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Learning from failure: a case study on creative problem solving

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Abstract

This research is aimed at improving the creative problem solving (CPS) facilitation process by case analysis, through which we try to learn even from failure. With the goal of increasing efficiency by reducing session time and also due to theoretical considerations, a four-step model was designed, comprising the stages of *objective-finding, problem-definition, action-planning* and the *action* itself.

Following these adaptations, our research involved an organisation that enabled us to bring managers and volunteers to work on a project. The organisation is the only private museum in the Algarve region of Portugal; it is involved in regional culture and, despite competent management, faces serious financial difficulties. A team of 22 people was established, representing both immediate and remote geographical communities, cultural organisations, and representatives of innovative projects related to the hospitality industry. From the interventions, and the follow up procedures, we learned that some project failures could have been prevented by a more thorough team facilitation, considering the team's size, and a better handling of the client's ownership of the problem. The analyses and conclusions allowed the development of principles that will be applied in future interventions, giving rise to improvements in the facilitation process, bringing in important implications for developing collaboration between organizations.

Team composition and the handling of client-team relationships seem to be promising areas for research, given their potential impact on a project's effectiveness, as to its final results for the organization considered.

Keywords: creative problem solving; team facilitation; organisational innovation; collaboration in organisations

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1. Introduction

Since Alex Osborn introduced brainstorming and creative problem solving (CPS) (Osborn, 1957), these procedures have been subject to investigation and improvement. As a result, many variations now exist and doubts might reasonably arise regarding which technique offers the best "value for money". From both commercial and academic perspectives this is an important question since the cost of organizing and putting teams together, in order to bring solutions to company challenges and implementing them, can be considerable. Any reduction in training or implementation time, or other efficiency related issues, might make one technique more attractive than another. Besides process changes, other improvements can be made, related to facilitation with both group and client, and with regard to what happens during project implementation. These improvements can be determinant for the development of organizational innovation systems, collaboration between organisations, and change and organisational development.

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1.1. The evolution of CPS

CPS evolved from Osborn's three-step model (Osborn, 1963) to the Osborn-Parnes five-step model (Parnes, 1967), comprising *fact-finding, problem-finding, idea-finding, solution-finding* and *acceptance-finding*. Later, the sixth stage of *mess-finding* was added (Isaksen and Treffinger, 1985), and specific roles were allocated to stakeholders of *client, facilitator* and *group member* (Gordon, 1961). The steps were also defined in terms of three broad categories: *understanding the problem, idea generation*, and *planning for action*. This six-step version formed the basis of the "Ecological Approach", designed by Isaksen, Puccio, and Treffinger (1993), which also included the CPS profiling multi-dimensional framework, to help understand, predict, and facilitate CPS performance.

Based on the Osborn-Parnes CPS approach, Basadur (1994) proposed his variation, the *Simplex* model, which views CPS as a cyclical process, comprising three phases and eight steps. Each step includes a divergent thinking phase, when individuals generate as many ideas as they can, followed by a convergence phase, when participants use judgment and select ideas to carry on to the next step. The Simplex process is organized as follows: first phase – *problem definition* – *problem-finding* (identification of a challenge); *fact-finding* (the group gathers as much information as possible, related to the selected problem); and *problem-definition* (the more promising problem is defined, using the question "how might we…?"). The second phase – *problem solving* - comprises: *idea-finding* (generating as many solutions as possible); *evaluate and select* (judgment criteria are used to evaluate the potential solutions and decide which should be implemented). Third phase – *solution implementation* – includes: *action-planning* (specific actions are planned regarding the implementation of solutions previously generated); and, *gaining acceptance* (overcoming the resistance of others to change).

Practitioners often adapt CPS to suit specific situations (Buijs, Smulders, and Meer, 2009; Van Gundy, 1987; Buijs, 2002). For instance, an emphasis might be placed on problem definition (Getzels, 1987), solution or idea finding (Gordon, 1992), or both (Getzels, 1992). There are also adaptations regarding the use of divergent (McPherson, 1992), or convergent (Firestien and Treffinger, 1992) thinking tools. However, these adaptations do not generally influence the action plan, which, although critical to innovation, is sometimes considered outside the creative process (Noller, Parnes, and Biondi, 1992). In fact, the process output of CPS is often considered to be dominated by the idea generation stage, either because of its product development origins, or because of adherence to a methodology often used for training and education. Moreover, these models require a training phase and a time spent with the team that may take several days.

1.2. Process Adaptations

Due to time restrictions imposed by clients, because of the difficulty of assuring continuity of the five to ten managers or technical specialists as team members, we reduced Basadur's eight-step model (Basadur, 1987) to four steps (see Figure 1), in order to reduce the implementation time to four hours, as explained in Sousa, Pellissier and Monteiro (2012). The new four-step model: *objective-finding, problem-definition, action-planning* and the *action* itself, was designed and tried with good results. In addition, the objective-finding step was completed during the initial consulting stage with the client, and the action stage was configured to occur after the CPS session (and represents the actualisation of the project goals).

During the session with the team, then, the actual CPS procedure comprises two steps: *problem-finding* and *action-planning*. These two steps are seen as an iterative loop, where not even the "solution" step takes place, being replaced by a series of actions needed to solve the selected problem or achieve the selected goals. This new cycle allows for the reduction of the time spent in team meetings, and focusing the team resources on the all-important action plan. This includes reflection on how to develop the execution of the plan, its different steps and milestones, management control measures, acceptance and communication tasks.

This approach has an additional advantage in helping structure the group while problems pertinent to the objectives are being listed. This facilitates an emotional linkage between group members during the convergent phase of problem definition. The second step, *action-planning* also facilitates structure, as team members' express their creativity during the "how to?" stage of developing each planned task, including their communication to, and acceptance by, people external to the group.

Although the sequence of divergence and convergence is maintained, it is only used during the problem-definition step. During this step the team enumerates all possible barriers to reaching the objective and then selects a final problem definition to work with, beginning with the expression *What are the steps necessary to ....?*. This question focuses the team on seeking concrete tasks instead of more esoteric solutions.
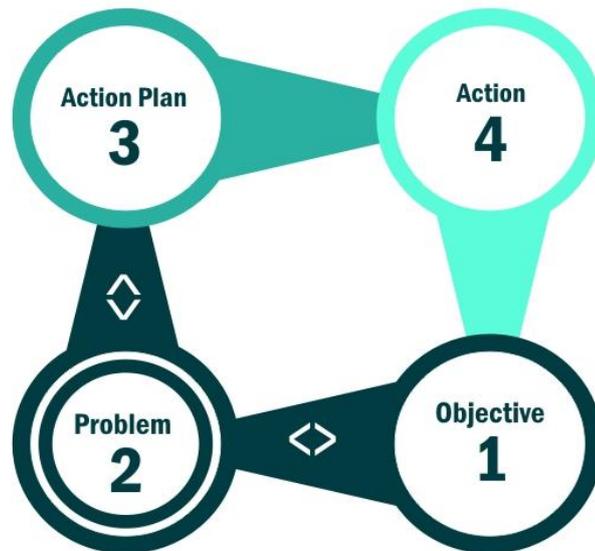
Fig. 1. The present four-step CPS method

During *action-planning* the team starts by listing all actions needed to achieve the goal, and then puts them in order of execution. For each task, the "how to?" question is defined in such a way as to include any actions necessary to overcome resistances that might arise. Each task is assigned to a sub-team, which defines deadlines as well as the person or entity responsible for evaluation of the final output. Management controls (e.g. return-on-investment [ROI], project milestones), when appropriate, and communication tasks, are important inclusions in the final task list As well as improving team commitment to the ongoing nature of the project, ROI also provide feedback with regard to the impact of the project on the organisation as a whole.

The establishment of an effective communication structure (e.g. Google groups; Wikis), within the team, facilitates the collective awareness of each team member's tasks. Also, advertising the project within the organisation (e.g. via an intranet newsletter) reduces organisational resistance to task accomplishment and increases peer pressure for the team to comply with the project's milestones and goals.

The acceptance tasks, aimed at overcoming resistances external to the team, which are sometimes considered the most likely reason for failure (e.g. Buijs, Smulders, and Meer, 2009), are included in this approach. But the most important factor in resistance reduction is that the team must include those who may be affected by the results of the project, have the power to promote or block it, or possess relevant information or expertise (Strauss, 2002).

1.3. Facilitation and Group Factors

Many factors can facilitate or hinder group functions: the physical and organisational environment, the problem-solving content and method, the decision making, the nature of the group, and the immediate forces that play upon group members. Helping a group develop and use its resources efficiently invariably involves changing many factors that affect the group and alter the group process. First called leaders, then trainers, then facilitators, and now facilitator-intervenors, these people perform the very delicate and significant function of helping a group to cope with its processes. A facilitator is *a self-reflective, process-person who has a variety of human, process, technical skills and knowledge, together with a variety of experiences to assist groups of people to journey together to reach their goals* (Hogan, 2002, p. 57) or, to say it more simply, someone who makes team work easier to do (Chrislip, 2002). Interventions include tools, tactics, and processes that help a group accomplish its tasks and expand the group's capacity and may also be categorized as 'helping a group to do something' (i.e., generate and evaluate ideas) compared to those that develop the group's skills or efficacy (i.e., cross-training and teambuilding).

The intervention function of the facilitator is a very delicate one. According to Argyris (1970, p. 15) , *to intervene is to enter into an ongoing system of relationships, to come between or among persons, groups, or objects for the purpose of helping them . . . the system exists independently of the intervenor*. The nature of the role or relationship between the facilitator, the group, and the client, is a unique role not comparable to most of the other roles in human relationships. Benne, Bradford, Gibb, and Lippitt (1975) suggest that this is *not* equivalent to leader-follower, manager-subordinate, colleague-colleague, or friend-to-friend relationships.

Regarding CPS, several variables, which have the potential to influence project output, have been studied. Group size, for instance, was studied by Quinn (1988), who mentions that small teams, with five to seven members, are more flexible and maximize communication and creativity. On the other hand, West and Anderson (1996) showed that larger teams (more than ten members) produce more radical innovations. As to group heterogeneity, West (2002) proposed that diversity of team members' knowledge and experience encourages creativity.

Regarding the facilitation process, Basadur (1994) suggested that the client participates in the team decision making processes, and stressed the need for "problem ownership", meaning the capacity to handle possible solutions within management and team resources. In the view of Drazin, Glynn, and Zazanjian (1999), to negotiate the order between the client and the team seems to be of critical importance to the final result.

Following the design of this contracted CPS process, and research regarding its efficacy (Puccio, Firestien, Coyle, and Masucci, 2006), we decided to get evidence as to the possibility of losing effectiveness because of the reduction in steps (Sousa, Pellissier, and Monteiro, 2012). As to the facilitation process, team size, and composition, we decided to improve it by case analysis, through which we could try to learn mainly from possible mistakes.

2. Methodology

2.1. Research Goals

The goal of the present study is to get answers to the following questions:

Q1: What would be the consequences of working with a large, heterogeneous group, regarding CPS effectiveness?

Q2: How can the facilitator improve problem ownership with the client and the team?

To achieve these goals we decided to solicit participation from an organisation that would bring managers and creative volunteers together to work on the same project. The participant organisation was the Costume Museum (*Museu do Trajo*) which is an example of creative work around regional culture, in the city of Saint Bras of Alportel, in the South of Portugal. Despite good management, Museu do Trajo faces serious difficulties as the only private museum in Portugal's Algarve.

2.2. The "Museu do Trajo" (Costume Museum)

The process of systematic collection of costumes started in 1980 with Father José da Cunha Duarte. The integration of the Museum into another local organisation, the Santa Casa da Misericordia (Holy House of Mercy) of S. Bras de Alportel, undertaken in 1987, allocated the Museum its own space, and allowed it to start organizing its own activities functions. The local population joined the Museum project with enthusiasm; however that did nothing to mitigate the disastrous condition of its building housing for the costumes. Gradually, until 1992, public support waned as people perceived the Museum as doomed to failure.

In 1993, official concern grew regarding depopulation of the interior of the Algarve, and this had a positive impact on the future of the Museum. Financial aid arrived, and for about a decade, the buildings and the surrounding spaces suffered major restoration. Throughout the disruption, Museum activities never stopped and, by 2003, the buildings and other facilities offered satisfactory conditions in which to exhibit and conserve the costumes. As a result, exhibition activities improved in quality and exchanges with other Museums became a common practice.

Currently, the Museum is owned by the Santa Casa da Misericordia of St. Bras de Alportel. The Santa Casa da Misericordia is a Portuguese charity founded in Lisbon in 1498, with an essentially social welfare mission. As such, the emergence of the Museum's cultural component has pulled the institution into a new and unknown area. Thus, the Administrative Board of the Misericordia grants a high degree of autonomy to the cultural management of the Museum, while still participating in its improvements, and investing and closely following its successes and failures. The Misericordia, then, provides basic services to the Museum, including staffing its office during opening hours as well as providing some promotional activities in the municipality. The Board manages the Museum's resources which include volunteers, the support of government officials, patronage, sponsorship, ticket revenues, revenues from its store and from providing services to external entities.

The Museum's staff consists of three people (a director, a receptionist and a ubiquitous employee), delivering services within a total space of $5000m^2$, $875m^2$ of which is exhibit space. There is also an auditorium of $110m^2$, $380m^2$ for other activities, $350m^2$ for services and $2000 m^2$ of garden.

There is also a *Friends of the Museum* organisation, with 260 contributing members, some of whom volunteer in the course of organizing events and club activities. The Institute for the Employment is also an important resource, since, through various occupational programs, they provide specialized workers and interns through programs such as

the Portuguese Youth Institute. Exhibitions at the Museum are often commissioned by local personalities, which provides revenue, as do the training and the various other activities conducted by a group of eight educators.

2.3. Preparatory Activities – the "Pre-Consult"

The "pre-consult" is a preliminary activity in which the administration is interviewed in order to draw out the objectives of the intervention. It consists of an initial presentation of the facilitator's portfolio, and an explanation of the aims, method and structure of the CPS. A strategic map of objectives is generated and so that a coherent picture of the organisation's aims becomes clear, and a specific objective can be chosen. The project team is also defined as are the setting and timing of the initial session. Other factors may also be addressed such as factors related to material requirements and venue, or the existence of HR policies or leadership factors that might hinder team work (e.g. significant individual money awards; autocratic or centralized leadership style; or the existence of a performance evaluation system that encourages individual competition). In the present study, the administration accepted the intervention and, during the pre-consult, a broad objective was defined – *How to make the Museum a sustainable project.*

2.4. Setting up the Project Team

Even though team members must be specialists in tasks related to the objective, many other details are also important, and can influence factors such as innovation. In fact, it could be argued that innovation does not come from a particular idea that the team generates but from team member diversity of knowledge, skills and creativity. Diversity of knowledge, background and interests, commitment and learning capability, are key characteristics for team innovation and success during project implementation. Again, creativity and problem solving will apply mostly during project implementation, rather than the building of the initial idea.

Besides these key factors, other details may influence the ability of the group regarding project performance and output. From literature and experience, we know some of the general factors that benefit team composition (such as diversity). However, these are generally applied to small groups (5 to 12 people, say) and may not offer the same advantages to larger groups, such as the team chosen in the present intervention. Our solution, then, was to work with the larger group while keeping a small group rationale. Specifically, this involved breaking the large team into smaller groups to enable a heterogeneous group to still benefit from being a cohesive team.

Besides group dimension, diversity and market orientation, we knew that the team had to comprise members representing the whole chain of suppliers-products and services-clients. We also needed to include gatekeepers who could block the group's decision, support it or be affected by it. Thus top managers from the invited organisations were seen as crucial for problem identification, resource allocation and results control, but we did not know to what extent we could rely on them for decision implementation. Above all, every group member had to be willing to participate in the project on a volunteer basis.

With these factors in mind, the present researchers and the Museum's management came up with a list of individuals related to the four circles identified: immediate geographical community (local, schools and associations, church and city hall authorities), remote geographical community (similar but from other cities), cultural organisations (regional cultural authorities, specialists, artists and galleries/cultural centers), and innovative projects of companies related with the hospitality industry. Choices were made on a personal value basis rather than as representatives of their organisations, but the majority were the managers. Of the 27 people contacted, 22 accepted and only one did not show up.

Even though the Museum had an appropriate space for the workshop, it was decided to choose somewhere that could represent the need for development and as well as providing appropriate conditions. The small (800 people) and beautiful village of Tor was chosen, since it had a community centre with good facilities (e.g. auditorium, gymnasium and catering possibilities), and the local management were glad to host us for a small donation.

The program was constructed and everyone received photos as well as articles describing the Museum one week before the session.

3. Analysis and results

After a welcome presentation by the Museum manager the problem solving session started, with the stated objective – *How to make the Museum a sustainable project.* Participants were asked to list potential problems that they thought might be barriers to achieving the objective.

As the whole team was too big to allow for full participation as one group, members were allocated to two smaller groups, and each sub-group went to a separate room. Facilitators took care to try and prevent the natural tendency of newcomers to make speeches, disagree with other team members, or to converge prematurely on possible routes to the

objective. Even though some of the participants were, at first, frustrated because of the difficulty of having to condense an extensive concept into a short sentence, everyone adapted easily to these requests.

Care was taken to maintain momentum, include everyone in the listing task, and provide problems instead of solutions (i.e. using short questions with a verb and an object, without the use of negatives, "and", or, "or", if possible). Charts 1 and 2 show examples of problems that emerged from this initial work.

Chart 1. Examples of problems listed by group One

Need: communication with the outside	Specialisation of the Museum
Need: involvement of local schools	Need-based social and local support (domestic and foreign)
Need: development of partnerships in promoting events	Need to link more closely with the primary sector
Need: survey of regional resources	Need to integrate networks of Museums nationally and internationally
Cost of entry	Accessibility for people with disabilities
Lack of human resources	Suitability of the nature of the institution
Lack of a model management	Need to link with nature/ecology ...
Increased use of technology	Positioning (marketing) of the Museum
Need to sell products	Generate revenue of products of the Museum
Maintenance of space	Maintenance of accesses
Need to fight strategic public institutions	Greater disclosure
Quality of supply	Difference in what is offered
Not to be competitive	Need to recover tourism (traditional uses and customs)
More than foreign nationals	Need to attract tourist trade

Chart 2. Examples of problems listed by group Two

Financial	Positioning
Human Resources	Need to monetize the value
Do not drop down resources	Energy-sustainability
Need to involve the community	Participation and volunteering
Public get tired of the same thing	Apathy
Discontinuity in programs	Go with the people's interests
Disclosure of secrets	Institution/corporation
Employee eelf motivation	Character-teaching /educational
Unique selling proposition	Citizenship
Need to study the local situation	Politics (un) suitable
The Museum has no clear identity/mission	Accessibility
Few partnerships	Costs associated with exposure
No inter-generation (no young people)	Ways of communicating not diversified
Are we meeting people's needs?	Understanding the public
A need to streamline	Combating elitism

Within each group, members were asked to choose two items from their list that they considered important and tractable regards possible solutions. After each member justified their choices, the facilitators came out with 2-3 possibilities (starting with the expression "What are the steps needed to…?"), and the two sub-groups gathered together again to consider the following challenges:
What are the steps needed to…
- bring in people?
- define the management model?
- generate revenue?
- involve the community?
After a short discussion, the Museum manager (client) was asked to choose one challenge, and the choice was - *What are the steps needed to define the management model of the Museum?*

Action Planning

The session continued after a half-hour break, when everybody had the chance to taste first class cookies and natural locally made refreshments, which put them in an appropriate mood for the rest of the work.

The second half of the session dealt with the action plan, which consists of: defining the tasks to be executed; sequencing the tasks; suggesting ways to execute each task (including eventual additional tasks in order to overcome possible resistances); defining a sub-team responsible for the task; setting up a deadline for task completion; suggesting someone outside the group to evaluate the task (which, it was agreed, should be carried out to a professional standard, regardless the member's initial expertise). In this case, management control measures (e.g. ROI) did not apply and milestones were not defined.

The result was the following action plan (Chart 3):

Tasks:
1 - SWOT Analysis;1-Set Features; 1 - Benchmarking; 1 - Know the users;
2 - Set goals;2 - Define mission / vision; 2 - Structure / team
3-Set consolidated partnerships and dependencies;3 - Definition of content / products;3 - Define Stakeholders;3 - Operating strategy;3 - Communication Plan;3 - Objectives of Sales;3 - Positioning;
4 - Set up monitoring;

Chart 3. Action Plan

TASK	HOW	WHO	WHEN	QUALITY STANDART
1) SWOT; Resources; Benchmarking; Users	Team within a team out + 1; Work + off; Analysis of existing in the Museum; Ask public visits other experiences	R. P.; L.M.; C. S.; A. B.;	July 1	A. company
2) Objectives / mission and vision;	Structure; Discussion and debate with friends of the Museum; Maintain comprehensive definition; Analysis of existence in the Museum; Ask public about other experiences;	V.; C.; D.; A. B.; D.; A. M.	July 18	S. Bras City Hall Administration
3) Common strategy, positioning partnerships + Sales team	Compromise between detail and action; Tourism	S.; M.; A. B.; P.; A. P.; A. F.	September 16	D. P./TA
4) Monitoring	Indicator measured after project	F.; V.; C.	September 26	J. A. /CRIA

Coordination tasks were also defined, namely the *designation of a group coordinator, an internal and external communication system, and the date and place of the next meeting*, at the end of the project. The person in charge of the group must be chosen by the administration and well accepted by the group as someone who is able to show a supportive approach to leadership, as well as a good balance between team members' and management requirements. The coordinator's tasks are aimed at facilitating achievement of the goals, and perhaps more than 50% of the project's success may be due to his or her actions. The person is also responsible for preparing interim reports and for the final debriefing.

A permanent communication needed to be maintained, so that every member of the group knew what was being done without the need for further meetings. Besides the group, the project must be known either within and outside the organisation, so that the impact of each task regards external members might appear easier to handle (to reduce the "not invented here" syndrome), and group members feel responsible for accomplishing the tasks before a wider audience.

The final debriefing is a formal meeting, organized by the group's coordinator, and must reflect all the work done, in terms of task accomplishment; management control, evaluation and measures of performance; main innovations and competitive advantages attained; project re-definition for the next period.

Team final meeting and debriefing - Sept. 30, 2011

Team co-coordinator - A. B.

Communication sub-team - A.; P.; V., A. B., M.; R. P.

Follow Up

As no intervention could be complete without including the Friends of the Museum, it was decided to design another project with this group. The Friends of the Museum comprises some 260 members, with a diversity that encourages effective collaboration, sometimes in specialized areas, through responsible volunteering. The group also plays an important role in cultural promotion that revives the concept of House of Culture that figured in the founding documents. The Museum administration puts no restriction on the Friends' activities and they try to respond positively to any desires or expectations of the local population and museum patrons. Areas as diverse as history, archaeology, fine arts, crafts, ethnomusicology, photography, music, Portuguese language for foreigners, yoga, maintaining gymnastics, Chi Qung, literature, Tai Chi, dancing, lecture cycles, and thematic discussion groups are part of the recent programming. Activities are mostly paid for by participants, but the Friends benefit from privileges including reduced participation costs. The Friends of the Museum are important to the Museum for fundraising, organizing events and the provision of general manpower.

During the pre-consult with the board, an objective was drawn – *To serve the community*. The session was prepared, scheduled and run much like the previous one. The challenge defined was - *What steps are needed to resolve the "Amigos" identity?*, and the action plan depicted on Chart 4 was defined.

After a short while, it became clear that the deadlines for the tasks, on both projects, were not going to be met, except for those that did not require considerable homework. Regarding the Museums project, instead of designing detailed working plans, each sub-team was left with only the overall planning, and the only tasks accomplished were the ones that did not require previous preparation, or that could be executed by the Museum personnel. Even though many tasks were executed, the overall plan was considerably delayed and a full business plan was not generated. As to the "Amigos" group, internal conflicts prevented the last and most important step, which was that they were to become a fully legal entity.

Chart 4. Action plan for the Friends of the Museum

TASK	HOW	WHO	WHEN	STANDARD
1) Define the role of the "Amigos" 2) Develop a sustainable organisation 3) Make a joint venture with the Museum	Ask the Museum and the community Who owns the Museum? Bring them in (administration) Analyse the type of events. Make a comprehensive list of requirements Define what the organisation should deliver	C. ;V.; I.	August 16	P. S.
4) Change the way community regards the "Amigos"	Speak with community representatives (eg. schools, other associations, music groups, scouts, library) Make inquiries	L.; D.; E.; M.	October 17	C. S.
5) Legalize it	Raise money and define representatives	A.; A. P.	December 2	Lawyer of the *Bombeiros*

One year after the start of the intervention, many tasks had been accomplished but only those that did not require individual team members, outside the Museum, to do homework, leaving Museum personnel with management tasks they were not prepared to carry out with expertise. Also, the "Amigos" are now preparing to become a legally ratified association, not because of the intervention but because of a considerable donation in property which has to be put under the administration of a legal identity. As such, some planned project tasks were not carried out, leaving the impression of project failure.

4. Conclusion

Overall, we found that factors such as team commitment, divergent thinking, performance and process output, did not suffer from the reduction in CPS process steps, as explained in Sousa, Pellissier, and Monteiro (2012). However, from our interventions, and the follow up procedures, we learned that some project failures could have been prevented by a more thorough team facilitation. Factors contributing to this include the large size of the team along with its heterogeneity and the fact that the majority of its members were not a part of the Museum's structure. Client ownership of the problem was probably critical to the success of the project in view of these factors. Also, a high degree of detail was also necessary with regard to the final plan. Therefore, we concluded that the following principles should apply to future projects:

- *Top managers should attend the CPS session if they are needed to decide or bring input*

Trying to bring ideas to work, or develop important initiatives, without management approval and support, may be an heroic act but is probably not effective. To promote organisational innovation, managers must establish a general positive orientation to new ideas, agree with the solutions proposed, allocate the necessary resources to the project teams, and measure the results in terms of their impact on the organisation's profits. Moreover, they must be involved in innovative projects from the beginning, so that they feel them to be their own.

If this applies to managers in charge of the organisation, it is an entirely different issue to ask managers *outside* the organisation to contribute with their expertise. Although their opinion might be of great value during project preparation, it is very difficult to ask them to do homework, or commit other resources. In the present study, although they were fundamental in orientating the Museum to be run like a business, these external managers did not provide all the necessary support afterwards, which left the Museum's staff feeling unsupported and dependent on their own resources. The need for the presence of these so called "queen bees" (Winer and Ray, 1994) must, then, be balanced between their difficulties in continuing to support the project and their ability to attract others who will work hard. Also, if this had been a company project, selected external managers should have had a business interest in it, and not just their sympathy for the organization, as in this case.

- *Get team members committed to being results-driven*

Many CPS advocates suggest that it is ideas that are the most important thing a group can produce. Lots of brainstorming sessions, under various formats, seek to find *the* idea that will promote an innovation. If these ideas are not implemented appropriately, however, or people start the implementation step but give up prematurely, then everything remains the same, people get discouraged and little, if anything, is achieved.

Having an idea that works, then, may be more important than generating the "brightest idea". In other words, real innovations come from solving many problems during project implementation, which requires persistence, imagination and knowledge and, above all, team and management support. Managers, then, must commit to results and not just to ideas.

In our study, the team should not have left the meeting without defining individual tasks precisely. Facilitators helped in defining sub-teams' tasks and presumed that each sub-team leader would do the same afterwards, however this did not happen, simply because they (the Museum's staff) were not prepared to do it. What may seem easy for a trained and experienced facilitator, or even a manager, may prove difficult for an inexperienced person.

- *It is good to have diversity in organisations and specialists, so that innovation can surface from different knowledge and creativity capabilities. However, the client should be advised not to choose orientations that cannot be carried out by internal staff*

The "secret" for innovation lies in the mix of knowledge and skills that may be put together to achieve a specific end. If these knowledge bases are too far apart, however, a communication path is difficult to establish. If that path is established, the resulting concept might be really innovative. In other words, belonging to some field of activity is not enough to guarantee knowledge sharing. To be able to share, a person must not only be an expert in the field but to know enough in other areas, to be able to make the necessary knowledge transfer.

When the majority of the project collaborators work within the same organisation it is easier to designate those who should be part of the team, and to expect them to maintain their contribution during the project. But when only a few people belong to the organisation, the challenge of knowing who should be included and how to maintain their commitment to the project, is more difficult. That is why, during the pre-consult, a discussion regarding who should be part of the project team is so important, as care must be taken to balance expertise and emotional links to the project.

Also, even if a proposal seems promising, if the client does not have the appropriate resources within the organisation then care must be taken to select the right proposal. Nevertheless, if the client makes a risky choice, the facilitator must help the group to increase its probability of success, which did not happen in this case

- *Stay focused on the problem defined throughout project implementation*

It is not as trivial as it may seem to remind people to stay focused on the defined problem. As the action plan lists tasks to be executed by different sub-teams, it is easy for people to concentrate on those tasks and forget the larger problem they are trying to solve. It is important, then, to define milestones for the project, which ensure the team gathers together regularly so that tasks and objectives can be

reformulated. In the present study the whole team should have met at least once before the project deadline, which did not happen.

Overall, this was a good opportunity to learn from mistakes, and since the reported interventions, we have been more careful in everything that influences the potential success of the project; specifically, the pre-consult, the selection of the team, and the handling of client-team relationships during sessions. We believe that the more we know about how to bring in large groups with specific objectives, as well as everything that has to do with client ownership and interface with the project team, the more we increase the probability of success. Future research should concentrate on tackling these issues, and in improving the technical aspects of the group decision making process by adopting tools from the universe of the group support systems (GSS).

As to the project implications for industry and the service sector, we believe that bringing in people from outside the organisation, to help improve results, especially when we deal with small and medium-sized companies, can be a valuable resource to reach goals that would be impossible without extensive financial resources (e.g. in order to hire consultants). Especially in these difficult times, collaboration within and between organisations can be a possible solution to providing innovation and competitiveness, and to overcome financial hurdles. Nevertheless, collaboration practices should be regarded as a sophisticated technology, requiring a careful approach and effective processes such as those discussed here.

As to the "fiasco" in the intervention, we are happy to learn that the Museum is doing well, in terms of its managerial processes, in part due to our intervention, although not within the time limits that were predicted. The majority of the tasks decided in the first meeting have been done and a business plan is now one of the main orientations for its development.

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