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User-centered selection of innovative ideas and projects for incubation

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Abstract: A great deal of work has been done to characterize entire sets of *ideation* indicators as well as isolated factors of *innovativeness*. Nevertheless, entire sets of *innovativeness* indicators are essential in business innovation competitions, as well as within companies in order to select promising innovative project seeds. In this paper, a complete set of *innovativeness* indicators is proposed. The UNPC *innovativeness* model, standing for *usefulness*, *newness*, *profitability* and (proof of) *concept*, has been tested and validated over a period of 4 years within the largest European innovation cluster in the silver economy. Four authentic examples of innovation selections are analysed. They illustrate how the UNPC model is able to provide clear and efficient guidance for better decision-making in the context of innovating for the elderly. In addition, the UNPC primary diagnosis of an innovative project serves also as a map for continuous improvement or incubation of promising ideas or projects.

Keywords: *innovativeness indicators, ideation indicators, idea maturity, maturity monitoring, innovation process, idea selection, innovation competition*

1. Ideation versus innovativeness metrics

Various proposals have recently been made for measuring qualities of ideation tasks (Maher & Fisher, 2012). Several models exist to measure the efficiency of this ideation process. Shah, Smith and Vargas-Hernandez (Shah, Smith, & Vargas-Hernandez, 2003) proposed four separate effectiveness measures: *novelty*, *variety*, *quality* and *quantity*. *Novelty* measures how unusual or unexpected an idea is, compared to other ideas. *Variety* is a size measurement of the explored solution space. *Quality* is a measurement of the feasibility of an idea and how close it comes to meeting design specifications. *Quantity* is the total number of ideas generated. Sarkar and Chakrabarti (Sarkar & Chakrabarti, 2011) addressed methods for assessing innovation in such a way as to integrate the notion of development deadlines and degree of creativity, two factors they found missing in Shah's metrics. They also highlighted the need to define the degree of creativity of products where creativity is considered a function of *novelty* and *usefulness*. The SAPPhIRE model, developed by Chakrabarti, Sarkar, Leelavathamma, and Nataraju (Chakrabarti, Sarkar, Leelavathamma, & Nataraju, 2005) proposed a framework for design to encourage *novelty*. Using the linkography principle (Goldschmidt, 1990), Goldschmidt and Tatsa (Goldschmidt & Tatsa, 2005) determined if a given "good" idea is related to other ideas reported in classroom discussions of students' projects in progress. Kan and Gero (Kan & Gero, 2008) showed how to compute *novelty* with linkographs. Recently, Grace, Maher, Fisher, and Brady (Grace, Maher, Fisher, & Brady, 2014) proposed a method of computing the surprise effect of a product. They used a distance metric to compare the attributes of a creative product and the attributes of similar products in the market.

Much work has also been undertaken to characterize components of *innovativeness* metrics, but rare are the works that propose complete sets of *innovativeness* metrics in given contexts. *Innovativeness* metrics concern more the economic success of an entrepreneurial or intrapreneurial venture; thus, their focus is on the results rather than the creative means. As defined by the authors in (Yannou, Zimmer, Farel, Jankovic, & Stal Le Cardinal, 2013), *innovativeness* metrics aim at assessing the likelihood, at any stage of maturity, of an idea or a project becoming a successful innovation. Such *innovativeness* metrics are essential in business innovation competitions organized by private/public initiatives, as well as within companies for selecting promising innovation seeds.

Literature in marketing has tended to explore innovation or *innovativeness* rather than creativity. Here, an innovation is a combination of a certain degree of *value-add* and a certain degree of *newness* (Wright, 2012). A *value-add* is a *usefulness* indicator from the perspective of the end-user at the time the product is launched onto the market. This *usefulness* is hard to assess for designers, especially when end-users and other value stakeholders do not share the same expectations. This *usefulness* is also hard to automate except when modeling the preferences of end-users or customers, in the context of competing offers and with the consciousness of *jobs-to-be-done* (Christensen, 2003, 2011). Measuring the perceived *value-add* of *usefulness* of ideas/products is also of utmost importance for guaranteeing market success. Indeed, this is the principle of the popular *blue ocean strategy* developed by Kim and Mauborgne (Kim & Mauborgne, 2005). Recently, the authors proposed a method to compute *usefulness* indicators of design concepts (Bekhradi, Yannou, Farel, Jena, & Zimmer, 2014; Bekhradi, Yannou, Farel, Zimmer, & Chandra, 2015) by usage segmentation techniques, measuring the degree of dominance of a product or an idea by summation over all usage segments. A first approach considers the effectiveness of the product/idea weighted by the size of the usage segment. This is the notion of *usage coverage indicators* (Yannou, Yvars, Hoyle, & Chen, 2013). The second approach compares the *usefulness* dominance of the product/idea under study to existing offers (Bekhradi et al., 2015).

Other authors claim that "*quantity breeds quality*" is a poor principle as a component of *innovativeness* for several reasons. Kazakci, Gillier, Piat, and Hatchuel (Kazakci, Gillier, Piat, & Hatchuel, 2014), experimenting on practical ideation situations, observed that (in abstract, page 199) "*[r]esults lead to the rejection of the classical 'quantity breeds quality' hypothesis. Rather, we observe that successful groups are the ones who produce a few original propositions that hold great value for users while looking for ways to make those propositions feasible.*" For a designer, *feasibility*, which can also be

called *proof-of-concept*, may be a constraint leading to better idea selections and inspiration. In summary, it is important to assess idea *feasibility* in
design practice so as to increase the probability of leading to successful innovation on the market (Kazakci et al., 2014).

In addition, the authors showed that we cannot separate the question of ideation measurements from the pertinence of exploration-exploitation of the adopted innovation process. The *Radical Innovation Design* (RID) methodology developed by the authors (Yannou, 2015; Yannou, Jankovic, Leroy, & Okudan Kremer, 2013) aims to generate a low number of conceptual ideas or solutions. This is because RID is a process of systematic investigation at the front end of innovation along with a continuous uncertainty reduction process that converges toward a small set of *value buckets*. It is not therefore a stochastic generation of interesting ideas in the "*thinking outside the box*" paradigm. *Value buckets* are "*combinations of important problems/pains occurring during characteristic usage situations, and for which existing solutions are generally neither useful nor efficient*" (Yannou, 2015). The principle here is "*let us investigate the problem setting, focusing on a small number of value buckets that are the starting points of focused innovations*". The better value buckets are identified, the more likely it is that creative ideas will become successful innovations on the market, because of the immediate perceived *usefulness* and *newness*.

Newness has been studied by Talke, Salomo, Wieringa, and Lutz (Talke, Salomo, Wieringa, & Lutz, 2009) as a component of *innovativeness* metrics. We agree with the authors that "*design newness is never discussed among the dimensions of product innovativeness*". This is due to the inherent difficulty of correlating a measure of market success with a level of *newness*. The authors clearly establish that two aspects of *newness* must be considered: *design (apparent) newness* and *technical newness*. Both of these factors "*are important drivers of car sales. But, while design newness has a positive impact right after the introduction and persists in strength over time, technical newness drives sales with a lagged effect and decreases toward the end of the life cycle.*" Hence, these authors validate *newness* as a component of *innovativeness.*

Some authors, such as Kornish and Ulrich (Kornish & Ulrich, 2014), have been interested in predicting the success and *profitability* of a new product or service launch. They advocate commonsense: conventional surveys of consumers are a better way of determining what a "good" idea is, rather than ratings by even highly experienced experts. We agree with their conclusion in their case study of innovating in household consumer products. However, in cases like the one we characterize as contexts of *user-centered* and *pain-driven* useful innovations (Yannou, 2015) such as "design for healthcare", we strongly disagree. For instance, in the case of designing for the elderly, the traditional market does not exist as the users (the elderly) are often not the purchaser, and the purchasers are often not the prescribers (medical doctors). In these cases, who should be interviewed? In addition, the success of an innovation depends on a variety of factors and stakeholders: for example, in this case, ratings by highly experienced experts provide better clues than interviewing the elderly! Four examples are provided in section 3 below to support this claim.
Other authors study the "*wow effect*" and other emotional experiences as components of people's attraction to novel products or services (Boatwright & Cagan, 2010). As we have first applied *innovativeness* indicators to the healthcare sector, we believe that:

- *usefulness* is far preferred to the *wow effect*,
- and the *wow effect* is not a major factor in this sector as social security and health insurance drive the funding support of a medical solution.

Lastly, let us mention the most famous innovativeness set of indicators used in design departments today; this is the one used by IDEO company (see Figure 1) made of *desirability*, *feasibility* and *viability*.

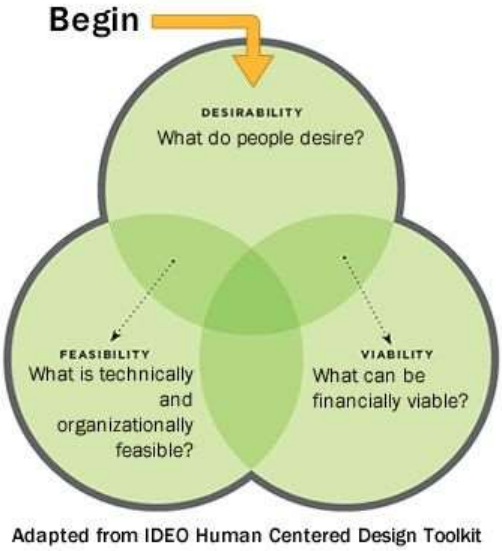


Figure 1. The IDEO innovativeness set of indicators made of desirability, feasibility and viability

We have therefore seen that there are different notions of *usefulness*, *feasibility*, *newness* (*design*/apparent and *technical*) or *novelty*, *profitability*, *desirability*, *viability*, *wow effect* and *emotional impact*. Apart the IDEO tryptic, there have been few attempts to propose a whole set of *innovativeness* metrics. This is due to the diversity of innovation situations and realities that condition innovation success in the context of an entrepreneurial or intrapreneurial venture.

In this paper, we propose a whole set of *innovativeness* metrics in the context of *user-centered* and *pain-driven* useful innovations (Yannou, 2015) such as "*design for healthcare*" and in situations of business innovation competitions organized by private/public initiatives as well as within companies for selecting promising innovation seeds.
In section 2, we define our UNPC model of *innovativeness* indicators in the light of the literature and some of our previous work. In section 3, we illustrate for the first time the qualitative use of a UNPC *innovativeness* set of indicators for innovative project selection in the field of "designing for the elderly". In this case, the jury members of an innovation competition changed their decision concerning a given project after considering the whole set of UNPC proofs. In section 4, we show how a UNPC diagnosis sheet of an innovative project serves also as a map for continuous improvement or incubation of this project. We conclude for an use in industry.

2. Introducing the UNPC model as innovativeness metrics in user-centered innovation contexts

Boston Consulting Group propose categorizing innovation strategies into Technology drivers, Market readers and Need seekers. Radical Innovation Design (RID) methodology (Yannou, 2015; Yannou, Jankovic, et al., 2013) creates essential values (Yannou, 2015), adopting a need seeker innovation strategy. This is indeed a pain-driven process where problems are identified and prioritized in different usage situations of a targeted set of people. Ideation really starts after the determination of *value buckets* which guarantee coming up with blue ocean type innovations, as advised in (Kim & Mauborgne, 2005), i.e. useful problem chunks not yet satisfactorily solved. The authors have shown that a *usefulness* indicator may be computed from segmentation of usage situations by summation of the degree of dominance of a product or an idea on all usage segments (Bekhradi et al., 2015). This is why we define *usefulness* (see Table 1) as the ability to cover usage and needs situations of users / stakeholders for

which important needs are covered, suffering is alleviated, and/or malfunctions of existing systems are improved. In case of high *usefulness*, the assumption is that the innovative idea is likely to become successful unless the market remains insensitive or does not perceive the lowering of pains in typical usage situations. Here, one can speak of a non-educated market. We strongly believe that creating *usefulness* to users is a requirement for a long term value creation and that it precedes the *desirability* property of IDEO model (Figure 1). Nothing prevents to design something desirable after ensuring it is truly useful for people.

As our context is that of situations of business innovation competitions organized by private/public initiatives as well as within companies for selecting promising innovation seeds, a *newness* indicator is needed. We propose the proofs of *newness* (see Table 1) to be threefold:

- It can be a real technical *newness*, possibly patentable, as discussed in (Talke et al., 2009).
- It can also be a usage *newness*. Here we differ from Talke et al (Talke et al., 2009) who prefer to consider design or apparent *newness* instead. In a service-oriented spirit and in a "design for healthcare" context, we believe that clients and end-users do not always care about technical newness or design newness, provided that the service outperforms on the job to be done, or that usage or user experience is transformed or improved.
- It may be the case that a real usage or technical newness may be poorly perceived as the market may be neither informed nor sensitive, i.e. uneducated. This is why, whatever the usage or technical newness, the degree of perceived *newness* by clients or end-users, i.e. how much newness is appreciated and valued, must also be considered.

We propose a *profitability* indicator (see Table 1) that embeds expected profitability for the company as well as for customers. Profitability is related to costs: from the viewpoint of producers, this is the elementary margin on a product unit; from the viewpoint of user, this is the total cost of ownership.
In our case of innovating in healthcare contexts, the success in terms of market size tends to be more embedded in *Usefulness* (see Table 1 for our definition). To complete this indicator of *profitability*, we include strategic aspects of the company that go beyond the single innovation. This could include the ability to improve brand image, to increase the average revenue per user, to conquer new markets or to make clients more loyal to the brand or company. This criterion of *profitability* is never used in ideation metrics, as it is probably too oriented towards marketing. In practice it quickly becomes crucial. Having worked on many innovation projects with companies, the authors are convinced that any innovation must prove to be *profitable* for both the company and the end-users in terms of global lifecycle cost, if the innovation is to be successful.

Finally, as suggested by Kazakci et al. (Kazakci et al., 2014), feasibility is crucial for innovation success in practice. We propose to call it proof of *concept* and to consider a twofold definition:

- On the side of users, these are proofs that the conceptual solution or prototype functions effectively and efficiently in expected situations.
- On the side of the manufacturer, these are proofs of technological and industrial feasibility.

Table 1. Definition of the *Usefulness-Newness-Profitability-Concept* proofs

Proof type	Definition
Proof of **Usefulness (U)**	Proofs of *Usefulness* exist when important needs in frequent usage situations may be satisfied or covered, people's suffering or pains alleviated or malfunctions of existing systems improved. In case of high usefulness, the market size is likely to be large and, consequently, market esteem for the product high.
Proof of **Newness (N)**	Proofs of *Newness* are composed of three aspects: - Perceived newness by clients or end-users, appreciated and valued by them. - Real technical newness, possibly patentable.

	- Usage newness. Note that real usage newness may be poorly perceived as the market may be not educated or sensitive.
Proof of **Profitability (P)**	It concerns expected *Profitability* for the company as well as for customers. Profitability is related to costs: - From the viewpoint of producers, this is the elementary margin on a product unit. - From the viewpoint of users, this is the total cost of ownership. Proofs of *Profitability* may also characterize the ability to improve brand image, to increase the average revenue per user, to conquer new markets or to make clients more loyal (higher re-purchasing rate).
Proof of **Concept (C)**	Proofs of *Concept* are twofold: - On the side of users, these are proofs that the conceptual solution or prototype functions effectively and efficiently in expected situations. - On the side of the manufacturer, these are proofs of technological and industrial *feasibility*.

These four *innovativeness* indicators have already been proposed (Yannou, Farel, & Cluzel, 2015; Yannou, Zimmer, et al., 2013), but their definitions have been improved in Table 1. The authors have already shown that this set of *innovativeness* indicators is highly relevant and complete both in situations of business innovation competitions organized by private/public initiatives as well as within companies for selecting promising innovation seeds. These four indicators are called *proofs* because they are designed to encourage assessment by expert designers or innovation jury members at different stages of the ideation and innovation process, after examination of evidence.

3. Practical use of UNPC model for rejecting or selecting ideas and projects for innovating in healthcare

3.1. Context of the largest European innovation cluster on silver economy

The UNPC model has been used for 4 years (since 2012) in the largest European innovation cluster in the silver economy, i.e. the sector of product and service innovation for life quality of the elderly. In the Silver Valley innovation cluster (see http://www.silvervalley.fr/English-version), 300 private and public silver economy actors in the Paris region decided to elaborate favorable conditions to develop the senior market at national and international levels. Silver Valley has adopted the UNPC model to select ideas and projects deserving to be rewarded as well as incubated for two years.

Each year, about 8 ideas or projects out of 30 are awarded a prize in a business innovation competition called “Bourse Charles Foix”. Among these 8, 3 are in addition incubated for two years so as to boost a startup company. An experienced jury (see http://www.silvervalley.fr/Bourse-Charles-Foix-2015) of 20 innovation experts, industrialists, investors, and experts of the elderly use UNPC assessments to make their decisions after a first dossier selection, an oral presentation made by the project holders, and an intensive debate. It is sometimes taboo in the innovation world to say that some ideas or innovative projects may be more or less useless, inapplicable, based on wrong causal/explanatory principles, fallacious, money-wasting or even dangerous. In the Silver Valley innovation jury, jury members understand that *usefulness* must be produced for the elderly, a product or service must effectively work in different usage situations (proof of *concept*), it must result in value creation for users and manufacturers (proof of *profitability*), and it must be novel to be selected (proof of *newness*). Jury members have not always shared the same opinions about which innovations for elderly people should be encouraged.

Below, four real life examples of “Bourse Charles Foix” 2012 and 2013 editions are commented on for the first time to illustrate how the UNPC model has provided clear and efficient guidance for better

decision-making in the context of innovating for the elderly. For these four examples, during the jury deliberation, decisions to select a given project were made by brute project ordering. But the posterior examination of UNPC criteria finally inverted the decision at the very end of deliberation. These four examples demonstrate how UNPC is used qualitatively by jury members. The two first examples were not at first considered for selection, but they finally won the prize. The two last examples were initially ranked in top position, but were finally discredited after examination using a UNPC set of criteria.

3.2. A rationale to bring out truly innovative projects

The first innovative project was proposed by a young industrial designer. His observations in retirement homes showed that few activities were proposed to the elderly and, consequently, the elderly in these homes were often bored. In addition, activities they used to practice when they were fully active - such as gardening - were now forbidden for reasons of physical disability and retirement home safety rules and organization. An innovative gardening table project was imagined: a movable quadrant height-adjustable table with a set of ergonomic gardening tools (see Figure 2). The tools and the table were designed and tested along with the aid of elderly people and proved to be highly ergonomic (proof of *concept*), even for those who had hand disabilities or were wheelchair-bound. The solutions were patented and the *newness* was clearly perceived by health professionals as well as gardening stores. When the project was selected and incubated, there was a good likelihood that the *profitability* would be high; indeed, the elderly and professionals welcomed the product and the market appeared large. After four years, the startup company Verdurable (http://verdurable.fr/) has produced and sold 200 table sets and sells even more gardening tools sets. Sixty retirement homes and geriatric services in hospitals have been equipped with these gardening solutions, freeing up time for health personnel (proof of *profitability*) and providing happiness, pride and dignity to the elderly (proof of *usefulness*).



Figure 2. UNPC proofs for the gardening table project

The second example is an innovative hairdressing chair and furniture for elderly proposed by an experienced engineer. During a period of unemployment, he heard his wife complaining when she was

hair dressing elderly people at geriatric hospitals, retirement homes or at home. For many elderly people, body motions are limited – for instance neck movement – and they are often wheelchair-bound. Consequently, washing their hair can be quite painful, and hairdressing takes more time due to transfer and installation times. One direct result is that on average three fewer clients can be seen in a day. The engineer came to the innovation jury with videos taken by his wife, movies of the prototypes he built in his garage (see Figure 3) and testimonies of elderly clients in conventional and novel hairdressing chairs. As he was convincing (proofs of *usefulness* and proofs of *concept*), he patented his inventions (proof of *newness*) and the market was apparently huge (proof of *profitability*), he was not only selected by Silver Valley but also incubated for one year. He created a company called Esthetic Handi Access (http://www.esthetic-handi-access.com/fr/) that started industrial production with a full order book, because he was now able to prove that hairdressers of the elderly have the same number of clients per day than any other hairdresser (proof of *profitability*).



Figure 3. UNPC proofs for the hairdressing chair and furniture for elderly

3.3. Elimination of deficient innovative projects thanks to UNPC

The third example in Figure 4 shows an innovative walking frame, sketched in diverse configurations by splendid pictures. This walking frame is made of two engine-assisted triangle caterpillars designed to supposedly climb sidewalks and obstacles while maintaining stability and verticality. This was apparently a first-rate idea, since the young industrial designer, author of this proposal, had just received the first substantial prize of a famous innovation competition. Here, *usefulness* is not questionable but the attention of some jury members focused on the effectiveness of the system in a typical usage situation. One question posed to the industrial designer was: "*What happens if the aided person grasping the two handles suddenly stumbles?*". The designer was unable to answer and was even troubled. According to her explanations, the walking frame should have sped up as the user pushed the handles forward on stumbling, resulting in a dangerous fall. This is a typical example of a positive amplification open loop in control theory, a discipline which was unfamiliar to the industrial designer. In addition, the vertical stabilization and stiffness of the walking frame should enable a sophisticated level of control, and this element was ignored by the innovator. In conclusion, there was evidence of a lack of proof of

concept. The project was not selected by Silver Valley and the entrepreneur abandoned the project two years later.



Figure 4. UNPC proofs for the walking frame project

Another group of six highly-educated engineers and business managers from prestigious universities proposed a concept of developing First-Person-Shooting (FPS) applications to (a) detect (b) prevent by training (c) reeducate once started, people suffering from Alzheimer's disease. In FPS games, the gamers must, within a limited time, target some graphical objective and press the button – for example, to shoot or pop a balloon. They based their proposal on a unique and dated scientific publication – not provided to jury members - that a correlation – no figures provided - had been established between Alzheimer's disease and the ability to get a high score at FPS contests (see Figure 5). This group of six was respectable since they had founded a startup companies 2 years before and launched two e-healthcare apps. But there was not enough evidence that useful information could be derived from personal prowess in this type of game, particularly for people not familiar with gaming (lack of proof of *concept*). In addition, they wanted to develop a pre-diagnosis platform for automatically making appointments with neurologists, as soon as the first signs of Alzheimer's disease were detected: patient states degrade in the long wait for appointments with neurologists, who are overbooked. Again, the jury considered such assertions to be based on false explanatory principles and misguided interpretation, and more research would have been necessary before starting product-service development. The service *effectiveness* was far from being proven (lack of proof of *usefulness*). In addition, the benefits for both patients and health professionals were probably inexistent (lack of proof of *profitability*). Finally, this project was not selected, and the startup gave up this project later.



Figure 5. UNPC proofs for the Alzheimer-First-Person-Shooting project

4. Detailed description of UNPC ideas and projects selection process for incubation

The Charles Foix grant steering committee allowed us to test the UNPC ideas and projects selection for the 9th annual Charles Foix grant. The call for projects took place between April 2012 and October 2012. 22 submitted projects were appraised and more than 20 experts in *Academia* (body A), innovation (body E, like *Experts*) and the gerontechnology market (body I, like *Industry*) were called upon. The overall sum of the grant endowment was nearly 70,000 Euros. The two-round selection process described in section 3 has been strictly followed. A pre-selection jury has ruled out two registered projects for not having provided enough information about the project. Figure 6 shows the details of the process. Jury #1 "*Problem design – Usefulness and Newness*" composed of 12 jury members of bodies A and E have examined the 20 projects on dossiers for, finally, selecting 7 of them. Among these 7 projects, Jury #2 "*Solution design – Profitability and Concept*" composed of 15 jury members of bodies A, E and I have selected 4 innovations projects which deserve to be granted and coached for 1 year to robustify a business plan, and 2 others which deserve to be labeled by the Silver Valley cluster without any particular aid because they are already robust enough.

We simply proposed a filtering/selection system that requires *two determining qualities* : creating *usefulness* for people in their everyday life and being *novel* enough to get "innovation-support" money. At the same time, this filtering system turns out to be *tolerant* with ideas and projects which have not yet developed a satisfactory solution in terms of *profitability* (for user and for company) and proof of *concept* (it delivers an effective performance during the envisaged usage situations).

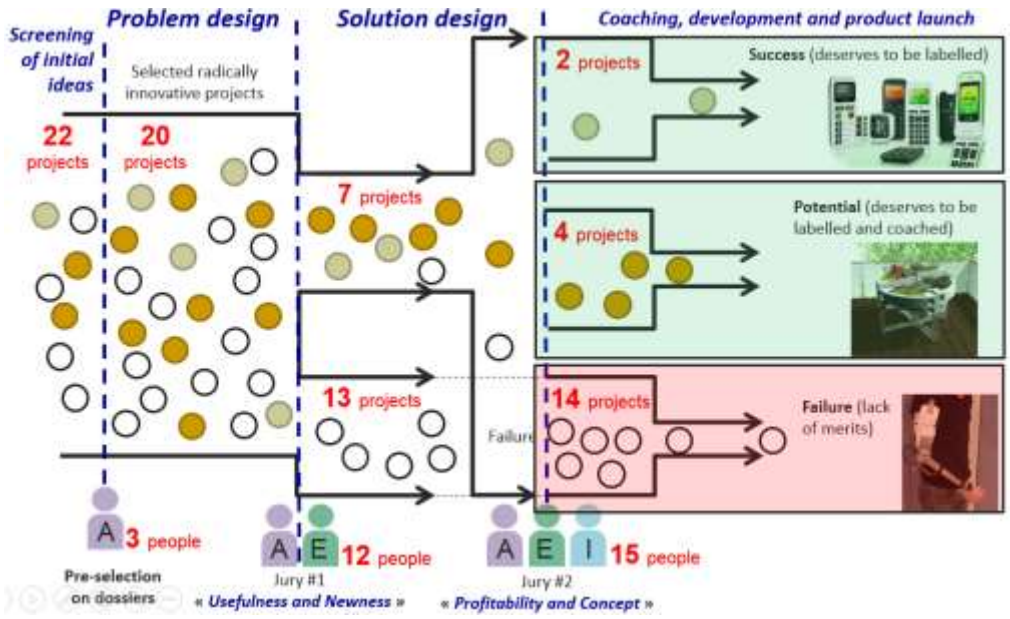


Figure 6. The selection procedure of Charles Foix innovation grant following the two-round UNPC-model selection process

Along with this process (Figure 6), a detailed chart of 22 pieces of evidence of *usefulness*, *newness*, *profitability* and *concept* (see Figure 7 for details) is filled after discussions by the two successive sets of jury members. This filled table serves for making a decision to support (labelling and possibly coaching) or reject an innovative project. It is sufficient to get a well rated higher part (for *Usefulness* and *Newness*) of the table like in Figure 7 to be supported and labelled by Silver Valley organization.
In addition, this filled UNPC diagnosis sheet can serve, for the 4 selected projects to be coached for one year, as well for a preliminary assessment of UNPC proof maturity, as for driving a robustification process of one-year coaching. In this case, projects which are labelled and selected for a free coaching are offered to build with Silver Valley experts a roadmap to increase the weakest pieces of evidence of Figure 7. For instance, to mention only few of them, the project holder corresponding to Figure 7 has reinforced project partners, risk analysis and development milestones for proofs of *Concept* and developed a value creation strategy for proofs of *Profitability*.

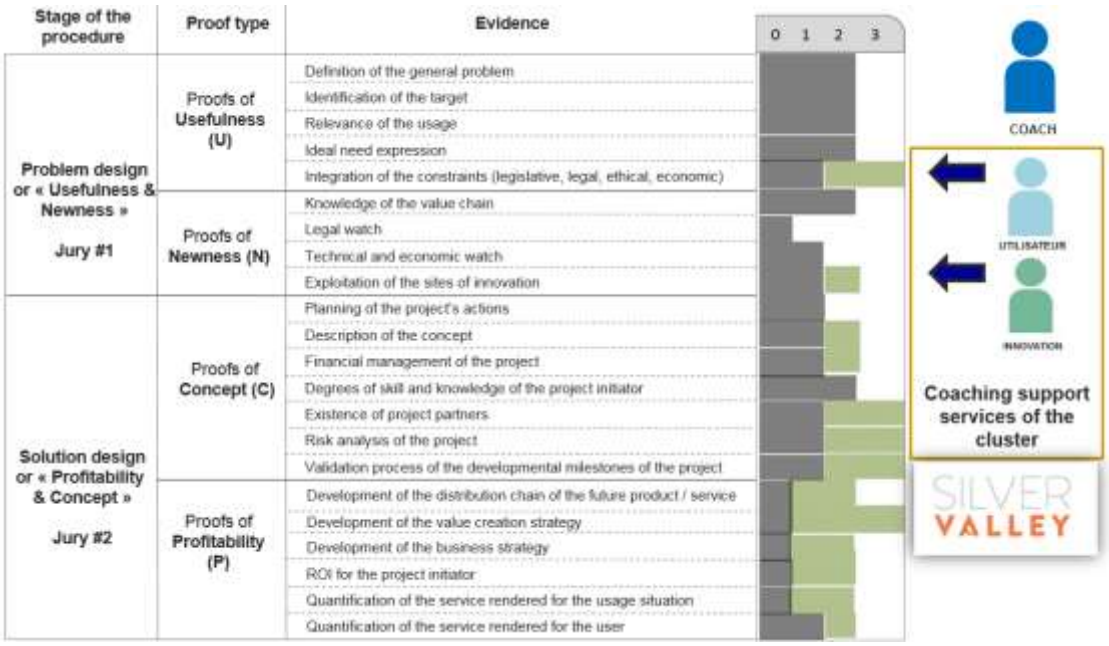


Figure 7. Detailed chart of 22 pieces of evidence of usefulness, newenss, profitability and concept proposed

during the Charles Foix grant of innovative projects. To the right, the initial assessment of the project next to the final assessment after the one-year coaching

5. Conclusions on the practical utility of UNPC model in industry

We have proposed a new innovativeness set of indicators for selecting promising innovative ideas and projects whatever the conditions: entrepreneurial conditions, inner project of a comapy, open innovation competition.

We provided:

- Clear definitions of *Usefulness*, *Newness*, *Profitability* and *Concept* in Table 1.
- 22 pieces of evidence to aid rating each of the U, N, P et C level of an innovative idea or project (Figure 7).
- A two-round selection process (Figure 6) to (1) label the most qualitative projects with satisfactory *Usufulness* and *Newness* ratings and (2) Offer a one-year coaching the those which have satisfactory U and N but present still weak proofs of *Profitability* and *Concept*.
- A mechanism to use the UNPC diagnosis sheet to build a roadmap to mitigate weak UNPC proofs and drive a coaching period. Of course, the solutions for reinforcing theses innovations projects (studies, consulting experts, writing a patent, building a business plan, experimenting with partners…) are all found among the 300 institution partners of the Silver Valley Cluster.
- A guidebook for the Charles Foix jury members has been edited (see Figure 8), full of best and worst practices to aid them to rate a given piece of evidence.

What are the practical results of such a model in action?

First, the guidebook has allowed for the 20 to 30 jury members of the innovation competition to share a common understanding of what should be and what should not be a well balanced innovation to financially support. The diversity of such a jury is so high that the debates after candidate audition were first a mess with people who fought for very specific arguments. The guidebook and the 4 indicators acted as a lighthouse, provoking a cognitive alignment among jury members which is a very good beginning to disseminate a culture of inniovation.

Second, before 2012, 12 startupers have been selected (without the UNPC process) and coached for one year. No startup has survived so far. Conversely, since 2012, 12 startupers have been selected (with the UNPC process) and coached for one year. Their startups are all alive and have raised more than 25 millions euros.

Third, the French automotive supplier Valeo, has recently decided to adopt the UNC model as the backbone of his internal innovation project selection, as well as the basis of the outer filtering process of interesting high-tech startups (in an open innovation strategy). Of course, they are completing the 4 UNPC indicators, which only express value creation for users, with indicators expressing the strategy alignment with the company and the skills and know-how compatibility.



Figure 8. Detailed chart of 22 pieces of evidence of usefulness, newenss, profitability and concept proposed

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