Systems Intelligence and Team Performance

Tapio Hautamäki
Introduction

- Systems Intelligence Inventory (Törmänen, Hämäläinen, & Saarinen, 2015)
  - Team context
- Can the SI scale be used to measure organizational SI? Does this method provide more information about the team than analyzing the individuals separately?
- Is there a connection between SI and team performance?
Participants

- Aalto University researchers
- Voluntary participation
- No compensation
Systems Intelligence Inventory (Törmänen, Hämäläinen, & Saarinen, 2015) 1/2

<table>
<thead>
<tr>
<th>Factor</th>
<th>SI Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic Perception (PER)</td>
<td>1) I form a rich overall picture of situations</td>
</tr>
<tr>
<td></td>
<td>2) I easily grasp what is going on</td>
</tr>
<tr>
<td></td>
<td>3) I get a sense of what is essential to a given situation</td>
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<td></td>
<td>4) I keep both the details and the big picture in mind</td>
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<tr>
<td>Attunement (ATTU)</td>
<td>5) I approach people with warmth and acceptance</td>
</tr>
<tr>
<td></td>
<td>6) I take into account what others think of the situation</td>
</tr>
<tr>
<td></td>
<td>7) I am fair and generous with people from all walks of life</td>
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<tr>
<td></td>
<td>8) I let other people have a voice</td>
</tr>
<tr>
<td>Attitude (ATD)</td>
<td>9) I explain away my mistakes</td>
</tr>
<tr>
<td></td>
<td>10) I have a positive outlook on the future</td>
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<tr>
<td></td>
<td>11) I easily complain about things</td>
</tr>
<tr>
<td></td>
<td>12) I let problems in my surroundings get me down</td>
</tr>
<tr>
<td>Spirited Discovery (DIS)</td>
<td>13) I like to play with new ideas</td>
</tr>
<tr>
<td></td>
<td>14) I look for new approaches</td>
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<td></td>
<td>15) I like to try out new things</td>
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<td></td>
<td>16) I act creatively</td>
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<tr>
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<td>SI Item</td>
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<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
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</table>
| **Reflection (REF)**          | 17) I view things from many different perspectives  
|                               | 18) I pay attention to what drives my behavior  
|                               | 19) I think about the consequences of my actions  
|                               | 20) I make strong efforts to grow as a person                                                                                         |
| **Wise Action (WIS)**         | 21) I am willing to take advice  
|                               | 22) I take into account that achieving good results can take time  
|                               | 23) I am wise in my judgments  
|                               | 24) I keep my cool even when situations are not under control                                                                             |
| **Positive Engagement (ENG)** | 25) I contribute to the shared atmosphere in group situations  
|                               | 26) I praise people for their achievements  
|                               | 27) I'm good at alleviating tension in difficult situations  
|                               | 28) I bring out the best in others                                                                                                      |
| **Effective Responsiveness (EFF)** | 29) I prepare myself for situations to make things work  
|                               | 30) I easily give up when facing difficult problems  
|                               | 31) I'm able to put the first things first  
|                               | 32) When things don't work, I take action to fix them                                                                                   |
Research topics

- Individual level
  - Differences between supervisors and members of teams
  - Differences in respondents’ evaluations about themselves and their team
- Team level
  - Relationship between SI and experienced performance
  - Impact of high SI or low SI individuals or the supervisor on the team
  - Impact of variance in the individual’s SI scores (heterogeneity) on the team
Final data set

- 81 respondents
- 19 teams
- 19 supervisors
- 62 members (non-supervisors)

- Team size: 2-7 individuals
Individual level results 1/3

- Team members evaluated themselves higher than their team in Attunement, Reflection and in the first five items in the table and lower in the last item (28).

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<td>6) I take into account what others think of the situation (ATTU)</td>
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<td>12) I let problems in my surroundings get me down (ATD)</td>
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<tr>
<td>18) I pay attention to what drives my behavior (REF)</td>
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<td>19) I think about the consequences of my actions (REF)</td>
</tr>
<tr>
<td>20) I make strong efforts to grow as a person (REF)</td>
</tr>
<tr>
<td>28) I bring out the best in others (ENG)</td>
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</table>

- Team supervisors evaluated themselves higher than their team in item 1 and lower in item 24.

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<td>1) I form a rich overall picture of situations (PER)</td>
</tr>
<tr>
<td>24) I keep my cool even when situations are not under control (WIS)</td>
</tr>
</tbody>
</table>
 Individual level results 2/3

- The supervisors’ and team members’ personal SI evaluations were similar.

- Supervisors’ and members’ evaluations of the team were similar.
Individual level results 3/3

- Supervisors evaluated their team’s performance slightly higher than the members did.
  - Average of supervisors’ performance evaluations was 8.32.
  - Average of members’ performance evaluations was 7.84.
  - t-test p-value 0.065
Team level results 1/3

- Strong positive correlation between team’s SI and performance
  - Pearson’s r = 0.84

- Positive correlation between average of individual SI scores and team’s performance
  - Pearson’s r = 0.59
Team level results 2/3

- Team’s SI didn’t correlate with the variance of the individuals’ team SI score or performance evaluations.
- No support for hypotheses about the importance of high SI or low SI individuals for the whole team.
- No support for the hypothesis that teams with high SI supervisors would be more likely to have high team’s SI or performance.
Team level results 3/3

- Positive correlation between variance of individual SI scores and both team’s SI and performance

![Graphs showing correlation between variance of individual SI scores and team's SI and performance. R values: 0.48 and 0.63.](image)
Conclusions

- *Team’s SI* was found to be positively related to *team’s performance*. The correlation was stronger with *team’s SI* than with the average of individual SI scores.

- *Team’s SI* could be a useful construct for measuring organizational SI, providing more information about the team than the analysis of the individuals separately.

- The individual level results can be explained mostly by biases.

- Low importance of supervisors and the positive impact of heterogeneity could be related to the study setting.
Future research

- This study:
  - Low number of teams and supervisors
  - Team performance was self-evaluated.

- An objective scale for team performance and a larger data set