UNIVERSITÀ DI PISA

PROJECT DESIGN & MANAGEMENT FOR DATA SCIENCE

Scamper Method Review

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1 Introduction

Often, when designing a product or service, there is a risk that it will not be very creative and will not stand out from others that are already there, so it could be necesary to think about modifications and readjustments that can make a product more effective and avoid its failure once placed on the market.
To aplly this kind of modifications, it is possible to use various *problem-solving techniques* that analyse the various aspects of a problem and help to find optimal solutions to it.

Among these techniques, there is one capable of developing c*reative thinking* within a working team and solving the problems related to an existing product or service. This creative technique is a brainstorming-based method called **SCAMPER**, an acronym composed of the seven verbs that help a team in developing not obvious questions on aspects that can be changed in a product ot to create a new idea or product that has never been seen before.
This technique belongs to the class of *qualitative methods* and is usually used in the *evaluation phase*, to understand how to redesign an exististing product to make it more innovative and marketable.

The first intuition about the Scamper Method came from Alex Osborn, one of America's leading marketing experts, considered the father of the brainstorming technique for the development of creative thinking, that in 1953 invented the seven verbs of Scamper (*Substitute, Combine, Adapt, Modify, Eliminate, Put to other uses, Reverse*)[1].
These concepts were then formalised by educational expert Bob Eberle who created the acronym SCAMPER in 1971[2], ordering the verbs invented by Osborn and applying them within school education to help students, through a guided path, to imagine the world in a completely new way. In the years that followed, these ideas were used not only in education but also in business, thanks to the simplicity and ability to stimulate creativity, allowing each member in a team to express their opinions freely and imagine a totally new use or destination of an existing idea or product.

In this report, after illustrating, after explaining how the Scamper works and its advantages and drawbacks, it will be necessary to focus possible applications of the method in the realisation of design and data analysis products, as well as the possible integration of a *quantitative approach* to further improve the method.

2 Background Literature

As mentioned in the introduction, the Scamper method was born thanks to Alex Osborn within creative thinking and was later applied within the school world by bob Eberle. It is a method, therefore, very much linked to the *psychological* aspect, as each verb that makes up this method is designed to create direct and provocative questions that help the human mind to produce creative ideas that without those provocations perhaps would never have emerged.

Although there is no scientific proof of the validity of the Scamper method, over time many of the innovative ideas produced in companies come from the use of Scamper which, thanks to its strong versatility and usefulness in the development of creative thinking, can be used in any field, from the scientific, one where this technique has been used by some students to analyse the use of solid waste and its recycling (Çelikler & Harman, 2015) to the school and

[1] These concepts were set out by Osborn in his work "*Applied Imagination*" (1953).
[2] Eberle describes this process in his book " *Scamper: Games for Imagination Development* (1984)"

educational field, where it has been used to improve the writing skills of teachers (Suhartono & Salimi, 2016).
Moreover, over the years many companies and design experts have studied the Scamper and proposed new possible integrations such as basing a creative information system on the Scamper (Lopes et al., 2020).

Among the companies, that use the Scamper to improve some aspects and functionalities of their products there is **McDonald**[3] that since the early years has renewed some aspects of their company thanks to some creative ideas that emerged by applying the Scamper method.
For example, the company brought some (*Substitute*) such as putting in place of barbecue plates burgers, cheeseburgers and fries after realizing that burgers were the most sold products, or simplifying the initial name "McDonald's bar-B-que" in "McDonald".
Among other innovations introduced by McDonald's with the help of the Scamper method, there was the combination (*Combine*) of some elements (for example, elements of breakfast such as eggs and muffins to create the Mcmuffin, and that between food and children's toys that led to the creation, in 1979, of the first version of "Happy meal", an idea never seen before that made the McDonald's brand unique) and the reuse (*Put to Other Use*) of McDonald's products in sectors very distant from fast-food, such as sports. In 1969, in fact, McDonald became a sponsor of the Olympics, an idea that even if bizarre helped the promotion of the company.

3 Description

As said in the introduction, the name Scamper is an acronym composed by the first letter of the seven verbs, which would later become the keywords of the questions aimed at stimulating the creative process and guiding a person or a team to solve a problem concerning one of their ideas or products by replacing some elements or combining features to make it perform better on the market.

Before starting to ask these questions, it is very important to have a clear view of the problem to be solved, to be sure that the whole team is ready to look for ideas to solve this problem.
Once the problems have been identified it is possible to start applying the Scamper Method, using the seven verbs as the keywords for generating questions that each member will have to answer letting all the creativity flow.

These verbs and questions are:

- **Substitute** (e.g."*Which part(s) of the product can be substituted?*"): This forces to think about which aspects of a product could be replaced, perhaps by breaking down a product and trying to replace some of these parts to see if the result changes and looks better than before;
- **Combine** (e.g. "*Which component(s) or idea(s) can be combined in the service/product?*") The verb combine suggest the combination of the two or more elements of a product can generate something new;
- **Adapt**: (e.g. "*What ideas, inspirations from other products, can be adapted to the product?*") The verb adapt refers to all those actions necessary to make the product conform

[3]all the innovations introduced by Mcdonald using the Scamper are available in this link (https://vestinadesign.wordpress.com/2020/03/13/mcdonalds-history-and-scamper-method)

to the new needs of the users and the market for which it is intended. For example "*How can I adapt my product to the new living conditions dictated by the Coronavirus pandemic?;*"

- **Modify** (e.g. "*What elements of the product can be enlarged, reduced, exaggerated, emphasized, or changed?*") The verb modify (and its variant magnify and minify) force to think about possible ways to radically change the appearance of a product e.g. changing the colour or size or position of an element to see if this change will be appreciated by the end-user;

- **Put to Other Use** (e.g. "*Could the product be used in other areas for purposes other than its original one?*") This verb encourages to think about other contexts in which could use a product or some of its components, perhaps completely new contexts or contexts that are completely distant from the one in which it was designed the product, to see if this change of context improves the efficiency of a product and stimulates contamination and innovations within other sectors.

- **Eliminate** (e.g. "*What elements of the product could I eliminate or simplify?*") The verb eliminate is a very important verb not only in the Scamper technique but also in other design processes and suggests all those cleaning and simplification operations that can optimise a product.
  However, at the same time, it is also the most difficult action to perform because sometimes eliminating one or more components of a product, involves the risk of revolutionising it completely;

- **Reverse** (e.g. "*Is it possible to change some sequences within the product, perhaps by flipping it over?*") This last verb forces to think about how the components of our product are combined and to see whether changing this arrangement might make our product simpler and more marketable. One context in which this verb is very useful is that of interfaces, which often do not satisfy users because they have combinations that are too difficult to use or simply uncomfortable for the user's purposes

Every answer must be discussed without any kind of filter or judgement, everyone must be free to express his or her opinion so that the creativity and opinion of each member can be expressed, and all possible solutions can be explored and discussed. All these answers can then be noted down on post-its or written down in a *Scamper template*[4], in order to have a more organized view of all the answers by dividing them according to the verb from which they were produced.
After all the answers have been collected, they must be sorted and then evaluated to arrive at the choice of the best answers, which will then be used on the product to see if what emerged using the Scamper method was useful in solving the initial problem.

This entire process is summarised in figure 1, although it is not a fixed procedure, as each company can adapt the use of the Scamper method to its needs[5].

[4]An Example of a Scamper Template is given by *Conceptboard.com*
[5]These working steps are suggested here (https://warbletoncouncil.org/metodo-scamper-49)

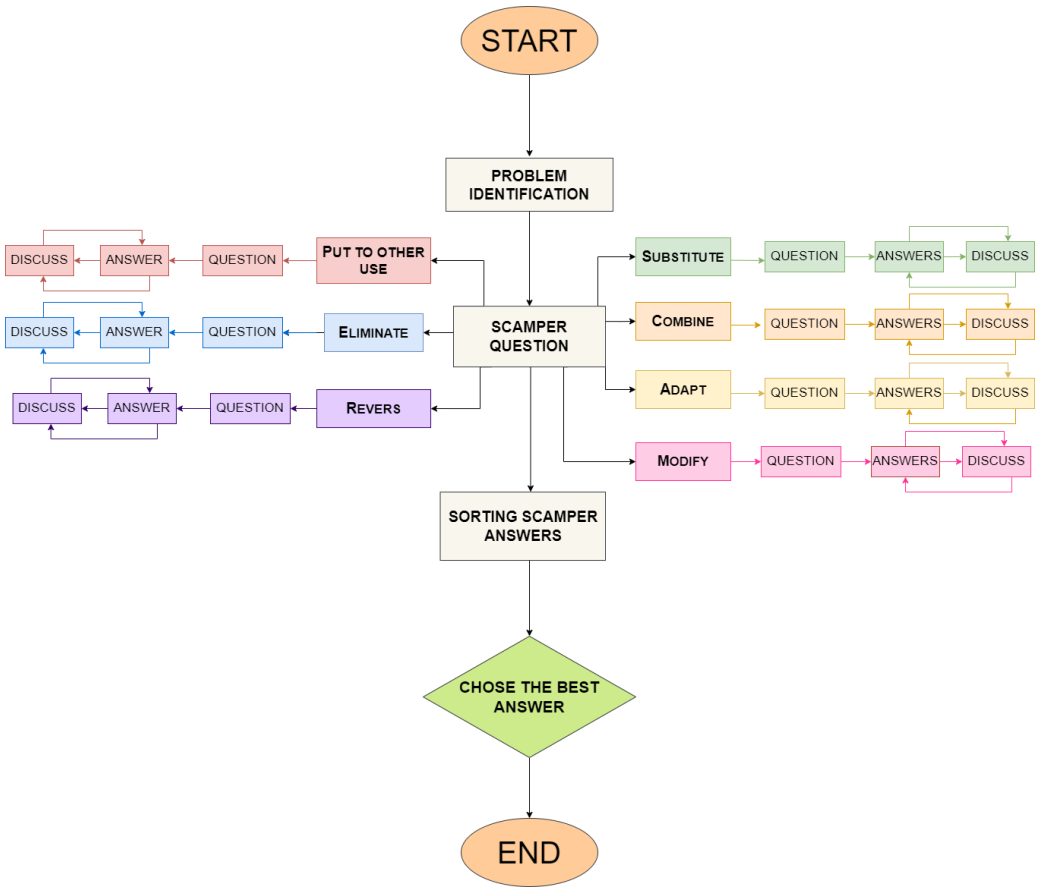

Figure 1: Flowchart representation of the application of the scamper method in the creative process

4 Application

4.1 Advantages and drawbacks

As we have seen, the Scamper method is very versatile and can be used to improve the performances of an existing product or the creation of an innovative idea through the development of creative thinking of everyone without prejudicing or discriminating against any idea.
Scamper can also be used in all those applications or services that have failed over time to understand why this failure occurred and be able to improve this product so that it can be put back on the market.

However, the Scamper method can present some *drawbacks*, such as the fact that it can be used in contexts where free thinking is favoured and in some cases the Scamper can create disunity in the working group because some members may disagree with the answers given and start discussions that can waste time and focus on the problem to be solved. Furthermore, Scamper is used primarily within companies and not by users and therefore there is often a risk that the solutions found using this method are not the most suitable to satisfy the needs of the user.

The scamper method can also be used in the development of *design or data analysis products* to find solutions that can satisfy the needs of a possible end-user without being trivial.
This is a very important aspect that should not be underestimated given that a user currently

has access to an infinite number of products or services that are similar to each other and which, to be noticed, must have one or more aspects that make them unique and original.

4.2 A real scenario: save an application from failure with Scamper

A concrete example of a failed project that could improve using Scamper's concepts is ***Immuni***[6], an application developed by the Italian Ministry of Health in 2020 during the beginning of the pandemic to track Coronavirus positives within the country.
This application, while very interesting and innovative, failed over time, both because of the few downloads (at least 60 percent of the population should download the app, but until now only 19 million citizens have downloaded the app)[7], mainly related to the unwillingness to give away sensitive data, and because often after registering one's positivity the application did not provide the user with any way to remove one's positivity once the quarantine or illness was over. Moreover, even in terms of communication, regional institutions never promoted the use of the application.

To improve some of these issues, it can be useful to use the Scamper method to collect creative solutions and to figure out what can be replaced adapted, combine, modified, use differently, deleted or reversed within Immuni.

Table 1 shows some possible answers for each question suggested by the Scamper method[8].

Problem: ***solving immuni issues***

	Questions	**Answer**
Substitute	*Which part(s) of immuni can be substituted?*	you could replace basic tracking of positives with tracking of positivity based on different characteristics (how many positives vaccinated, how many positives not vaccinated, etc.)
Combine	*It is possibile to combine some features of immuni?*	combine the reporting of positivity with the ability to book swabs, two aspects that are closely linked
Adapt	*How could you adapt or readjust this product to serve another purpose?*	It would be optimal to update the app in parallel with the new government regulations
Modify	*Which parts of Immuni can i modify?*	Modify the marketing campaign of the application by encouraging the citizen to download it.
Put to other use	*Could be given a new use to Immuni in relation to the evolution of the pandemic?*	Immuni could become an app focused on Coronavirus (contains personal information regarding the swabs done, and vaccinations etc.)
Eliminate	*It is possible to eliminate some features and semplify some process in the app?*	Eliminate close contact tracking with positives
Reverse	*What components could be reorder?*	Move the icons down to the top so they are more visible to users

Table 1: Example of an application of Scamper method to solve Immuni issues

All of these answers must then be sorted and evaluated to choose the best one, as shown in the figure. 1
For example, among the solutions proposed in the application, we could choose the one concerning the new use of Immuni (put to other use) with the integration of the possibility to read the green pass and have all the data related to vaccines and swabs made by users, linking it to the data coming from the Italian National Health System. In this way, once a user reports his positivity, the system, based on these data, establishes the period of quarantine, and maybe

[6]https://www.immuni.italia.it/

[7]These information comes from https://www.immuni.italia.it/dashboard.html

[8]These are just some hypothetical answers formulated to make it clear how to use the Scamper in a real scenario

book a swab at the end of this time frame.
However, this new function of Immuni would still cause problems related to privacy because a user may not agree to provide such sensitive data as health data.

5 Quantitative improvements

The Scamper method belongs to the class of *qualitative methods* as it is based on open questions and answers that are not supported by any concrete data or statistical and mathematical calculations.
To improve the results of the Scamper and make them more concrete and data-driven, this method could be integrated with other quantitative methods.

First quantitative integration of the method could be done even before using it, by identifying the problem to be solved with the help of reliable sources and data coming both from statistical sources and from opinions left by users.
For example, to modify some aspects of an existing mobile application, one would look at the reviews left by users and analyse this data in order to have concrete information on which to base the search for possible solutions with the Scamper's verbs.
Furthermore, once the answers have been obtained using the Scamper, they could be evaluated not only by the team members but also by the end-users, using tools like surveys or similar tools that directly involve the users to collect data and verify that the answers identified by the team are in line with the needs of the end-users.
By transforming the answers into concrete data thanks to the integration of quantitative methods, the Scamper would solve the problem of being often too bounded to the corporate world and would bring it closer to the needs of the end-user who will then use that product.

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