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Building a Technical Leadership Model

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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. Vision 2025 states: "Education and training of systems engineers and the infusion of systems thinking across a broad range of the engineering and management workforce will meet the demands for a growing number of systems engineers with the necessary technical and leadership competencies." "The roles and competencies of the systems engineer will broaden to address the increasing complexity and diversity of future systems." "The technical leadership role of the systems engineer on a project will be well established as critical to the success of a project." These requirements imply the need to rapidly expand the art and science of Systems Technical Leadership. In response to this need, 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. It is envisaged that this first Technical Leadership Model for Systems Engineers will be further developed and matured by the following cohorts of the INCOSE's Technical Leadership Institute.

Authorship Clarification

For the purposes of paper publication it is necessary to identify a lead author, never the less this paper has been produced by the joint efforts of the whole of the 2015/17 Cohort who are: Hari Devarapalli; Kimberly Gill; DeAnthony Heart; Ben Hudson; Edwin Ordoukhanian; Amaury Soubeyran*; Earnest Ansu-Gyeabour*; Olivier Dessoude*; Serge Landry*; Rudolph Louw*; Jason Sohlke; Courtney Wright*; Isaac Burk*; Bernardo Delicado; Quoc Do*; Diana Mann*; Dave Mason; Michael Do*; Bill Good; Suja Joseph-Malherbe*; Juan Llorens; Jonathan Rigaud*; Ahmed Abdelkhalek; Stephanie Chiesi*; Ramesh Ramakrishnan*; Zane Scott*; Andrew Wheeler* and the 5 Coaches who are: Mike Pennotti, Donald Gelosh*, Patrick Godfrey*, John Thomas and Ruth Deakin Crick*. They all contributed to the model and discussions. We should also recognize names marked with an asterisk who contributed sections of text or presentations. Finally we should recognize that the methods used are from social science. We are indebted to Professor Ruth Deakin Crick who as the only social scientist on the team has provided invaluable input and guidance in this area.

Introduction

Driven by the need to make a step-change in the well-being of people worldwide, 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.*

Accordingly, INCOSE has established an Institute for Technical Leadership (INCOSE 2015) and appointed five coaches. Its purpose is defined as follows:

> *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.*

The benefits are seen as:

- 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 calibre

It is recognised that leadership capability develops from awareness of both hard and soft skills required to build and strengthen relationships and teams along with the experience of practising those skills in work environments. This process can be enhanced by coaching, peer-to-peer learning and phenomenological research. This paper reports on a process of phenomenological, grounded research which takes as its starting point the structures of experience and consciousness (Kant, 1770) of the 27 members of the cohort and the 5 coaches.

What is Leadership and Why is it Important?

Companies today are like modern tribes (Sinek 2104) and like any tribe they have traditions, symbols, language and leaders. Sinek (ibid) argues that everything about human-beings is purpose-built to help increase opportunities for survival and success, and the need for leaders is no exception..

The purpose of a leader is to ensure that there is leadership, which is an on-going process of a series of inter-related choices and actions which define and realize a purpose (Scouller, 2011).

Leadership is a verb and is about taking action (Maxwell 2103) and although it is readily assumed that being in a position makes one a leader, this is not necessarily the case as has been shown numerous times in recorded history (Maxwell, ibid)

Whilst there are many well established references to leadership development that range from Machiavelli's book 'the Prince' (published 1532) to Northouse's Book (2007) 'Leadership: Theory and Practice,' none focus on the need for systems technical leadership, or the specific requirements of leadership in conditions of socio-technical complexity. Following Covey and others, a distinction is drawn between the attributes of leaders and managers, although one person can have both of the requisite skills sets for both roles (leader, manager). Furthermore, there can be no single prescription for leadership competency. The requirements are context dependent as is embodied by the concept of situational leadership compared to positional leadership. For example, Churchill was said to be an inspiring wartime leader but was voted out of power by the 1945 general election. His leadership had served a specific purpose at a given point in time, under specific conditions.

For the purposes of this project, we have avoided defining what technical leadership is at this stage because, in keeping with our phenomenological approach, we first wanted to discover what it meant to the cohort, all of whom were selected for their leadership potential in systems engineering. What emerges from this process, and recorded in this paper, is the emergence of a shared definition of the purpose and processes of Systems Engineering leadership.

Inaugural Cohort of 2017

The first cohort consisted of 27 delegates. They were nominated by INCOSE Chapters world-wide as systems engineers who had demonstrated leadership potential. They were sponsored by their employers to attend workshops aligned to IS2015,IW2016, IS2016 and IW2017. The delegates also met virtually as teams and the whole cohort met in webinars. Mentorship was an important aspect of the programme and as such the first cohort were peer mentors to one another for the period of the programme. The delegates of the first cohort committed to being mentors for the next set of delegates.

The first workshop was held the day after IS2015. One of the first topics the cohort explored was the "Attributes of a Successful Systems Engineering Leader." Rather than being presented with existing models of leadership the cohort teams were asked to identify what they thought were the attributes of a successful leader in Systems Engineering. This topic enabled the cohort to investigate how to enhance the process of "becoming a more self-aware leader". The attributes were assembled into a model of core attributes and the delegates were then asked to identify WHY each key attribute was important. For example, if "Visionary" had been identified then the WHY statement might be: “An aligned view of the whole is needed to integrate the parts”.

A second face-to-face workshop was held at the beginning of IW2016. The workshop included:

- A discussion of the consolidated leadership model integrating the input from the whole cohort
- Interpreting the Leadership Practices Inventory (LPI) 360° feedback which was done during the months of November and December 2015. The session included understanding the data, that is, comparing the self-assessment with the ratings from others, choosing one or two areas for further focus, finding opportunities to learn or enhance specific skills and applying what was learned in group – as well as individual context.
- Understanding cognitive biases. A bias that was emphasized was the assumption that when we (as individuals) talk, the speaker and the audience are always on the same page. The reality is that we are not – the audience does not know what you know….
- During IW2016 itself Members of the cohort met for breakfast each day to discuss the model and during the day contributed observations about the model which have been edited to form the narrative for the consolidated model and conclusions.

This paper reports on the outcome of this grounded enquiry. Put simply, the cohort “created a shared view of the attributes of what they believed were great systems engineering leaders and why these attributes are important”. It was recognised that this was a complex problem and that there was considerable uncertainty as to what would be the outcome. The cohort was learning together and on a ‘learning journey’ which began with a clear purpose, but the outcome was not known in advance. (Deakin Crick 2014 http://bit.ly/1WMvTtO Godfrey, 2014)

The INCOSE Technical Leadership Project

The purpose of the project was to develop a shared model of technical leadership for Systems Engineers. The outcome was intended to firstly provide a cohort definition of what systems technical leadership is in an engineering environment which is grounded in the experience of 27 international systems engineers and 5 coaches. Secondly, to validate this model by analysing existing literature and current professional experience on leadership and developing an explanation about why this model is relevant to the technical tasks of systems engineering leadership.

Research Design and Methodology

This process was framed as a grounded, collaborative enquiry which captured, analysed and then synthesised the experience and perceptions of the 27 international delegates, in successive iterations. The journey began with the identification of the shared purpose followed by the collaborative processes which would enable the new knowledge to be generated and integrated across the teams.

The delegates organised themselves into teams of five or six each with a coach. Each team first identified the attributes of someone they believe to be a great system engineering leader, and next collected a set of 'leadership narratives' where team members recounted the story of a leadership challenge they had experienced in the last six months that required a 'systems' approach. The narratives were analysed by the teams in order to identify key factors which are important for success.

Each team then designed a graphic model of leadership attributes (see example Figure 1 below), with an explanation of WHAT the attribute is, WHY it is important for systems engineering Leadership and also the identification of how it might operate in a real world environment as a COMPETENCE.

At a follow-up webinar, each team presented its model. Some preferred to present them graphically while others spoke to their spreadsheets. The coaches concurred that the models were authentic expressions of the teams' experience as technical leaders. There was good alignment between the models demonstrated by a common set of constructs that emerged from the five teams, even though the language in use varied, which contributed richly since systems technical leadership is promoted as a universally required skill and practise. See later section on the consolidated model.

Technical Leadership Model

Each team had a coherent view of their model identifying how the components are related. Most presented the attributes of leadership from the point of view of an observer of a systems technical leader (outside looking in). An example of one of the models is shown as Figure 1 and described below. Very interestingly, one team chose to view the attributes from a leader's and team's point of view (inside looking out) under the headings: "I am ___"; "I bring to the team ___"; "We are seen (by the world) as ___" as shown in Figure 2 and described below. The ARZSAD (v2) Model

The ARZSAD Model postulates that the attributes of a Systems Engineering Leader are interrelated. While themes and groupings can be made, the linkages between related elements are also important and need to be shown. 25 key qualities which can be broadly grouped under Calm, Stays current, Approachable, Inbound communication, Out-bound communication and Inspiring, form the foundation for a Systems Engineering Leader.

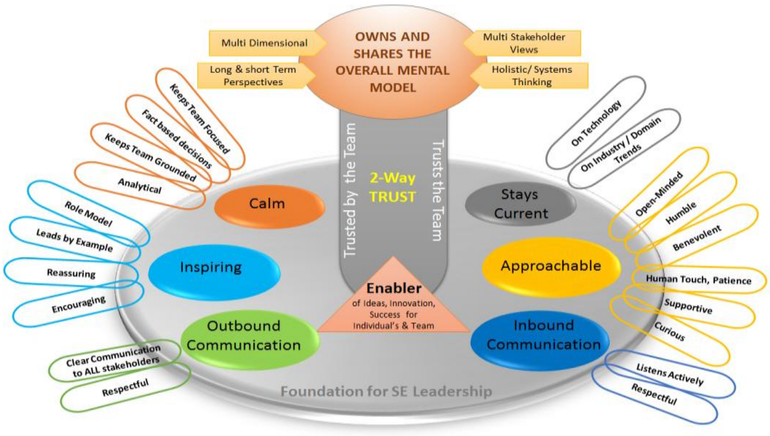

Figure 1: Stakeholder Views of Technical Leadership (ARZSAD v2)

Inbound communications across multiple stakeholders and systems thinking along with a multi-dimensional approach are connected through a bridge of practical thinking, to build a mental model of the system of interest. This is connected to the outward communication so that the leader can ensure that the team has the same mental model as stakeholders (paradigm). This is the basis for understanding short term and long term perspectives of the system.

Enabling attributes are the ones that help progress the system/organization forward on a consistent and sustainable basis. The approachable, inspiring and calm attributes of the Systems Technical Leader promotes the creation of an environment for collaboration and innovation. Another enabler the team discovered after its initial working session, is the leader's mindset and approach to staying current and abreast of the latest technologies and methodologies. A leader is able to determine how the latest technologies and approaches affect the industry he/she is involved in and how to implement the relevant and practical ones within his/her work for greater efficiency and improved performance. Finally, a leader is able to find ways to introduce new ideas to the team in a way that is accepted, embraced and applied.

These attributes together lead to the emergence of mutual trust between the leader and the team. Mutual trust is at the center of all the attributes linking them together and driving the leadership model.

This sets the foundation for the organization/system to materialize the initial goals and then iterates to continue the growth process in a sustainable manner. As an enabler, the SE leader drives new ideas, throughout the organization ensuring individuals' success and growth as well.

The Inspirations Team - The Inside Looking Out Model

To be a leader requires one to internalize what it means in terms of one's own behavior, the performance of the team, as well as how the team is perceived by the world.

Figure 2: Inside Looking Out Model of Technical Leadership (Inspirations Team)

“I am” circle: I am an essentialist and am not afraid to engage with uncertainty. There are certain attributes we believe an individual needs to possess in preparation to becoming a leader. These are included in the “I am” circle: humility, discipline, able to learn fast, being persistent, has a wide spectrum of interests and unafraid of the unknown. The concept of essentialism may be based on McKeown’s view: “It is about how to get the right things done. It is about making the wisest possible investment of your time and energy in order to operate at your highest point of contribution by only doing what is essential” (Mckeown, 2014).

“I bring to the team” circle: The team is cohesive. The engagements are passionate, able to convince and inspire a team. A wide range of skills is required to achieve something useful because nobody knows it all. The individual is or becomes a leader when he/she starts engaging people. The following was thought to be important: to be clear – that is when communicating with the team, the person is not ambiguous; to have a sense of humour and energy and therefore able to energize the team; inspire the team; empower individuals to execute; be a team player.

“We bring to the world” circle: We (the team) are able to change the world for the better; create solutions that are cheaper, safer and relevant. We arrived at the solution in a participatory manner truly understanding the trade-offs and the solution meets the needs of the customer. The team is viewed by the community (world) as: visionary; trustworthy; able to integrate people and ideas. The team is inspired to work towards the same purpose.

Developing a Consolidated Model

These points-of-view indicate the possible emergence of an architecture for Systems Technical Leadership. For example it could be useful to model different stakeholder views of the attributes of Systems Technical Leadership and thus account for the complexity of the task. It is also apparent that some attributes could present in a sense, apparently conflicting attributes e.g. Being Calm and Passionate. The leader has to decide what is appropriate in the context at the given moment of time. This is a shared model for the team so the language is what they have chosen to use. However, the reasons WHY attributes were selected have been recorded by each team and have been used to create a narrative that introduces the components of the consolidated model.

The consolidated model has been prepared by a volunteer subgroup from the whole cohort. It was noted that the attributes in the inside looking out model, Figure 2 are included by the other teams so they were not repeated in the consolidated model. A mind map, focused on being a Systems Engineering Leader was produced using all the attributes that emerged. These naturally organised itself into six behaviours defined as:

- *Holds the Vision;*
- *Thinks Strategically;*
- *Fosters Collaboration;*
- *Communicates Effectively;*
- *Enables others to be successful*;
- *Demonstrates Emotional Intelligence.*

For clarity of presentation each is described separately below – consistent with "Systems Thinking" layering. In practice each branch is interdependent with the others, so a complete mind map is provided as Appendix A. The narrative provided below was developed by members of the cohort developing responses to the question: "Why is each branch of the model an important component of the role of being a Systems Technical Leader"

Holds the Vision. The vision for an engineering endeavor generally arises from the needs of stakeholders, which can be conflicting. In this specific context, the vision within technical domains is driven by the impelling purpose that motivates people to come together to define and integrate the components to achieve successful outcomes. It is unavoidable committed to the need for creativity in engineering.

The Technical Leader motivates the efforts of the people through many intermediate steps and is generally held responsible for communicating the mental models and frameworks which integrate the combined efforts of those involved. Vision can, at times, become overwhelming due to inevitable uncertainties in the creative process; in which case it becomes important that the vision is held and the challenges met. Feed-back mechanisms need to be created that monitor performance, progress and quality. Risks need to be identified, understood and where necessary mitigated. In complex or innovative projects, the recognition of the emergence of unintended outcomes ("emergent properties") are particularly important.

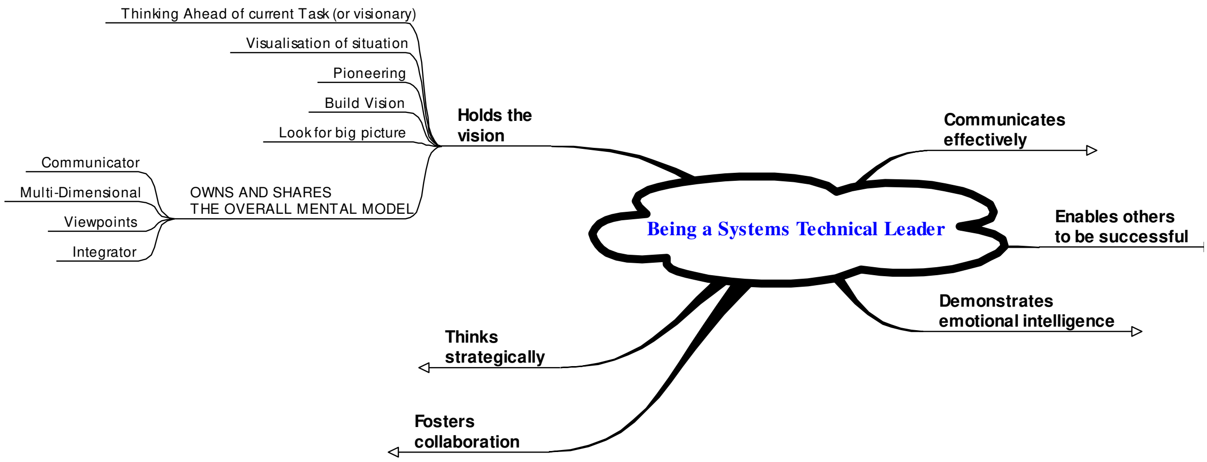

Figure 3: Consolidated Model – Holds the Vision

This role of holding the vision, can be likened to that of a film director who controls a film's artistic and dramatic influence on the audience, and visualizes the script while guiding the technical crew and actors in the fulfillment of that vision. (adapted from wikapedia ref). In terms of guiding a technical team in fulfillment of a system-level vision, the technical leader would need to understand the nature of the system under consideration (System of Interest) as well as the Containing System, how it would be used operationally, and devise ways to help the technical team to internalise it.

Thinks Strategically. Whilst the vision provides a top level view of **why** the engineering endeavour is needed the strategy provides the top level plan for **how** it is created. The strategic thinker:

- enables stakeholder alignment to purpose and stimulates buy-in
- is able to create 'roadmaps' that facilitate the timely integration of technical delivery and business plans
- views a problem in a holistic manner, thereby enabling better understanding, better decision making and a better solution
- provides the basis for efficient and effective use of resources
- helps to shape, influence and mitigate uncertainty of the organization
- enables the organization to set incremental, achievable goals
- gives a clear sense of direction to the team thereby increasing team motivation.

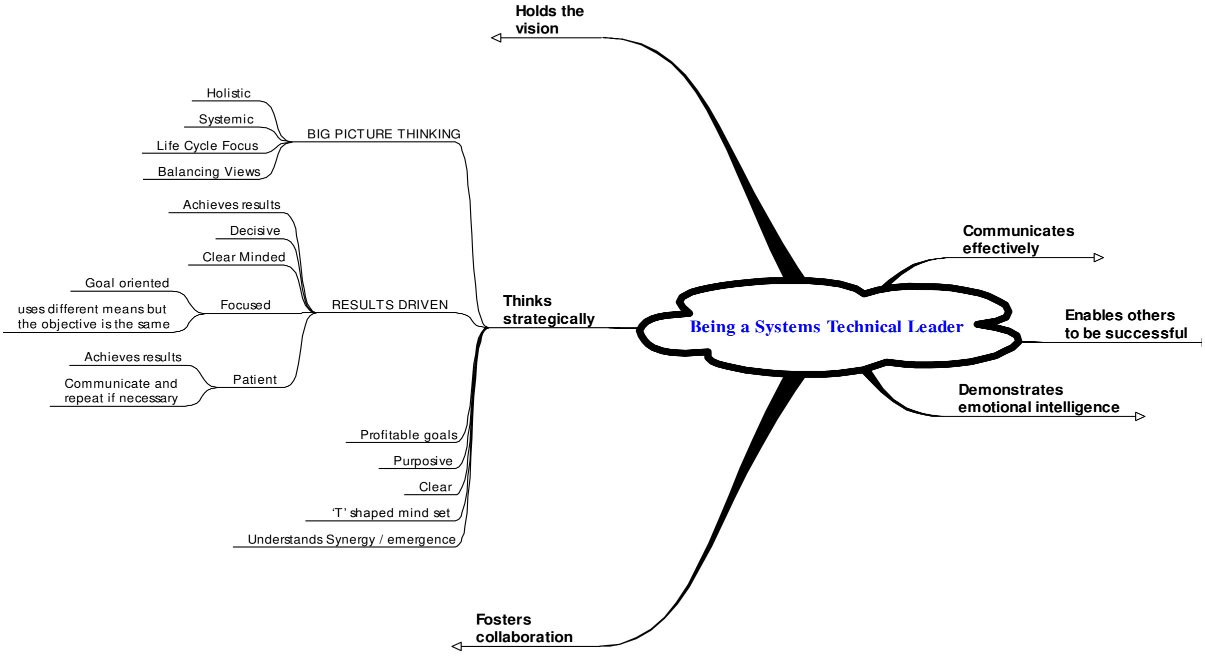

Figure 4: Consolidated Model - Thinks Strategically

Whilst holding the vision, the Technical Leader applies strategic systems thinking skills to the decomposition of the problem into actionable pieces and convinces the team members of the importance of carrying out each of these actions to achieve the desired overall impact.

Fosters Collaboration. Any complex / complicated engineering endeavour can only be achieved through the integrated effort of many people of different world views. To engineer integration requires an understanding of the social and technical attributes that enable it, that is, the ability to **collaborate.** To achieve this, technical leaders need to be aware of the different viewpoints and skills that are necessary for collective success. Therefore they encourage contributions from various stakeholders, they maintain a favourable environment that stimulates people to provide varied contributions but keep the actors focused on a common vision, harnessing their fruitful contributions. Since this will inevitably require difficult issues to be resolved, there needs to be a foundation of two-way trust and respect. Without this, collaboration is impossible and the resulting relationships are merely transactional.

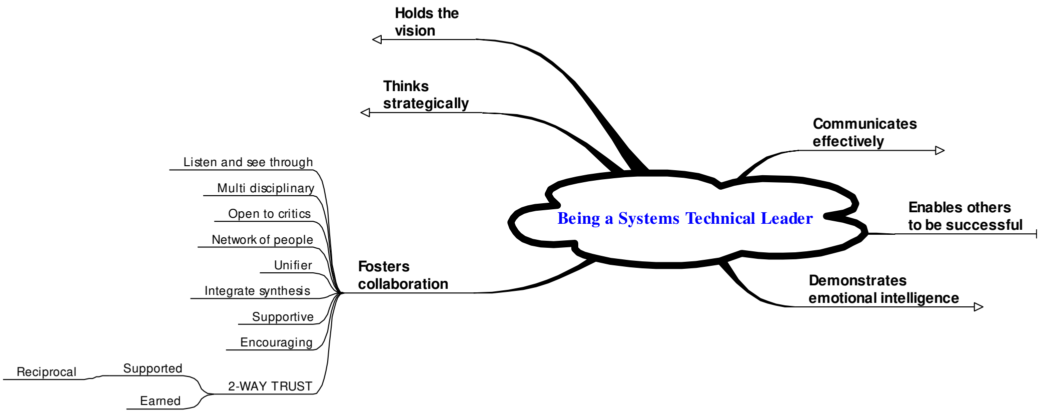

Figure 5: Consolidated Model - Fosters Collaboration

Communicates Effectively. The ability to communicate effectively is the basis of meaningful relationships. Socio-technical relationships have a strong influence on the success of any engineering product or service. Focusing on the receiver and observation of what enhances or diminishes understanding of the message, is a critically important skill for those integrating a diverse set of disciplines, world views and cultures. Active listening conveys respect for other's input, encouraging and further assisting in the clarification of the speaker's diverse perspective, thereby reducing risk and maximizing input. It also maximizes group energy facilitating synergistic growth. Particular care is needed with respect to when to use technical vocabulary, whilst its application reduces technical ambiguity and risk, it creates barriers for an audience unfamiliar with the technology. Paradoxically the leader has to be adaptable to understanding the communications from a diversity of technical disciplines. Different cultures / languages often use different words or phraseology to convey a similar meaning, for example the phrase “to table” an agenda item is understood in the American context as to stop further discussion and take it off the agenda whilst in many English-speaking countries the same phrase means the opposite, in fact to put it on the table for discussion.

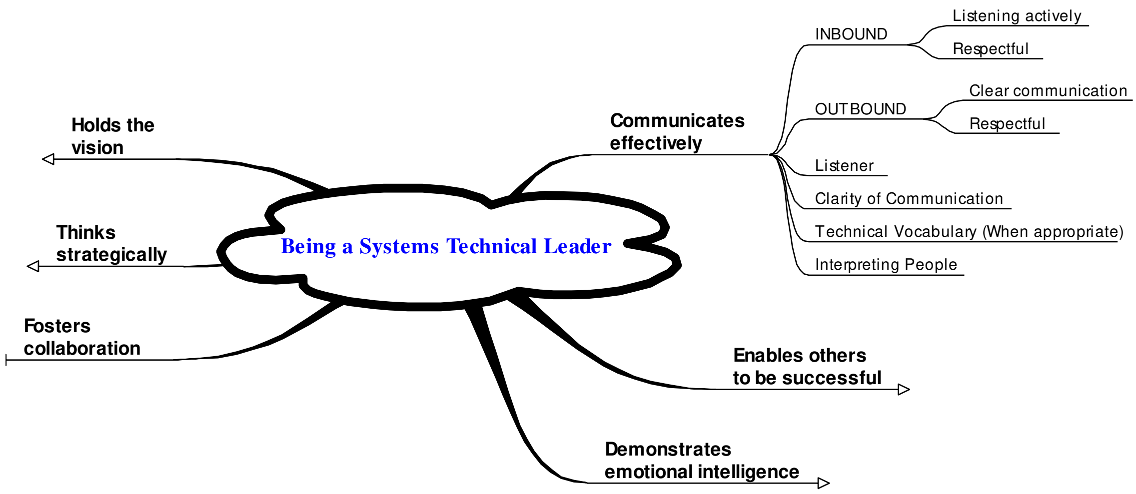

Figure 6: Consolidated Model - Communicates Effectively

Enables Others to be Successful. The concept that a systems technical leader is the enabler of others’ success is entirely consistent with the need to generate synergy between the people and components involved. Given the need to align to a common purpose, no one succeeds until everyone succeeds, and hence we need to consciously drive for collective success, which in turn will ensure that high levels of motivation and sustainable performance are maintained across the teams. A sense of empathy detects potential difficulties in the team and assures them of understanding, commitment and contribution to helping them resolve the problem at hand.

By enabling others, the technical leader ensures quality outcomes are achieved. This is at the core of the generic idea of "Leaders" as enables of others to "follow" them.

Technical people are enabled when they are empowered to make their own decisions within the framework of a specified goal with an understanding of the applicable boundaries such as legal and others. Take requirements decomposition as an example: A-level requirements define "what" at a strategic level. B-level requirements define "what" at a tactical level. C- and

D-level requirements, which are usually levied on subsystems/assemblies, define "how." By decomposing requirements along these lines, the subsystems/assemblies are empowered to devise solutions that can easily be traced back to B and A-level requirements. In effect, leaders must know when to step back and trust that their people know what they are doing and will do what needs to be done.

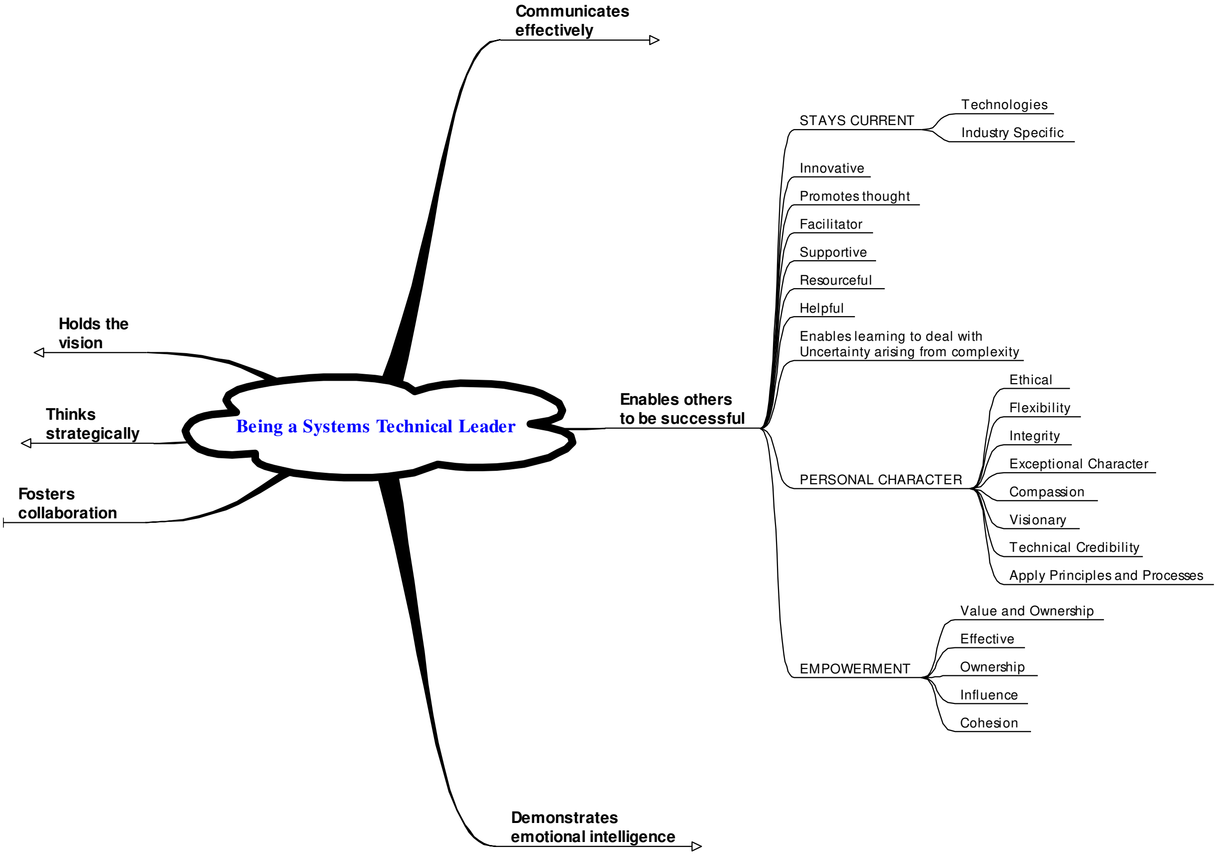

Figure 7: Consolidated Model - Enables Others to be Successful

Demonstrates Emotional Intelligence. The forgoing indicates the need for the technical leader to be perceptive of people's needs in order to inspire them to give their best as each person reacts to, or processes the same inputs/prompts differently. A leader should also know how to utilize people's strengths - "push the relevant buttons to encourage/produce the desired output".

Emotional intelligence enables the technical leader to:

- Negotiate effectively towards win-win situations - examples include driving towards consensus on a design or an approach to development; the manner in which to engage with individuals when needing to speak about difficult issues
- Get people to truly enjoy their job and giving them a reason to stay beyond just money and benefits. For example, plant the seed as a process for developing motivation. Motivation stems internally from the individual.

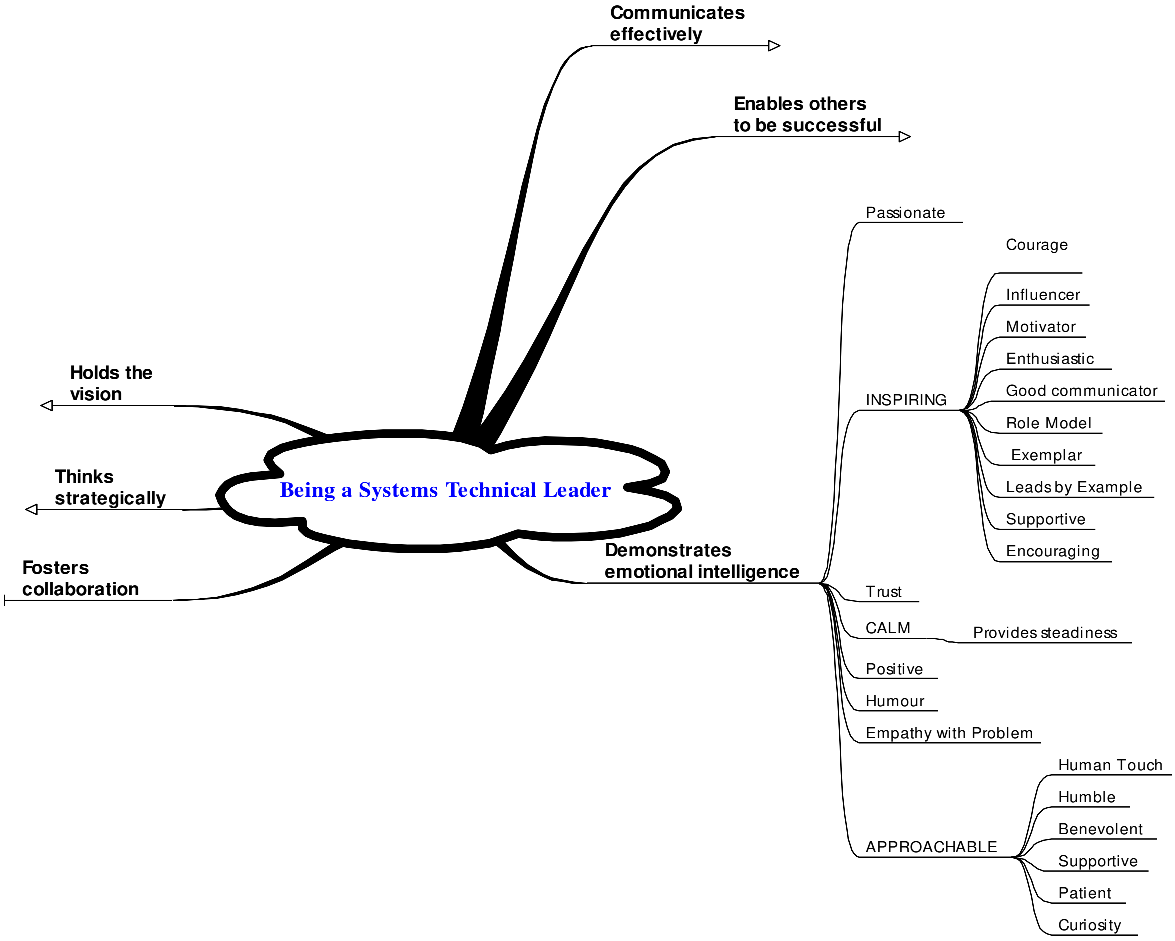

Figure 7: Consolidated model – Demonstrates Emotional Intelligence

A train (steam train) requires heat to operate. Heat is produced by the fire pit, which in turrn boils water and the water produces steam which drives the steam pistons, which eventually drives the train forward. The whole chain of events is started by a spark which in turn lights the kindling which lights the fire. As the spark initiates the process, so emotional intelligence initiates the impelling purpose that inspires success. It is interesting to observe that the initiating spark is in fact a very small action with dramatically large results – from a spark to a moving train.

For a leader to demonstrate emotional intelligence, the person should have self-mastery and self-acceptance. A leader also should remember to think effectiveness with people and efficiency with things. Emotional intelligence allows leaders to essentially take their own feelings, prejudices and fears out of the equation and focus on those of the team.

Model Validation

Validation addresses the question “Have we built the right model?” for our purpose. As opposed to the technical systems that the team is accustomed to modelling, the model of a systems technical leader describes a person in an environment (workspace) and engaged on a technical program. The model used social science methodology to ground it in the shared perceptions of the cohort. These in turn are based on their experiences and learning.

The combined model produced through the processes of grounded, experiential enquiry with a cohort of 27 international systems leaders, is a valid consensus about leadership from this group of practicing systems engineering leaders. It has 'face validity' with this group, it proved to be useful as a learning dialogue as well as a guide to reflection.

That experience, however is still too narrow compared with what could be distilled from participation, input and deliberations from all technical leaders globally.

A strategy for wider validation needs to be established. This strategy could include:

- Comparison with other relevant leadership models
- Comparison with case studies
- Grounding in a wider body of technical leadership experience.

Comparison with Other Relevant Leadership Models

This approach to validation takes the key concepts from the combined model and, after the style of grounded theory, explores extant literature in order to elaborate and critique the key concepts and to theorise why this model is relevant to Systems Engineering Technical Leadership. For example during IW2016 a member of the cohort introduced the concept of "servant Leadership" (Greenleaf 1970) that is founded on the idea that "The servant-leader is servant first. It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead. That person is sharply different from one who is leader first, perhaps because of the need to assuage an unusual power drive or to acquire material possessions…" The leader-first and the servant-first are two extreme types. Between them there are shadings and blends that are part of the infinite variety of human nature. The Centre for Servant Leadership http://bit.ly/1qJd2UD claims that some of the early systems thinkers were well-known advocates of servant leadership, including Ken Blanchard, Stephen Covey, Peter Senge. The process of exploring the links between the model developed by the INCOSE 2105 Leadership Institute and the wider professional and academic literature forms the second phase of this project, and it is not the focus of this paper.

Case studies

There is a growing body of research concerning the practice of Systems Engineering and the implementation of major projects. This needs to be reviewed extensively to test and improve the validity of the model.

Grounding in the Wider Body of INCOSE Experience

At the same time the model needs to be grounded in the wider body of INCOSE membership. For example, it is intended to run a World Cafe session http://bit.ly/1M2cZXB at IS2016 to generate facilitated discussions on topics of relevance to the model and its use. The output from this can be used to extend the learning journey into the second cohort's experience and to develop guidance for future leadership development.

Conclusions

A technical leadership model has been created from the shared experience of the 27 members of the first cohort of the Technical Leadership Institute. The purpose of this model has been achieved. It has stimulated a shared understanding of what technical leadership is and behavioural characteristics that it should include. There is broad agreement that the leader:

1. *Holds the vision*
2. *Thinks strategically*
3. *Fosters collaboration*
4. *Communicates effectively*
5. *Enables others to be successful and*
6. *Demonstrates emotional intelligence.*

There is more to SE than decomposition and integration. Technical leaders are needed to overcome the organizational silos, and foster interdisciplinary and intercultural communication, as well as collaboration.

. Whilst the first four attributes are consistent with most leadership models, they were associated with only about half of the identified leadership attributes, whereas the last two behavioural characteristics were associated with a similar number. This weight of evidence was impressive particularly in view of the technical emphasis of the Institute. The dialogue that emerged to explain why they are important, indicates the depth of understanding that drove this emphasis. Skills development in these areas may be particularly relevant for technically orientated people where systems integration is needed.

That said, this work is only a first step that will require further development and validation as outlined above. It is also clear that a one size fits all 'standardised' approach is not what is required. This appears to be consistent with an 'adaptive leadership' approach (Heifetz 2013) founded on Lichtenstein's Complexity Leadership Theory (Lichtenstein 2007) which is based on the notion of complex adaptive systems. It is proposed that this be reviewed as part of the Validation process described above.

The prospect of an approach to technical leadership that would unleash the creative genius in every team is indeed exciting as it would address the continuously increasing complexity of the problems to be faced in the future and help to deliver INCOSE's 2025 Vision.

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Biography

Patrick Godfrey was recently appointed Emeritus Professor at the University of Bristol and is an INCOSE Fellow. For most of his career he was a Director of a large consulting engineering firm - Halcrow (now part of CH2M). In 1994 he also became Visiting Professor of Civil Engineering Systems at University of Bristol where he helped to establish the system-teaching program. He provided practitioner input to various Action Research projects including the Strategic Risk Management for Heathrow Terminal 5 and a best value procurement program for the Highways Agency UK. On retirement from Halcrow (2006 - 2016) he was Professor of Systems Engineering and Director of the Industrial Doctorate Centre for Systems at the University of Bristol.

Professor Godfrey is a Fellow of the Royal Academy of Engineering (UK), Fellow of Institution of Civil Engineers, and Fellow of the Energy Institute and an Honorary Fellow of the Institute of Actuaries. In 2004 he was awarded an Honorary Doctorate in Engineering by University of Bristol.