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DIFFERENT DIMENSIONS OF TEAMS Goparaju Purna SUDHAKAR The ICFAI University, Hyderabad, India purna24@hotmail.com Abstract Popularity of teams is growing in 21st Century. Organizations are getting their work done through different types of teams. Teams have proved that the collective

1**performance is more than** the **sum of the individual**

performances. Thus, the teams have got different dimensions such as quantitative dimensions and qualitative dimensions. The Quantitative dimensions of teams such as team performance, team productivity, team innovation, team effectiveness, team efficiency, team decision making and team conflicts and Qualitative dimensions of teams such as team communication, team coordination, team cooperation, team cohesion, team climate, team creativity, team leadership and team conflicts have been discussed in this article. Key words: Team Dimensions; Team Processes; Team Conflicts; Teams; Team Performance. JEL Classification: M100 I.INTRODUCTION 80% of the Fortune 500 organizations are using teams for their business operations, projects, and business function. Organizations such as Motorola, IBM, Microsoft, and HP are even having high performing teams in their organizations. There are high performing disaster recovery teams, flood control teams, fire fighting teams, rapid action teams, surgical teams, construction teams, healthcare teams, software teams, manufacturing teams, executive teams, sports teams and top management teams in different countries and multinational organizations. Many of us may get questions such as what is the need for teams in an organization? Why can't an individual do the same job? How do you know whether teams are working or not? Many of us know how to measure an individual performance. Then, How do you measure team performance? How do you sense whether team is on right track or not? How to compare one team with another? How top management should distribute resources among different teams? What are different measures or different dimensions for teams using which an organization can estimate team performance? This article tries to answer all these questions. Also I did not see any single article or paper in the literature which gives comprehensive look at all major dimensions of teams at one place. Every article discusses two or three dimensions not all at the same place. That made me to write this article giving all major dimensions of teams at one place. Some of the team dimensions explained in this paper are also the team processes in any work team or project team. The popularity of teams became more with the work The Wisdom of Teams by Katzenbach and Smith (1993, 2005). Managers in an organization were able to judge in what stage their team is with the works of Bruce Tuckman, the different stages of team development and also the different stages to reach high performance given by Katzenbach and Smith. According to Bruce Tuckman, a team has to undergo stages such as forming, storming, and norming to reach performing stage of team. Then the team enters into adjourning stage after performance. According to Katzenbach and Smith (2005), the team has stages such as work

16**group, pseudo team, potential team, real team** before becoming **high**

performing team.

Different

15**types of teams** include **work** groups, **project teams, parallel teams, management teams** and ad-hoc **teams.**

1**One can find work** groups **in manufacturing industry, project teams in** construction **and** software **industries, parallel teams in research, management teams** in **top management teams**

of organizations and ad-hoc teams in public sector and governments across the world. At different stages of team development, different team level measures can be used to measure the performance of a team. Basically

14**a team is a** collection **of** individuals **working towards a common** purpose and **goal. The** characteristics **of**

teams include, team has a common purpose, team has a common goal to achieve, teams consists of human resources, teams are leads by team leader or team manager, team objective should be in line with organizational objective, team strategies should be in line with organizational strategies, teams require resources such as time, money, material, hardware, software, tools, machinery, etc . They need reward and recognition system, teams need support from top management, they need clear goal, roles and responsibilities, they need communication channels and the information needs to be distributed. Teams needs some inputs, they process input resources and give products, services, results as output (Figure 1). Team Inputs Team Outputs ? Human Resources ? Products ? Services ? Raw Material ? Results ? Time Team ? Technical Processes Processes ? Money ? Business Processes ? Hardware ? Methodologies ? Procedures ? Software ? Platforms ? Frameworks ? Machinery ? Tools Figure 1: Team Inputs Vs Team Outputs A team in any industry takes human resources, raw material, time, money, hardware, software, machinery, tools as input. It processes the input resources using skills, knowledge, experience, competencies, and techniques and produces the outputs. The outputs of teamwork can be products, services, results, technical procedures, business processes, methodologies, procedures, platforms or any frameworks useful to the stakeholders, customers, or internal users. II.TEAM DIMENSIONS Current day organizations are looking at the performance and productivity of teams for better organizational outcomes, results and customer satisfaction. The different dimensions of teams can be categorized into quantitative dimensions and qualitative dimensions of teams (Figure 2). Quantitative dimensions of teams include team performance, team productivity, team innovation, team effectiveness, team efficiency, team decision making and team conflicts. Qualitative dimensions of teams include team communication, team coordination, team cooperation, team cohesion, team climate, team creativity, team leadership and team conflicts. Team communication, conflicts, cooperation, coordination, cohesion can also be called as team processes. According to a survey done by PMI, USA, a project manager spends 90% of his or her time in

communication (PMI, 2013), which includes 20% of time in conflicts. Because of this one cannot ignore the importance of qualitative dimensions of teams whose origin is team communication. At the same time for the organizational profitability, customer satisfaction, competitive advantage, and survival the quantitative dimensions of teams are very much important. Team Conflict is being categorized as both qualitative and quantitative dimension because the depth or seriousness of the conflict, which is qualitative and the total number of conflicts occurring in team (for project duration), which is quantitative effect the team performance. Team conflict has got both dimensions in it. Different Dimensions of Teams Qualitative Dimensions of Teams Quantitative Dimensions of Teams Team Communication Team Performance Team C oordination Team Cooperation Team Productivity Team Innovation Cohesion Team Team Effectiveness Team Climate Team Creativity Team Efficiency Team Decision Making Team Leadership Team Conflicts Team Conflicts Figure 2: Categorization of Team Dimensions In this article, both the quantitative and qualitative dimensions of teams are explained. III.QUANTITATIVE DIMENSIONS OF TEAMS Team Performance Team performance is different at different

24**stages of team development.** At **the** forming stage **of**

team development, team performance is minimum and after crossing the storming and norming stages of team development, team enters into peak level of performance. Usually there are different measures for team performance. These measures can be categorized as objective measures and subjective measures. Objective measures of team performance include measures of productivity, return on investment, response time, turnaround time, profits made by the team, earnings from the team, cost reductions by the team, increase in market capitalization by the team, increase in share value, number of new processes developed, and number of tools developed. Where as subjective measures of team performance include the feedback or the ratings given by different stakeholders such as team members, customers, senior management, suppliers, project managers, and other stakeholders, if any. Customer satisfaction index or customer satisfaction ratings are subjective measures of team performance. It is best practice to have both subjective and objective measures while measuring team performance for any team in an organization. Team Productivity Team productivity is the quotient of the output divided by the input. Team productivity = Output/Input That is, team productivity is the number of units produced per unit time of input or per unit input resource. For example, the productivity of software teams is measured in terms of KLOC (Kilo Lines of Code) per man hour in old days, and in current days productivity of software teams is measures in terms of FPs (Function Points) implemented in man day. Similarly, construction team productivity can be measured in terms of cubic foot constructed per man hour or man day. Every industry has got similar measures to find the team productivity. For example, in manufa cturing industry, team productivity can be measured in terms of numbe r of units produced per man hour. Team Innovation Innovation is the number of creative ideas implemented. Creativity is the generation of ideas and thoughts in new ways of doing things. Whe re as, innovation is implementation of the generated ideas into product, service, process, intermediate product or work deliverable. Team innovation can be measures in te rms of number of patents filed, number of patents approved, numbe r of international papers published, number of national papers published, number of research reports generated, impact of the research, sales growth, market growth, new markets entered, power saving, cost savings, resources saving, procedures reduced, etc. For example, research team innovation can be measured in terms of number of publications, number of patents got, impact o f research, number of products developed based on research, time taken to become product, time to enter the market, and sales growth. Usually innovative teams perform better because team innovation is positively correlated to team performa nce. Similarly team productivity is positively associated with team performance. Team Effectiveness Effectiveness can be measures

21**in terms of performance,** productivity **and** customer **satisfaction. For** example, **a**

senior manager may ask “Is the training given to team is effective?”. That is the percentage growth in terms of performance and productivity of the team after training was given. To measures the effectiveness, one has to take the samples at different intervals of the time and has to make note of the input or training given to the team. Team performance or the productivity has to be measured before change and after change and the differenc e gives whether the team is effective or not. If the difference is positive growth, then we can say that the team is effective. If the difference is negative growth, then the team is ineffective. Team Efficiency For the input resources given, is there any improvement in productivity or performance. Or for example, what is the performance of an engine per litre of fuel. Thus team efficiency can be measured by per unit of m oney spent or unit of time spent on team. Team efficiency is also a quantitative measure of team. At one point of time team may be efficient or at another point of time team may be inefficient. It is basically the reaction from team for the input given. Team Decision Making Team decision making is basically a collective effort from the team. Team decisions can impact individuals, team, organization, customer, supplier or any other stakeholder. Decision making can be quantified in team using decision trees. Decision can be financial or non-financial. Participative safety is very much required for a team to take unbiased decisions. Team vision has also got impact on team decision making. It is basically a team process which can result into monetary or non-monetary activities or tasks. Decisions can lead to change management in the team or in the overall organization. Team decision making is required to achieve high performance in teams. Manager only taking decisions may not make the team high performing team. Team Conflicts Conflict is a state of disagreement with other party because of several reasons. The reasons for conflicts in teams can be shared or common resources, schedules, costs, technical opinions, administrative issues, personality issues, technical procedures, management decisions, cultural issues, and tasks sharing. Team communication can lead to conflicts in teams. Conflicts are of three types (Jehn and Mannix, 2001). They are ? Task conflicts ? Relationship conflicts ? Process conflicts Task conflicts arise because of technical tasks or activities in picture. Educational diversity in team leads to task conflicts. This task conflict is good for team performance. Relationship Conflicts come because of demographic diversities such as age, gender, language, and culture etc. Relationship conflicts reduce the team performance. Process Conflicts arise due to differences of opinions in doing things. Upto certain level of process conflict is good for team performance. Where as,

9**high levels of** relationship **conflicts and high levels of** process **conflicts**

in teams lead to reduced team performance. High levels of task conflicts at the initial stages of team development are good for team performance. The number of task conflicts, relationship conflicts and process conflicts in team can be quantified. For better team performance, one has to try for

9**high levels of task conflicts,** moderate **levels of** process **conflicts**

and low levels of relationship conflicts in the team. This gives optimum results and solutions for the team. Similarly every conflict has got depth and severity associated with it. This gives the qualitative dimension for the conflicts. More severe conflicts results into reduced team performance if they are not solved. More depth conflicts require large amounts of change management in the team and organization. Thus a project

manager has to deal with the conflicts in a careful way and use some conflict resolution techniques such as confrontation, forcing, smoothing, compromise and withdraw (Lippitt, 1982). Confrontation only gives win-win situation for both the parties without any side effects. In the next section, qualitative dimensions of teams are discussed. IV.QUALITATIVE DIMENSIONS OF TEAMS Team Communication Team communication is very important dimension for any project teams. Usually projects fail not because of technical reasons, they fail because of people reasons. Hence, effective communication is very important for project success. If there are 'n' number of team members in the team, there will be n * (n-1)/2 number of communication channels in the team. Both quality and quantity of communication are important for team success. Complex project development requires continuous communication in the team. A project manager spends 90% of his or her time in communication. Communication in the team leads to conflicts in team. They can be task conflicts or relationship conflicts. One can measure the frequency of communication in team and its impact on team performance. Team Coordination Team coordination is very much important and required for team performance and productivity. Coordination requires vision in the team. Team coordination deals with dependencies in tasks and resources of the team. If coordinates between which activity should be done first and which activity should be done next and who should do what. It also deals with the ownership of the tasks and activities in the picture. It also concentrates on executing dependent tasks with shared resources, availability of resources, scheduling the activities and dealing with slags and floats. Team coordination can be measures in terms of the success of the project tasks. Team Cooperation The dependencies among the project tasks include finish

19**-start, finish-finish, start-finish, and start-start.**

Because of these dependencies and also based on the complexity of tasks, cooperation between team members in very much required. Lack of cooperation in teams leads to delayed projects, unfinished work products, poor quality deliverables, cost overruns, unsatisfied customer, unhealthy competition and reduced team performance. Team cooperation also determines the climate of the team. When dependent tasks are there, cooperation plays vital role in team success. This is a qualitative dimension of the team. Team Cohesion Team cohesion determines the team climate and task performance. Cohesion up to some extent is good for team performance and project success. High levels of cohesion lead to resistance to change and reduced innovation in the team. Cohesion can be of two types. They are task cohesion and social cohesion. Task cohesion is good for team performance and for completion of tasks or activities. Where as social cohesion may not contribute to the team performance. Social cohesion in team arise because of similarities in demographic details (Ancona and Caldwell, 1992). Task cohesion comes because of diversity in education, experience and skills. Task cohesion leads to task conflicts and social cohesion leads to relationship conflicts in the team (Figure 3). Task cohesion generating task conflicts is good for team performance. And social cohesion generating relationship conflicts is not good for team performance. Usually socially cohesive teams resist change and new ways of doing things. However, occasional informal talks between team members are required for team cooperation. Team Cohesion Team Conflicts Team Communication Task Cohesion Task Conflicts Social Relationship Conflicts Cohesion Process Conflicts Team Performance Figure 3: Different team dimensions and their relationships Team Climate

1**Positive team climate results into better team performance,**

productivity, innovation, customer satisfaction and better quality products (Acuña et al. , 2008).

1**According to Anderson and West (1998), team climate** construct **consists of**

the components

20**such as vision, task orientation, support for innovation**

and participative safety. Support for innovation is very much required to make a team more innovative. Participative safety is required for quality decision making, conflict resolution and team performance. Task orientation

1**is positively related to team** productivity **and**

vision

1**is positively related to team performance. Team**

1**climate can be measured using** an **instrument** called **Team Climate Inventory (TCI) developed by Anderson and West (1994).**

Team climate is the predictor of team performance, team productivity and customer satisfaction

1**(Bain et al. , 2001).** If **team climate**

is good, customer satisfaction will be good. If customer satisfaction is good, then also team climate is good. Thus the relationship is reciprocal here. Team climate variants include Team climate for safety, Team climate for Participation, Team climate for Performance, and Team climate for ethics. For selecting suitable team members for a team, Team Selection Inventory (TSI) can be used. Team Creativity Creativity is generating

22**new ideas and** thoughts in **new ways of doing things.**

Team creativity is very much required for team innovation. If creativity is not there, there is no innovation. Hence, team creativity is positively associated to team innovation. Team

18**creativity can be** measures **in terms of new** ideas, **and**

thoughts generated. Where as, Team innovation can be measured in terms of number of patents, number

of research publications, and sales growth, etc. Team creativity is positively associated with team innovation, team innovation

13**is positively** correlated **to team** productivity, **and team** productivity is **in**

turn positively

13**related to team performance. This is**

true in case of teams in many industries such as software and construction industries. Team Leadership Effective leadership is very much required for team performance. The leadership style, attitude and behaviour of leader have impact on team performance and project success (Turner and Müller, 2005). Visionary leadership provides direction to the team. The leader motivates, monitors the team, develops the team and manages the team. The skills, experience and knowledge of the team leader also have impact on team performance. The team manager has powers such as referral

17**power, expert power, reward power, coercive power, and legitimate power.**

The team manager with all these powers and conflict resolution techniques has to manage and resolve the team conflicts and make a constructive conflict management suitable for team performance. Usually

23**the effectiveness of the team** leadership is **measured** in terms **of project**

success, team performance, and customer satisfaction. This is a qualitative dimension of teams. V.CONCLUSIONS To make a team successful and to make a team performing team, none of these dimensions of teams can be ignored. All these dimensions are interlinked. For example, team communication, team cohesion, team conflict and team performance are related or positively associated. The team processes such as communication, coordination, cooperation, cohesion have impact on team effectiv eness and performance. We have seen all these dimensions of teams and how to measure these dimensions and their relationships. Team work is very much req uired to execute curren t day comp lex projects. VI. REFERENCES 1.

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