26th annual INCOSE international symposium

Edinburgh, UK
July 18 - 21, 2016

Building a Technical Leadership Model

INCOSE Institute for Technical Leadership

Technical Leadership Model

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• **Introduction**	**Don Gelosh**
• Team Models	Suja Malherbe
• Consolidated Model	Rudolph Louw
• Model Validation	Serge Landry
• Conclusions	Patrick Godfrey
• Questions	

Abstract

- INCOSE's Vision 2025 identifies the development of **Systems Thinking** and **Technical Leadership** as one of seven key areas of Systems Engineering **'Competency'** required for delivery.
- This requirement drives the need to rapidly expand the **art** and **science** of **Systems Technical Leadership**.
- In response, INCOSE established the **INCOSE Institute for Technical Leadership.**
- This paper describes the Institute and the work that the first Cohort ("Cohort of 2017") has accomplished on developing a **Technical Leadership Model for Systems Engineers.**
- We envision that this first **Technical Leadership Model for Systems Engineers** will be further developed and matured by the following cohorts of **INCOSE's Institute for Technical Leadership**.

Authorship Acknowledgement

- The leadership model paper was produced by the joint efforts of the 2015/17 Cohort:
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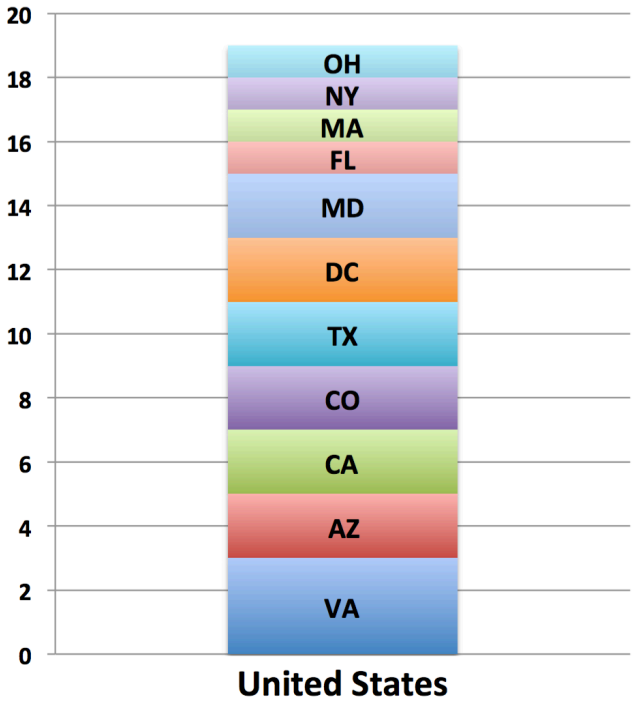
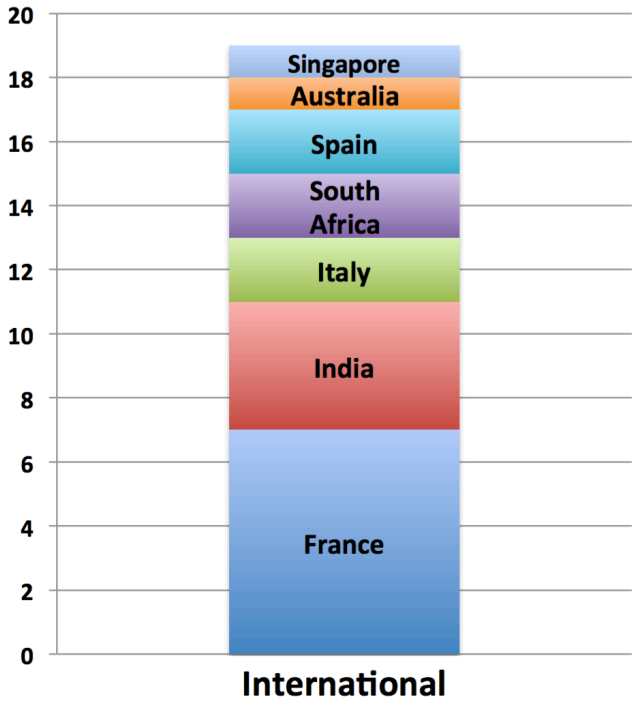
  - Andrew Wheeler
  - Coach Mike Pennotti
  - Coach Don Gelosh
  - Coach Patrick Godfrey
  - Coach John Thomas
  - Coach Ruth Deakin Crick

Participants





38 participants, 5 continents, 8 countries and 11 U.S. states!

Introduction

INCOSE's Vision 2025 (INCOSE 2015) has set out a vision for:

- Expanding the APPLICATION of systems engineering across industry domains
- Embracing and learning from the diversity of systems engineering APPROACHES.
- Applying systems engineering to help shape policy related to SOCIAL AND NATURAL SYSTEMS.
- Expanding the THEORETICAL foundation for systems engineering.
- Advancing the TOOLS and METHODS to address complexity.
- Enhancing EDUCATION and TRAINING to grow a SYSTEMS ENGINEERING WORKFORCE that meets the increasing demand.

Introduction

- In 2015, INCOSE established the Institute for Technical Leadership
- The Institute's Purpose:

  As INCOSE continues to grow in an ever more complex and interdependent world, we seek to accelerate the development of systems engineering leaders who will exemplify the best of our organization and our profession.

Introduction

- The Institute's Benefits*:*
  - Individual members will become more capable leaders within their organizations.
  - INCOSE will have a growing pool of capable leaders from which to draw on, filling leadership positions.
  - INCOSE's international reputation will be enhanced by helping to develop systems engineering leaders of the highest caliber.

What is Leadership and Why is it Important?

- Companies today are like modern tribes with traditions, symbols, language and leaders. (Sinek 2014)
- The purpose of a leader is to ensure leadership – a series of inter-related choices and actions which define and realize a purpose. (Scouller 2011)
- Although it is readily assumed that being in a certain position makes one a leader, this is not necessarily the case as has been shown numerous times in recorded history. (Maxwell 2013)
- None of the well-established references to leadership development focus on the need for systems technical leadership or the specific requirements of leadership in conditions of socio-technical complexity.

What is Leadership and Why is it Important?

- Distinctions can be drawn between the attributes of leaders and managers, although one person can do both.
- There can be no single prescription for leadership competency.
- Leadership requirements are context dependent – situational leadership vs. positional leadership – Winston Churchill is a good example.
- For the purposes of this project, we have avoided defining what technical leadership is – we first wanted to discover what it meant to the cohort – all were selected for their leadership potential in systems engineering.
- Our paper captures and describes the emergence of a shared definition of the purpose and processes of Systems Engineering Leadership.

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Team Models

- ARZSAD - Stakeholder Views of Technical Leadership
- The Inspirations - The Inside Looking Out Model

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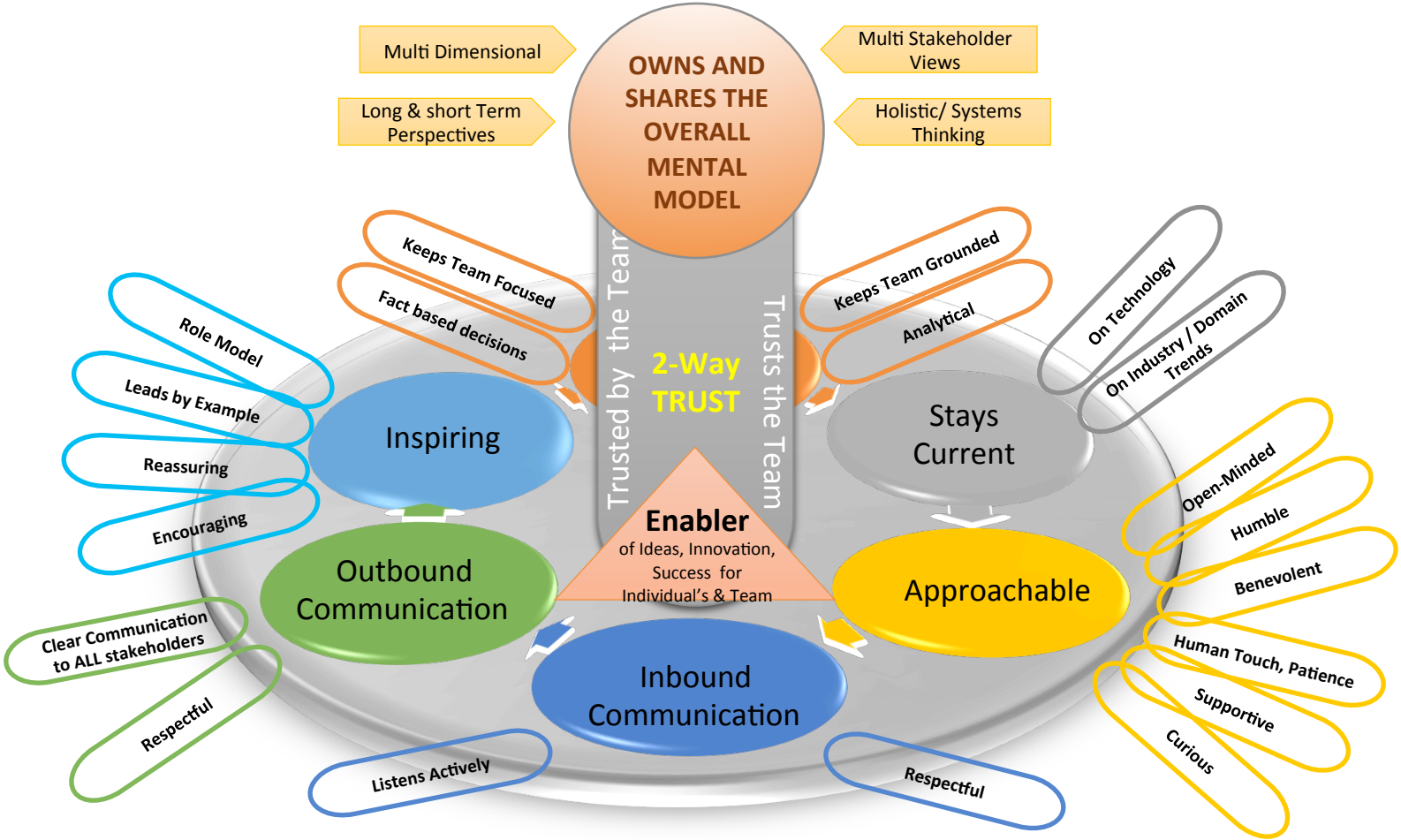
ARZSAD
Stakeholder Views of Technical Leadership


Multi Dimensional
Multi Stakeholder Views
Long & short Term Perspectives
Holistic/ Systems Thinking
OWNS AND SHARES THE OVERALL MENTAL MODEL
Keeps Team Focused
Fact based decisions
Keeps Team Grounded
Analytical
On Technology
On Industry / Domain Trends
Role Model
Leads by Example
Reassuring
Encouraging
Trusted by the Team
2-Way TRUST
Trusts the Team
Inspiring
Stays Current
Enabler
of Ideas, Innovation, Success for Individual's & Team
Outbound Communication
Approachable
Open-Minded
Humble
Benevolent
Clear Communication to ALL stakeholders
Respectful
Inbound Communication
Human Touch, Patience
Supportive
Curious
Listens Actively
Respectful

The Inspirations – The Inside Looking Out Model

We are able to change the world for the better by developing/building products and services that is relevant.

I am an essentialist and am not afraid to engage with Uncertainty

The team is cohesive. The engagements are passionate.

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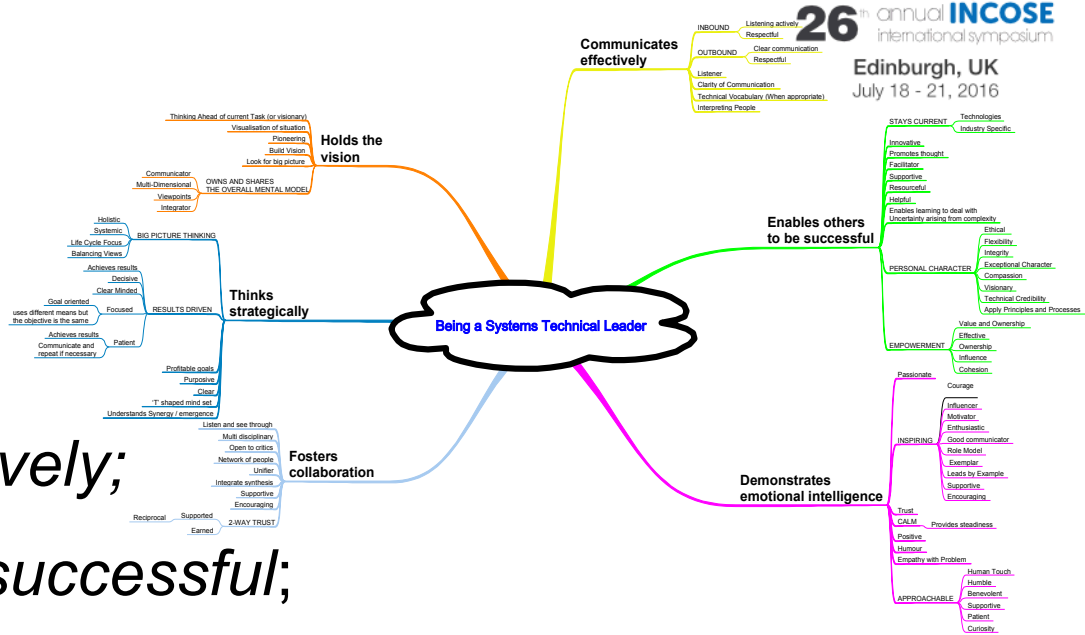
How the Model was Generated

- INCOSE Technical Leadership programme followed a strategically planned charter
- The Model creation benefitted from an internationally and disciplinary diverse set of contributions
- The differential between technical leadership and management had to be clarified and a common baseline determined
- Four models were initially conceptualised and then converged – not combined, converged
- Testing of it was then performed which is dealt with after this section
- Six core elements have been identified and elaborated upon

6 Strands of Leadership Identified –
no specific sequence

1. *Holds the Vision;*
2. *Thinks Strategically;*
3. *Fosters Collaboration;*
4. *Communicates Effectively;*
5. *Enables others to be successful*;
6. *Demonstrates Emotional Intelligence.*



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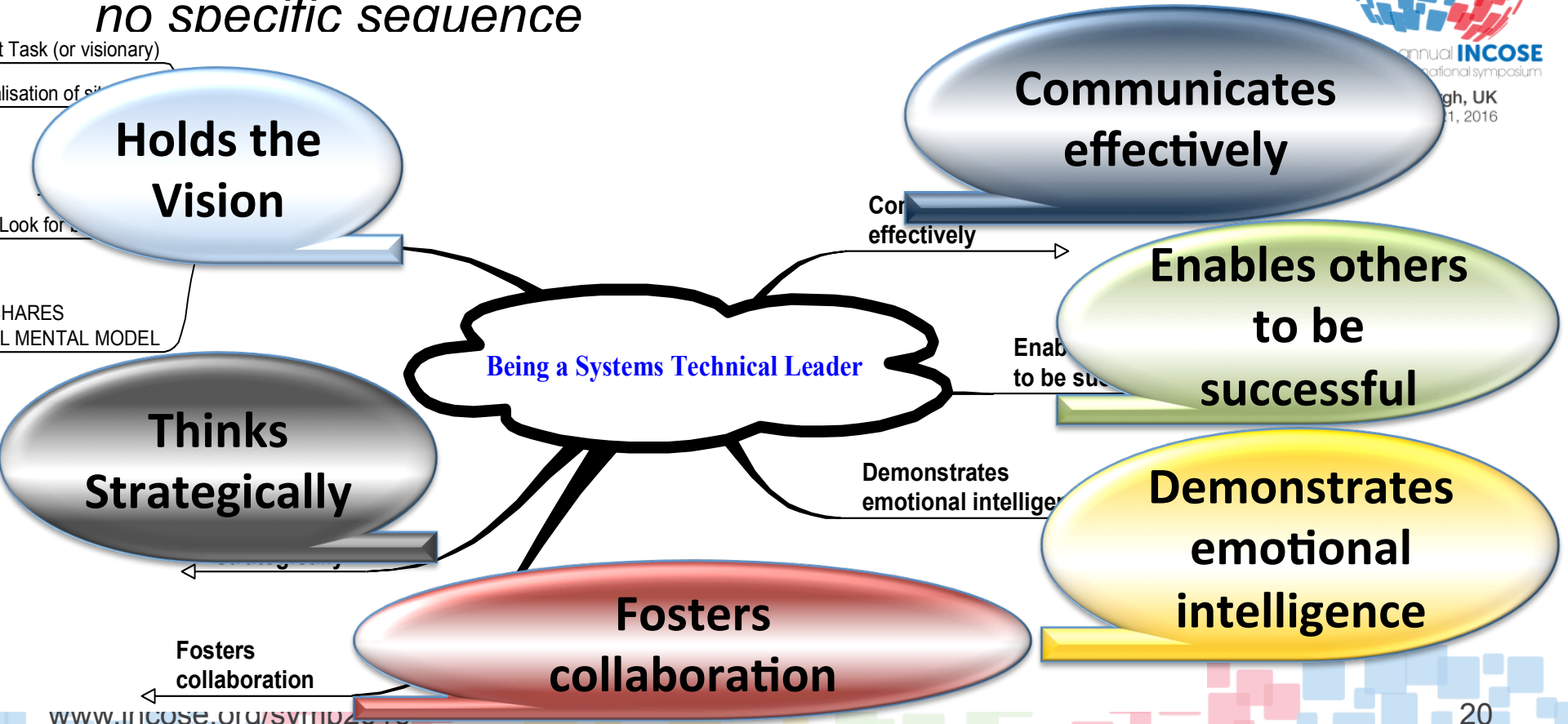
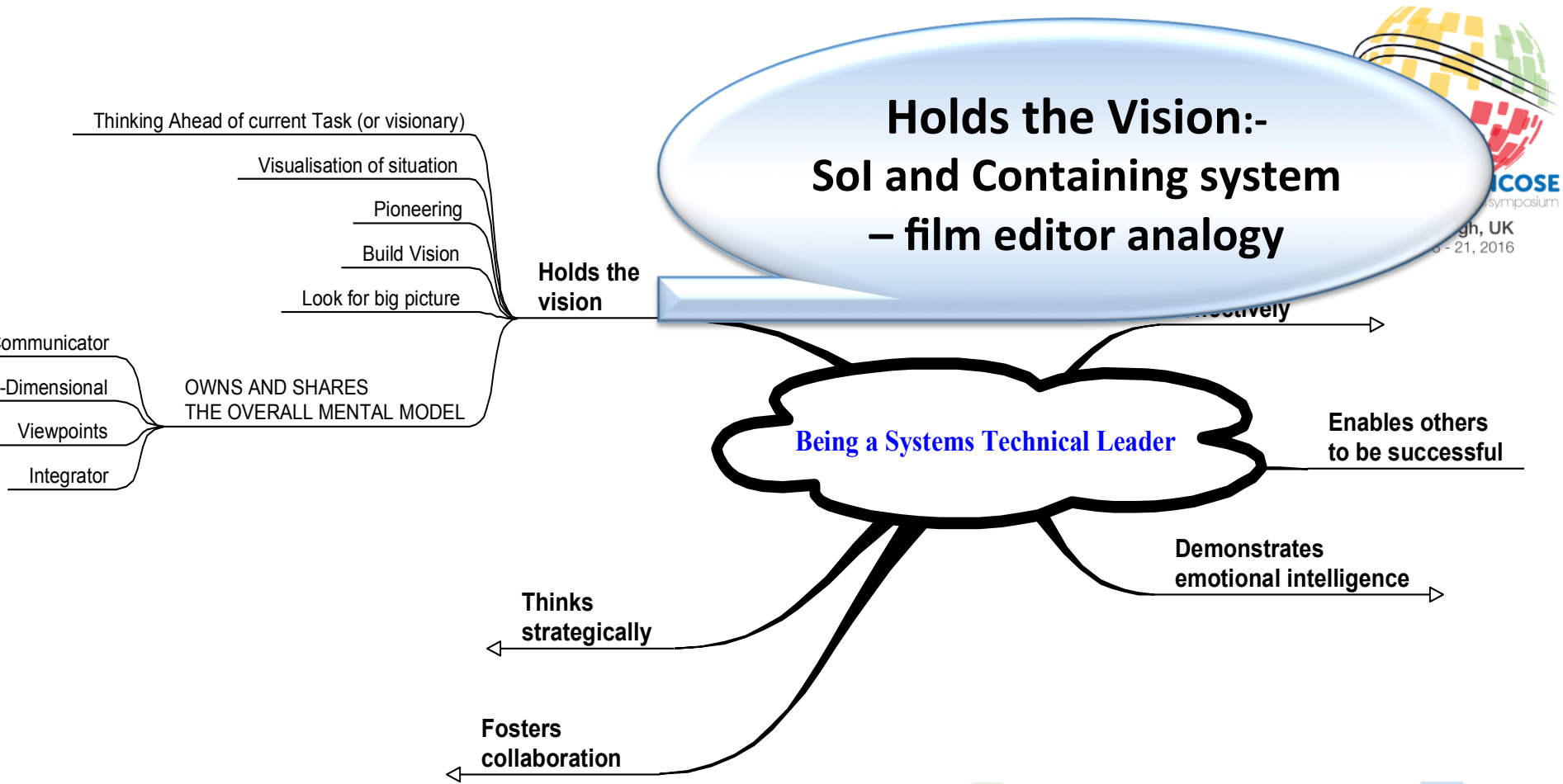
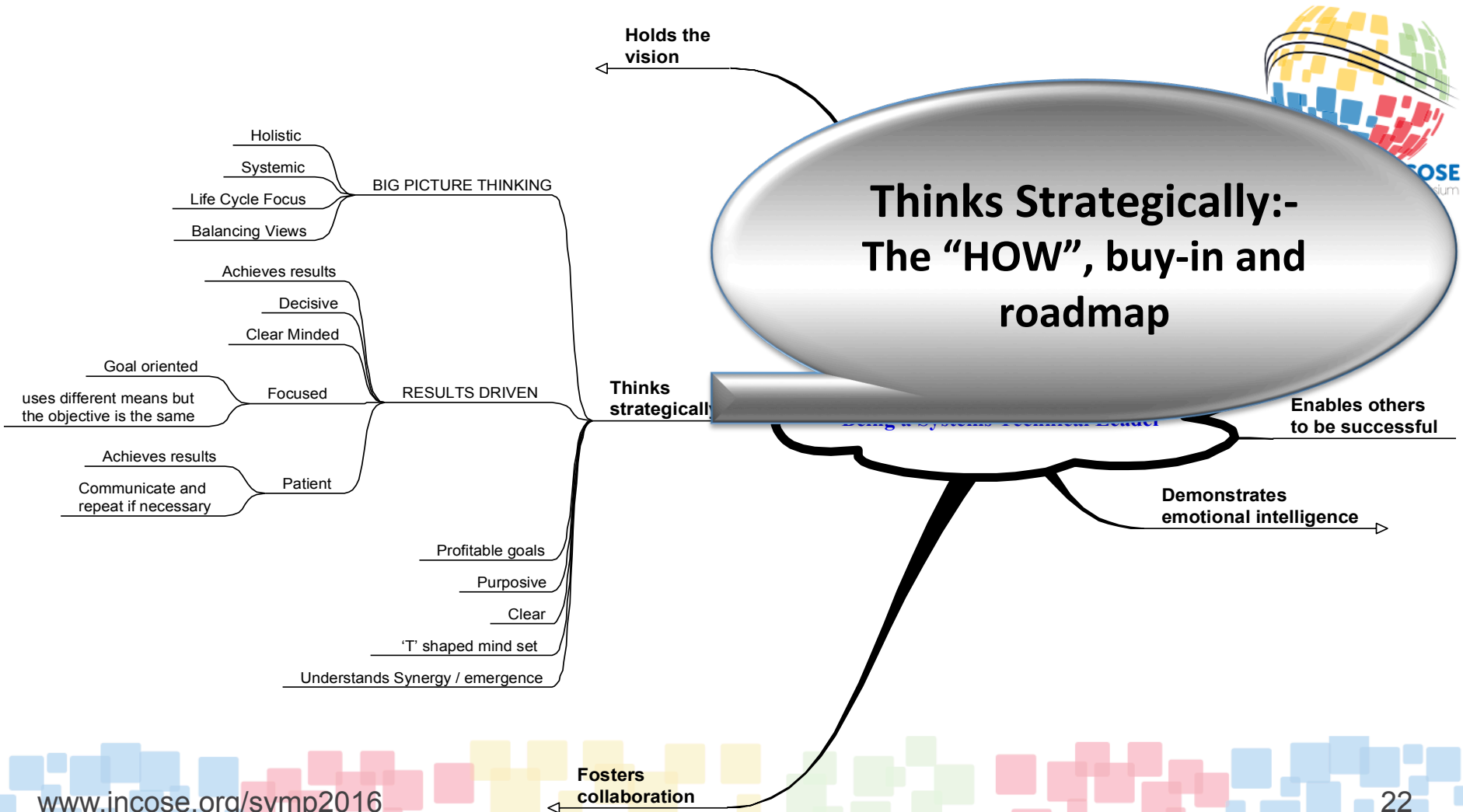
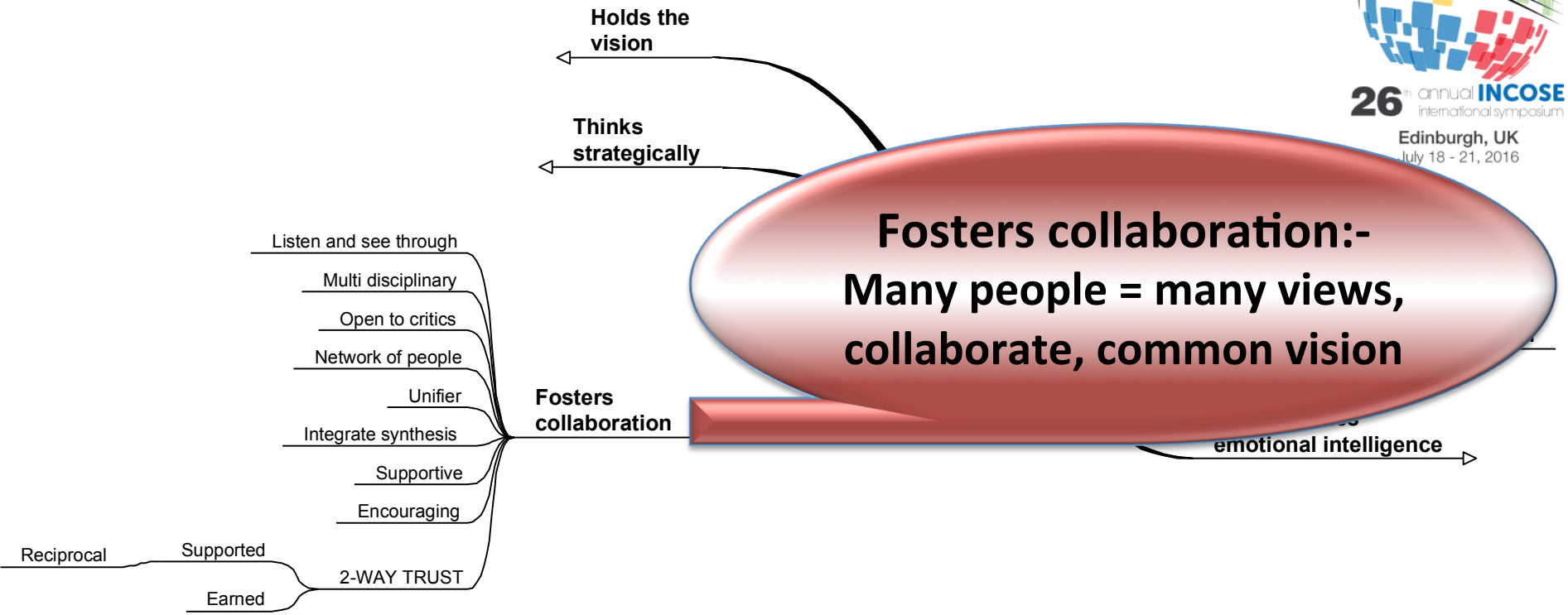
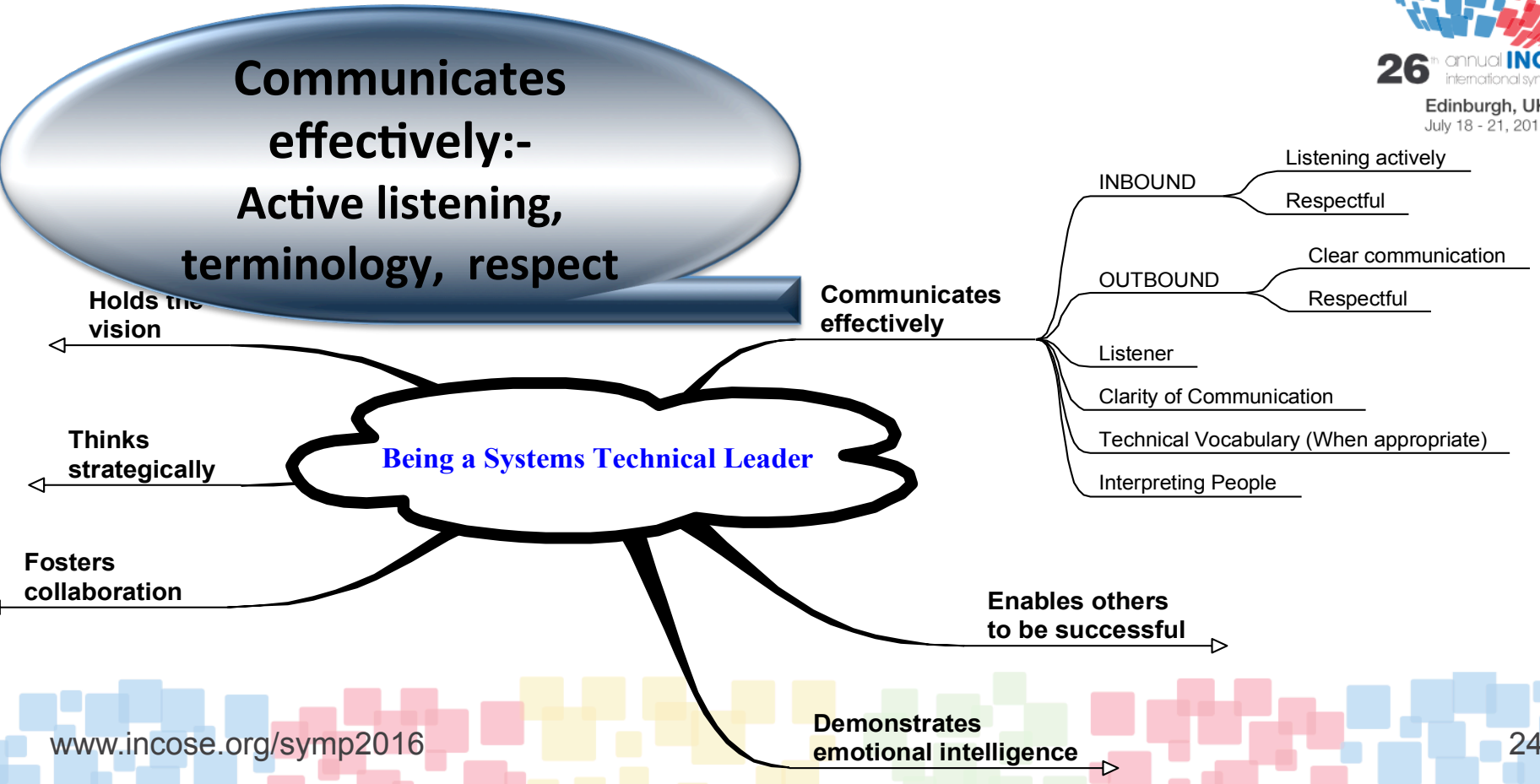


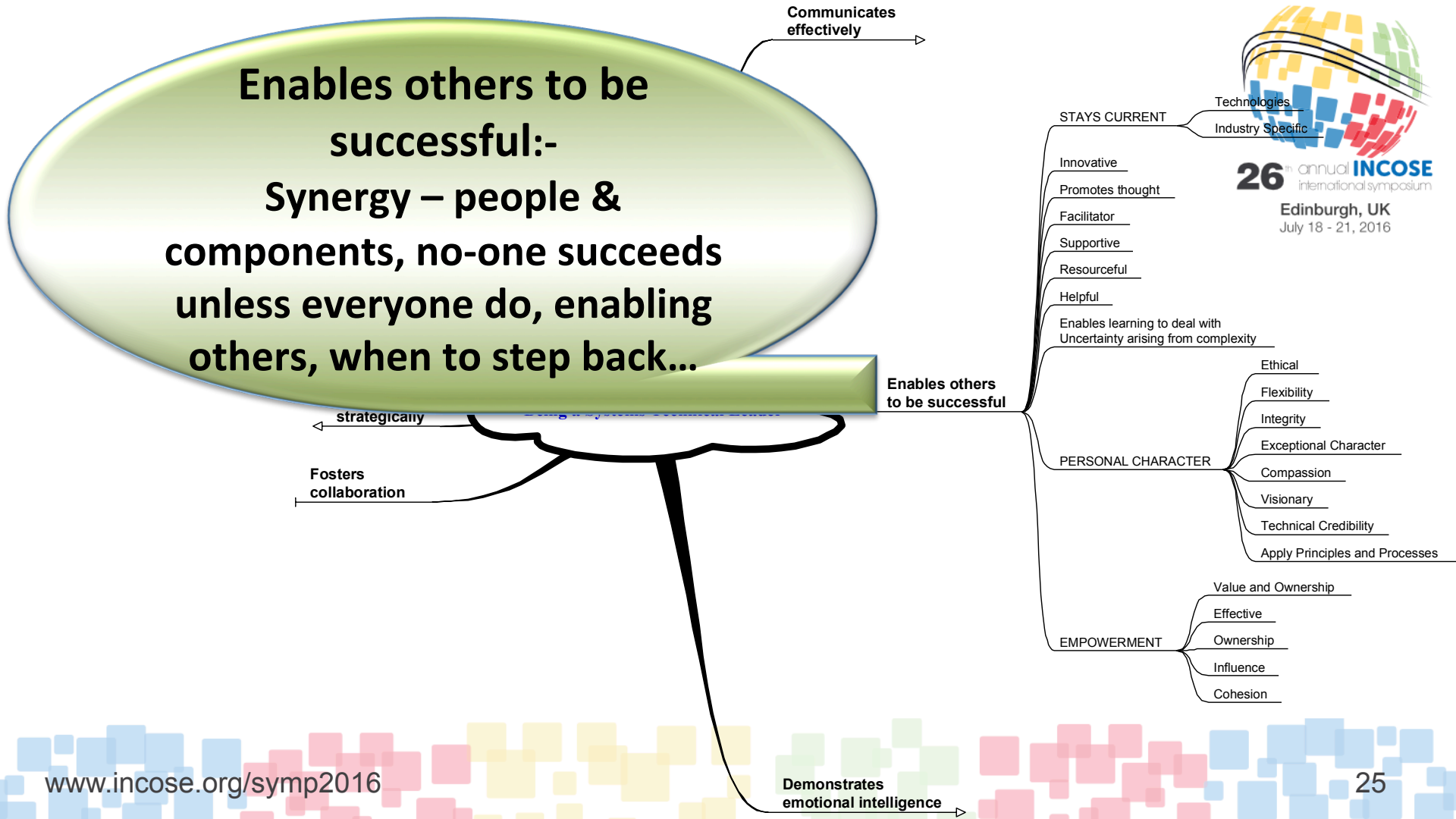
Holds the Vision:-
SoI and Containing system – film editor analogy




Holds the vision
Thinks Strategically:-
The "HOW", buy-in and roadmap
Holistic
Systemic
Life Cycle Focus
Balancing Views
BIG PICTURE THINKING
Achieves results
Decisive
Clear Minded
Goal oriented
uses different means but the objective is the same
Focused
RESULTS DRIVEN
Achieves results
Communicate and repeat if necessary
Patient
Thinks strategically
Profitable goals
Purposive
Clear
'T' shaped mind set
Understands Synergy / emergence
Enables others to be successful
Demonstrates emotional intelligence
Fosters collaboration

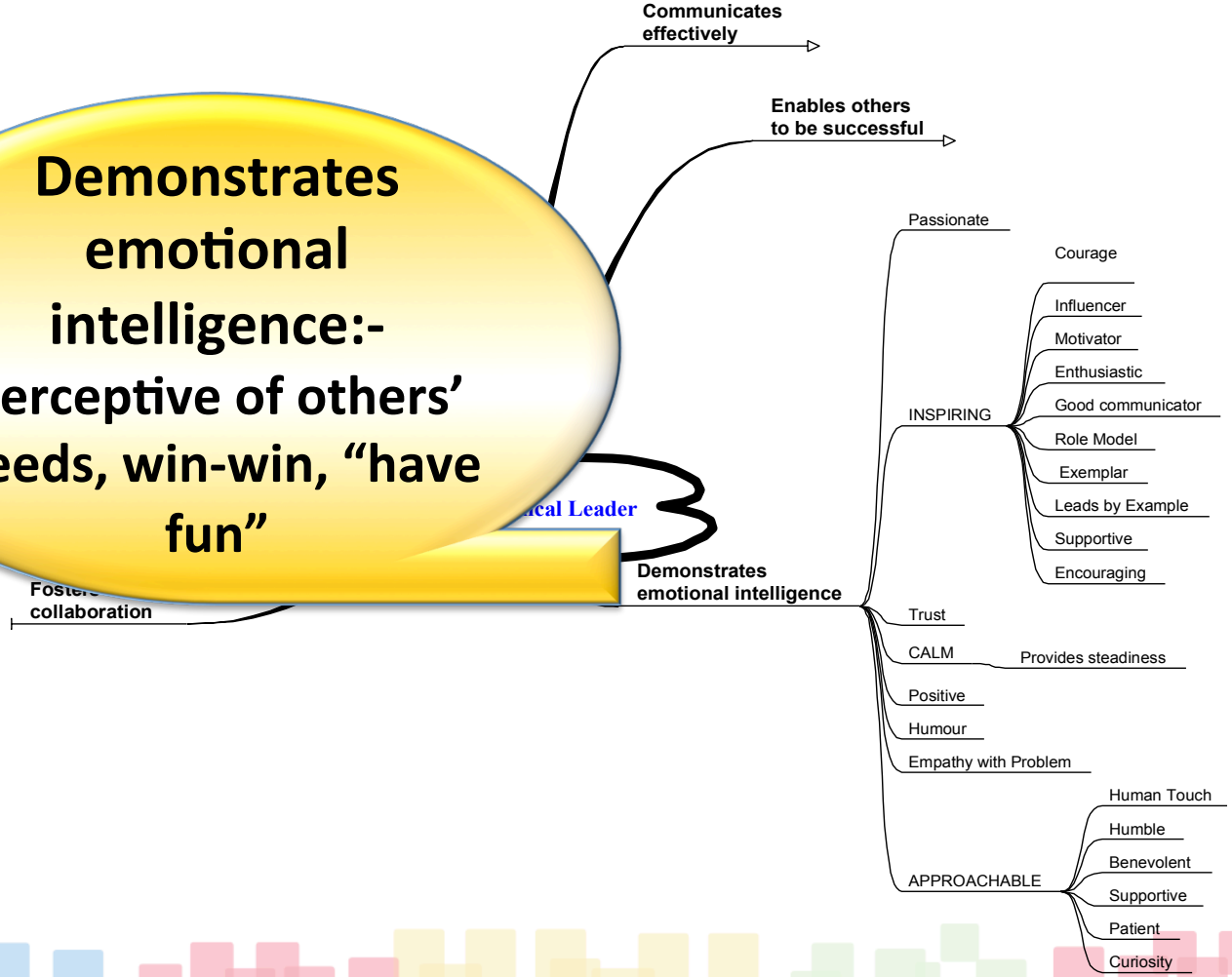

Holds the vision
Thinks strategically
Fosters collaboration:-
Many people = many views, collaborate, common vision
Listen and see through
Multi disciplinary
Open to critics
Network of people
Unifier
Integrate synthesis
Supportive
Encouraging
Fosters collaboration
Reciprocal
Supported
2-WAY TRUST
Earned
emotional intelligence


Communicates effectively:-
Active listening, terminology, respect
Being a Systems Technical Leader
Holds the vision
Thinks strategically
Fosters collaboration
Communicates effectively
INBOUND
Listening actively
Respectful
OUTBOUND
Clear communication
Respectful
Listener
Clarity of Communication
Technical Vocabulary (When appropriate)
Interpreting People
Enables others to be successful
Demonstrates emotional intelligence


Enables others to be successful:-
Synergy – people & components, no-one succeeds unless everyone do, enabling others, when to step back…
Communicates effectively
strategically
Fosters collaboration
Demonstrates emotional intelligence
Enables others to be successful
STAYS CURRENT
Technologies
Industry Specific
Innovative
Promotes thought
Facilitator
Supportive
Resourceful
Helpful
Enables learning to deal with Uncertainty arising from complexity
PERSONAL CHARACTER
Ethical
Flexibility
Integrity
Exceptional Character
Compassion
Visionary
Technical Credibility
Apply Principles and Processes
EMPOWERMENT
Value and Ownership
Effective
Ownership
Influence
Cohesion

Demonstrates emotional intelligence:-

Perceptive of others' needs, win-win, "have fun"



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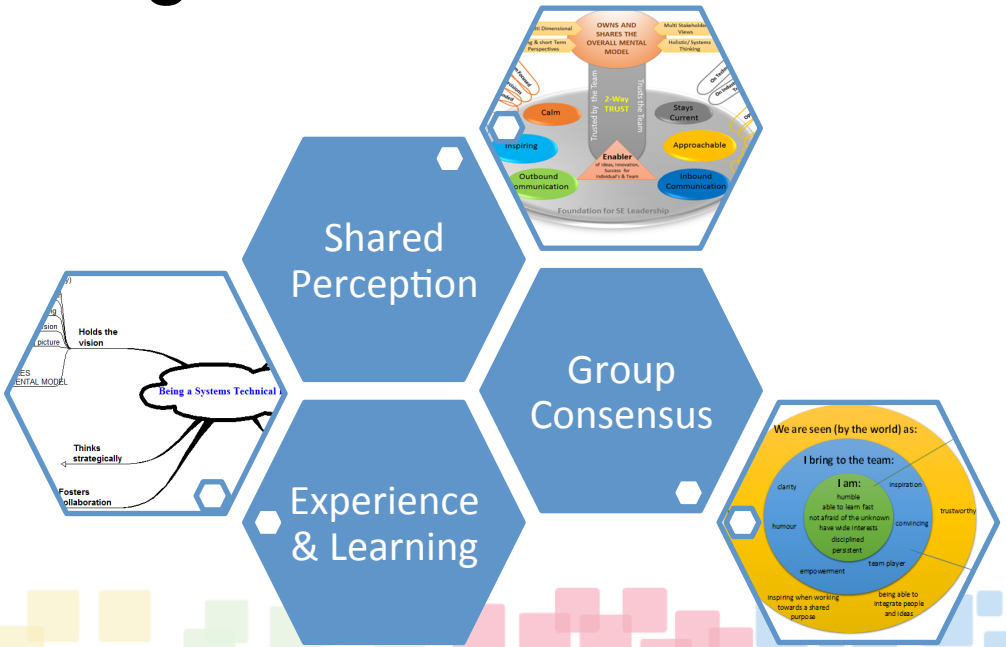
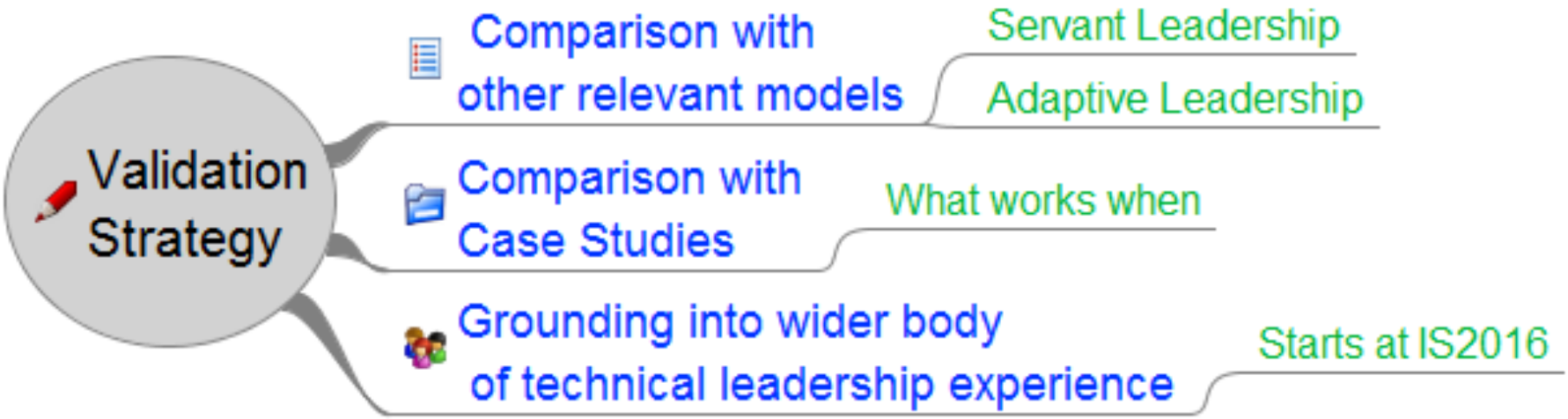
Model Validation

- Have we build the right model?



Strategy for a wider validation



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Conclusions

- Emphasis on People skills
  - Enabling Others
  - Emotional Intelligence
- Need for integration of social science
- Adaptive leadership
- Further validation
- Thursday's events

Thursday's events

Cromdale Hall level -2

World Café

08.00 - 09.30

Share your experiences

Interactive Panel

10.00 - 12.10

Explore the future

Questions

References

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