

PLANNING AND MANAGEMENT: EXPLICIT *VERSUS* TACIT KNOWLEDGE

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ABSTRACT

Contemporary planning and management emphasizes the role of clear-cut and normative rules that must be followed in order to successfully implement a plan or a project. Michael Polanyi (Polanyi, 1958) and Michael Oakeshott (Oakeshott, 1991) call these rules of conduct 'explicit knowledge' or 'technical knowledge'. These rules can be easily formulated, summoned together to a text-book ('body of knowledge') and lectured to eager disciples, as well as marketed and sold as 'expert knowledge'. These rules concentrate on the 'how' issues. However, the majority of plans and projects tend to fail. The failure is traditionally explained by the 'how' issues – poor planning, hostile environment, weak management. We claim that the real reasons for failure are the 'why' issues, i.e. lack of proper theoretical and philosophical background. We also claim that the 'tacit knowledge' (Polanyi 1958) or 'practical knowledge' (Oakeshott 1991) plays a far more important role in the process of planning or management as it has been insofar attributed to. This paper explores the possibilities of shaking the underlying principles of planning and management through the inclusion of the conception of 'tacit knowledge'.

*The great fallacies that have mislead mankind
for centuries were mostly practical*

MICHAEL POLANYI

1. PROJECTS, PROJECT CYCLE MANAGEMENT AND ITS FAILURES: A BRIEF OVERVIEW

Different sources (PMI 2000: 4, Shenhar and Dvir 2007: 94, Turner 1993, Westland 2003, Declerck 1997) define projects in a different manner, but attribute to projects similar characteristics. We have summarized, that these characteristics peculiar to classical projects are (Rang and Targama 2007):

- a) the objective(s), result(s) and tasks of the project are predetermined in the planning phase;
- b) in order to achieve objectives and results only limited resources (money, time and persons) can be used;

c) each project is unique (the results and objectives do not reoccur in the same way in other projects);

These characteristics describe both the methods used in the planning phase as well as the *modus operandi* of the project manager in the implementation phase. From the general point of view these characteristics indicate that projects are being both designed and implemented in a stable, fixed and predetermined environment. Point a) presupposes that it is possible to predict the future by setting objectives and results already in the planning phase of the project that are to be afterwards implemented according to the plan. Point b) limits the amount of resources that can be used in the implementation phase of the project. The allocation of the resources is pre-determined once again in the planning phase. Point c) stresses that there is little to learn from the past experience or acquired knowledge.

However, the majority of projects tend to fail. 'Failure' here denotes deviation from initial project plan or design. Thus, by failure we mean mainly one of the following occurrences: a) the project does not meet its objectives; b) the project does meet – to some extent – the set objectives, but the activities carried out in order to achieve these objectives were not the ones initially planned or were carried out not according to the time-frame; c) the project falls completely out of its designed boundaries, in terms of financial resources, time, manpower etc. There are, of course, some projects that fail utterly, but the reason for this particular failure is too closely connected with each individual plan that we will not elaborate this issue.

This has been a common feature since the contemporary project – based approach was first introduced in NASA in the end of the 1950s.¹ The foremost deviation from the principles of project cycle management occurs in exceeding the initial time-frame, allocated financial resources and necessary human resources (point b of above). The methods (PERT – *Program Evaluation and Review Technique*, WBS – *Work Breakdown Structure*, etc.) elaborated initially during the process as well as afterwards for amending the situation did not make a difference (Levine 1982: 160-177). As an auxiliary, but a principally important point, we would like to mention that as the roots of project-based approach were strongly linked to military or semi-military developments, the characteristic b) of above was never really an issue (for further details see Levine 1982).

Thus when project-based approach was introduced to solving non-military problems (commencing, in principle, with the establishment of the Project Management Institute in 1969) the flaws and weaknesses described in the previous paragraph were uncritically incorporated into the everyday practice of project management. Surprisingly enough, the problematic area of why projects fail have

¹ The authors are of opinion that the statement claiming that the creation of the Cheops pyramid or that of several medieval cathedrals cannot be listed as being created according to the principles of project management, as none of the avowed basic principles were followed. (Great and Significant Historical Projects from the Past, [online, cited on 23.09.08] available from: <http://www.lessons-from-history.com/Home%20page%20left%20margin%20offshoot/Greatest%20Project%20Successes.html>)

been addressed by researchers only recently (Standish Group 1994; Flyvbjerg et al., 2003; Flyvbjerg, 2006; Hansen 2006).

Brent M. Hansen (2006: 73-84) studied the possible cultural differences in project implementation in France, Germany and USA. Notwithstanding the possible differences in culture on the widest scale, roughly half of the projects analysed were completed after it was initially planned (43% in France, 56% in Germany and 65% in USA); in all the projects studied at least once was the project plan altered; the scope of a project changed during the course of the project (39% in France, 40% in Germany and 22% in USA). Bent Flyvbjerg (2006:6) has studied the transport infrastructure projects and discovered, that the actual expenditure within these projects differ by 44,7% in railways, 33,8% in bridges and tunnels and 22,4% in roads from the budget initially designed.

The failure of the traditional methods used in the project-based approach led to the introduction of certain new methods (agile methods, lean development, SCRUM, last planner approach) in some specific areas (software development, construction industries). A survey carried out by the Standish Group in 2001 (Standish Group 2001) reports that the share of successful projects in the ICT-sector had increased from 16% to 24% and the share of failed projects had decreased from 53% to 49% when compared with 1994. Whether this was the result of the introduction of the new methods or just a result of random sampling, the overall picture is still dismal: less than one fourth of the projects succeed and roughly half of the projects fail.

The guidelines described above foresee that implementation of the project follows also rather strict and fixed methodological rules (PMI 2000, Project Cycle Management Guidelines 2004).

Project cycle management (PCM) is usually divided into three phases: the strategic or planning phase, the implementation phase and the controlling phase. In the strategic phase the objectives, results as well as activities leading to them are defined. Respective resources (time, money, manpower etc) are allocated to each task. During the implementation phase the activities are carried out as foreseen in the strategic phase. It is usually very complicated and cumbersome to alter the plan agreed upon in the strategic phase, although it may seem fairly obvious, that some alternative course ought to be taken. There are often restrictions how many times a fixed project plan may be changed, how often this can be done or there are fixed limitations for altering the budget, especially when project carried out in public interest are concerned. In the controlling phase it is evaluated whether you achieved what was planned and how did you succeed. In the majority of cases it appears that the project was not 'successful':

² By 'success' we hereby mean success in following the project plan and implementation rules. From this point of view building Sydney Opera House, the tunnel under the English Channel, the bridge between Sweden and Denmark, the preparation for the 2012 Olympic Games in London etc were (or are) utter failures. However, as Richard Allen has noted " ... standards ... are essentially a matter of what we find to be satisfactory or unsatisfactory" (Allen 2006: 27).

you did not achieve what was planned or the rate of success was rather low. It also emerges that more resources were actually consumed than planned and quite often some unintended results have been achieved. The most typical explanations to these failures are related to the 'how' side: poor planning, poor planning tools and methods, poor management within the project.

We claim that the reasons why project fail, are not only methodological (the 'how' issues, related to making projects more efficient and effective, improving the abilities of the project manager etc.), but lay in the misrepresentation of the underlying principles.

The first misrepresentation is based on understanding the world according to the principles of organisation, where future is stable, fixed and predetermined. It is erroneously supposed that the future will be similar to the existing present and, in principle, we could foresee the future events in detail, but our existing knowledge and (mathematical and computerized) tools do not allow it. Interestingly enough, the actual course of history has shown the futility of the beliefs in a predetermined and known future (especially in connection with discoveries and innovations), but this has not caused its proponents to abandon it. Instead, new and more sophisticated explanations are invented to justify the claim. We have criticised this point of view in project and PCM context elsewhere (Rang and Targama 2007), here it suffice to state that the world surrounding us behaves according to the principles of self-organisation, where future is not determined and thus uncertain. The actual future will be realised not as a result of the initial plan or design of a conscious organising agent. The future will form as a result of 'events' (in terms of Ernst Friedrich Schumacher (Schumacher 1978:188-189) and the various activities of infinite number of players, each pursuing their own end. This results in the emergence of high-level spontaneous orders that serve the common good.

The two different ways of perceiving how a complex order is achieved has had profound impact also on management as such. The theories of Ford, Fayol and Taylor are based of the mechanistic approach of organising. These theories have been – by and large – abandoned in practical management (see Mintzberg et al 1998) and paid attention to only in the history of management. The only exception where these principles are still unfortunately adhered to is PCM.

These issues have been studied in detail, but from a different point of view and with a different objective, for example, by Karl Popper (2005), Friedrich August Hayek (1992, 2006), Ernst Friedrich Schumacher (1978) and also by Michael Polanyi (1951)³. Their object of criticism has been planning as such, but nor they (or to our

³ There are considerable differences between Hayek and Polanyi whereas the nature and scope of spontaneous orders is concerned (see Jacobs 1999). However, these differences are not important in the context of this particular article.

knowledge) any other researcher has ever related it to the failures in project cycle management⁴.

The second misrepresentation is based on considering only the explicit aspects of knowledge in the project cycle management. This means that the failure of a particular project is acknowledged, but the reasons for that are attributed to poor planning, poor project management and other 'how' issues, that can be methodologically taught, learnt and communicated easily through fixed and explicit rules and regulations. However, as indicated above, the elaboration of the methodology and methods used do not lessen (remarkably) the rate of project failures. When studying the roots and principles of the PCM method, it occurs that there is no theoretical or epistemological background attached to the method⁵. A set of normative rules were developed in a semi-military sector (NASA) for specific purposes (to beat the Russians in the space-race). The methods were indeed developed, but if necessity called, these rules were broken⁶. The most radical deviation from the rules was the possibility to include additional unlimited resources, if necessary. Secondly, the outputs in NASA space-projects were tangible, the result was either achieved or not. There was no middle ground or grey area, where achieving or failing in obtaining the result could be argued and explained. From a managerial point of view there exists a clear line of command in military organisations (although recently several network-based approaches have been introduced also to the military sector, especially when actual warfare is concerned). This means also that there are clear-cut and explicit orders given through subordination.

These principles are followed today in non-military and even non-adjacent sectors without ever asking 'why'. The scope of this article will concentrate on the knowledge component (explicit or tacit or both) in the project management issues.

Both of the misrepresentations described above tackle the practical side of why projects fail. Numerous books and articles have been composed to elaborate this theme. However, the advocated and hoped impact of these prints has been only limited, as no remarkable improvements have taken place as a result. The common explanation for this is still the limited knowledge concerning the explicit side, which each of these articles tries to develop in its scope.

⁴ This also explains the differences in their terminologies.

⁵ By "method" hereby we denote the overall methodology of PCM, comprising of various tools, such as WBS, PERT, Gantt charts etc.

⁶ Levine (1982: 156-157) quotes from Erasmus Kloman's Case Study of the Surveyor Program (typed manuscript, June 1971: 216): "PERT did not build the Polaris, but it was extremely useful for those who did build the weapon system to have many people believe that it did. ... the program's innovativeness in management methods was ...as effective technically as rain dancing.... It mattered not that management innovations contributed little directly to the technical effort; it was enough that those outside the program were willing to believe that management innovation had a vital role in the technical achievements of the Polaris."

However, we are of opinion that the approaches dedicated primarily to advancing the practical side do not help to solve the actual problem of project failure. We claim that the reason for the frequent failure of the projects stems from the uncritical following of a method that has no proper theoretical, philosophical or epistemological grounds. There are no founded reasons why the contemporary method of project cycle management is actually *used*. We have outlined above that the cornerstones of the current method were, in fact, systematically violated during the so-called launching phase of the approach.

It suggests that there is something amiss with the whole-hearted following of the methodological explicit rules. We suggest that more attention and emphasis ought to be paid to the opposite aspect of knowledge that can be obtained only through meticulous and continuous practice – the tacit knowledge. This issue has been studied primarily by Michael Polanyi (1958) and Michael Oakeshott (1991)⁷.

2. THE 'SECOND' MISREPRESENTATION

Based on primarily the ideas of Popper, Hayek and Schumacher we have described and criticized the misrepresentation related to the difference between the conceptions of organisation and self-organisation elsewhere (Rang and Targama 2008). The role of tacit y has insofar been largely abandoned by researches tackling the issues of project cycle management.

The role of tacit or personal component of knowledge in science was introduced and described by Michael Polanyi (Polanyi 1958, Polanyi 1969). The role of tacit knowledge in contemporary management as such has been analyzed by Nonaka and Takeuchi (Nonaka, Takeuchi 1995). A valuable and to some extent insofar fundamental contribution incorporating the tacit dimension into PCM has been made by Kaj U. Koskinen and his co-workers (Koskinen 2000; Koskinen, Vanharanta 2002; Koskinen, Pihlanto, Vanharanta 2003).

Polanyi noted already in 1958:

The avowed purpose of the exact sciences is to establish complete intellectual control over experience in terms of precise rules which can be formally set out and empirically tested. Could that ideal be gully achieved, all truth and all error could henceforth be ascribed to an exact theory of the universe, while we who accept this theory would be relieved of any occasion for exercising our personal judgements: we should only have to follow the rules faithfully (Polanyi 1958: 18).

⁷ The comparison between the conceptions of 'tacit knowledge' advocated by Polanyi and that of 'practical knowledge' proposed by Oakeshott has been analyzed, for example, by Mitchell (2001-2002) and Mead (2004-2005). These analyses, however concentrate on a rather general comparison.

We can fully substitute in the quotation above the words ‘exact science’ with those of ‘project based approach’. Following the rules faithfully will specifically concentrate on the ‘how’ issues described above. This has been the task of the vast majority of articles dedicated to this matter. The possibilities of including some aspects of tacit knowledge into PCM has been analyzed by Koskinen et al. Their research, however, is *verbatim* limited to some specific areas (“delivery of automation systems” in Koskinen 2000; “in innovation processes” in Koskinen and Vanharanta 2002 etc.) and lacks linkage to the underlying philosophical conceptions (Popper’s “piecemeal social engineering”, Hayek’s “spontaneous orders”, Polanyi’s “spontaneous orders” etc.). As a result the outcome is somewhat hectic and does not fully comprehend the issue under scrutiny.

We claim that Koskinen et al. (2000, 2002, and 2003) approach is limited and ought to be developed on a wider scale in the context. PCM – if properly, *i.e.* according to the principles of piecemeal social engineering – applied is a powerful tool for solving practical problems. In contemporary practice and even in academic circles the application of PCM is used within the conception of organisation (see above). It is assumed that future is predetermined and known.

The articles quoted above (Koskinen 2000; Koskinen, Vanharanta 2002; Koskinen, Pihlanto, Vanharanta 2003) operate still within the conception of organisation, *i.e.* the authors assume that the underlying principles and methodology of projects and PCM is principally suitable. They stress the “importance of experience” (Koskinen 2000) within and outside PCM and develop based on that and other notions the conception of ‘autopoietic epistemology’ and ‘The Holistic Conception of Man’ (Koskinen, Pihlanto, Vanharanta 2003). However, the crucial step is not taken, although it is noted that “*tacit knowledge cannot be aggregated in order to allow centralised decision making, the decisions made on the basis of tacit knowledge can be made only when all the people involved are present*”⁸ (Koskinen, Pihlanto, Vanharanta 2003: 288).

As a conclusion we would like to offer a preliminary sketch of how the conception of tacit knowledge could be incorporated into the development of PCM.

We have proposed elsewhere (Rang, Targama 2007) that the task of a project designer and respective manager is to bridge the gap between the incommensurable conceptions of organisation and self-organisation. The strategic (or planning phase) will be inevitably carried out in the conception of organisation. A project plan is a mental construction that is arbitrarily isolated from the actual world with specific restrictions imposed upon it. As a mental exercise for planning and project design it cannot be objected. The implementation phase will be inevitably carried out in the conception of self-organisation. Thus the best way for implementation is a

⁸ Italics in original.

stepwise piecemeal approach, during which the new emerged reality will be studied after each step (activity) has been taken within the project. The project manager has to evaluate the emerged reality and to adjust the activities (as well as, perhaps, results) outlined in the project plan to the situation. We are of opinion that the overall objective should remain unchanged, but all other aspects within a project (results, activities, allocation of resources etc) could and should be changed, if necessary⁹. There ought to be as little as possible restrictions to the nature and scope of change.

It will be task of the project manager – or his team – (naturally, it would be wise if the decision will be taken as a result of a discussion with other people / parties involved) to decide how to proceed. This task presupposes that the project manager has had ample experience. This experience should consist of having managed similar projects, understanding fields related (the conception of “overlapping neighbourhoods”, as proposed by Polanyi in his essays “The republic of science”, “The growth of science in society” etc.), intuition, pattern recognition etc, which all sums up as tacit knowledge. We do not want to equal tacit knowledge exclusively to know-how (see Koskinen 2000: 43), but see it rather as a mental frame of perceiving the area under consideration from all different sides and point of views. The situation in which the crucial decision will be made has no particular characteristics and it cannot be classified. Thus it indeed depends upon the insight and foresight of the project manager.

Project (and not exclusively) management could largely benefit from what Michael Oakeshott called ‘conversation’ in his collection of essays *The Voice of Liberal Learning* (1989). Although originally aimed at describing the principles of liberal education, these suit well also for project management. One ought to “be encouraged to ask questions, to examine prior assumptions and to think thoughts never previously dreamed of” (Mead 2004-2005: 39). This conversation should take place among peers (i.e. students and professors respectively) but “most importantly between students and professors” (Mead 2004-2005: 39). This would create the necessary preconditions for the dissemination of tacit knowledge within project management.

We have described that the planning phase is conducted in the conception of organisation. It is natural that within the planning phase *objectives* for the future will be determined. The common practice is also to determine in detail the *activities and resources* (as well as join them together) in the same phase. In practice, this is extremely time-consuming and following the abovementioned arguments also almost futile. Thus we claim that tacit knowledge should serve as the basis for

⁹ As a remark it should be mentioned that this approach also excludes long-range planning in terms of resources. Although a project may last for a longer period of time, the actual allocation of resources should not be made for more than 9-12 months. “The future cannot be forecast, but it can be explored” Schumacher 1978: 200).

determining the scope of activities and respective resources. This is, in fact, carried out anyway, but it is not considered as such. „...explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is *either tacit or rooted in tacit knowledge*. A *wholly* explicit knowledge is unthinkable” (Polanyi 1969: 144).

However, as tacit knowledge is ‘personal’, i.e. connected with a specific individual it must inevitably be also subjective. The prerequisite of planning in the conception of organisation is, on the contrary, to be as objective as possible. Objectivity can be achieved through independent measurements, carried out by neutral entities. Tacit knowledge – being subjective – cannot be measured, weighed and evaluated. This variance has insofar excluded the introduction of any tacit component into the planning phase of a project.

The task of a project designer and respective manager is, once again, to bridge a gap. This time the gap lies between the conceptions of explicit and tacit knowledge. The conception of organisation has created an illusion that everything can be planned and known in advance. To achieve this particular illusion one needs to have some specific knowledge that – although obtained also through practice – can be easily transferred. In other words, this knowledge within the conception of organisation is explicit. Planning in an open system is, however, impossible. “Forecasts are offered which upon inspection turn out to be conditional sentences, in other words, explanatory calculations. The latter are misinterpreted as if they were forecasts of predictions” (Schumacher 1978: 190). We have explained it in relation to planning above. From a psychological point of view it is, perhaps, best explained by Friedrich Nietzsche: “Before the effect one believes in different causes than one does after the effect”.

In practical PCM terms, explicit knowledge should be used for (and in) purely mechanical and repetitive actions in the planning phase as well as in the implementation phase of the projects, like filling in the project application and reports, composing the project *indicative* budget (although the inputs for budget ought to be based on tacit knowledge) and other technical activities. In PCM explicit knowledge equals technical (by nature) skills. Tacit knowledge should be used as a basis for any action in the implementation phase, where, indeed, insight and foresight are required.

We stress that the concept of tacit knowledge should be mainly integrated and utilised in the implementation phase of the project, as the tacit knowledge is a part of the conception of self-organisation.

But we also claim, that in the planning phase only the objectives or aims should be determined (using the conception of organisation), whereas activities and respective resources should be indicated by using the tacit component of knowledge. This also means, that “planning” is inevitably “moved” to the implementation phase of the project where it goes, in a piecemeal way, hand in hand with implementation.

CONCLUSION

In this paper we have aimed at describing the existing normative rules (method) of project-based approach. We claim that there are no theoretical principles for the adoption and use of this method. Furthermore, we state that the frequent failure of the implemented projects is not due to the shortcomings in the method, but rather in the lack of the theoretical principles. We present and describe two philosophical conceptions (self-organisation and tacit knowledge) in relation to PCM and proffer them as the foundations for the future theory of PCM.

Last, but not least: just as it is the task of each manager to *organise self-organisation* (as contradictory as it may seem), we have tried to shake the underlying principles of planning and management through the inclusion of the conception of “tacit knowledge” into PCM, through making the role and possibilities of *tacit* knowledge in PCM *explicit*. We are of opinion that this can only be done by theoretical discussions and philosophical enquiries. Let us conclude once again by quoting Nietzsche’s *Thus Spoke Zarathustra*: “It is the stillest words that bring on the storm. Thoughts that come on doves’ feet guide the world”. *

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