A methodology for appraisal and validation of User Centered Open Innovation Programs: a case study critical analysis of an energy supplier co-creative innovation program.

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Abstract: *Design thinking programs for innovation in accordance to a service-dominant logic (S-D logic) in co-creation with stakeholders is often described in the literature as an adequate procedure for added value and sustainability (Vargo & Webster, 2011; Mateus & Rosa, 2011; Ostrom et al., 2010; Brown, 2009; Vargo & Lusch, 2004, 2006, 2008a, 2008b). However, it seems to be absent from research robust validation methodologies. This article describes an empirically developed methodology for validation of design thinking Ideas(R) Evolution methodology applied to a User Centered Open Innovation Program for a more efficient behavior consumption of home energy. This program was developed within the framework of seven sequential workshops with a fixed panel of stakeholders (clients, community opinion leaders, suppliers, company decision makers and experts) at the University of Évora in 2012, in Portugal. The methodological validation of the innovation program was based on quali-quanti methods, and applied through a longitudinal design by a set of self-administered instruments that diachronically collect the emotional and cognitive quantitative and qualitative measurements of the workshops. The results demonstrated that the methodological approach essayed is parsimonious, reliable and generalizable for future use, and adds accuracy to Ideas(R)Evolution methodology.*

Introduction

According to OECD (2011) the world economy is presently services predominant (i.e. approx. 70% of the world GDP), and subject to a service-dominant (S-D) logic (Vargo & Lusch, 2004, 2006, 2008a, 2008b; Kowalkowski, 2010) thus becoming an economic paradigm (Kowalkowski, 2010) for the co-creation of value (e.g. *value-in-use, value-in-context* and *value-in-exchange*) - Vargo, Maglio & Akaka, 2008, thus supports service science and the fundamental reinforcement of a new general theory of markets and marketing.

Social and economic development has become a key policy concern throughout the world, since the macro-economic recovery in the aftermath of the second world-war. Changes in political, economic and social structures have led to a number of radical responses towards social and economic development policies. Public actors have argued that development may be achieved by involving private actors, and instead of passively awaiting their participation, public actors should "bridge the gap" and establish agreements with the private sector (Argiolas et al, 2009). Kotler(2010) states that the tendency for a continued co-creation and co-participation allows brands a strong link with its clients, which facilitates valuable insights for its diffusion.

Consequently, under the service-dominant (S-D) logic - in transition and contrast with the "industrial logic" (e.g. Goods-dominant (G-D) logic, as defined by Vargo & Lusch , 2004, 2006, 2008a, 2008b) - the business exchange of goods and services are fundamental enablers / distributors of service (Kowalkowski, 2010). The value of goods (tangible or intangible) is therefore based on their service systems *value-in-use* and *value-in-context* and ultimately determined by the customer (consumer) transactions (skills and knowledge based value interactions) when *value-in-exchange* (e.g. price and money exchange) is produced (Vargo *et al.*, 2008b).

Therefore, the understanding (and measurement) of the interactions between buyers (consumers) and suppliers is critical to fully understand their logic as the fundamental enabler of innovation and *co-creation of value* (e.g. skills and knowledge resources integration) between these parties for moving forward (e.g. harmonious developing) the global economy of families, firms, territories and countries, inserted in a highly networked world (Lusch & Webster, 2011).

In agreement with this perspective, it is postulated that each "Territory" (organization, region, place, country, etc.) depends of a continuous flux of innovation and creative intelligence for its sustainable development and survival. These innovation fluxes, in turn, depend on social relational networks, which are amplified by technology and fed by a diachronic dialogue, *Always On* (Mateus & Rosa, 2011).

Nowadays, consumers have a greater decision power conferred by WOM (word-of-mouth + word of keyboard) and by *Prosuming* (Tofler, 2006) and have planned and "tribalized" behaviors in enlarged "neighborhood circles" dependent on own perceptions, value attribution and social pressure, (Ajzen & Fishbein, 2005, Godin, 2011).

Thus, organizations and their service brands in order not to lose "attraction power" (e.g. to confer identity, prestige and trust) to the "consumer tribes" (e.g. consumer bases) establish a continuous dialog, 24/7, and therefore become "Always On with the Tribe" (Rosa, 2011, Mateus & Rosa, 2011) through activation platforms (co-creation) for innovation and creative intelligence (Mateus, 2011).

The IDEAS(R)EVOLUTION methodology

The methodological approach IDEAS(R) EVOLUTION sets links (e.g. activates) within organizational structures, through creative thinking tools and processes. It is a research project that has already been tested and proven efficient among some industries and territories (Mateus *et al.*, 2011, 2012). This methodological approach integrates several innovative and creative practices within businesses and social structures. It breaks boundaries and contributes in co-creating with stakeholders more flexible, innovative and competitive organizations. Such a concept is rooted in three main operational areas, namely: LAND(R)EVOLUTION - Innovating Territories; BRANDS(R) EVOLUTION - Innovating Businesses; and LEARN(R)EVOLUTION - Innovating Education. Each of these areas is proprietary of its own sets of original developed tools and methods.

The research project is based on four emerging approaches, of design thinking (Kelly 2006, Brown 2008, Martin 2009), co-creation (Prahalad *et al.,* 2004, Vargo *et al.*, 2004, 2006, 2008a), branding (Aaker 2010, Kotler, 2009) and service-science (Ostrom *et al.*, 2010, Lusch 2011) and on conceptual and scientific empirical data collected by Gomez and Mateus (2009), Mateus and Rosa (2010, 2011) and Mateus *et al.(*2012).

The IDEAS(R)EVOLUTION methodology is rooted in the most up-to-date academic design and marketing debate and management paradigms, and supported by recent experimentally collected data, as a way of developing a creative culture within territories, organizations, and educational institutions (e.g. users) in order to be innovative, more competitive and sustainable, as well as more collaborative in their organizational functions and therefore in the development and dissemination of their service resources and value (e.g. goods, services and knowledge) involving the community.

The IDEAS(R) EVOLUTION complete process can be schematically represented as indicated in figure 1.
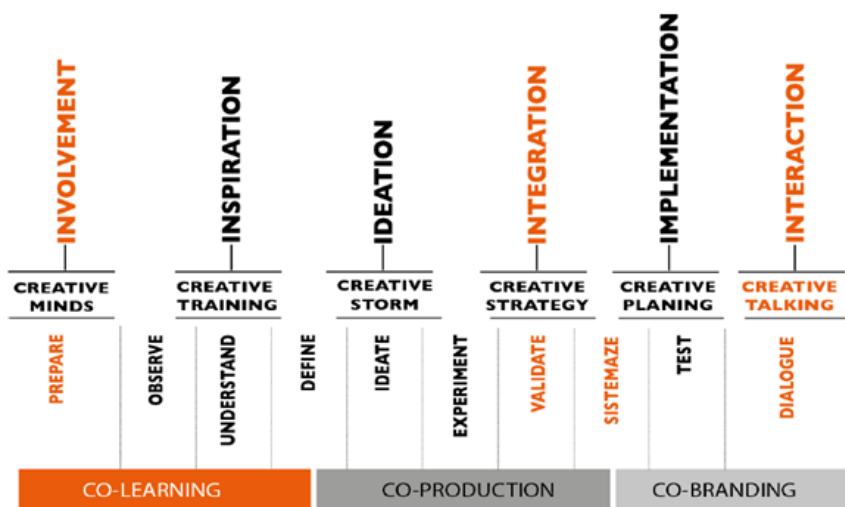

Figure 1*.- Ideas(R)Evolution macro-processes: The six steps methodological process (Involvement, Inspiration, Ideation, Integration, Implementation, Interaction) and the ten*

sequential tasks (Preparation, Observation, Understanding, Definition, Ideation, Experimentation, Validation, Systematization, Testing, Dialogue), based on DSchool Stanford. Source: UCIP Report-phase 1&2; Mateus et al., 2012.

Tim Brown declares: "*Today we have the opportunity…to create a better life… by liberating design thinking power, creating new choices and new solutions for the world*" (Brown, 2010).

The empirical work developed so far has proven very consistent and applicable, however it seems to be lacking a robust evaluation methodology that can fully appraise and validate its going forward in deeper scientific terms, thus allowing for its dissemination potential to be fully generalizable.

The case study of a co-creative innovation program

An experimental test designated User Centered Innovation Program (UCIP) was conceived according to the original Ideas(R)Evolution - Unidcom/IADE methodology in response to a challenge by the major Portuguese energy producer and distributor to explore attitudes, motivation and consumer behavior for a more efficient and sustainable energy domestic consumption and to develop in co-creation innovative products and services supplied by intelligent networks in the high-tech pilot-region *Inovcity*, in Évora (pop 57.000) in the southeastern region of Alentejo in Portugal.

The program was designed in a sequence of exploratory observations and group dynamics (workshops), of motivation, involvement, co-participative ideation and prototype development of new products and services, seeking to obtain the consensual responses and complex/contradictory problem solving answers to the research challenge, involving a pre-selection of 45 stakeholders (see table 3) of the energy supplier company, by application of quali-quanti methodology (e.g. individual questionnaires, Delphi rounds, In/out Innovation matrix and Triz methods; Krosnick, 2010, Altshuler, 1999; Listone & Turoff, 2002) for the construction of a shared innovation model (Cellular System Model; Mateus *et al.*, 2010) in co-creation and continuous flux, for the identification of more efficient behaviors of electrical energy consumption and the development of new added value products and services.

The innovation test program (UCIP) was developed according to the following basic research questions and hypothesis:

RQ1 - Can motivations drive consumers to have a more rational and efficient behavior with home energy consumption in order to save and to better manage their electrical bills? These drivers can be one or more of following:

H1- More frequent information and communication within the community.

H2- Available messages focused on altruism and sense of community.

H3- Available new added value services and products (consumption alerts, personalized tariffs packs, management information systems).

H4 - Available more live interaction and multichannel energy consumption counseling from experts (energy suppliers).

RQ2 - Can it be expected that the energy supplier might motivate consumers to changing their behaviors? Mainly through:

H5- More information exchange (dialogue always on) available through gadgetry (portable meters, sms, call-center, energy audits, etc.) that convey in-use value and consumption patterns instant perception.

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RQ3 - How can the energy supplier offer might contribute to motivate home energy consumers to collaborate with the company? Namely by one or both of following:

H6- New functionalities for consumption with timely management that induce involvement and convey immediate perceptions of energy savings and service value.

H7- Specifically adapted products and services to new emergent consumers´ profiles (market segmentation).

The planning of the research programme is framed by three operational phases: Phase 1: Diagnostic; Phase 2: Co-creation and strategy; Phase 3: Dissemination. Phase 1 and 2 was composed of seven sequential group dynamics (workshops) with the participation of an ad-hoc fixed panel of stakeholders (clients, suppliers, employees, decision-makers, local authorities, etc.) of the energy company, and executed for a ten-week fieldwork period, in May/June 2012, at the University of Évora.

In the end of Phases 1 and 2 (Phase 3 is being developed at the moment), the results obtained were very significant, in qualitative and quantitative terms, concerning the diversity profile, quality of interaction, participation, motivation and involvement of the participants, fully corresponding to the study objectives.

Very interesting tangible proposals for the innovation of new products and services (e.g. service) were obtained that point-out solutions for: (a) domestic energy consumption behavior(s) and efficiency; (b) more intense relationship and involvement between the supplier, the client and the community.

The conclusions reveal two main consumer aspirational dimensions, or *attitudinal logics*: L1- Cooperative Dialog; L2- Services in Proximity, as the main motivational drivers for the energy consumption. Within these logics a large group of needs and desires (aspirations) are revealed by the participants.

As to L1 logic it revealed: (a) aspirations to have a "friendly" energy supplier in permanent "active listening" (dialogue) ; (b) needs to compare, learn and act in dialog with the neighbors (surrounding community); (c) desires to interact with the community (city residents) and exchange learning experiences for a better quality-of-life. As to L2 logic it revealed: (a) needs of infometrics supplied by peripheral intelligent equipment (gadgetry), easy to use (e.g. parahmeterizable and adapted to users' cognitive processes); (b) energy audits and certifications of domestic electrical and gas equipment; (c) dynamic and timely counseling (anytime, anywhere) for home comfort; (d) "à la carte" tariffs that can be individually adjusted to consumers' needs and consumption patterns, coupled with a choice of individual comfort&efficiency programs.

In the end an output of 14 tangible "ideas" co-created by the participants were prototyped and subsequently tested for usability having been obtained a rank of attributed importance/priority for each prototype. The results also show a consumers´ predominant mindset in need of "humanized" relationships between client, supplier and community, of direct contact, personalization of service and permanent (always on) dialogue.

Thus, all research hypotheses (H1 to H7) were empirically confirmed.

The validation method

In order to validate the empirical experiment (UCIP) a battery of quali-quanti tests was developed according to the following research design.

The innovation programme was constructed through seven workshops (group dynamics) with stakeholders, with the duration of 3hrs. each, on average, in Évora University, from May to June, 2012, according to the following sequence, as described in table 1 and illustrated in figure 2

Table 1. *Programme methodological design*

| Workshop #	Wks 1	Wks 2	Wks 3	Wks 4	Wks 5	Wks 6a	Wks 6b
date	2nd May	15th May	22th May	29th May	12th June	21st June	26th June
Place: Évora/# pax	31	25	25	24	15		31
Lisbon/# pax	-	-	-	-	-	15	-
Methodology: macro-process	Diagnostic			Co-Creation		Strategy	
Sub-process	Involvement	Inspiration		Ideation Co-creation		Integration	
objective task/tool	Prepare	Observe	Understand Experiment (usability)	Define Ideate Diverge	Ideate Converge Consensus Prototype	Validate Internal Delphi	Validate External Delphi Triz
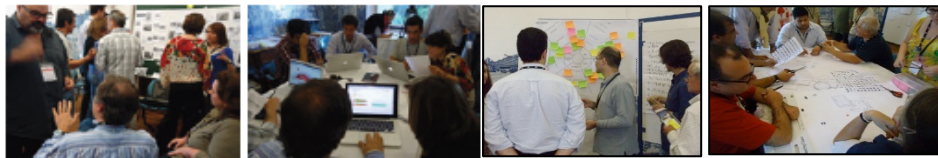
Figure 2. *Snapshots of the workshops. Source: UCIP Report- phase 1&2; Mateus et al., 2012.*

Characterization of participants

The workshop preparation started by the defining stakeholder's categories. Stakeholders were defined as: *All parties involved - internal or external - that are affected (have a direct or indirect relation) by an organization´s activities and efficacy practices, including clients, opinion makers, trend setters and partners* (Accountability, 2011). The participants were preliminary selected from a database, received a telephone call and a later a written invitation to participate.

The initial stakeholder's categories defined for the constitution of the participants panel is presented in table 3, as follows:

Table 3. *Stakeholders categories*

	number	freq.
External stakeholders		

Clients	14	31,1%
Opinion makers	6	13,3%
Trend setters	6	13,3%
Partners (independent trade professionals)	5	11,2%
Internal stakeholders		
Energy suppliers employees	14	31,1%
Total stakeholders	**45**	**100%**

The workshops participants´ profiles (gender, age and residence) were the following, as in table 2 :

	Wks 1 2nd May	Wks 2 15th May	Wks 3 22th May	Wks 4 29th May	Wks 5 12th June	Wks 6b 26th June
Gender: **Female** (avg 25%)	7	7	6	6	3	4
Male (avg 75%)	24	18	19	18	12	11
Age(years): **≤ 39** (avg 45%)	10	13	12	13	3	8
40 to 49 (avg 29%)	14	3	6	6	5	3
≥ 50 (avg 26%)	7	7	5	5	7	4
Residence: **Evora area** (avg 62%)	19	16	16	13	12	11
Lisbon & other areas (avg 38%)	12	9	9	11	3	4
Total participants	31	25	25	24	15	15

Table 2. Participants profiles

Workshops 1, 2, 3 and 4 had an average participation of 26 stakeholders. The overall average of *clients* in each workshop was eight (31 %) and of the other categories of external stakeholders was seven (27%). In total, the workshops had an average participation of 58% of external stakeholders. The average participation of internal stakeholders was eleven subjects (42%).

The large majority of participants was constant along the sequence of all workshop. Whenever absentees were noticed a procedure for its substitution was applied with success. From workshop 2 up to workshop 4, the number of participants was stable without any significant number of dropouts. Workshops 5 , 6a and 6b were intentional reduced to a lower number of participants in accordance with the methodological requirements. The participation of clients in the final three workshops was 54% on average.

Method for measurement of the Evaluation, Satisfaction and Behavioral Intention of participants

The participants were divided in three proportional balanced groups. During the initial Workshop 1, a Belbin test (Belbin,2012) was applied for harmonization of the workgroups participants profiles and individual characteristics for a more efficient group dynamics, which resulted in minor adjustments and re-composition of the workgroups as from workshop 2.

At end of each workshop session, a self-fulfilled structured instrument was applied to each participant in order to identify the participants' perceptions and attitudes. The questionnaire (see Annex 1) was composed by (a)a 2-item scales of emotional evaluation and 1 open justification question(Ekman faces); (b)a 9-item Likert scale with 5 balanced terms and (c) a 9-item attributed importance scale with 3 terms, for the discriminated

evaluation of the sessions; and (d) 3-item Likert scales with 5 balanced terms, for evaluation of overall satisfaction and behavioral intention . At the end of the questionnaire profile characterization questions were collected.

The metric procedure was designed to incorporate several direct and indirect measurement components: Directly (a) an emotional dimension (Ekman, 2006), (b) a cognitive perceptual (quality and self-expressive/attractiveness) dimension (Christiaans, 2002) and (c) an attitudinal (satisfaction and behavioral intention) dimension (Cronin et al., 2002). Indirectly a set of three independent observers registered the groups´ dynamics in a structured instrument, designated "observer formulary" (see Annex 1), for latter contents analysis, for each workshop (except Wks 6a). All sessions were video recorded.

For each workshop, in agreement with the specific methodological objectives defined for each session, diverse group exercises and stimulus (tools) were applied, as referred in table 3.

Exercises/ tools	Wks 1 2nd May	Wks 2 15th May	Wks 3 22th May	Wks 4 29th May	Wks 5 12th June	Wks 6b 26th June
Belbin test (profile adequacy)	√					
Perceptions : **Energy & consumption**	√					
Consumer experience (prospection)		√				
Observation of equipment use (usability)			√			
Definition of trends			√			
Ideas confrontation: divergence/convergence				√		
Tangibilization(prototypes) In/Out Matrix					√	
Consensus and solutions (Delphi rounds and Triz matrix)						√

Table 3. Exercises and stimulus applied

Results
The exercises and stimulus applied

The evaluation of the participants about the several tools (instruments) incorporated in the exercises was very positive, particularly in workshops 4 and 5 where stronger stimulus for creative collaborative participation were used, as shown in table 4 and figure 3

	wks 1		wks 2		wks 3		wks 4		wks 5		wks 6	
	M	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**
Tools	3,62	1,01	3,78	0,52	3,78	0,99	**4,30**	0,56	**4,13**	1,06	3,87	0,52

Table 4. Evaluation of exercises and stimulus applied

*Rating scale: Objectives (not achieved) 1 - 2 - 3 - 4 - 5 (totally achieved)*

Figure 3. *Exercises and stimulus evaluations. Source: UCIP Report- phase 1&2; Mateus et al., 2012.*

The emotional evaluation

In general terms, the individual emotional states recorded after the sessions are very positive. In average the majority of participants (58%) declare to be "Happy"; and a significant number (23%) declare to be "Surprised". More than half (51%) of all participants report a "high" emotional intensity. The emotional "happiness" and emotional intensity grows constantly along the sequence of workshops, as represented in figures 4 and 5.

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Figure 4. *Emotional states evaluations. Source: UCIP Report- phase 1&2; Mateus et al., 2012.*

Figure 5. *Emotional intensity evaluations. Source: UCIP Report- ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ us et al., 2012.*

Happy
Surprised
High
Medium
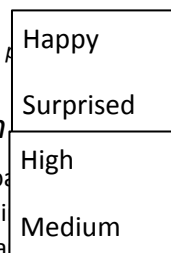
The perceptions and attitudes evaluation

The evaluation instrument aimed at measuring the p̶ ̶ ̶ ̶ ̶ ̶ ̶eptions and attitudes about: (a) the methodological tools employed i̶ ̶ ̶ ̶ ̶ ̶ ̶p; (b) the discriminated quality performance and self-expressive ca̶ ̶ ̶ ̶ ̶ ̶ ̶eness) of the workshops (c) the global satisfaction with the sessions´ functioning and the behavioral intention of recommending and continuing the collaborative participation.

SATISFACTION WITH THE WORKSHOPS

The participants average global satisfaction with the workshops contents and work method is very positive (M=4,26; sd= 0,73), and increases along the process, as in figure 6. This high satisfaction (motivation) is also revealed by the declared will of contributing further to the project (98,5%).

Note: Average summed scores of the scale: 1 (Totally disagree) to 5 (Totally agree). questions:*: In general, I am very satisfied with this experiment + I would recommend this session and work method to other people.*

Figure 6. *Global satisfaction and behavioral intentions with workshops. Source: UCIP Report- phase 1&2; Mateus et al., 2012.*

Modelization of the evaluation of workshops

The evaluation of the workshops was measured by a 5-point balanced agreement scale constructed with two dimensions: (a) Technical Quality and (b) Self-expression. This two-dimensional construct was inspired from a solid theoretic referential for the evaluation of creative processes (Christiaans, 2002). An exploratory principal components factor analysis, with varimax rotation, was executed confirming the

significance of this two dimensional construct (KMO=0,896; tot.var explained= 62,645%; F1(Technical quality)=52,345%; F2(Self-expression)=10,292%)

Furthermore, the reliability of the 12-item scale (9-item weighted agreement x importance scores + 3 un-weighted items) calculated for all workshops results is of high order (Cronbach´s alpha= 0,871).

Overall, the participants evaluated the attractiveness of the workshops in a very positive manner and declare that the collaborative work there produced contributed for their self-enjoyment (*self-expression*). The evaluation of the two perceptual dimensions of the construct, weighted by the attributed importance for each item is constant all along the workshops, as in table 5 and figure 7. Besides, the "technical quality" of the workshops sessions is also very positively and incrementally appraised along the process. The two dimensions independence is significant (*F(5,124) = 2,56, p < .05*).

Table 4. *Evaluation of quality and self-expression*

	wks 1		wks 2		wks 3		wks 4		wks 5		wks 6	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
Technical quality	3,86	0,42	3,98	0,61	3,94	0,78	**4,31**	0,61	**4,30**	0,70	**4,31**	0,61
Self-expression	**4,05**	0,51	**4,13**	0,59	**4,05**	0,58	**4,43**	0,60	**4,29**	1,05	**4,13**	0,91

 Note: Weighted scales: 1. Totally disagree to 5. Totally agree

Figure 7. *Dimensional evaluation* **Dimensional Evaluation of Workshops** *teus et al., 2012.*
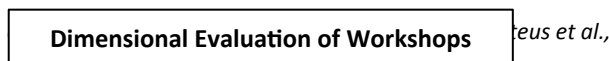
One of the questions of the "technical quality" dimension ("we *obtained positive results for improving energy consumption efficiency*") is highly correlated with the energy efficiency attitudinal expression. Overall this perception evolved positively along the workshops revealing that the participants´ view that the work produced in a cooperative manner can very importantly contribute for a more effici Technical quality consumption behavior, as shown in figure 8. The sequence measured is significant (*F*(5,124) = 5,03, *p* < .001).

Figure 8. *Average scores for the evaluation of "contribution to energy efficiency understanding". Source: UCIP Report- phase 1&2; Mateus et al., 2012.*

A linear regression analysis revealed that the two-dimensional construct (Technical quality and Self-expression) contribute to significantly explain the variation of Global satisfaction with the workshops . The results show that its contribution is very significant (*Adj R*^{2} = .55, *F*(2,127) = 79,32, *p* < .001). The Technical Quality perception is the more

determinant factor for the Global Satisfaction of the participants with the workshops sessions ($β$ = .62, p < .001), followed by Self-expression (attractiveness + self-expression) ($β$ = .18, p < .05), as in figure 9.
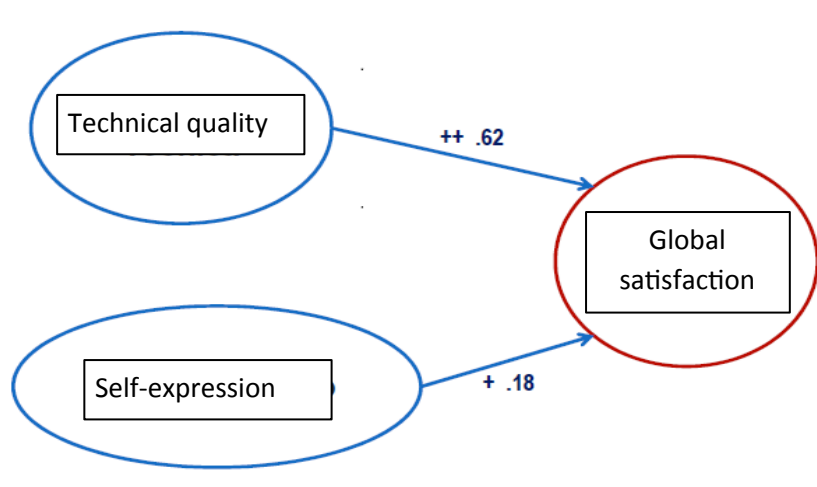

Figure 9 . *Global satisfaction explanatory factors. Source: UCIP Report- phase 1&2; Mateus et al., 2012.*

The equation for the prediction of Global Satisfaction with workshops (e.g. methodology) is resolved according to the following model:

$$GS= 4{,}252 + 0{,}62 \ x \ TechQuality + 0{,}18 \ x \ Self\text{-}expression$$

Discussion

It can be concluded that the quali-quanti methodology tested to validate the design thinking - Ideas(R)Evolution - procedures for the development of an energy supplier´s UCIP (User Centered Innovation Programme) in Évora, Portugal, demonstrates the adequacy of the repeated measures mixed quali-quanti method for an holistic dynamic evaluation of the workshops participants perceptions of the results efficacy and subsequent attitudes (e.g. satisfaction and behavioral intentions) towards the experiments. It reveals the program´s evolution in two levels: (1) through a valid set of comparative standardized measures (quantitative structured metric data) related to the participants 'emotional feelings and cognitive attitudes towards the workshops experiments; (2) through a rich set of exploratory qualitative data (qualitative semi-structured data) justifying the participants 'opinions, attitudes, aspirations, behavioral intentions and perceived outcomes.

As often argued in the literature (Christiaans, 2002; Cronin *et al*., 1992; Kelly, 2006, Kotler, 2010, Lusch, 2011. Mateus *et al.* 2011) the design thinking and marketing research inputs for the co-creation of value, innovation and creative intelligence within the microeconomic processes, is in need of a more accurate and operational set of measurements (proofing) and procedural validation that can bring to light and increment its full interventional potential, for a more credible and tangible evaluation of its action power in the development of the "economy of happiness"(Prahalad, 2004; Tofler, 2006).

This methodological validation of an user-centered open innovation program based on quali-quanti methods, and applied through a longitudinal design by a set of self-administered instruments that diachronically collect the emotional and cognitive quantitative and qualitative measurements of the workshops, proves to be a robust and valid method.

The battery of the repeated measures plan applied demonstrates that the sequence of measures and instruments as a whole configures a parsimonious evaluative model, of which the method essayed is reliable, valid and most likely generalizable for future research.

The results also demonstrate that the methodological approach essayed adds accuracy to Ideas(R) Evolution methodology. In this light it is highly recommended that other replications and critical evaluations of this methodological approach are reproduced in diverse research contexts.

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Annex 1

Questionnaire - stakeholders

(original version)

Página A

Estados emocionais

Como é que se sente depois desta experiência?	Aborrecido	
	Surpreendido	
	Irritado	
	Enojado	
Assinale com **X** somente uma opção	Ansioso	
	Feliz	
	Triste	
	Neutral	

Porquê? Descreva numa frase por que é que se sente assim:	
Qual é a intensidade do seu estado de espírito neste momento?	

	Baixa	Média	Alta
Assinale com X	☐	☐	☐

Vire a página sff

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Avaliação final	Assinale a sua opção com um X	
Quanto aos exercícios em que participou, em que grau considera ter atingido os objectivos de trabalho propostos?	objectivos (não atingidos) 1 - 2 - 3 - 4 - 5 (totalmente atingidos)	
Exercício 1 (desenvolvimento e confronto de de ideias - Mind mapping)	1 2 3 4 5	
	1 Assinale a sua opinião relativamente a cada um dos aspectos	**2** Atribua uma classificação sobre a importância que tem para si cada um dos aspectos
Quanto à avaliação desta sessão de trabalho, por favor indique a sua opinião sobre as seguintes afirmações (aspectos):	Discordo totalmente 1 Discordo em parte 2 Não sei / sem opinião 3 Concordo em parte 4 Concordo totalmente 5	Pouco importante 1 Importante 2 Muito importante 3
Este trabalho teve uma boa qualidade técnica	1 2 3 4 5	1 2 3
As técnicas utilizadas permitiram-me trabalhar melhor as temáticas	1 2 3 4 5	1 2 3
Teve uma dinâmica adequada	1 2 3 4 5	1 2 3
Permitiu exprimir os meus pontos de vista	1 2 3 4 5	1 2 3
As soluções encontradas utilizam algumas das minhas ideias	1 2 3 4 5	1 2 3
Obtivemos resultados positivos para o objectivo de melhorar a eficiência energética	1 2 3 4 5	1 2 3
Estas técnicas de trabalho são muito atractivas	1 2 3 4 5	1 2 3
O trabalho de equipa permitiu encontrar melhores soluções	1 2 3 4 5	1 2 3
Obrigou-me a pensar muito mais sobre o consumo de energia	1 2 3 4 5	1 2 3
Para terminar		
Em geral estou muito satisfeito com esta experiência	1 2 3 4 5	
Recomendaria esta sessão e método de trabalho a familiares e amigos	1 2 3 4 5	
Sinto que quero contribuir mais para este trabalho	Sim _____ Não _____	
Indique o seu perfil		
Género	Masc _____ Femin _____	
Ano nascimento		
Profissão /Actividade profissional		
Residência(código postal completo)		

Obrigado

Observers formulary

(original version)

Enquanto decorre a aplicação de cada ferramenta: observa junto dos grupos de trabalho, toma notas e com vídeo à mão tira apontamentos (provas)

Descreve sinteticamente por palavras próprias (por bullets/tópicos)	Exercício 1 Ferramenta_Confronto ideias / MIND MAPPING
1. Aprecia a intensidade /nível da dinâmica: - interacção: Forte - fraca (F - f) - organização tarefas: Boa-Má (B - M) - liderança/papéis desempenhados: Activa-Passiva (A-P) 2. Toma medidas correctivas: Fala com o Facilitador e /ou focaliza o grupo na tarefa. Regista apontamentos	
3. Regista ideais-força que vão ser importantes para utilizar nos outros workshops mais tarde. (com apontamento/prova em vídeo se possível)	
Dia:	
Grupo nº:	