

## Varias Product X Scientific Narrative

Central question: How can the Varias product help to improve a company's transactive memory system?

### What is TMS?

A **Transactive Memory System (TMS)** is a system that individuals in a close relationship use to encode, store, and retrieve knowledge (Lazar et al., 2022). In other words, it is a system which teams can develop to divide the cognitive labour of their tasks. **Transactive memory** then, is knowledge which is influenced by the memory system of another person. Strong TMSs in teams free up capacity in each team member and leads to a more efficient work process. Members rely on one another, with each of them specializing in different domains, so that collectively they possess all of the information needed to reach their goals.

Of course, only if the assumptions about what the other team members know are correct, can a TMS work efficiently. In other words, every team member needs to possess adequate **metaknowledge**, which is the knowledge about what the other team members know, and what tasks they are responsible for (Lewis, 2004).

Researchers have found that **TMS manifests in three different ways**: (1) The differentiated structure of each member's knowledge. (2) Team members' beliefs about the reliability of other members' knowledge. And (3) the efficiency of knowledge sharing and – processing. These three manifestations have also been called **specialization, credibility, and coordination** (Lewis, 2013).

The **TMS-scale** (Lewis, 2013) is a tool which allows us to measure the strength of a team's TMS. The scale consists of 15 questions, with 5 questions for each of the three categories. The **TMS score** of an individual respondent is made up of the **accumulated score** of each of the three categories. The accumulated scores for all team members determine the TMS score of an entire team. This is done by simply adding up the scores for each team member. So, a TMS score of 100% is only achievable, if all team members reach the highest TMS score.

### Why is TMS important?

#### *Team Psychological Safety*

TMS has been found to have a strong relationship to **Team psychological safety (TPS)** (Guchait, Tews& Simons, 2014; Kim, Kim & Jun Jo, 2020). Team psychological safety refers to a shared belief that the team is a safe place to take interpersonal risks. Team members should be confident that others will not embarrass, reject, or punish someone for speaking up for instance. A psychologically safe environment is characterized by interpersonal trust and mutual respect in which individuals feel comfortable being themselves (Guchait, Tews& Simons, 2014).

### *Team performance*

Not only is TPS a great indicator of **organizational wellness**, but it also mediates the relationship between TMS and performance, which means that TMS increases performance (partially) *through* TPS (Guchait, Tews & Simons, 2014; Kim, Kim & Jun Jo, 2020). TMS has been related to different **performance measures** in laboratory and field settings, and across different cultures and markets. Performance measures that appear in the literature are **creativity, technical innovation, adherence to schedules, adherence to budgets, ability to obtain funding, and ability to solve problems** in laboratory settings (Cao & Ali, 2017; Austin, 2003; Fan et al., 2016; Gino, Argote, Miron-Spektor, & Todorova, 2010; Mell et al., 2013; Ren & Argote, 2011; Zhang, Hempel, Han, & Tjosvold, 2007; Zhong, Huang, Davison, Yang, & Chen, 2012; Lazar, et al., 2022).

TMSs are thought to **improve team performance** by enabling faster access to and integration of expertise (Lewis, 2004). The distributed nature of expertise within a strong TMS gives team members access to task-relevant knowledge by others, while still allowing them to focus on developing deep expertise in their own individual domains. A shared understanding of member-expertise associations helps team members better anticipate how other members will behave, which in turn **facilitates coordinated, efficient interactions**. Especially for teams which often engage in complicated, nonroutine, and innovative projects, it is beneficial to take advantage of team members' various functional backgrounds (Zhang, Hempel, Han & Tjosvold, 2007). Moreover, when team members possess adequate metaknowledge, they spend less time searching for necessary information to complete their tasks.

### *Organizational wellness*

To summarize, with the help of a TMS score, the relationship between TMS and other aspects of teamwork can be assessed. For example, we know that TMS correlates positively with **team performance** and **team psychological safety**, which are good indicators of **organisational wellness**.

### Functions of a TMS tool and how they can help

#### 1. *Assessing TMS:*

A TMS tool can help leaders to assess the TMS score of their team. Since we know that the scale developed by Lewis (2013) is correlated with a lot of positive outcomes, a tool which can easily send out and analyse the results of a TMS questionnaire already provides a lot of value.

Based on the outcomes of the TMS survey, team leaders might choose to facilitate team-building practices that increase **familiarity** and **trust** amongst members. We know that conventional team-building practices which induce more interaction amongst the members help to improve TMS. For instance, in a longitudinal study, Lewis (2004) found that factors such as frequent face-to-face interaction, distributed expertise, and familiarity amongst members lead to an improvement of TMS scores. **The value of the Varias product could be to let team leaders know when such measures are necessary.**

## 2. *Assessing related team characteristics:*

The Varias tool could help to assess and facilitate team characteristics that are related to TMS. The possibilities are endless, and in fact, it is not necessary for the tool to directly assess TMS at all. Instead, the tool could incorporate factors such as task interdependence and cooperative goal interdependence in its analysis (Zhang et al., 2007). It could also help improving trust in teams by assessing the overall tone of communication. If the sentiment and team spirit in a conversation declines, the tool could help finding ways to improve it. Even when in those cases TMS would not be directly assessed anymore, it would still be running in the background. A virtual coworker's 'motivations' or features would use TMS as the engine for making determined suggestions, for building teams, bringing other people with certain knowledge in, etc.

## 3. *Improving TMS – The virtual catalyst:*

Besides assessing the TMS score and related measures, the Varias tool can also actively help improve them. One possibility is for the product to function as a **virtual catalyst**. Researchers at the Erasmus University Rotterdam compared teams with different TMS structures, a centralized vs. decentralized one, to each other. In a decentralized TMS, all team members possess an equal amount of metaknowledge, while in a centralized one, the metaknowledge is concentrated in one team member only, who functions as a catalyst in coordinating the team. The catalyst can be beneficial because it can decrease the coordination demands, which distributing task information can pose on teams (Mell, Knippenberg & Ginkel, 2014). Teams with a centralized TMS structure seemed to engage more in transactive retrieval and performed better in a laboratory task setting than those with a decentralized one.

Especially, in large companies, there might be important differences in the amount of metaknowledge of different team members. It might be time intensive to keep all team members updated on who knows what, and thus to maintain a strong TMS. Especially communication between different departments can be difficult because they function as more or less independent subgroups (Mell, Knippenberg & Ginkel, 2014). A virtual catalyst could easily store the specific expertise of each team member, and help connecting different teams and team members to each other. By intelligently offering help at given moments, such a tool could almost guarantee that specific expertise of each team member is leveraged.

### **TMS Studies & Resources:**

[2014\\_Melll\\_Knippenberg\\_vanGinkel\\_THE CATALYST EFFECT: THE IMPACT OF TRANSACTIVE MEMORY SYSTEM STRUCTURE ON TEAM PERFORMANCE.pdf](#)

[2003\\_Lewis\\_Measuring Transactive Memory Systems in the Field: Scale Development and Validation.pdf](#)

[2007\\_Zhang\\_Hempel\\_Han\\_Tjsovold\\_Transactive Memory System Links Work Team Characteristics and Performance.pdf](#)

[2010\\_Yoo\\_The Impact of Information Technology and Transactive Memory Systems on Knowledge Sharing, Application, and Team Performance: A Field Study.pdf](#)

[2011\\_Lewis,Herndon\\_Transactive memory systems: Current issues and future research directions.pdf](#)

[2017\\_Cao\\_Ali\\_Enhancing team creative performance through social media and transactive memory system.pdf](#)

[2018\\_Bachrach\\_Mullins\\_A dual-process contingency model of leadership, transactive memory systems and team performance.pdf](#)

[2019\\_Bachrachetal\\_Transactive Memory Systems in Context: A Meta-Analytic Examination of Contextual Factors in Transactive Memory Systems Development and Team Performance.pdf](#)

[2021\\_He\\_Hu\\_The dynamic impacts of shared leadership and the transactive memory system on team performance: A longitudinal study.pdf](#)

[2021\\_Kim\\_Kim\\_JunJo\\_The relationships between perceived team psychological safety, transactive memory system, team learning behavior and team performance among individual team members.pdf](#)

[2020\\_Lazar\\_Insead\\_Chen\\_Erez\\_FORMING ENTREPRENEURIAL TEAMS: MIXING BUSINESS AND FRIENDSHIP TO CREATE TRANSACTIVE MEMORY SYSTEMS FOR ENHANCED SUCCESS.pdf](#)

[2014\\_Guchait\\_Tews\\_Simons\\_The Influence of Transactive Memory Systems and Psychological Safety on Effectiveness of Service Management Teams in a Restaurant Setting.pdf](#)

[2004\\_Lewis\\_Knowledge and Performance in Knowledge-Worker Teams: A Longitudinal Study of Transactive Memory Systems.pdf](#)