SYSTEMS INTELLIGENCE AND PERCEIVED TEAMWORK EFFECTIVENESS IN AN ORGANIZATIONAL CONTEXT

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BACKGROUND

Globalization and digitalization have increased systemic interconnections.

Organizations are increasingly operating in complex and interdependent environments.

Simultaneously team-based structures have become more common in working life.

This development has emphasized the need for systemic approaches to understand and enhance organizational teamwork.

GOAL

- Explore the relation between Systems Intelligence and perceived teamwork effectiveness in team level and individual level

- Explore whether variation in Systems Intelligence is primarily explained by differences between teams or between individuals.

THEORETICAL FRAMEWORK – SYSTEMS INTELLIGENCE (SI)

- Systems intelligence was developed as part of creative and holistic problem solving, in which complex phenomena are examined as wholes in their interactive context.

- Unlike Systems Thinking, Systems Intelligence bridges individual agency with systemic awareness.

- ”…intelligent behaviour in the contex of complex systems involving interaction and feedback.” (Hämäläinen & Saarinen, 2004).

EIGHT FACTORS OF SYSTEMS INTELIGENCE

- **Systems Intelligence (SI**) can be divided into eight measurable areas or factors, which describe different dimensions of systems intelligence behavioral.
- **Organizational Systems Intelligence (OSI)** provides a quantitative tool to assess how well these systemic capabilities are present within an organization.

1. Systemic perception
2. Attunement
3. Attitude
4. Spirited discovery
5. Reflection
6. Wise action
7. Positive engagement
8. Effective responsiveness

METHOD: SURVEY CONDUCTED IN A FINNISH FINANCIAL ORGANIZATION (N = 267)

- **Organizational Systems Intelligence (OSI) scale** (Törmänen et al., 2021)
  - Instead of evaluating the organization, respondents in this study evaluated their own team.
  - Eight factors of SI with 32 items on a 7-point Likert scale.
  - Internal consistency α from 0.67 to 0.87.

- **Perceived teamwork effectiveness**
  - By teamwork effectiveness, we defined how well team members communicate, collaborate, and respond to each other's needs.
  - On a scale from 0 to 10, how would you rate the effectiveness of teamwork in your team?
  - 0 as "Very bad", 5 as "Average" and 10 as "Excellent".

METHOD: RESPONDENTS

- 267 respondents from 38 different teams within a single financial sector company participated in the survey in April 2024. The median team size was 6 members.

Gender	Superior	Work experience (years)
Female: 67%	Yes: 10%	0-2: 19%
Male: 33%	No: 90%	3-5: 18%
N/A: 0%		6-10: 15%
		11-15: 11%
		16-20: 11%
		Over 20 years: 26%

RESULTS

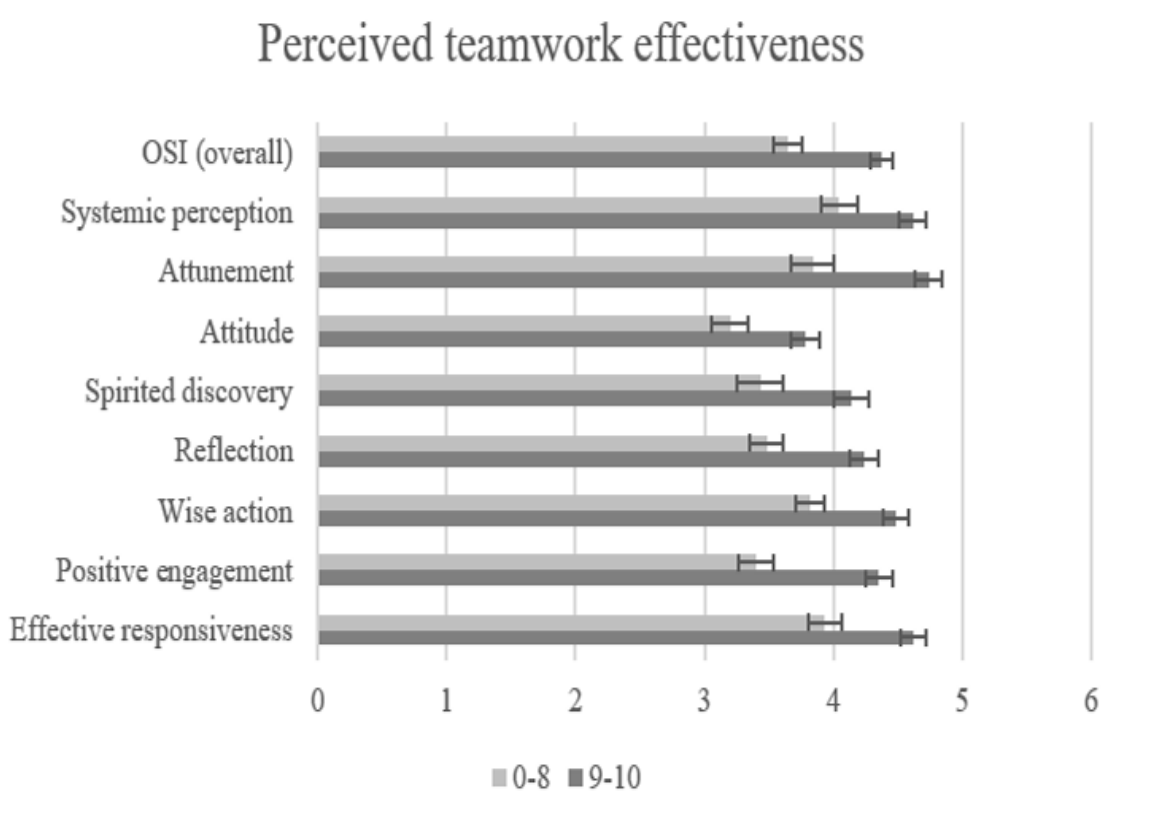
	Individual level Teamwork effectiveness	Team level Teamwork effectiveness
OSI (overall)	.65***	.77***
Systemic Perception	.52***	.63***
Attunement	.63***	.81***
Attitude	.48***	.61***
Spirited Discovery	.42***	.44**
Reflection	.59***	.64***
Wise Action	.51***	.67***
Positive Engagement	.63***	.68***
Effective Responsiveness	.56***	.58***
Gender	.00	-
Superior	.11	-
Work Experience	.05	-

* = p < .05, ** = p < .01, *** = p < .001. N=267; N=38.

One-Way ANOVA showed that teams accounted for 21.9% of the variation in OSI overall scores.

RESULTS

- The OSI in higher- and lower-effectiveness groups of perceived teamwork effectiveness, with 95% confidence intervals for mean.
  - When participants (58%) experienced their teamwork as being top their overall score were significantly higher compared to other group (42%) with lower level of perceived teamwork effectiveness.
  - Difference was significant in all factors (p<.001).



DISCUSSION AND CONCLUSION

- The results show strong positive correlations between the overall OSI, its eight factors, and perceived teamwork effectiveness, with slightly stronger associations observed at the team level than at the individual level.

- Teams accounted for 21.9% of the variance in overall OSI scores, but most of the variation occurred at the individual level.

- The perceived teamwork effectiveness varied within the organization with higher levels of effectiveness being associated with higher SI.

DISCUSSION AND CONCLUSION

- Limitations
  - The data were collected from only one organization
  - A low number of respondents in some teams
  - Only one item was used to measure teamwork effectiveness

- Future work
  - Longitudinal study
  - Multilevel modeling

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THANK YOU!

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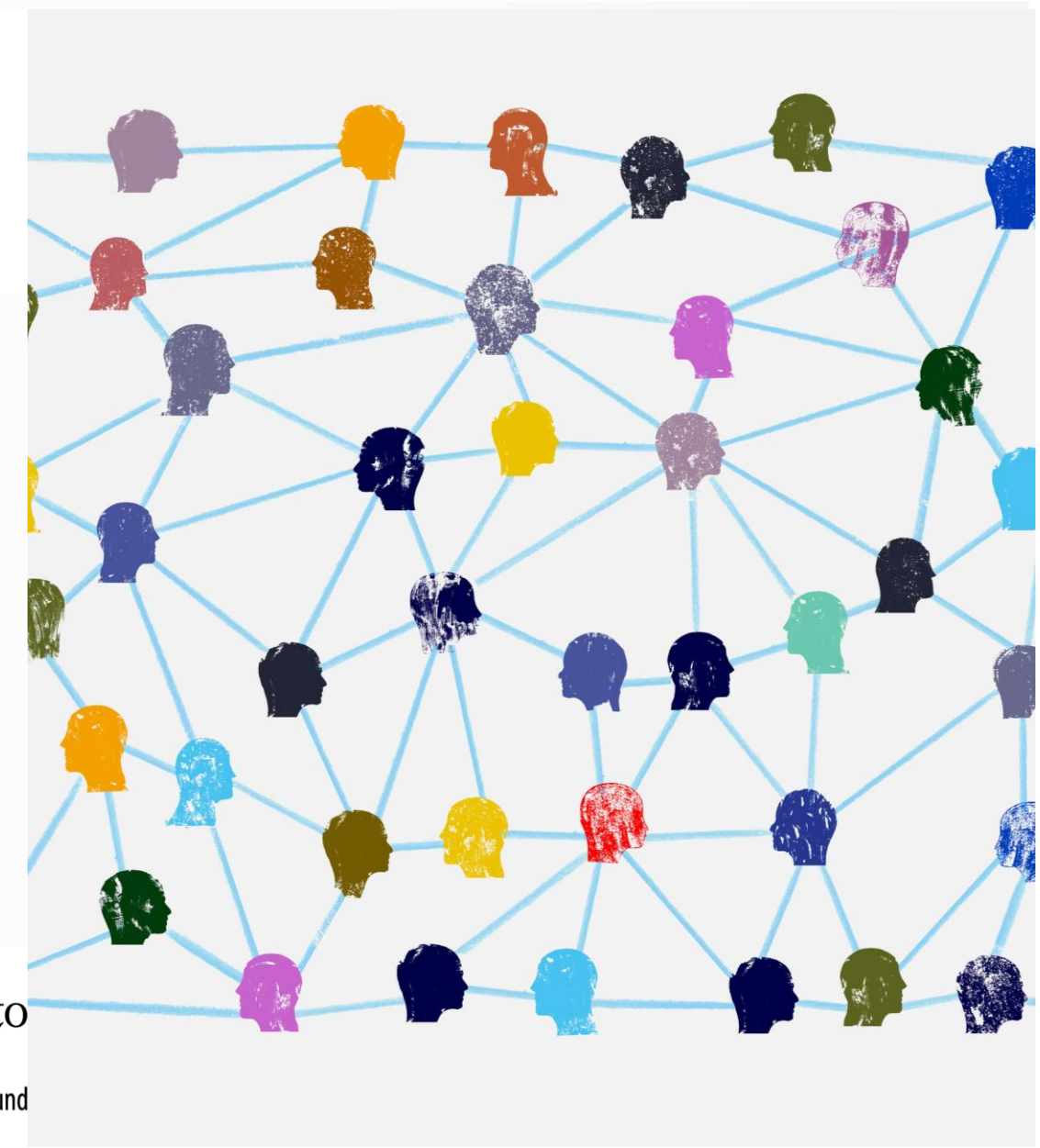

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