WP7: SOLUTIONS REPORT

DiPSA UNIROMATRE-ITALY

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Part 4:
Description of the process

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PROMPT WP7: Solutions

Report

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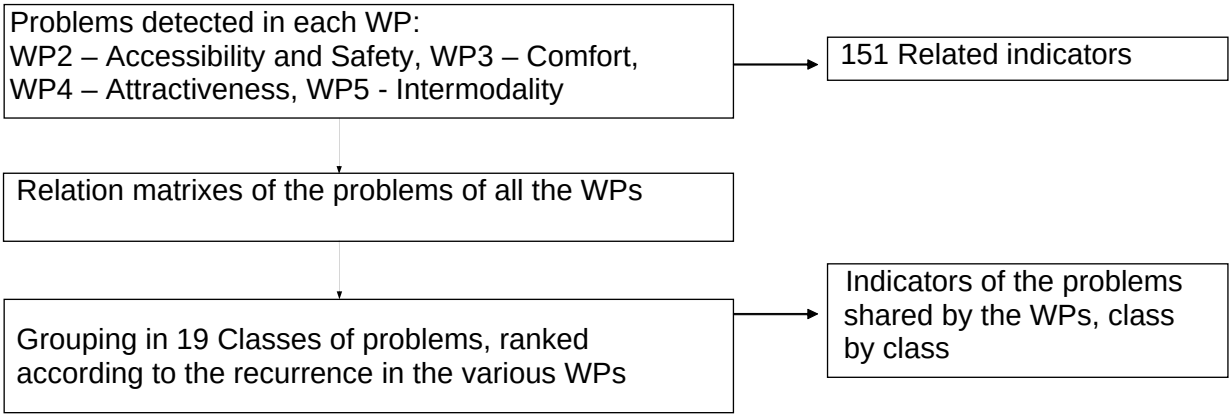
1. Premise

“Work Package 7 – Solutions” represents the last step of the PROMPT research, being its objective the definition and proposition of appropriate tools, best practices and generic solutions for promoting walking. The proposals, which are brought forth by this WP, are rooted on the inputs coming from the data collection, analyses and evaluations made by the application to selected case studies in the six participating countries.
The work that was run in the WP, was articulated in different Tasks, as established in the Description of Work of the research program; here the process that was followed is described.

2. Classification of problems

In the initial scheme of the research, the step of the process concerning the classification of the problems was hinted but was not expressly mentioned; its importance came out when starting to think on how to face the problem solving phase. A synthesis was made of the problems detected in all the thematic WPs with the aim of finding out which were the most important ones to be solved.
As already mentioned, for analysing and finding out the problems and worths proper of the five aspects considered in PROMPT: Safety, Accessibility, Comfort, Attractiveness and Intermodality, different methods and tools were applied, from rigorous scientific criteria to subjective assessments, depending on the specific theme. For having a more comprehensive overview of the lacks pertaining to each thematic work package, considering the great number of very detailed problems, detected from experts and users in the different case studies areas located in the six partners’ countries, they were grouped in classes of problems that made possible to handle a smaller number of items.
Since some of these problems characterize more than one WP, for finding out the overlapping and the interferences, of various degree, among the classes of problems, an interrelation matrix was made. Without loosing any information on the problems to be considered from different perspectives at the solution step, this tool made possible to have a list with no repetition, with the problems ranked depending on their recurrence in the various thematic work packages and on their presence in the various case studies at international level. (Tab.1)

Tab. 1 - Classification of Problems



The grouping of the detailed problems in a class of problems takes to think to more holistic solutions, in terms of problems recurring in various thematic WP, in various case-study areas and involving different features of the outdoor environment. The classes of problems contain at the same time the physical, social and psychological issues which contribute to the unappropriatness of the pedestrian urban environment. The detailed problems were merged, when very similar, and maintained in the lists annexed to every class of problems, to be used as indicators of the presence of a class of problems

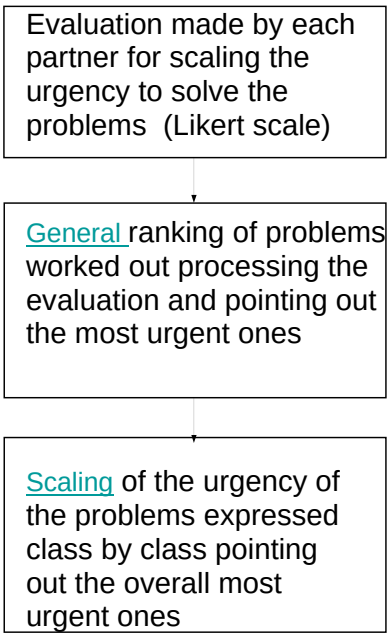
For weighing the importance of the problems for which to find solutions, the partners individually evaluated the classes of problems and their indicators, in relation to the urgency to solve them, using an electronical template and a Likert's scale.

The results of this evaluation led to a twofold classification: one consisting of a general ranking that considers all together detected problems/indicators and rank them in an absolute way; another relating to the sixteen classes of problems at international level. In the latter, the evaluated problems/indicators have been grouped in such classes so to enlighten which are the most urgent problems to solve class by class. The evaluations given by the partners were weighted up using various techniques that are described in the Annexes. (Tab.2 e Tab.3)

These two classifications were important also for the decision on which class of solutions to deepen first: solutions which solve the most important problems/indicators.

(Annex 1 - Problems of each work package; Annex 2 - Indicators for each class of problems; Annex 3 – The matrix, Annex 4 – Problems from different points of view; Annex 5 – Classes of problems shared by the various Work Packages in the different case studies, Annex 6 - Indicators of the problems shared by the various work packages in the different case studies, Annex 11 – Reviewed list of clusters of problems; Annex 8- Scaling of urgency to solve the problems; Annex 20: Task 1 – General Ranking of problems; Annex 21: Task 2 – Scaling of problem urgency class by class)

Tab.2 - Evaluation of the Urgency to solve the detected Classes of Problems



Tab.3 - General Ranking of problems: the most urgent ones

Problems	FRANCE	ITALY	SWI	FINLAND	NORWAY	BELGIUM	Average	StDev	n. of "very important"	Score
Too high speed	1	1	1	1	1	1	1.00	0.00	6	10.00
Illegal parking at street corners, on walkways, at pedestrian crossings, on pedestrian spaces	1	1	1	2	1	1	1.17	0.37	5	8.96
Overtaking can happen at pedestrian crossings	2	1	1	1	1	1	1.17	0.37	5	8.96
Accessibility at crossing and along the street	1	1	1	1	1	2	1.17	0.37	5	8.96
Poor safety at intersections	1	1	1	1	1	2	1.17	0.37	5	8.96
Illegal parking at pedestrian crossings and other obstacles impairing the visibility, especially for children	1	1	1	4	1	1	1.50	1.12	5	8.54
Not enough time to cross at traffic lights	1	1	1	1	1	4	1.50	1.12	5	8.54
Poor visibility of pedestrians	1	1	2	1	1	2	1.33	0.47	4	7.92
Lack of pedestrian network	1	1	1	2	1	2	1.33	0.47	4	7.92
Lack of local stores, groceries, shops	1	1	1	1	2	2	1.33	0.47	4	7.92
Gas emission	1	1	1	2	1	2	1.33	0.47	4	7.92
Illogical, uneasy paths, long detour or short cuts leading to the bus stop	1	1	1	2	2	1	1.33	0.47	4	7.92
Barriers and obstacles	1	1	1	3	2	1	1.50	0.76	4	7.71
Bus stop signs not appropriate for every kind of users	2	1	1	1	1	3	1.50	0.76	4	7.71

3. Proposal and evaluation of solutions

The solutions to look for concern the improvement of the overall urban quality of the spaces in which pedestrians move. Since PROMPT team works at European level, they should be alternative and equivalent, so to be tailored time by time, from the environmental and technical point of view, on the specific case. Given the goal of the research, they should be apt to solve the highest number of detected problems concerning: accessibility, safety, comfort, attractiveness, intermodality and implementation, not one by one but contemporarily. And finally, they should satisfy the users' requirements, very often conflicting, in such a way to offer a relative optimum or a differential benefit.

In PROMPT methodology, a Brainstorming meeting was planned, with the aim to let emerge first ideas for solutions to problems not solved, or not properly solved, so far. It was scheduled contemporarily with a research meeting, and it took place at the Town Municipality of Modena and at DiPSA, UNIROMATRE, Rome.

An expert, a psychologist and sociologist specialized in road safety and mobility issues, Dr.Ralf Risser, the head of FACTUM - Wien, was invited to act as "facilitator" for the brainstorming meeting. This was aimed at making all the partners feel in the most relaxed way and at letting ideas for solutions flow freely,

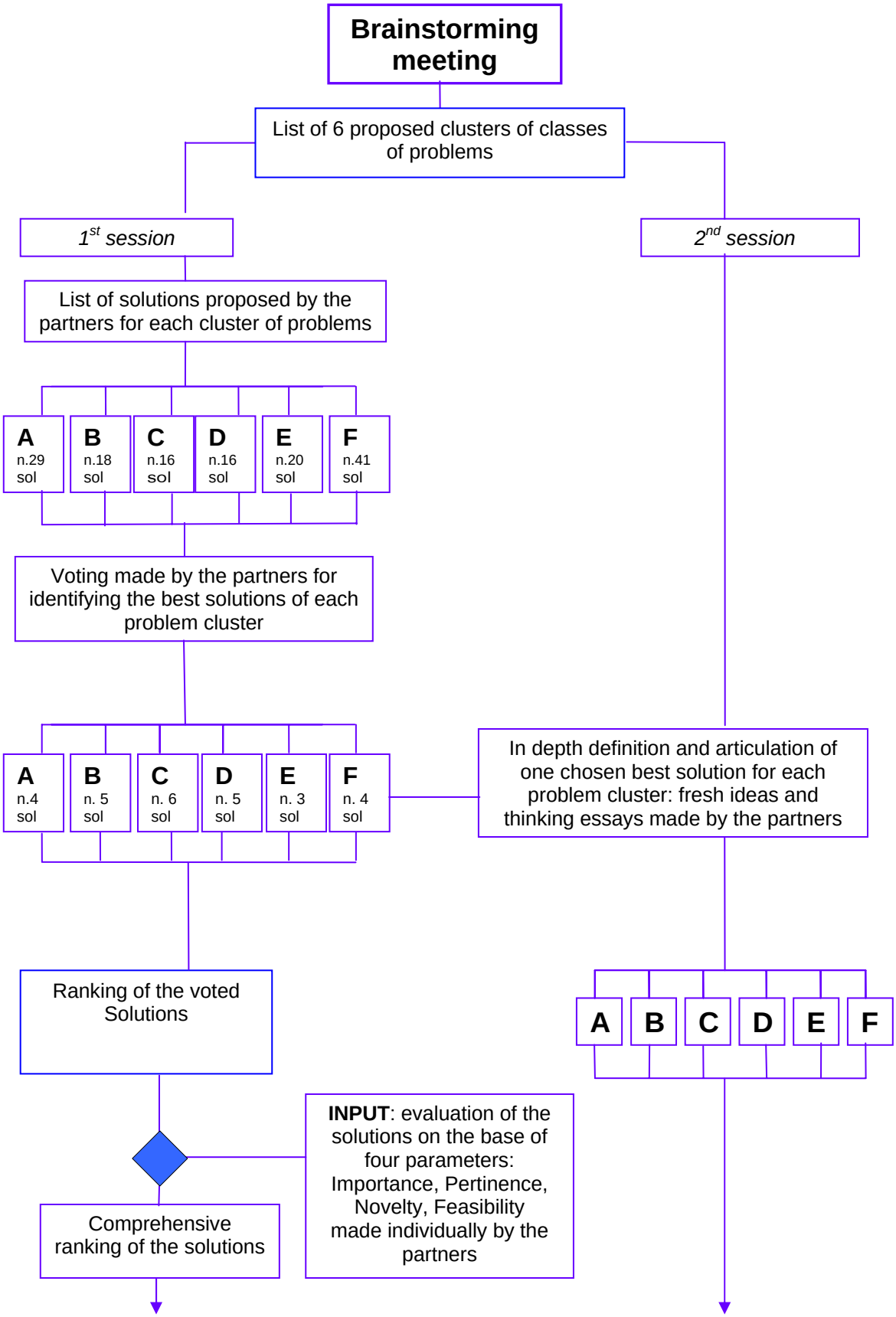
For the best articulation of the brainstorming, the facilitator grouped the classes of problems in six broader clusters; to each one of them from two to four classes of problems, depending on their nature and on their possibility of interrelation, were attributed. Each cluster was given a name depicting its content: : A. Lack of or scarce physical and social space offer, B. Lack of equipment and services for outdoor spaces, C. Interference with motor vehicles, D. Poor support by and connection to other transport modes, E. Lack of natural, architectonical and psychological features of the environment, F. Poor environmental performance. On the first session of the brainstorming, an average of 24 solutions for each of the six clusters was proposed; they were then secretly voted, cluster by cluster, and a ranking was made of the solutions that were considered to be the best of each group. Depending on the cluster, the voting showed a wider agreement on a different number of solutions, from three to six, with a scoring going from 3 to 7 for each one of them, and with many persons sharing the score.

On the second session of the brainstorming, some of the most voted solutions were deepened, one for each cluster of problems, for understanding better their meaning and their purport. The various definitions and considerations caused both a better focus and a more specific articulation, aimed at harmonizing similar ideas in a framework of solutions.

The solutions that had been proposed at random at the Brainstorming to solve the detected classes of problems, were successively evaluated by the partners, in an intuitive manner, according to four parameters: 1) *importance* i.e. how important are the problems addressed by the solution; 2) *pertinence* i.e. how well are these problems solved; 3) *novelty* i.e. which are the innovative aspects of the solution; 4) *feasibility* i.e. how easily the solution can be implemented. This evaluation has been confronted with the voting made individually at the Brainstorming; this check has given interesting results, since the second assessment, made also individually on an electronic sheet, was quite different, and so the ranking of the solutions had some changes. The evaluations given by the partners were weighted up using various techniques that are described in the Annexes.

The two evaluations were merged to find a Comprehensive ranking of the solutions. This list, together with the articulation and essays written at the Brainstorming for six of he most voted solutions, form the basis on which to develop the work. (Tab.4)

(Annex 11 - Reviewed list of clusters of problems; Annex 10 - List of proposed solutions with scoring, and best classified ones; Annex 12 - List of the six clusters of problems and of the most voted solutions; Annex 13 - Lists of the definitions related to the six most voted solutions, Annex 15 Draft Report– List of ranked solutions to be evaluated, Annex 22: Comprehensive evaluation of solutions, Annex 16 – E. Poor infrastructure amenity: Synthesis of the list of proposed solutions, Annex 17 – A green network plan in every city: Synthesis of the solutions and definitions and draft of work program, Annex 18 – Syntheses of the essays)



Tab.4 – Solution Identification

4. Brainstorming Meeting with the End Users participation

One important point of PROMPT research program is the involvement of the End User Groups, also in order to facilitate the dissemination effect. To this aim two partners organized a half day brainstorming meeting with the End User Group. This step guaranteed the use of a methodology taking into consideration the users' opinions and ideas, not only for finding out the problems, but also for proposing solutions they agree with. The Brainstorming meetings were held in Rome, Italy and in Espoo Otaniemi, Finland.

In Finland, it was stated that many problems would have been already solved, if the most vulnerable pedestrians were regarded as a starting point in planning; that solutions should be implemented also in smaller cities, where problems concerning pedestrian environment can be more difficult; that the planning cannot be based only on vehicle traffic and that is important to find comprehensive solutions for all the actors; it was moreover suggested that politicians and decision makers could work side by side with practitioners.

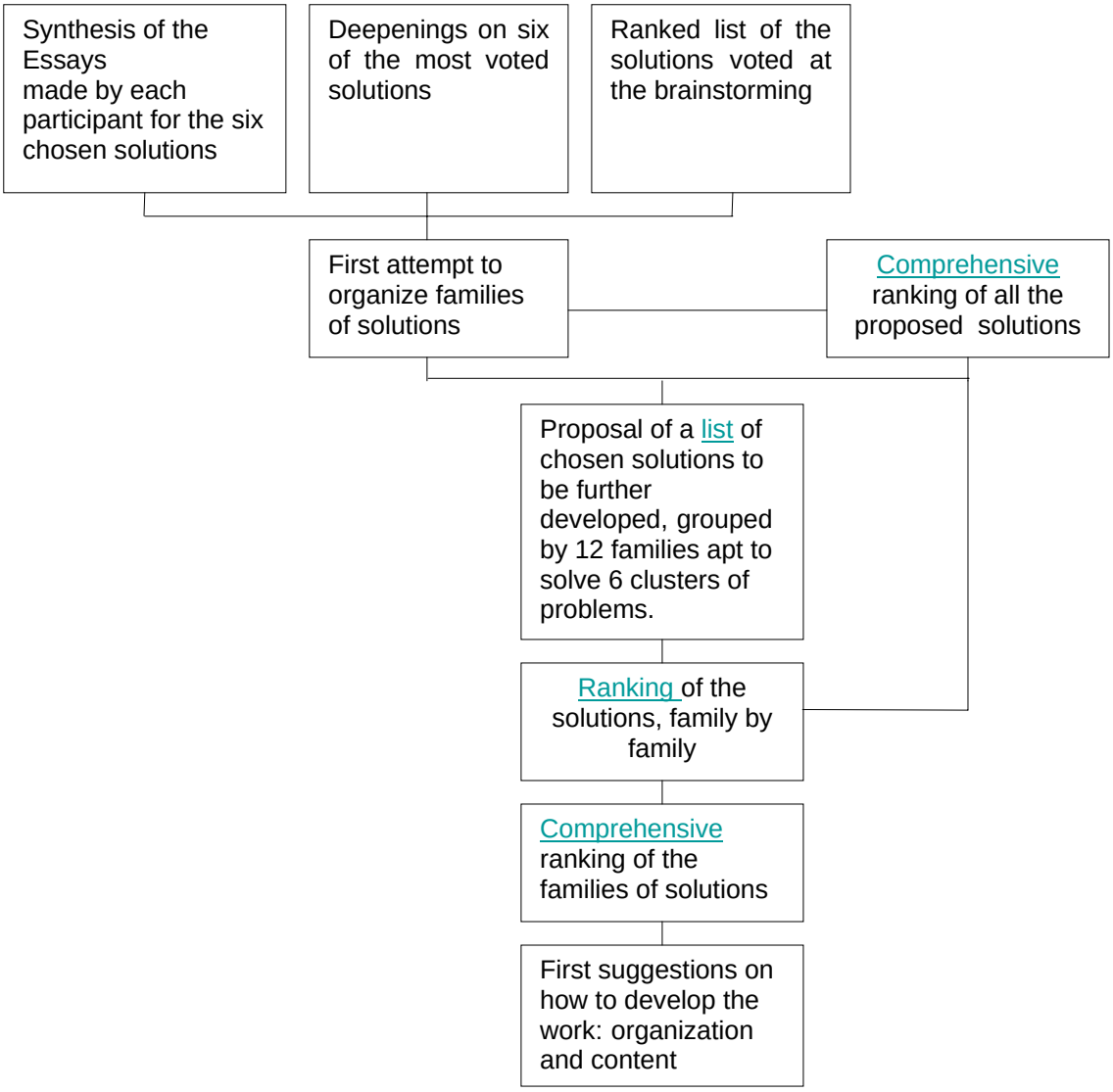
In Italy, the solutions proposed were clearly influenced, in many cases, by Rome local situation; many solutions regarding the conquer of new space, the enforcement and maintaining issues were therefore suggested; the solutions related to cluster A: "provide sidewalks" and "police enforcement" resulted the most voted ones. Many solutions were largely shared with the ones suggested by the PROMPT partners with the notable exception of removing heavy traffic from cities and protecting paths to schools. With regard to cluster D, interesting differences concern the intermodality offer, where the EUGs focused on essential aspects (maintenance of vehicles, providing of services, police enforcement of reserved lanes), while PROMPT researchers seem to give these aspects for granted. More detailed results are reported in the Appendix.

(Annex 23 – List of solutions proposed by Italian EUG, List of solutions proposed by Finnish EUG)

5. The methodology to define the Families of Solutions

Considering the lists of solutions proposed at the first session, and focusing on the definitions and considerations expressed on the most voted ones at the second session of the brainstorming, a synthesis was made integrating the various concepts. The aim was to harmonize all the different solutions in a framework that could foreshadow fields to be developed further on. This constituted a manifesto of intentions on how to develop the addressed solutions.

The processing of the voting and evaluation made by all the partners took to analyse and rearrange, cluster by cluster, the proposed solutions, with the scope of choosing and organizing them in groups of interrelated solutions, potentially apt to solve each cluster of problems. (Tab.5)



Tab.5 – The process for defining the Family of Solutions

The proposed solutions were of different level; some can be considered as statements or goals to be achieved, therefore represent "what to do"; others can be considered as articulations of them and therefore represent "how to do it"; It appears then that the grouping could consider both approaches, outlining a hierarchy. In this sense it seems appropriate to devise “Families of Solutions”, in which the former, if voted and evaluated well, is used as "father" of the "family”, and represents the issue that has to be developed, while the latter is used as “members” of the “family”, to be organized following their degree of relationship, and represents possible ways of developing the issue**.**

Some considerations on the voting, made at the first session of the Brainstorming, integrated with those on the evaluations, given by every partner in a subsequent moment on the base of four parameters, and supported by the essays on some specific proposed solutions are reported to point out the issues to be deepened, cluster by cluster, and thence the possible number of “Families of Solutions”. In doing this arrangement, some solutions, that were proposed to answer one cluster of problems, sometimes were moved to another, and inserted in a family were they seemed more fit to fulfil the goal; in this case, only the main shifts are mentioned.

Cluster A. Solutions for improving the physical and social space offer

“Living streets day and night” was the most voted solution during the first session, and was deepened during the second session of the brainstorming. The statement has a broad meaning and looks like a goal: a strategy to create a better quality of space and a better quality of life for pedestrians. The solutions expressed and more focused in both sessions were merged.

“Give priority to pedestrian in transport planning”, received the same amount of votes and is also a very broad concept; it was also one of the solutions that scored better, in particular for its Importance. Moreover the solutions that can be grouped in this family are often the most voted ones, both at the Brainstorming and in the following parametric evaluation, where, for example “Measures to implement the continuity of the path” reached the maximum score for Importance and Pertinence. “Each Municipality should have a pedestrian policy” reached the highest score at the second evaluation, for its Importance, Pertinence and as Average, and a good score also for Novelty.

All these three solutions represent “what to do” more than “how to do it”, they suggest several measures, of various type, to be implemented and can therefore easily act as “fathers”.

Despite the problem of maintenance was highlighted in many workpackages, only few solutions were proposed; they didn't reach high levels of scoring, both at the Brainstorming and at the second evaluation; the most voted one was: "A team exclusively dedicated to pedestrian spaces maintenance in local administration". Therefore they were not organised in a special family", but the problem was faced inside some other "families" adding, when suggested, one facet to them.

Cluster B. Solutions for improving the equipment and services of the outdoor spaces

One of the ideas that came out at the Brainstorming, and that had quite a good voting, was that the "public space" should be thought of, and thence designed, as a "living room". This idea had a good scoring also in the following evaluation, and precisely reached the highest score as Pertinence, as Novelty and, considering the Average, the second highest one as Importance.

"The public space as a living room" can be taken as a goal to reach when starting the planning and design phase, and easily regarded as a head of a family of solutions. Another proposed solution was also voted very high: "Identify a budget line for equipment, furniture and lighting", and thence chosen to be deepened in the second session of the brainstorming. Therefore many other solutions were added to this "family"; some of them, being quite wide as content, are shared with other families.

"Free pavement for pedestrians, without obstacles" was not in the group of the most voted solutions at the Brainstorming, while it was evaluated very high singularly for Importance, for Pertinence and as Average in the following parametric evaluation. It is not specified, but it is deduced by the type of proposals, that it is important to study the various aspects of the topic: financial policy, laws and codes, data and analysis, design and details. Some proposals were considered also if with very low score, because they could figure as articulation of other solutions evaluated higher.

"Use mix activity through urban planning" was one of the most voted solutions at the Brainstorming; on the same line, the idea of involving shopkeepers in the decision of the distribution of activity or in the planning of the street, was proposed and voted at the Brainstorming, but not being evaluated positively at the second evaluation, was taken away.

Cluster C. Solutions for the interference with motor vehicles

One of the ideas that came out at the Brainstorming, but was not voted by anybody, was evaluated very high in the following parametric evaluation, as Importance, as

Novelty and as Average, and the second highest one for Pertinence. Therefore “Consider in each development that you have to move as pedestrians and not only as car drivers” can become the statement from which to create a family. A more specific solution: "Control speed by design", had the highest voting and thence was deepened on the second session of the Brainstorming; in the second evaluation though it was at the first place only for Pertinence, occupying the second place for Importance, the third place as Average, and being very low for Novelty and Feasibility. “Implementing larger car free zones” and “Promotion of walk as young, funny and cool, were considered more interesting to be tackled with in the families related to Cluster A.

Cluster D. Solutions to improve the support by and connection to other transport modes

The most voted solution at the brainstorming, which had also a very good score in the following parametric evaluation: “Provide quick and easy access for all users” remarks the importance of quick and easy accessible stops, vehicles and facilities for all, and can therefore inspire a family. The second most voted solution: “Develop tailor made transport” was badly treated in the evaluation, for all the parameters, but for Novelty, and should be considered mainly in low density zones. Some solutions, with only one vote, and a very low evaluation, didn’t seem to match the main approach, and, therefore, were left out.

Cluster E. Solutions for improving natural, architectural and psychological features of the environment

Solutions of very different kind were proposed for this cluster of problems; a choice was then needed to pinpoint the most congruous intervention fields. Moreover such solutions were appreciated quite in a different way, in the voting and in the following evaluation. One of the two solutions which got the highest voting at the Brainstorming: “A green network plan in every city” classified itself well also at the other evaluation, having the highest score for Importance and for Average, and the second highest one for Pertinence. The other: “Encourage the city to invest more in public spaces” had not the same evaluation; a solution of a similar type was the highest in its place: “Legal obligation to fit minimal budget to improve the quality of public spaces according to pedestrian needs”, while at the Brainstorming had got only one vote.

Following such results, it seems possible to maintain the first solution, that was chosen to be deepened at the second session of Brainstorming, as the head of one of the families of solutions apt to face the problems analysed in this cluster, while the other

two seem to be more appropriate to one of the fields defined in the previous cluster A, where they add strength to some solutions of the same type.

A change of opinion characterizes also another solution: "Education and exchange between architects, planners and traffic engineers considering the pedestrian needs". It was third classified in the second evaluation, with the highest score for Importance, and with the second highest score for Pertinence and Average, while it had only one vote at the Brainstorming. It can be considered as a valid solution to study, but it is alone in this cluster, since it represents more a general and basic item, that constitutes a kind of back up of any solution to be proposed. So, also in this case, it seems it could fit better in the families related to the cluster A., where this type of strategy was faced, and where it can widen and deepen such aspect. Also some solutions about the management of traffic, obviously related to the implementation of the green pedestrian network, were moved to the specific family C.

At the second evaluation, “Pedestrians have always to feel at home”, that was not voted at all at the Brainstorming, received the highest score for Novelty, the second highest score for Importance, Pertinence and Average; its statement character and its evaluation take to think of it as head of a family, in the place of the third classified at the Brainstorming: “Avoid models and consider local situations”, that did not classify well at the evaluation, and that is anyway included in the field of the former. Some solutions that were proposed here were moved to one family of cluster B, that is very much related to this.

Cluster F. Solutions for improving the environmental performances

The second most voted solution at the Brainstorming: “Integrate pedestrian scale in city design”, had the best scoring in the following evaluation based on the four parameters, and precisely the highest score as Importance, Pertinence and Novelty, and the highest Average of all the proposed solutions. It could be taken as a goal to reach when starting the planning and design phase. It seems possible that it can act as the “father” of other solutions proposed for this cluster, that could be grouped under this topic, but that, at the second evaluation, did not reach high scores, being in the middle.

“Integrate pedestrian scale in city design” was already chosen to be deepened in the second session of the Brainstorming, in place of the most voted solution at the Brainstorming: “Standards for acoustic limits outdoor”, since it seemed it could solve a larger number of the detected problems.

The latter was not the most voted solution at the second evaluation, but it remained in the high rank, with Importance and Average at the third place, Pertinence and Novelty at the second place.

Some solutions that were proposed to face this cluster of problems are dealing with the various aspects of pollution: sounds, light and smell. Splitting them up depending on the topic, various families can be formed, exactly three. Some of the ideas can be used in one dedicated to the visual impact; others can be used in one that takes care of the acoustic impact, and the others can be used in one that faces the problem of smell. This family should focus on waste disposal, and in particular on one of its aspects: "educate dog holders to clean after", that resulted with the second highest score for Importance and Pertinence, and the third score as Average, but was not considered innovative at all; it considers also other aspects as the location of the smell sources or the management of various aspects related to the problem of bad smells in town, and it acts therefore on a wider range.

The solutions that ranked at the second place in the evaluation, were not in the group of the most voted solutions at the Brainstorming; they pertain to the air pollution problem.

There is one solution proposed in this group that got the highest score for Novelty, but a medium Average score in the evaluation, and was not voted at the Brainstorming, but for one: “Define happiness indicators for pedestrians”. It seems to be a very interesting solution at research level, but it doesn’t belong to any precise issue individuated in this cluster; it seems though that it can be dealt with some of the other solutions devised for the cluster A.

6. Twelve Families of Solutions

The considerations and choices previously made on the voting and evaluation were then deepened to arrive to a precise definition of the “Families of Solutions” related to the various clusters of problems, and to the hierarchical organization of the proposed selected solutions inside each one of them. The aim is twofold; on the one hand, to reduce the number of solutions to be considered and deepened singularly, focusing on the most voted and/or evaluated ones, without loosing the suggestions that also the minor ones can give to the articulation of each group on its whole. On the other hand, to merge the various ideas and to articulate them in the attempt to foreshadow a sequence, that could constitute a first draft of a work program for each one of the families.

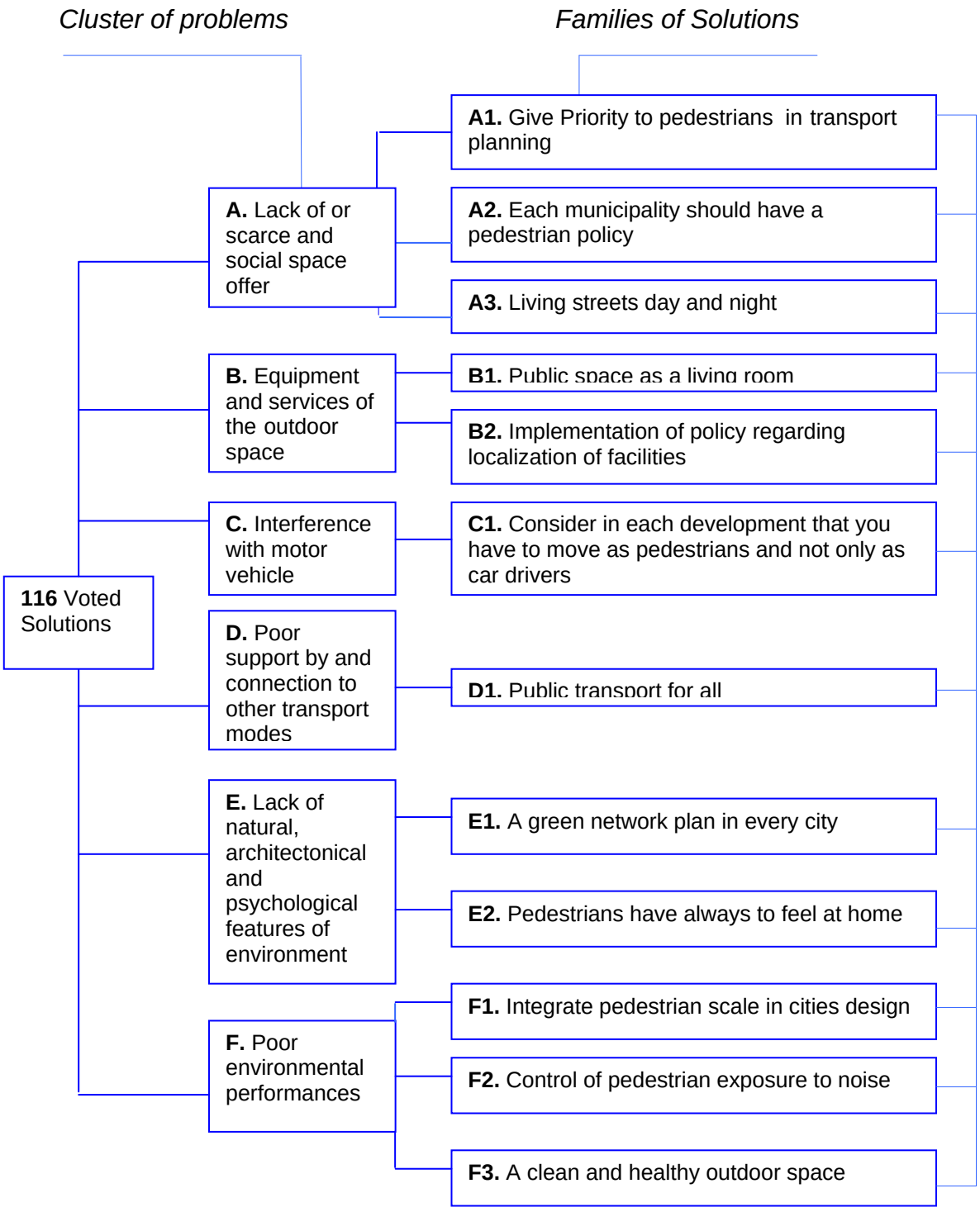
The families are more than the initial six clusters, since the proposed solutions answered to the different aspects of some clusters of problems, and so could not be merged more, unless loosing the focus on the peculiar topic. At the end of the process, each cluster of problems is addressed by one to four families of solutions for a total of thirteen families; in the choice of which to develop, it was considered the number of solutions, the ranking related to both voting and evaluations, to the EUG’s proposals and evaluation, and to the problem solving quality of each one. One of the families was not developed, as explained afterwards, so the thirteen families were reduced to twelve.

While the families took shape, it was realized that some solutions could fit better in one or another family, and so they were moved to figure out stronger scenarios; others haven’t been considered in any “family of solutions”, because of poor evaluation and/or few votes received.

The solutions that are inserted in the family are articulated going from general to particular; they can also form sub-groups, in which the issue is deepened more and more and possible actions, that can be the implementation means to offer, are studied. Their level then it is bound to:

- the place they could occupy in the definition of the “field of solutions”, from a general outline to a more articulated deepening; they represent indeed aspects that all together contribute to define the family of solutions;
- to their comprehensive assessment. If this was completely negative in the evaluations, the solutions were not considered in the grouping.

Outlining the main contents of the various families, and articulating their work program, also the Syntheses of Essays on the topics were considered. (Tab 6)



Tab.6 – Grouping of the chosen solutions in Families of Solutions

The twelve “Families of Solutions”, proposed to solve the six clusters of problems, are described cluster by cluster, starting from the most voted ones; they represent one of the final products of PROMPT.[1]

Cluster of problems: ***A. Lack of or scarce physical and social space offer***

*Families of solutions**:***

A.1. Give priority to pedestrians in transport planning

This family of solutions is made of two sub-groups; the first related to norms for planning and design, the second related to the actual design step. The former are strictly pertinent to the topic and very interrelated, while the latter could be faced in many topics related to pedestrian spaces.

Give priority to pedestrians in transport planning and in particular give them *priority in all the residential areas*, not only as norm but also actually assigning *50% of the public space to pedestrians*, is a measure judged as the best for Novelty.

This can be achieved *supplying a dense network for pedestrians, with at least 100m density*, and defining the appropriate *measures to implement the continuity of its paths*, or by *implementing larger car free zones*, not limited to commercial centres (from C).

Moreover it is necessary to assume a specific approach, that roots on some biddings as:

- *Design according to actual behavioural patterns*
- Make an *Architectural design of the space*
- Implement *European standards for tactile indicators.*

A.2. Each Municipality should have a pedestrian policy

Each Municipality should have a pedestrian policy and policies should be oriented also towards the problem of funding: *give money to the Municipality*; for example by *legal obligation to fit minimal budget to improve the quality of public spaces according to pedestrian needs*, and then towards the definition on how to use this money.

Great importance has been given to a *special training for technicians of Municipality offices on pedestrian needs* and to the *education and exchange between architects, planners and traffic engineers* considering the pedestrian needs. This educational

1 In the description, two different styles are used for showing which are the solutions proposed in the first session of the brainstorming (italic) and which are the ones proposed and deepened in the second session (underlined).

approach towards experts should be accompanied also by *more information to decision makers* and by the individuation of appropriate initiatives for *developing users awareness*, for example by education and psychological intervention, as *activity in school for young children and activities increasing the consideration for the others*. The goal of this updating and sensitization is to start in all the actors a process, that will bring to a rooted demand and offer of a continuous policy in such direction, and in so doing to *encourage the cities to invest more in public spaces*.

All these aims have to be achieved using some appropriate means to conquer a *better knowledge of users' needs*, as:

- *Implementation of audits of street situation from pedestrians' point of view*
- *Tools for data collection and presentation*
- *Defining happiness indicators for pedestrians*.

Action has not to be directed only at technical level but also at other mind levels, to change convictions; an idea to gentrify walking and to make status symbol campaigning could be the:

- *Appointment of a "Mrs Pedestrian" in each local administration*
- *Promotion of "walk" as young, funny and cool*.

A.3. Living streets day and night

Living streets day and night can exist if a high quality of life is provided, both day and night, to every user of the public spaces, and above all to pedestrians. How this can be achieved is the challenge to face with the proposed solutions. It seems to be possible if social aspects and structural aspects are faced contemporarily. A mixture of dwellings and activities, going on day and night, together with the *continuity among the private and the public realm* are two basic aspects that can make a street become pedestrian friendly. It is necessary to create a civilized outdoor urban place where people can live in community, can make all the activities related to social, cultural, commercial interchange, *unofficial activities and feasts included*, without fear and freely, feeling secure and comfortable.

This friendly atmosphere is thought to exist when people do not feel alone when walking in the street or waiting for the bus, because:

- *people are present on the street, day and night*
- *side street activities exist*
- *people are living nearby*

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- *the lighting is good*.

  Such feeling is related also to the possibility for everybody to have his places to stay well.

A.4. A team exclusively dedicated to pedestrian spaces maintenance in local administration

This topic was only touched on and few solutions were proposed; therefore it was not further developed.

How to maintain the outdoor public spaces is an issue at stake in many municipalities. The problem is usually related to the large heritage to maintain and the little money at disposal, but it could be also related to a bad organization of the upkeep teams or to the scarce consideration given to a well kept outdoor public environment. Then, *in local administration, a team exclusively dedicated to pedestrian spaces maintenance*, could represent a possible solution for the two last aspects, while *organizing groups of dwellers for maintenance and funding management of open spaces*, could help to face the first aspect, the financial one. There is then also a problem related on how to improve the way in which the maintenance problem is faced. This has already been studied in depth at the building level, making many researches that were aimed at convincing both public and private stake holders of the need of a programmed maintenance of the building heritage. It could be studied if such programs could be used also in outdoor environment and then to develop to this aim a *research program for maintenance*.

Cluster of Problems: ***B. Equipment and services of the outdoor space***

Families of solutions:

B.1. Public space as a living room

This solution has a wide field of action; the family is constituted by at least two subgroups, one more related to policy, finance, law and enforcement level, one more related to design and detailing.

It seems that there are some basic aspects that is necessary to face before starting to design *the public space as a living room.* One of the most voted solutions is indeed to *identify a budget line for equipment, furniture and lighting*; at its deepening, many hypotheses on how to frame it were proposed, starting from very broad ones as creating new financial bases and revenues to improve the built environment and to maintain the pedestrian infrastructure, or as suggestions for identifying clearly, in the

public work budget, a pedestrian budget and publish it, or finally as legally binding norms for the design of public spaces. Some proposals are focused more on how to find the money: financial incentives from national to local ones, the use of some of the taxes of shopkeepers, the money from fines and parking, and then also on what to put the money on: design quality, improvement of lighting, furniture and equipment, in particular seating facilities, trees and the elimination of disturbing things, for pedestrians, beside maintenance, and in particular winter maintenance of the pedestrian paths.

It seems important to implement new design for streets aimed at a better balance in favour of pedestrians, at *taking care of design quality and maintenance of public furniture*, also issuing *competitions for good design and urban furniture.*

Particular attention has to be put on the achievement of *free pavement for pedestrians, without obstacles* by a financial policy, the application of the existing law and the devising of new norms; the use of data and analyses and perhaps also new design ideas. It is also important to guarantee *minimal lighting for pedestrians by appropriate norms.*

Ahead of the design phase, to be sure of obtaining the prefixed goal, it has been pointed out that it is important *to identify pedestrian activities before choosing and implementing light, furniture and equipment.*

About the design and detail indications, the focus is on the pavement: *high quality of pavement surface,* accompanied by the attention to *benches every 200 m; lighting of different type* in connection with different aims: for illuminating *objects, people* or for improving *safety*; elements that help *to orientate well in the environment; toilets of good design and well located* and finally *weather protection.*

Some more indications, even if not very much voted or evaluated, are related to the enhancement of the character of the city by the *use of specific furniture* and the *coherence of furniture and equipment*.

B.2. Implementation of policy regarding localization of facilities

This family is mainly focused on political and urban planning aspects; it deals above all with the relation between mobility and land's use.

The solutions related to *implementation of policy regarding localization of facilities* point out that *the concentration of shopping facilities* should be *avoided*. This policy should be reflected at the level of *urban planning*, where indications should be given to *use a mix of activity* in every district or urban area.

Cluster of Problems: ***C. Interference with motor vehicles***

Families of solutions:

C.1. Consider in each development that you have to move as pedestrians and not only as car drivers

This proposal could be taken as a statement from which to start a new philosophy of planning and design. It contains many of the most awarded solutions and should be therefore considered very important.

Consider in each development that you have to move as pedestrians and not only as car drivers is a new approach that asks for a complete re-articulation of the process, from the research to the implementation level. This means that *new solutions for mixed traffic and coexistence* should be studied, providing a cohabitation between pedestrians and the rest of the street users; such life in common has to be based on the equity of user repartition, so that everyone can use the space respecting each other's needs and pedestrians are no more heavily injured. This approach has to be supported by analyzing also the possibility of *giving pedestrians a general priority on traffic*, or at least in the city centre and in the dwelling areas (this proposal could seem an exact overlapping with what proposed at A.1., but the meaning is different; in that case is a matter of quantity of space, here is a matter of traffic code rule)**.** In this context *traffic should be managed, speed* and *parking* have to be *controlled* and newly ruled mainly *by design*, and not only supported by *police enforcement*; as for parking, it was suggested that *underground parking* should be *encouraged*. As much as speed is concerned, it should be *reduced*; *30 km/h* should become the general limit *in towns* or *in definite areas*. Low speed should be made natural, so that traffic signs could be dismounted. To obtain this, it is necessary to convince drivers to drive slowly by road infrastructure and environment design; the streets have indeed to be designed both to communicate and compel the right behaviour to drivers, as much as speed and movement are concerned. It is then necessary that, if the aim is to detect and act on elements that influence drivers behaviour, the designer refers to perceptual sciences, and once that such elements are found, experimented and assessed, creates a connected street grammar. If in the design of the street, all kind of users are taken into account, it will become clear what speed is adequate.

A *sufficient pedestrian network* with *adequate crossing facilities* should be provided, and this can become the basis on which to create *new models for residential areas*. In these, *through traffic should be avoided*, analyzing the potentialities and limits of using

also particular measures as *the urban toll*, and in particular should be made zone plans to *minimize traffic around schools* (from F). The control of speed and of traffic in "vulnerable areas", besides improving safety, helps also to solve the air pollution problem.

A warning was given. Let's try to find where it is more important to act and make proposal for concentrated measures, because the redesign of the whole city cannot be financed. This aspect could be related with the solutions presented in A.2. about finding funding.

Cluster of Problems: ***D. Poor support by and connection to other transport modes***

Families of solutions:

D1. Public transport for all

Every facility available at a bus stop, as well as all the other components of the public transport service (including the public transport service itself), must be thought for all, at every time and everywhere. To achieve this goal, actions in three different fields can be taken:

Accessibility of the service: *walking is always a part of any travel chain* and the *special needs of all* the categories of people *should be considered. Appropriate pedestrian paths to bus stops should be provided* so to create besides a high density of stops also good conditions for pedestrians coming form everywhere in the radius of 300m; paths should become wider and wider approaching the stops. Design *should take into account the weakest people (needs and desires)* and therefore *provide quick and easy access for all users*; clever traffic light systems, such as green traffic light for pedestrian when a bus or tram is approaching, could be used. *Finally minimal space for (all) pedestrians at stops should be available*; to this aim *norms are needed*.

Functionality of the service: public transport in order to be efficient should be easy to be used and considered as central in the designing of new zones. The *supply of public transport should be therefore sufficient* and *short distances to stops guaranteed*. Public transport should be therefore designed locating *bus stops near shops and other activities*, and trying to keep them alive night and day. Comfort should be improved *providing small facilities*, *shelter and other equipment for waiting passengers*, at the same time *comfort of tram and buses should be improved*. It has to be underlined that the design of the bus stop and of its equipment should be consistent with the surroundings. Another important aspect to consider is the reliability of the service and

the quality of the information provided at bus stops, thence reliable time tables should be available, and information should be clear. The service, for being suitable to all, should be flexible to different situations, and in particular situations (i.e. low density areas), and/or for special users, *"Taylor made" services should be available*.

Promotion of the service: public transport should be promoted as a valid alternative to individual transport systems; in this context actions such as *promoting public transport by financial aids*, *promoting transport to go to work* and, depending on the situations, *develop mobility management by companies* may be useful.

Cluster of Problems: ***E. Lack of natural, architectonical and psychological features of the environment***

Families of solutions:

E1. A green network in every city

This proposal is first of all a political choice, that has to be backed up by solutions at planning and design level.

A green network plan in every city is possible if more nature is introduced in towns and if the *green*/blue *way of the spaces is always thought of*. The network can be obtained linking green areas and alleys, filling the gaps, developing a hierarchy of green spaces and *providing a good* mix and *variety of green and built spaces*.

When planning this green network, it is necessary:

- *to analyze the needs of the users: pedestrians who walk and stay*
- *to define where to act and to choose adequate green layouts*
- *to link the different places in a short, attractive and secure way*
- *to think the paths not only in terms of pure functionality but also in terms of leisure and* freedom*, so that they add* a recreational aspect to every day displacements*.*

To this aim, it is necessary to plan the green network *considering the aspect* it can assume and *the comfort* it can offer, and *the role* it can play *in the improvement* of such performances:

- *overlapping, when possible, "greenways" and "greenfingers" to improve pedestrians' and bikers' thermal, visual and acoustic comfort and to reduce air pollution*
- *planting* beautiful, large trees along the streets *and choosing green essences appropriate to the geographical zone*
- *using more water elements*

- *taking into account the variations of the seasons, and considering that each of them contributes positively to the design of the urban space, winter too*
- *remembering, in the choices, that using odours, colours and sounds it is possible to improve the public pedestrian environment.*

In focusing on green, it is important to maintain a good balance between green and mineral elements, to diversify natural green areas from artificial ones, to avoid no man's land.

Last but not least, remember to make your choices thinking to the maintenance of what you plan and design.

E.2. Pedestrians have always to feel at home

To reach this goal it is very important to stress the sense of identity between pedestrians and city/town outdoor spaces; it is therefore crucial to *enhance peculiar characters of the environment to act as identity elements*. This can be done *avoiding abstract models and* in particular *considering the character of the town, when designing the urban space*. At the same time it seems important to improve the legibility of the space by *keeping clear the roles of urban elements (streets, parks, squares)*, by devising *pedestrian space as a movie (changing perspectives every 6 minutes)*, by *designing the streets not only bidimensionally but also tridimensionally*, and finally by *improving pedestrian signs and information*. Outdoor spaces need to give always the strong feeling of being a "self-sufficient" place for living, in this perspective *existing spontaneous meeting points should be enhanced*. Finally, every moment of the day must be considered in design, highlighting the differences and potentialities present in the 24 hours day and *designing specific images of the public spaces, at day and night*.

*Cluster of problem**: F – Poor environmental performances***

Families of solutions:

F.1. Integrate pedestrian scale in cities design

The family is characterized by two facets: one that is more theoretical and one that is more practical.

Integrate pedestrian scale in cities design has been considered to be one of the main topic to be faced. To reach this goal, it seems important to reverse the approach from the beginning: to organize the city for people, which means to locate pedestrians at the centre of the projects; this brings with itself the awareness that first of all the planners or decision makers have to think as pedestrians, willing to be happy while walking; as a

first result of this it seems obvious to give more space to pedestrian, less to cars and thence to design no more roads for cars but streets for living. The scale is considered from different points of view: a material one, related to distances, a visual one, related to dimensions and characteristics.

To the former pertains the idea of prising compact city, together with good land use patterns, and distribution of activities, above all schools. The latter is strengthened by some proposals that could have an interface with the Family of Solutions B.2., and state that daily services have to be situated at pedestrian adequate distances, since also the needs of elderly people and children have to be met in the city.

Once acquired these fundamentals, it is necessary to pass at the design step, and thence to materialize what before stated. First of all when considering public spaces, we have to take into account the percentage of the environment that is within the walking reach and vision field of pedestrians, and to treat it with a proper variety, and even more to use in the design the streets environmental dimensions, details and features, that are perceived at pedestrian-pace and belong to pedestrian archetype world. This means that it is necessary to use measures and scales that make pedestrians feel that the street is created to fulfil their pleasure and need (see also family of solutions B.1.) and in particular that constitute a *friendly looking architecture design*. Also a punitive measure could be used to achieve the goal: levying a *tax on unfriendly built environment*.

Having to do above all with existing environment, it is very important to improve it using various devices:

- *disguising negative visual impact by positive elements*
- *hiding ugly environment by greenery and clever lighting*
- *running landscape studies for lighting*
- locating *signs for alternative pedestrian routes*

the second idea is to give indications on how to act when making a design:

- *enhancing the ground floor of the facades to mitigate the fact of the high buildings*
- *encouraging the use of arcades at ground floor.*

F.2. Control of pedestrian exposure to noise

It is a solution that belongs mainly to the norm field, but it presents also some technical solutions that can be considered in coding.

It is necessary to act at urban planning level, it is indeed *Urban design that can locate activities causing noise far from living area***,** but also at design level, with *landscape*

studies for sounds that disguise negative sounds by positive elements. It seems also important to act on the education or sensitization field for improving *the behaviours of drivers and people on sounds levels by civic education*.

F.3. A clean and healthy outdoor space

Given the wide range of aspects that are involved in this family, it seemed right in this case to choose a more comprehensive definition, also if it doesn't reflect any specific proposed solution.

The issue at hand was considered very interesting and susceptible to be dealt with from various points of view.

It is possible to start from preventive measures that act in different fields as: *educate dog holders to clean after***,** and to arrive to more restrictive ones as: *forbid to put food for animals on the street*, and finally to more strategic ones as: advising that *urban design can locate activities causing smell far from living area*. Then it can move on to some more technical aspects in the field of management or design as: *provide disposal**s** that allow to breath* always *good air***,** for example *without using garbage bins***,** and pass then to definite technical measures as:

- *disguise negative smells by positive elements*
- *provide dog toilets.*

(Annex 24 - List of possible chosen solutions to be further developed)

7. Relation between the problems and the families of solutions

The relation among the most important families of solutions and the most important classes of problems[2] helps to evaluate if the proposed solutions really solve the problems that were evaluated as the most urgent to solve[3]. The problems, described by cluster, category and rank, are connected to the most important classes of solutions, described by families or, in case, by the most pertinent solutions; ranking positions[4] and possible interfaces with other classes of solutions[5] are also specified.

Moreover, for each problem pertinent families of solution are reported, for seing "at a glance" how many pertinent solutions exist for a particular problem[6].

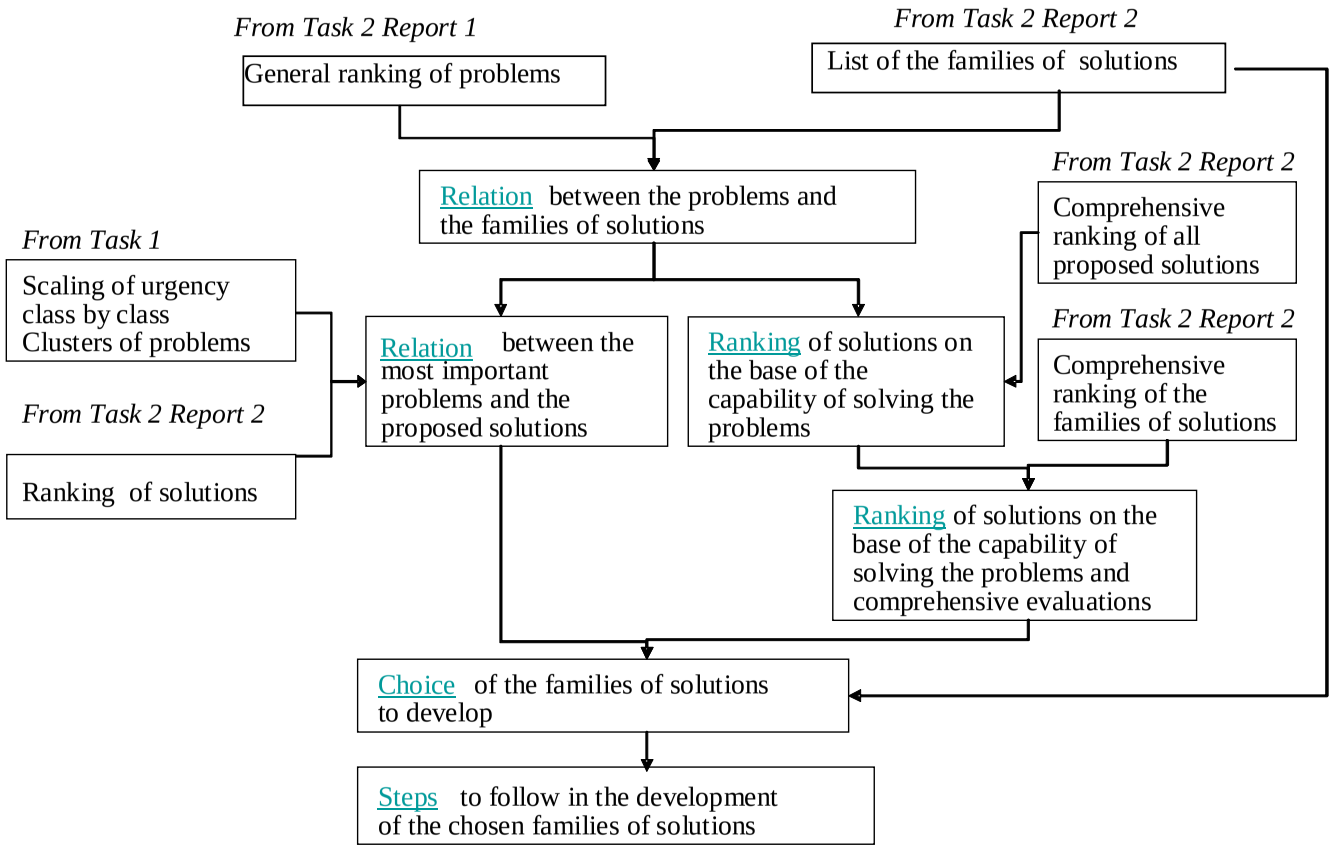
Families of solutions are ranked also according to their capability of solving the detected problems. The ranking is based on the average of the scores[7] of the three most urgent problems solved by each family of solutions[8] (Tab.7). A merging process of the ranking of the families of solutions according to evaluations and votes[9] and of the ranking of the families of solutions according to the urgency of solved problems [10] led to a new comprehensive ranking list of the solutions' family[11]. (Tab.8)

[2] The first 14 problems, belonging to the group of the most important problems, in Annex 20: General Ranking of problems
[3] Annex 28: The relation between the most important problems and the proposed solutions
[4] Annex 27: Comprehensive ranking of all the proposed solutions
[5] Annex 24: Ranking of Solution family by family
[6] Annex 29: The relation between the most important problems and the proposed solutions
[7] Annex 25: Comprehensive Ranking of the Families of Solutions
[8] Annex 30: Ranking of solutions on the base of the capability of solving the problems
[9] See note 6
[10] See note 7
[11] Annex 31: Ranking of Solution on the base of the evaluations and the votes (annex 2, report 2) and the capability of solving the problems

Ranking of Solution on the base of the capability of solving the problems

Rank	Group	Name	Prob score (Aver. best 3)
1	C1	Consider in each development that you have to move as pedestrians and not only as car drivers	9.31
2	A1	Give priority to pedestrians in transport planning	8.27
3	D1	Accessible public transport for all	7.5
4	B1	The public space as a living room	8.2
5	A2	Each municipality should have a pedestrian policy	6.81
6	B2	Implementation of policy regarding localization of facilities	6.74
7	F2	Standards for acoustics limits outdoor	5.42
8	E2	Pedestrians have always to feel at home	6.46
9	E1	A green network plan in every city	6.04
10	F1	Integrate the pedestrian scale in cities design	5.35
11	A3	Living streets day and night	6.39
12	F3	A clean and salubrious outdoor space	3.34
13	A4	A team exclusively dedicated to pedestrian spaces maintenance in local administration	3.65

Tab 7 –Ranking of Solution on the base of the capability of solving the problems (Annex 30)



Tab 8 - Relation between the problems and the families of solutions

8. Indications for the study of the Families of Solutions

The twelve Families of Solutions are all interrelated and integrable, they therefore should be studied all at once. For practical reasons they are dealt with separately; to try to overcome this division each family is faced by one partner as “leader” and by another as “supporter”; moreover all the partners are asked to contribute to all of them for two reasons: to spot all the interfaces among the members of the various families, and to give them a European character, and not one referable only to one country. Such support is given also by comments, ideas, suggestions and by best practice examples. The aim is to cross expertise and to obtain an international result.

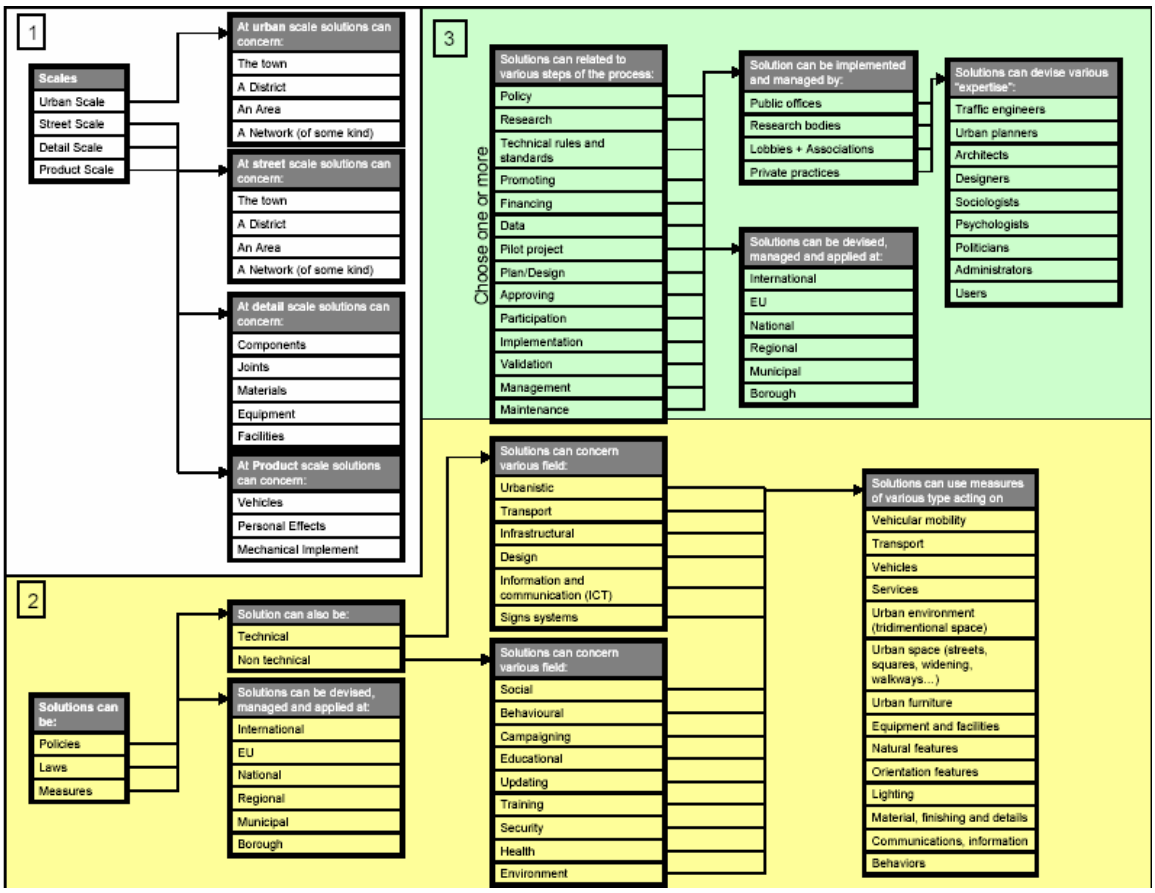
Family	Leader	Supporter
C1	FRA	FIN
A1	ITA	SWI
D1	SWI	FIN
B1	FIN	ITA
A2	BEL	SWI
F2	ITA	NOR
B2	SWI	BEL
E2	NOR	FRA
E1	BEL	ITA
F1	FIN	BEL
A3	SWI	FIN
F3	NOR	

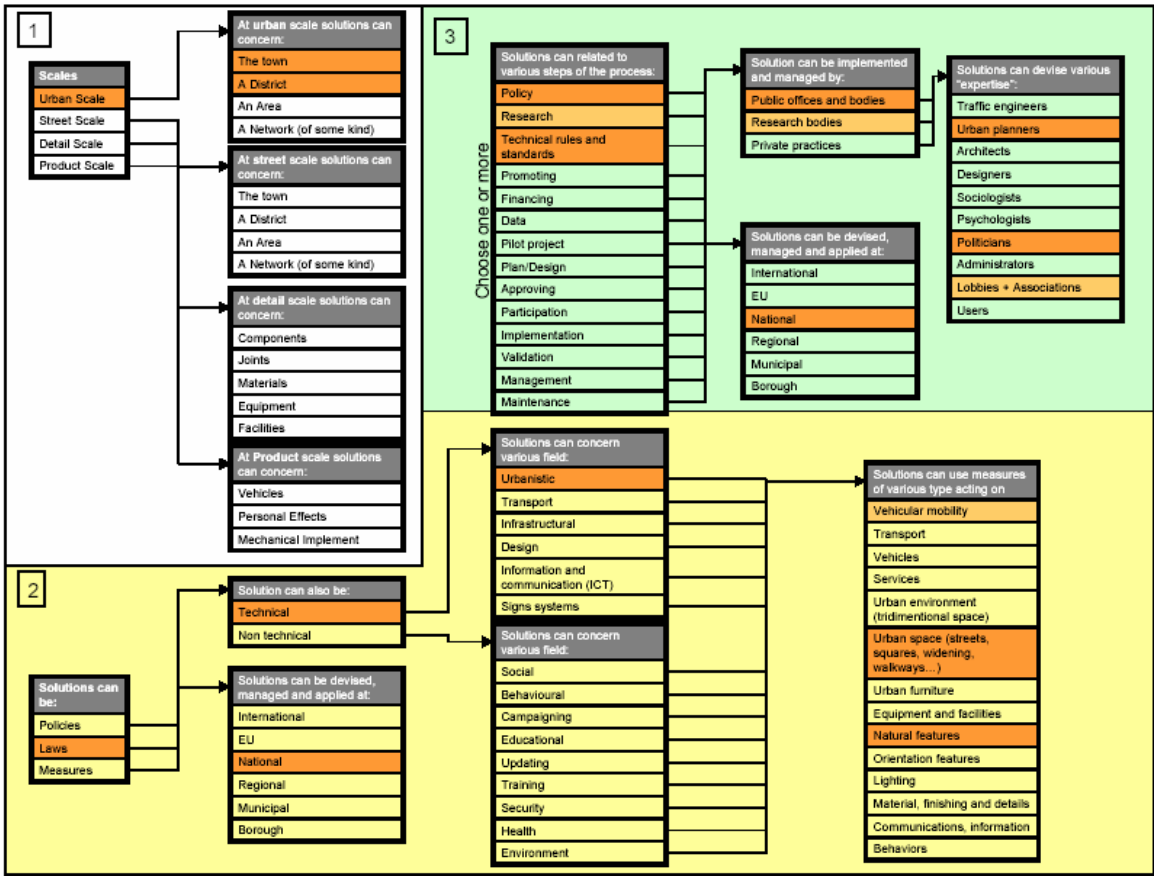
The indications contained in the work programme developed for each one of the twelve “Families of solutions” fix only some steps that have to be to followed and that are common to all the families. For the rest, they constitute only tracks that leave to the “leaders” of the Families the possibility of developing the work as they think better; they can indeed choose if to use all the given hints, how much to go in depth with them, analyzing also their problem solving quality, and decide if it is worth to add more ideas.

In the ***first step*** is faced the definition of the idea/concept, both of the main statement/Head of the Family and of each member pertaining to the family, with the aim to clarify the meanings that are given to the various solutions. It is also described the articulation of the topic in phases/fields. A scheme, list, storyboard or block diagram is used to describe the logical sequence of the various member solutions and/or their relations/dependencies inside the family.

In the ***second step*** is considered the mutual relation between the classes of problems to be addressed, ranked by their urgency to be solved, and the family of solutions, in general, just to point out why it is needed to deal with such solutions and how.

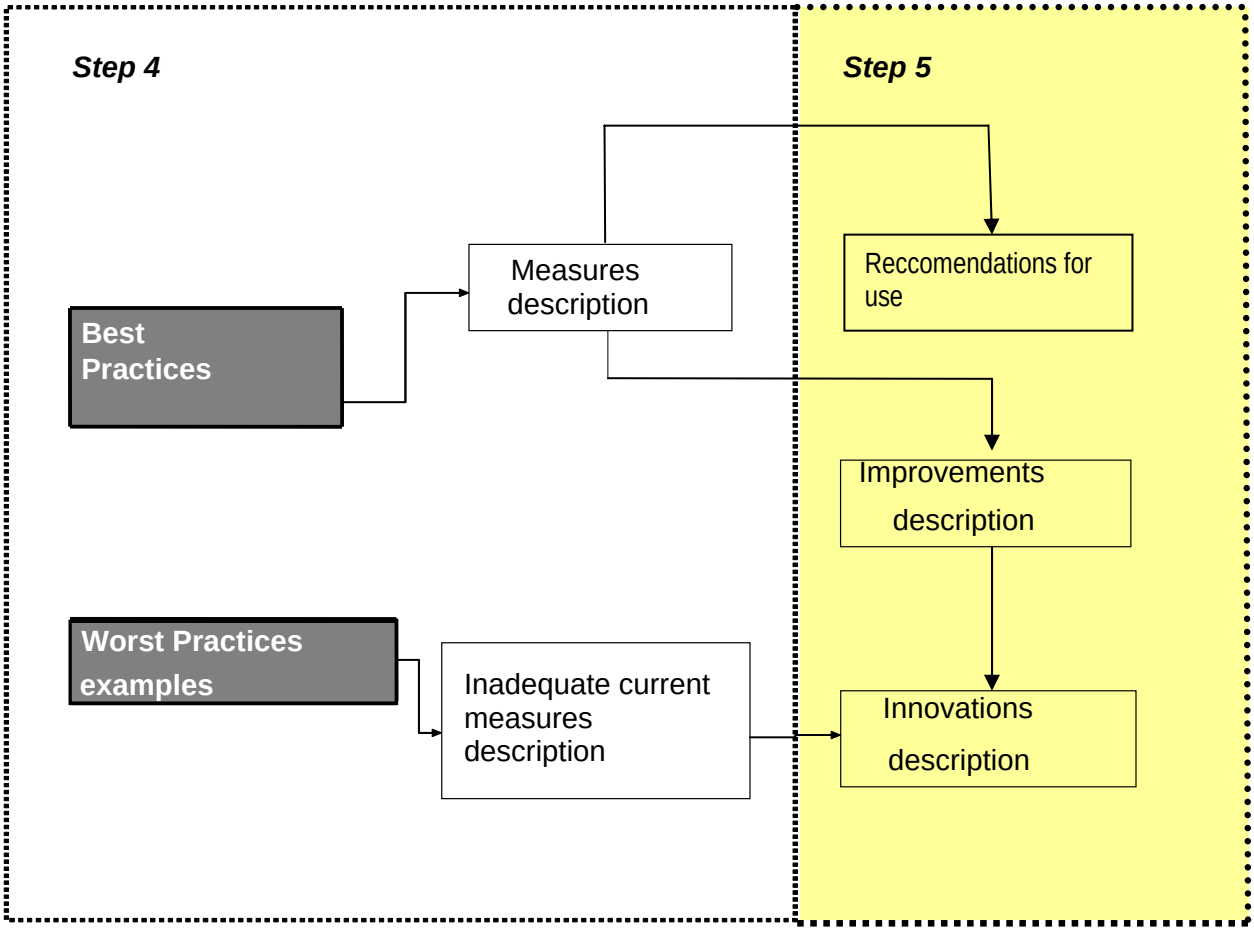
In the ***third step*** is made a first hypothesis of classification of the Family of Solutions, by three check lists answering the questions: Where the solutions can be implemented? How can they be implemented? Who are the actors involved? The classification is made according to a common schema: the “Check list for Solutions”, for having all the partners to use the same definitions. The “check list” gives an idea of all the domains to which the solutions can be referred. They provide for the same aspects that were provided for the problems, and that were established, or foreshadowed, in the research programme; in some way then, this check list constitutes a framework in which to place the solutions which were devised at the brainstorming. All these big classes can be interrelated and their relations can be studied by matrixes; each solution can be inserted in more than one class. This allowes not only to have a classification of the solutions, but above all to be sure not to forget some aspects in its development. (tab.9)





Tab 9 – Check list for solutions (Annex 34)

At the ***fourth step***, a collection of meaningful examples of the existing best practice and of “inspiring” unappropriate or bad one is made; the aim is to choose best practice to refer to as example to be used and implemented where it is not made yet, or to mention the worst one as a starting point to study a new solution. To this aim, first of all the PROMPT case studies “worths” were used, as established in the DoW, and then other examples. This constitutes the first framework of: “how to do it”. (Tab.10)



Tab.10 – Articulation of Step 4 and 5 of the work programme

At the ***fifth step*** "usable" descriptions were made of tools and measures to accomplish the proposed solutions. These are of various type: a clear and systematic description of best practice, or of a betterment of something still improvable or insufficient. Sometimes are devised and proposed new ideas, that obviously would need more research and testing before being applied. Recommendations or guidelines for the end users were in some cases added.

The description faces all the phases, from the idea/research to the implementation directives, if possible. This represents then the articulation of "how to do it".

The solutions are described using written parts, tables, drawings, pictures, depending on the steps and on the issue at hand: policies, technical measures, social aspects have required different descriptive methods.

The Forth and fifth steps are faced at two levels. One General level, that is represented by a Synoptic Table that summarises and describes synthetically all the alternative

Measures apt to achieve each Member of the Family of Solutions. It is articulated in 3 columns; the first one contains the best surveyed example related to the possible ways of accomplishing each proposed solution; the second column describes it shortly; the third column is devoted to recommendations, to eventual indication and short description of tools or measures that are improvement of existing best practice, or that are innovative. One more technical level, that deals with the same issues, is inserted in specific deepening boxes. This level has the aim of making an in depth description of the chosen measures, and/or of each improved or innovative tool/measure; it can also only add other examples of the same tool/measure, or of alternative ones, considered the same as best practice to recommend, highlighting limits, potentialities and so on, with text and drawings, and eventual comments on specific aspects.

This double reading allows stake holders, politicians and non technical people to grasp quickly what they are interested in, while researchers, technical offices staff and practitioners can make a more in depth reading suggesting more appropriate information.

At the end of the process all the partners' contributions were gathered, reviewed to organize a more coherent collection, and finally edited by producing a report that is structured devising four reading levels, as explained in Part 1: Introduction and Summary. (Tab. 11)

inputs	task	output General level	output In depth level
Step 1 List of possible chosen solutions to be further developed (Rep 2 Annex 1) Synthesis of the Essays (Draft Report Annex 18)	Definition of the idea/concept of the main statement (head of the family), articulation in phases/fields, definition of the single solutions (members of the family)	Scheme, list, storyboard or block diagram to describe the logical sequence of the various member solutions and/or the relations/dependencies inside the family Explanation of the meanings that are given to the various solutions (phases and/or fields, head and members)	Exhaustive depiction that sets the solutions (phases and/or fields, head and members) in the theoretical and/or practical state of the art on the matter, that relates them to the aim and/or the field of application, to the possible tools and/or measures and so on
Step 2 Ranking of the solutions, family by family (Rep 2 Annex 3) General Ranking of Problems (Rep 1 Annex 1) Relation between problems and families of solutions (draft made by Italy Rep 3 Annex 2 + new Rep 4 Annex 1)	Definition of the relation between considered solutions and addressed problems	List of the problems addressed by the family of solutions ranked by their urgency to be solved Relation of the family of solutions with the classes and cluster of problems (short text)	Comments on the capability of the proposed solutions (members of the family) of solving the problems (text)
Step 3 "Where How Who" classification schema (Report 4 Annex 2)	Classification of solutions according to a common schema, and definition of key words	Classification of the solutions (members of the family) by three check lists answering the questions: Where the solutions can be implemented? How can they be implemented? Who are the actors involved? Short text indicating also main and secondary connections List of key words suitable to be used in an automatic research, for each of the three classifications	Comments if needed

inputs	task	Output General level	In depht level
Step 4 Literature, expertise. List of possibile chosen solutions to be further developed (Rep 2 Annex 1)	Collection of meaningful examples of best practice and of "inspiring" unappropriate or bad ones	A synoptic table summarising step 4,5 and 6. The table contains three columns. •First row: example/es relating to the accomplishment of each proposed solution (member of the family) •Second row: indication and short description of tools or measures considered as the most appropriate to accomplish each proposed solution, and related to one or more pertaining examples. •Third row: eventual indication and short description of tools or measures that are an improvement of the existing best practice, or that are innovative.	Complete reference of the example (project/ publications etc. (if In depth description of each measure considered as best practice to recommend, highlighting limits, potentialities and so on (text and/or drawings).
Step 5-6	"Usable" descriptions of the tools and measures to accomplish the proposed solutions; these can be a clear and systematic description of a best practice or of a betterment of something still improvable or insufficient. If the case new ideas can be devised.		In depth description of each improved or innovative tools or measure.
Step 7 Ranking of solutions family by family (Report 3 Annex 3) Relation between the family of solutions and the addressed problems (New Report 4 Annex 1), specially vulnerable classes of users (Report 4 Annex 3), general ranking of problems (Report 1 Annex 1)	Check of the appropriatness of the proposed tools/measures, chosen to accomplish the family of solutions	Lists of interfaces/interferences with other solutions (members of the family); of problems addressed by the proposed tools/measures; of satisfied classes of users. Indication of the range of application. Two levels of respondency (strong and weak) should be used. When exists a particularly strong correspondence with a *single* solutions this should be indicated	Comments on specific aspects related to each list.

Tab.11 - Structure for the Families of Solutions handling