



Against All Odds: A Full-time Open Source Team in Your Company

Plan

1. Motivation – why discuss this?
2. Our story
3. How to try this in your company?

Why Discuss This?

- Open Source is good – no need to explain why...
- Dedicated in-house open source initiatives:
 - rare
 - ...and especially rare in service companies

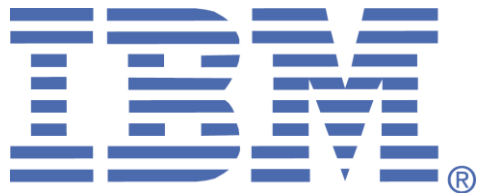
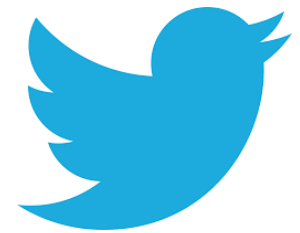
The “Usual Suspects” – Organization Profiles

- Companies – focused around open source products



The “Usual Suspects” – Organization Profiles

- Companies – open-sourcing part of what they create



The “Usual Suspects” – Organization Profiles

- Non-profits – focused on open source projects



- Companies – heavily using and dependent on open source products
- Academic projects – publicly funded

Why Discuss This?



...so what if your company
doesn't fit in any of
the “Usual Suspects” profiles?

About You?

- Type of the company you're working for:
 - **not** a "Usual Suspect" type?
- **Dedicated** open source contribution initiatives in-house?

How Can It Happen?

Q: Why do companies do something (that **costs**)?

A: Most of the times – because there is a **business case** for that.

How Can It Happen?

1. **Business case** – imagine, come up with one and design it well
2. Gather **feedback & supporters** – and fine-tune it
3. **Pitch it to decision makers** and convince them it makes (business) sense
4. **Start small** – trial phase, make sure it's a success – then get a 'go' for long-term project commitment
5. Continue and maintain it in a **sustainable** way

Plan

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2. Our story
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Our Story

What Musala Soft is

- ✓ Software development services since 2000
- ✓ 500+ experts in Bulgaria and Macedonia
- ✓ AI, Big Data Analytics, IoT, Smart Home, Industry 4.0, Cloud Integration & API Mgmt.
- ✓ Java, .NET, Front-end, Mobile, Data...
- ✓ EU & North America
- ✓ Telecom, Banking & Finance, Automotive



Our Story



What Musala Soft is **NOT**

- ✓ We are not selling products
- ✓ We are not providing services around an open source platform / tool
- ✓ There is no single platform or tool we are significantly dependent on (be it open source or not)
- ✓ We are not a (really) big company

Our Story

The Context

- ✓ Smart Home & IoT
- ✓ Deutsche Telekom Smart Home Qivicon / Magenta Smart Home
- ✓ Investing in people

The IDEA

- ✓ Martin Momov



www.openhab.org



www.eclipse.org/smarthome/

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Our Story



Alignment with Strategic Priorities

- ✓ Software development services since 2000
- ✓ 500+ experts in Bulgaria and Macedonia
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- ✓ **Java**, .NET, Front-end, Mobile, Data...
- ✓ **EU** & North America
- ✓ **Telecom**, Banking & Finance, **Automotive**

...and in addition:

- ✓ Big & active project
- ✓ Tech. area (OSGi)
- ✓ Training new people:
 - not experienced
 - not exp. in the area

Our Story

Convincing our CEO to invest in the initiative

- ✓ Aligned with our **strategic direction** – specifically:
 - * IoT, Smart Home
 - * Java, OSGi, etc.
 - * EU/Germany
 - * Telecom & Automotive
- ✓ An enabler for **professional development** of both experienced and less experience colleagues in our priority technology areas
- ✓ We'll add to our portfolio **1 more project in a focus area** for growing

Our Story

Convincing our CEO to invest in the initiative

- ✓ We'll **start small** – 2 people initially – mostly with less experienced colleagues
- ✓ We want to **give this a try** – with a 6-month test phase – and we'll monitor results regularly
- ✓ It will help a lot with **employer branding** and positioning
- ✓ It will be an **enabler for new business** – both for new clients and within existing ones

About the Project



www.openhab.org



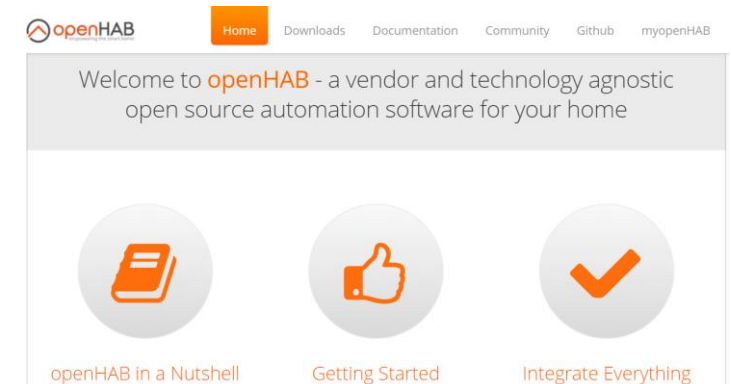
www.eclipse.org/smarthome/

OpenHAB

- ✓ Home Automation – free open source software
- ✓ One of the most popular open source solutions for Smart Home
- ✓ Vendor and technology agnostic
- ✓ Community – 16 500 registered users, 1.5 mil. pageviews / month
- ✓ myopenHAB Service – 20 000 registered users



www.openhab.org



OpenHAB Foundation

- ✓ Founded in 2016
- ✓ Individual members, 11 companies, 1 university and 1 research center
- ✓ Focus on advancing:
 - Free Open Source Software
 - Smart Home
 - openHAB



www.openhabfoundation.org



VSS-GmbH



OpenHAB – Innovation & Science

- ✓ Widely used for **research** by academics
 - Research Projects
 - Bachelor's, Master's and PhD Theses
 - Research and Scientific Articles, Conference Papers
- ✓ Various **topics** of research:
 - Home Automation
 - Smart City, Smart Car, Smart Electricity Grid, Smart Healthcare
 - ...and even Forensics



CEU | Universidad Cardenal Herrera



POLITECNICO
MILANO 1863



Technische Universität München



Østfold University College

Eclipse SmartHome

- ✓ A flexible open source framework for the Smart Home
- ✓ Representation and lifecycle management of IoT devices and services
- ✓ Designed to run on embedded devices (Raspberry Pi, BeagleBone Black, Intel Edison)
- ✓ Widely adopted by the community
- ✓ Used by Deutsche Telekom, Huawei, Mozilla



www.eclipse.org/smarthome/

Eclipse Foundation

- ✓ Founded in 2004 – fostering Open Innovation
- ✓ Build, enable and support open source communities
- ✓ Business-friendly ecosystem, extensible platforms
- ✓ 275+ company members, 10 project workgroups
- ✓ 360+ projects, 1 550+ developers/committers
- ✓ 195 mil. lines of code, 50+ events



What did we do after we got the “go”?

The Team – Timeline

April, 2016

- 1 Dev (full-time), 1 Senior Dev (mentor, part-time):

June, 2016

- 3 Devs (full-time), 1 Senior Dev (mentor, part-time):

July, 2016 till 2018

- 3 to 5 Devs (full-time), 1 Senior Dev (mentor, part-time)

Process – Scrum team with issue tracking, code reviews, pair programming

The Team



Win-Win-Win?

So – is the initiative really a win-win-win? ...for:

- the Community & the Project
- the Team
- the Company

Impact on the Community & the Project

- Static Code Analysis tool
- “forgotten tasks” (waiting for years) – e.g. UI issues, annoying bugs that everybody just handled with workarounds
- tasks “no one felt like doing” – e.g. migration to Jetty, 1-month work
- service & device integrations – e.g. RSS feed binding, Energenie MiHome
- expanding Unit Tests coverage
- extending and keeping up-to-date Documentation and Tutorials

Impact on the Community & the Project

Report (2017-06-16+03:00; 11:35:40.8+03:00)

Summary Messages

category	tool	priority	rule	count
style				
	checkstyle	2	PackageExportsNameCheck	1
	checkstyle	3	NewlineAtEndOfFileCheck	1
	checkstyle	3	TodoCommentCheck	2
				4

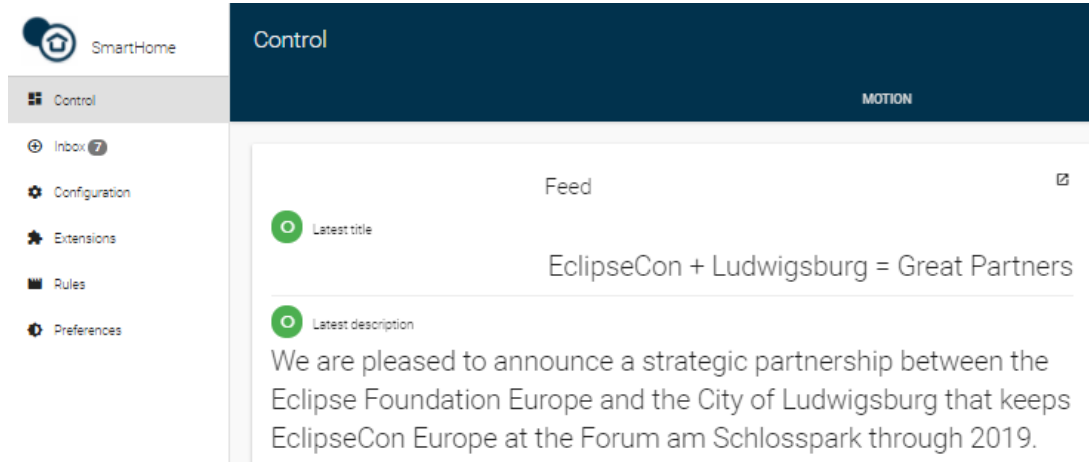
Summary Files

class file	high	medium	low	total
.binding.allplay\META-INF\MANIFEST.MF	0	1	0	1
.binding.allplay\about.html	0	0	1	1
org.openhab.binding.allplay.handler.AllPlayHandler.java	0	0	2	2
	0	1	3	4

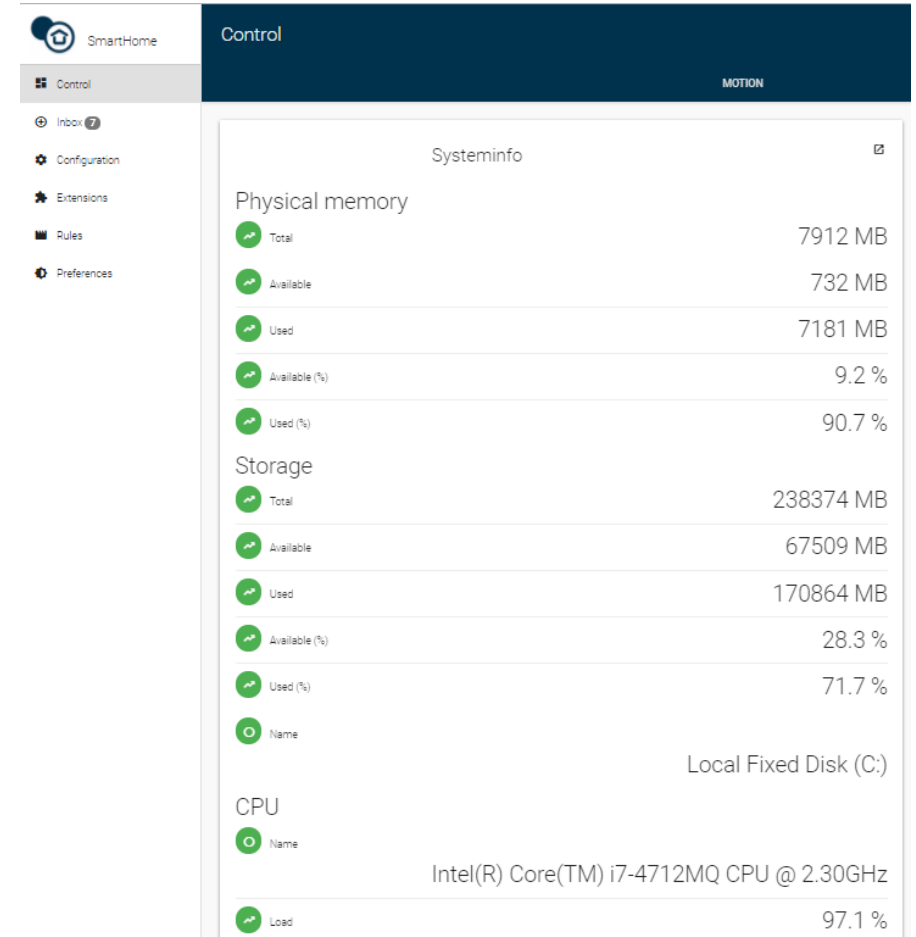
Details by Class

.binding.allplay\META-INF\MANIFEST.MF					
tool	priority	line	category	rule	message
checkstyle	2	0	style	PackageExportsNameCheck	The package org.openhab.binding.allplay.discovery should be marked as "internal" if it will not be exported.
.binding.allplay\about.html					
tool	priority	line	category	rule	message
checkstyle	3	0	style	NewlineAtEndOfFileCheck	File does not end with a newline.
org.openhab.binding.allplay.handler.AllPlayHandler.java					
tool	priority	line	category	rule	message

Impact on the Community & the Project



The screenshot shows the 'SmartHome' application interface. The top bar is dark blue with the 'SmartHome' logo and the word 'Control'. Below this is a sidebar with a 'Control' button and a list of menu items: 'Inbox (7)', 'Configuration', 'Extensions', 'Rules', and 'Preferences'. The main content area is titled 'MOTION' and displays a 'Feed' of news items. The first item is titled 'EclipseCon + Ludwigsburg = Great Partners' and has a description: 'We are pleased to announce a strategic partnership between the Eclipse Foundation Europe and the City of Ludwigsburg that keeps EclipseCon Europe at the Forum am Schlosspark through 2019.'




The screenshot shows the 'SmartHome' application interface with the 'Systeminfo' section selected. The top bar is dark blue with the 'SmartHome' logo and the word 'Control'. Below this is a sidebar with a 'Control' button and a list of menu items: 'Inbox (7)', 'Configuration', 'Extensions', 'Rules', and 'Preferences'. The main content area is titled 'MOTION' and displays 'Systeminfo' data. The data is organized into sections: 'Physical memory', 'Storage', and 'CPU'. Each section has a list of metrics with corresponding values and status indicators (green circles with a pulse line).

Section	Metric	Value
Physical memory	Total	7912 MB
	Available	732 MB
	Used	7181 MB
	Available (%)	9.2 %
	Used (%)	90.7 %
Storage	Total	238374 MB
	Available	67509 MB
	Used	170864 MB
	Available (%)	28.3 %
	Used (%)	71.7 %
CPU	Name	Local Fixed Disk (C:)
	Name	Intel(R) Core(TM) i7-4712MQ CPU @ 2.30GHz
	Load	97.1 %

Impact on the Community & the Project



Impact on the Community & the Project

openHAB
empowering the smart home

TutorialsUser ManualDeveloper GuideCommunity ForumGitHubsearch

Layering

Overview

Contributing

Prerequisites

OSGi

Overview

Declarative Services

Configuration Admin

Coding tasks

Event Admin

Tycho

Equinox

Target Platform

Basics

Migration from 1.x

The OSGi framework consist of several layers build on top of each other (See Fig. 1):

- **Module Layer** - it is responsible for managing dependencies between bundles and for class loading ([See Bundles Section](#));
- **Life Cycle Layer** - controls the lifecycle of the bundles ([See Lifecycle Section](#));
- **Service Layer** - defines a dynamic model (publish/find/bind) of communication between different modules ([See Services Section](#));
- **Actual Services** (Bundles on Fig.1) - this is the application layer, using all other layers;
- **Security Layer** - optional layer, based on the Java 2 security architecture, that manages permissions for different modules.

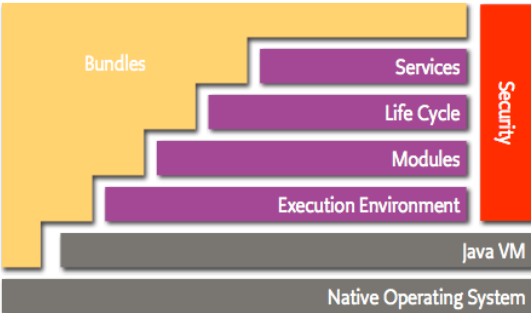


Fig.1 OSGi Layering (Source:<https://www.osgi.org/wp-content/uploads/layering-osgi.png>)

More details about the OSGi architecture can be found at <https://www.osgi.org/developer/architecture/>

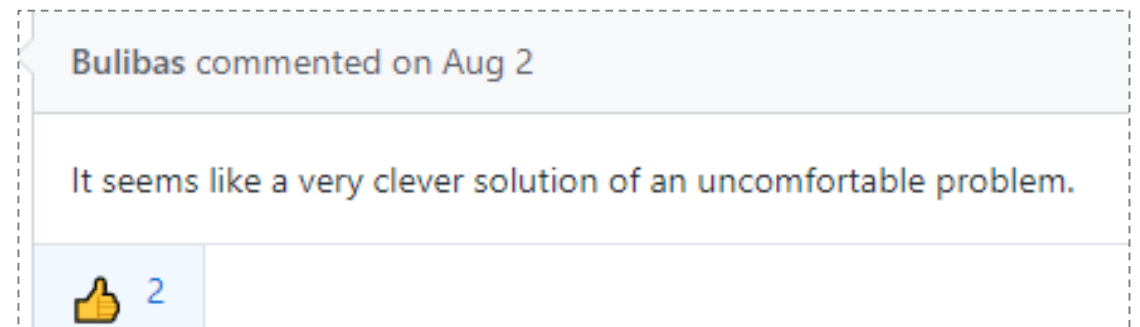
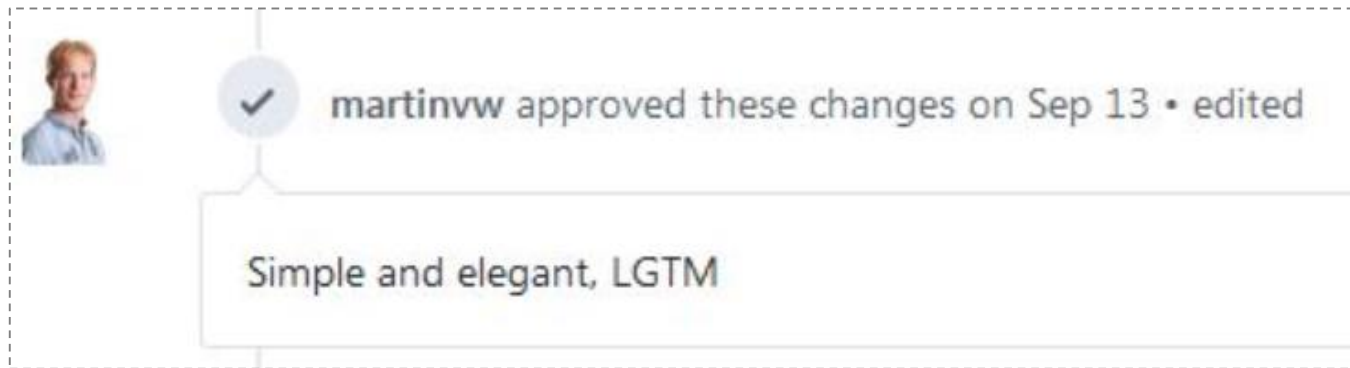
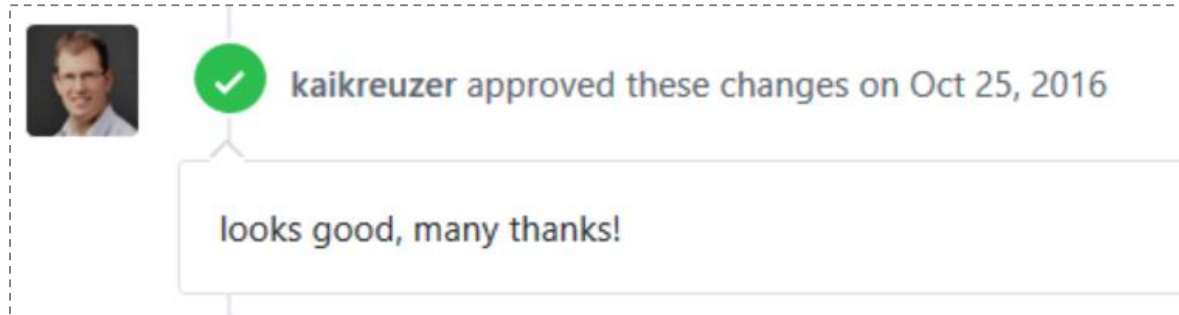
Bundles

Impact on the Community & the Project

- ✓ 100+ merged PRs for the [Static Analysis Tool](#)
- ✓ 16 merged PRs in [openHAB Docs](#)
- ✓ 75 merged PRs in [openHAB Addons](#)
- ✓ 70 merged PRs in [Eclipse SmartHome](#)
- ✓ 15+ bugs found & reported



Impact on the Community & the Project



Impact on the Community & the Project



kaikreuzer commented on Nov 18, 2016

Thanks @svilenvul, this looks like some fantastic piece of work!



marcelrv approved these changes on Aug 29

Thanks, LGTM



ThomDietrich commented on Jul 26

That was too obvious to catch easily 😊 Thanks @VelinYordanov 🍰



sjka commented 10 days ago

Thanks!



ThomDietrich commented on Aug 30

Sorry for the delay, excellent as always!



martinvw approved these changes on Aug 30

Thanks for all of them!

Win-Win-Win?

So – is the initiative really a win-win-win? ...for:

- the Community & the Project
- the Team
- the Company

The Team (and Alumni)



Svilen



Lyubomir



Tanya



Kristina



Velin



Dimitar

Alumni:



Erdoan



Mihaela



Alexander



Petar



Elena



Kiril



Miroslav

The Team – How Do They Feel?

Q: How do you feel about being part of the Open Source Team?



Amazing experience and big chance for me to grow as a programmer

Very interesting, dynamic, competitive, hard and inspiring!

The Open Source team was the best place for an embarrassed junior like me. I was coming to the office really motivated each day!

My code was reviewed by professionals from all over the world and I learned a lot from them.

The Team – How Do They Feel?

Q: The **most useful skills** you've gained in the Open Source Team?



I've broadened the scope of my skills a lot by learning **new concepts and technologies**.

I've learned to write **clean and high quality code**.

I've learned to face the **big projects without fear**.

I've learned to cut the complex tasks into **solvable pieces**.

I've learned to **test my code**.

The Team – How Do They Feel?

Q: What was the **most exciting part** of you working in the project?



The most amazing thing was to touch some **real devices** and integrated them into an **open source project**!

I appreciate the most that I became part of the huge openHAB **community**.

I had the chance to meet a lot of **new people** and to **learn a lot**!

Win-Win-Win?

So – is the initiative really a win-win-win? ...for:

- the Community & the Project
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The Company

What are the results so far?

- ✓ **Professional development of people**
 - **full success** – proven quick growth in terms of technology skills, professional attitude to quality, process, communication skills, distributed team work, etc.
- ✓ **Employer brand and image**
 - **extended external exposure** via conferences and events
 - the initiative is very much **appreciated internally**
 - **highly motivated** team members

The Company

What are the results so far?

- ✓ **Business (opportunities)**
 - 2 direct opportunities from new clients, 1 contracted
 - 4 indirect project opportunities from new clients, 2 contracted
 - Great appreciation for the initiative by existing customers
 - Broadened expertise and capacity in the strategic area (IoT, Smart Home)
 - Extended exposure, business development and networking opportunities

Win-Win-Win?

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How to try this with your company?

STRATEGY

- ✓ Put yourself in the shoes of the company management
- ✓ Come up with an Open Source initiative that makes sense in the long-term for the company
- ✓ Make sure the initiative is aligned with as many as possible from the strategic company goals
- ✓ Try to align the initiative with the goals of HR/Talent Development, Sales, Ops/Delivery and PR

How to try this with your company?

STRATEGY

- ✓ Start small (and as inexpensive as possible)
- ✓ Don't even start "officially" – aim for a test / trial initiative – for 3 or 6 months for example
- ✓ Measure, report and discuss progress – regularly, strictly and transparently
- ✓ Treat the initiative as long-term from Day 1 – and manage it as such

How to try this with your company?

PLAN

- ✓ Do your analysis based on the strategic points – and come up with a rough initial idea
- ✓ Research and find 2-3 Open Source Projects that would be good candidates
- ✓ Talk to HR/Talent Development, Sales, Ops/Delivery and PR – get their feedback and advice

How to try this with your company?

PLAN

- ✓ Follow-up on feedback, do additional research, and come up with 1 or 2 specific ideas for open source project candidates
- ✓ Describe them – in short but clearly – and do not exaggerate:
 - address all points related to alignment with strategic goals
 - expected direct and indirect benefits in different areas
 - expected costs / investment

How to try this with your company?

PLAN

- ✓ Create an **initial plan** for kicking off a test phase
- ✓ Approach the company management – **pitch the idea** and request their **feedback and advice**
- ✓ **Don't be discouraged** if it doesn't get approved – that's rather normal :)
- ✓ Follow-up, refine and improve the plan – always having in mind the **bigger picture** and the **company goals**

How to try this with your company?

PLAN

- ✓ Have a project champion
- ✓ Do your best for the test phase to be a success
- ✓ Make sure you work hard on the side project tasks too – work with non-IT colleagues to maximize company benefits from the project
- ✓ Regularly communicate internally and externally all newsworthy stories
- ✓ Regularly track project spend and outcomes – and report to decision makers and consult with them

What's next?



Thank you for your attention!

IANCHO DIMITROV

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[LinkedIn.com/in/iancho](https://www.linkedin.com/in/iancho)