OFFSET PROJECT LESSONS LEARNED IN DEFENCE ACQUISITION PROGRAMS. ADD VALUE TRANFER ACTIVITIES TO SOCIETY

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The several public defence acquisition programs are characterized at present international society by the need of providing, beside the enforcement of the national security of each country, the direct or indirect return of defence investment to the society itself through what is called compensatory actions. These actions are focused most often on creating a positive impact on the national industry, the national economic activity or both of them.
One of the most relevant inconvenience of acquisitions processes is the limitation to develop inductive knowledge which lead to miss the chance of opening new profits for other activity sectors and therefore to improve the national industrial and organizational infrastructure.
To face this limitation the Offset Projects show how the deductive and inductive knowledge can be provided together in defence and security acquisition processes, and therefore allows the society or the national Industry to take advantage of this circumstance by creating new products or new services of relevance for the national finances, in order to minimize the negative impacts of these acquisitions.
The aim of this communication is to share the most relevant lesson about advantages and disadvantages that may be learned in relationship with this Projects

Keywords: Offset Projects; Industrial Compensation; Strategic Industrial Improvement

LECCIONES DE PROYECTOS OFFSET EN PROGRAMAS DE ADQUISICIÓN DE DEFENSA. TRANSMISIÓN DE VALOR AÑADIDO A LA SOCIEDAD

Los procesos de adquisición gubernamental asociados a la industria de la defensa están caracterizados por la necesidad de proporcionar a la sociedad, a través de acciones compensatorias, de retornos de inversión a través del desarrollo industrial ya sea asociado al objeto de la adquisición o al objeto de otras actividades del sector industrial y empresarial.
El mayor inconveniente de estos procesos por si solos, es su limitación en relación al desarrollo de conocimiento inductivo, esto es abrir nuevos horizontes de desarrollo aplicables a cualquier sector y poder así enriquecer la estructura industrial y empresarial en general.
Ante este dilema, los contratos Offset pretenden asociar a los procesos de adquisición de bienes relacionados con la seguridad y defensa de conocimiento deductivo e inductivo, de forma que mediante la Compra de determinados productos, la sociedad o la industria sean capaces de desarrollar nuevos productos o nuevas aplicaciones de interés para la actividad económica en general, minimizando el impacto que pudieran causar dichas adquisiciones.
Esta comunicación tiene como objeto extraer las lecciones más relevantes sobre ventajas e inconvenientes que han de ser tenidos en relación a estos proyectos.

Palabras clave: Proyectos Offset; Compensación Industrial; Mejora Posicionamiento Estratégico Industrial

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1. Introduction

Most of public defence acquisitions programs at present are characterized by the need of providing beside the enforcement of the national security capability, the direct or indirect return of defence investment to the society. This return takes place through what is called compensatory actions which are focused most often, on creating a positive impact on the customer´s industry or its national economic activity or both of them.

The efforts of industrial corporations to reach strategic advantages requires a continuous scientific and technological development whose main purpose is to lead the corporations to be independent on project funding from same country or foreign stakeholders. Under this scope statement the security and defence acquisitions programs are classified under tow main and opposite aspects that becomes into Industrial objectives as well. These are acquisition by buying or manufacturing.

Conventional acquisitions programs by buying are processes in where goods or services are included as an output to be deployed to the industry. The deductive Knowledge that can be extracted from these processes increase the professional skill that will lead the corporations to develop useful user experiences which will feed back customer specifications request for future new and similar acquisitions. The most relevant inconvenience of buying processes is the limitation of inductive knowledge development which lead to miss the chance of opening new profits for other activity sectors and therefore to improve the national industrial and organizational infrastructure.

To face this limitation the Offset Projects show how the deductive and inductive knowledge can be provided together in defence and security acquisition processes, so the national Industry can take advantage of this circumstance and then be able to create new products or applications of relevance for the industrial activity. As a summarize, the purpose of this communication is to share as an example, how some specific industrial compensations linked to security acquisitions, decrease the negative impact on the society that act as a customer of this services. (Fonseca Zagal 2007)

2. Offset Project/Contract definition

Over all the working definitions in relationship with these processes of adding value to goods and equipment acquisitions programs under Defence & Security framework there is one which summarizes the most relevant features of this processes and states as follow:

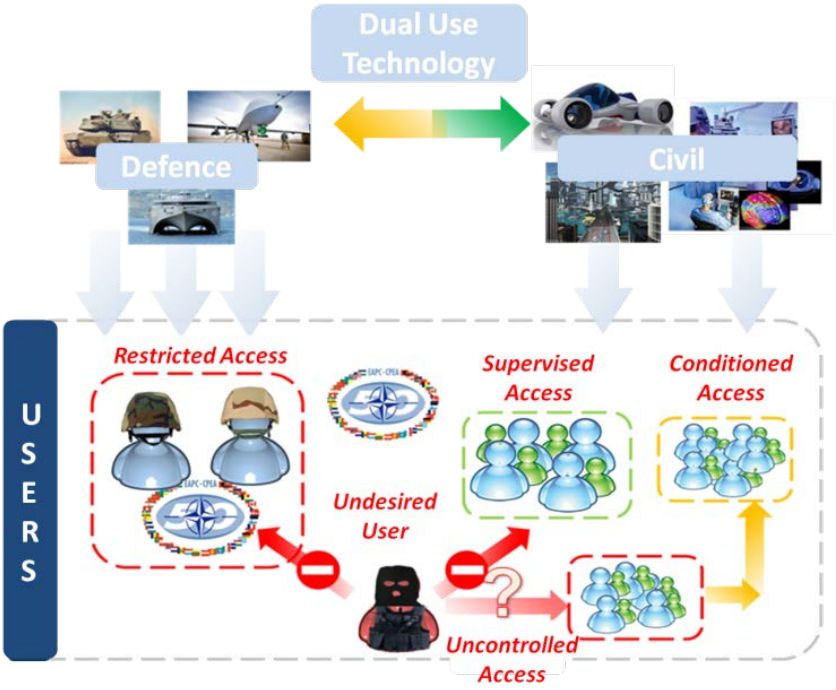
Offset Projects or contracts are compensatory agreements by goods/services delivering to the national society as a main clause for public transactions operations. (Alonso Pérez, 2013)

The key to understand how this kind of agreement returns profit to society is through the replacement of making monetary investment by making amends which means that some actions delivered by the contract/project supplier to the society, may have a monetary correspondence value.

When the Offset concept is applied to Defence & Security framework, the offset is defined as compensation mechanism agreed between purchasing government and foreign supplier(s) of military related products or services (Kimla 2013). The defence Industry must transform all processes involved (including knowledge management) into valuable amends in order to accomplish the contract/project requirements, therefore as an example of valid amends there are effective training and teaching hours, software licensing, marketing and publicising media, machinery transfer, authorization of use for patents, technical support in related or not related fields, coaching lessons, environment contribution performance, certification system

support, full access to general purpose databases, access to networking research or business-university agreements.

Figure 1: Hazards in Dual Use transfer. Source: (Briones 2014)



All these examples of compensatory actions are divided into two different groups, direct actions and indirect actions, according to their relationship with the acquisition purpose. The direct actions are most often easily subdivided again in two groups, one represents the pure concept of direct offset which means that the country that will receive the amends is the same that the one that will receive the acquisitions, the other option called semi direct is used when the country that will receive the amends is different from the one that will receive the acquisition. The indirect offset is divided as well in two groups, semi indirect when the object of the amends are different from the acquisition but still in relationship with defence framework, and pure indirect when the amends does not have any relationship with defence or security framework (Cohayla, Lermo Rengifo et al. 2012).

The different types of offset in defence and security industry bring together knowledge management process and its applications to other sectors through dual use technologies development. However this fact leads some matters to be of concern when the stakeholders are forced to prevent undesired access to some technologies most often because there is a real risk of D&S transfer to hostile or none authorized users (figure1).

One example of how a semi indirect offset may materialize a transfer hazard was noticed by the South-American Patent Observatory (http://goo.gl/hqN4kP) when the World Intellectual Property Organization was about to deliver some informatics equipment to North Korean Patent Office when it could violate resolutions #1.718 & #1.874 of United Nations in relationship with this matter.

In spite of this example, the offset process is consequences of a long term planned process in where several considerations have been carefully analyze to prevent any undesired result. The Spanish defence acquisition processes are a clear example of high efficiency in project

management that works as a starting point to understand how the offset program takes place.

3. The Spanish Defence Acquisition Process

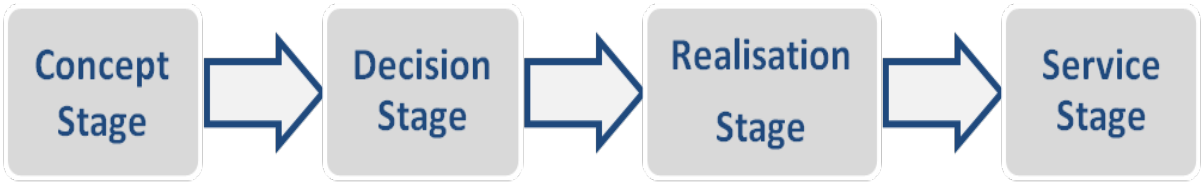
In order to understand how offset requirements are designed it is a must to understand how each country develop the acquisitions process in relationship with defence and security framework.

The case of study of Spain reveals an efficient process which starts at a concept stage and ends in a service stage (figure2) which was defined by the next regulation:

- Defence Instruction #72/2012 that standardises the obtaining of armament and defence equipment processes as well as the program management bonded together.
- Defence Instruction #67/2011 that standardises the equipment resources obtaining processes.

In these instructions, the defence planning process states that the main purpose of the resources requirement planning is to grant the funding, material needs and human resources to supply the Spanish´s Armed Forces with the Military Capability Standard approved in the Objectives for Military Capability report. Therefore the support resources to manage services or perishable resources are excluded from both instruction scopes.

Figure 2: Defence Planning Process. Source: own design based on Spanish regulation



The scope of #67/2011 affects mainly to the first two stages of the planning process: Concept Stage, in where the functional operative solutions are defined, and Decision Stage, in where the feasible solutions are filtered in order to justify the selection of the valid alternative among others.

The Material Resources Obtaining Process is defined in #67/2011 as the combination of activities that define, design, produce, built, develop, acquire, put into service or update the material resources that accomplish the specifications defined at the Spanish Defence Policy Objectives. This process is characterized by its trustworthiness in relationship with the coordination with other process, the governmental authorization attendance and finally, by its flexibility to grant its adaptability.

3.1. Stage I: Concept Stage

This stage follows two different alternatives depending on the types of requirements in concern with this matter, which can be related to a Military Planning need or related to another Security Department needs.

In case the requirements are related with the military planning statement there are another two steps to follow, the first one will analyze the Operative Capability detected at the beginning and the Operative Capability desired at the end of the process. All this information is used to report the Document of Operative Needs that will be an input for the second step which will follow to analyze this document in order to summarise the way these objectives can be assumed, the output of this step is the report of the Document of Military Staff Objectives.

In case the requirements are related whit other Department needs, then the department authority will redact the Document of Functional Needs which will describe also the risk link to the functional requirements and a time extension forecast.

3.2. Stage II: Decision Stage

The goals of this stage are to define a clear solution, display the programs of acquisitions, develop the design technical requirement in the solution demands it. To reach these goals, the stage follows four steps:

- Requirements Definitions. The entire requirement must be defined in relationship with six factors called MIRADO due to its initials in Spanish. M=**M**aterial, I= fac**i**lities, R= Human **R**esources, A= Tr**A**ining, D= **D**octrine and O= **O**rganization. The output of this step is the Document of Military Staff Objective (when is related with Military Planned Needs) or Document Requirement Definition (when is related with other Department needs).
- Alternative Acquisition Option. Here the industrial, technological, logistic, environmental and cost factors must be taking into consideration in relationship with the acquisition purpose. This step follows thirteen actions starting from a Work Breakdown Structure (WBS) to end by reporting the Document of Viability.
- Programs Configuration. Under the supervision of the Head of Program Planning Department, the acquisition objectives and the WBS are updated to the best technical practice available reporting therefore the Program Guideline.
- Actions for Execution Preparation. Following the program guideline, the design requirements will be develop and the contracting strategy will be defined by the Economic Affairs Department. Every requirement will be analyze under the regulation framework to grant its agreement with national military request and any accepted NATO (STANAG) standard.

3.3. Stage III: Realisation Stage

Once more tow new steps force to develop new reports whose aim is to develop the Document of production requirements and in case the acquisition is about a new facility, the technical report and building permit authorization.

The realisation step will also define the service test requirements and all the test evidences before the time limit of warranty starts to count.

3.4. Stage IV: Service Stage

When the acquisition starts serving it includes several operational features of evaluation and delivering processes to user´s units and user formal acceptance. The service stage also requires supervision on new innovations that may extend the acquisition life cycle and therefore may initiate new obtaining process from stage I: Concept Stage.

This stage will also define how to proceed to dismantle the acquisition when it reaches the end of its live cycle.

3.5. Program Management and Control

All these stages are under a common frame in where the program goals are under control in order to avoid any undesired waste of funding or any fail in accomplish the standard requirements.

The control process may therefore be defined for an acquisition program as the development of feedback procedures to ensure that new baselines are under expected limits and that the corrective actions were properly performed.

The deputy directors of Planning Department, Technology and Innovation Dpt., Information and Communications Technologies Dpt. or Control Dpt. are the high command in charge of this matter in order to provide the control report which minimum content may define the next fields:

- Contractor deviation in relationship with the services hired.
- Funding baseline in relationship with new time marks, deviation updates.
- Program status in relationship with the technical requirement accomplished.
- Hazards preventing actions.
- Risk evaluation on budget, time delay, missing goals.
- Corrective Actions proposal.

4. Offset Regulation

Some countries have develop formal regulations regarding offset projects that due to their strategic feature, may include specific requirements depending on each country industrial status, even sometimes multiplying factors that increase the return of investment through compensatory actions (Table 1)

When offset regulations exists in the customer country, it forces any dealer to develop this type of project when military acquisitions programs takes but when there is not a specific standard for this purpose(figure3), the dealer may find a request for proposal attached to the main defence contract which acts as an specific regulation.

In Spain the Offset framework is regulated by decree-law #RD1551/2004 and a specific standard approved by the Secretary of Defence, Instruction #375/2000, both rules set the kind of compensatory actions in order to accomplish the society and security industry objectives.

- #RD1551/2004, the responsibility of applying this directive lies on the Armament and Material Management Head as it is defined in its article 4.2.
- #375/2000, The Secretary of Defence considers cooperation agreement negotiation with foreign supplier of defence in order to grant an appropriate return of investments.

The regulation process most often follows at the beginning to perform a national security and defence industry as a strategic production providing to its society profits through compensatory actions, as the industrial capability is performed the Offset increase its indirect features in order to increase the add value process delivered to the society.

Figure 3: Offset Standards Regulations Process. Source: own design.

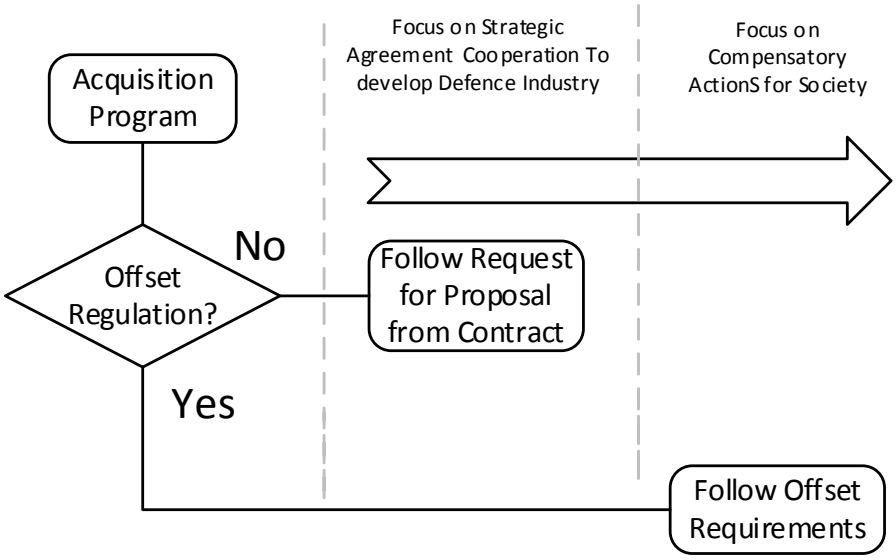


Table 1: International Offset Examples. Source (USD Report 2007)

Country	Offset Target	Min. Contract Amount USD	Min. Offset investment
Canada	Defence & Civil	1,7 million	100%
Spain	Defence & Civil	Unknown	100%
Greece	Defence	10 million	100%-120%
Holand	Defence & Civil	5 Million	100%
Chile	Defence	5 Million	100%
Israel	Defence & Civil	0,5 Million	35%
Brazil	Defence & Civil	5 Million	100%
Poland	Defence & Civil	5 Million	100%
Colombia	Defence	1 Million	100%
Turkey	Defence & Civil	10 million	50%
Peru	Defence & Civil	7,5 Million	100%
India	Defence & Civil	60 Million	30-50%
United Kingdom	Defence & Civil	10 Millions	100%
Singapore	Defence	10 Millions	25-30%

Extracted from U.S. Department of Commerce Bureau of Industry and Security (2007)

4.1 The Spanish case of Study

The Spanish offset objectives are a consequence of the acquisition policy defined by the Ministry Of Defence staff in where three actions stand out among others to accomplish these goals. These are:

1. To Promote and strengthen of strategic Industrial activities of interest for the Security and Defence purpose. This includes:

- Know-How development by transfers from foreign technologist.
- Increase the Spanish Industry collaboration on the acquisition program.
- Increase the Spanish developer's presence in other countries.
- Promote the Spanish Industry collaboration in foreign acquisitions programs.

2. To reach a high level of self-sufficiency by full integration of the national capabilities on the life cycle support to the acquisition. This also includes:

- Promote a national supply chain.
- To be able to develop maintenance and updating operations by the qualification of specific services centres.

3. To enable an international market access for the Spanish defence industry. This may include:

- Developing new marketing relationships between enterprises, creating new industrial holdings etc.
- Balancing the competitively, Capability, Quality and Production effort.

In Spain the Offset clauses terms are discomposed step by step in order to negotiate each singular feature linked to the acquisition process, however there is a common structure which should follow the next items:

- Agreement means the percentage of investment return.
- Time deadline, it is expected to be similar to the acquisition deadline.
- Life Cycle clause, it will define future agreement to apply automatically the terms defined in this contract.
- Temporary goals, it helps to accomplish gradually the objectives in order to reach successfully the end of the contract.
- Actions Categorization, in order to identify what actions are directly related with the acquisition and which are not. A threshold rank is defined also as an acceptance rank for the results.
- Penalties. In case that the supplier does not provide the investment return signed in the offset contract. These penalties can be based on a financial compensation by a single payment to the government treasury agency (calculated as a percentage of investment missed) or can also be based on a new agreement which should increase the investment actions in order to compensate the delay of the return.

Under this framework, Spain has achieved a long experience on Offset Management since 1981 by the F-18 acquisition program which reported by offset projects a return of investment of about 1,54 Millios USD. However even being one of the most competitive countries in Security and Defence development Spain is one of the countries with the lower defence budget, this circumstance may lead its industry to compete in a growing military offset market which has been forecasted up to year 2021 in about 49,3 Billion of USD (table 2).

Table 2: Military Offset Market Forecast. Source (Frost & Sullivan 2013) .

COUNTRY	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	0.87	0.85	0.84	0.86	0.89	0.91	0.94	0.97	1.00	1.03
Greece	1.49	1.42	1.35	1.32	1.29	1.27	1.24	1.28	1.32	1.36
Italy	1.32	1.26	1.19	1.17	1.15	1.12	1.10	1.14	1.17	1.20
Netherlands	1.10	1.08	1.05	1.09	1.12	1.15	1.19	1.22	1.26	1.30
Norway	1.04	1.09	1.15	1.18	1.22	1.25	1.29	1.33	1.37	1.41
Poland	1.04	1.09	1.14	1.23	1.32	1.42	1.53	1.60	1.68	1.77
Turkey	1.28	1.35	1.42	1.46	1.50	1.55	1.59	1.64	1.69	1.74
UK	1.58	1.55	1.52	1.56	1.61	1.66	1.71	1.76	1.81	1.87
South Africa	0.67	0.69	0.71	0.74	0.76	0.78	0.80	0.84	0.89	0.93
Australia	2.31	2.38	2.45	2.53	2.60	2.68	2.76	2.90	3.04	3.20
India	4.38	4.51	4.65	4.79	4.93	**5.08**	5.23	5.39	5.55	5.72
Indonesia	0.75	0.81	0.87	0.93	1.00	1.08	1.16	1.25	1.34	1.44
South Korea	2.61	2.74	2.88	3.02	3.18	3.33	3.50	3.68	3.86	4.05
Singapore	0.76	0.83	0.92	0.94	0.97	1.00	1.03	1.06	1.09	1.13
Taiwan	0.94	0.99	1.04	1.09	1.14	1.20	1.26	1.32	1.39	1.46
Brazil	3.40	3.50	3.61	3.79	3.98	4.18	4.39	4.52	4.65	4.79
Chile	1.27	1.31	1.35	1.39	1.43	1.48	1.52	1.57	1.61	1.66
Colombia	1.77	1.83	1.88	1.98	2.07	2.18	2.29	2.36	2.43	2.50
Saudi Arabia	5.22	5.38	5.54	5.82	6.11	**6.41**	6.73	6.93	7.14	7.36
UAE	2.53	2.66	2.79	2.93	3.08	3.23	3.39	3.49	3.60	3.71

Note: Unist in USD Billions. Table from Frost & Sullivan 2013 Report.

5. Conclusions

The Offset Project management when is applied to acquisitions in defence and security contracts allows to improve the competitive skill of the national productive agents by opening new knowledge transfer processes which increases the capability of the enterprises involved.

All the enterprises who act as contract supplier and so, as a compensatory supplier, needs to understand how services and goods inside the chain value works for each country, in order to find out new interesting add value actions that may raise the customer interest and therefore stand out their offers among the competitor´s. These new competences lead the project managers to play an early role when identifying the customer needs not just in relationship with a defence acquisition.

This type of governmental contracts opens a new ways to externalize the experience achieve in this field in other governmental local areas in where most often request for bids also, evaluate any improving proposals over the contract object. Therefore Projects on renewable energies, water management, greenhouses farming among others typologies may be the key to positive differentiate the Spanish Offers; however it will require that the program and project manager acquires new competences to externalize experiences from an industrial activity to others such the examples mentioned before.

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