

Detailed Dissemination & Exploitation plan

Deliverable 8.4

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1. Introduction

This Deliverable is the result of task 8.1. “Exploitation and Dissemination strategy”, whose objective is to define a collaborative dissemination strategy for the project. The Dissemination and Exploitation Plan has the aim to present and discuss the set of actions and activities planned and developed to ensure high visibility, accessibility and promotion of the COSY-BIO project and its results.

This deliverable has been developed with two different purposes:

- to map out the dissemination strategy and outreach efforts during the project period;
- to define the audience, the messages to be disseminated, the tools and the timeline.

Since the dissemination actions are strictly dependent upon the research activities and results during the lifespan of the project, this Dissemination and Exploitation Plan (DEP) will be revised every year (months 24 and 36). If necessary, this DEP will be amended and its goals re-defined, depending on the findings of the project.

The DEP is designed to identify 4 fundamental points:

- What to disseminate? In section (2) the MESSAGE to disseminate is described.
- Who to disseminate to? In section (3) the AUDIENCE to whom the dissemination is aimed is described.
- When to disseminate? In Section (4) a CALENDAR and PLAN of dissemination is described.
- How to disseminate? In section (5) the TOOLS and MECHANISMS of dissemination are described

An additional section (6) describes the list of the finalised, ongoing and planned dissemination activities.

2. The message: what to disseminate?

The main purpose of the COSY-BIO DEP is to ensure that the project research and practical outcomes are widely disseminated to the appropriate target audiences, at appropriate times along the project lifecycle, and particularly at key milestones, via appropriate methods, and that those who can contribute to the development and exploitation of the COSY-BIO project outcomes can be identified and encouraged to interact with the project on a regular and systematic basis.

2.1. General information about the project

In order to make COSY-BIO results useful, they should be of interest and easily accessible to all possible end users. The audience needs to be informed about the project, its progress, its results, its outputs and its legacy.

2.2. Research findings

COSY-BIO develops new software tools, engineers biological systems and produces new knowledge that will outlast the project itself. COSY-BIO contributes also to the enhancement of academic courses and professional training in synthetic and system biology, bioengineering, biophysics, and computational biology.

2.3. Findings relevant to economic and commerce

COSY-BIO contributes to developing innovative biotechnologies for the production of molecules relevant to biotechnological and biomedical industrial sectors.

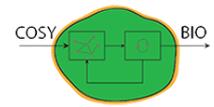
3. The audience: who to disseminate to?

Stakeholder engagement is the key to the success of any dissemination initiative, and stakeholder identification is the first and foremost important task in effective stakeholder engagement. COSY-BIO dissemination activities involve four target stakeholder groups:

- **research community** including scientists both from Life Sciences and Engineering.
- **industries and SMEs** in agriculture, food, chemical, healthcare and pharmaceutical sectors
- **public administrations**
- **society at large** composed by citizens and professionals.

4. The timeline: when to disseminate?

The objectives of the dissemination and exploitation activities are mainly deployed in stages during the project lifetime. Dissemination and communication actions will be organized as follows:



1. **Starting phase (M1-M12): Raising awareness** of project's activities, outputs and benefits through diverse channels to audiences. During this initial phase, the Consortium will elaborate the project identity and produce promotional material. This phase just finished.
2. **Steady phase (M12-M24): Promoting a deeper understanding of new knowledge and results.** During this central phase, as research activities will progress further, COSY-BIO Consortium will produce reports, datasets, publications, present the results to the scientific community and organize special workshop within international conference and summer schools to promote COSY-BIO findings. This will be the core base material for dissemination.
3. **Capitalizing phase (M24-M36): Engaging with target groups** to encourage their willingness to make use of project results.

5. The tools and mechanism: how to disseminate?

5.1. Internal Communication

For internal communication among project members, we will promote the use of IT tools. Direct contact will be maintained by **mail**: two COSY-BIO mailing lists "COSY-BIO PI" and "COSY-BIO general" have been created in order to facilitate the communication among beneficiaries. We created a **dedicated section of the website** restricted to project members, to share project documents. In addition, there will be **annual meetings** between members of the project and midterm meetings between PIs and WP leaders. The Coordinator will hold talks by **phone conference** with partners as often as needed to guarantee optimal information flow and implementation.

5.2. External Communication

5.2.1. Website

The infrastructure for the COSY-BIO Project website is provided by TIGEM, who is in charge of its design and management. Since its release (see Deliverable 8.1), it is continually evolving and increasingly serving as the key information source for both project partners and external visitors. The project website will continuously evolve and develop as the project itself matures. The COSY-BIO webpage provides the necessary function to act as communication and dissemination tool, internal networking platform and information resource. The Coordination Team will continue to manage, extend and improve its usability and functions as needed throughout the project duration.

The home page provides a short introduction to the project and includes the following sections:

- **The Project:** this page briefly describes the main goals and activities of the COSY-BIO project

- **Network:** section dedicated to the presentations of all Partners and their role in the project
- **Publications:** list of scientific publications, with links to the original publications or ZENODO entry
- **News:** general news about the project
- **Events:** events organized by the COSY-BIO partners and project meetings
- **Jobs:** vacancies on COSY-BIO topic by the partners' institutions
- **Products:** this area will include all downloadable material that will be produced and developed during the COSY-BIO project: deliverables, public reports and promotional material.
- **Internal Use:** The role of the restricted area for partners is to have a secure and private place to share official documents and information among partners.

The project website will continuously evolve and develop as the project itself matures. The COSY-BIO webpage provides the necessary function to act as dissemination tool, internal networking platform and working and discussion space and information resource. The coordinator will continue to manage, extend and improve its usability and functions as needed throughout the project duration.

5.2.2. Twitter account

Social networking is part of the COSY-BIO Communication strategy. Currently (June 2018), Twitter (<https://twitter.com/COSYBIO>) is used to tweet COSY-BIO relevant information and news interesting for the Synthetic Biology community. The COSY-BIO social media accounts (currently Twitter is the only platform in place) have been set up by TIGEM but partners are invited to share, (re)tweet and forward relevant information. Additional social media platforms, such as LinkedIn and Facebook, will be considered as the project progresses, if deemed appropriate.

5.2.3. Open Access

The main objective of this task is to permit the free download of COSY-BIO results and outputs.

In order to have a repository of scientific papers, images and software produced during COSY-BIO, TIGEM created the "COSY-BIO Community" in ZENODO, the OpenAIRE 'orphan repository', in Month 6. Additional details on Open Access and Data Management are described in the Deliverable 8.3 "Data Management Plan", released in Month 6.

5.2.4. Training

The main objective of this task is to transfer knowledge created in COSY-BIO to other researchers. This is achieved through training courses, workshop and summer schools. We already had two workshops for

Ph.D. and postdocs part of the COSY-BIO project on “Image Analysis”. One has been organized by INRIA, while the second workshop was organized by TIGEM.

6. Communication activities

6.1. List of dissemination and communication activities - achieved

Activity	Event	Date/Location	Weblink
Presentation	Seminar	25/01/2018	https://www.bristol.ac.uk/brissy/bio/events/2018/menolascina.html
Presentation	1st Symposium of the GW4 Community: Microfluidics and modelling for investigating cellular heterogeneity	7-8/6/2018	https://www.eventbrite.co.uk/e/microfluidics-and-modelling-for-investigating-cellular-heterogeneity-registration-44106663217
Invited presentation, Khammash, ETHZ	Annual Conference of the Association of General and Applied Microbiology/ Cybergenetics Symposium	April 16 Wolfsburg, Germany	https://www.vaam-kongress.de/
Invited lecture, Khammash, ETHZ	UC Berkeley seminar	May 1, 2018/ Berkeley, USA	N/A
Invited lecture, Khammash, ETHZ	UC Santa Barbara Seminar	May 3, 2018 Santa Barbara, USA	N/A
Invited lecture, Khammash, ETHZ	MIT LIDS seminar	May 8, 2018 Cambridge, USA	https://lids.mit.edu/news-and-events/events/rationally-designed-biomolecular-integral-feedback-control-system-robust-gene
Invited presentation, Khammash, ETHZ	Edinburgh Workshop on Synthetic Biology	May 16, 2018 Edinburgh, Scotland	N/A
Invited presentation, Khammash, ETHZ	Network Science Symposium (Paris)	June 11, 2018 Paris, France	https://www.netsci2018.com/
Invited presentation, Khammash, ETHZ	Society for Experimental Biology meeting	July 6, 2018 Florence, Italy	http://www.sebiology.org/events/event/seb-florence-2018
Invited presentation, Khammash, ETHZ	Invited session on Cybergenetics, Conference on Control Technology and Applications	August 23, 2018 Copenhagen, Denmark	http://ccta2018.ieeecss.org/
Invited presentation, Khammash, ETHZ	International Conference on Computational Methods for Systems Biology	Sept. 13, 2018 Brno, Czech Republic	https://cmsb2018.fi.muni.cz/

Activity	Event	Date/Location	Weblink
Presentation: "Improved performance and robustness in living cells through design and realisation of de novo biomolecular feedbacks", Guy-Bart Stan	2018 IEEE Conference on Control Technology and Applications	The Scandic Hotel Copenhagen, Copenhagen, Denmark, August 21-24, 2018	N/A
Presentation: "Host-Aware Synthetic Biology: Sensing and Reacting to Unnatural Gene Expression", Guy-Bart Stan	Quantitative Synthetic Biology Session, Society for Experimental Biology's Annual Meeting	Firenze Fiera Congress and Exhibition Centre, Florence, Italy, 3-6 July, 2018	N/A
Presentation: "Design of de novo biomolecular feedbacks for improved performance and robustness in living cells", Guy-Bart Stan	Control of Cellular and Molecular Systems International Workshop	Mathematical Biosciences Institute, The Ohio State University, Columbus, Ohio, USA, 2-6 October, 2017	N/A
Presentation: "Sensing and Reacting to Unnatural Gene Expression: Towards Host-Aware Synthetic Biology", Guy-Bart Stan	Department of Biosystems Science and Engineering, ETH Zurich	ETH Zurich, Basel, 16 July, 2018	N/A
Presentation: "Computing Biologically Relevant CRN Structures Using Time-Series Data", Zoltan Tuza	INCOME2018 conference	Oct. 2018. /Munich	http://www.integrative-pathway-models.de/meetings/1st-income-conference-and-hackathon/program/index.html
Presentation: "Improved performance and robustness in living cells through design and realisation of de novo biomolecular feedbacks", Guy-Bart Stan	2018 IEEE Conference on Control Technology and Applications	The Scandic Hotel Copenhagen, Copenhagen, Denmark, August 21-24, 2018	N/A
Presentation: "Host-Aware Synthetic Biology: Sensing and Reacting to Unnatural Gene	Quantitative Synthetic Biology Session, Society for Experimental Biology's Annual Meeting	Firenze Fiera Congress and Exhibition Centre, Florence, Italy, 3-6 July, 2018	N/A

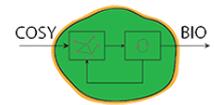
Activity	Event	Date/Location	Weblink
Expression", Guy-Bart Stan			
Presentation: "Design of de novo biomolecular feedbacks for improved performance and robustness in living cells", Guy-Bart Stan	Control of Cellular and Molecular Systems International Workshop	Mathematical Biosciences Institute, The Ohio State University, Columbus, Ohio, USA, 2-6 October, 2017	N/A
Presentation: "Sensing and Reacting to Unnatural Gene Expression: Towards Host-Aware Synthetic Biology", Guy-Bart Stan	Department of Biosystems Science and Engineering, ETH Zurich	ETH Zurich, Basel, 16 July, 2018	N/A
Poster presentation Barbara Shannon – Developing environments for the study of signal integration and decision making in <i>E. coli</i>	BBI Inaugural conference – University of Bristol	10/05/2018	http://www.bristol.ac.uk/bri/synbio/events/2018/inaugural-bbi-spring-conference-.html
Poster Presentation Barbara Shannon - An Orthogonal Multi-Input Integration System to Control gene expression in <i>E. coli</i>	Biochemistry Bi-annual School away day – University of Bristol	12/09/2018	N/A
Presentation Barbara Shannon – External and Multicellular control in <i>E. coli</i>	COSY-BIO Annual meeting	20/09/2018 – 21/09/2018	N/A

Title of publication	Journal	Authors	Doi/Source
An optogenetic platform for real-time, single-cell interrogation of stochastic transcription regulation	Molecular Cell	Marc Rullan, Dirk Benzinger, Gregor W. Schmidt, Andreas Miliadis-Argeitis, Mustafa Khammash	10.1016/j.molcel.2018.04.012
On-Line Optimal Input Design Increases the Efficiency and Accuracy of	Processes	Lucia Bandiera, Zhaozheng Hou, Varun B. Kothamachu, Eva Balsa-	10.3390/pr6090148

Title of publication	Journal	Authors	Doi/Source
the Modelling of an Inducible Synthetic Promoter		Canto, Peter S. Swain and Filippo Menolascina	
Tools for engineering coordinated system behaviour in synthetic microbial consortia	Nature Comm.	N Kylilis, ZA Tuza, GB Stan, KM Polizzi	10.1038/s41467-018-05046-2
The exit time finite state projection scheme: bounding exit distributions and occupation measures of continuous-time Markov chains	arXiv: Mathematics - Probability	Kuntz, Juan; Thomas, Philipp; Stan, Guy-Bart; Barahona, Mauricio	arXiv:1801.09507
Analysis and control of genetic toggle switches subject to periodic multi-input stimulation	IEEE Control Systems Letters	Davide Fiore, Agostino Guarino, Mario di Bernardo	10.1109/LCSYS.2018.2868925
Synthetic control systems for high performance gene expression in mammalian cells	Nucleic Acids Research	Gabriele Lillacci, Yaakov Benenson, Mustafa Khammash	10.1093/nar/gky795
Optimally designed vs intuition-driven inputs: the study case of promoter activity modelling	Biorxiv	Lucia Bandiera, Varun B Kothamachu, Eva Balsa-Canto, Peter S. Swain, Filippo Menolascina	doi.org/10.1101/346379
Characterization of Biologically Relevant Network Structures from Time Series Data	57th IEEE Conference on Decision and Control (IEEE-CDC 2018), invited session on "Bimolecular computing and feedback systems", Fontainebleau, Miami Beach, FL, USA, December 17-19, 2018	Zoltan Tuza, Guy-Bart Stan	Not available yet

6.2. List of dissemination and communication activities – planned

Activity	Event	Date/Location	Weblink
Presentation of the work "Analysis and control of genetic toggle switches subject to periodic multi-input stimulation" at Invited Session	57th IEEE Conference on Decision and Control	17 December 2018, Miami (USA)	https://cdc2018.ieeecss.org/



2 invited Session	European Control Conference	25-28 June 2019, Naples	http://ecc19.eu
Workshop	5 th IEE CDC 2019	11-13.12.2019, Nice	http://en.meet-in-nice.com/agenda/event/7130-58th-ieee-cdc-2019
Summer School		??6.2020, Naples	

Useful links:

COSY-BIO link project website: <http://www.cosy-bio.eu/>

COSY-BIO ZENODO Community <https://zenodo.org/communities/cosy-bio/>

COSY-BIO Twitter account: <https://twitter.com/cosybio> @cosybio