Factors affecting successful implementation of high performance teams

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Keywords

Teamwork, Team building, Performance, Modelling

Abstract

Agrees that the evidence of a vast array of research concerning teamwork is conclusive: teams are capable of outstanding performance and are the primary unit of performance for increasing numbers of organisations. Nevertheless, high performance teams (HPTs) are a rarity. Presents the results of collaborative research aimed at determining the factors affecting successful implementation of HPTs. The factors have been derived from literature on teamwork, quality management, and a review of case study literature. This research has led to the development of a model for the successful implementation of HPTs, which has been tested through a case study organisation. Furthermore, the results were used to develop an implementation program aimed at rejuvenating team performance in UK small- to medium-sized enterprises.

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Introduction

Today's organisations have to face a turbulent environment where change seems the only constant. To meet this challenge, organisations are forced to: accelerate and make effective all activities, be flexible in response to change in the external environment, improve quality, reduce cost and fully use their intellectual capital. Furthermore, as this system is becoming more and more complex, emphasis is given on the process orientation and cross-functional approaches. To succeed, the knowledge, skills, experience, and perspectives of a wide range of people must be integrated (Irani and Sharp, 1997).

Using teamwork for the improvement of organisational performance is proposed in a number of the quality literature papers, e.g. *kaizen* philosophy represented by Imai (1986) and Europe Japan Centre (Colenso, 2000; Foster, 2000) put small-group activities and QC circles as top priority. Total quality management (TQM) and total productive maintenance activities are based on teamwork (Oakland, 1993; Bamber *et al.*, 1999). Peters and Waterman (1982) refer to teamwork as a critical factor in the most successful companies. Nonaka and Takeuchi (1995) even suggest "the hypertext hierarchy" of an organisation, which is based on teams. Additionally, a conceptual framework for agile manufacturing (Kidd, 1994) comprises team working as a fundamental prerequisite for the next generation manufacturing paradigm.

Furthermore, knowledge management and learning organisation principles (Nonaka and Takeuchi, 1995; Senge, 1990) suggest that the individual is the basic element for knowledge interaction. While both agree that individual learning is irrelevant for organisations unless such knowledge is disseminated through the organisation where teamwork is the core tool for this dissemination. Scholtes *et al.* (1996) argue that a team outperforms individuals when:

- the task is complex;
- creativity is needed;
- the path forward is unclear;
- more efficient use of resources is required;
- fast learning is necessary;
- high commitment is desirable;

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

- the implementation of a plan requires the co-operation of others;
- the task of process is cross-functional.

The experience of organisations using teamwork has shown that effective use of teams can bring significant improvement in productivity, creativity and employee satisfaction (Colenso, 2000). In support of this, Katzenbach and Smith (1993) summarise the advantages of teamwork:

- Teams bring together complementary skills and experience that exceed those of any individual on the team. This fact enables teams to respond to multifaced challenges like innovation, quality and customer service.
- In jointly developing clear goals and approaches, teams establish communications that support real-time problem solving and initiative.
- Teams provide a social dimension that enhances the economic and administrative aspects of work.
- Teams have more fun.

Similarly, a number of research papers indicate that there is a strong correlation between teams, individual behaviour and high performance (Katzenbach and Smith, 1993; Robbins and Finley, 1996; Kur, 1996). When considering other references (mentioned above), it could be argued that teamwork is one of the most influential attributes for success in a turbulent environment, yet other research has shown that truly high performance teams (HPTs) are very rare (Katzenbach and Smith, 1993). Thus, it is of considerable importance in determining "what are the barriers/obstacles to the HPTs' development" and "what are the factors affecting the implementation of HPTs". These are the critical issues identified which form the main research questions posed for the collaborative work between Brno University of Technology, the Czech Republic and the University of Salford, UK.

Defining teams and high performance teams

Francis and Young (1979) define a team as "an energetic group of people who are committed to achieving common objectives, who work well together and enjoy doing so, and who produce high-quality results". Johnson and Johnson (1991) also argue that "a team is a set of interpersonal relationships structured to achieve established goals". Adair (1986) understands a team as "a group in which the individuals share a common aim and in which the jobs and skills of each member fit in with those of the others". Kur (1996) sees a team as "a purposeful, open, sociotechnical system in a state of tension between change and stability". Katzenbach and Smith (1993) argue that "a team is a small group of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable".

Performance is broadly understood as the purpose of teamwork. Performance, in general, can be determined by three factors (Stott and Walker, 1995):

(1) ability;
(2) work environment; and
(3) motivation.

These are expressed by equation (1).

$$\text{Performance} = f\ (\text{ability} \times \text{motivation} \times \text{environment}) \quad (1)$$

In each of the definitions, presented in this section, by Francis and Young, Johnson and Johnson, Adair, Kur, Katzenbach and Smith, team performance is viewed as a function of the relationship between ability, motivation and environment as shown by Equation 1. Although it could be argued with the exception of the factor of environment, which is understood from an internal perspective and considered more as a social dimension. However, it is similarly argued by Peters (1992) that the influence, for instance, of the working environment, is of high importance.

Many authors (Katzenbach and Smith, 1993; Robbins and Finley, 1996; Kur, 1996) refer to high performance teams (HPTs) as the goal of team development because of the correlation between "team" and "performance". Kur (1996) defines HPTs as teams that "consistently satisfy the needs of customers, employees, investors and others in its area of influence" and as a result "these teams frequently outperform other teams that produce similar products and services under similar conditions and constraints". Kur (1996) observed many HPTs and argues that these teams are "purposeful, social, human-oriented, technical and systematical". Sharp

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

et al. (2000) propose that a high performance team is "a team of people who have unleashed their potential toward their stakeholders shared purpose" and define six key enablers of HPTs as:

(1) team member competencies;
(2) skills, processes, tools and techniques;
(3) interpersonal skills, communication, personality preferences;
(4) value system;
(5) shared vision, purpose, goals, direction; and
(6) organisational values including openness.

Colenso (2000) defines HPT through preconditions (purpose, empowerment, support, objectives) and characteristics (interpersonal skills, participation, decision making, creativity, managing the external environment). Katzenbach and Smith (1993) argue that it is a strong sense of personal commitment, which distinguishes HPTs from other teams. In consequence, HPTs have "a deeper sense of purpose, more ambitious performance goals, more complete approaches, fuller mutual accountability, and interchangeable as well as complementary skills". Rickards and Moger (1999) call HPTs "dream teams" and define seven factors, which distinguished them from "teams from hell" as:

(1) strong platform of understanding;
(2) shared vision;
(3) creative climate;
(4) ownership of ideas;
(5) resilience to setbacks;
(6) network activators; and
(7) learn from experience.

Team development

Stott and Walker (1995) refer to much team development literature and argue that according to a number of studies, team development has more than one dimension. These dimensions are related to "the individual, the task, the team and the organisation". Stott and Walker (1995) present "a multidimensional model" for team development and, furthermore, they propose:

- Team development is best seen as a multidimensional construct, where the conditions in one dimension critically affect the conditions in other dimensions.
- For effective team development to take place, attempts must be made to consciously optimise the conditions in each dimension.
- Teams need to identify those dimensions that are in need of attention and to employ appropriate development strategies. Performance is dependent upon accurate diagnosis.
- Relative emphasis in dimensional development is determined in part by the development level of the team.
- Responsibility for team development should largely lie within the team itself.

Similarly, Scholtes *et al.* (1996) strongly advocate the alignment of individuals, teams and organisation, which are understood as three dimensions of the organisation. They suggest a "team development model" (Figure 1) and argue that for these three dimensions, there are three primary tasks: purpose, partnership and process. In order to maintain the alignment among the dimensions, the development of a team should be considered in view of this model.

There is a general agreement that teams progress through different stages (Kur, 1996; Katzenbach and Smith, 1993; Rickards and Moger, 1999; Robbins and Finley, 1996; Stott and Walker, 1995). These stages are defined within the "form-storm-norm-perform" model (FSNP model) of team development from Tuckman and Jensen (1977). Accordingly, many authors use this model as the framework for their theories.

Rickards and Moger (1999) extend the FSNP model to "form-storm-norm-perform-outperform". They distinguish three types of

Figure 1 Team development model

PRIMARY TASKS	DIMENSIONS: Organization	Team	Individual member
Purpose (why, what)	Mission	Charter and goals	Roles and responsibilities
Partnership (with whom)	Values & beliefs	Norms and communication channels	Interpersonal skills
Process (how)	Management systems and reviews	Methods and procedures	Problem solving & planning skills

Source: Scholtes *et al.* (1996)

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

teams – dream teams, standard teams and teams from hell, and argue, that general development is that "teams start like the teams from hell and proceed to become dream teams". According to Rickards and Moger (1999), teams from hell are in the storming stage, while dream teams are in the outperforming stage. Furthermore, they mention the "glass-ceiling" effect, which prevents teams "from moving from one level to another". They suggest a creative development approach to break the norms for higher level of development.

Kur (1996) suggests the "faces model of team development" and similarly to Rickards and Moger (1999), he extends the FSNP model to "inform-form-storm-norm-perform" phases or "faces", which are used to evaluate team performance according to this model. Kur (1996) argues that "teams move from moderate to high levels of performance, then into dysfunctional conflicts, through self-assessment and back to high performance", i.e. that they put on different faces. "Even the highest performing, most empowered and most productive teams periodically put on the other face" and Kur (1996) states that "changing faces in any direction is accepted as normal" and this change can be meaningful and valuable. Scholtes *et al.* (1996) support this point of view and argue that this fact even helps the team in performance.

An interesting development to the team performance debate is from Katzenbach and Smith (1993) who have studied several HPTs and summarise the key lessons learned as:

- Significant performance challenges energise teams regardless of where they are in an organisation.
- Organisational leaders can foster team performance best by building a strong performance ethic rather than by establishing a team-promoting environment alone.
- Bias toward individualism exist, but need not get in the way of team performance.
- Discipline – both within the team and across the organisation – creates the conditions for team performance.

The barriers and obstacles to team development

The barriers and obstacles to team development differ as much as teams, performance challenges or business contexts, but despite this diversity, several features can be generalised. Robbins and Finley (1996) argue that team failure is due to mismatched needs, confused goals, unresolved roles, bad decision making, personality conflicts, bad leadership, insufficient feedback and/or information, ill-conceived reward systems, lack of team trust and/or unwillingness to change. Similarly, Katzenbach and Smith (1993) summarise the major factors as:

- a weak sense of direction;
- insufficient or unequal commitment to team performance;
- critical skill gaps; and
- external confusion, hostility, and/or indifference.

A weak sense of direction is attributed to a management style, which is not fully aware of the importance of a clear definition of purpose, goals, and direction for their teams. Awareness of this fact is crucial, because the purpose of the team is related to performance. Insufficient or unequal commitment to team performance comes from the individual reluctance towards teams. There are three primary sources for this reluctance about teams (Katzenbach and Smith, 1993):

(1) lack of conviction that team or teams can work better than the alternatives;
(2) personal styles, capabilities and preferences that can make teams risky or uncomfortable; and
(3) weak organisational performance ethics that discourage the conditions in which teams flourish.

Alternatively, Conti and Kleiner (1997) argue that "the most fundamental problem that teams confront is existing work structure", which is oriented toward individual and standardisation of work activity. Katzenbach and Smith (1993) argue furthermore that most organisations intrinsically prefer individual over group (team) accountability. Job description, compensation schemes, career path and performance evaluations are more often focused on individuals. Similarly, Senge *et al.* (1994) state that "most aspects of existing infrastructure, such as measurement and compensation systems, as well as rewards, have not yet 'captured' the significance of teams". Church (1998) makes the point that no matter how the team approach is established, members have their individual job responsibilities. According to Church (1998), "this creates a critical

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

intersection between an individual's job responsibilities and his/her team responsibilities".

The lack of training or the wrong team composition will produce critical skill gaps, a point stated in, for example, Oakland (1993), Church (1998) and Katzenbach and Smith (1993). These gaps will inevitably lead to a decrease in overall team performance. Feurer *et al.* (1996) consider team training to be one of the essential factors for team development. Finally, external confusion, hostility, indifference or the lack of conviction of teamwork in general causes weak performance within the organisation. Mestre *et al.* (1997) advocate effective orientation management (OM) to build permanent liaisons, identify values and ensuring group interaction. Mestre *et al.* (1997) furthermore argue that the perceived success of the organisation depends on each individual's contribution through constant growth and awareness of changes, satisfying customer needs, teamwork, social and environmental responsibility, and local and global awareness in relation to economy and culture. The study of Japanese experience and success in OM (Mestre *et al.*, 1997) is contrasted with its relative neglect in Western businesses.

Critical factors for successful implementation of HPTs

These critical factors for successful implementation of HPTs are drawn from a review of literature concerning teamwork and team development, as discussed in previous sections of this paper. In addition to which, a review of literature on quality management and learning organisation has contributed to the identification of successful factors (e.g. Ishikawa, 1985; Nonaka and Takeuchi, 1995; Senge, 1990; Howe *et al.*, 1993). These factors, in consequence, have been grouped into two categories and seven sub-categories, which provide the basis for the conceptual model of factors affecting successful implementation of HPTs. All the factors are presented in Figure 2 and the categories are considered in Table I.

Organisational impact

The support of the organisation is crucial to all activities involving a kind of "change". The organisation or its management is responsible for:

- *Creating the organisational culture*, which supports and encourages team empowerment, experimentation, creativity and innovation, win-win approach to conflicts, failures and mistakes, and ensures open communication and the creation of communication channels.
- *Team formation,* i.e. group size, group composition, team training and the purpose of the team.
- *Providing a supportive environment*. The team is supported by senior management and by the person to whom the team reports. An important aspect is the autonomy of the team, which is necessary for its development (Nonaka and Takeuchi, 1995; Peters and Waterman, 1982). Furthermore, the organisation has to make possible access to resources – time, money, data, information, knowledge, talents and materials (Senge *et al.*, 1999; Meyer, 1998). Senge *et al.* (1999) strongly advocate the use of an outside facilitator, who speeds up the process of team development and team learning. The supportive workspace also is of significant import. This fact is strongly advocated by both Peters (1992), and Nonaka and Takeuchi (1995). They argue that the supportive workplace environment is crucial for knowledge exchange among team members.
- *Monitoring team performance* based on measurement of the key performance indicators, which should be mutually agreed on by team and management.
- *Team reward and appraisal system*.

Defined focus

As discussed earlier in the "Team development" section of this paper, successful HPTs have defined their mission, vision and goals, which are understood by the team members. These two factors – definition of the framework and its understanding – are present, for instance, in a participation management approach (Ishikawa, 1985; Imai, 1986) which strongly points toward the importance of the dissemination of knowledge and the creation of understanding. Scholtes *et al.* (1996) build on the work of Adair (1986) and propose that "teams must have clearly defined purposes and goals that serve

Figure 2 Factors affecting successful implementation of HPTs

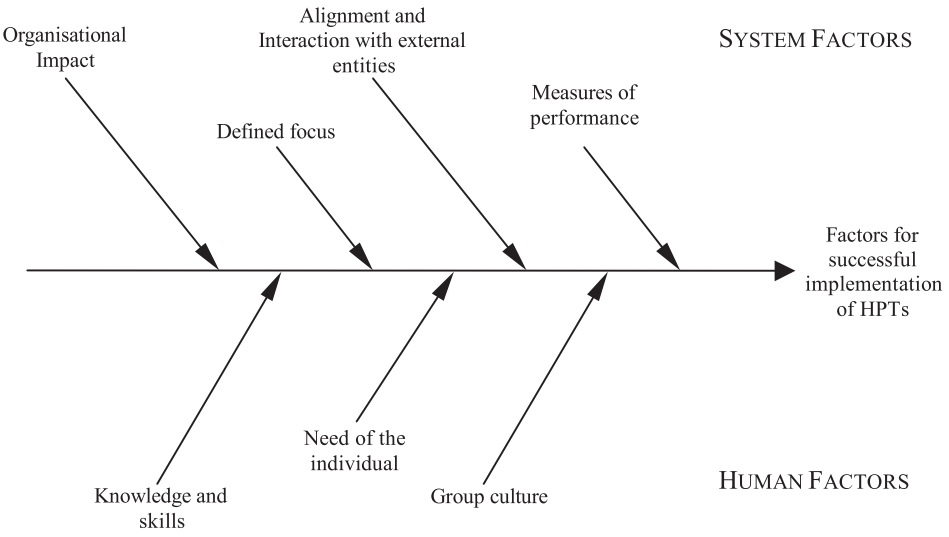


Table I Factors affecting successful implementation of HPTs

1 Organisational impact	
2 Defined focus	
3 Alignment and interaction with external entities	System factors
4 Measures of performance	
5 Knowledge and skills	
6 Need of the individual	Human factors
7 Group culture	

the organisation". In addition, they "need clearly defined parameters within which to work" and the team members must know the relative importance of the task and the expectations from the organisation. Robbins and Finley (1996) argue that a good team focus will comprise:

- a task;
- a promised limit of what you are doing;
- a promised level of performance;
- a deadline; and
- the definition of the customer.

Alignment and interaction with external entities

This feature can be described as "outward focus" of high performance teams, i.e. seeing the team as part of a system. Senge (1990) calls this phenomenon "system thinking" and considers this approach as one of the most crucial among disciplines of learning organisation and team learning. The essence of systems thinking, according to Senge (1990), lies in "seeing relationships rather than linear cause-effect chains" and "seeing process of change rather than snapshots". TQM or *kaizen* concepts describe this approach as "process-orientation" with similar conclusion (Oakland, 1993; Imai, 1986). Other quality improvement authors (Howe *et al.*, 1993; Deming, 1986; Ishikawa, 1985; Bamber *et al.*, 1999) emphasise the importance of understanding the process from a customer point of view. Kur (1996) observed several HPTs and argues that HPTs are able to "maintain alignment and interaction with other entities, such as other teams, managers, suppliers, customers, society, government".

Group culture

HPTs demand strong group culture, which is based on empowerment, shared vision, creativity, participation, learning ability, trust, and shared consensus. Other authors (Nonaka and Takeuchi, 1995; Imai, 1986; Peters and Waterman, 1982; Stott and Walker, 1995) argue that an environment of tolerance toward failures and mistakes and a certain amount of creative chaos can improve team performance. Similarly, Senge (1990) views a mistake as "an event, the full benefit of which has not yet been turned to advantage" and argues that "failure is an evidence of the gap between vision and current reality". This gap, according to Senge (1990), is the evidence of creative tension and is one of the attributes of learning teams. Similarly, Nonaka and Takeuchi (1995) or Imai (1996) give practical examples from Japanese companies, which use creative tension for improving team performance. An

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

interesting contribution about team culture comes from Kets De Vries (1999), who researched Pigmy society and based on this investigation suggests seven principles of effective teamwork:

(1) Members respect and trust each other.
(2) Members protect and support each other.
(3) Members engage in open dialogue and communication.
(4) Members share a strong common goal.
(5) Members have strong shared values and beliefs.
(6) Members subordinate their own objectives to those of the team.
(7) Members subscribe to "distributed" leadership.

According to Kets De Vries (1999), many practices of Pigmy society "are a model of effective behaviour"(!)

Another aspect of HPT culture is alignment of its members. As stated by Senge *et al.* (1994), "building alignment is about enhancing a team's capacity to think and act in new synergistic ways, with full coordination and sense of unity". Nevertheless, it is not suggested that culture of HPTs is conflict-free. On the contrary, Senge (1990) argues that "great teams are not characterised by an absence of conflict" but they are able to take advantage from them. Stott and Walker (1995) suggest that competitions and conflicts be used constructively in HPTs. Hence, the organisation itself has to create the supportive environment for development of HPTs and has to ensure the internalisation of shared values and beliefs by team members (Nonaka and Takeuchi, 1995; Imai, 1986; Kets De Vries, 1999).

Knowledge and skills

Lack of training and critical skill gaps have been mentioned in the section concerning the barriers to teamwork. To overcome these problems and to accomplish their tasks, the team members must receive training and personal development in areas such as (Katzenbach and Smith, 1993; Robbins and Finley, 1996; Scholtes *et al.*, 1996):

- interpersonal and joint skills: dealing with conflict, dynamics of teamwork, how to conduct meetings, effective decision making, communication skills, effective record keeping;
- analytical and statistical skills: problem-solving methods, improvement techniques, seven basic quality control tools;
- improvement techniques, creativity approach, systems thinking; and
- technical skills: related to a particular job.

Needs of the individual

As well as team needs being aligned with those of the organisation, the needs of the team members have to be aligned with the team (Adair, 1986). Senge (1990) argues that alignment is a necessary condition for empowering the individual and results in the empowerment of the whole team. Robbins and Finley (1996) observed several teams with the conclusion that "people will only agree to team if it meets their own needs first". The sooner we know one another's personal needs and hopes, the better for the team. Katzenbach and Smith (1993) argue that "biases toward individualism exist but need not get in the way of team performance".

Teamwork represents an interdependent balance between the needs of the individual and the needs of the organisation (Kets De Vries, 1999). According to Zigon (1997), individuals want to be recognised for their individual contributions too and most team members complain that individual performance assessments and pay systems do not reward them for team results they have produced, a point agreed with by Bal and Gundry (1999). Zairi (1994) advocates measurement of people productivity and its linkage to reward and recognition systems.

To manage this balance and make teams more effective, analysis of individual personal differences and preferences is suggested (Church, 1998; Higgs, 1996). Sharp *et al.* (2000) worked with several teams using MBTI (Myers Briggs type indicator) for determining personal differences and argue that the understanding of personal differences has led to the overall improvement of a team performance.

Measures of performance

All improvement activities must be accompanied by appropriate measures, i.e. measurement, which is linked with objectives defined by customer. Measures of performance (MoP) are a trigger to improvement and the reason why many improvement programs fail, is the lack of measurement. Many quality improvement

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

experts such as Howe *et al.* (1993), Deming (1986), Ishikawa (1985), Oakland (1993), Bamber *et al.* (1999), and Zairi (1994) support this fact.

Many organisations have moved to a team-based approach without changing MoP, which reflect this change (Meyer, 1998). A team approach is process-oriented and, thus, "measures through the voice of process" are essential for teamwork (Zairi, 1994). Zairi (1994) furthermore strongly advocates performance measurement based on people productivity, i.e. "the value added contributions of individuals in the fulfilment of their individual tasks or in their participation in teams". Similarly, Ingham *et al.* (1997) suggest that effective teamwork can be measured by individual and team performance.

To fulfil those presumptions, performance system measurement should include (Zigon, 1997):

- a statement of the results the team will be working to achieve with measures and performance standard for each result;
- statements of each individual's results, with measures and performance standards for each result;
- a clear picture of the priorities and relative importance of the team and individual results; and
- a plan how to collect and summarise performance data, so the team and individuals will know how they are performing compared to the performance standards.

Meyer (1998) suggests four guiding principles to maximise the effectiveness of teams:

(1) the overarching purpose of a measurement system should be to help a team, rather than top managers, gauge its progress;
(2) a truly empowered team must play the lead role in designing its own measurement system;
(3) because a team is responsible for a value-delivery process that cuts across several functions, it must create measures to track that process; and
(4) a team should adopt only a handful of measures.

Church (1998) states that "success or failure may not always be measured at the team level [and that] the best indicators of the success of teams in organisations may be the organisational level of analysis". Yet, the priority is that MoP has to tell team members what they must do to improve their performance rather than trace the performance of all business (Meyer, 1998).

Case study research

This research has been aimed at providing a critical understanding of factors affecting successful implementation of high performance teams (HPTs) which has led to the development of the conceptual model of the factors affecting successful implementation of HPTs (Figure 2). The model has consequently been tested, in part, using a single case study organisation as the focus of observations and direct assessment of the factors represented in the model. This approach has been advocated by Yin (1989), an acknowledged expert on case study research strategy.

The case study organisation, Lynx Engineering UK Limited (Lynx), based in the North of England, UK is predominantly a first tier supplier to major defence contractors, such as Royal Ordnance and British Aerospace Systems and employs 52 people at its Nelson site. Lynx could be considered as a traditional functional structure organisation operating with traditional quality control values as described by Muhleman *et al.* (1996). Recent changes in the UK aerospace and defence industry (Broughton *et al.*, 1997) has led to the need for Lynx to look at alternative markets such as formula one racing car component manufacture (Bamber, 2001). This change has meant considerable modification in operating and manufacturing practice – mainly from long batch runs to one-off components requiring rapid turnround from receipt of order to delivery of product (i.e. see "from mass production to agile manufacture"; in Kidd, 1994). The managing director of Lynx has created a management team with the responsibility to develop the company toward effectively managing the operations and controlling the changes necessary to address the requirements of the new and old customers.

Ongoing ethnographic research spreading over two years, with the help of UK Research Council funding provided the authors of this paper the opportunity to monitor and

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

evaluate the team activities against the model in Figure 2, during these early stages (three months) of organisational transformation. Mr Chris Bamber of the University of Salford participated in the team activities and helped the team develop while Mr Pavel Castka observed and compared the findings with the factors represented in the model. Additionally, expert interviews as described by Firlej and Hellens (1991) in their book on knowledge elicitation techniques were held by Dr John Sharp, Director of the High Performance Organisational Research Group at Salford, UK.

The team at Lynx included the managing director, the works manager, two production planning engineers, marketing manager, production manager, quality control manager and one of the authors (Bamber). The individual names of personnel from Lynx have deliberately not been used in this paper as the team is still continuing to develop, but agreement to use the case as an example has been obtained from Mr Les Nuttall, the managing director. Only the key findings of the research in relation to the model are presented below, for brevity, while a more detailed review of the findings is available from the authors.

Findings at Lynx Engineering UK Limited

The need for the organisation to change was evident at Lynx, with reducing profit margins and ever-increasing demands from customers to deliver smaller but quicker batches. However the need for the individuals to change was not as transparent, and it was evident from the research activities that team working was not the usual custom and practice within the organisation. The newly formed management team includes three relative newcomers (with the company less than nine months, excluding Bamber) to Lynx who had very little or no preconceived ideas of working within the company and also identified many opportunities for improvement and change. Ideas generated by individuals in the team and then implemented by the team had greater success when the whole of the team had "bought into" the idea. However it was observed that ideas were not implemented necessarily successfully when objections where voiced by individuals; and even less successful when the needs of any single member of the team were not elicited but later revealed as evident.

The creation and development of the team at Lynx has not been without problems, however the recognition that teams can develop through the stages of forming-storming-norming-performing by the members of the team helped them move toward higher levels of performance. Additionally, it has been evident throughout the study of team working at Lynx that there is a considerable amount of confusion in the early stages of team development and as described by Senge (1990) this if viewed positively provides the "creative tension" that enables team learning. However as the Lynx team developed it was noted that performance of the team improved when focusing on tasks with realistic goals that involved many of the team members. Consequently, the researchers (authors) consider that group culture developed positive traits when success was evident against these clearly defined and focused tasks; however, without clearly defined focus team activities, the performance was not as successful and consequently team development was much slower and activities less effective.

In connection with defined focus of activities or tasks is the concept of measures of performance and hence a measure of team success. The Lynx team had struggled with the concept of measuring team performance and throughout the study no clear measures of team performance emerged other than the successful completion of defined tasks, as mentioned above. Alongside this observation it was evident that Lynx did not measure performance in terms of measures aligned to customer requirements, although financial measures where evident. The researchers (authors) observed that when individual members of the team considered that team activities did not improve the quality, cost or delivery of the product or service offered to the customer then commitment to team activities deteriorated. Similarly if team members could not see a connection with team activities and other activities going on in the organisation then resistance to proceeding was seen. Consequently when the team activities had a good "fit" with other organisational activities then performance was enhanced and resistance to change reduced.

Knowledge and skills is represented in the model (Figure 2) as a factor affecting

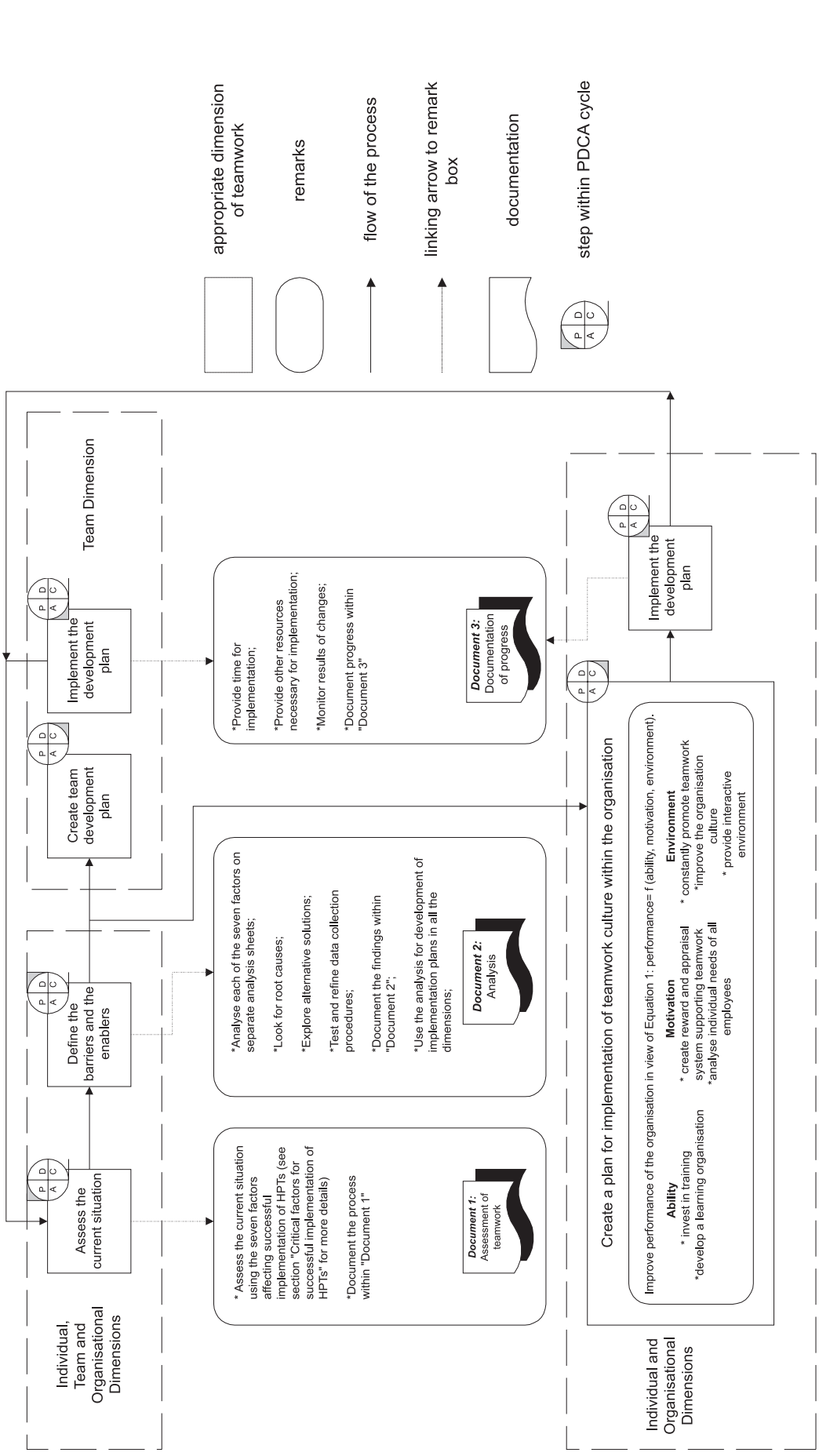


Figure 3 Implementation plan for development of HPTs

Team Performance Management: An International Journal
Volume 7 · Number 7/8 · 2001 · 123–134

successful implementation of HPTs and it was quickly noticed that although the technical skills of the team were very similar, all being skilled engineers, managerial, personal and social skills differed immensely. Additionally, an understanding of systems thinking was not evident among the Lynx team members. Training and development was not particularly seen as an important issue in the early steps of team development but is now being embraced by Lynx as an essential practice for team effectiveness. Consequently, a team training needs analysis (TNA) as well as individual TNA is currently being carried out to identify appropriate methods and direction for training in order to continually improve performance.

Recommendations for other SMEs adopting teamwork

The aim of the authors is not only to understand the critical factors for high performance teams (HPTs) development but to communicate the research findings as well. Consequently, the implementation plan (Figure 3) has been developed from the research and is proposed for use by organisations wishing to develop HPT. This plan is furthermore aimed at rejuvenating team performance in UK small- to- medium-sized enterprises (SMEs).

The implementation plan (Figure 3) is based on Deming's plan-do-check-act (PDCA) cycle. The relevant steps are considered as:

- assess the current situation (plan);
- define the barriers and the enablers (do);
- create team (organisational, individual) development plan (check); and
- implement the development plan (act).

It is recommended that organisations examine and assess teamwork in respect to the model based on factors affecting successful implementation of HPTs (Figure 2). Consequently, after the analysis, these data provide necessary information for a definition of the barriers and the enablers for team development. It is furthermore recommended to use the results not only for the development of the team, but also for the development of the organisation and the individual. This approach reflects the need for seeing teamwork as a multidimensional construct and the necessity of parallel development of individual, team and organisation (see earlier section concerning team development and Figure 1).

Even though the role of the individual and the organisational dimensions in team development was not discussed extensively in the paper, the researchers' (authors') advice is to develop improvement activities in view of Equation 1 (performance = f (ability $\times$ motivation $\times$ environment)). This finding is in concord with the findings of Bamber (2000) of HPO Research Group, the University of Salford, which confirmed with the authors that his research, aimed at determining an organisation's "readiness to learn", suggests a very similar model (readiness to learn = f (ability, motivation, organisation)). However, the scope of this paper does not allow further discussion of this matter.

Conclusions

Teamwork is becoming increasingly a prerequisite to face a turbulent environment in many organisations, yet there are many obstacles to its successful implementation. This paper has presented these obstacles within seven factors affecting successful implementation of high performance teams (HPTs) as shown in Figure 2. These factors significantly reflect the main barriers to development of HPTs and the research has demonstrated that successful implementation can be achieved, albeit the process of team development is recognised as taking considerable effort to maintain. The paper furthermore proposed the implementation plan (Figure 3) recommended for UK SMEs willing to implement or rejuvenate strategies leading to HPT development.

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