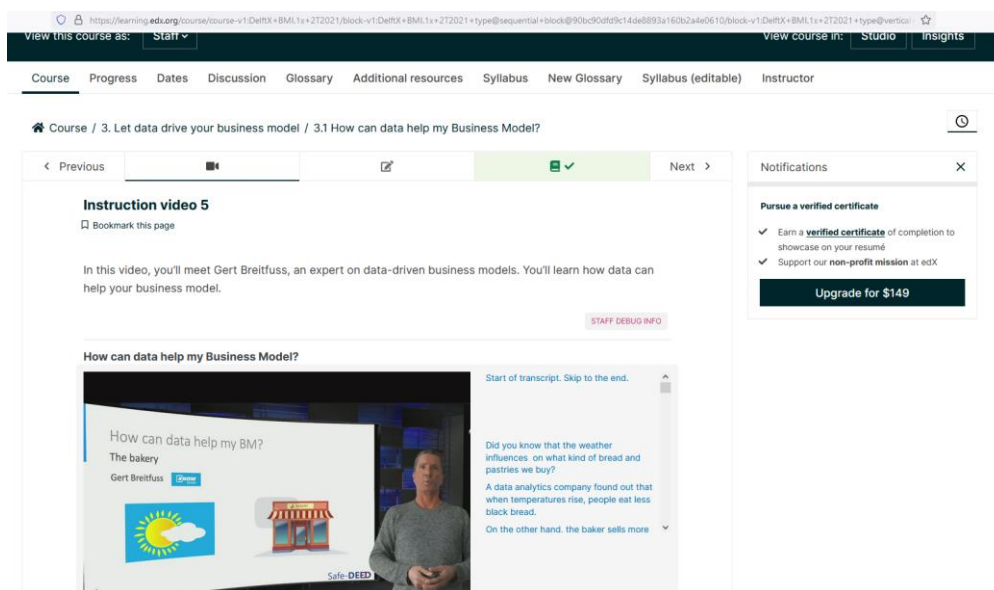


Figure 3: Online lecture on the edX platform.

3.3 Video Lectures, Webinars

Safe-DEED has produced a variety of digital resources to familiarize the community with the project and its output. A highly important resource to mention are the three webinars covering legal, business, and technological aspect (see Table 3 for details and Figure 4 for an example).

Table 3: The details of the Safe-DEED webinars (also listed in D8.4).

Safe-DEED Webinars			
	Title	Speaker	Date
1	Legal aspects of data sharing platforms	Ioannis Markopoulos (FNET=NOVA) Alexandros Bampoulidis (RSA)	March 31, 2021, 11:00-12:00
	Link: https://www.youtube.com/watch?v=8qoMS7UejM0		
2	Privacy preservation in data markets	Ioannis Markopoulos (FNET=NOVA) Alexandros Bampoulidis (RSA)	April 21, 2021, 11:00-12:00
	Link: https://www.youtube.com/watch?v=phrNyQG8IW0&t=1s		
3	Business aspects of data markets	Ioannis Markopoulos (FNET=NOVA) Gianna Avgousti (EBOS)	May 10, 2021, 11:00-12:00
	Link: https://www.youtube.com/watch?v=9MW7uWKv8n8		

The webinars were organized and hosted in conjunction with our related H2020 project TRUSTS¹⁰. Each webinar was held by two Safe-DEED researchers and moderated by another person from the Data Intelligence Offensive¹¹, a TRUSTS partner. The webinars had a duration of roughly one hour, including a Q&A session at the end of each webinar. The webinars were additionally used to promote the professional partners community.



Figure 4: The Safe-DEED webinar “Privacy Preservation in Data Markets” .

3.4 Safe-DEED Data-driven business toolkit

To make the Safe-DEED data-driven business toolkit available to a large audience the WP2 team decided to publish the tools online via Business Makeover (BMO) platform. This platform aims to support SMEs in an easy-to-use way to develop, evaluate and plan new business models. The provided business model tools including the new Safe-DEED tools are freely available.

The Safe-DEED tools can be reached directly via the following links or via selection out of the tool section of the platform <https://businessmakeover.eu/tools> (see Figure 5).

Data Map:	https://businessmakeover.eu/tools/safe-deed-data-map
Data Service Cards:	https://businessmakeover.eu/tools/safe-deed-data-service-cards
DDB Canvas:	https://businessmakeover.eu/tools/safe-deed-data-driven-business-canvas

¹⁰ <https://www.trusts-data.eu/>, last accessed Nov 16, 2021.

¹¹ <https://www.dataintelligence.at/>, last accessed Nov 16, 2021.

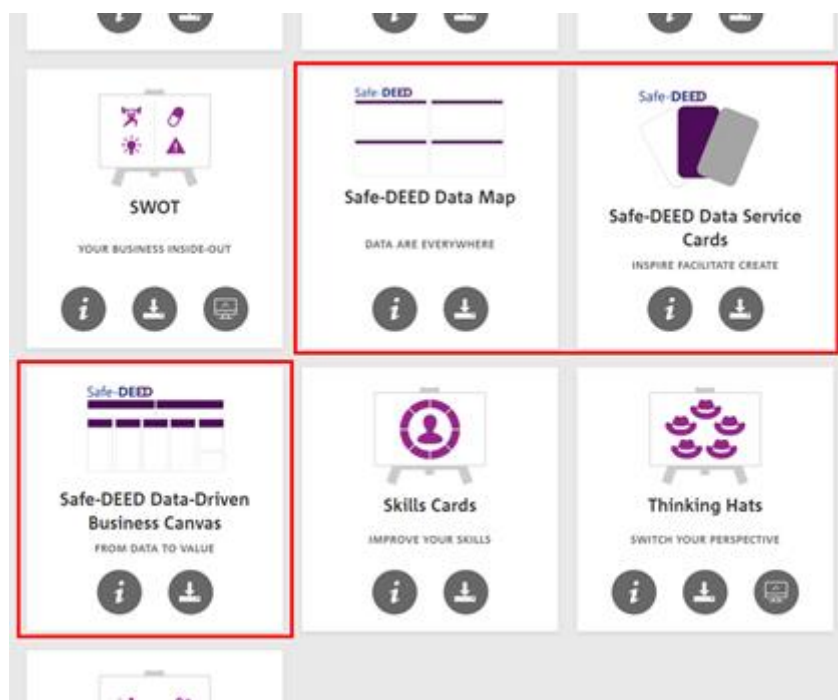


Figure 5: Safe-DEED tooling on BMO tool section

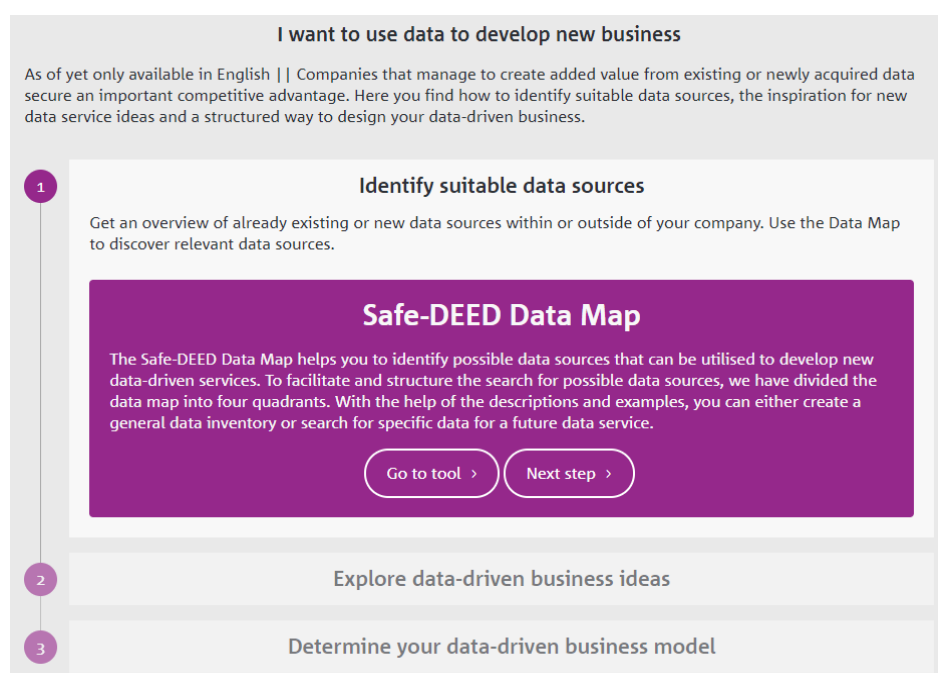


Figure 6 Safe-DEED Data Driven Innovation Process on BMO.

Additionally, the three tools are embedded in a systematic innovation process description “I want to use data to develop new business” with direct links to the Safe-DEED tools (see Figure 6)

As the BMO platform attracts an increasing number of users (approx. 25k in 2020) from all over the world (focus on EU countries and USA) the provision of the Safe-DEED data driven business tools on the platform is a valuable occasion for promotion of the Safe-DEED project results. Google analytics

figures show a constant interest on the Safe-DEED Tooling of about 250 views for each of the three tools from Jan 2021 to Sept 2021 (see Figure 7)

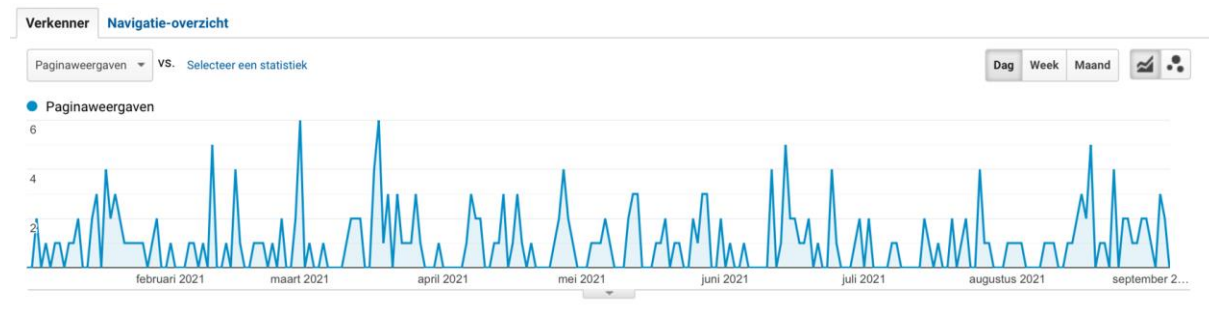


Figure 7: Page views of Safe-DEED Data Driven Business Canvas from Jan 2021 to Sept. 2021.

3.5 Public demonstrators

The Safe-DEED demonstrator for private data exchange has followed an incremental development process starting from the technology integration towards a fully fledged environment demonstrating data exchange possibilities under widely used business scenarios and privacy preservation regulations e.g. GDPR (see Figure 8).

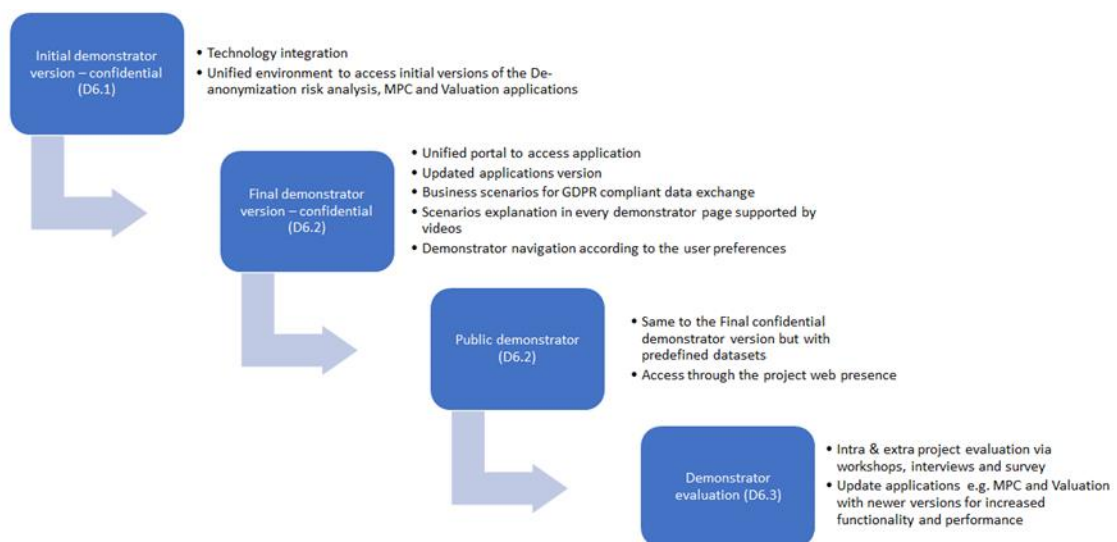


Figure 8: Private Data Exchange Demonstrator implementation process and functionality

The demonstrator integrates applications that are built in different programming languages (Python, Java, C) and with different approaches. This approach safeguards openness and expandability of the demonstrator.

A common Graphical User Interface (GUI) has been implemented and the applications have been tested using real anonymized CRM data from NOVA. It is available on the Safe-DEED demo page¹² (see Figure 9).

¹² <https://demo.safe-deed.eu>, last accessed, Nov 24, 2021.

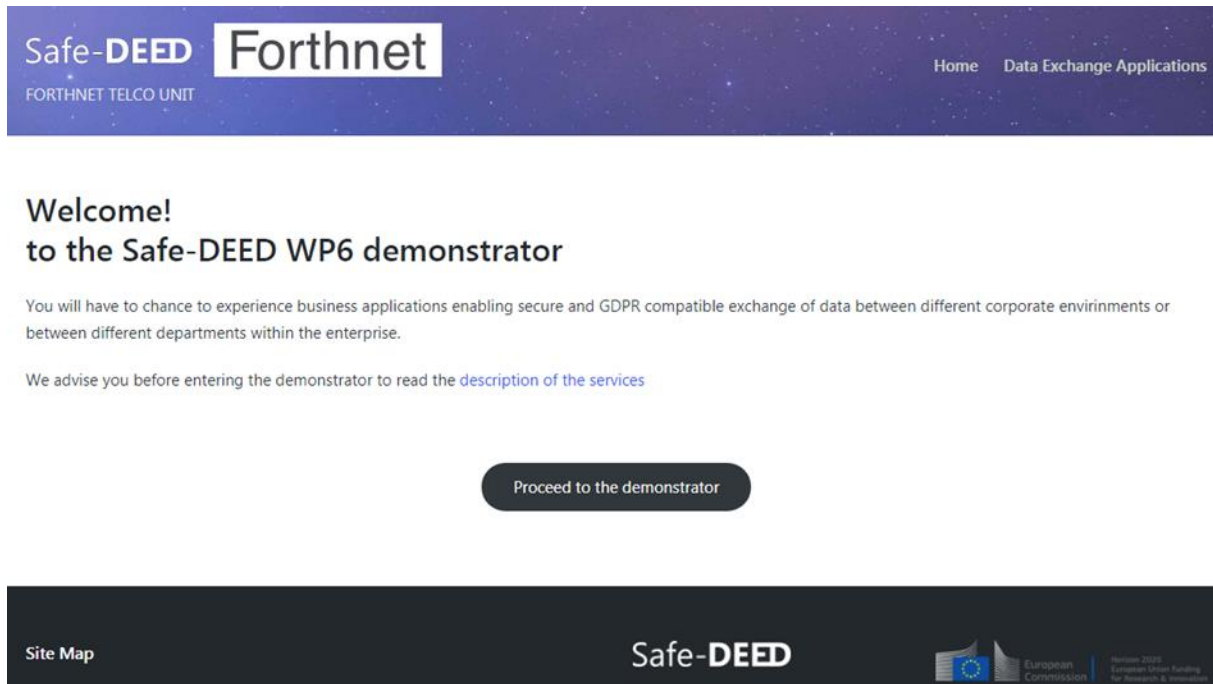


Figure 9: The demonstrator welcome screen

One of the main goals of WP6 is to provide concrete business scenarios assisting the incorporation of advanced privacy solutions to emerging business processes thus assisting enterprises and organizations digital transformation as well as the creation of the digital ecosystem.

These scenarios are:

Joint Data usage within corporate environments: It addresses the need of secure joint data usage between different units in a corporate environment

Joint Data usage between different enterprises in the same domain: It addresses the secure data exchange need between different enterprises who find it useful to analyse each other's data e.g. MPC/PSI usage between telecom and banking companies aiming at intersecting their CRMs.

Joint Data usage between different enterprises in different domains: Enterprises would like to establish standards processes to be able to share their data with specialised external entities e.g. data analysis consultants, to perform the analysis.

Data valuation: Safe-DEED aims at providing tools to facilitate the assessment of data value, thus incentivizing data owners to make use of the cryptographic protocols to create value for their companies and their clients.

In order to access the services a login page has been added to demonstrate the different roles that can be supported.

According to GDPR processes two user roles have been defined:

Private data controller: The user has the ability to access private data and perform the Safe-DEED WP6 demonstrator processes.

No private data access: The user does not have the ability to access private data. Access is granted only to reports generated by the applications which do not contain private data.

The Safe-DEED project has deployed a set of multidisciplinary activities to disseminate the project outcomes, ranging from building a professional community to organizing workshops.

Beyond the respective activities that were reported by WP8, WP6 has launched the final set of the evaluation activities.

The evaluation methodology consists of:

- Intracompany evaluation workshops.
- Demonstration and interviews with domain professionals.
- Liaising with external projects to launch a survey.

3.6 Success Metrics

3.6.1 Metrics for the Website

The Safe-DEED website¹³ is an important channel to broadcast outcomes and important information around the project. It was built using WordPress. The following metrics were created with Google Analytics¹⁴.

Figure 10 shows the timeline of website visits over the last month, i.e. from Oct 18 - Nov 14, 2021. The visits remained stable and are roughly comparable to the website visits of the previous month, as indicated by the dashed line.



Figure 10: Website visits from Oct 18 - Nov 14, 2021 (the dashed line is a comparison with the month before; screenshot from Nov 15, 2021).

The timeline of website visits in the third year (see Figure 11) of Safe-DEED show a significant increase of users as compared to the previous years (see Figure 12). Both the number of users as well as the number of sessions have increased from 1.300 users/2.000 sessions in the second year to 5.100 users/6.900 sessions in the last year. However, this positive development came with a negative

¹³ <https://safe-deed.eu/>, last accessed Nov 15, 2021.

¹⁴ <https://analytics.google.com/analytics/web/provision/#/provision>, last accessed Nov 15, 2021.

development in the session duration, which decreased from two minutes and eight seconds in the second year to 33 seconds in the last year. When comparing the average session duration of the last year with the average duration during the last month, we see that the duration actually increased to two minutes. A reason for the rather negative yearly session duration could be the long period of inactivity from April to July 2021.

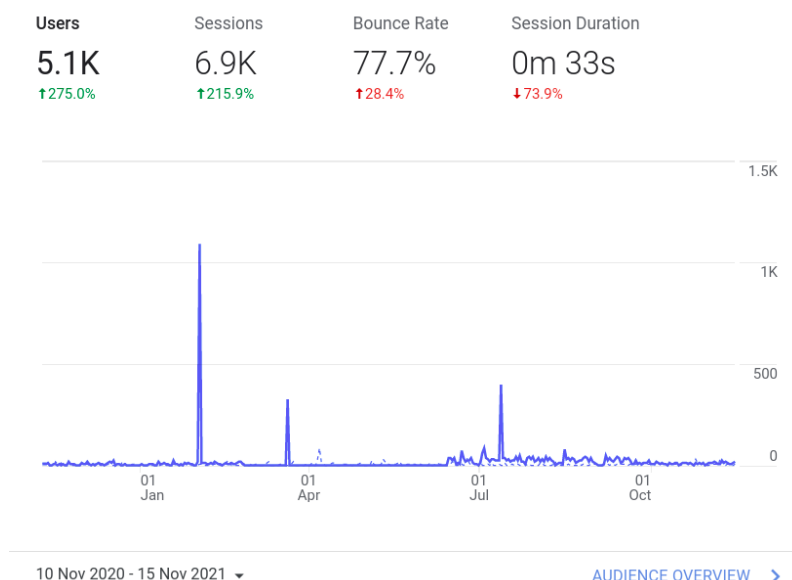


Figure 11: Website usage in the third year of Safe-DEED (screenshot from Nov 15, 2021).

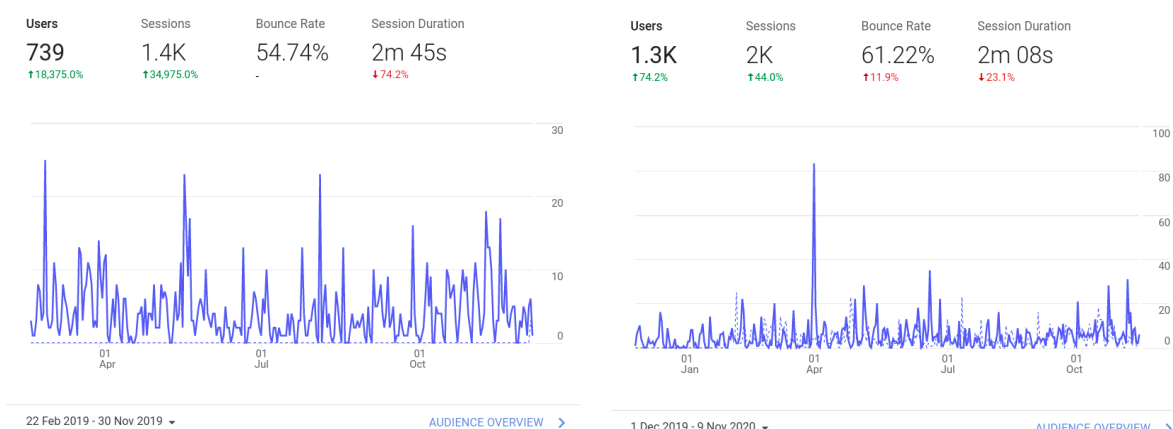


Figure 12: Usage statistics from the first (left image) and second year (right image) of Safe-DEED (screenshots from Nov 15, 2021).

The most successful page of the Safe-DEED website are the deliverables, with 70 page views in the period from Oct 18 - Nov 14, 2021 (see Figure 13). It is followed by the project partners with 30 views, the data-driven business model tools with 23 views, and the publications and members sections with 15 views each.

Page	Page Views	Page Value
/	180	\$0.00
/deliverables/	70	\$0.00
/project-partners/	30	\$0.00
/data-driven-business-model-tools/	23	\$0.00
/category/publications/	15	\$0.00
/our-members/	15	\$0.00
/wp-business-model-innovation/	14	\$0.00
/wp-security-privacy-2/	13	\$0.00
/simulating-the-impac...ustrys-supply-chain/	12	\$0.00
/wp-industrial-data/	12	\$0.00

18 Oct 2021 - 14 Nov 2021 ▾ [PAGES REPORT >](#)

Figure 13: Usage statistics per page of the Safe-DEED website (screenshot from Nov 15, 2021).

The Safe-DEED website is most prominent in Indonesia, followed by Germany, Austria, Belgium, and lastly China. Most people look at the website from their desktop computers (77.3%), a minority uses their mobile devices (22.7%). The favorite time to go to the website is between 8:00 and 16:00. Figure 14 shows visualizations of these metrics.

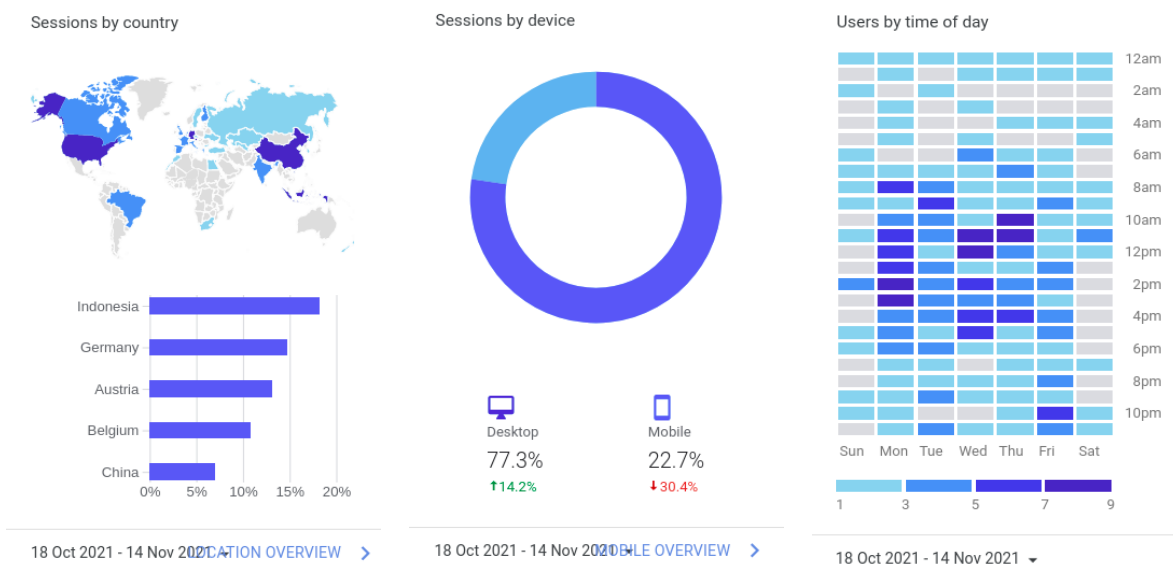


Figure 14: Usage statistics of the Safe-DEED website (screenshots from Nov 15, 2021).

3.6.2 Metrics for Social Media

The Twitter profile of Safe-DEED has the handle “@SafeDEED”. It has 188 followers and 247 Tweets. Compared to the previous dissemination deliverable D8.7, the follower number increase by 56 from 132. Figure 15 shows a screenshot of the Twitter profile.



Figure 15: The profile page of the Safe-DEED Twitter account, showing the number of followers (screenshot from Nov 16, 2021).

Figure 16 shows the activity on our Twitter profile in the three months before the creation of this report.

Your Tweets earned **2.2K impressions** over this **91 day** period

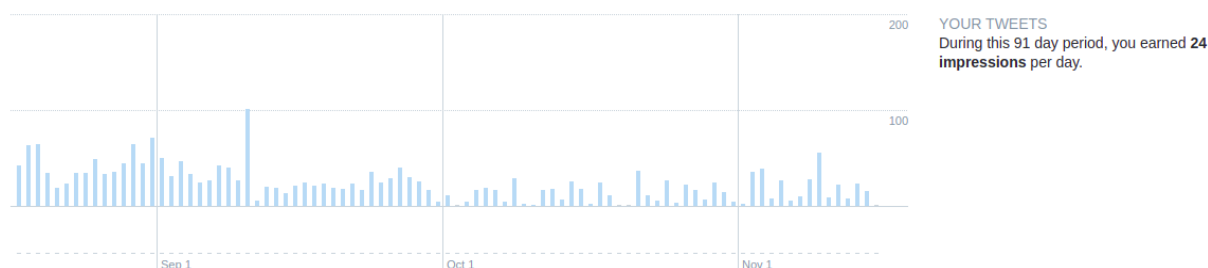


Figure 16: Twitter activity from Aug 17 - Nov 15, 2021 (screenshot from Nov 16, 2021).

At the time of writing of the previous deliverable D8.7, Safe-DEED did not yet have a page on LinkedIn. Instead, a private group existed on LinkedIn. However, the features of private groups were deemed insufficient for the purposes of the project. Consequently, we created a public page as an additional channel to broadcast news from the project. Figure 17 shows a screenshot of the profile page. The page achieved 49 followers so far.

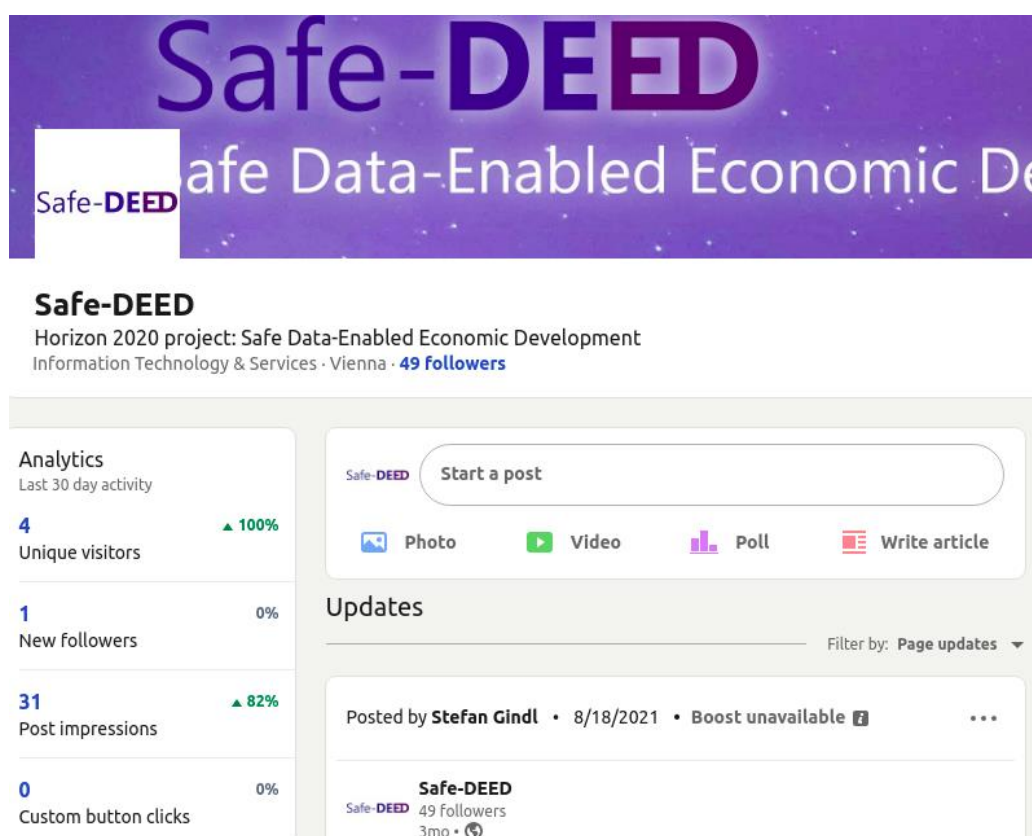


Figure 17: The profile page of the Safe-DEED LinkedIn page (screenshot from Nov 16, 2021).

Figure 18 shows the timeline of page views on the Safe-DEED LinkedIn page. The short time frame of the page existence was a limiting factor for the creation of a larger and livelier community.

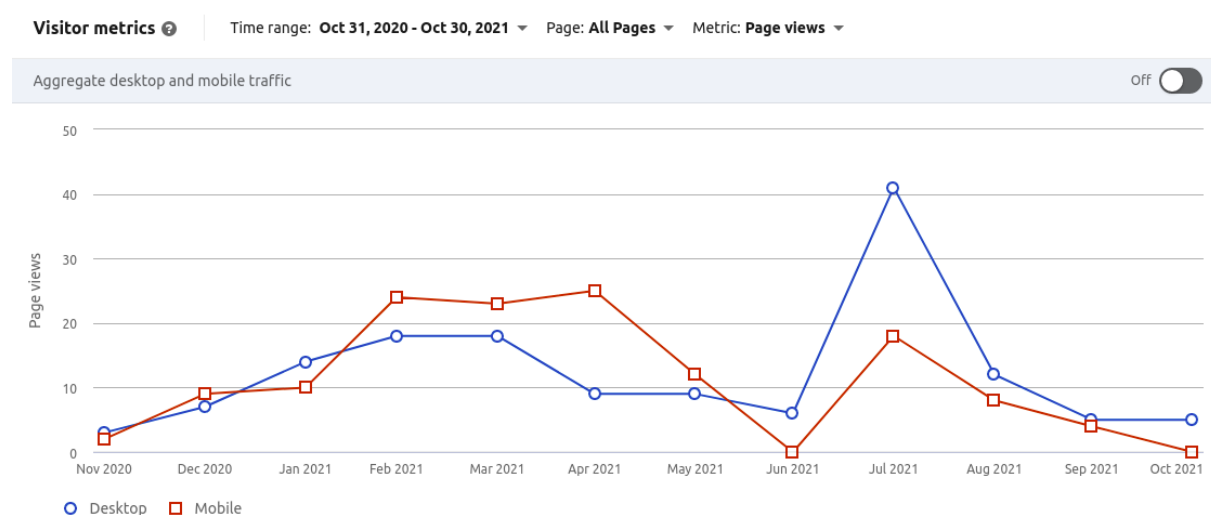


Figure 18: Timeline of page views achieved on the Safe-DEED LinkedIn page from Oct 31, 2020 - Oct 30, 2021 (screenshot from Nov 16, 2021).

3.6.3 Summary of KPIs

Table 4 summarizes the Safe-DEED KPIs for different aspects, list the defined success criteria, as well as their success status.

Table 4: Status of success metrics.

Channel	KPI	Success criterion	Status	
Scientific publications	Number of journal and conference papers	$\geq 4/\text{year}$	17 in total	✓
Workshops	Number of events	$\geq 1/\text{year}$	Safe-DEED Closing event	✓
	Number of participants	$\geq 10/\text{workshop}$	21 ¹⁵	✓
Promo material	Number of posters/roll-ups	$\geq 3/\text{year}$		
Project website	Number of visits	100/month	319 (Oct 16 - Nov 14, 2021)	✓
	Average time of visits	1 minute	2m 5s	✓
Twitter	Number of followers	$\geq 50/\text{year}$	188 in total	✓
	Number of posts	$\geq 2/\text{month}$	247 in total	✓
LinkedIn	Number of group members	≥ 100 at project end	49 ¹⁶	~
	Number of posts/discussions	$\geq 1/\text{month}$	41 in total on the page	✓
Press releases	Number of releases	2/year		
Newsletter	Number of e-mail newsletters	1/quarter		
	Subscribers	$\geq 50/\text{year}$	115	×

4 Engagement

To further foster the data-driven economy, Safe-DEED established a professional partners community. This community consisted of organization and businesses with data-driven background. The purpose of the community is to establish a lively network to exchange innovative ideas for mutual benefit, but also

¹⁵ This is the number of registered speakers, listed in the event's agenda: <https://www.law.kuleuven.be/citip/en/news/item/safe-deed-closing-event-addressing-legal-technical-and-ethical-challenges-in-the-data-market-context>, last accessed November 29, 2021.

¹⁶ In year 3 of Safe-DEED we decided to discontinue with the LinkedIn group and use a page instead, for better visibility. Despite considerable efforts to attract members, this late start slowed down our acquisition activities.

to express concerns and obstacles that might limit or stop data-driven businesses. In the following, we describe the details of the PPC.

4.1 Safe-DEED Professional Partners Community (PPC)

The Safe-DEED PPC is a community of stakeholders interested in the technologies and outcomes of the projects. It consists of organizations and companies with a data-related background. Membership of the PPC gives exclusive access to selected Safe-DEED resources and services, e.g. one-to-one interviews with Safe-DEED researchers to discuss potential applications of the project's technologies within the context of a given organization. Furthermore, PPC members are encouraged to do networking and share insight about data-driven innovations.

We acquired PPC members through personal networks, webinars, mass emails, and calls in social media. The different acquisition channels proved to have different levels of success, leveraging the personal networks of Safe-DEED partners proved to be the most efficient way of acquiring new members. As stated in the Safe-DEED grant agreement, we were able to acquire 30 members for the PPC. Safe-DEED deliverable “D8.4 Report on the Professional Partners Community” contains all details related to the PPC. In the following, we give an overview of our PPC acquisition strategy, we list the acquired PPC members, and summarize activities carried out with members.

4.1.1 Acquisition of PPC Members

In order to identify the optimal acquisition strategy and align it with the project partners, we held an online workshop to brainstorm about the approach to be used. We used the online platform Mentimeter¹⁷ to expose online polls and gather feedback from the participants. These platforms shed light on such questions as to how to keep registered members interested in the activities of the PPC (see Figure 19).

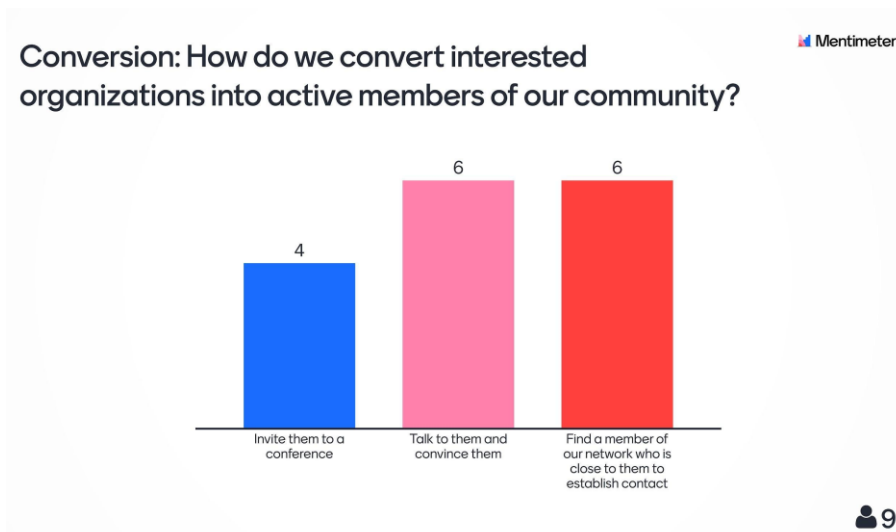


Figure 19: Results of the Mentimeter poll for the question on how to convert organizations to active PPC members.

We leveraged a variety of channels, e.g. email announcements, social media posts, and personal networks, to notify potential stakeholders about a potential membership in the Safe-DEED PPC.

¹⁷ <https://www.mentimeter.com/>, last accessed Nov 15, 2021.

Supplementary material was the Safe-DEED flyer, which informed potential members about the PPC and the benefits of a membership (see Figure 20).

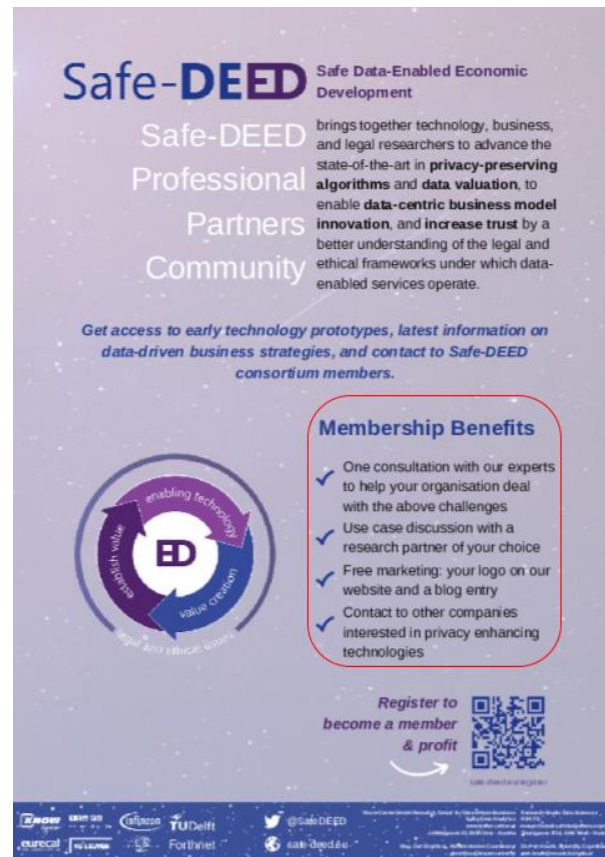


Figure 20: Information flyer sent out to potential PPC members.

The registration of new members was a four-step process. In the first step, interested new members registered their organization on the respective page of the Safe-DEED website¹⁸. The registration was manually verified in the second step. Verification encompassed a detailed check of the company, e.g. validity of contact details. After successful verification, the new members were officially welcomed to the PPC. Their membership was announced on the social media channels. After these steps, a member is officially considered a member of the Safe-DEED PPC. Figure 21 gives an overview of this process.

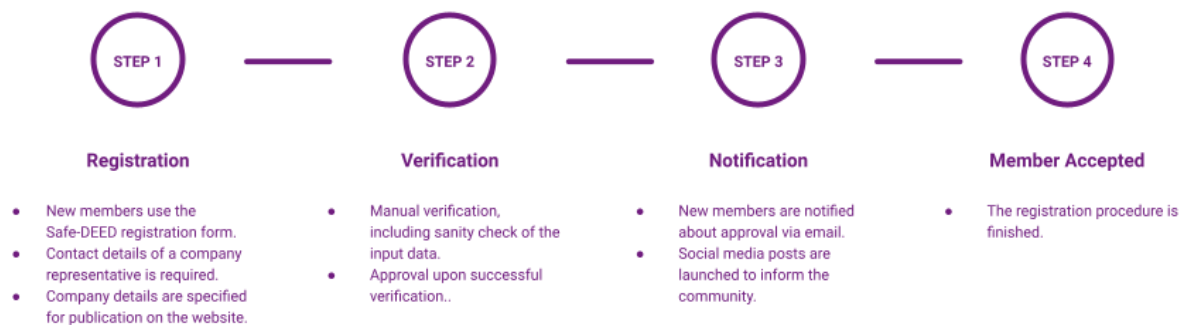


Figure 21: The acquisition procedure of the PPC.

¹⁸ <https://safe-deed.eu/register/>, last accessed Nov 15, 2021.

4.1.2 List of PPC Members

By the end of the project, the PPC consisted of the following 30 members, as promised in the Safe-DEED grant agreement:

1. Data Intelligence Offensive (DIO)
2. ID Ward
3. Tributech Solutions GmbH
4. Foundation for Research and Technology Hellas, Institute of Computer Science
5. Trusted Data Analytics (TDA)
6. FRAISS IT GmbH
7. Amsterdam Economic Board
8. Danube Tech GmbH
9. Phenaris GmbH
10. Kalny Future Business GmbH
11. TechMeetsLegal
12. University of Applied Science Upper Austria - Logistikum Steyr
13. Innovalor
14. SpotOn Statistics GmbH
15. Net7 Srl
16. Network Development Hub GmbH
17. Next European Industry
18. Medea S.r.l
19. Catch.direct
20. Volvo Cars
21. Bitfount
22. Artificial Researcher
23. aix solution
24. Trusted Secure Data Sharing Space (TRUSTS)
25. DataVaults
26. Mydex
27. DLTEO
28. EUHubs4Data
29. ZAMG
30. Digital Excellence

An important incentive for organizations to sign up for PPC membership was publicity. Thus, the Safe-DEED website contains a respective page, where all PPC members are listed. Figure 22 shows a snippet of the page.

Our Members

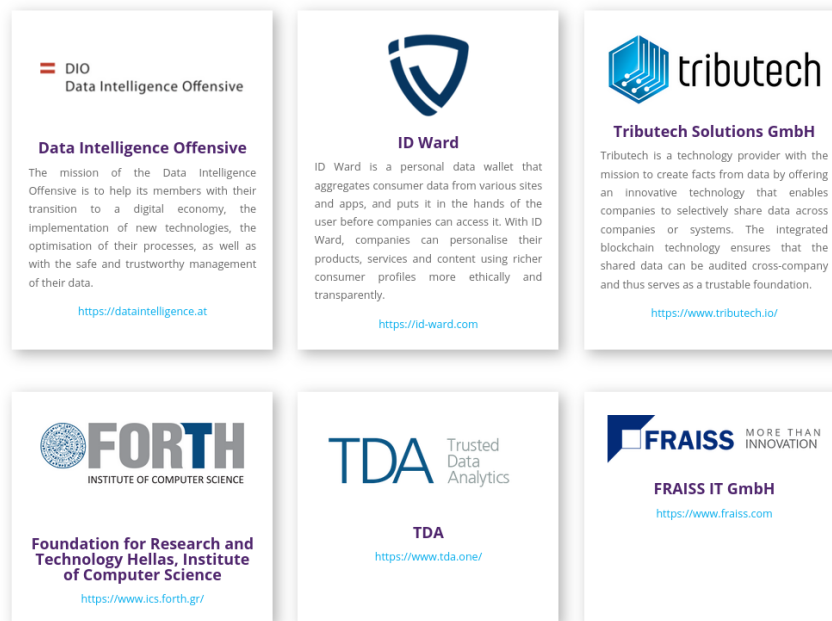


Figure 22: The PPC page on the Safe-DEED website (last accessed Nov 12, 2021).

5 Conclusion

This report described the dissemination, communication, and engagement activities in Safe-DEED, continuing. The outreach to the public and the improvement of visibility of Safe-DEED were crucial aspects of the project, as they are highly important to support the establishment of a data-driven economy. Therefore, Safe-DEED has followed an active strategy of dissemination and outreach. Multiple research articles were submitted to scientific outlets, and the results of the work summarized in these articles was presented in scientific conferences and workshops. The project did not only focus on the scientific community but also established outreach to a more business- and industry-related audience. A wide variety of resources provided information around Safe-DEED topics, covering technological, legal, and business aspects of the project.

The resources consisted of mostly digital formats, given the current pandemic situation. Stakeholders can familiarize themselves with the Safe-DEED contents in webinars, video lectures, on massive online learning platforms, and using a so-called data-driven business model toolkit. The latter is also available physically, in printed form.

Safe-DEED also established a professional partners community, to engage stakeholders from the domain. The goal of this effort is to foster business innovations and ultimately contribute to the creation and establishment of a data-driven economy.

Safe-DEED, besides producing a wide variety of valuable material and resources for the interested audience, was successful in achieving its KPIs. The outreach material produced by Safe-DEED persists even after the project ends, thus carrying further the impact of Safe-DEED beyond the project lifetime.