European Lead Factory

European Lead Factory
Communication Strategy for Crowdsourcing

Kristina Orrling – Lygature

IMI Projects Communication Event – 2 April 2019

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° 115489, resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.

Kristina Orrling

Background

Canada
Germany
France

UPPSALA UNIVERSITET

ENS DE LYON

INSEAD

- PhD in Medicinal Chemistry
- MSc Chemical Engineering
- Personal Chemistry (aka Biotage)
- Mercachem
- VU Amsterdam

Now!

lygature

pioneering medicine.
together.

Programme Manager

- ELF 2014-2018
- PDE4NPD 2014-2018
- MOMENTUM 2018-
- MMV-PDP 2018-
- …

My big dream

To bring better treatments to patients

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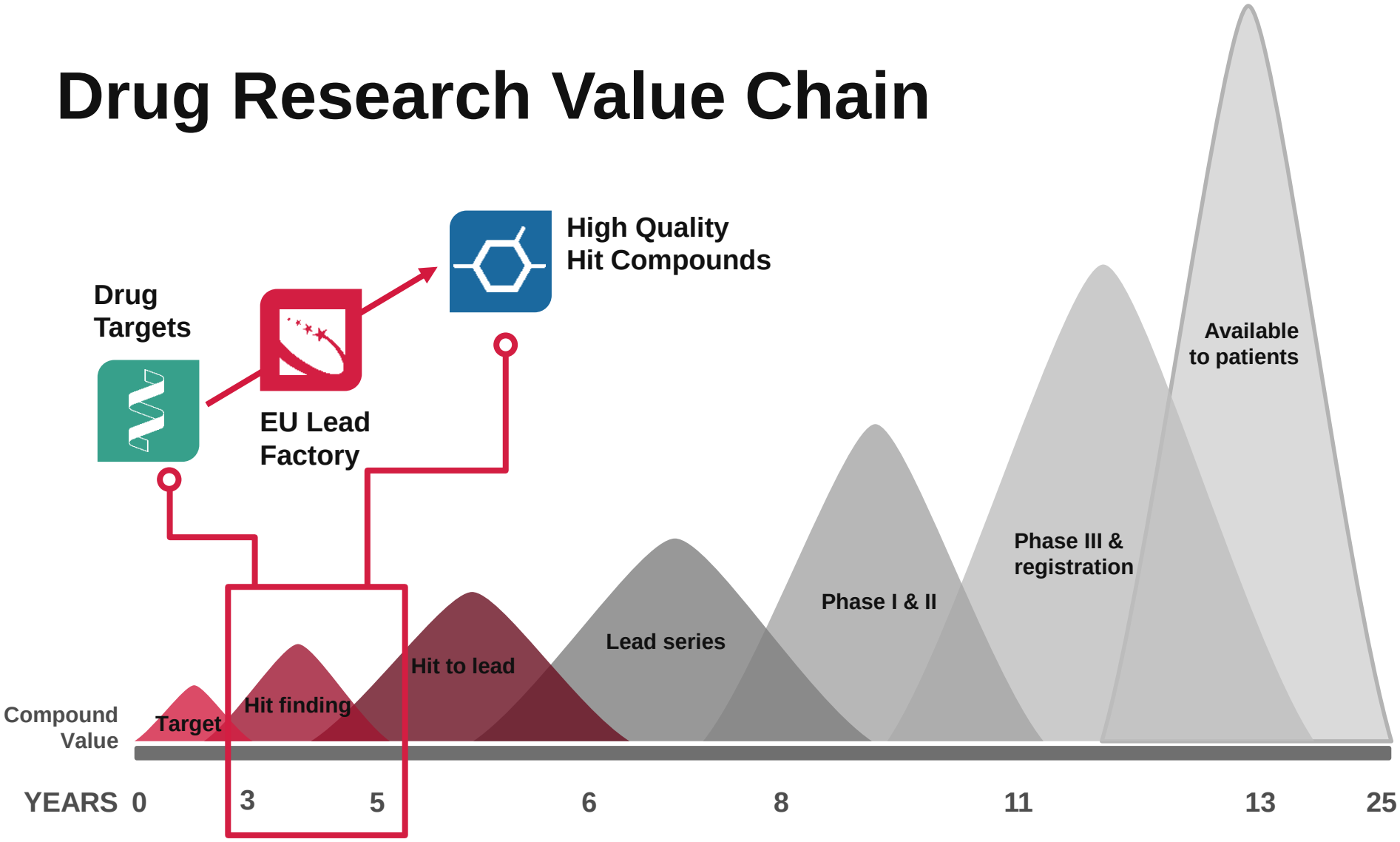
Drug Research Value Chain



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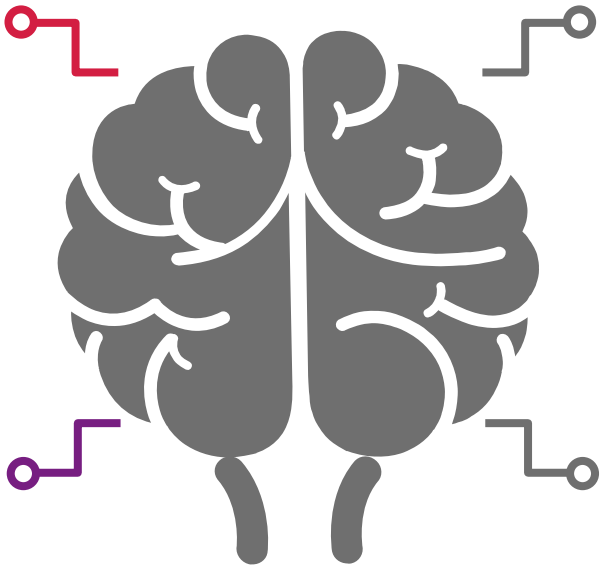
Made possible by...

European Screening Centre

pivot park screening centre
lygature
bio:ascent
UNIVERSITY OF DUNDEE
UNIVERSITY OF OXFORD

EFPIA partners

AstraZeneca
SANOFI
MERCK
ucb
Lundbeck
janssen
BAYER



funded by

imi innovative medicines initiative

Public Compound Consortium

Chemistry CROs

TAROS
EDELRIS MEDICINAL KEYMISTRY
SYNCOM Designing chemistry
MERCACHEM
SYGNATURE discovery

ARTTIC INTERNATIONAL MANAGEMENT SERVICES
VU UNIVERSITY AMSTERDAM
UNIVERSITY OF LEEDS
LDC Lead Discovery Center
UNIVERSITÄT DUISBURG ESSEN Offen im Denken
The University of Nottingham UNITED KINGDOM · CHINA · MALAYSIA
university of groningen
LUMC
ChemAxon
DTU Technical University of Denmark
MAX-PLANCK-GESELLSCHAFT
Radboud Universiteit Nijmegen

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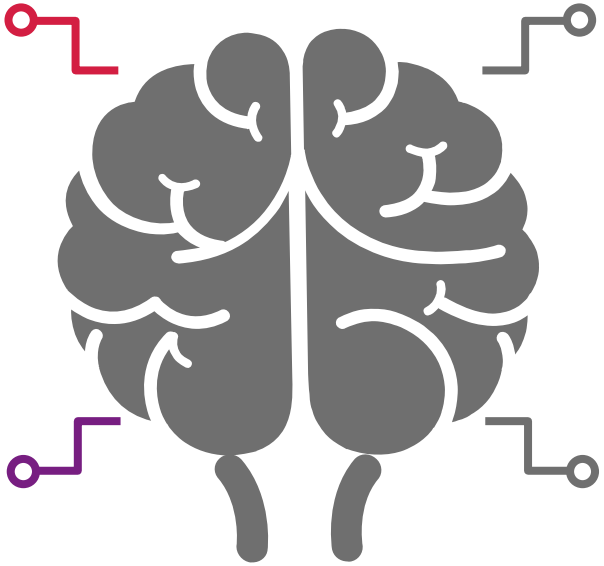
Communication team

WP Lead
Hiliana Fienig
Marjoke Kortas
Kristina Orrling
Alexander Duyndam
Patricia Kramer
Project Executive
Ton Rijnders

Eva van Waanrooij

Project Executive
Stefan Jaroch
Eckhard Ottow



funded by

Catherine Brett
Ivona Lerman

Sören Kudic
Youri Mesmoudi

Project Executive
Dimitrios Tzalis

Claudia Pfander
Sabine Possmann

Rob Stockman

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Award-winning video

https://youtu.be/YLnSi_3o2U8

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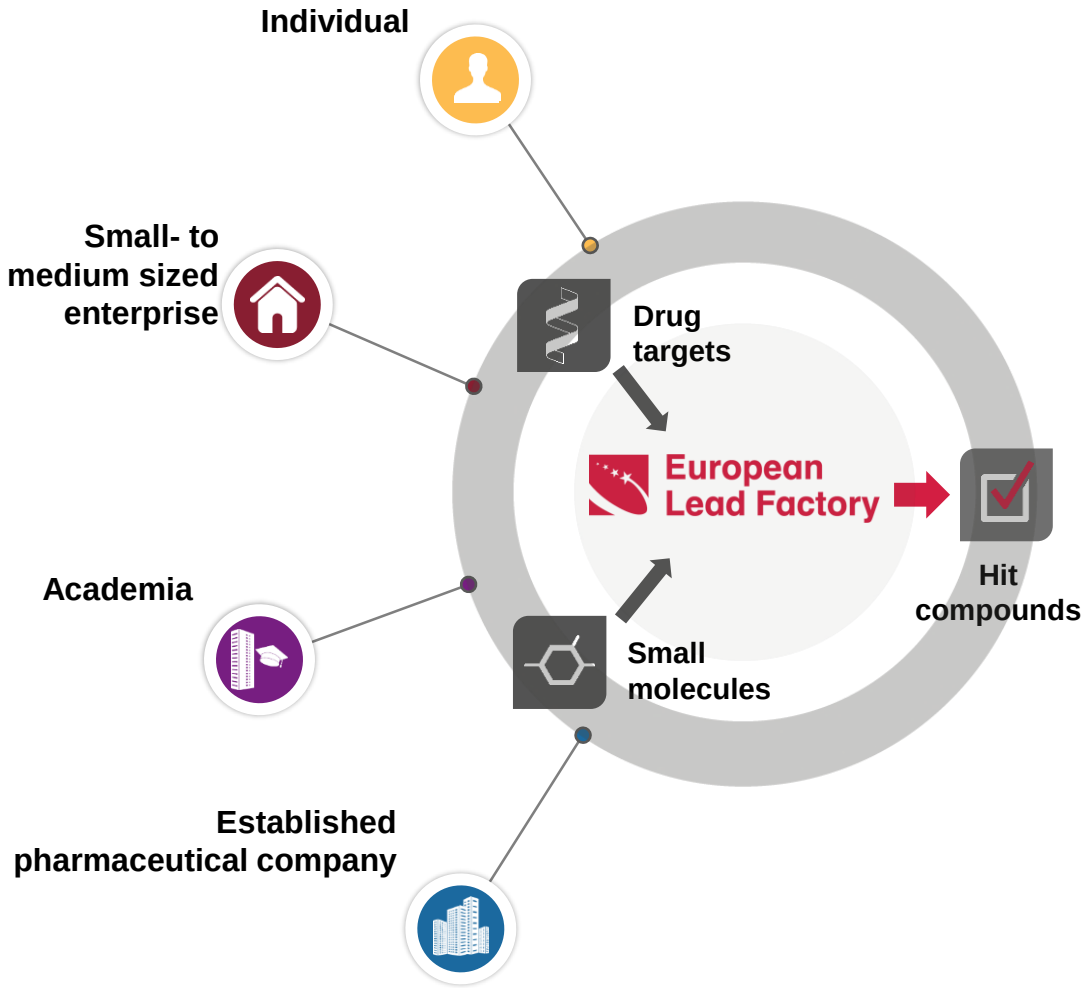
Interactions



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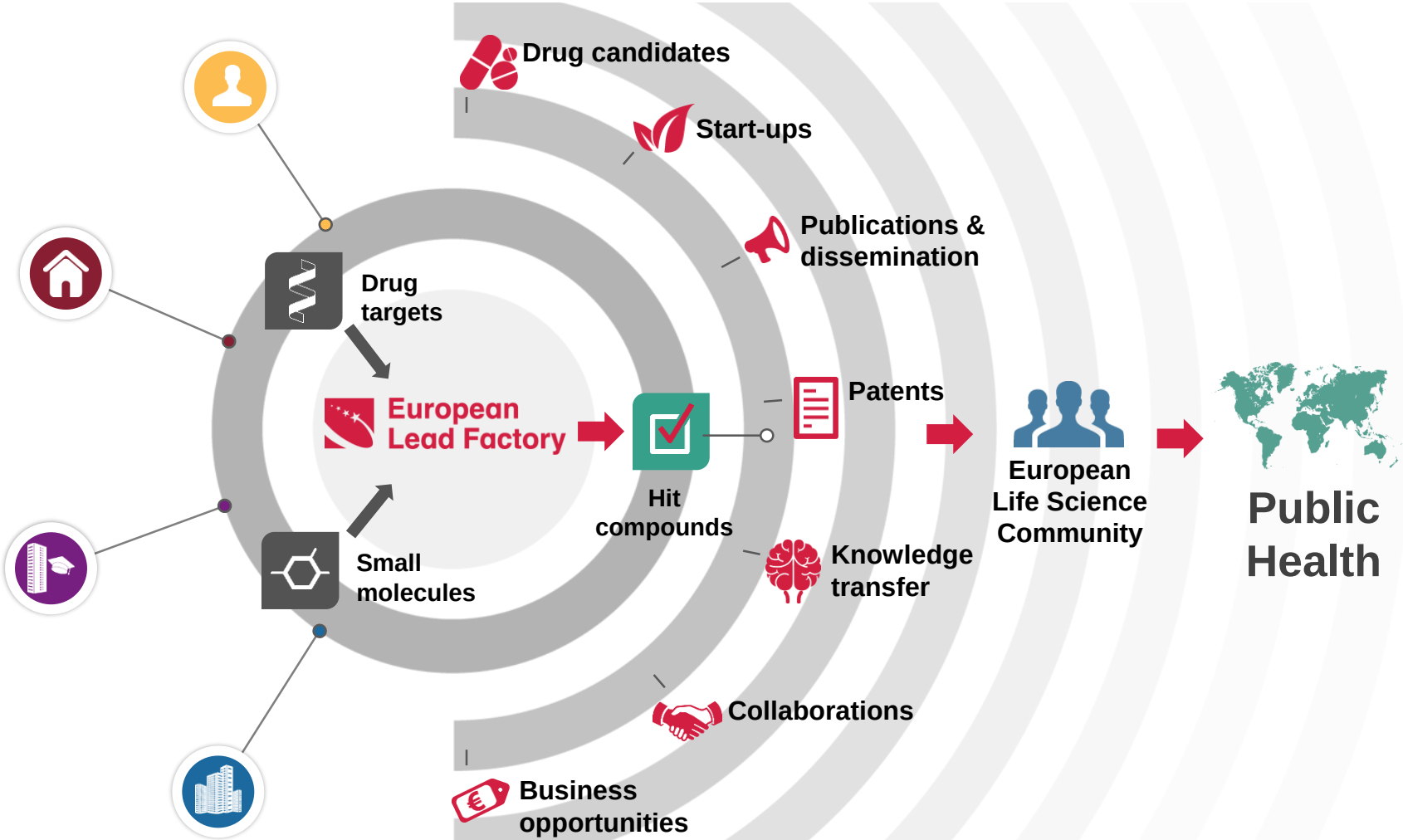
Impact



Karawajczyk *et al.*, Front. Med, 2017

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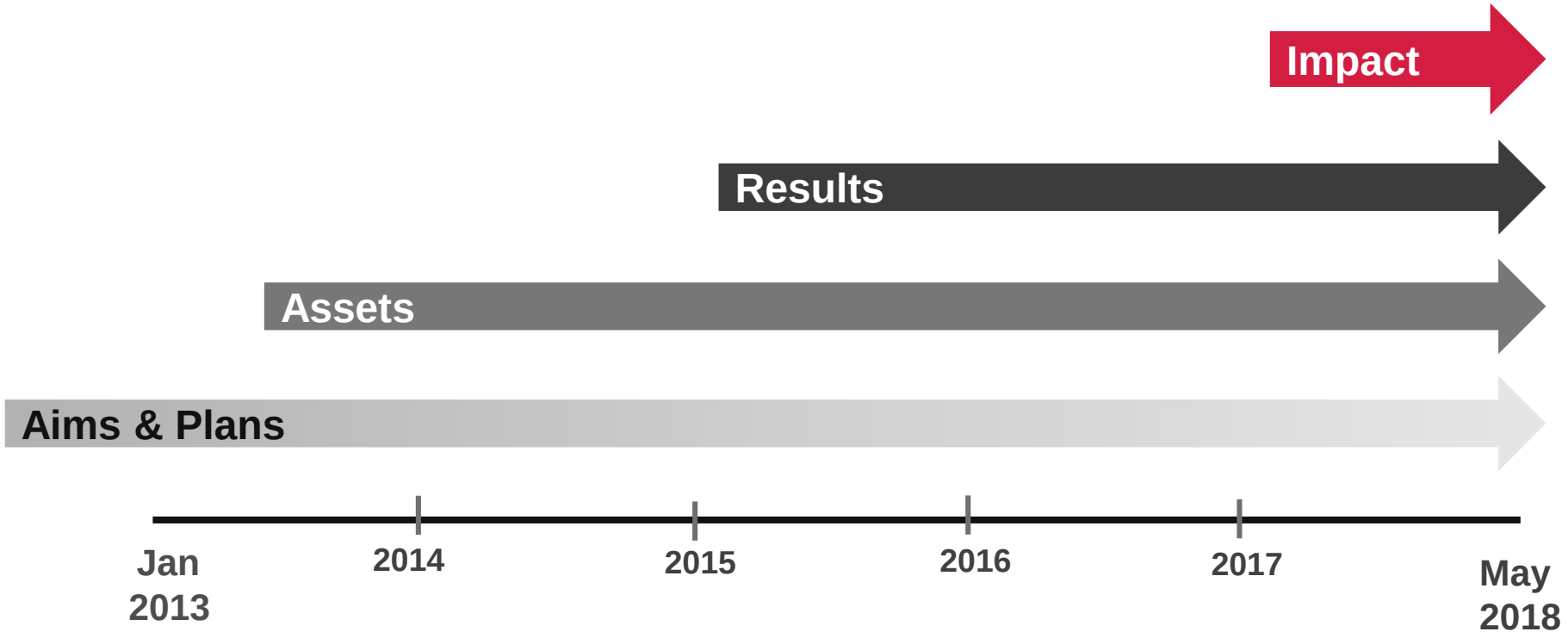
Project Progress 2013 - 2018



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Target Owner

+

ELF assets

=

A person who does **extraordinary** things

This is what sells ELF

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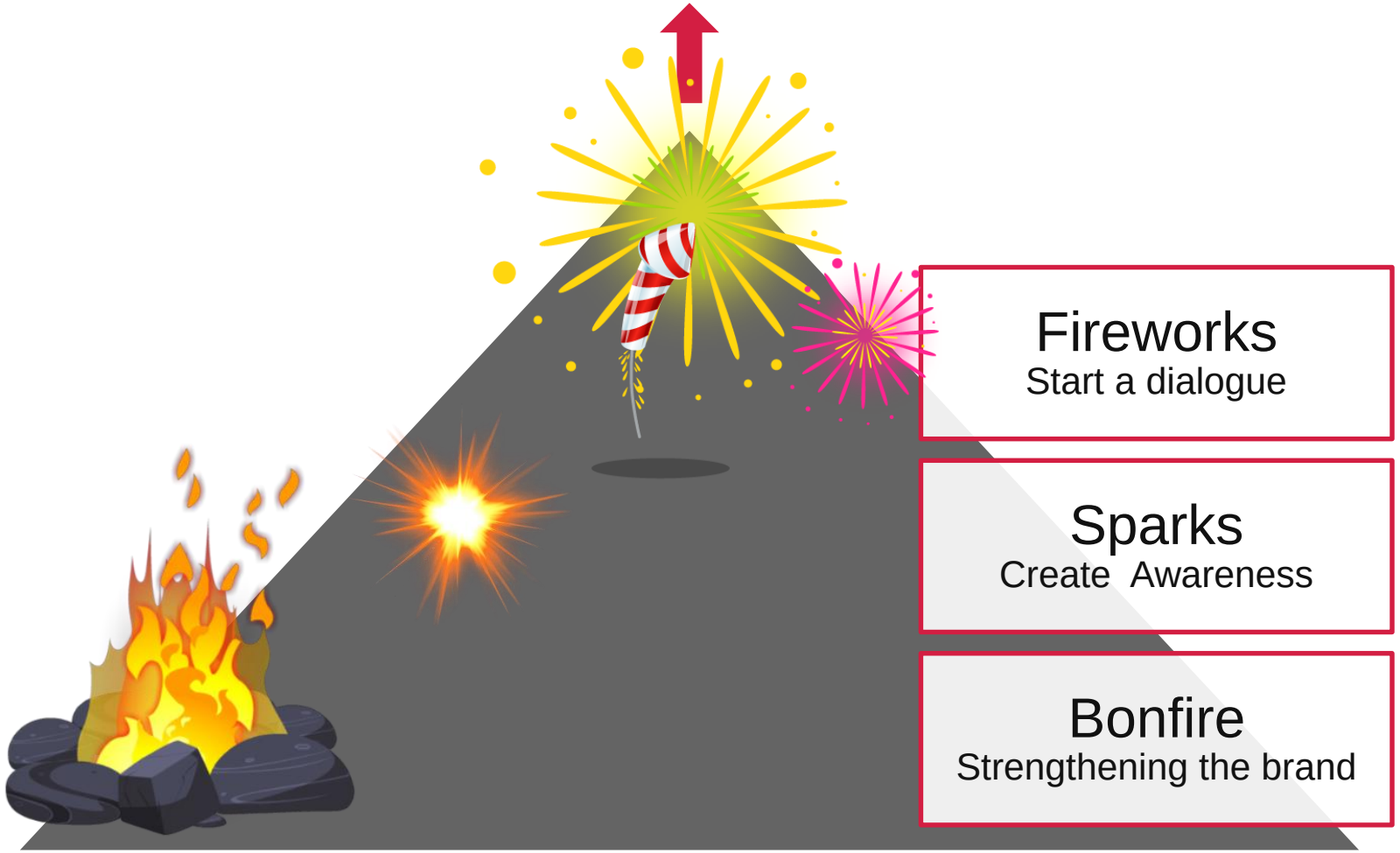
Project Objectives



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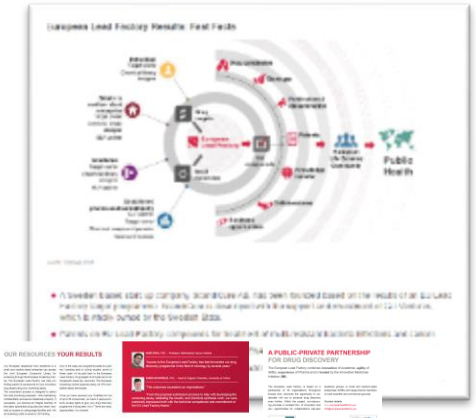
Brand-Strengthening Tools

- Website
- Slide deck
- **Fast Facts Sheet**
- Wikipedia
- Folder



- Videos

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Quality Proposal

Scientific publications

Press Releases

Newsletter

News items

Video interviews

Fireworks
Start a dialogue

Sparks
Create Awareness

Bonfire
Strengthening the brand

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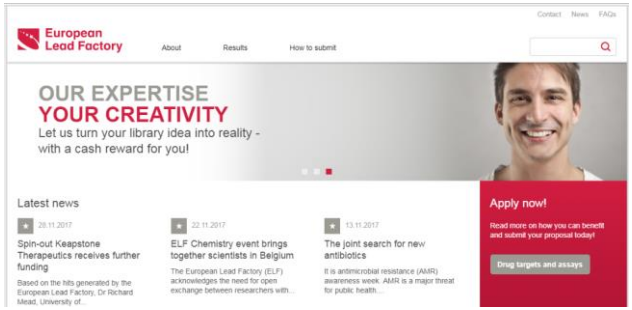
ELF Channels – Awareness



Website

- News item (2/month)
- Testimonials
- Videos

Newsletters (~4/year) + IMI

LinkedIn (1/month)

Twitter (1-2/week)

(Scientific) publications

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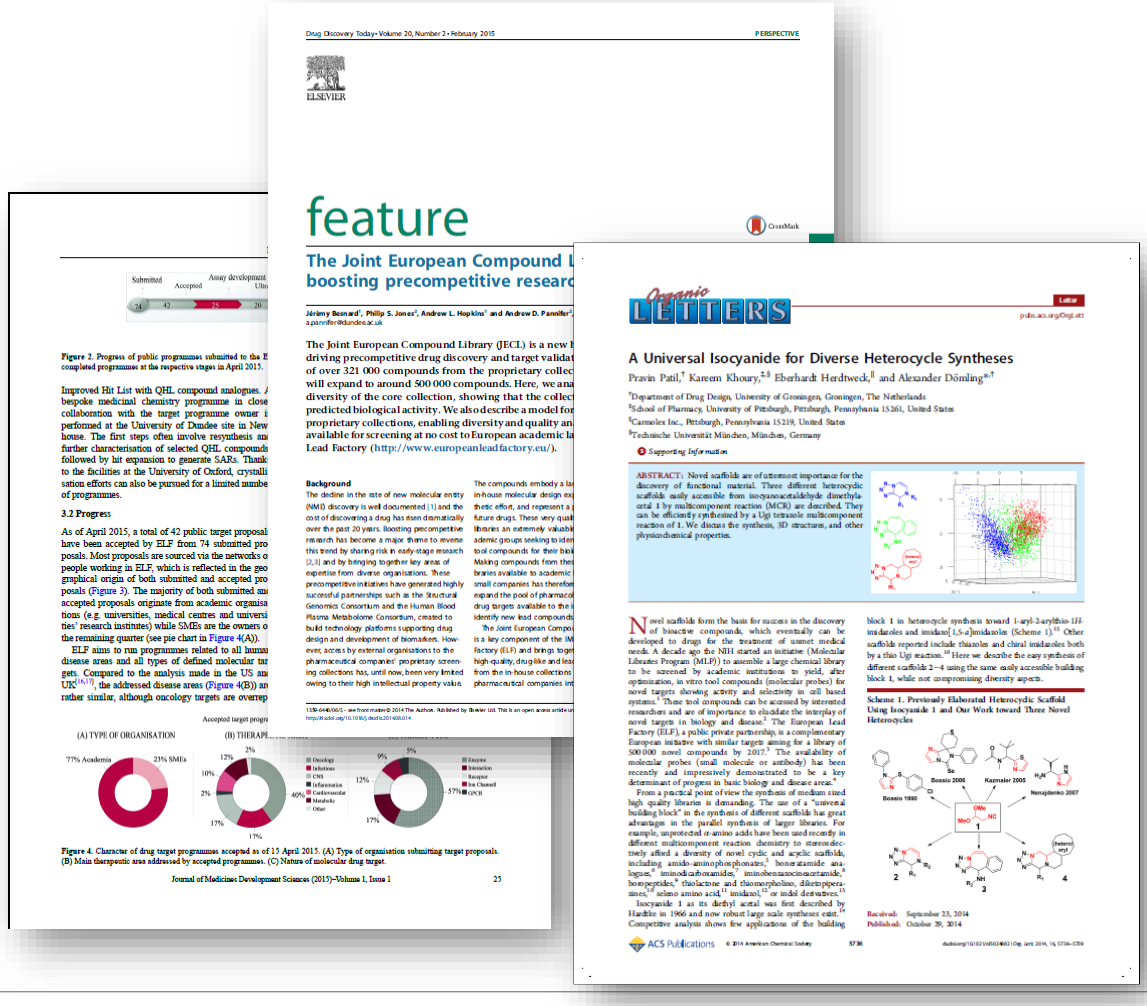
> 70 Scientific Publications



Drug Discovery Today • Volume 20, Number 2 • February 2015 PERSPECTIVE

ELSEVIER

feature

The Joint European Compound L
boosting precompetitive researc

Jérémy Besnard[1], Philip S. Jones[2], Andrew L. Hopkins[3] and Andrew D. Pannifer[2]
a.pannifer@dundee.ac.uk

The Joint European Compound Library (JECL) is a new l
driving precompetitive drug discovery and target validat
of over 321 000 compounds from the proprietary collec
will expand to around 500 000 compounds. Here, we ana
diversity of the core collection, showing that the collect
predicted biological activity. We also describe a model for
proprietary collections, enabling diversity and quality an
available for screening at no cost to European academic la
Lead Factory (http://www.europeanleadfactory.eu/).

Background

The decline in the rate of new molecular entity (NME) discovery is well documented [1] and the cost of discovering a drug has risen dramatically over the past 20 years. Boosting precompetitive research has become a major theme to reverse this trend by sharing risk in early-stage research [2,3] and by bringing together key areas of expertise from diverse organisations. These precompetitive initiatives have generated highly successful partnerships such as the Structural Genomics Consortium and the Human Blood Plasma Metabolome Consortium, created to build technology platforms supporting drug design and development of biomarkers. However, access by external organisations to the pharmaceutical companies' proprietary screening collections has, until now, been very limited owing to their high intellectual property value.

The compounds embody a la
in-house molecular design ex
thetic effort, and represent a
future drugs. These very qual
libraries an extremely valuabl
ademic groups seeking to iden
tool compounds for their biol
Making compounds from thes
braries available to academic
small companies has therefor
expand the pool of pharmaco
drug targets available to the
identify new lead compounds

The Joint European Compo
is a key component of the IM
Factory (ELF) and brings toget
high-quality, drug-like and lea
from the in-house collections
pharmaceutical companies int

1359-6446/$ - see front matter © 2014 The Author. Published by Elsevier Ltd. This is an open access article u
http://dx.doi.org/10.1016/j.drudis.2014.08.014

Figure 2. Progress of public programmes submitted to the E
completed programmes at the respective stages in April 2015.

Improved Hit List with QHL compound analogues. A
bespoke medicinal chemistry programme in close
collaboration with the target programme owner i
performed at the University of Dundee site in New
house. The first steps often involve resynthesis an
further characterisation of selected QHL compounds
followed by hit expansion to generate SARs. Thank
to the facilities at the University of Oxford, crystalli
sation efforts can also be pursued for a limited numbe
of programmes.

3.2 Progress

As of April 2015, a total of 42 public target proposal
have been accepted by ELF from 74 submitted pro
posals. Most proposals are sourced via the networks o
people working in ELF, which is reflected in the geo
graphical origin of both submitted and accepted pro
posals (Figure 3). The majority of both submitted an
accepted proposals originate from academic organisa
tions (e.g. universities, medical centres and universi
ties' research institutes) while SMEs are the owners o
the remaining quarter (see pie chart in Figure 4(A)).

ELF aims to run programmes related to all humai
disease areas and all types of defined molecular tar
gets. Compared to the analysis made in the US an
UK[4,13], the addressed disease areas (Figure 4(B)) an
rather similar, although oncology targets are overrep

Figure 4. Character of drug target programmes accepted as of 15 April 2015. (A) Type of organisation submitting target proposals. (B) Main therapeutic area addressed by accepted programmes. (C) Nature of molecular drug target.

Journal of Medicines Development Sciences (2015)–Volume 1, Issue 1 25

Organic LETTERS

Letter

pubs.acs.org/OrgLett

A Universal Isocyanide for Diverse Heterocycle Syntheses

Pravin Patil,[†] Kareem Khoury,[‡,§] Eberhardt Herdtweck,[∥] and Alexander Dömling*[,†]

[†]Department of Drug Design, University of Groningen, Groningen, The Netherlands
[‡]School of Pharmacy, University of Pittsburgh, Pittsburgh, Pennsylvania 15261, United States
[§]Carmeles Inc., Pittsburgh, Pennsylvania 15219, United States
[∥]Technische Universität München, München, Germany

Supporting Information

ABSTRACT: Novel scaffolds are of uttermost importance for the discovery of functional material. Three different heterocyclic scaffolds easily accessible from isocyanoacetaldehyde dimethylacetal 1 by multicomponent reaction (MCR) are described. They can be efficiently synthesized by a Ugi tetrazole multicomponent reaction of 1. We discuss the synthesis, 3D structures, and other physicochemical properties.

Novel scaffolds form the basis for success in the discovery of bioactive compounds, which eventually can be developed to drugs for the treatment of unmet medical needs. A decade ago the NIH started an initiative (Molecular Libraries Program (MLP)) to assemble a large chemical library to be screened by academic institutions to yield, after optimization, in vitro tool compounds (molecular probes) for novel targets showing activity and selectivity in cell based systems.[1] These tool compounds can be accessed by interested researchers and are of importance to elucidate the interplay of novel targets in biology and disease.[2] The European Lead Factory (ELF), a public private partnership, is a complementary European initiative with similar targets aiming for a library of 500 000 novel compounds by 2017.[3] The availability of molecular probes (small molecule or antibody) has been recently and impressively demonstrated to be a key determinant of progress in basic biology and disease areas.[4]

From a practical point of view the synthesis of medium sized high quality libraries is demanding. The use of a "universal building block" in the synthesis of different scaffolds has great advantages in the parallel synthesis of larger libraries. For example, unprotected α-amino acids have been used recently in different multicomponent reaction chemistry to stereoselectively afford a diversity of novel cyclic and acyclic scaffolds, including amide-aminophosphonates,[5] benzotriazimide analogues,[6] iminodicarboxamides,[7] iminobenzazocinecarbamide,[8] bompeptides,[9] thiolactone and thiomorpholino, diketopiperazines,[10] seleno amino acid,[11] imidazol,[12] or indol derivatives.[13]

Isocyanide 1 as its diethyl acetal was first described by Hardtke in 1966 and now robust large scale syntheses exist.[14] Competitive analysis shows few applications of the building block 1 in heterocycle synthesis toward 1-aryl-2-arylthio-1H-imidazoles and imidazo[1,5-a]imidazoles (Scheme 1).[15] Other scaffolds reported include thiazoles and chiral imidazoles both by a thio Ugi reaction.[16] Here we describe the easy synthesis of different scaffolds 2−4 using the same easily accessible building block 1, while not compromising diversity aspects.

Scheme 1. Previously Elaborated Heterocyclic Scaffold Using Isocyanide 1 and Our Work toward Three Novel Heterocycles

Received: September 23, 2014
Published: October 20, 2014

ACS Publications © 2014 American Chemical Society 5736

- Encourage publications
- Clear approval process
- Provide guidelines = easy tracking

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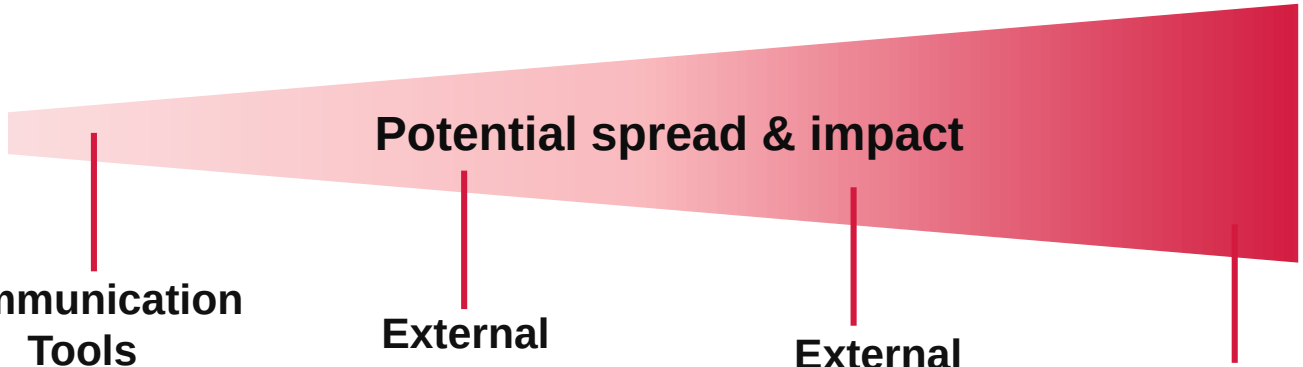
Defined roles and timelines



Communication Tools

WP7 *CommTeam:*
1 week

Examples:
- Templates
- News items
- Tweets (1day)

External communication

WP7 -> ***PE***
1-2 weeks

Examples:
- Press release
- Newsletter
- E-mail campaign

External communication

WP7 (<-> ***party****)*
-> PE

Examples:
- General ELF slide-deck
- Press release

Scientific dissemination

PAC-> ***All partners***
-> WP7

Examples:
- Scientific article
- Posters
- Abstracts

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Quality Proposal

Network
Partnering talks
Satellite meetings
Conference presentations

Fireworks
Start a dialogue

Sparks
Create Awareness

Bonfire
Strengthening the brand

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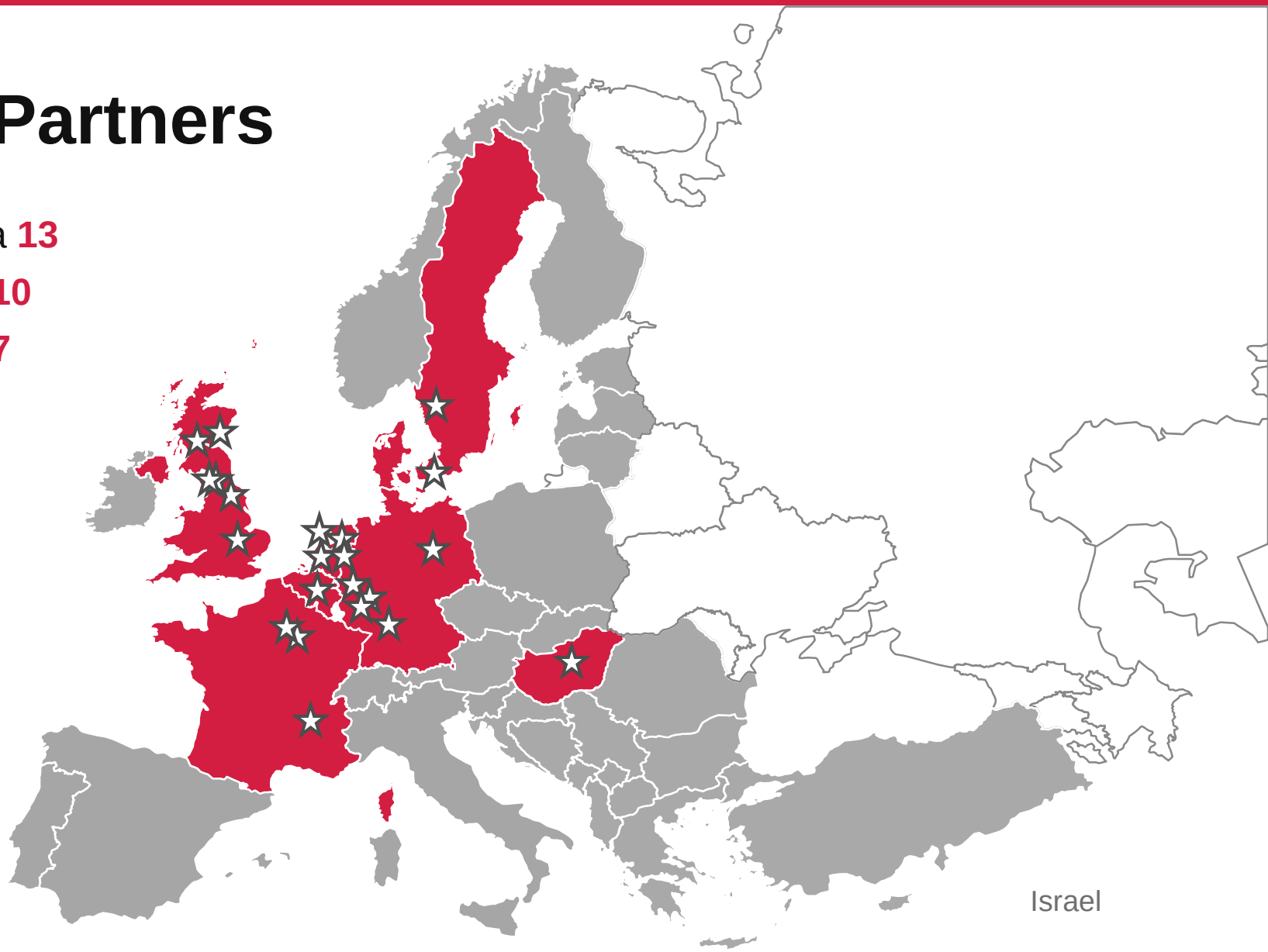
ELF Partners

Academia **13**

SMEs **10**

EFPIA **7**



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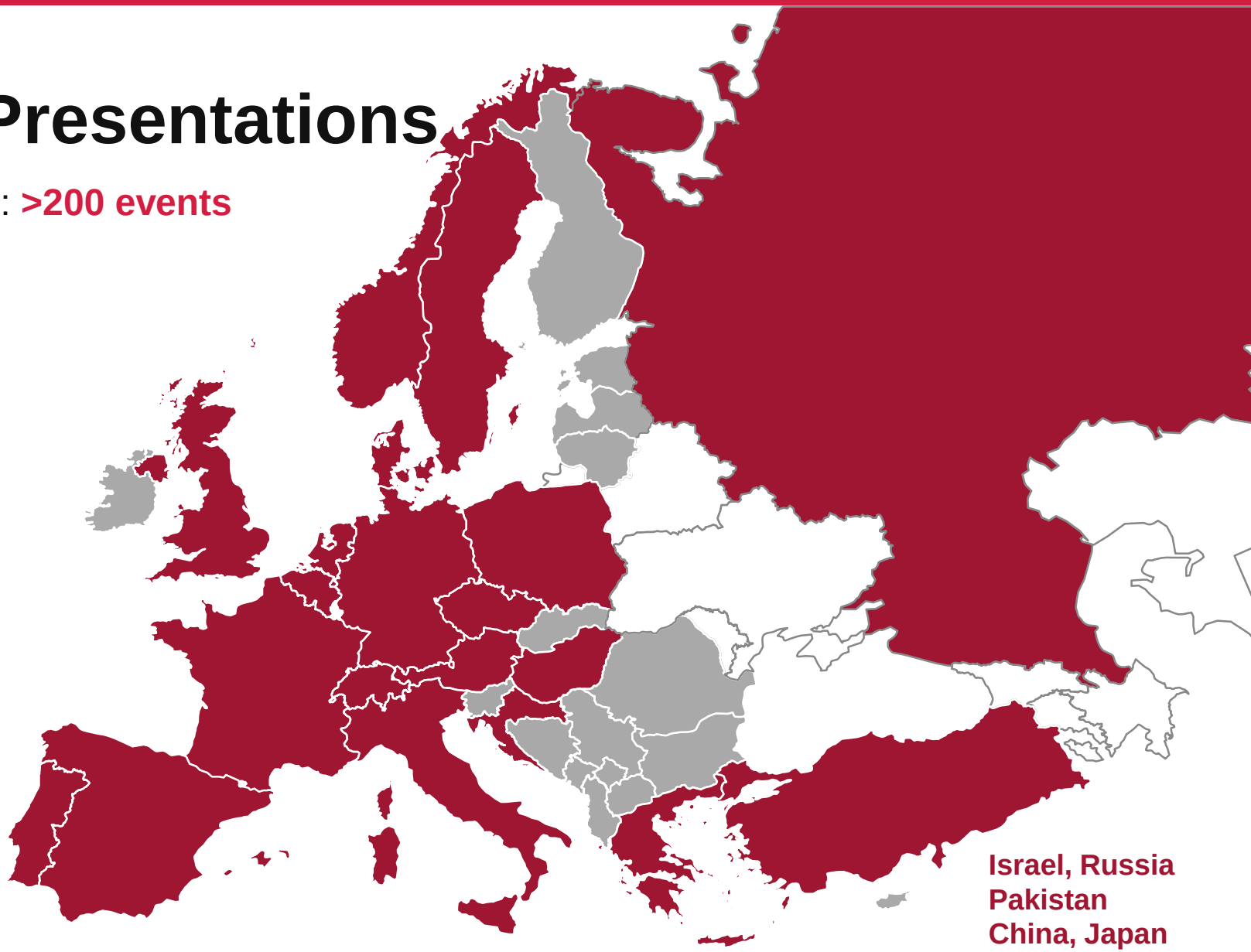
ELF Presentations

2103 - 2018: **>200 events**



US, Brazil

Israel, Russia
Pakistan
China, Japan

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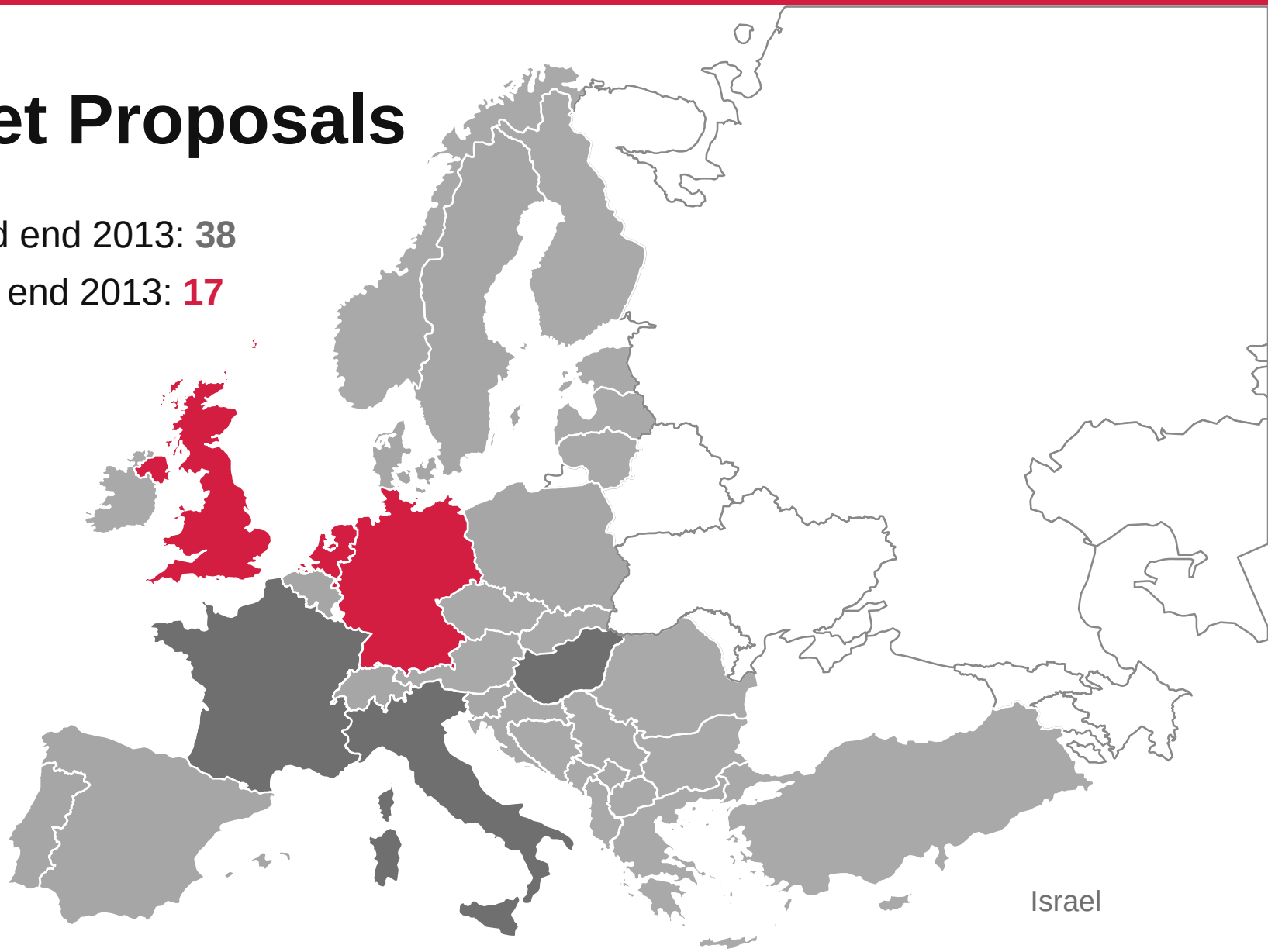
Target Proposals

Submitted end 2013: **38**

Accepted end 2013: **17**



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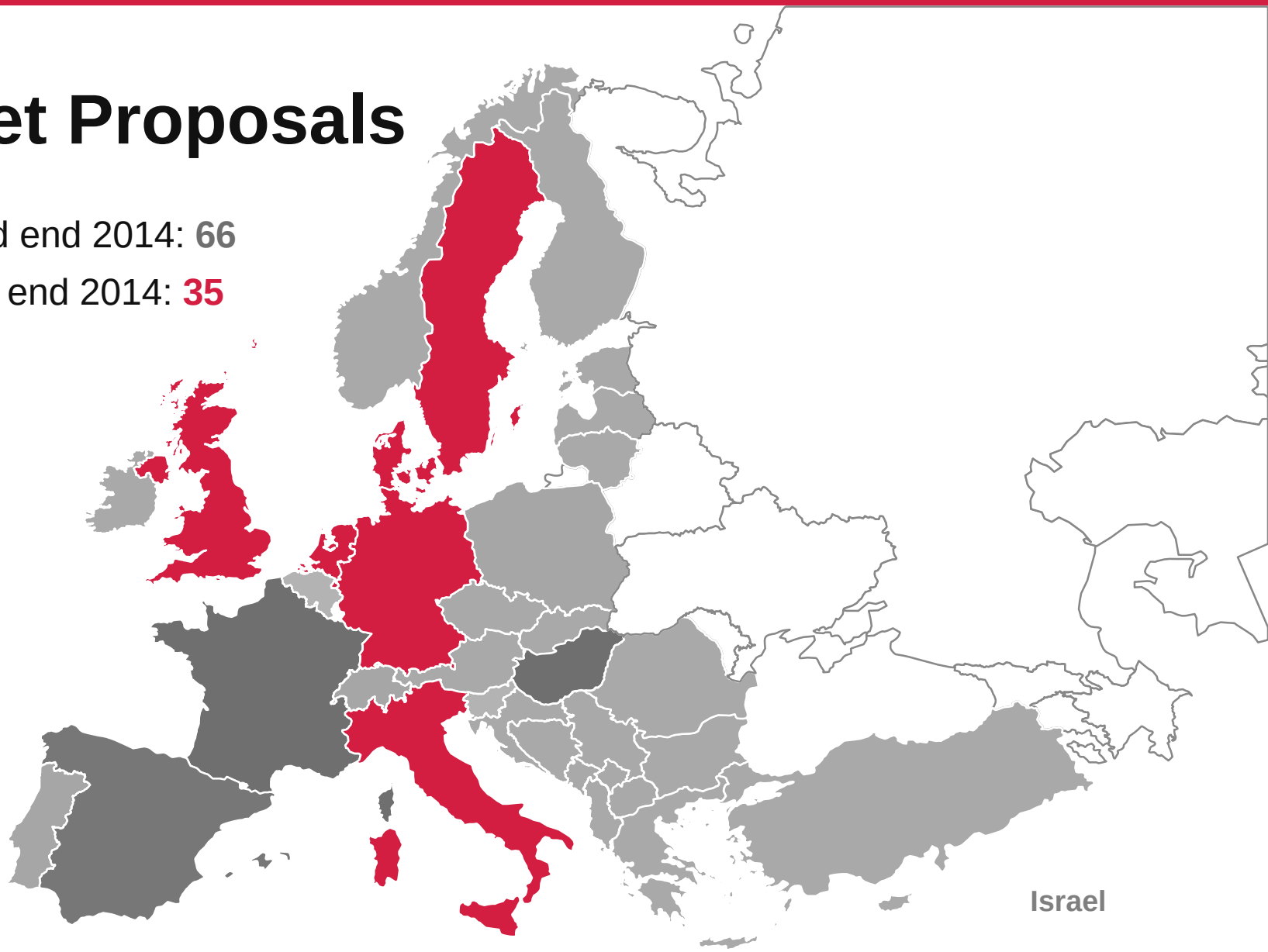
Target Proposals

Submitted end 2014: **66**

Accepted end 2014: **35**



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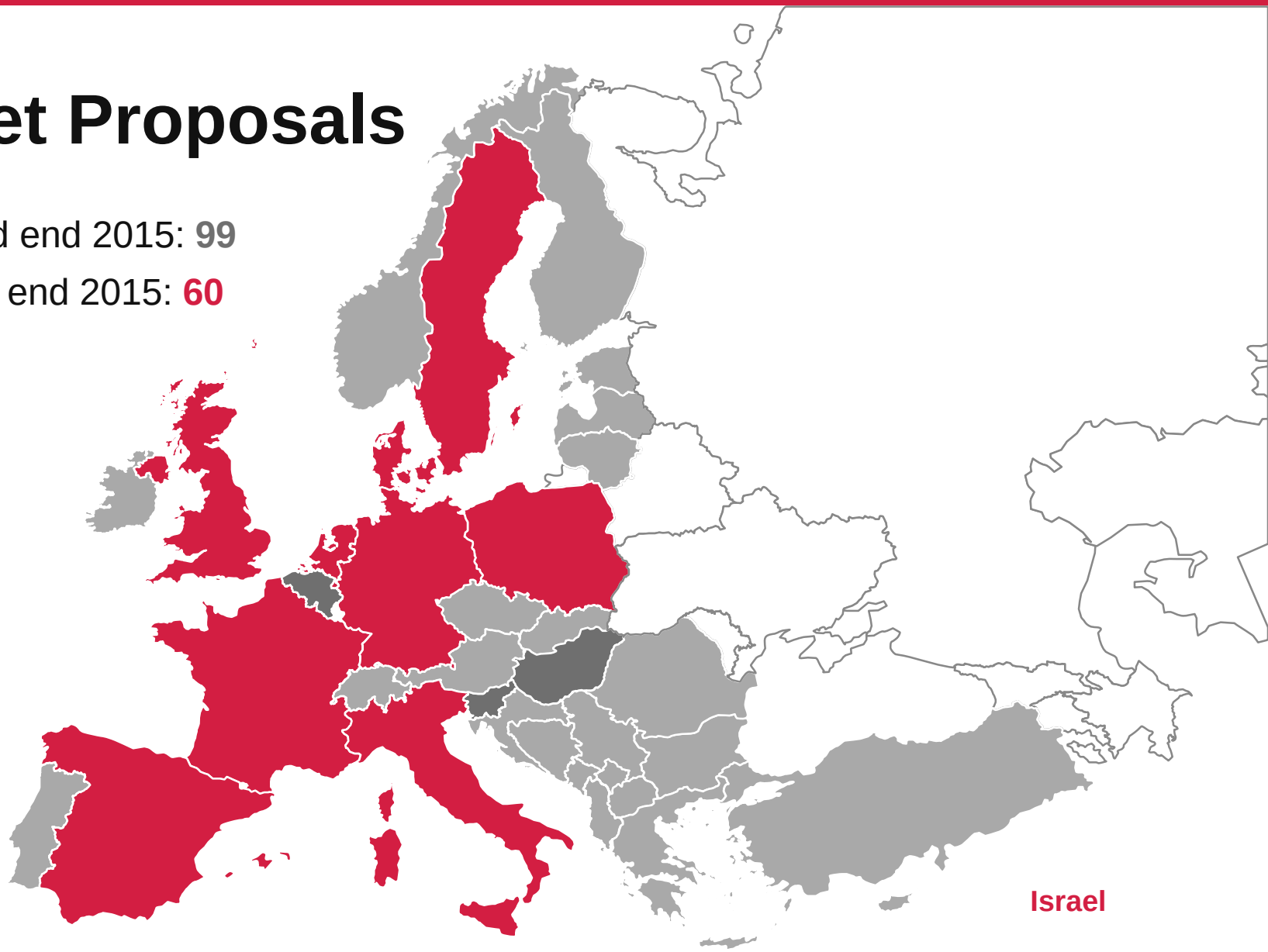
Target Proposals

Submitted end 2015: **99**

Accepted end 2015: **60**



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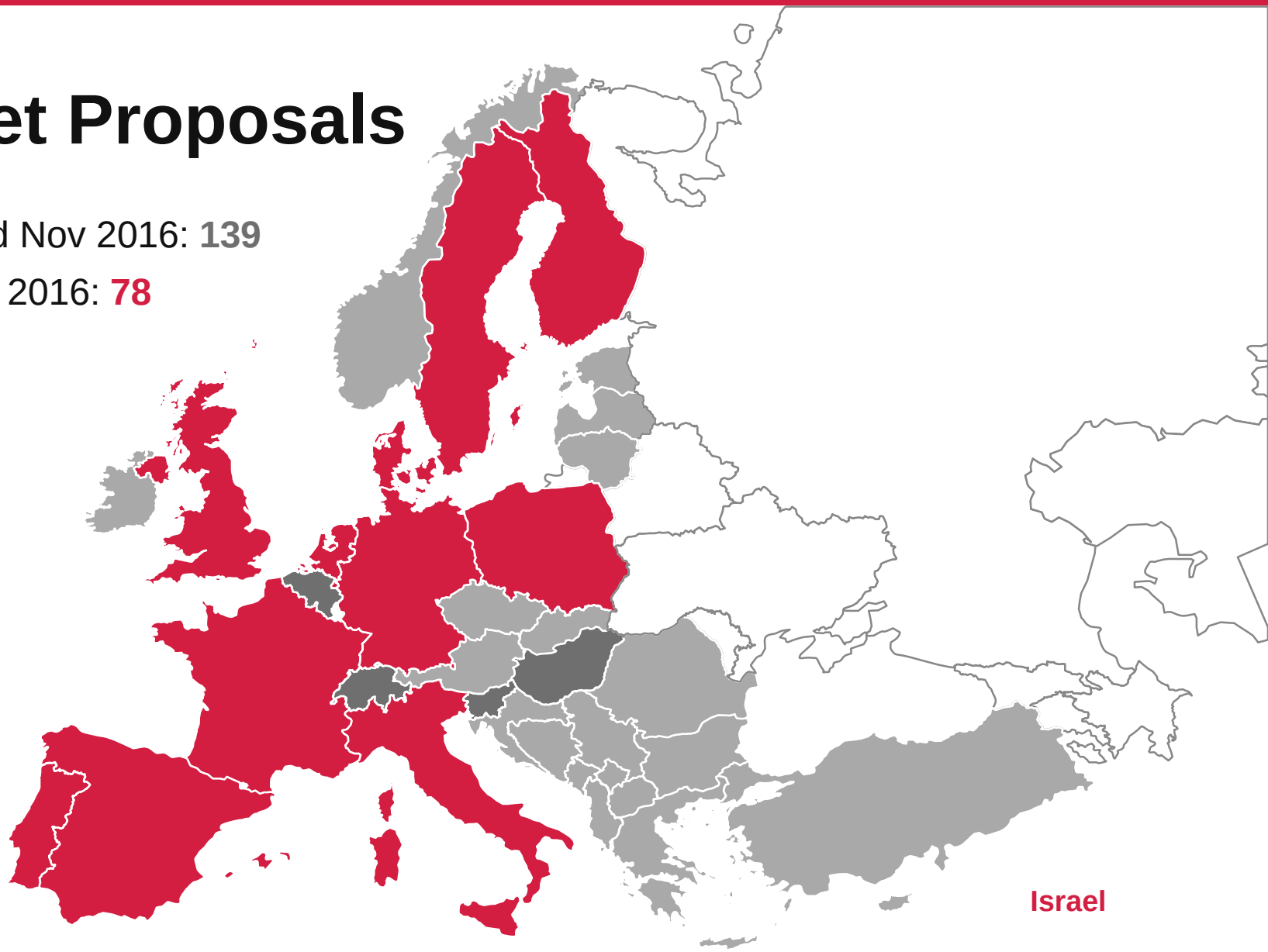
Target Proposals

Submitted Nov 2016: **139**

Accepted 2016: **78**



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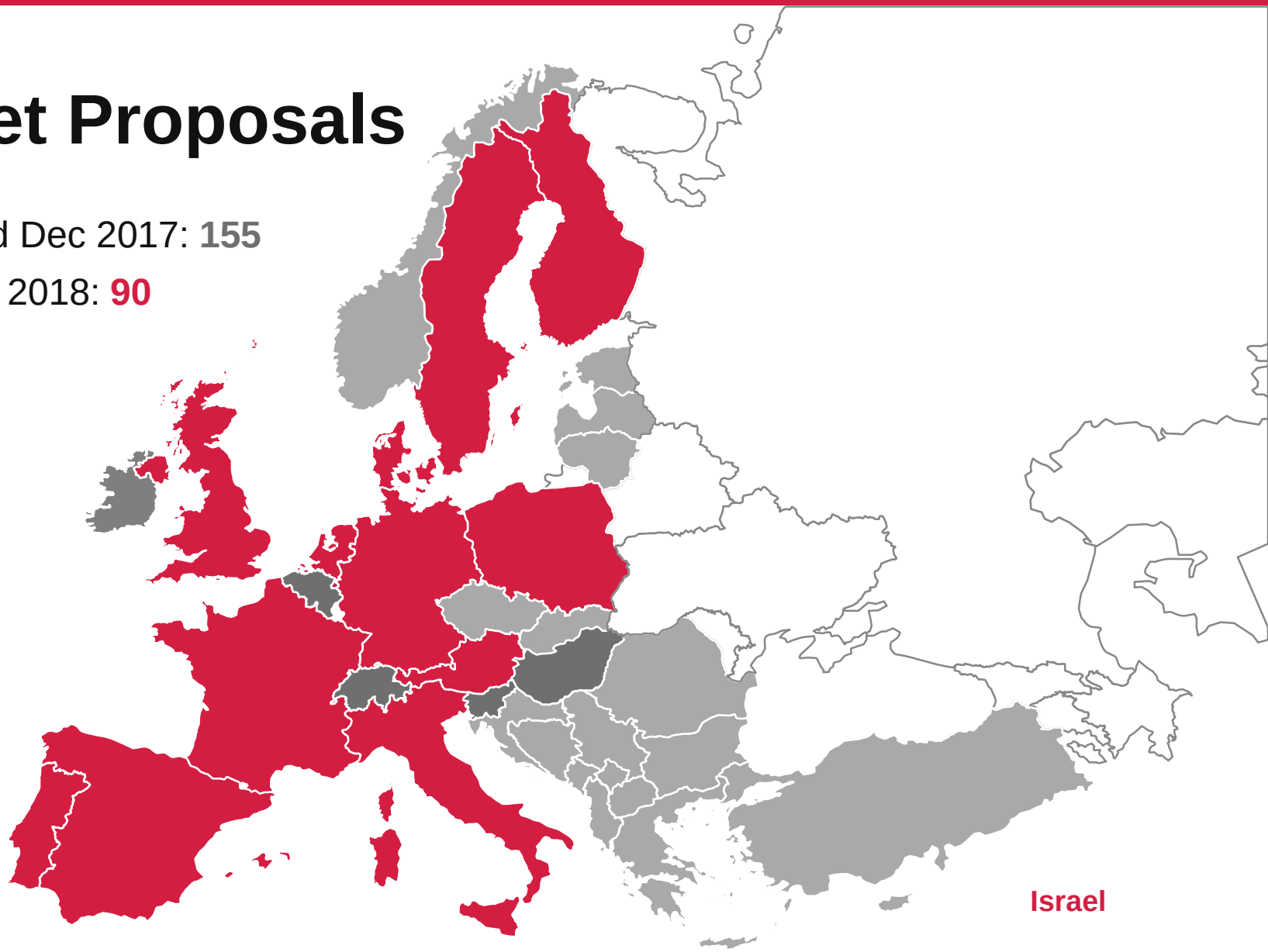
Target Proposals

Submitted Dec 2017: **155**

Accepted 2018: **90**



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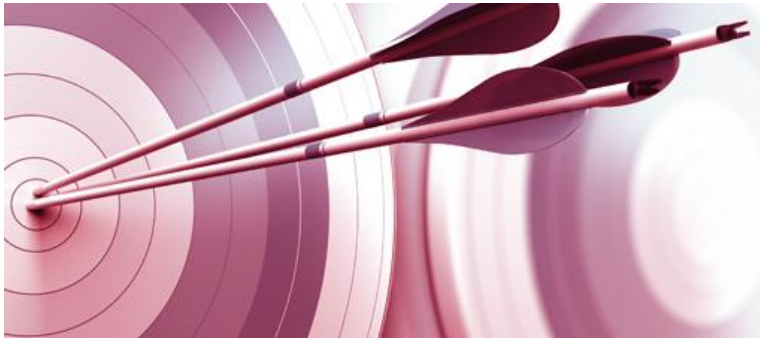

HITTING THE TARGETS

European Stakeholder Meeting
25-26 April 2017, Heathrow/Windsor, UK

- General Assembly => **Open Stakeholder Events**

- Chemical knowledge exchange events: travel grants for **early career chemists**

- Business cards & project inbox(es)

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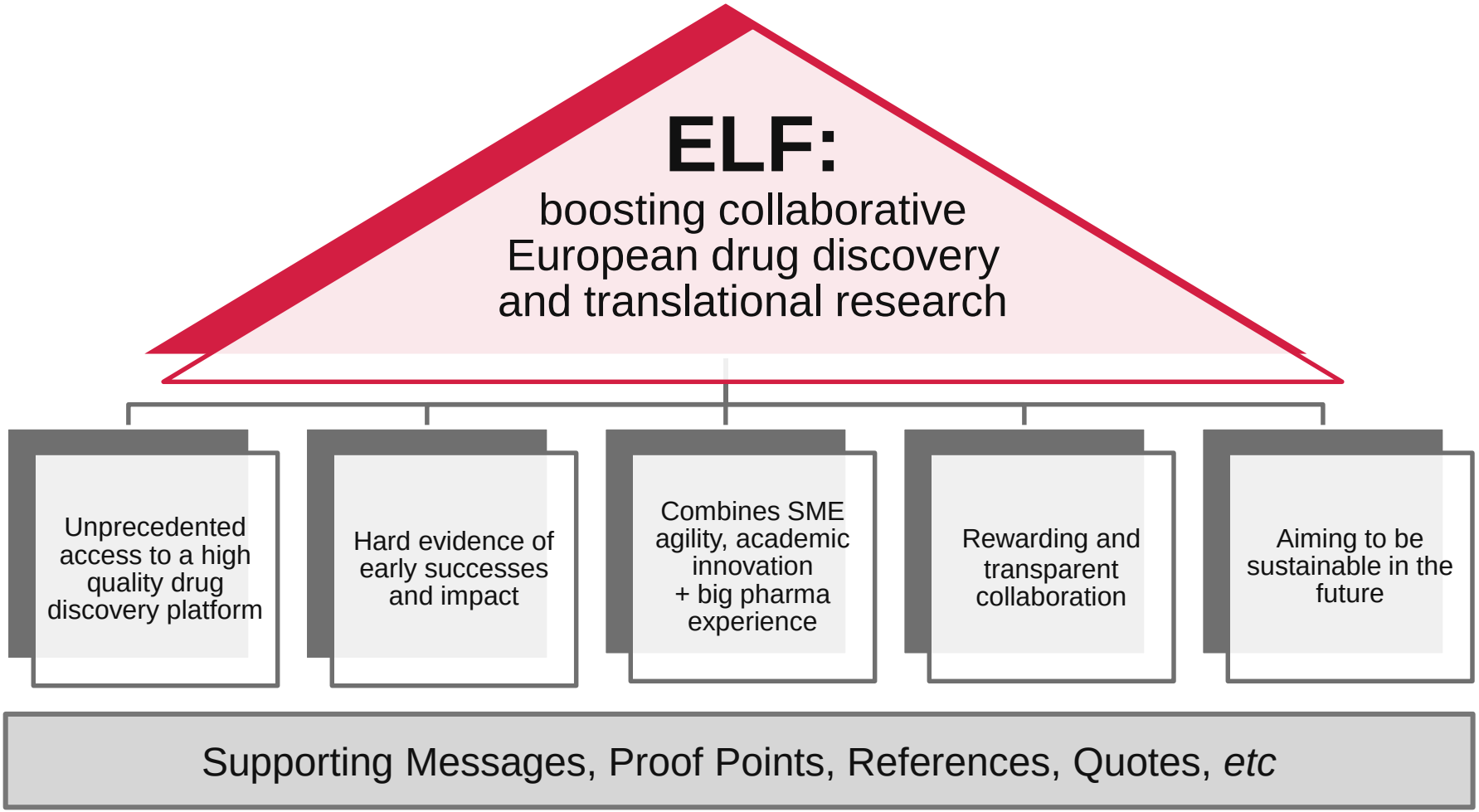
Message House



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Project Objectives

Open GA meeting

Satellite meetings

Networking events

Conference presentations

Press Releases

Scientific publications

News items

Newsletter

Video interviews

Flyers

Animations

Project slide deck

Website

Fireworks
Start a dialogue

Sparks
Create Awareness

Bonfire
Strengthening the brand

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° 115489, resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.

Impact

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Blueprint for Public-Private Partnerships


European Lead Factory hits its stride

A large European drug discovery consortium is making inroads into novel chemical and biological space.

nature REVIEWS DRUG DISCOVERY

Nature Reviews Drug Discovery **15**, 221–222 (2016) by Katie Kingwell


frontiers in Medicine Regulatory Science

The European Lead Factory: A Blueprint for Public–Private Partnerships in Early Drug Discovery

Anna Karawajczyk[1], Kristina M. Orrling[2], Jon S. B. de Vlieger[2], Ton Rijnders[2] and Dimitrios Tzalis[1]*

[1]Taros Chemicals GmbH & Co. KG, Dortmund, Germany
[2]Lygature, Utrecht, Netherlands

The European Lead Factory (ELF) is a public–private partnership (PPP) that provides researchers in Europe with a unique platform for translation of innovative biology and chemistry into high-quality starting points for drug discovery. It combines an exceptional collection of small molecules, high-throughput screening (HTS) infrastructure, and hit follow-up capabilities to advance research projects from both private companies and publicly funded researchers. By active

Frontiers in Medicine **3**, 75 (2017); Open Access

Euronews BUSINESS PLANET, 2016-12-28 Jan Skriwanek NKS Dimitrios Tzalis ELF

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° 115489, resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.

Summary

Challenge 1: Large, heterogenous consortium

- Identify champions & ambassadors
- Feed them tools, templates and examples

Challenge 2: Large, diverse set of stakeholders

- Different group = different message
- “I -> U” and blur the “We vs Us”

Challenge 3: Far from the clinic

- Case stories
- Collect quotes at meetings

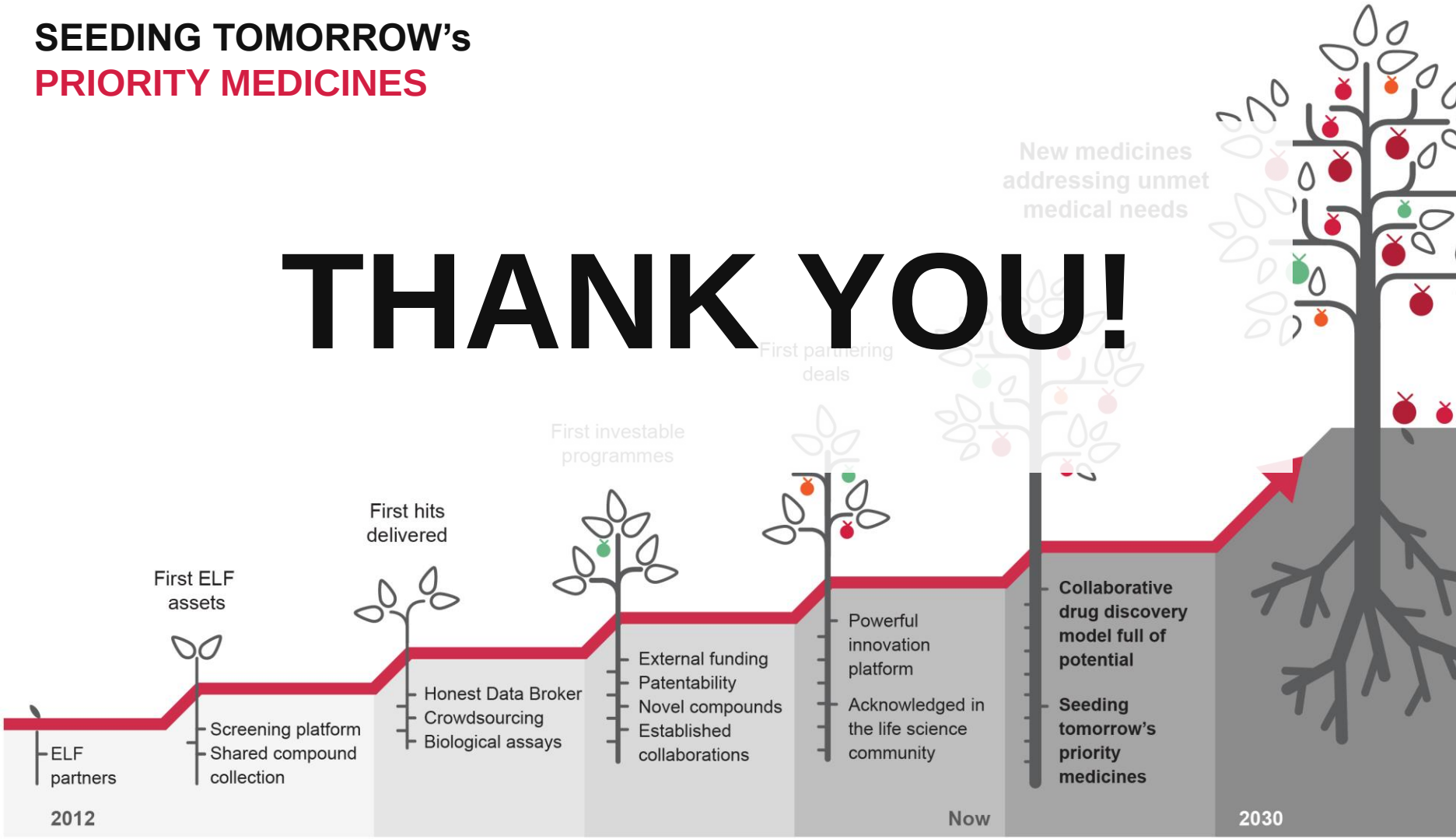
Challenge 4: Communication efficacy

- Define timelines, roles and when to escalate

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° 115489, resources of which are composed of financial contribution from the European Union’s Seventh Framework Programme (FP7/2007-2013) and EFPIA companies’ in kind contribution.

SEEDING TOMORROW's
PRIORITY MEDICINES

THANK YOU!



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