Enhancing Knowledge Sharing in Information Security by Transactive Memory System

Saad Alahmari

School of Computing Science , University of Glasgow

BACKGROUND

- ✓ The biggest challenge for security Knowledge Sharing (KS) is the gathering and sharing of information.
- ✓ We found a lack of provision of an environment that facilitates and motivates the process of information exchange within the organisations which are powerful barriers to KS. Most of the existing studies did not propose effective solutions to mitigate these barriers.

AIM

To aid the employees to develop their practical skills and their experiences with security knowledge and security incidents in order to enhance security awareness in the

METHODS

- **Study1:** A qualitative research (Semi-Structured Interview): to explore which factors impact SKS in organizations.
- **Study 2** (Quantitative Approach Survey) to examine relationships between the TMS scale and other constructs in the security context in order to understand SKS in organizations.

Data Collection

Study	Sample size	Data Analysis	Study location
Study 1	28	Thematic analysis.	KSA and UK
Study 2	204	Smart PLS Algorithm.	

RESULTS: Study 1

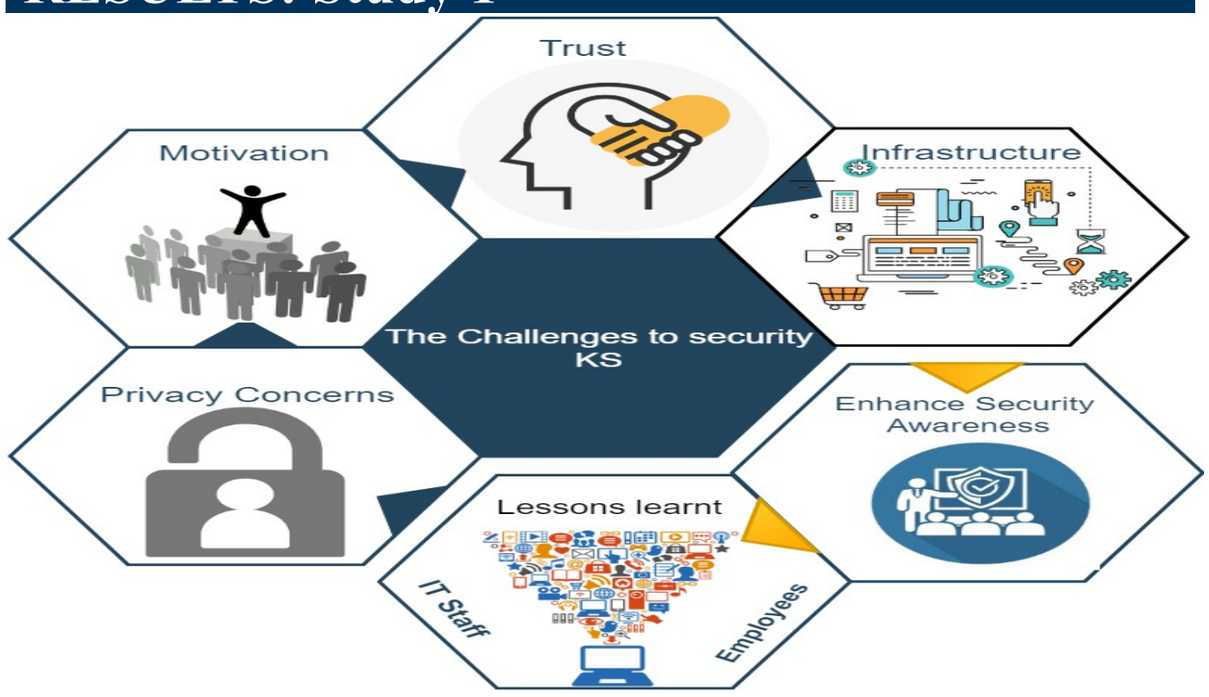

Figure 1: The findings into concepts and categories

Security Knowledge Sharing Modelling

mitigate the challenges by disseminating and facilitating through Transactive Memory System (TMS). The proposed system encourages and motivates the recording of security incidents and security advice by self-determination theory (SDT).

Self-Determination Theory (SDT)

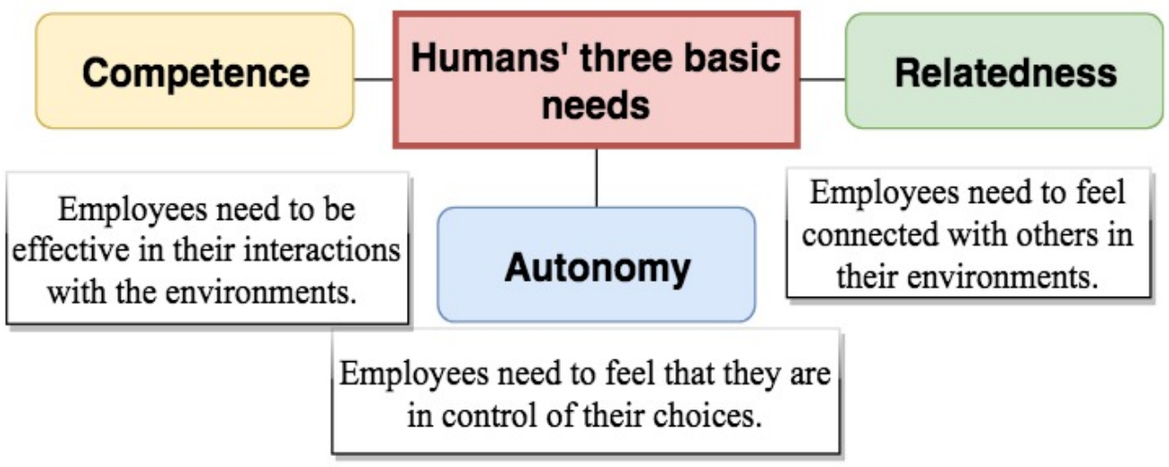

Figure 2: SDT Theory

Study 2: Transactive Memory System (TMS)

Specialisation: this is the term used to describe the degree of differentiation of the knowledge held by team members; **Coordination**: this describes the efficiency of the team in terms of knowledge processing while working together; **Credibility**: this is the way in which individual team members perceive the reliability of the knowledge held by the other members of the team.

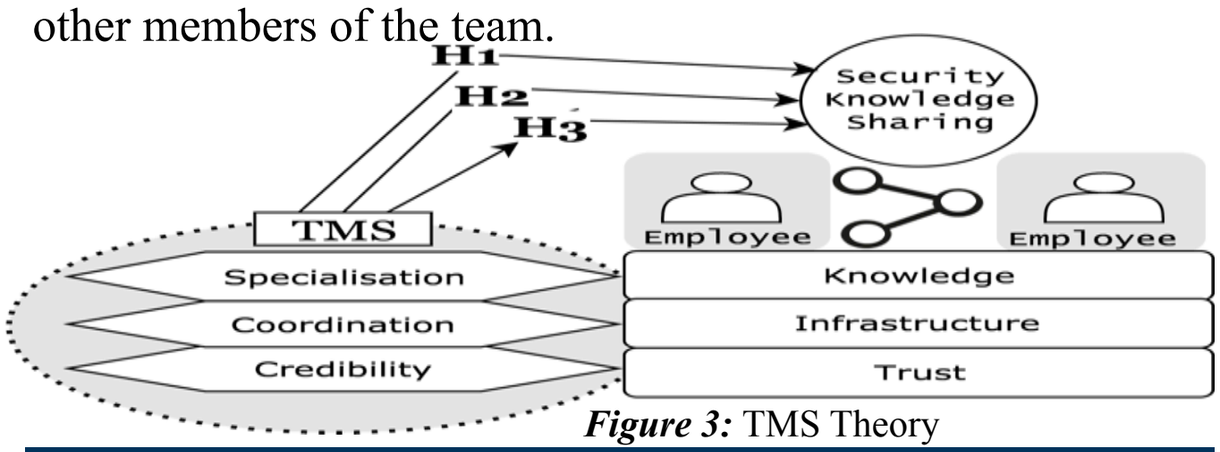

Figure 3: TMS Theory

RESULTS: Study 2, PLS path modelling

Hypo	Relationship	Std. Beta	T- value	P-value	Decision
H1	SPE→KS	0.189	2.521	0.012	Supported
H2	COO→KS	0.359	4.001	0.000	Supported
H3	CRE→KS	0.132	1.448	0.148	Unsupported

Note: **Significant at P**= < 0.01, p* <0.05**

SKS Modelling

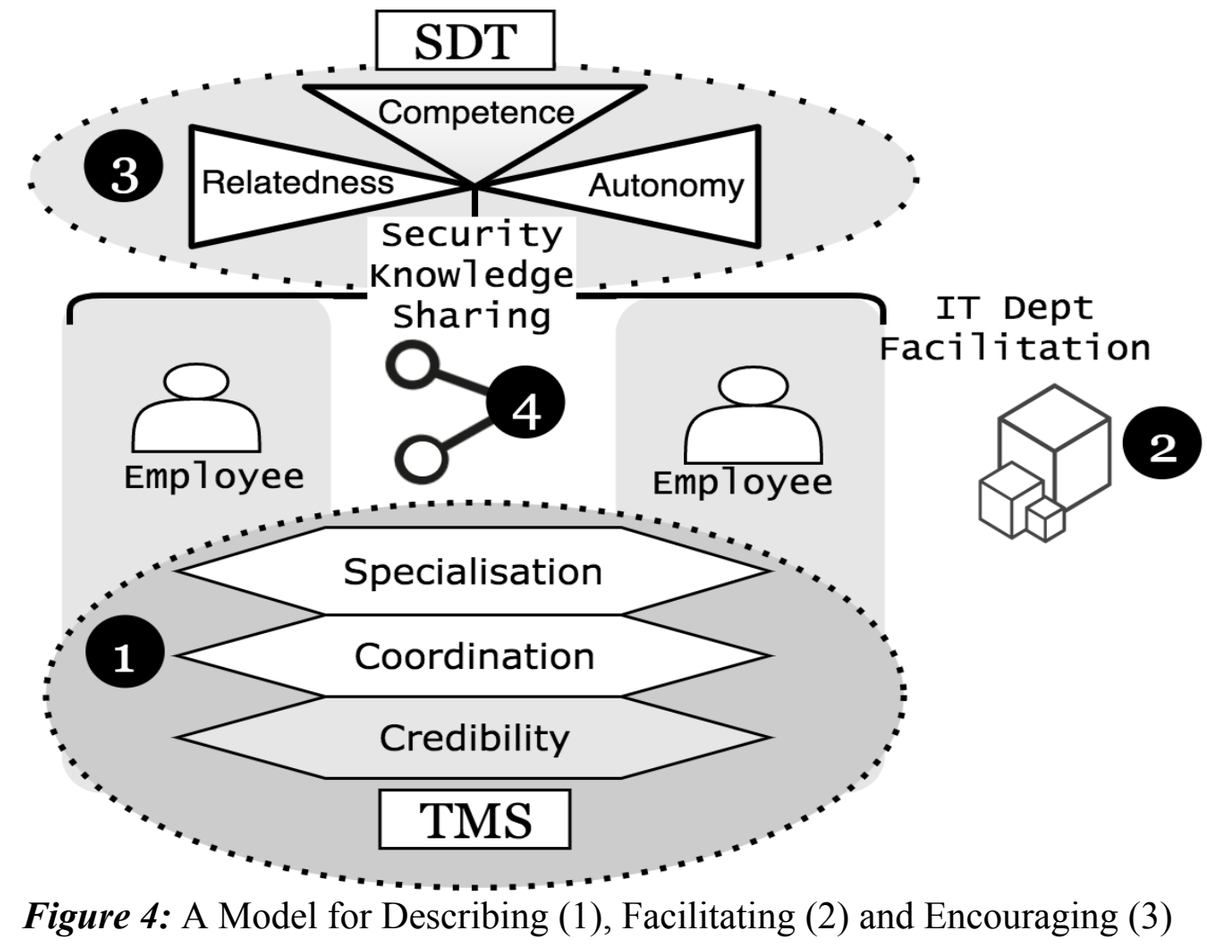

Figure 4: A Model for Describing (1), Facilitating (2) and Encouraging (3) Security Knowledge Sharing, thereby Enhancing Shari1ng (4)

The Future Work: implement a STOW System