

FINOS OPEN SOURCE STRATEGY FORUM 2019

# Building a Community Driven Open Source Program in a Fortune 25 Healthcare Organization

DAMIAN NG



Express Scripts

CHAMPIONS

FOR  
BETTER

Ingestion



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# Who's Talking?

# About Me

- Head of Architecture at Express Scripts
- Lead platform strategy, target state architecture and technology innovation
- Built and led the open source program last 3+ years
- Chief Company Pick up Soccer Organizer



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# About Express Scripts

- Part of Cigna Corporation
- Just like your medical plan covers visits to your doctor, Express Scripts prescription plan covers the medicine your doctor prescribes
- One of the largest pharmacy benefits managers in the United States and one of the country's largest pharmacies
- Serves more than 100 million people



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# Background

# Our Legacy

- Focused on **outsourcing**.
- Contractual agreements with vendors to cover **software rights**.
- Open source **exploration** and **adoption** handled externally
- Ad Hoc, **centralized** approval to ingest open source software
- No glaring need for an Open Source program.



# What Changed in 2016?

- Technology transformation program re-focused ESI on **innovation** and leveraged **open source** technology as one of the key avenues to do so.



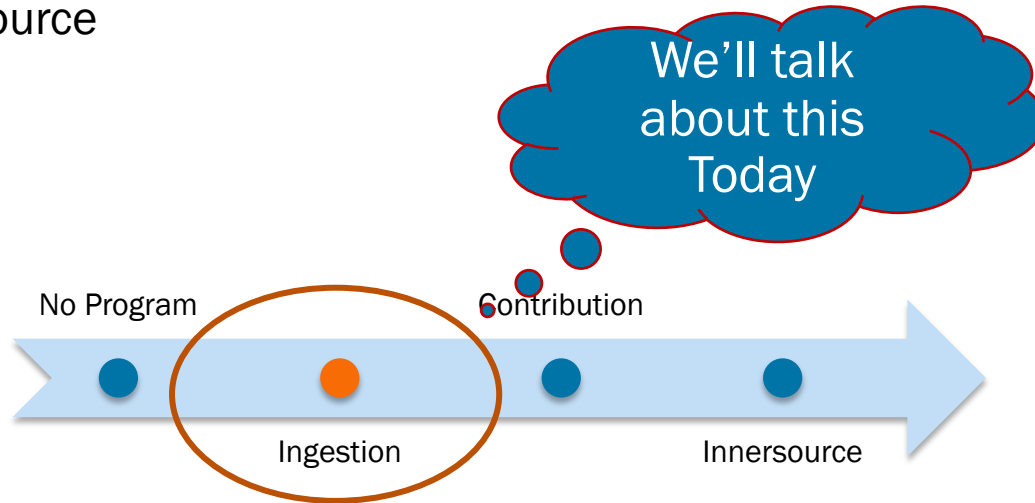
# No Open Source Program!



# Our Priorities

# Express Scripts Open Source Program

- Ingestion Program
- Opensource Contribution (<https://github.com/express-scripts>)
- Innersource



# Balance between Conflicting Needs

- Minimize **Legal** Risk
- Manage Technology **Footprint**
- Encourage **Innovation**
- Security and **compliance**
- **Scalable** for a Fortune 25 Organization on Agile Transformation



# Focus on Legal Policy





# Guiding Principles

- Encourage Exploration
- Review only on High Risk areas
- Don't go for 100% compliance
- Self-govern




# Immediate Challenge

- So **many** licenses!
- Legal knowledge of OSS is **scarce**
- Huge knowledge gap between understanding Open Source and **designing an Open Source policy** for a Fortune 100 company
- Same license, different use cases, **various implications.**
- Avoid building a **huge team** to support the process



# Open Source Ingestion Matrix

- 8 Key **consumption scenarios**
- 11 **Top Licenses**
- Green = **no-written approval**
- Record for tracking
- Exception/Manual approval for everything else

Open Source Licenses	Experimentaion Testing	Proposed Consumption based on Identified Scenarios						
		Scenario #2	Scenario #3	Scenario #4	Scenario #5	Scenario #6	Scenario #7	Scenario #8
License #1								
License #2								
License #3								
License #4								
License #5								
License #6								
License #7								
License #8								
License #9								
License #10								
License #11								
All Other Licenses								

## LESSON LEARNED

# A Lot of Greens

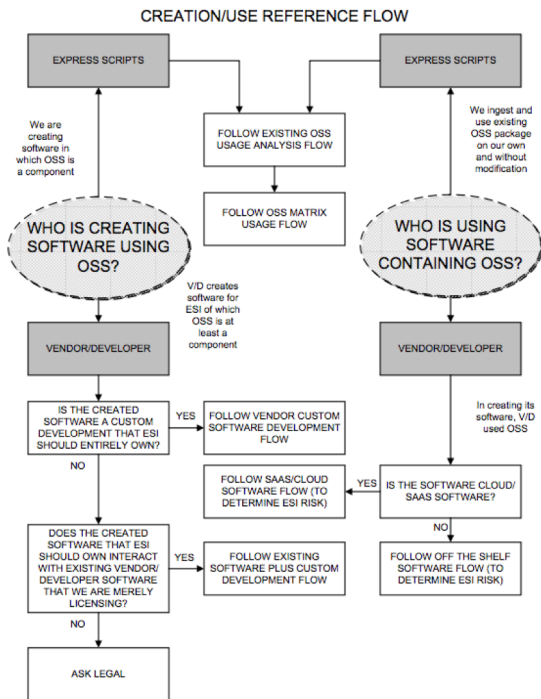
- Surprisingly, most of our ingestion scenarios are “green”
- Native mobile applications causes the most “red”
  - Falls almost directly into “distribution” scenario
  - Build tools for mobile applications insert code via static linking
- Dependency management and libraries are not your friend
  - Need to look up license information for dependencies
- AGPL is definitely not your friend
- Rely on your engineers to provide feedback and updates on product licenses.



# Need to handle more than downloading



# Build Process Flows for Exceptions



## Other Scenarios:

- Off the Shelf Software
- Vendor Custom Software Development
- Vendor Built Software with Custom Development
- SaaS/Cloud Software
- Vendor/Contractor Developer Usage

Change of legal position to **share Open Source Software liability** with vendors.

# Technology Formulary

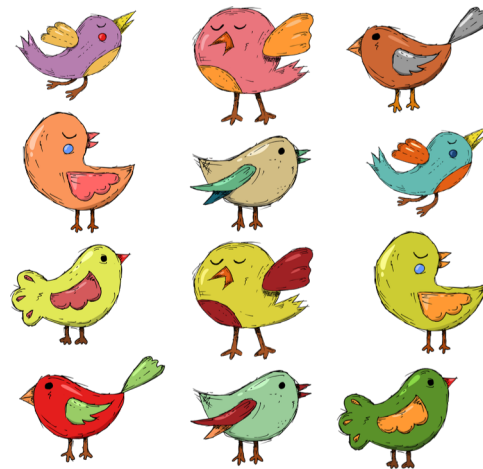
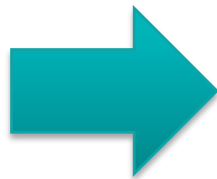


# So we have a legal policy, and .. ?





# How to Manage Technology Footprint



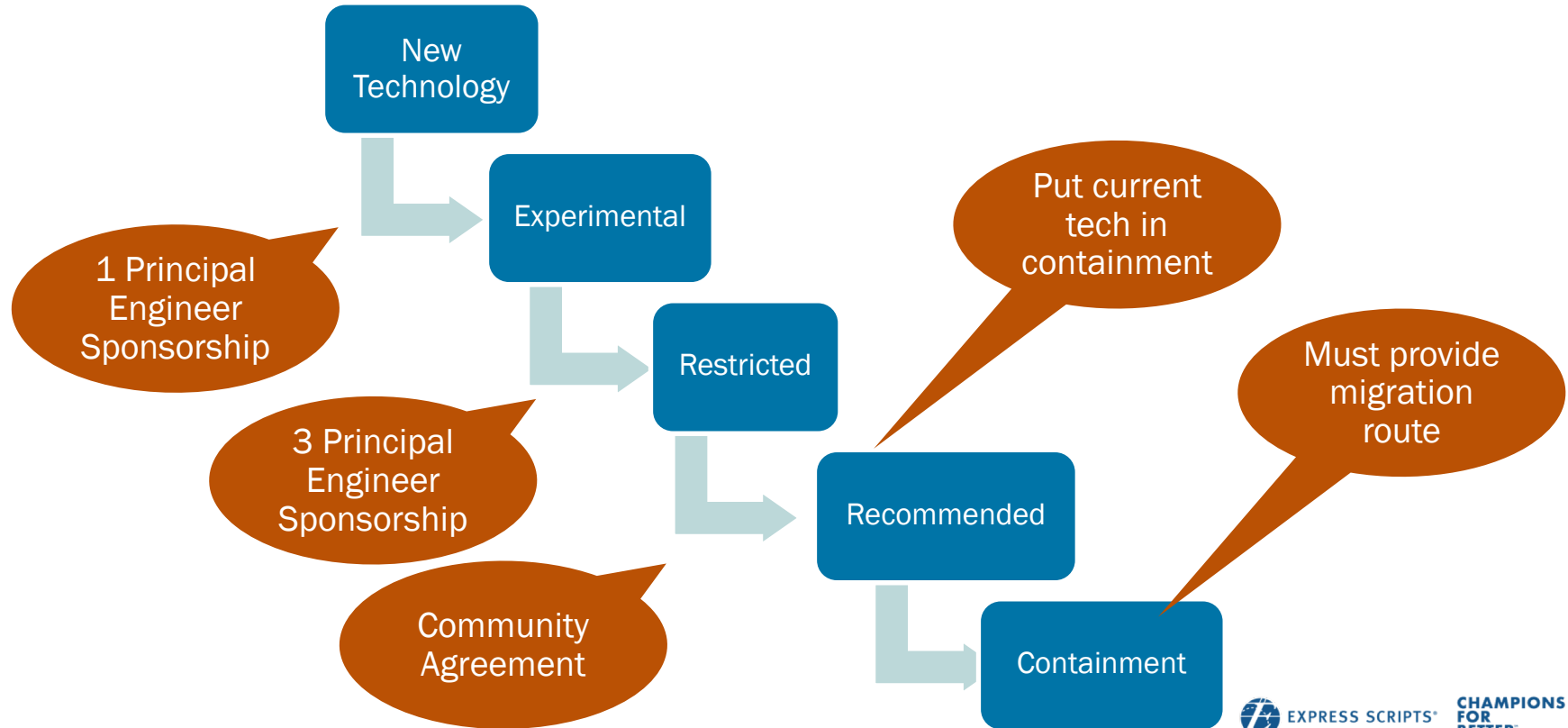
# Express Scripts Technology Formulary

- Technology Standards agreed and maintained by **Principal Engineer** community
- Context, **Use case** and Version driven
- Focus on hands on **opinion**
- Governance **Federated** by Principal Engineers to their teams
- Architecture **lead** the process, **federate** the decisions.

Technology	Context	Use Case	Version	Status
	Machine Learning and Predictive Analytics	Natural Language Processing		EXPERIMENTAL
	Machine Learning and Predictive Analytics	Plotting, Graphing and Data Visualization		CONTAINMENT
	Machine Learning and Predictive Analytics	Plotting, Graphing and Data Visualization		RECOMMENDED
	Machine Learning and Predictive Analytics	Plotting, Graphing and Data Visualization		RECOMMENDED
	Machine Learning and Predictive Analytics	Machine Learning Modeling		RECOMMENDED



# Community Federated Management



LESSON LEARNED

# Getting a community to agree is hard!



# Building a Technology Community



# The Career Ladder Program

- Career path for **Principal** and **Distinguished Engineers**
- **Decentralized** in delivery functions
- **Executive sponsorship** to grow community aggressively
- Community drive and manage all **ingestion**, **maintenance** and **governance** for open source technology.





## LESSON LEARNED

# Take Time to build a Community

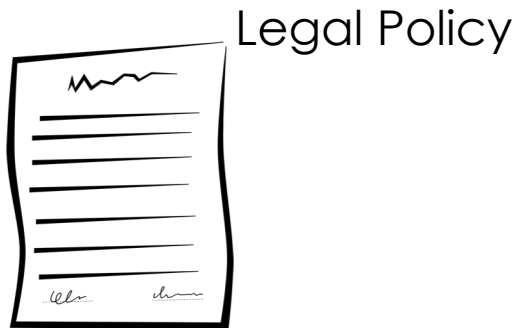


# Quick Recap

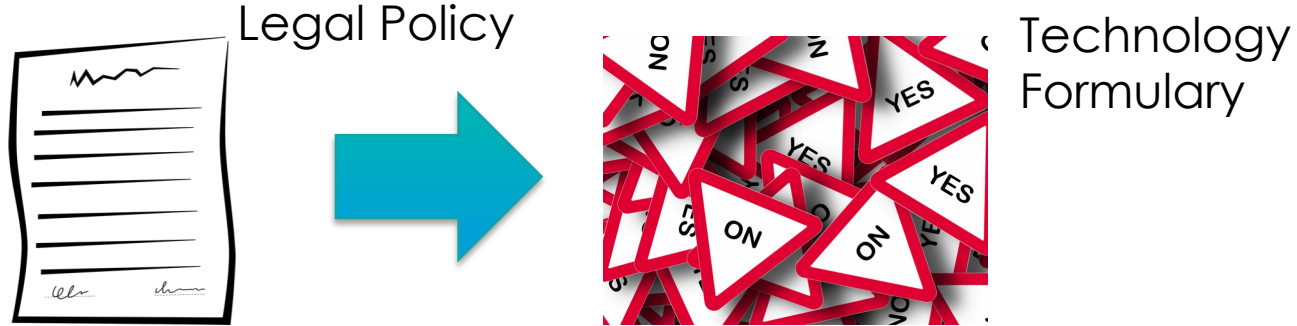




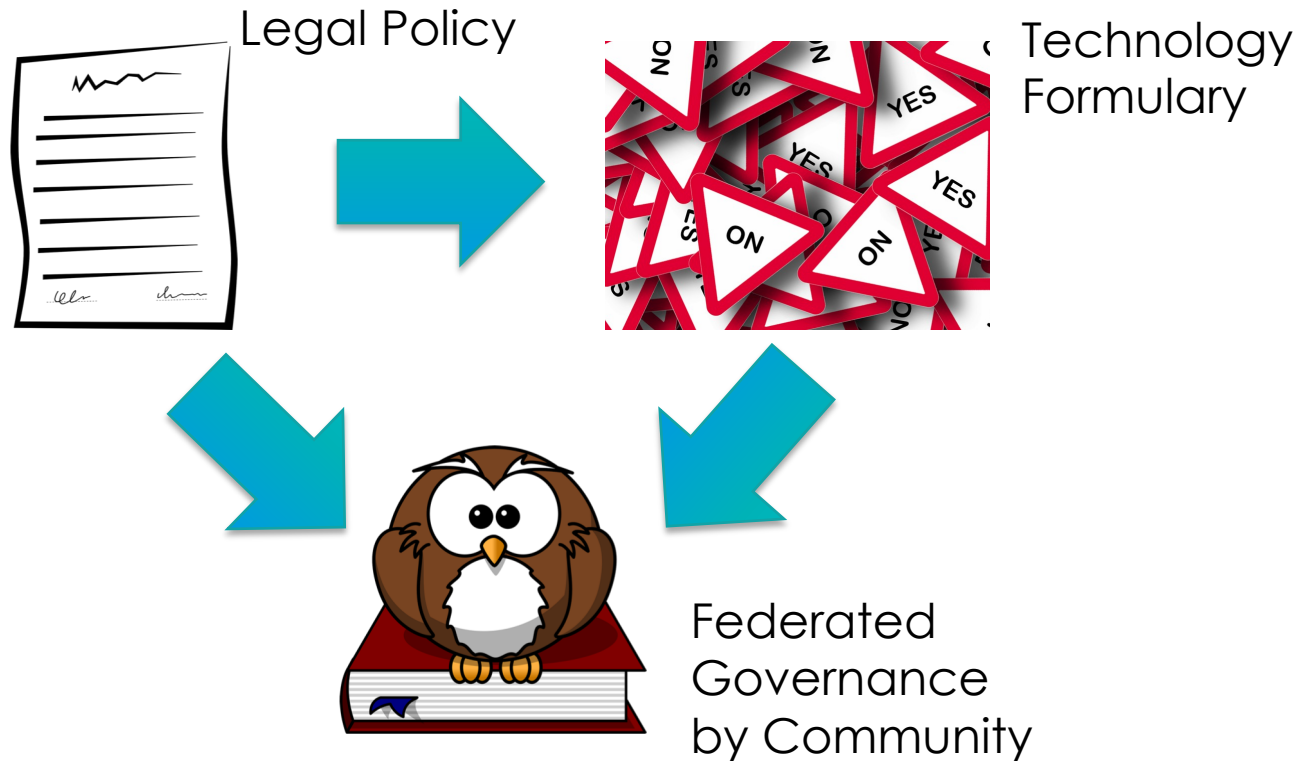
# Pillars for Our Open Source Ingestion Program



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# Pillars for Our Open Source Ingestion Program







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# Open Source License + Use Case Coverage

- Licenses:

- Apache 2.0
- BSD 2
- BSD 3
- CDDL
- Eclipse 1.0
- GPL 2.0
- GPL 3.0
- LGPL 2.1
- LGPL 3.0
- MIT
- MPL 2.0

- Use Cases

- Experimental Testing
- Code/Library that runs on a production server.
- Code/Library that is distributed to users as a product
- Websites where code executes on client side
- Infrastructure
- Internal Use End User Tool
- Build Tool which incorporate code