The Assessment of Knowledge Worker Team Productivity

The development of collaborative work environments is driven by the aim to enable to “work smarter not harder”. With increasing availability of information systems to support collaboration, the question is which gain of productivity can be reached for knowledge workers. Measures and measurement methods for productivity of knowledge work are thus very important to guide the improvement and re-organization of knowledge work as well as to validate the emerging software tools to support knowledge work.

Therefore SPS (Stiftung Produktive Schweiz) has developed a first version of a web-based assessment instrument with which productivity of teams can be measured. The instrument is based on the idea of fit between the external requirements and the internal set-up of the team. If this fit is well aligned, the team is more productive than if there is a misfit. The assessment tool distinguishes five types of teams that reasonably well cover the span of teams from “traditional” (1, 2) to “virtual” (3, 4, 5).

1. **Conventional project teams**: one type where a line manager inside a hierarchical organization builds the team. Team members are not dispersed geographically or across organizational boundaries. Productivity is mainly driven by the effort to produce an outcome valued by the line manager.
2. **Teams for supply chain projects**: coordination is similarly integrated as in hierarchical organizations, but across organizational boundaries and with geographical dispersion.
3. **Prime contractor led team**: centres on agility. Configuration of partners in the team is unique for the occasion and has to be aligned quickly under hierarchical coordination of the prime contractor.
4. **Teams in strategic networks**: (example airline alliances) teams form, operate and disband with high degrees of autonomy as long as they stay within the boundaries of the strategic scope.
5. **Peer-to-peer networks**: (business partners, teams of scientist). Highly networked project teams of peer partners, where coordination is negotiated per case on the basis of roles.

None of the five types is more preferable or better that any other. Instead, it is the fit between the external requirements and the internal set-up of the team, which is assumed to affect its productivity. The calculation of this fit is based on questions about the respondent´s perception of the external requirements and about the internal capabilities of the project team.

Key requirements for such assessment tools is to provide meaningful results with a minimum set of questions, as well as avoiding any bias in option choices by making one option more positive than another. The assessment is based on four fit dimensions, which were distilled from case studies:

- Team culture covers the dimension studied by organizational psychology on how team members collaborate
- Communication covers the dimension studied by information system research on different communication patterns

- Project management covers the dimension of project coordination studied by project management
- Benefit realization covers the dimension of controlling team output.

Two questions, one about external requirements and one about team practice, cover each of the four dimensions, so that the assessment is based on a total of eight questions only. Answer choices for these questions are formulated in natural language describing positively typical patterns related to the above mentioned team types, avoiding bias e.g. by number choices.

The core set of questions are complemented by context questions, such as industry in which the project team operates, or experience of the team members, from which conclusions on the external requirements can be derived.

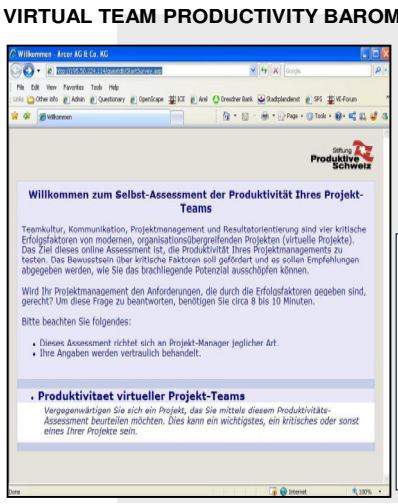
Productivity assessment is the calculation whether the respondent chooses all answers from one ideal project type, which means that the project is in fit, or whether there are misfits, what types of misfit there are, and how strong the misfits are.

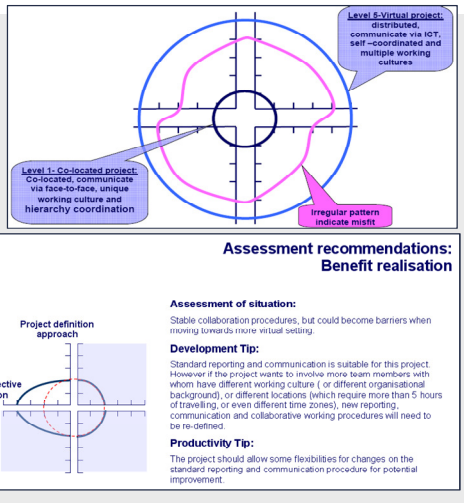
A statistical analysis of 157 responding project managers (data collected through www.produktive-schweiz.ch) shows the validity of the assessment approach: productivity of teams is not necessarily higher when they are less virtual, but higher when teams are more consistent to one of the team types.

For future versions dimensions will be refined and extended based on the obtained results. It will also include an immediate intelligent feedback to participants. For practitioners the assessment then identifies concrete issues and suggestions for increasing consistency of the team for higher productivity.

The here presented team assessment tool is designed for use in “living labs”. It is easy to use, available on the internet and requires less than 5 minutes for the completion of an assessment. It is easily adaptable to other situations and its practical value motivates the engagement of knowledge workers, information system developers and other stakeholders in a joint research process.

VIRTUAL TEAM PRODUCTIVITY BAROMETER





First Results

The first 157 participants of Swiss project leaders and/or members consisted of:
37 French speaking
120 German speaking

17.2% = project member
12.7% = team leader
70.1% = project manager/leader

22.9% = no previous experience
12.7% = experience from one project
33.1% = 2-5 projects
30.6% = more than 5 projects

15.3% = firms with 1-9 employees
15.9% = firms with 10-49 employees
13.4% = firms with 50-249 employees
7.6% = firms with 250-499 employees
9.6% = firms with 500-999 employees
19.7% = firms with 1000-9999 employees
17.8% = firms with more than 10000 employees

Regional distribution and distribution by industries = homogeneous

When asked about importance/perception of achievement of operative measures 8time, budget, quality), ranking was 1 = budget, 2 = quality, 3 = goal

Further results / facts and next steps

1) The higher the responsibility of respondent in team, the more positive is perceived performance
    - Measure in next study: have several people from same team participating in assessment and compare on all four dimensions perception of all members of a team

2) Does "fit" between external requirements and internal team capabilities affect productivity?

    Finding 1: yes, this was confirmed.

    Finding 2: only misfits on dimension "communication" and "Benefit realisation" have negative impact on productivity! This is stronger the more team is geographically dispersed (= more virtual)

    Finding 3: Teams culture and leadership are not very important in virtual teams (see team 3, 4 or 5). This is astonishing and somehow different from literature.

    Finding 4: Dimension "Communication" and "Benefit realisation" are the ones which change more substantially when changing from traditional to virtual teams.

Finding 5: This means for traditional teams “team culture” and “management” is important in traditional teams. In virtual teams communication and benefit realization is (more) important)

Finding 6: Above findings show that different capabilities are necessary for different type of teams

Conclusion and Recommendations

The validity of the study is limited by the number of respondents. All these findings deserve updating in future versions of the questionnaire in order to be more representative for all Switzerland, by 1) increase number of participants and b) refining the dimensions.

By end of this year we are also planning to develop the automatic feedback to the participants so the assessment can be used to analyze and improve their collaborative projects.

Thank you for your support in the first step, our pilot study!
You have contributed to interesting results.

PS: This is an excerpt from a larger paper incl. references, done by:
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