The Auto Industry Implementation of “Open Source Software Supply Chain Management (OSSSCM)”

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Introduction

Background

Communication Engineering & Informatics
Industrial & Management Systems Engineering
Business Administration
Intellectual Property Rights

Responsibilities

IP Strategy
OSS Governance
Community Works

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The History of SCM

- **‘70s** TPS
- **‘80s** QR
- **‘90s** SCM
- **‘00s** G11n
- **‘10s** SCRM

**Industry**
- Automotive
- Apparel
- Computer
- ALL
- ALL

**Keywords**
- **JIT** (Just In Time)
- Informatization
- **BTO** (Build To Order)
- **TOC** (Theory Of Constraints)
- **CPFR** (Collaborative Planning, Forecasting and Replenishment)
- **BCP** (Business Continuity Planning)
The concept of SCM

**WHY?**
For improving customer’s experience
For maximize effectiveness

**HOW?**
Realizing Total Optimization
Breaking down the intra- and inter-organizational barriers

**WHAT?**
Collaboration with supply chain partners
Managing bottlenecks
The Concept of OSSSSCM

WHY?
- Respecting the intention of community engineers
- Maximizing effectiveness

HOW?
- Realizing Total Optimization
- Removing intra / inter-organization barriers

WHAT?
- Collaboration between supply chain partners and community
- Managing bottlenecks
Collaboration

1. Developing an OSS governance structure to promote collaboration

2. Standardization of methods for smart collaboration

- Community
- supplier
- Maker
- Retailer
- Customer

Executive
Planning
R&D
Legal/IP
Sales
Procurement
CS
PR
Governance of Each Organization

w/Community

Building out self-certification, Audited Certification and formal standardization

Platinum Members:
Adobe/Arm/CISCO/COMCAST/GitHub/
HARMAN/HITACHI/QUALCOMM/SIEMENS
Sony/TOSHIBA/TOYOTA/Western Digital
New Platinum Members announced Today:
Facebook/Google/Uber

In TOYOTA SC

Building an official group to manage OSS risks and community contributions

Companywide Group

- OSS Developer
- Security Specialist
- IP Specialist

R&D

Developing OSS Culture
Handling OSS Risks

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Standardization of Methods

w/Community

Building out approaches such as SPDX and tools for smart collaboration

DENSO T/N/Fujitsu/HITACHI/Panasonic/Pioneer/RENESAS/RICOH/Sony/TOSHIBA/TOYOTA

JAPAN WORK GROUP
Info Sharing Sub-WG

In TOYOTA SC

Discussing Information Sharing Guidelines via OpenChain to address licensing information challenges

Tier1 Suppliers

TOYOTA

Information Sharing Guidelines
Managing Bottlenecks

1. Decreasing Patent Risks  2. Decreasing License Risks

Infrastructures of OSS

Community → supplier → Maker → Retailer → Customer

Executive Planning, R&D, Legal/IP, Sales, Procurement, CS, PR

3. Promote Internal and External Understanding OSS Compliance
Decrease Patent Risks

The expansion OIN Community resulted in a continuous reduction of OSS patent risks.

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage</th>
</tr>
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<tbody>
<tr>
<td>2016</td>
<td>44%</td>
</tr>
<tr>
<td>2017</td>
<td>55%</td>
</tr>
<tr>
<td>2018</td>
<td>68%</td>
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</tbody>
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Roughly Estimation of OIN Coverage

New Major Licensees OIN: HITACHI/KDDI/Microsoft

TOYOTA promoted its inclusion in the OIN Patent Non-Aggression Community. As a result, AGL technology has become part of this community.

OIN Board Members: Google/IBM/NEC/PHILIPS/Red Hat/Sony/SUSE/TOYOTA

Approved

Linux System Definition
Decrease License Risks

**w/Community**

GPL Cooperation Commitment (GPLCC) introduces a cure opportunity for GPLv2 and LGPLv2. This community is expanding rapidly.

**In TOYOTA SC**

TOYOTA became the first automotive company to join GPLCC.

https://www.openinventionnetwork.com/pressrelease_details/?id=88

The eight board members of OIN announced that they had unanimously adopted GPLCC.

https://www.openinventionnetwork.com/pressrelease_details/?id=88

TOYOTA is introducing GPLCC at community events such as the AGL All Members Meeting.

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The OpenChain Japan WG is identifying bottlenecks caused by lack of understanding around compliance and building Sub-Groups for each bottleneck.

Executive Planning R&D Legal/IP Sales Procurement CS PR

Education material for roles Sub-G

FAQ Sub-G

Leaflet to Supplier Sub-G

TOYOTA introduced an OSS license manual on the employees intra-net and is sharing information with subsidiaries all over the world.

Outside professionals are delivering lectures for our engineers to further develop internal OSS culture.
Level of Understanding

Level 1
NOT understand Importance of OSS Compliance

Level 2
NOT understand what to do

Level 3
NOT understand how to do

Level 4
Not Understand how to get certification

- To join events (for Engineers/Legal people/IP people)
- Workshop
- Consultation
- Case Materials (Wiki/Handbook/Academic paper)
- Self certification support
- Third-party certification
- PR (Traditional Media/Tech Media/SNS)
- Training support

Comprehensive support is being developed
How do we reach people who doesn't recognize OSS compliance?