Kick-off Workshop

FuSE Program

The objective is to generate a shared FuSE vision & commit to work towards this goal.

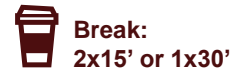| 30'	45'	90'	45'	30'
Intro	**Working Model**	**Vision & Role**	**BoD Presentation IW Workshop update**	**Next Steps**
Get to know each other and get started	*The way we work together until IW 2022 is set out*	*The vision of the FuSE Program is defined and the role of the team is clarified*	*The presentation for the BoD is agreed -- The concept for FuSE @ IW is aligned*	*Next steps*

Break: 2x15' or 1x30'

1 2 3 4 5

Introduction

Stephan
Principal

Expertise:
- Systems Engineering Methods & Trainings
- Project and Risk Management, Project Harmonization & Synchronization, Recovery, PM Trainings
- Target Costing, TCO, Design-to-Cost and Cost Down
- Training and Coaching
- Lean-Thinking, Principles of Lean Product Development, Design Review Prozess
- CMMI, DRBFM, Project@Risk

Background:
Dipl.-Ing. Aerospace – Systems Engineering (Technical University Munich, TUM)

Stephan.Finkel@incose.net

Martina
Consultant

Expertise:
- Requirements engineering
- Architecture management
- Model-based development (MBSE)
- Project management, change management
- Agile & scaled agile product development
- Reorganization & process design

Background:
- M.Sc. Systems Engineering (Munich University of Applied Sciences) / Supply Chain Systems Engineering (SIIT, Thailand)
- B.Eng. Electrical Engineering and Information Technology (Munich University of Applied Sciences)

Martina.Feichtner@incose.net

Armin
Managing Partner

On demand.

Armin.Schulz@incose.net

3DSE in a Nutshell

Our Mission
- 3DSE is the **leading management consulting boutique in innovation and R&D** with outstanding technical expertise and empathetic consulting culture
- Our mission is to **transform the disruptive changes** through highly networked products and systems, climate neutrality, globalization and automation **into sustainable business success**

Our Clients
- Our **clients strive for market, innovation and technology leadership**. Together with them, we increase the performance and system capability of R&D.
- From Automotive, Aerospace, Defense & Security, Transportation/Utility Vehicles, Electronics & Consumer Goods, Industrial Machinery, Medical Devices and Energy

Our USPs
- Merging **outstanding expertise** in innovation and R&D with superior transformation skills
- Leveraging **cross-industry best practices and benchmarks** as well as **internal "organizational wisdom"** for true tailor-made and effective solutions
- **Sustainable change** by ready-to-use concepts and strong buy-in from the very beginning
- We act as a highly specialized consultancy with a **systems-driven** & **agile** consulting approach

Our Facts
- **45+ consultants** with strong engineering and technical backgrounds
- Offices in Munich and Vienna, offices in US and Asia in preparation, **global projects**
- More than 20 years of success in market, 800+ projects and 60+ clients
- **Long term** and ongoing **client relationships**
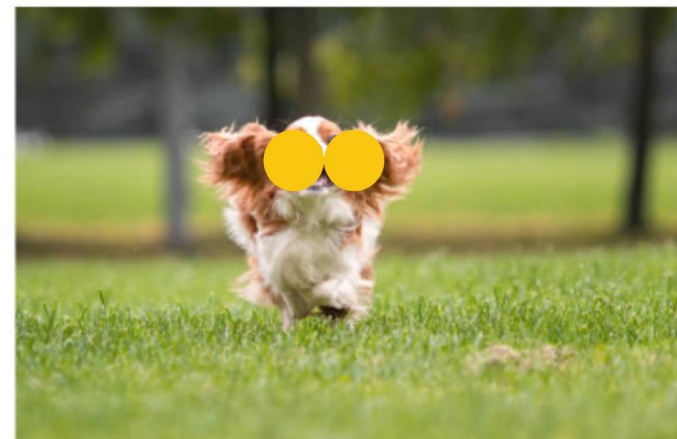
Check-in & get to know miro

Dog-o-meter: how are you feeling today

If you could be reincarnated as any animal, what would you be?

Dolphin

Dog for sure

Racoon

My wife's cat

Tardigrade

Tardigrade - Wikipedia

Borg

Albatross

CAT

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Intro

Get to know each other and get started

Working Model

The way we work together until IW 2023 is set out

2

Vision & Role

The vision of the FuSE Program is defined and the role of the team is clarified

BoD Presentation IW Workshop update

The presentation for the BoD is agreed

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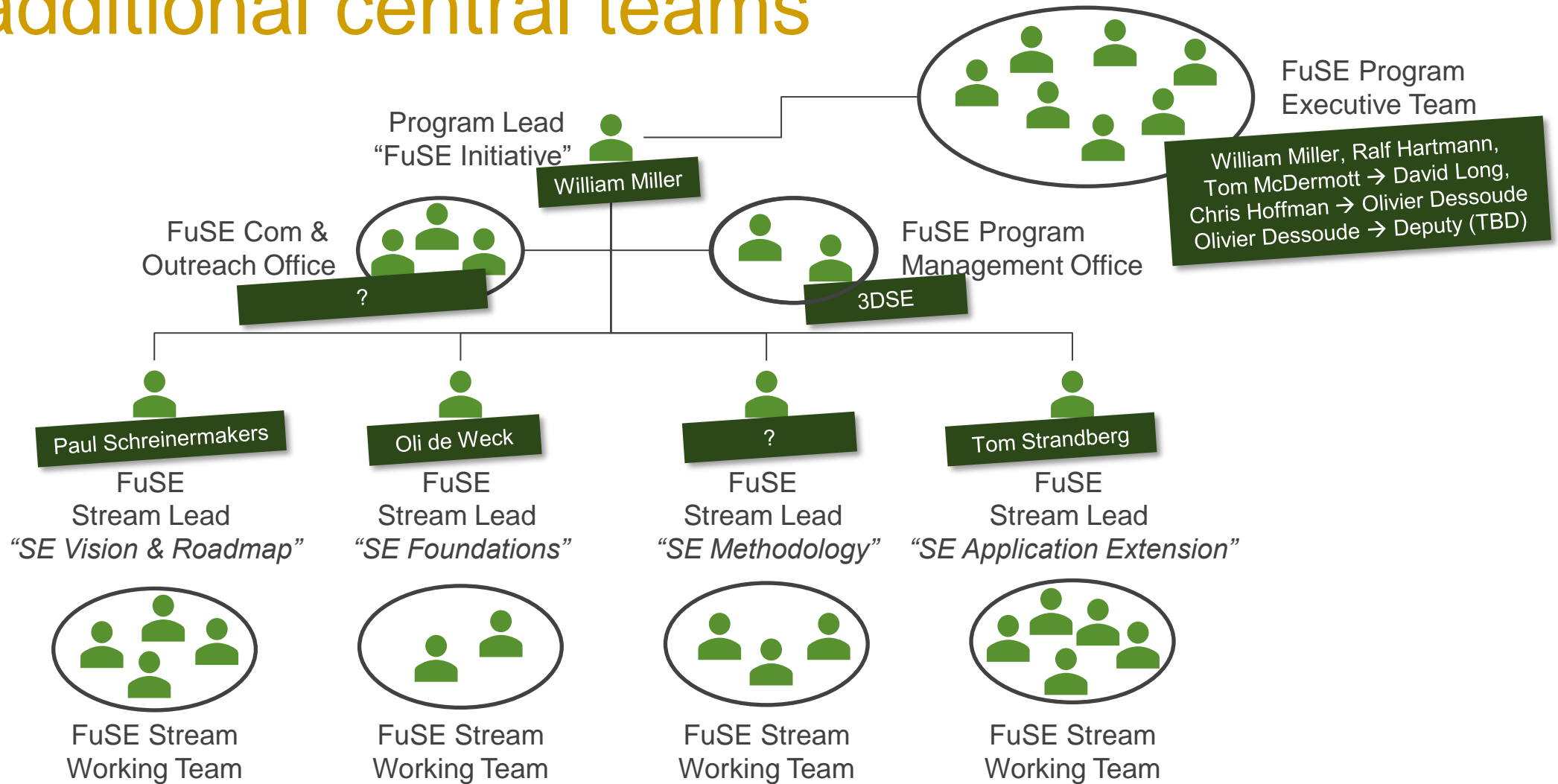
The concept for FuSE @ IW is aligned

Next Steps

Next steps

Setting the Stage - Bill

The FuSE program is organized in 4 streams with additional central teams

FuSE Program Executive Team

Program Lead "FuSE Initiative"
William Miller

William Miller, Ralf Hartmann, Tom McDermott → David Long, Chris Hoffman → Olivier Dessoude Olivier Dessoude → Deputy (TBD)

FuSE Com & Outreach Office
?

FuSE Program Management Office
3DSE

Paul Schreinermakers
FuSE Stream Lead "SE Vision & Roadmap"

Oli de Weck
FuSE Stream Lead "SE Foundations"

?
FuSE Stream Lead "SE Methodology"

Tom Strandberg
FuSE Stream Lead "SE Application Extension"

FuSE Stream Working Team

FuSE Stream Working Team

FuSE Stream Working Team

FuSE Stream Working Team

The approach foresees 2 phases for program setup until IW followed by execution increments

| **1** Calibration & Baseling | **2** Setup & Launch | Execution Increments |

INCOSE Board of Directors *Oct 2022*

INCOSE International Workshop *2023*
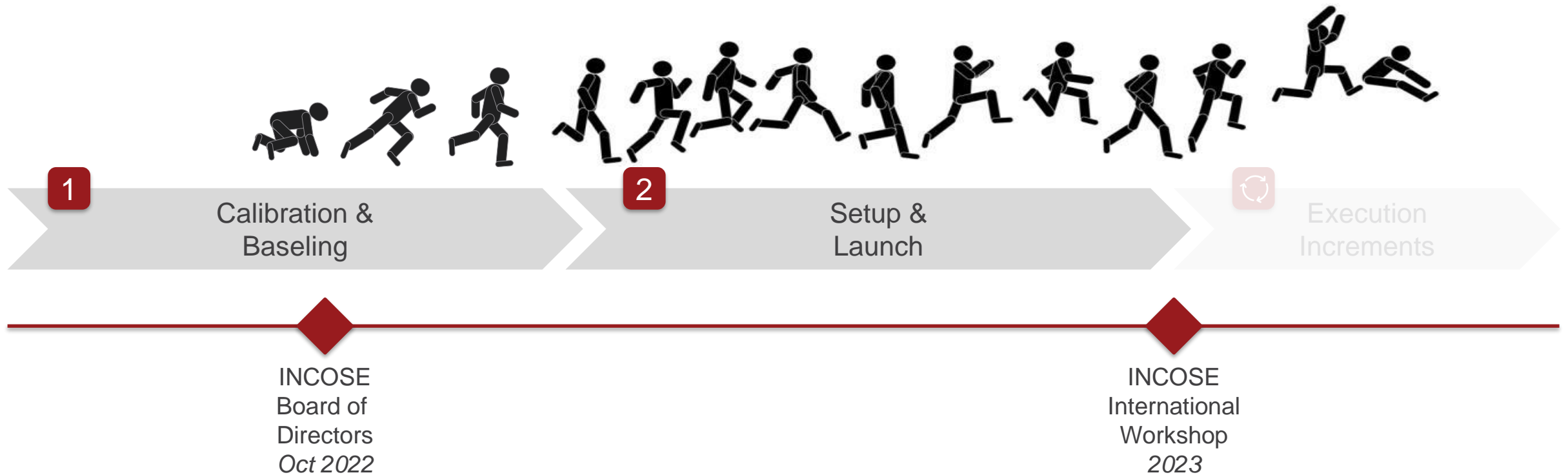
For the successful setup of the FuSE program, we focus on seven areas

FuSE Stream
"SE Vision & Roadmap"

FuSE Stream
"SE Foundation"

FuSE Stream
"SE Methodology"

FuSE Stream
"SE Application Extension"

Program Planning

Target Picture & Program Handbook

Working Model & Collaboration

Program Management

INCOSE Events

Baselining & Harvesting

Communication & Outreach

The deliverables are mainly* created in dedicated workshops:

Kick-off & Calibration

Shared target picture and success factors including awareness on program risks

2x 0,5 d

Proposal: 11.10 / 20.10

Baselining & Harvesting

Insight on status quo and adapted set of best PMO practices (within INCOSE and other industries)

2x 0,5 d

Proposal: 26.10 / 9.11

Communication & Outreach**

Knowledge on affected / interested target groups and defined measures for communication & outreach

1x 0,5 d

Proposal: xx.xx

Masterplan

Defined FuSE roadmap and short-term detailed program plan

1x 5 d (f2f)

Proposal: Week of 05.12

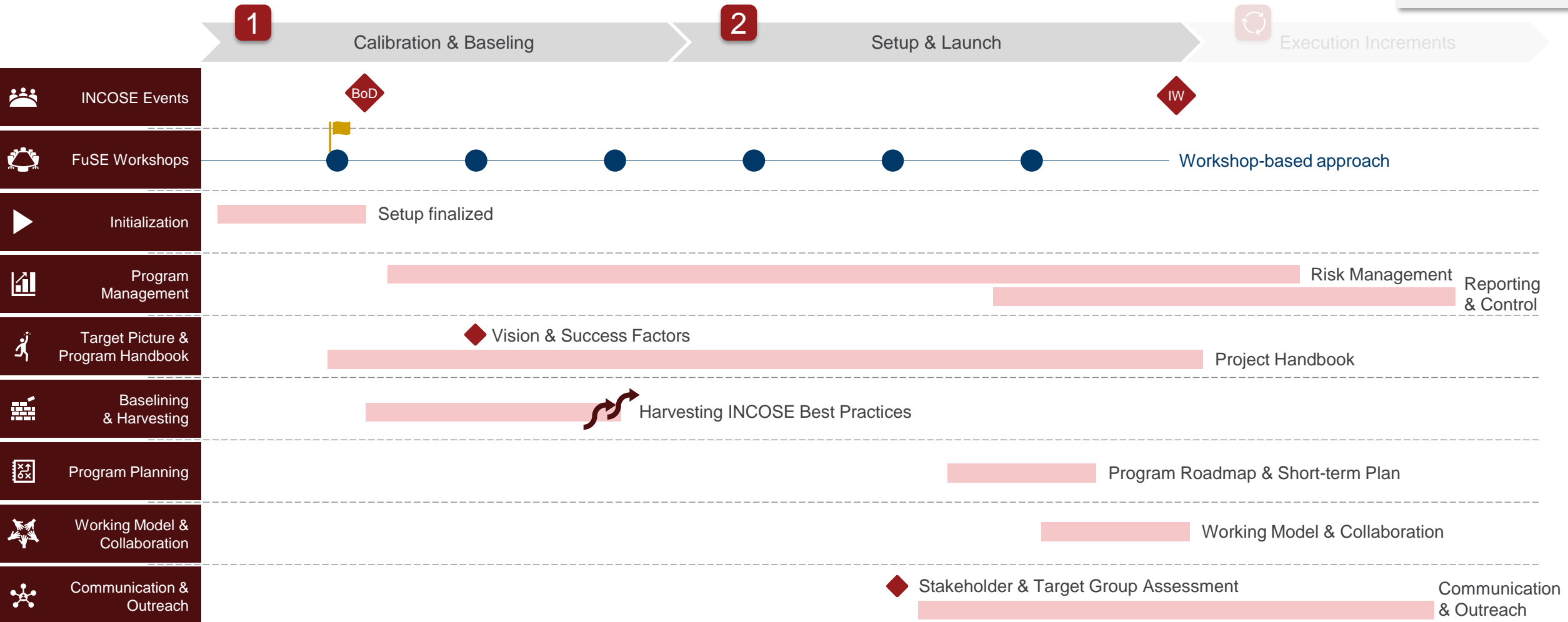**Key:** *Black: fixed | Yellow: to be clarified with missing stream leads | Red: yet to be scheduled*

* Additional alignment and deep dive meetings as needed
** Shift of focus if required
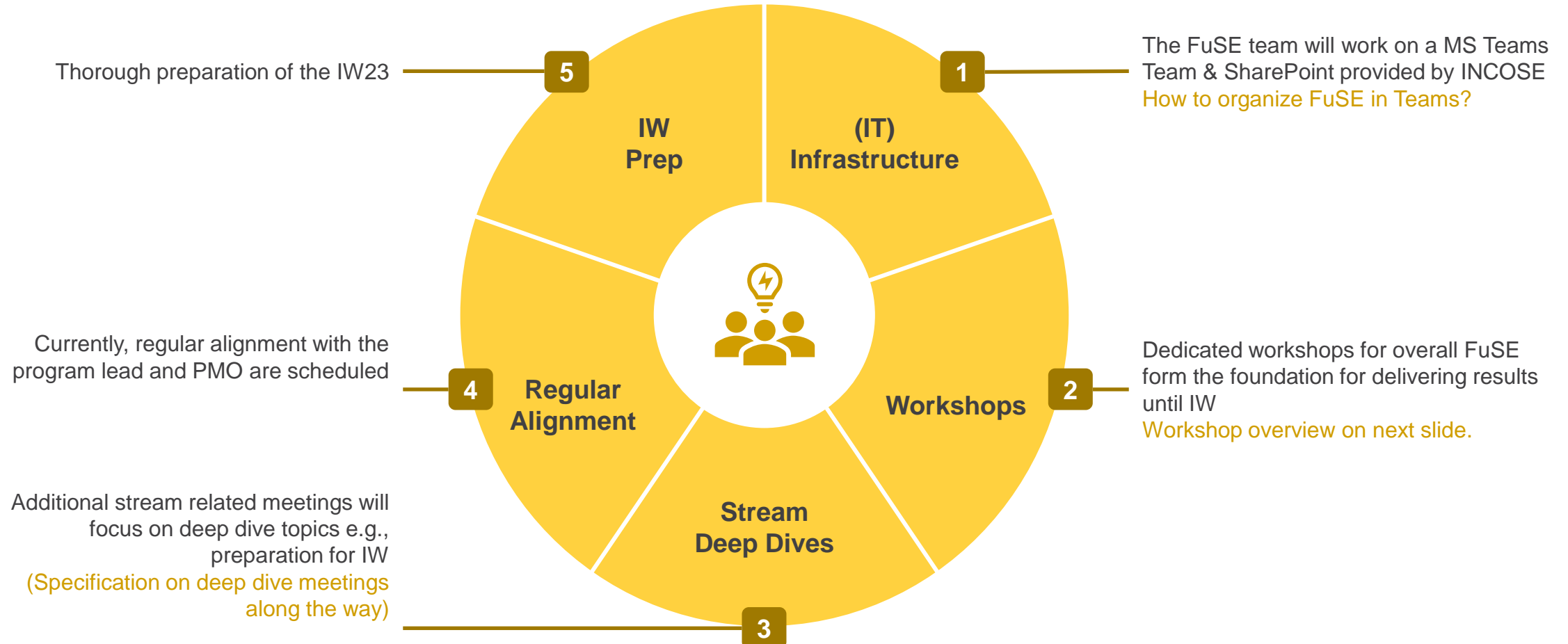
High-level overview on key tasks until IW 23

1	Calibration & Baseling	2	Setup & Launch	Execution Increments

INCOSE Events	BoD	IW
FuSE Workshops	● ● ● ● ● ●	Workshop-based approach
Initialization	Setup finalized	
Program Management		Risk Management — Reporting & Control
Target Picture & Program Handbook	◆ Vision & Success Factors	Project Handbook
Baselining & Harvesting	Harvesting INCOSE Best Practices	
Program Planning		Program Roadmap & Short-term Plan
Working Model & Collaboration		Working Model & Collaboration
Communication & Outreach	◆ Stakeholder & Target Group Assessment	Communication & Outreach

The working model of the FuSE team:

5 Thorough preparation of the IW23

IW Prep

(IT) Infrastructure

1 The FuSE team will work on a MS Teams Team & SharePoint provided by INCOSE
How to organize FuSE in Teams?

4 Currently, regular alignment with the program lead and PMO are scheduled

Regular Alignment

Workshops

2 Dedicated workshops for overall FuSE form the foundation for delivering results until IW
Workshop overview on next slide.

Stream Deep Dives

Additional stream related meetings will focus on deep dive topics e.g., preparation for IW
(Specification on deep dive meetings along the way)

3

Meeting overview of the FuSE team:

Meeting overview for FuSE Program | Until IW 2023

Meeting	Stream	Titel	Date / frequence	Duration	Topic	Mode	Participants
2. Workshops	Overall	Kick-off Workshop	11.10.2022	4,5 h	Shared target picture and aligned workmode	virtual	Program Team
2. Workshops	Overall	Calibration Workshop	20.10.2022	4,5 h	Target picture and success factors	virtual	Program Team
2. Workshops	Overall	Baselining Workshop	26.10.2022	4,5 h	Insights and status quo at INCOSE	virtual	Program Team
2. Workshops	Overall	Harvesting Workshop	09.11.2022	4,5 h	Insights and status quo at INCOSE	virtual	Program Team
2. Workshops	Overall	Communication & Outreach Workshop	09.11.2022	4,5 h	Target group / stakeholder assessment and communication & outreach meas	virtual	Program Team
2. Workshops	Overall	Masterplan Workshop	05.12.2022	5 d	Defined FuSE roadmap and short-term detailed program plan	f2f	Program Team

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Working Model

The way we work together until IW 2022 is set out

Vision & Role

The vision of the FuSE Program is defined and the role of the team is clarified
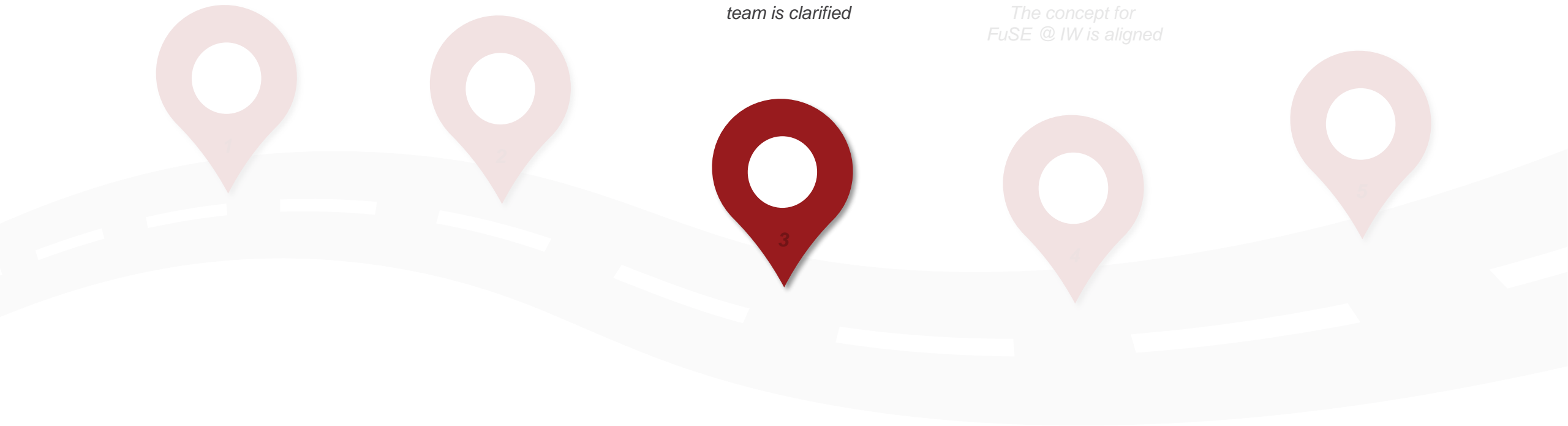
BoD Presentation IW Workshop update

The presentation for the BoD is agreed
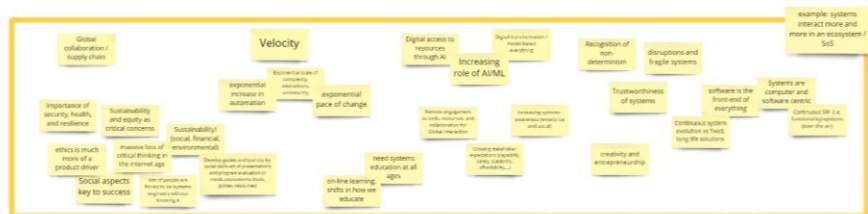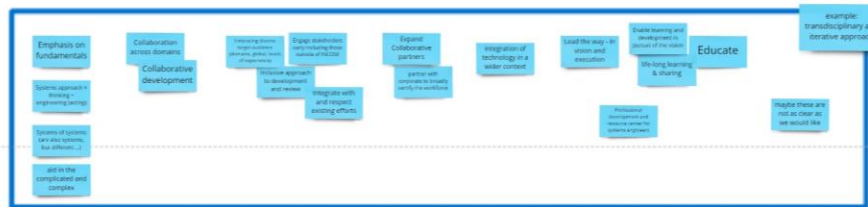
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The concept for FuSE @ IW is aligned

Next Steps

Next steps

3

Vision & Strategy Impulse

What is the vision for the FuSE program?
Documentation of working session
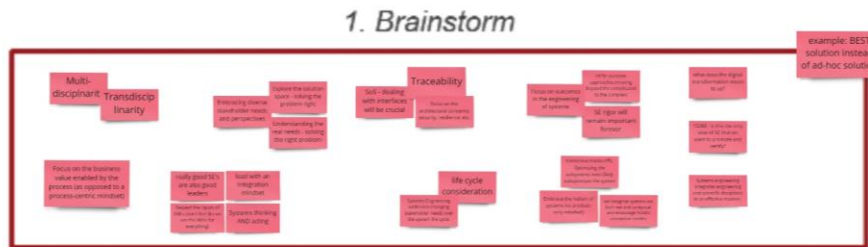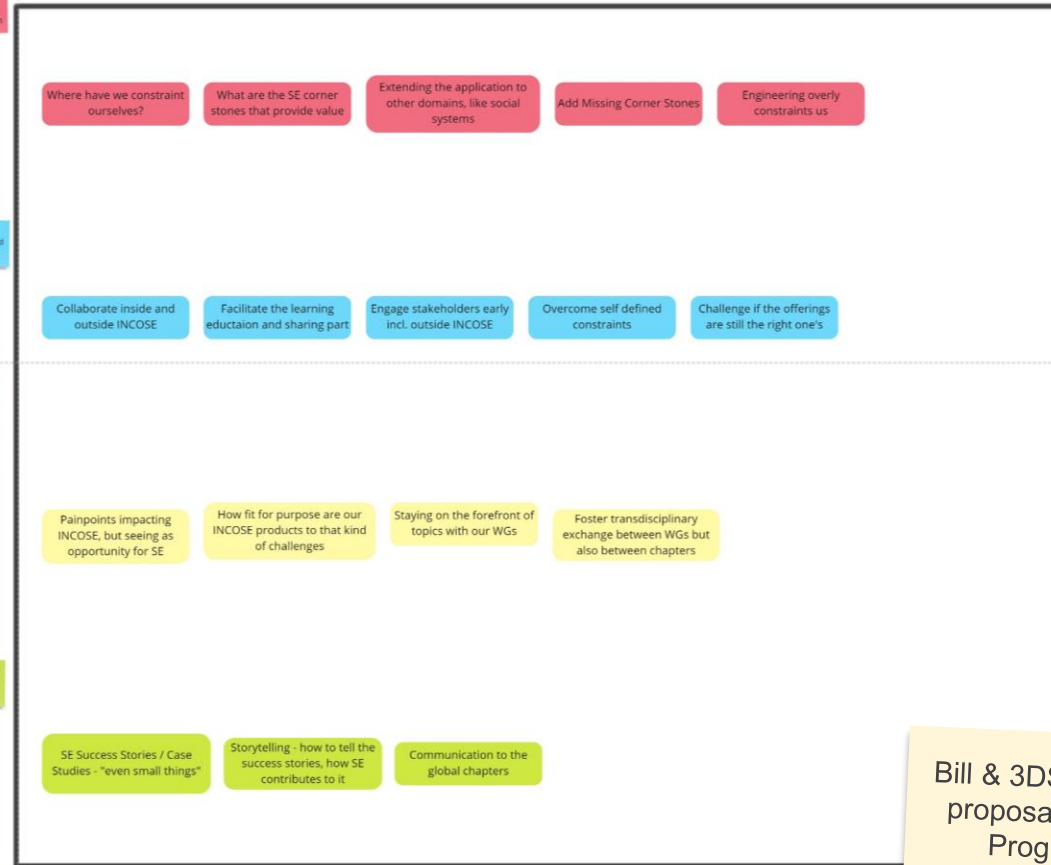
Bill & 3DSE will derive a proposal for the FuSE Program Vision

Brainstorming on SE cornerstones:

SE cornerstones

- Multi-disciplinarity
- Trans-disciplinarity

- Focus on the business value enabled by the process (as opposed to a process-centric mindset)

- really good SE's are also good leaders
- lead with an Integration mindset
- Respect the inputs of SMEs (don't feel like we are the SMEs for everything)
- Systems thinking AND acting

- Embracing diverse stakeholder needs and perspectives
- Explore the solution space - solving the problem right
- Understanding the real needs - solving the right problem

- Traceability
- SoS - dealing with interfaces will be crucial
- focus on the architectural concerns: security, resilience, etc.

- life cycle consideration
- Systems Engineering addresses changing stakeholder needs over the system life cycle.

- Focus on outcomes in the engineering of systems
- Fit for purpose approaches (moving beyond the complicated to the complex)
- SE rigor will remain important forever

- Conscious trade-offs, Optimizing the subsystems most likely suboptimizes the system
- Embrace the holism of systems (vs product-only mindset)
- we recognize systems are both real and conceptual, and encourage holistic conceptual models

- what does the digital transformation mean to us?

- 15288 - is this the only view of SE that we want to promote and certify?

- Systems engineering integrates engineering and scientific disciplines in an effective manner.

➢ Extending the application to other domains, like social systems
➢ Where have we constraint ourselves?
➢ What are the SE corner stones that provide value
➢ Add Missing Corner Stones
➢ Engineering overly constraints us

Bill & 3DSE will derive a proposal for the FuSE Program Vision

Brainstorming on INCOSE principles:

INCOSE principles

- Emphasis on fundamentals

- Systems approach = thinking + engineering (acting)

- Systems of systems (are also systems, but different ...)

- aid in the complicated and complex

- Collaboration across domains
- Collaborative development

- Embracing diverse target audience (domains, global, levels of experience)
- Engage stakeholders early including those outside of INCOSE
- Inclusive approach to development and review
- Integrate with and respect existing efforts

- Expand Collaborative partners
- partner with corporate to broadly certify the workforce

- integration of technology in a wider context

- Lead the way - in vision and execution

- Enable learning and development in pursuit of the vision
- Educate
- life-long learning & sharing

- Professional development and resource center for systems engineers

- maybe these are not as clear as we would like

➢ Collaborate inside and outside INCOSE
➢ Facilitate the learning education and sharing part
➢ Engage stakeholders early incl. outside INCOSE
➢ Overcome self defined constraints
➢ Challenge if the offerings are still the right one's

Bill & 3DSE will derive a proposal for the FuSE Program Vision

Brainstorming on Trends & Environment:

Trends & Environment

- Global collaboration / supply chain

- Importance of security, health, and resilience
- Sustainability and equity as critical concerns
- ethics is much more of a product driver
- massive loss of critical thinking in the internet age
- Sustainability! (social, financial, environmental)
- Social aspects key to success
- lots of people are forced to be systems engineers without knowing it
- Develop guides and tool kits for social skills-art of presentations and program evaluation or needs assessments (tools, guides, resources)
- need systems education at all ages

- Velocity

- exponential pace of change
- exponential increase in automation
- Exponential scale of complexity. interactions, uncertainty

- on-line learning, shifts in how we educate
- Need systems education at all ages

- Digital access to resources through AI
- Increasing role of AI/ML
- Digital transformation / model-based everything

- Remote engagement to tools, resources, and collaboration for Global interaction

- Growing stakeholder expectations (capability, safety, scalability, affordability,...)

- Increasing systems awareness (enterprise and social)

- Recognition of non-determinism

- disruptions and fragile systems

- Trustworthiness of systems

- creativity and entrepreneurship

- Continuous SW (i.e. functionality) updates (over the air)
- software is the front-end of everything
- Systems are computer and software centric

- Continuous system evolution vs fixed, long life solutions

➢ How fit for purpose are our INCOSE products to that kind of challenges
➢ Staying on the forefront of topics with our WGs
➢ Pain points impacting INCOSE, but seeing as opportunity for SE
➢ Foster transdisciplinary exchange between WGs but also between chapters

Bill & 3DSE will derive a proposal for the FuSE Program Vision

Brainstorming on User Stories & Needs:

User Stories & Needs

- Educate the systems engineer of 2035
- Educate the engineer of 2035 (what level of awareness and how do we achieve it)

- What makes a city smart?

- A systems approach to energy supply

- Effectively using systems principles in pursuit of a UN SDG

- The Nobel prize in bringing the disciplines together

- How does my working group influence FuSE? (a different kind of story)

- designing for resilience

- how can systems be more fundamentally secure?

- physical systems and virtual twins operate together for long-term value

- SE return on investment is measurable and recognized
- headline: adoption of SE practice doubled our sales, need outcome stories not process stories

➢ SE Success Stories / Case Studies - "even small things"
➢ Storytelling - how to tell the success stories, how SE contributes to it
➢ Communication to the global chapters

Bill & 3DSE will derive a proposal for the FuSE Program Vision

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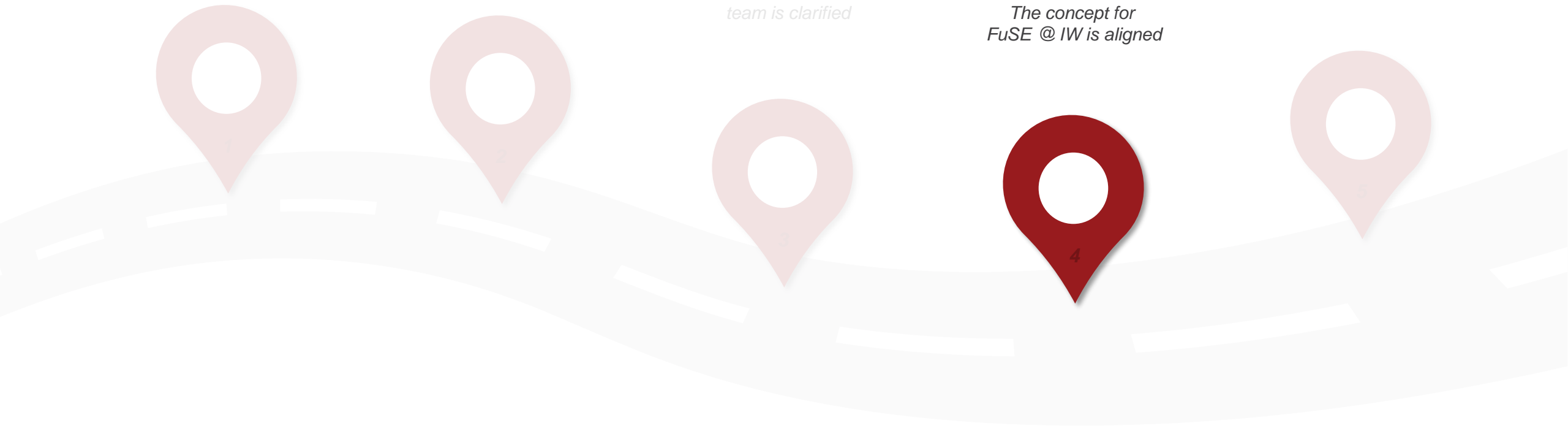**BoD Presentation
IW Workshop update**

*The presentation for the BoD is agreed
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The concept for FuSE @ IW is aligned*

Next Steps

Next steps

Comparison of proposed and updated agenda for FuSE @ IW 2023

	SAT		SUN		MON		TUE	
	proposed	**updated**	**proposed**	**updated**	**proposed**	**updated**	**proposed**	**updated**
08:00				FuSE Working Sessions (in person only) - 4 rooms		FuSE Working Sessions (in person only) - 4 rooms		
08:30								Wrap-up FuSE (for participants)
09:00			FuSE Working Session (4x in parallel)		FuSE Working Session (4x in parallel)			
09:30		Break						
10:00	Break	FuSE Kick-off	Break					
10:30	FuSE opening plenary session		FuSE Working Session (4x in parallel)		FuSE Working Session (4x in parallel)			
11:00								Wrap-up FuSE
11:30								
12:00	Lunch							
12:30								
13:00							FuSE closing plenary session	
13:30								
14:00		FuSE Interactive working session (4 rooms)						
14:30	Break		Break					
15:00		Break						
15:30								
16:00		FuSE Interactive working session (4 rooms)						
16:30								

It is anticipated to have 4 rooms for each session (1 room for every stream) and be able to form groups within these sessions / rooms.
4 rooms with each space for ~4 groups

Conclusion:

The FuSE team agrees on the updated schedule.
An additional wrap-up session for FuSE participants is requested on Tuesday morning from 8:30 to 9:30 am.

new

Agreed agenda for FuSE @ IW 2023

	SAT	SUN	MON	TUE
08:00		FuSE Working Sessions (in person only) - 4 rooms	FuSE Working Sessions (in person only) - 4 rooms	
08:30				Wrap-up FuSE (for participants)
09:00				
09:30	Break			
10:00	FuSE Kick-off	Break		
10:30				
11:00				Wrap-up FuSE
11:30				
12:00	Lunch			
12:30				
13:00				
13:30				
14:00	FuSE Interactive working session (4 rooms)			
14:30		Break		
15:00	Break			
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16:30				

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Goals of FuSE Streams for IW 2023
Documentation of working session

	SE Vision & Roadmap	**SE Foundations**	**SE Methodology**	**SE Application Extension**
Definition	Refine SE Vision 2035 and detail the roadmap as defined in in the vision	Current INCOSE projects	Evaluate current Tools / Environments / Procedures / Methods	"better world through systems engineerig"
Why?	Pave the way to reach the vision / Have a measurable foundation to assess if we are on track with the vision / Align and commit to the vision within the INCOSE community	Leverage existing working groups and projects / Identify gaps in the INCOSE project landscape that we need to reach the vision	To what degree are current SE methods fit for purpose / What do we need to make SE methods fit for purpose / Make / adapt methods fit for purpose	Extend reach into more organizations / Engage in a more enherent manner / Branch out to sociotechnical systems --> SE needs to be on the policy table / WG Social systems integration Smart Cities ...
What?	Make Assumptions: - how many people - what is possible with those ppl - What can you expect		To V or not to V?!	
Obstacles				

The FuSE Program is organized in 4 streams:

	SE Vision & Roadmap	SE Foundation	SE Methodology	SE Application Extension
Objective	Refine SE Vision 2035 and detail the roadmap as defined in in the vision	Build up on current INCOSE projects	Evaluate current tools / environments / procedures / methods	Expand the application of systems engineering
What & Why?	• Pave the way to reach the vision • Have a measurable foundation to assess if we are on track with the vision • Align and commit to the vision within the INCOSE community	• Leverage existing working groups and projects • Identify gaps in the INCOSE project landscape that we need to reach the vision	• To what degree are current SE methods fit for purpose • What do we need to make SE methods fit for purpose • Make / adapt methods fit for purpose	• Extend reach into more organizations • Engage in a more inherent manner • Branch out to sociotechnical systems --> SE needs to be on the policy table • "Create a better world through systems engineering"

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IW Workshop update**

The presentation for the BoD is agreed
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Next Steps

Next steps

5

Next Steps

- Send blocker for agreed FuSE Workshop (Martina)
- Setup FuSE Team in Teams and provide access to the FuSE Team (Bill & Barkley)
- Formulate vision based on brainstorming (Bill & 3DSE)
- Prepare "what to expect"-statement for FuSE @ IW23 (Bill & 3DSE)

Contact

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