

# LeSS HUGE AT BMW GROUP.

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**BMW  
GROUP**

THE NEXT  
100 YEARS



Rolls-Royce  
Motor Cars Limited

# OVERVIEW. CONTENT SUMMARY.



# CHARACTERS IN A CHANGE.



**LONE NUT**



**FIRST FOLLOWER**



**MOVERS**



**MOVABLES**

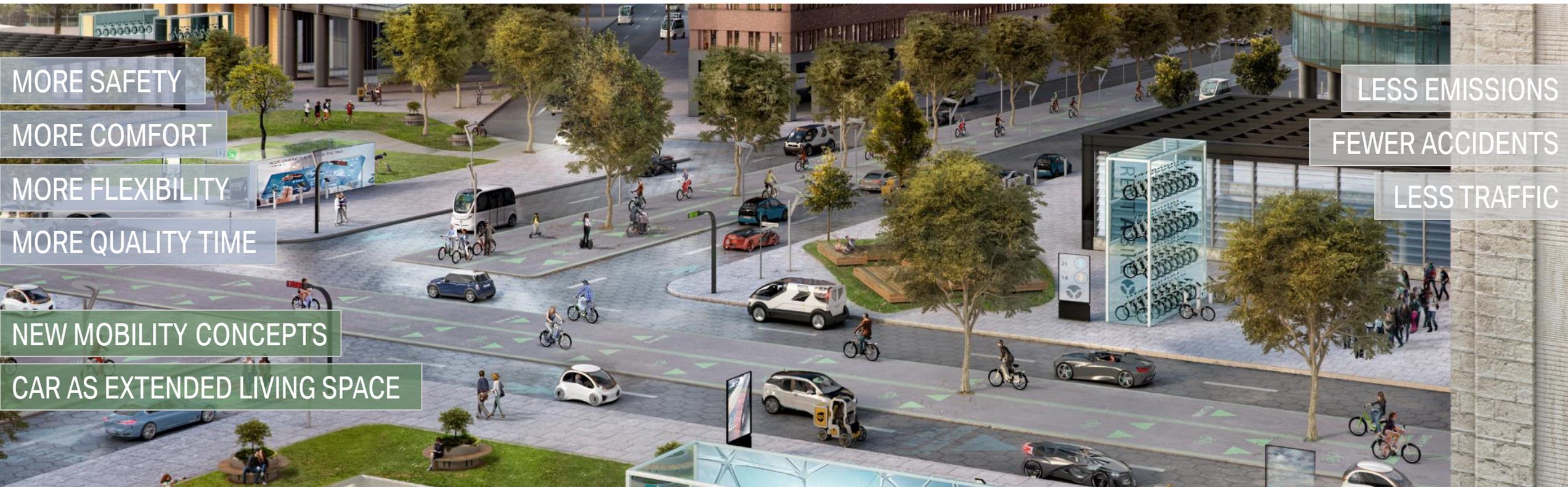


**IMMOVABLES**

**PATH OF INFLUENCE**

# MOTIVATION

# MOTIVATION.



MORE SAFETY

MORE COMFORT

MORE FLEXIBILITY

MORE QUALITY TIME

NEW MOBILITY CONCEPTS

CAR AS EXTENDED LIVING SPACE

LESS EMISSIONS

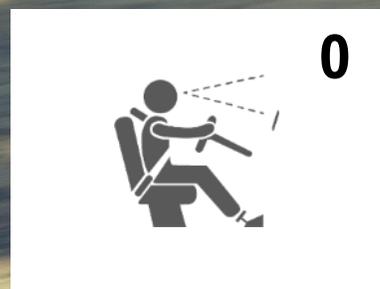
FEWER ACCIDENTS

LESS TRAFFIC



# MOTIVATION.

BMW Vision iNEXT



0



1



2



3



4



5

Driver

Feet off

Hands off

Eyes off

Mind off

Passenger

Human

Transfer of responsibility

Machine

# MOTIVATION.



**AUTONOMOUS  
DRIVING**

PARADIGM SHIFT

**A SOFTWARE  
PROBLEM**

```
string sInput;  
int iLength, iN;  
double dblTemp;  
bool again = true;  
  
while (again) {  
    iN = -1;  
    again = false;  
    getline(cin, sInput);  
    system("cls");  
    stringstream(sInput) >> dblTemp;  
    iLength = sInput.length();  
    if (iLength < 4) {  
        again = true;  
        continue;  
    } else if (sInput[iLength - 3] != '.') {  
        again = true;  
        continue;  
    } while (++iN < iLength) {  
        if (isdigit(sInput[iN])) {  
            continue;  
        } else if (iN == (iLength - 3)) {  
            continue;  
        }  
    }  
}
```

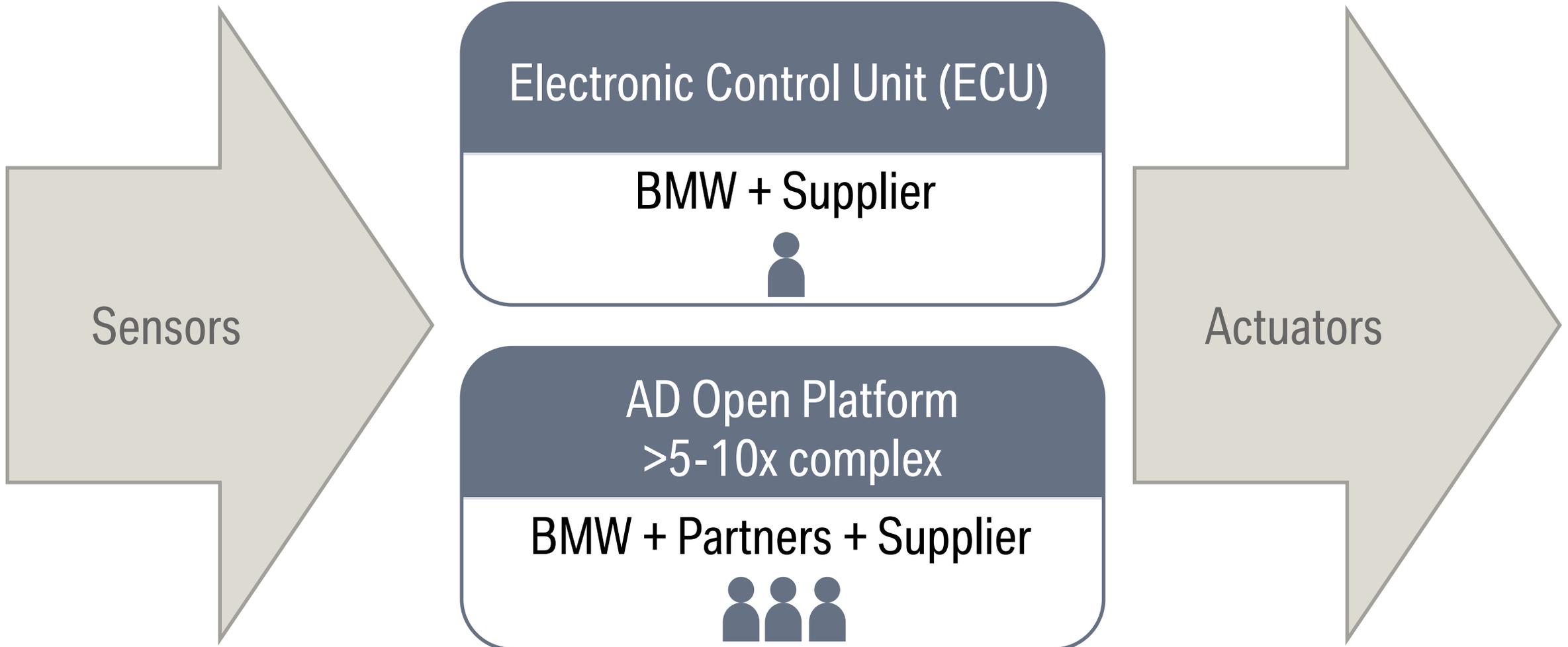
# PRODUCT BASED ORGANIZATIONAL DESIGN.



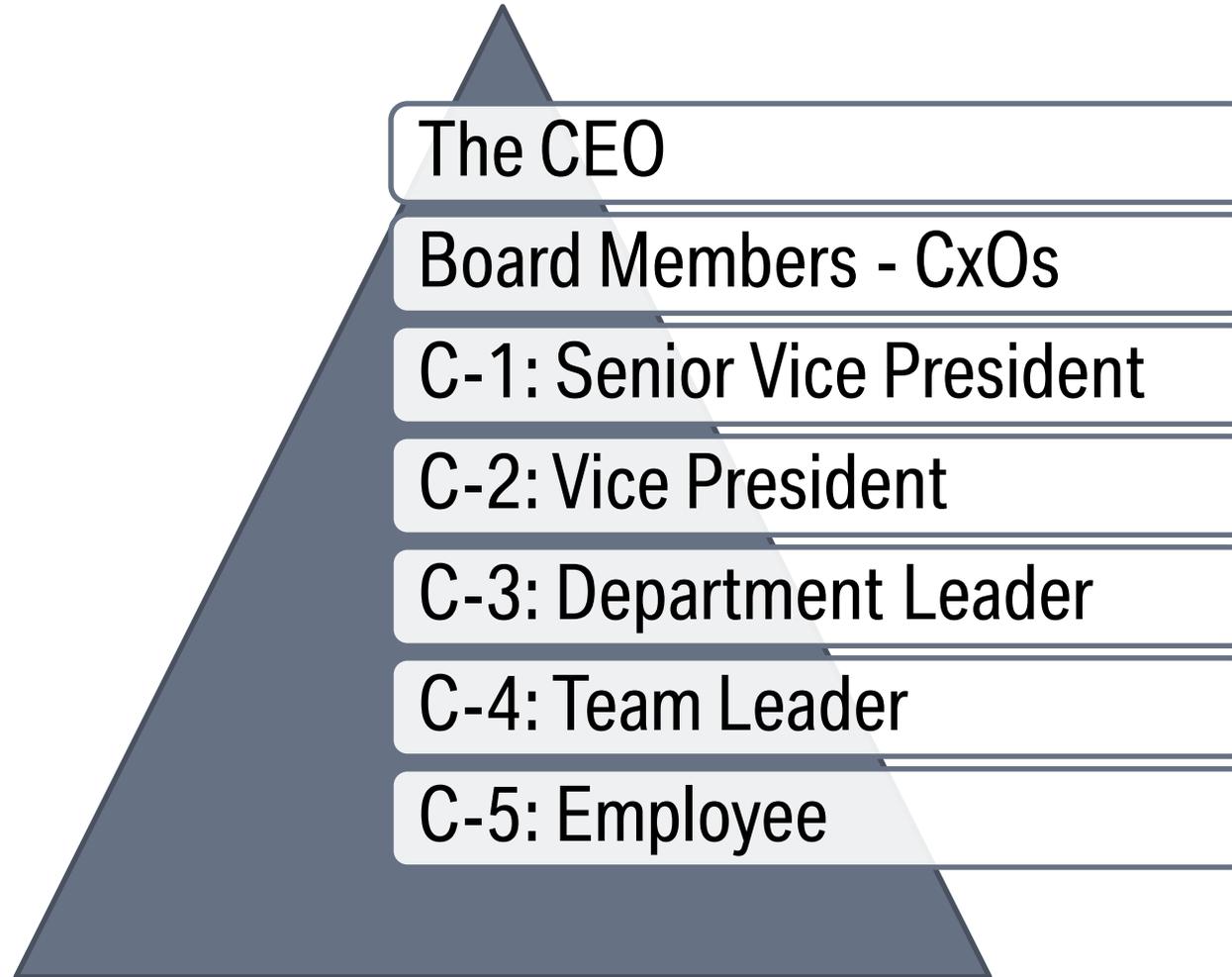
**Huge Adoption**

**BACKGROUND**

# HOW IT ALL BEGAN.



# HIERARCHY. BEFORE LeSS ADOPTION.



# THINK & ACT LIKE A **POLITICIAN**, NOT LIKE AN ENGINEER



# TIMELINE.

2017

Jan

Feb

Mar

Apr

May

Jun

Jul

Aug

Sep

Oct

Migration Team &  
Executive Team



LeSS

LeSS Intro -  
ADD Executives



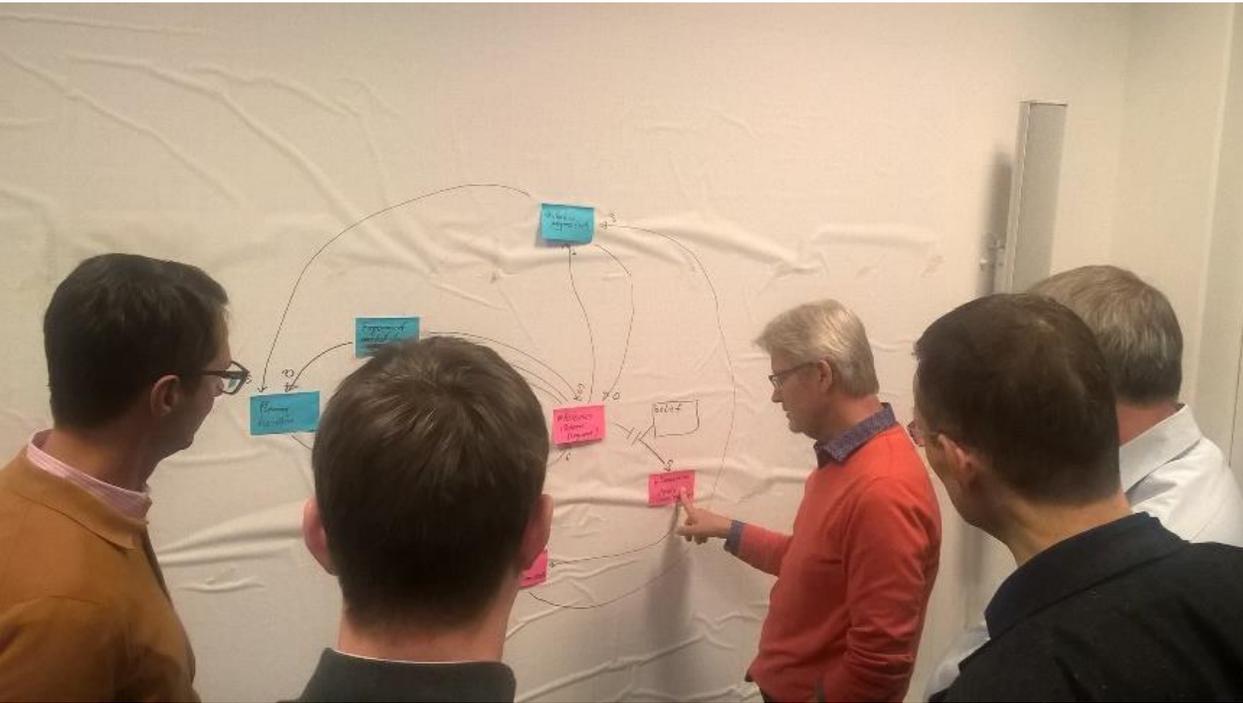
ADD 2.0  
Info days



CLEs  
& CLPs



# ORG. DESIGN FOR LARGE-SCALE AGILE DEVELOPMENT. INTRODUCTION WORKSHOP.

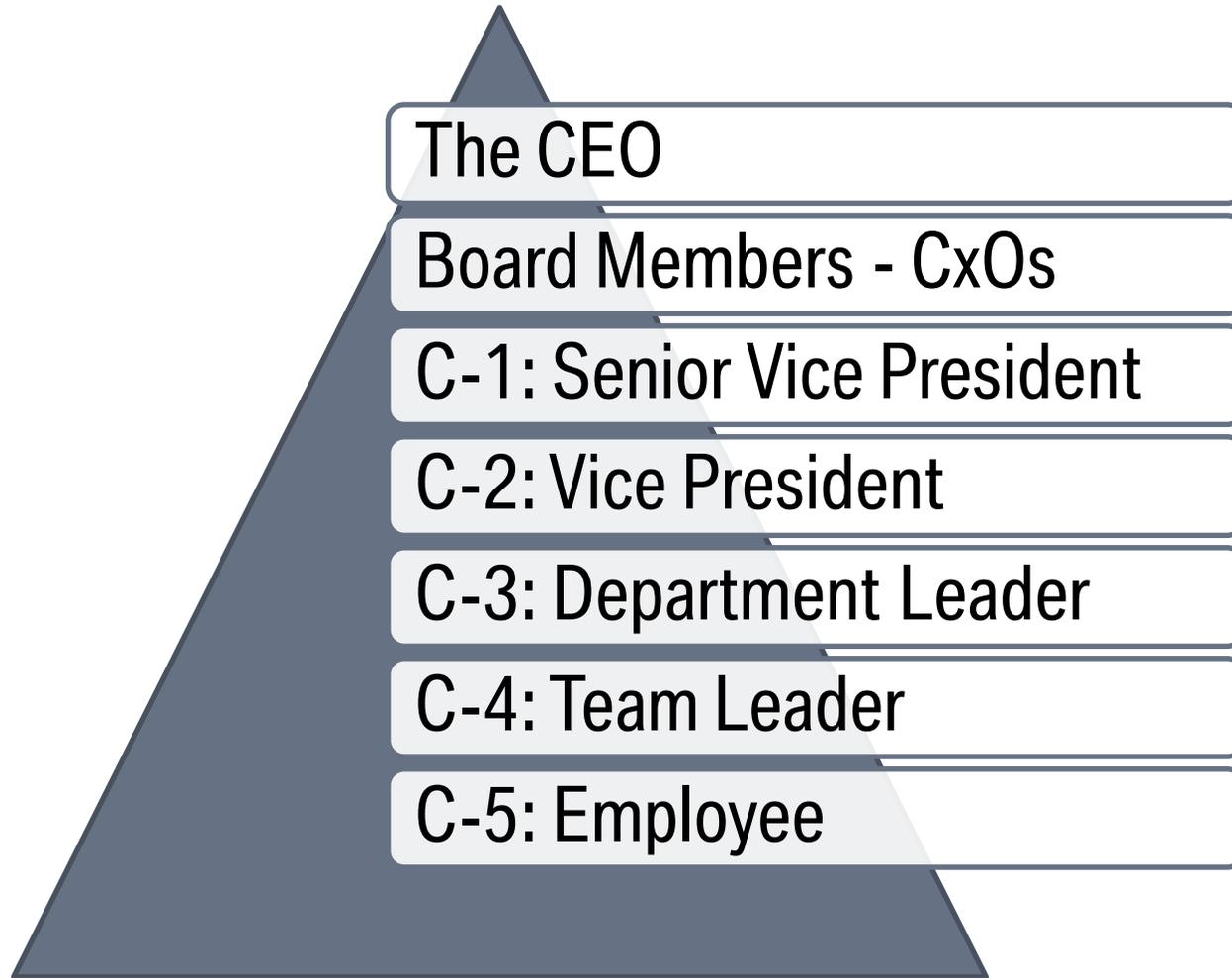


# THE WAY TO THE FIRST REQUIREMENT AREA.

“LeSS adoption involves big organizations and many minds with **deeply rooted assumptions** about how organizations should work. Successful adoption requires **challenging these assumptions** and **simplifying the organizational structure**, with all the explosive politics and ‘loss of face’ that working across a big group entails. Adoption needs everyone to improve towards a shared goal.”

Craig Larman, Bas Vodde

# BEFORE LeSS ADOPTION.



- >15 different roles
- Clearly defined interfaces

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LeSS

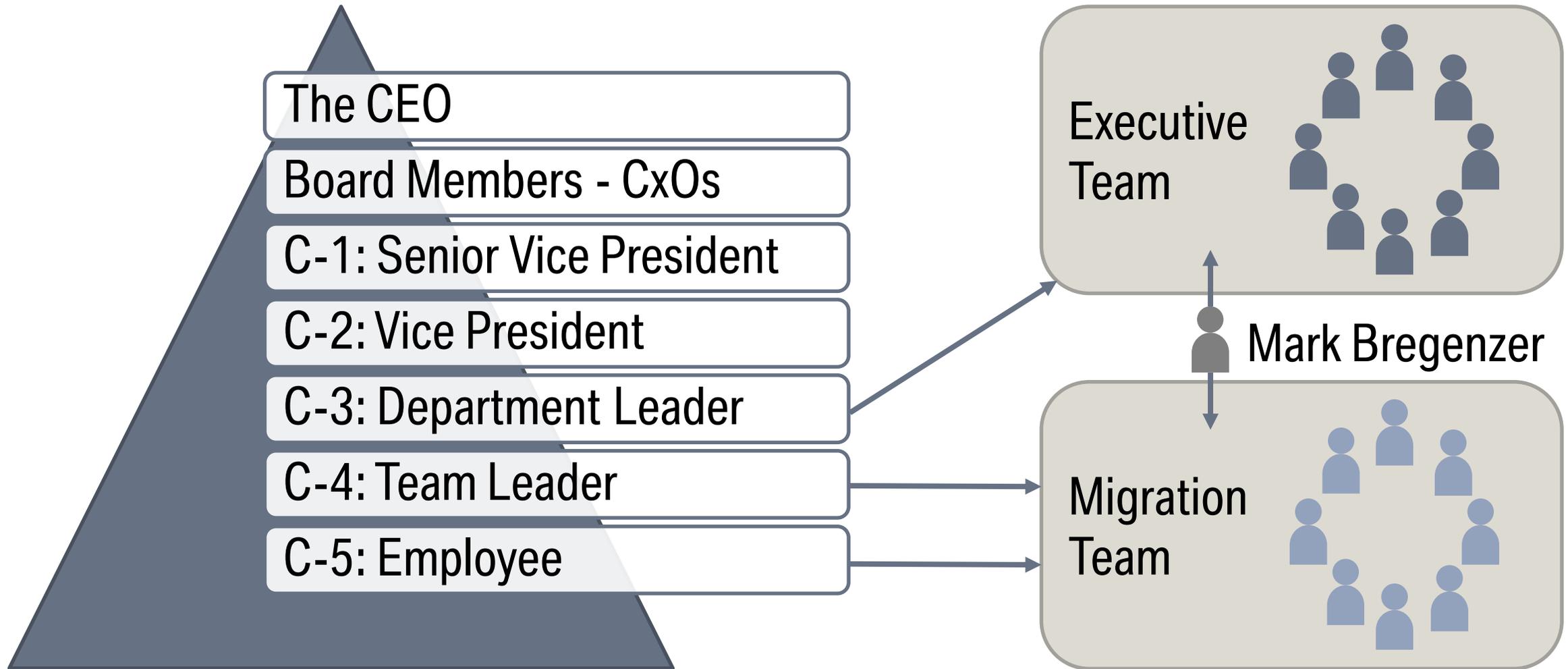
LeSS Intro -  
ADD Executives

ADD 2.0  
Info days

CLEs  
& CLPs

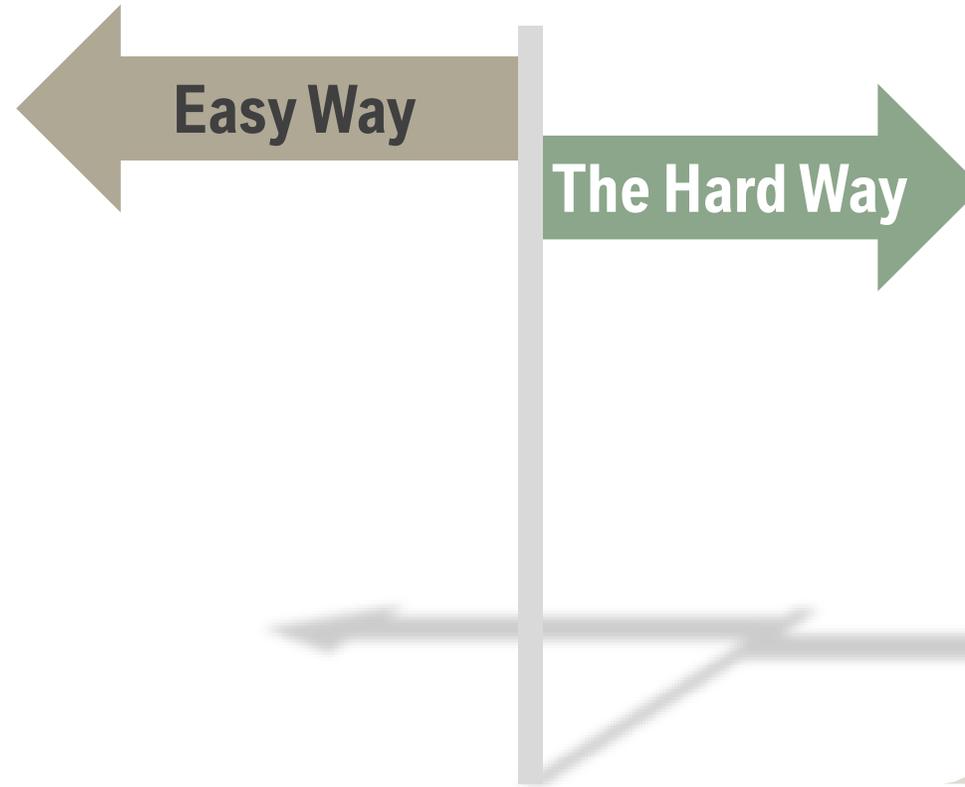


# MIGRATION & EXECUTIVE TEAM.



# WHY LeSS?

Change:  
only working model  
➔ More of the same

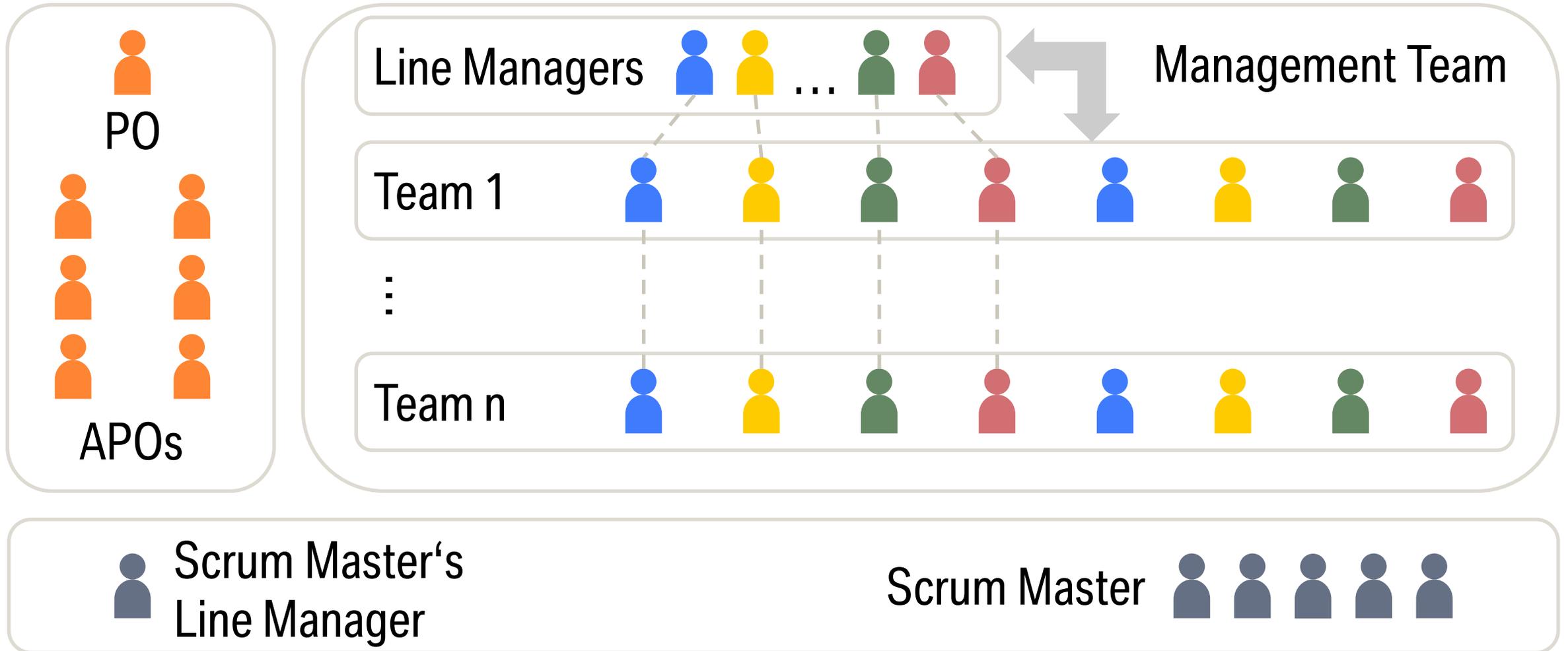


Change:  
org. structure &  
working model

# ORGANIZATIONAL STRUCTURE.

We need to create an organizational structure that will foster a culture in which it becomes individually useful for people to cooperate.

# ORGANIZATIONAL STRUCTURE.



# TIMELINE.

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LeSS

LeSS Intro -  
ADD Executives

ADD 2.0  
Info days

CLEs  
& CLPs



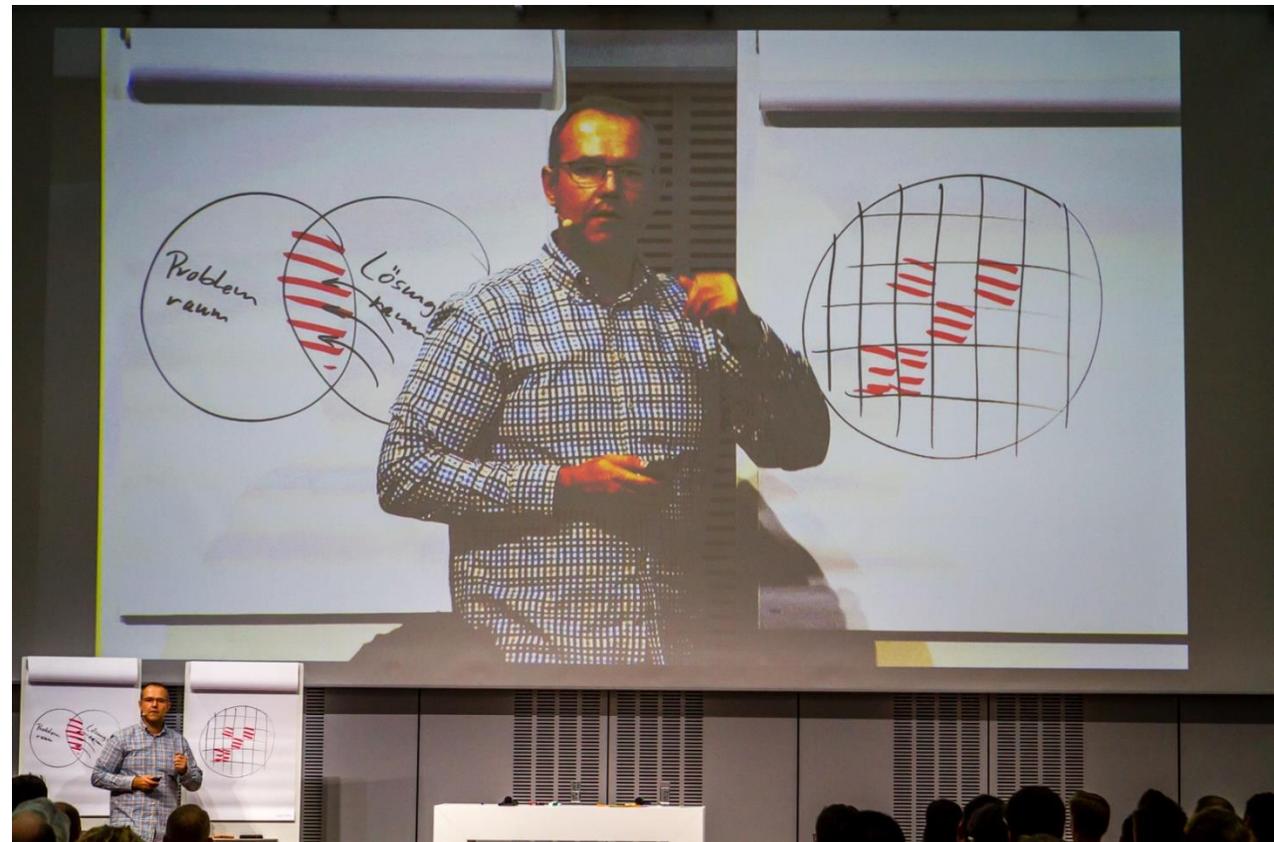
# ADD 2.0 INFO DAYS. CLEAR COMMUNICATION ABOUT...

the intention to adopt  
LeSS

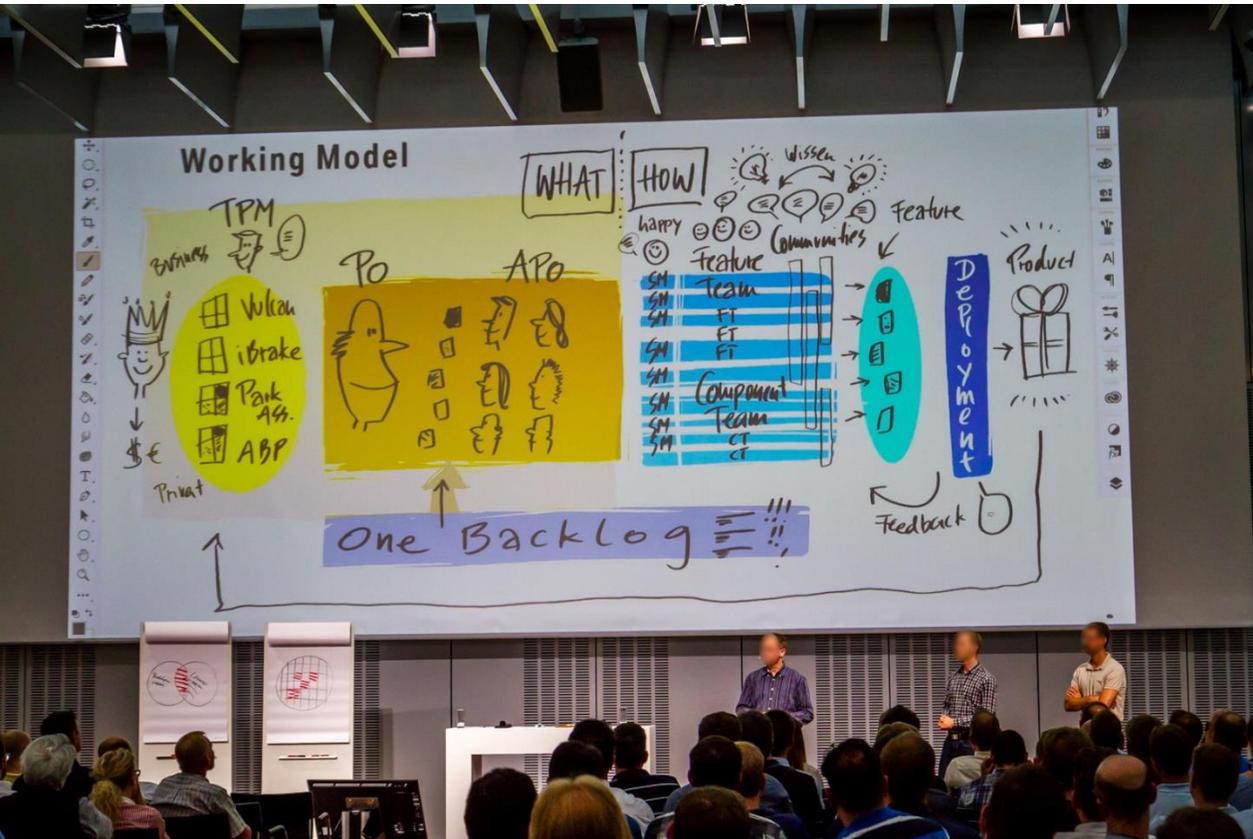
the promise to make  
the necessary  
structural changes

providing education  
and coaching

# ADD 2.0 INFO DAYS.



# ADD 2.0 INFO DAYS.



# BMW AUTONOMOUS DRIVING CAMPUS.



**START**

# INFORMED CONSENT WORKSHOPS.



# SELF-DESIGNING TEAM WORKSHOP.



# INITIAL PRODUCT BACKLOG REFINEMENT.

Blue = postcard items

	Ego	#1	Pod
$x$	-20	-10	15
$y$	0	0	-5
$\theta$	0	0	$\pi$
$v$	0	5 km/h	5 km/h
$a$	0	1 m/s <sup>2</sup>	0

$x$	$[-0.5; 0.5]$	0	0
$y$	$[0.5; 0.5]$	-15	-5
$\theta$	$[0; -\frac{\pi}{2}]$	$-\frac{\pi}{2}$	$\pi$
$v$	0	30	5 km/h
$a$	0	0	0

$x$	$[-0.1; 0.1]$	0	-15
$y$	$[-10; -\infty]$	-30	$-\frac{\pi}{2}$
$\theta$	$[-\frac{\pi}{2}; \frac{\pi}{2}]$	$30^\circ$	5 km/h
$v$	$[20; 40]$	0	0
$a$	$[0; 2]$	0	0

$\|d_{set}\|$   
 $\leq \|d_{set}\|$   
 Global Planner turns right

1. Round about  
 1.1 empty (empty car)  
 1.2 4-way intersection  
 1.3 Y-junction  
 1.4 T-junction  
 1.5 2-way intersection

2. enters with lead (lead)  
 2.1 with parking car/obstacle  
 2.2  
 2.3

3. dynamic - with pedestrian  
 3.1  
 3.2  
 3.3  
 3.4  
 3.5  
 3.6

4. traffic rules  
 4.1  
 4.2  
 4.3  
 4.4  
 4.5  
 4.6

# REQUIREMENT AREA 1.



**ONGOING**

# BENEFITS.

- Structure enables us to change direction quickly
- High degree of freedom and openness
- Higher degree of whole system understanding among all developers
- Higher acceptance and understanding of decisions on product level – the what

# SUMMARY

# HOW TO START.

- Think and act like a politician, not like an engineer
- Gain allies across different hierarchy levels and align your shared goal – true change is only possible as a group top-down and bottom-up
- Educate and train all senior executives and directors, especially the ones who have true decision-making powers

# PREPARATION PHASE.

- Include all stake holders of the organizational system across all hierarchy levels
- Design your initial organizational structure in small teams; educate team before prep. phase
- Work full time on this topic

**QUESTIONS?**

**THANK YOU!**