tranSMART Foundation

Code *Content* *Community*

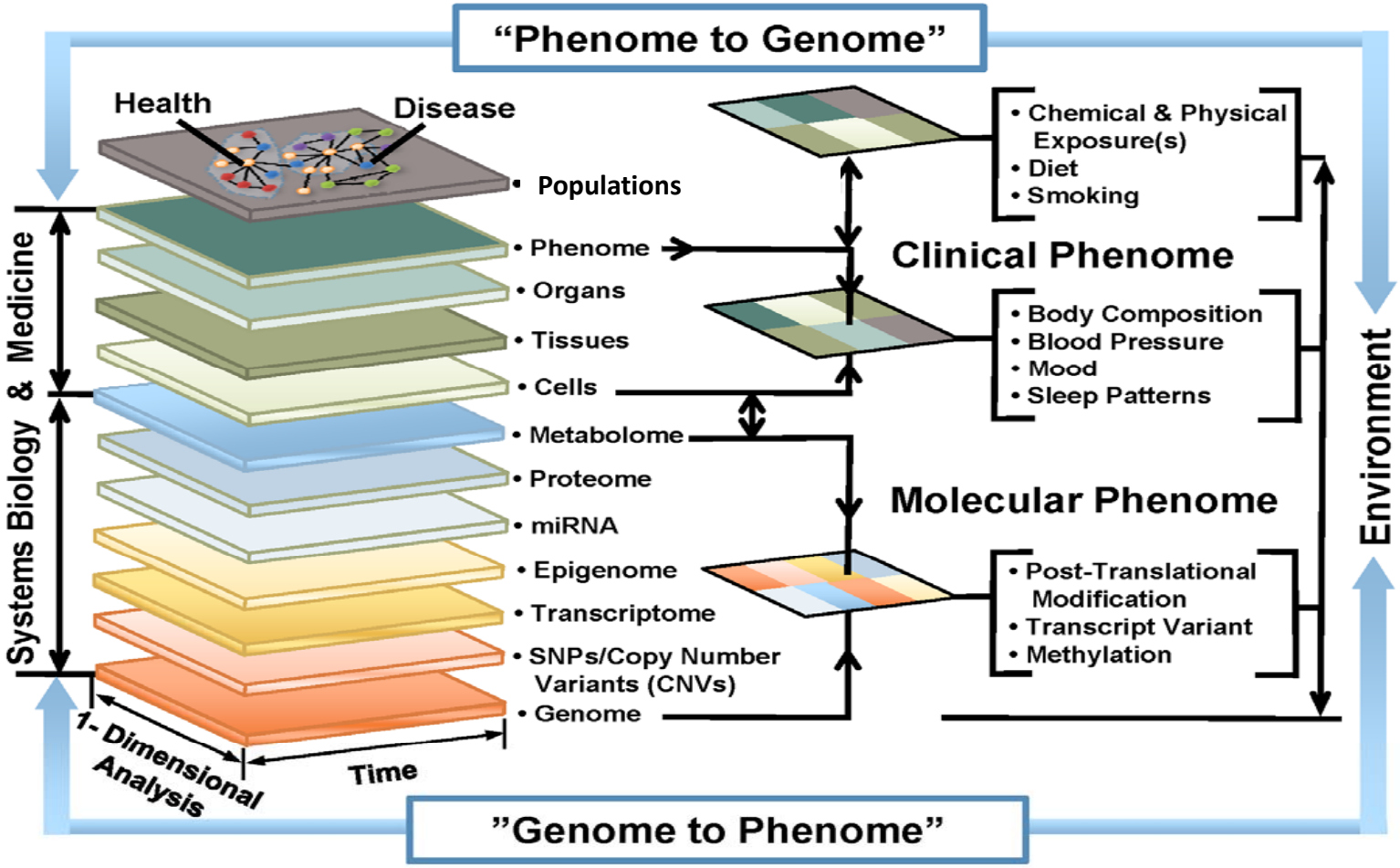
Building a Robust Translational Research Community around the Open-Source tranSMART Platform

The PRISME Forum

14-October-2013

The Translational Challenge:

Data Integration & Analysis



Athey and Omenn, 2009

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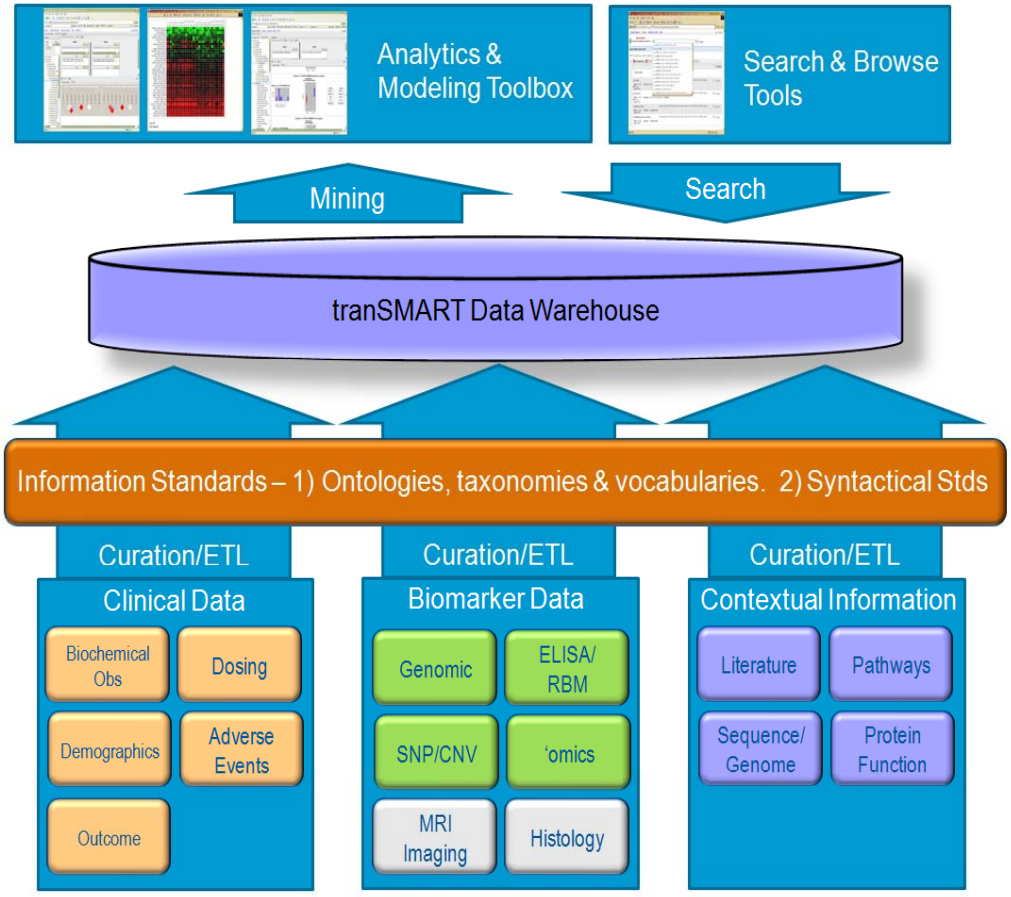
The tranSMART Platform:

an architecture to enable translational research



tranSMART – A platform and Community

- Open-source and open-data translational biomedical research community
- Scientists, Developers, Service Providers, Clinicians

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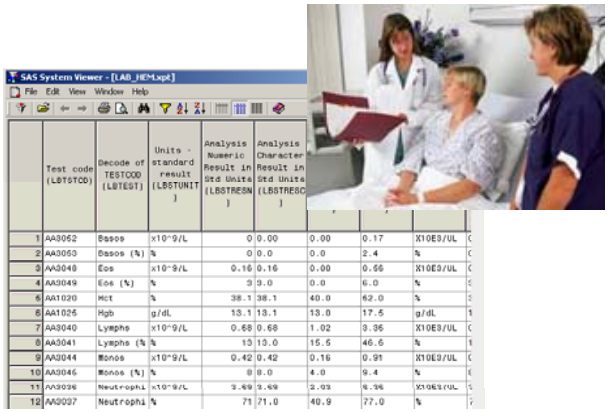
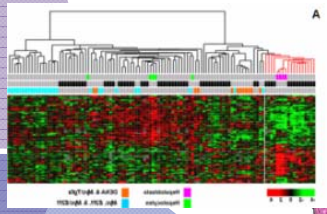
The tranSMART Platform Creates Value:

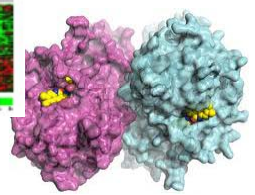
Collaboration Between Groups and Functions



Clinical Group

- Trial design
- Patient stratification
- Response prediction





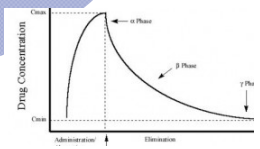
tranSMART

Discovery Group

- Target validation
- Biomarker discovery

Preclinical Group

- Animal models
- Drug sensitivity
- Toxicity



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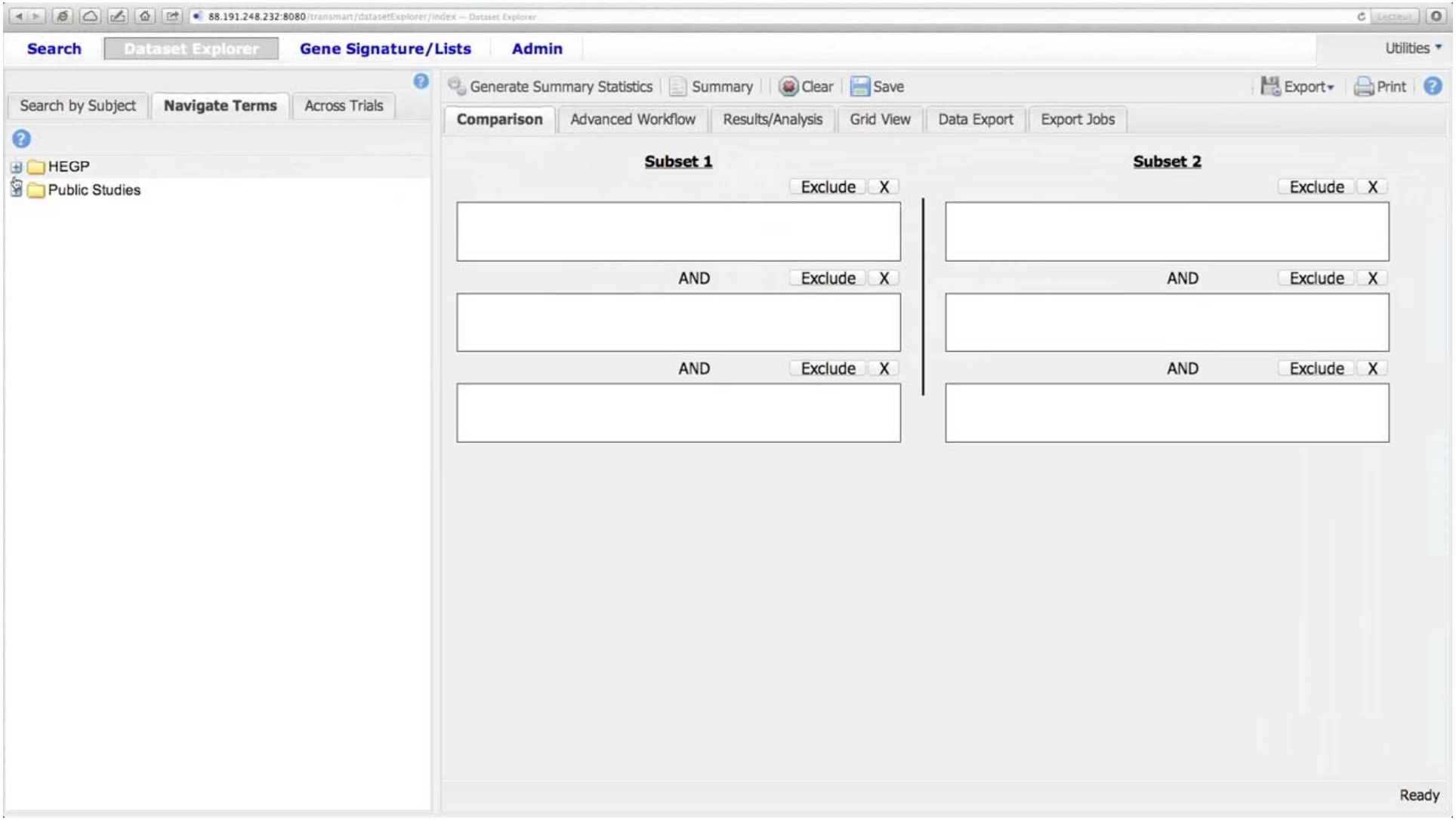

What is Needed for the tranSMART Platform to Become an Industry Standard

- Learnings from other open-source programs
  - A critical mass of developers
  - A critical mass of users
- Moving to other database schemas than Oracle and Postgres
  - Hadoop Hbase
  - Mongro DB
- High dimensional data APIs
- Biomolecular knowledge base for analysis
- Solving legal issues with EHR records and individual sequence data

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The tranSMART Platform is Being Adopted:

over 35 organizations have implemented tranSMART

- International Research Initiatives
  - IMI – eTRIKS, EMIF
  - CTMM – TraIT
- Pharma & Biotech
  - Sanofi, Millennium, Pfizer, JNJ, Roche
- Government aligned Institutions
  - FDA
- Non-Profits
  - 1Mind4Research, Orion Bionetworks
- Hospitals / Academics
  - U Michigan, John's Hopkins, St. Jude
- Service Providers
  - Thomson Reuters, Recombinant(Deloitte), theHyve, Rancho Biosciences, BTGS

Start	Organization	Type	Stage
2008	Johnson & Johnson	Pharma	Production
2008	Recombinant by Deloitte	Services	Multiple
2010	Sage Bionetworks	Non profit	Production
2010	Thomson Reuters	Services	Support
2010	U-BIOPRED	Consortium	Production
2011	SAFE-T	Consortium	Pilot
2011	University of Michigan, Comprehensive Cancer Center (UMCCC)	Academic	Production
2012	BT Cure	Consortium	Pilot
2012	CTMM/TraIT	Consortium	Development
2012	FDA	Government	Development
2012	IMI/eTRIKS	Consortium	Development
2012	Merck	Pharma	Pilot
2012	Millennium Pharmaceuticals	Pharma	Production
2012	One Mind for Research (1M4R)	Non profit	Production
2012	Pfizer	Pharma	Production
2012	Roche	Pharma	Evaluation
2012	Sanofi-Aventis	Pharma	Development
2012	St. Jude	Non profit medical center	Development
2012	University of Michigan, Department of Computational Medicine & Bioinformatics (DCM&B)	Academic	Development, Pilot
2013	Agios	Biotechnology	Evaluation
2013	APHP-HEGP Paris France	Academic	Production
2013	Boehringer Ingelheim	Pharma	Pilot
2013	Bristol Myers Squibb	Pharma	Evaluation
2013	BT Global Services	Services	Pilot
2013	Accelerated Cure Project for MS	Non profit	Development

tF Vision and Mission

Vision

Realizing the promise of translational biomedical research by provision and continuous improvement of a open source code base for data sharing and analytics.

Mission

The tranSMART Foundation enables effective sharing, integration, standardization, and analysis of heterogeneous data from collaborative translational research by mobilizing the tranSMART open-source and open-data community.

The tranSMART Foundation Goals

1. Establish and sustain tranSMART as the preferred data sharing and analytics platform for translational biomedical research.
2. Link academic, non-profit and corporate research communities for collaborative research facilitated by tranSMART.
3. Align and grow a vibrant developer network around the scientific goals of the tranSMART community.
4. Reduce barriers to entry through use of advanced technologies and an active marketplace.

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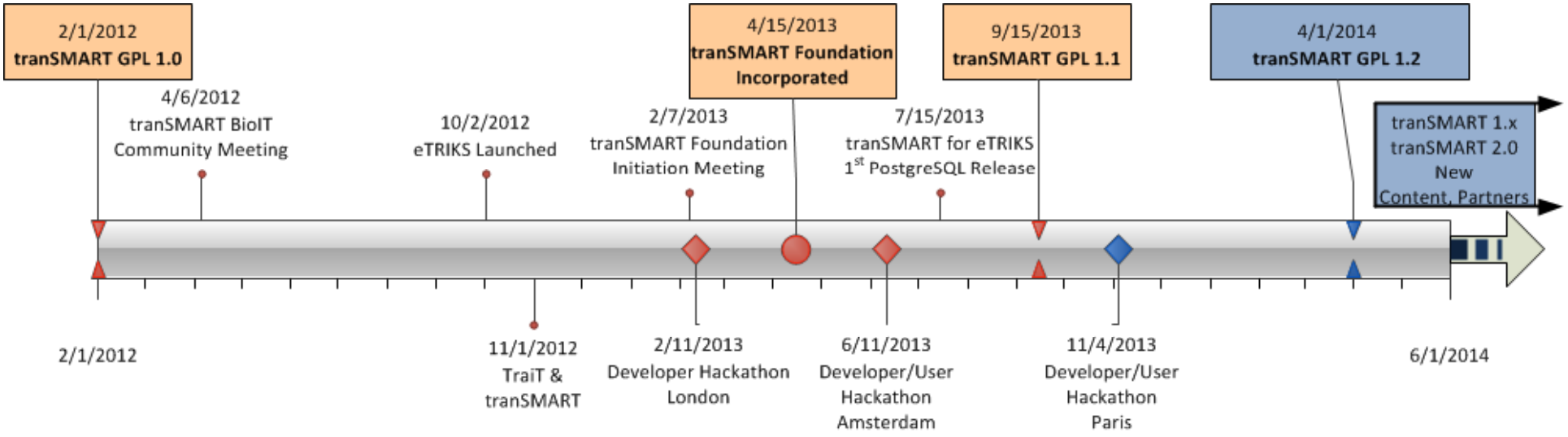
Code Content Community

THE TRANSMART FOUNDATION

A Not for Profit Corporation
www.transmartfoundation.org



Ops Team (Officers)

Executive Director
Kevin Smith, MSIS
University of Michigan

Co-Chief Executive Officer
Michael Braxenthaler, PhD
Roche, Pistoia Alliance

Co-Chief Executive Officer
Brian Athey, PhD
University of Michigan

Treasurer
Ashley George, PhD,
GlaxoSmithKline, Pistoia

Chief Technology Officer
Yike Guo, PhD
Imperial College London

Chief Science Officer
Keith Elliston, PhD
Seneca Creek Research

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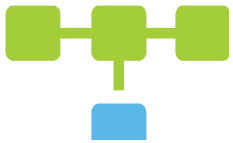
Code *Content* *Community*

THE ROLE OF THE TRANSMART FOUNDATION

What if... *Scientists* working at ***every*** university, non-profit research organization, pharmaceutical and biotechnology company in the ***world*** could ***share*** their pre-competitive clinical and molecular biology data – working together to turn ***scientific discoveries*** into ***medical breakthroughs***?

Community

Foster a global community of Users, Developers, and Commercial Service Providers



Code

Serve as a gateway to high value tranSMART content

V1.1 (Sep-13) V1.2 (Q2-14) V2.0 (TBD)

Content

Serve as a gateway to high value tranSMART content

Catalogs coming in late 2013

Continuity

>$50M in public/private investment in tranSMART-related projects so far

Foundation Key Initiatives

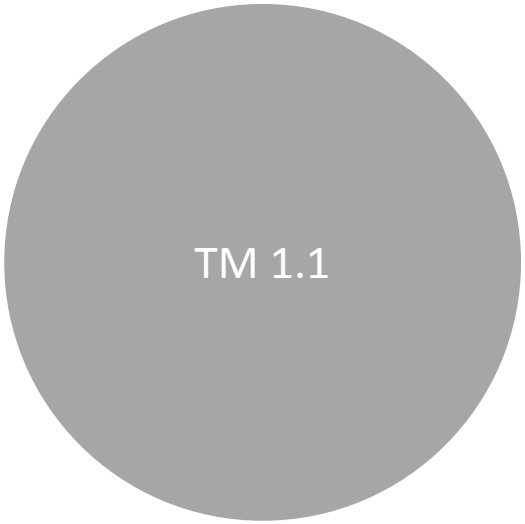
- Version 1.x Roadmap
  - ✓ Version 1.1 released 9/15/13
  - – Version 1.2 planned 4/31/14
- Version 2.x Roadmap
  - – Initial architecture design planned 6/30/14
  - – Initial release planned 6/30/15
- Community Coordination
  - ✓ Developer and User infrastructure
  - – Workshops, Hackathons, Scientific Meetings
- tF Certified Program
  - – Ensure the quality of content and services
- Business / Marketplace Development
  - – Bring new products and services to the tranSMART Community
- Membership program
  - – Ensure the sustainability of the platform

tranSMART Foundation

Code *Content* *Community*

All new development will be based upon the new tranSMART V1.1 core

The tranSMART Foundation Coordinates Development to Ensure a Clear Direction



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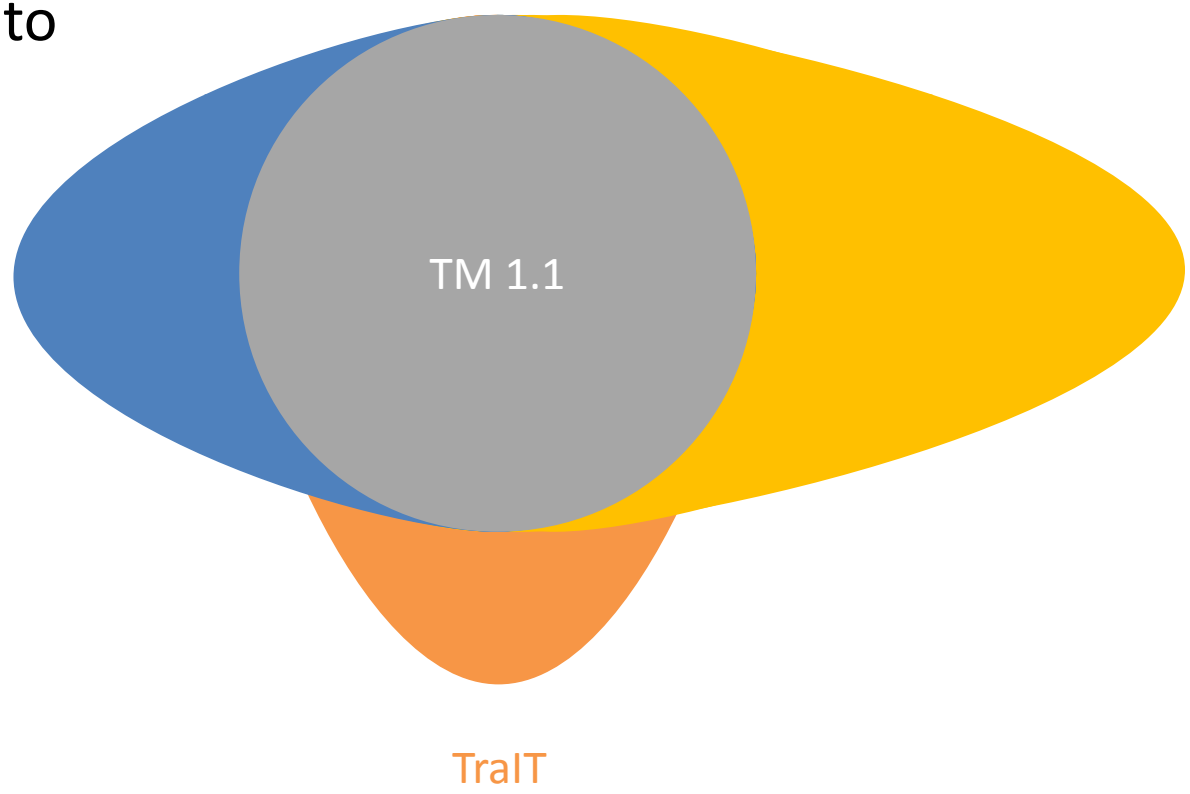
Code Content Community

Teams develop within the context of their projects

The tranSMART Foundation Coordinates Development to Ensure a Clear Direction



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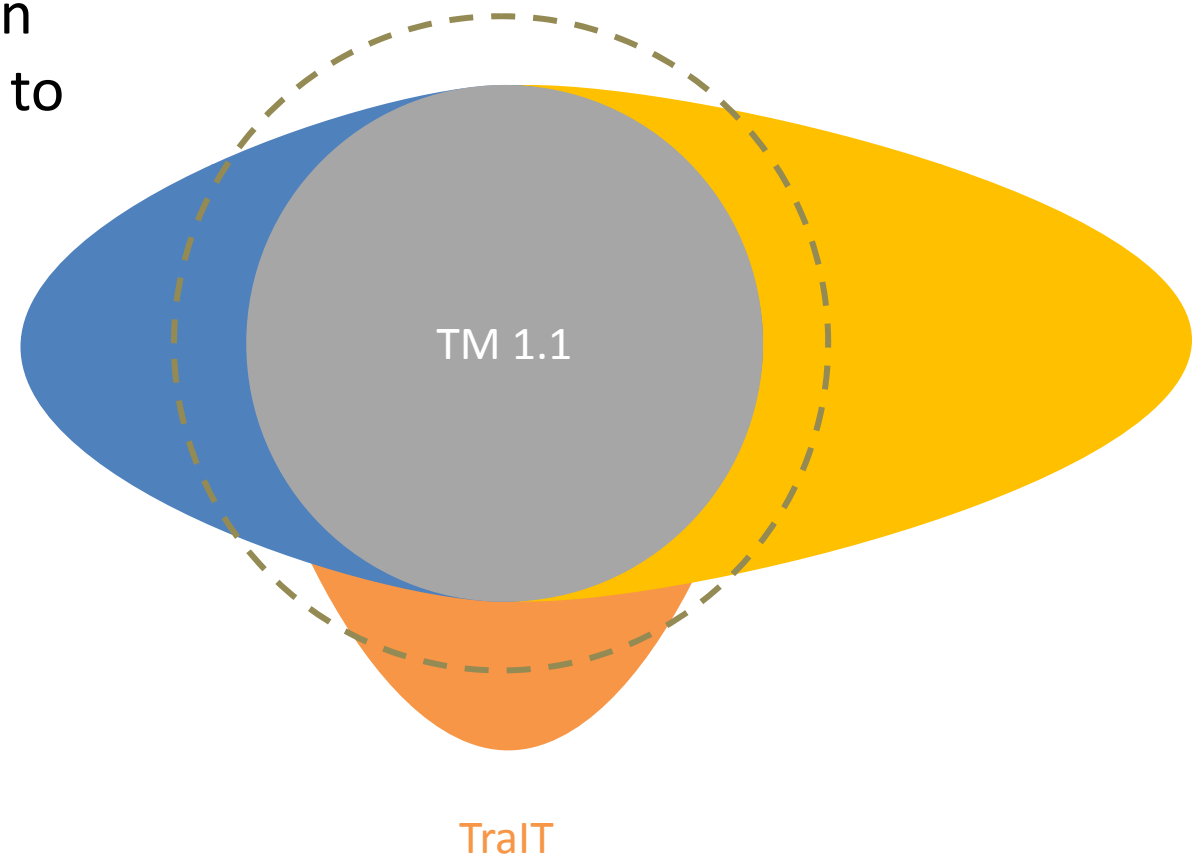
Code Content Community

Foundation Led Team Gathers and Helps Decide What to Include in tranSMART v1.2

The tranSMART Foundation Coordinates Development to Ensure a Clear Direction



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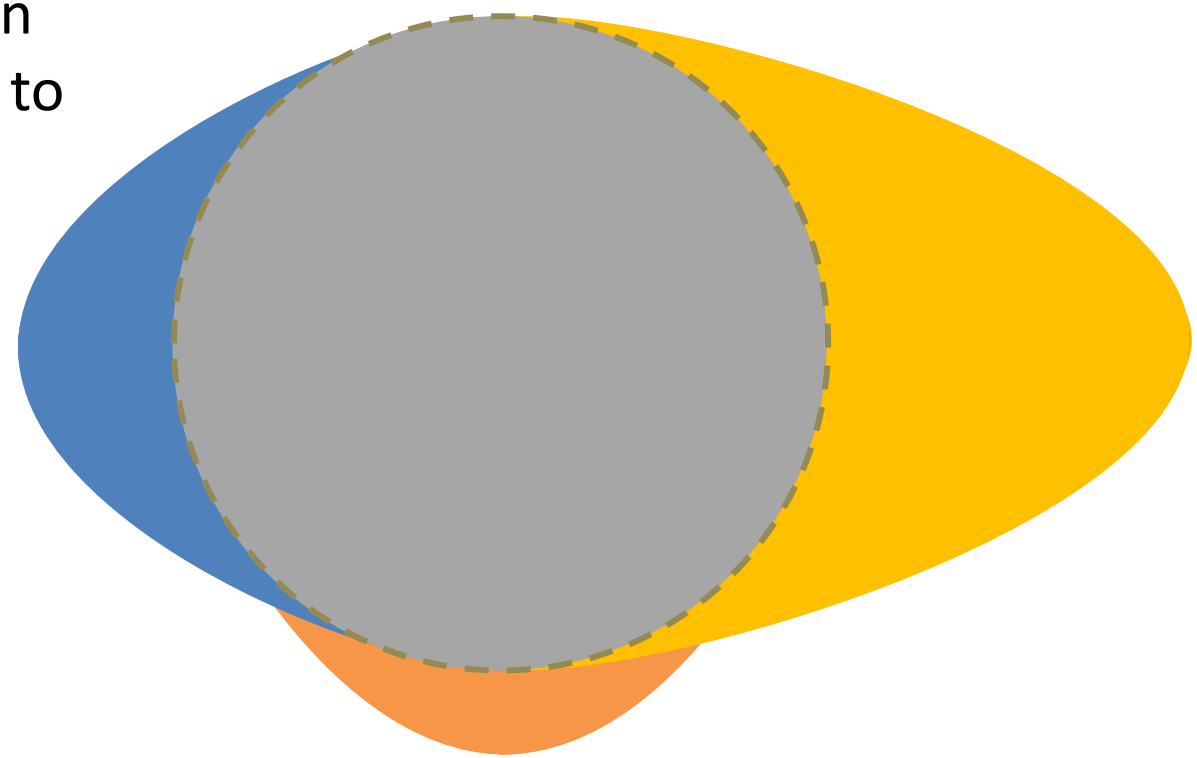
Code Content Community

Code Integration Phase Driven by Requirements

The tranSMART Foundation Coordinates Development to Ensure a Clear Direction



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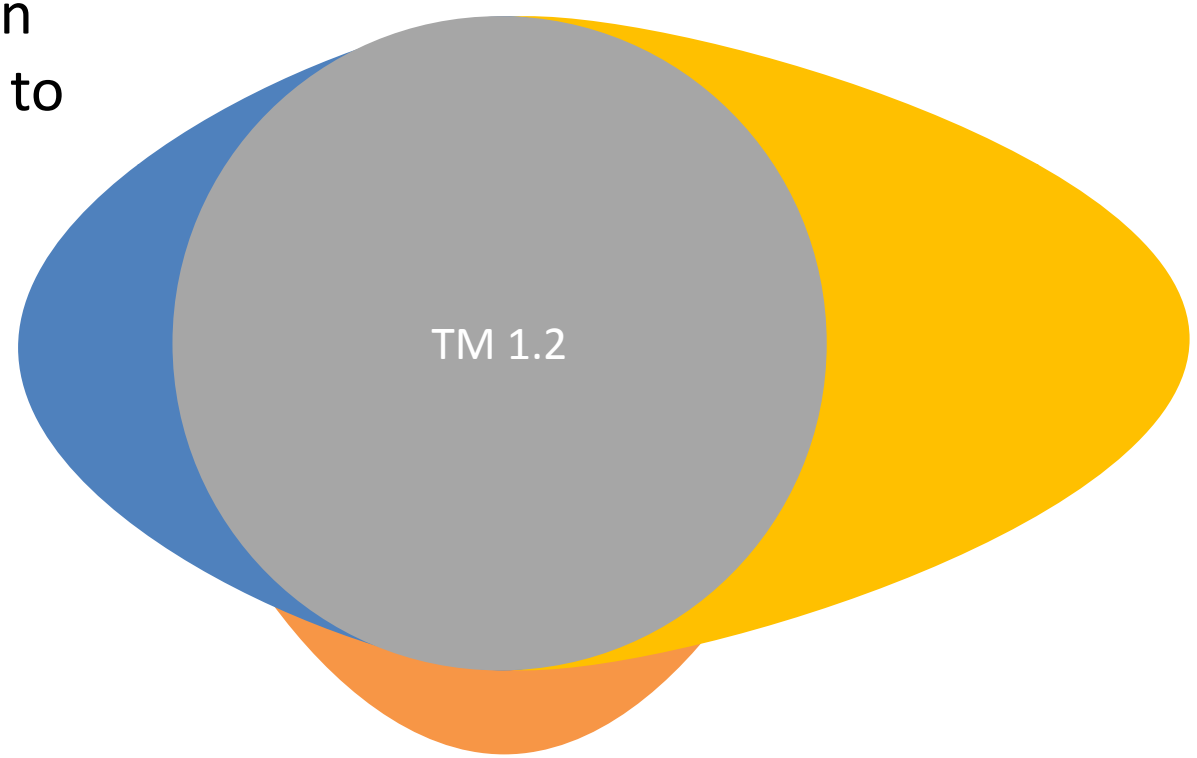
Code Content Community

The Foundation will convene a Release Team to Manage the Process

The tranSMART Foundation Coordinates Development to Ensure a Clear Direction



Foundation Value-Adds

- Code
  - Organization of new releases
  - Communicating user requirements
  - Deploying and managing developer infrastructure
  - Developing quality standards
- Community
  - Business Development
    - New service providers, technology partners, etc.
  - Community Activities
    - Workshops, hack-a-thons, conferences
- Content
  - Encouraging content contributions to the community
  - Community directed content curation
- Continuity
  - Ensuring that investments in tranSMART projects benefit the whole community

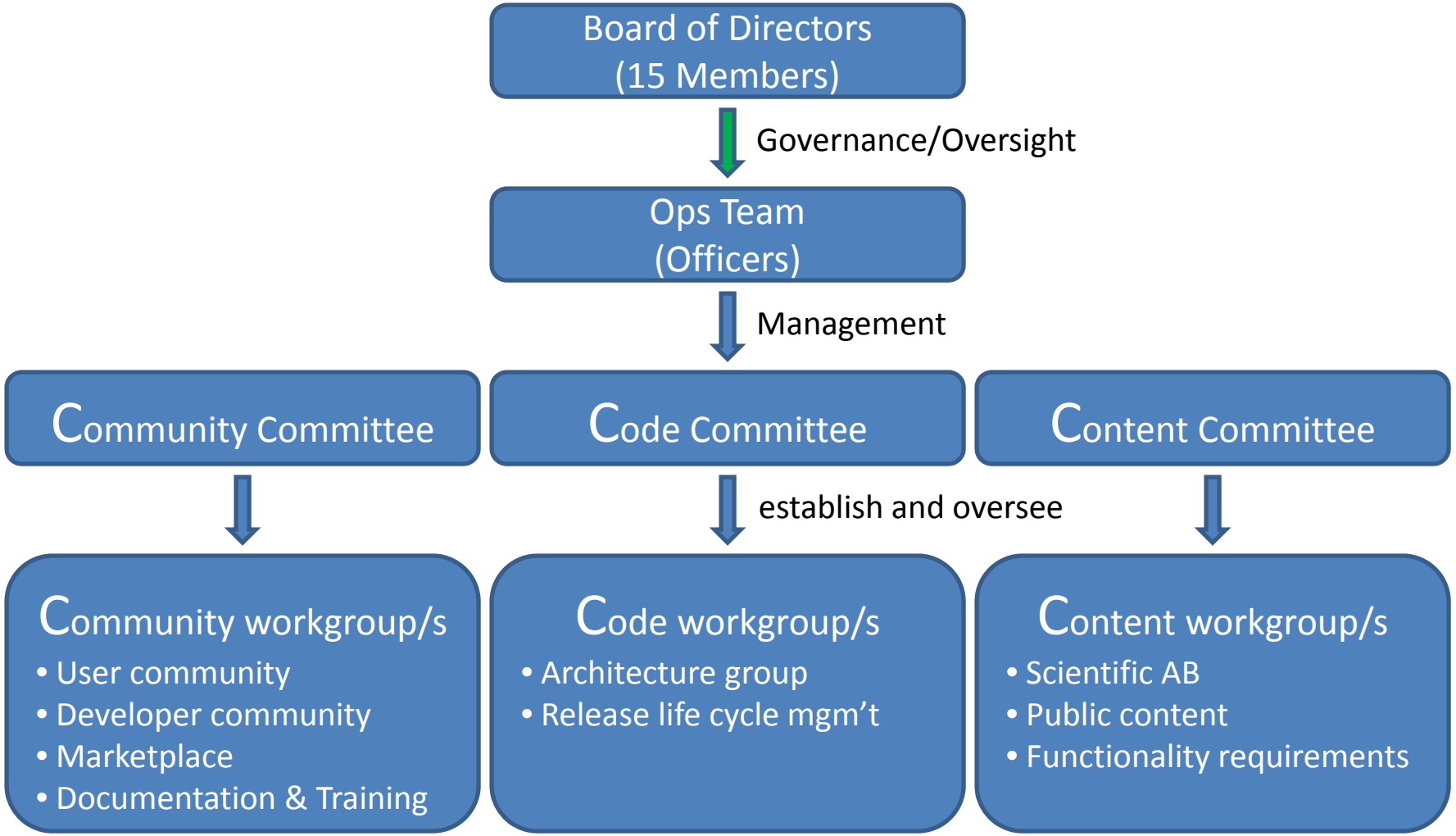
Providing a Nucleus to Build and Grow the tranSMART Community

Business Plan and Timeline

- ✓ Phase 1 4/15/13 - 12/31/13
  - ✓ Deliver tranSMART v1.1
  - ✓ Establish Operations team
  - – Initiate membership program
- • Phase 2 – 1/1/14 – 12/31/14
  - – Formalize and Stabilise all Operations
  - – Deliver tranSMART v1.2
  - – Initiate development of v2.0
  - – Initiate Content Repository
  - – Convene new member-driven BOD
- • Phase 3 – 1/1/15 – beyond
  - – Growth to sustainability, governed by members
  - – Implementation of v2.x platform

- • 3 year plan
  - – growth to sustainability for the Foundation, Community and Platform
  - – Organize and enhance the tranSMART Community
- • Focus on geographical centers of excellence
  - – North America, Europe and Asia
- • Ensure the quality and usability of the content and services
  - – tF Certified Program

GOVERNANCE STRUCTURE



tranSMART Foundation

Code Content Community

MEMBERSHIP *AND ITS BENEFITS*

Membership support foundation efforts & protects investments in tranSMART

Level	Gold	Silver	Bronze
Board seats (15 Total)	5	3	2
Seat in number of Committees	3	2	1
Participation in Workgroups	unlimited	unlimited	unlimited
Annual membership fee	$ 100K or more	$ 50K or more	$ 5 - $20K

How You Can

HELP

and Participate

BECOME a FOUNDATION MEMBER!!!

Provide funding for specific deliverables!!!
tranSMART releases, development of services
Provide in-kind contributions to workgroups and general services!!!

Membership Program

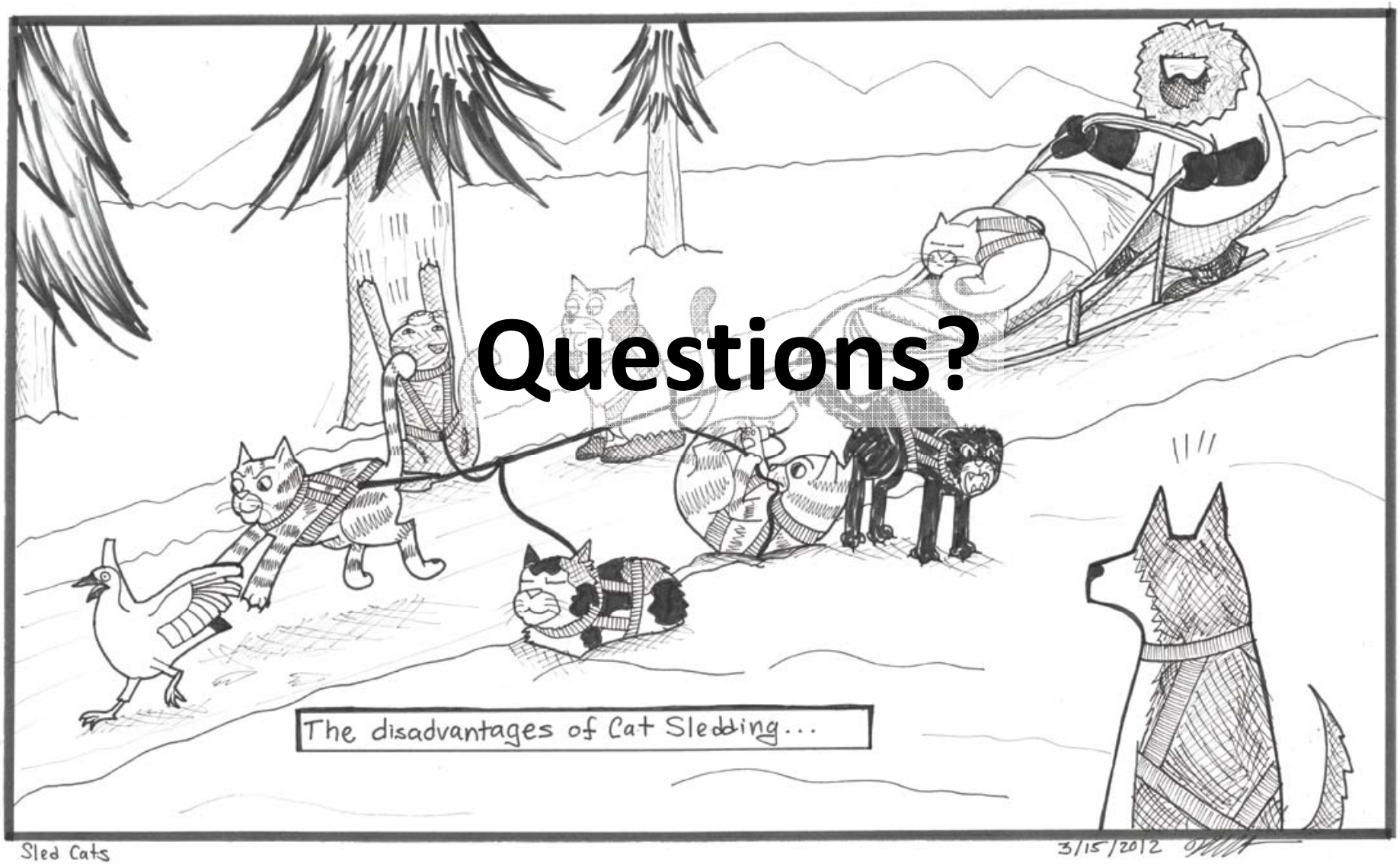
- Committed Members:
  - Gold: Pfizer, Sanofi
  - Others: theHyve, Rancho Biosciences, Recombinant, Roche
- Need:
  - Raise $800K to fund 2013-14 Operations
    - 5 Gold, 5 Silver, 10 Bronze memberships
- Key deliverables:
  - Version 1.2 release (April ’14)
  - Version 2.0 Architecture (June ‘14)
  - Community Organization
  - tF Certified Program Launch
  - New Board – Formed from Membership (January 2014)

What the Foundation needs from you…

- Become a member
  - Support the Foundation
  - Participate in Governance and Direction
- Advocate for the platform
  - Building the community is critical for long term success and sustainability
- Participate in the Community
  - Software Development
  - Software Testing
  - Documentation Development
  - Scientific Input

Summary and Next Steps

- Summary
  - The Foundation is moving forward
    - Successful delivery of v1.1
    - Process in place for v1.2 and more…
    - Community infrastructure developing
- Next Steps
  - Paris Workshop – November 5-7
    - Kick off of membership activities
    - Finalize v1.2 feature set
    - Begin v2.0 architecture design
  - New Board formation
    - Driven by new members
    - To be elected by end of January 2014
  - Membership drive
    - Raise $800K to fund 2013-14 operations


Questions?
The disadvantages of Cat Sledding...
Sled Cats
3/15/2012