

# MULTI-CRITERIA EVALUATION OF PUBLIC PROJECTS



**YVAN LAUZON, MBA**

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This book is dedicated to my family: ADAM, AMELIA, MARIE CHANTAL & MICHAEL.

Also dedicated to all those who are doing graduate studies  
to qualify for a Management degree (BAA, MBA, MPA)  
and/or Project management (MPM)

\* \* \*

The **REVISED & EXPANDED EDITION** of this work (printed **132 pages**)

Completes the **FREE** edition (online **43 pages**)

And was published Canada Day, July 1<sup>st</sup>, 2019, (ISBN: **978-1999461447**);

Including nine supplementary documents,

Two indexes with over 300 keywords each for fast retrieval,

&

Also included: **120 references** of articles and books covering

15 Public project Assessment methods & frameworks.

\* \* \*



**Yvan Lauzon MBA is an International advisor and a Contractual Professor (Senior Lecturer)**

Teaching actually various courses in Change Management (CM); Human Resources Management in Technological Environments (eHRM), Leadership and Project Management (PM) at the School of Public Administration, University of Quebec (ENAP-UQ).

Since 1987, he has been teaching part time in master's degree Programs in both Canadian and foreign based universities. Such programs would include: Master's in public administration (MPA); Master's in business administration (MBA) and Master's in project management (MPM). The main emphasis in recent years has been with respect to Change Management such as; eHRM; Project Management; IT Management; IT/IS Governance; Knowledge Management (KM).

Since 1981, he has also held various positions in both public and private organizations, including as; Assistant to the Chief Information Officer (CIO) of the Government of Quebec from 2006 to 2008; Coordinator of Training Programs in Project Management; IT Management; and Information Security from 2008 to 2012 (CSPQ-CLDC).

Yvan served as Consultant for international organizations; 1993-1996, United Nations: UN-CEFACT-WP4; 2006-2008, OECD. He was also quite active on Boards of directors of Professional Associations like; AAPI (Privacy) and PMI-Lévis Québec-GP-Québec (Project Management).

In terms of research, in 2009 he conducted a qualitative study on the success of public projects by interviewing 125 PM practitioners and 25 professors and researchers in PM. Complementary initiatives in 2012-2013, along with the assistance of Francophone Associations of practitioners the required skills for Project Managers were identified applicable to various types of projects. In 2013, Yvan was invited as keynote speaker at the Annual Forum, PMI France. He highlighted the important issues regarding non-technical skills (soft skills) with respect to Project Managers.

Recently, he co-authored three recent books in French relating to: Smart City; Collaboration in Project & Public bodies; Innovation in Governments. Abstracts and Articles are available in English, French and Spanish via: ([www.smartconference.ca](http://www.smartconference.ca)).

He created and financed different initiatives (Free Conferences & Web sites freely available worldwide) related to Innovation in Public Sector, as: ([www.share.institute](http://www.share.institute)), ([www.smartconference.ca](http://www.smartconference.ca)), ([www.climb.express](http://www.climb.express)), ([www.smartconference.world](http://www.smartconference.world)). Finally, an international Tour is in progress (2018-2020) about the ***Required skills in 2020 for Project Managers Leader and their Managers.***

## ABSTRACT

Successful evaluation of projects in public organizations is carried out in accordance with three indicators, namely the so-called *Iron triangle* proposed by the Project Management Institute (PMI), that is QCD standing for Quality and Scope, Cost and Delay on Schedule, which must not show an overrun greater than 10% on anyone of those variables.

This work goes much further than the proper conducting of projects with an assessment of the business solution, whether it is for products or services flowing from the proposed projects as well as the performance of the overall scope going from the inception of the project with coherence criteria, touching on the efficiency, effectiveness, pertinence, utility, satisfaction of the stakeholders and also the performance of the project manager and team.

Given the twelve years of teaching PM at the Graduate level and associated field experience evaluating seven public projects, the author brings to the reader a series of fundamental elements, practical techniques and tricks specifying who is qualified for such evaluations; 10 principles to be applied and respected; criteria in evaluation; 5 dimensions of the value-added and properties applicable to public projects evaluation for...

***Doing the right thing better in a timely manner for the project and the public organization.***

## REMARKS

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**Yvan Lauzon, MBA** via: [newmanagement2.0@gmail.com](mailto:newmanagement2.0@gmail.com)

\* \* \*

**This book was not designed for continuous reading;  
rather it can be used much as a reference document  
where various sections are pertinent to a situation.**

**The sections are unique therefore skipping sections  
and/or coming back to anyone of them is just fine.**

## TABLE OF CONTENT

<b>Foreword</b>	[ P. 6 ]
<b>Introduction</b>	[ P. 9 ]
<b>Part A.. Basics of Public Project Evaluation</b>	
A1.. Assessing Project Management	[ P. 11 ]
A2.. Assessing the Business Solution Flowing from the Project	[ P. 17 ]
A3.. Assessing the Performance of the Project Manager (Project Leader)	[ P. 18 ]
A4.. Assessing the Performance of the Project Team	[ P. 20 ]
A5.. Other Dimensions in Assessing Public Projects	[ P. 21 ]
A6.. Project Assessment Management (PAM)	[ P. 22 ]
A7.. Reporting and Promoting	[ P. 23 ]
A8.. Dashboard and Project performance	[ P. 24 ]
A9.. Collaborative Assessments	[ P. 25 ]
A10. Professionalize the Field of Project Assessment Management (PAM)	[ P. 26 ]
<b>Part B.. Public Project Evaluation Approach</b>	
B1.. Field Experience Feedback Assessing Public Projects	[ P. 27 ]
B2.. Stakeholders Needed for Assessing Public Projects	[ P. 33 ]
B3.. Principles required for Public Project Evaluation	[ P. 33 ]
B4.. Dimensions and Criteria Used to Assess Public Projects	[ P. 38 ]
B5.. Resources Needed to Assess Public Projects	[ P. 41 ]
<b>Conclusion</b>	[ P. 43 ]

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### ADDENDUMS

- A.. Example of the Assessment Criteria
- B.. Checklist of Information Required for Decision Making
- C.. Traditional Assessment Methods
- D.. Project Success Criteria Variables
- E.. Project Success Factor Variables
- F.. Properties of a Rigorous Integrated Public Project Assessment (RIPPA)
- G.. Project Governance Framework --Vs-- Project Management Framework
- H.. Private Sector --Vs-- Public Sector
- i.. Twenty-two Embarrassing Questions to ask at Press Conferences (i.e. IT Project)

### 120 REFERENCES

## FOREWORD

This foreword covers themes that help to better understand the GREAT COMPLEXITY of evaluating public projects.

- I always begin my speaking engagements with a description of the business context, because to evolve the current public organization (so-called postmodern or hypermodern organization) must take into account its business environment - both internal and external - of same as the foreseeable trends, while knowing its strengths and weaknesses (SW), but also the opportunities and threats (OT).

- EXTERNAL business environment has evolved considerably over the past 30 years:

- On various aspects : PESTELOD

*Political / Economic / Social / Technological / Economic (Sustainable Development) / Legal & Ethics / Organizational (Outsourcing, Regionalization, ...) / Demographic.*

- VUCA world, more difficult to predict & forecast.

*Volatility (rate of change,...) / Uncertainty (clear possible future,...) / Change (ubiquitous & rapid) / Ambiguity (sense to give to events, perceptions –versus-- facts).*

- Globalization: Perceived now as a prerequisite to success in business...

- Internet Revolution, from Web 1.0 (April 30, 1993) to Web 1-2-3-4.

*Web 1.0 (Traditional) + Web 2.0 (Social) + Web 3.0 (IOT-Internet of things & Semantic) + Web 4.0 (Future)*

- Infobesity.

- Family transformed:<X Generation, Y Gen., Millennium Gen.>, <Retired Baby Boomers, that boredom...>

- Customer has changed, too.

- Worker is asked to do more, with less. This increase STRESS...

- INTERNAL business environment -- New Managerial Approaches & Strategic Programs took place gradually with their lots of promises, but challenges too !

*NOTE : Dates here are globally applicable to Canada & USA. In fact, they are variable, by business sector and country.*

- Zero-based budgeting: end '70.

- Just-in-time: early '80.

- Business Process Reengineering: mid '80.

- Quality: mid '80.

- Lean Management: early'90.

- Results-oriented public management: mid '90.

- Agility: early '00.

- eCollaboration & Web 2.0: mid '00 .

- Organizations, public or private, show a certain RESISTANCE, in a changing environment:

- Statutes & Privileges, maintained.

- Interservice Battles.

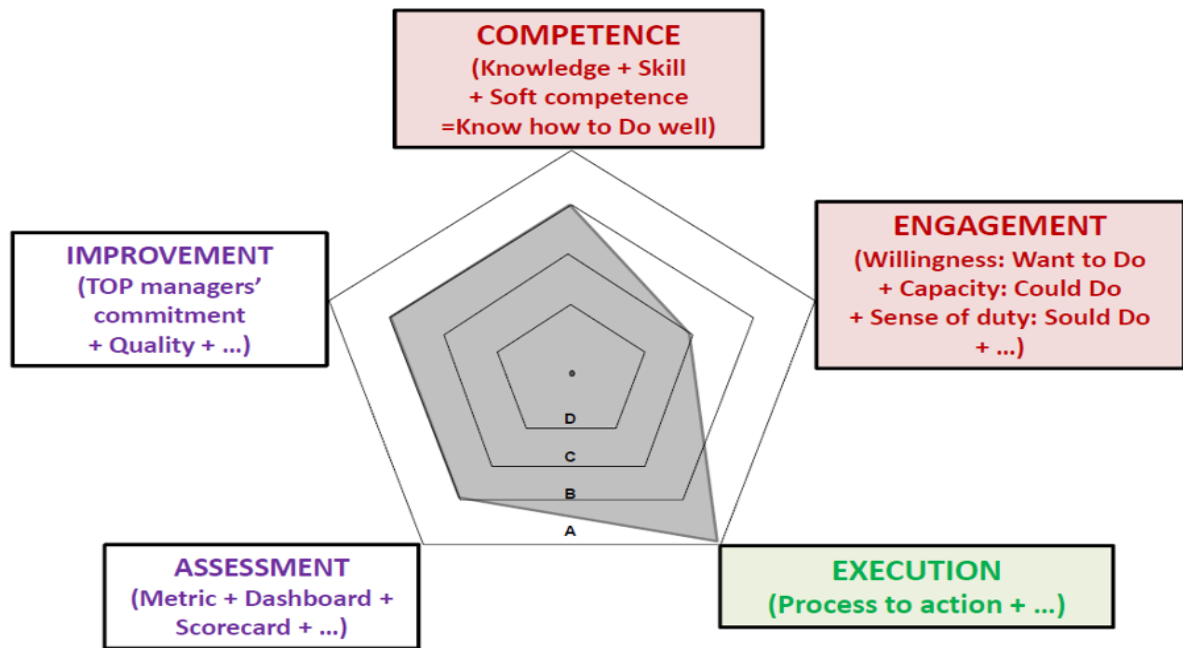
- Bureaucracy.

- Meetingitis, more than ever a real business pathology.

## Model: Organizational Performance Five Domains

- Find below a Performance Model whose five evaluation domains are designed to ensure the ongoing public and private organizations as going concerns.

*This innovative Performance Model that I created in 2018 was first presented in English at the International Conference on Metrology CAFMET 2018, in Marrakech, April 11, 2018.*



- Performance Model with its five dimensions or conditions to succeed in business:
  - Knowing, experience, attitude & behavior (Competence).
  - Workers real Commitment in action (Engagement).
  - Successful Accomplishment of the Strategic Plan (Execution).
  - Ongoing Evaluation of Activities (**Assessment**).
  - Ongoing Enhancement (Improvement).
- The above figure, in the shape of a pentagon much like a spider diagram, provides a quick visual appreciation of the organizational results with respect to the five evaluation domains. This form of reporting gives an instant grasp of performance yielding five separate results.
- For example, the reporting organization obtain five marks, shown in clockwise order:
  - B mark for Competencies Held: Pertinence; Depth; Scope...
  - C ... for Collaborators' Engagement: Involvement; Commitment; Effort...
  - A ... for Execution: Successful Mission Delivery of SMART business Objective.
  - B ... for **Assessment**: Tools; Pertinent Indicators; KPI...
  - B ... for Improvements: Senior Management Commitment; Corrective Measures...

## Model: Seven Conditions for Organizational Performance

- During the CAFMET 2018 Conference, I also introduced seven fundamental conditions required to progress in terms of Organizational performance. The figure below readily shows what must be understood without the need for further explanations ...

An innovative 7-layers MANAGERIAL MODEL, Yvan Lauzon MBA 2018

Adopting 7 key PRINCIPLES to improve: BE → BETTER → BEST

- 1.. Updated strategic **Vision** of the organization
- 2.. **Results-Based Management** (RBM) & **Organizational Capacity Enhancement** (OCE)
- 3.. **Human capital value**; Continuous Development of **Competencies** & Targeted **Talent Management**
- 4.. **Standardization** of Processes, Practices and activities of work or Project
- 5.. **Metrology**; Targeted Measures and Key Performance Indicators
- 6.. **Control** Objectives; **Audit & Governance Maturity** Models
- 7.. **Continuous improvement**; **Quality & Innovation**

\* \* \*

## INTRODUCTION

- Traditionally, the Evaluation of public or private projects has been done on the basis of three concurrent key success indicators drawn from the *Iron Triangle* of Project Management Institute (PMI) namely QCD for Quality & Scope; Cost (money), and Delay (schedule).

- According to the PMI definition, any percentage overrun greater than 10% on anyone of the three variables defined above with respect to the projected numbers is declared a failure. Yet the business solution flowing from the project could turn out to be adequate even spectacular.

For example, consider the *Sydney Opera house*: well-known landmark signature building, was a disaster in terms of the specified project variables.

What is your opinion about that situation?

- Planned budget cost: \$ 7M CDN, or 5M euros, delivery expected: 1963
- Final cost: \$102M CDN, 70M euros, completed 1973, 10 years later!

- However, new schools of thought have emerged, opening up new perspectives or dimensions leading to significant factors to be paid attention to. Getting the BIG PICTURE in terms of the project and associated environment provides an insight of importance, which leads to the following five elements for purposes of evaluation:

- 1.. Evaluating Project Management.
- 2.. Evaluating the Business Solution Flowing from Project.
- 3.. Evaluating the Performance of the Project Manager (also called Project Leader).
- 4.. Evaluating the Performance of the Project Team.
- 5.. Other Evaluation Dimensions of Public Projects.

- In terms of sensitivity, let's first agree that public projects are often subjected to public opinion and media reporting and related pressure. We know about Auditors General filing daunting reports on post-mortem projects <sup>1</sup> criticizing cost overruns, defective quality and functionality and undue delays. Department managers and political figures are called to account in the public place under difficult circumstances sometimes.

- There is plenty of published material on project evaluation <sup>2</sup>. Consequently, I will not develop the subject, rather I want to review the various concepts stressing "what and why" from the perspective of various studies. Here, however I intend to stress the "why".

\* \* \*

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<sup>1</sup> At the time of writing, the *Phoenix Project* (Government of Canada Pay System) is once again making headlines. A double failure: Project management (QCD), but also of its Business solution...

<sup>2</sup> i.e.: William O'Shaughnessy 2007. ISBN 978-2890941957.

This work is composed of two complementary parts:

- **Part-A:** Covers the fundamental sections for project assessment, evaluation criteria; and the required competencies to perform within projects.
- **Part-B:** Five sections are laid out with detailed procedures to evaluate public projects.

\* \* \*

I invite you to discover that eBook one hour per day  
and wish you a very pleasant reading,

**Professor Yvan Lauzon, MBA**

## Part A.. Basics of Public Project Assessment

### A1.. Assessing Project Management

#### Project Performance: Breaking the *Iron Triangle* frontier

- Beyond the periodic evaluation of indicator variances (**QCD**) with respect to PMI *Iron Triangle*, focus should also be targeting the pre-project period. Success Criteria measurements should not be confused with the Key Success Factor (KSF) alluded to above, the latter being more attuned to the environment under review.

#### Poor project performance

- According to a PMI recent global survey <sup>3</sup> approximately 9,9% of every dollar spent on projects is currently wasted due to poor project performance. That amounts to 99 million \$USD for every 1 billion \$USD invested in project.

#### Performance of Project Outputs & Project Outcomes

- As mentioned by Crawford, Aitken & Hassner-Nahmias (2014) :  
*“Although benefits realization is a hot topic among practitioners at all levels, and many organizations now require benefits to be identified when approving business cases for projects, action to ensure that these benefits are realized is less common. A number of factors contribute to this. First, there is the argument that the project manager is responsible for outputs and the program manager or general management are responsible for delivery of outcomes or benefits from the project. This view is firmly ingrained in ... U.K. Cabinet Office suite of standard for management of projects.”*

#### Earned Value Analysis (EVA) per PMBoK™ V.6

*“Earned Value compares the performance measurement baseline to the actual schedule and cost performance. EVM integrates the scope baseline with the cost baseline and schedule baseline to form the performance measurement baseline. EVM develops and monitors three key dimensions for each work package and control account:  
Planned value (PV) ... / Earned value (EV) ... / Actual cost (AC) ...”* <sup>4</sup>

- PMBoK defines:  
*“The Earned Value (EVA) is used to determine the degree of advancement of the project”*  
*“It is essentially the amount of work done in budgetary terms.”*

---

<sup>3</sup> PMI – Pulse of the profession 2018. (Freely available in Internet).

<sup>4</sup> PMBoK, 6th edition (section 7.4.2.2).

In other word EVA is the following:

*“The budgetary amount allocated to the authorized work done.”*

*“The EVA is referenced to the planned Baseline value.”*

*Baseline: Reference basis for comparison against which project performance is monitored and controlled (Ref: ISO 21500).*

As mentioned in PMBoK, 6<sup>th</sup> ed.:

*“Schedule variance (SV) is a measure of schedule performance expressed as the difference between the earned value and the planned value. It is the amount by which the project is ahead or behind the planned delivery date, at a given point of time. It is a measure of schedule performance on a project.”*

*“Schedule variance (SV) = Earned value (EV) minus Planed value (PV) ”*

*“Cost variance (CV) is the amount of budget deficit or surplus at a given point of time, expressed as the difference between earned value and the actual cost. It is a measure of cost performance on a project.”*

*“Cost variance (CV) = Earned value (EV) minus Actual Cost (ACT) ”*

### **Monitoring –versus– Cyclical Reviews of Performance**

- Analogically, in younger age we were used to still photographs, or even successive ones and also using the super-8 camera (Hi-Tech at that moment), then came video clips with associated sound effects and then web video (i.e. Webinar; Webcast, ...).
- Hence in Project Management there is: Ongoing Measurement and Monitoring.

The above is as opposed to Periodic Assessment to establish performance improvement levels according to various criteria, which can be pre-established as dates on the calendar, quarterly or otherwise, or simply contingent on a group of processes being completed, or yet ad hoc in response to requests from sponsors, management, senior management levels or even ministerial cabinet.

- In project management it is also customary to distinguish **Monitoring** from Cyclical or Random or Ad hoc **Reviews** when especially requested by a high-level officer, ministerial cabinet or even the Minister itself sometimes shouting and running in all directions... (-)
- Project Monitoring focusing on activities and outputs and their contribution to outcomes. Monitoring is the continuous observation of a project’s progress by systematically gathering key performance data for regular analysis. Trying to respond this question: What has been invested, done and produced so far, and how are we supporting SMART objectives achievement ?
- Project Evaluations & Reviews (Interim, Final) focusing on the outcomes of the project and the likelihood that they will achieve impact. Evaluations provide an opportunity for in-depth reflection on the strategy and assumptions guiding the project. They assess progress made

towards the achievement of a project's objectives and may recommend adjustments to its strategy. Trying to respond this question: What progress has the project made towards achieving its SMART objectives ?

- Impact Assessments is also used to determine whether project interventions have contributed to longer-term impact. They can be *ex-post* evaluations of projects or they can be part of thematic or global programme and/or portfolio evaluations that also consider linkages between different projects and interventions. Trying to respond this question: What mid-term and/or long-term sustainable changes have occurred and how do our interventions contribute to these?

### Evaluation Characteristics

- There is a certain continuum: after setting evaluation targets and monitoring objectives, we need to have key indicators and establish a monitoring system, but also formal evaluation & assessment mechanisms, because the following also apply in Project management:

***“That which is not measured cannot be improved”.***

- *Addendum-F* contains a comprehensive list of attributes, which can be useful for a **Rigorous Integrated Public Project Assessment (RIPPA)** often held more exhaustive than assessments of similar projects performed by competent experts accomplishing a formal review and ideally less subject to external pressure and supported by senior management. ... (-;-)

- Likely, there might be a continuum here or perhaps simply an incremental process:

- 1.. Devise Evaluation Targets.
- 2.. Identify Control Objectives.
- 3.. Highlight Key Indicators.
- 4.. Implement Monitoring System.
- 5.. Formal Assessment Process.

- If needed, a **Project Control Officer (PCO)** can be called upon to assist implementing a workable system, as a “*Project Management Performance Monitoring System*” since it is not something that can be done in isolation. ... (-;-)

Among the attributes applicable to the key indicators selected, it is quite imperative they should be: pertinent, precise and reliable, otherwise it gives rise to “***Doing well the wrong thing***” as the saying goes... (-;-)

- Selecting the key-indicators could be done by a committee, consulting the first-line personnel and/or those doing the work; ref. “*The Last Planner*” can represent wise choices.

- Pay attention to the presence of unions because you can appreciate that, when it comes to evaluation the topic becomes instantly hypersensitive.<sup>5</sup>

- Keep in mind, the public sector endowed with singular characteristics operates by another set of rules conferred to it by administrative statute law, which is guided by special regulations impacting *privacy and personal data*. (of course, major private sector fraud cases also exist...<sup>6</sup>. Added to the foregoing are the contractual arrangements and long tradition and customs of public servants, who must imperatively be addressed, given they also become the artisans of the implementation process. Ref. *Addendum-H* for more details.

- In a structured work process, generating value-added such as a project is entirely a function of the success factors determining the actual value driven with skills. Basically, the performance indicators are characteristics or attributes, which will influence and determine the success factors, while the performance indicators provide a rationale for assessing the improvement or deterioration of performance indicators. In a word, certain actions or events generate value, while others destroy value in projects, notably through loss of functional quality. Quality is first and foremost and therefore high on the agenda:

***“Doing the right thing all the time to avoid wasteful cost.”***

- As said earlier, Key indicators must meet exacting attributes, that is: pertinent, precise, and reliable. There has to be a sufficient number of key indicators<sup>7</sup> selected by a committee or a group of representative persons closely related to stakeholders. Line managers and staff can be consulted accordingly. It is also wise to pay attention to unions, given the sensitive<sup>8</sup> nature of evaluation.

- In fact, the indicator must correspond to something that is normatively clear (i.e. without methodological ambiguity) and should also: (i..) Be quantified accurately, if required; (ii..) Its use must not be confusing at all, no doubt allowed (iii..) The indicator must also "stick" perfectly, and as directly as possible, to "*What it is supposed to indicate...*".

- The public sector is subjected to a distinct set of constraints to be paid attention to compared to the private sector, given the various legislative conditions and regulatory restrictions inclusive of various statute laws, notably the protection of private information. The global public

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<sup>5</sup> Especially during the periods of the major negotiations of the employment contracts of Government' employees ...

<sup>6</sup> These days (July 2019) **British Airways** faces record-breaking European GDPR fine after data breach (500 000 clients) and **Cooperative Desjardins** (2 900 000 clients) personal data breach. Huge FRAUDs!

<sup>7</sup> But too many indicators could be destabilizing, or even be a generator of "operational chaos" and/or derogatory comments, like: *Your assessment is anything... / Your assessment is so much complicated...*

<sup>8</sup> IDEM. Especially during these periods of major negotiations...

environment represents a more complex set of conditions to be dealt with impacting how projects can be conducted.

- Value assessment is obtainable within structured works such as projects for instance, provided KSF's can be effectively determined. Performance indicators are characteristics influencing the capacity to measure change, improvement, enhancement and growth or their inverse thereof. It stands to reason, that certain actions within a project create value, while others can be dysfunctional or simply destructive.

### Evaluation Criteria for Public project

- Typically, those are the criteria over and beyond QCD to assess the performance of a project. In example, they are to be found in the French National Standard setting (AFNOR).

Also, both international associations grouping project management practitioners namely: IPMA (*International Project Management Association*) & PMI recommending some of the following criteria:

- Project Coherence.
  - Efficiency.
  - Effectiveness.
  - Pertinence.
  - Utility the ratio between the pre-set objective of the project and the needs the need that led to the birth of the project.
- The table below faithfully depicts how Michel Rocca (2014) perceives four of those criteria:

#### Four Pertinent Questions to Enhance Evaluation

<p><b>How Pertinent is the Project?</b> Assess linkage between the expressed NEED and the ASSIGNED OBJECTIVES</p>	<p><b>How Coherent is the Project?</b> Assess the realism between the OBJECTIVES and the ASSIGNED RESOURCES</p>
<p><b>How Efficient is the Project?</b> Assess the RESULTS against the DEPLOYED RESOURCES</p>	<p><b>How Effective is the Project?</b> Assess the RESULTS against the EARLY OBJECTIVES</p>

(Free translation. ISBN: 978-2804180336).

- More criteria can be added to the eight (3 + 5) and QCD referred to earlier, which can be more or less well documented according to needs and reported in the Project Management literature:

- **Stakeholders Satisfaction** especially the sponsor and the project management staff, given the successful implementation of the project in terms of: Governance; Methods and Practices; Execution and more.

*(Addendum-G gives for more detailed information regarding roles and responsibilities relating to project structures).*

- **Project Utility**

Relates to the linkage between the early objectives and business needs, which gave rise to the launching of the project in the first place. We could just as well infer about the real utility versus the finality sought at the start, which is not always well documented needless to point out.

- **Matching** real needs versus those highlighted. (See figure below).

- **Impacts** for user clients relating to the business solution, flowing from the project as well as for other stakeholders; those actively involved and those impacted.

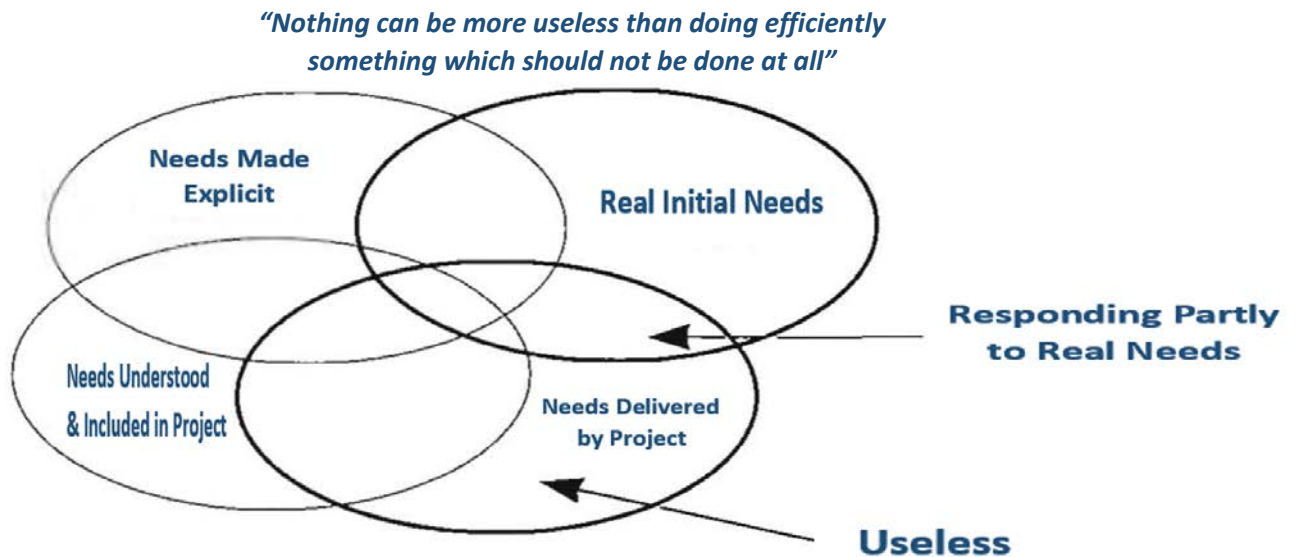
- Following this development, it stands to reason that now ELEVEN (3 + 5 + 3) criteria should be considered to assess project management, which is quite distant from simple QCD... (-)

*NOTE: Of course, another generic twelfth criterion could be added --universally true and politically correct-- such as: looking to the future; enhance learning, etc. (-)*

**Now let's talk Real Business**<sup>9</sup>

- At the inception of a project, the focus is on the expected benefits in relation to the needs, the project stages, the activities, the deliverables, the needed resources and so on.

- I am particularly fond of this figure depicting project activities, while well executed will serve no purpose whatsoever and just like Peter Drucker puts it and quoting the guru of post-modern management:



NOTE: To read in the **opposite direction to clockwise**. ISBN : 978-2212556476.

<sup>9</sup> An expression often used by my ex-supervisor, Secretariat of The Quebec Treasury Board.

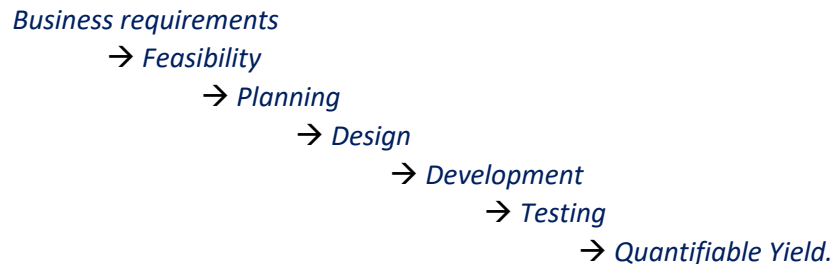
## Project Typologies

- There are several typologies applicable to projects in existence but somehow no unique typology is emerging, which could be the object of an international pronouncement receiving the caption “generally accepted”.
- Here are a few typologies, which could be applied in enterprises or shown on Internet:
  - Maintenance and ongoing incremental improvements; new business solution; new technology....
  - Industry segment and sub-segment: ex. Project in the construction industry. Sub-segment: Project constructing highways....
  - Project Size: Measured in terms of capital expenditures Budget/Cost and also required human resources, either internal or external with consultants, who can serve as extension of staff or on an expertise basis...
  - Single or multi-organizational...
  - Project types are: Simple; complicated; complex; disruptive innovative...

\* \* \*

## A2.. Assessing the Business Solution Flowing from the Project

- We need to define the Business requirements in more precise terms. The project life cycle exemplified in the PMBoK™ Knowledge Corpus, proposes the following orderly sequence:



Whether the public project is for a new bridge, or other municipal asset, a variety of deliverables are expected such as: Formal studies including “FINAL expected cost” evaluations as follows:

- Business case: Strategic Business Plan & Objectives; Specific Business Case.  
NOTE : *Business Case should not be confused with Business Plan.*
- Business specifications: Requirements & Expectations.  
NOTE: *PMBoK makes reference to the commercial needs / Requirements from various stakeholders' point of view / Requirements of the solution / ...*
- Economic Review & Opportunity Costs.
- Pre-feasibility Study<sup>10</sup>: assessing risks, Key Stumbling Blocks & Key Variables, then Go-No Go.

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<sup>10</sup> Good description in: O'Shaughnessy (2006). ISBN: 978-2890941957.

- Following a first official GO, then a full-blown Feasibility Study is carried out, examining all the related facets for a Business Solution, paying attention to Financial Justification & Technical Feasibility as well as the Social & Environmental Acceptability & Impacts.
- Examining the various Options available & Detailed Analysis for each.
- Evaluation of ROI.  
Usually methods not considering time value of money, such as payback period and paying attention to interest cost.
- MAREVA is a multi-criteria project evaluation method, applied in the Quebec Government has been successful evaluating on the basis of present value during development and at the end carried out on the basis of five distinct and complementary <sup>11</sup> criteria. *(Details in sections B1&B2)*

\* \* \*

### **A3.. Assessing the Performance of the Project Manager (Project Leader)**

First and foremost, seek the support of a **“Seasoned project management practitioner, competent in action and with top-notch charismatic leadership acumen.”**

- Given the unique nature of public organizations and projects, being in a VUCA environment makes it such that the public project manager must be a project management practitioner <sup>12</sup> competent in action with the right track record and credentials.
- The VUCA world is much more difficult to predict and plan for...
- There is a whole slew of notions attached to the concept of “Competence”. For example, the International Standards pronouncement Organization (ISO), in ISO/IEC 17024 proposes the following definition: ***Aptitude to apply knowledge and skills to accomplish the expected results.***

#### **Research carried out on the subject of Project Manager Competencies**

- Research on competencies is not new. In the early days, it was already aimed at concrete results and applications towards three complementary Goals:
  - 1.. Help organizations to better predict the success of their projects, with Project Managers ‘being competent in action’.
  - 2.. Hire the most competent Project Manager, specific to a project and a real situation.

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<sup>11</sup> Mareva: Five perspectives or axes of evaluation: Return on the financial investment (ROI) / Control of the risks (project & business solution...) / Internal impacts (ex: on the personnel), internalities / External impacts (ex: on the customers), externalities / Business Objectives (ex: Politics, Regulatory, Techno. ...).

<sup>12</sup> Not a standard but here are a few levels only as example: Beginner, junior or novice with less than 2 years of experience. Could be CAPM or PMP certified with 2 years. Intermediate level 2 to 7 years. Confirmed or senior 7 to 10 or 12 or 15 years and expert with more years...

- 3.. Maintain Pool of Talent, with potential candidates for project team jobs according to specific characteristics like certain certifications like PMI: (ACP / CAPM / PgMP / PMP & others); status (internal or external consultant), and level (junior or senior). Such Pools of Talent are generally the concern of the Project Management Office (PMO), whether it is a public, para-public or private organization.
- In an article published in the *GP-Quebec Bulletin* in 2018, I wrote:  
*“For over 100 years, research with respect to project leaders has been focused on their personality characteristics like, intelligence and behavioral patterns either focused on the task to be accomplished and/or relationships, leadership in terms of the current situation, inspiring trust and be a mentor, get full team loyalty even during stressful periods inclusive of crisis moments and the capacity to make fast changes, showing project specific leadership.”*  
*“Effective team leaders have political savvy and are skilled at using their influence and networking ability with social finesse to enhance their team power. They are skilled at establishing working conditions for the team to create an atmosphere conducive to greater creativity and productivity and better team cohesion. Autonomy and trust go together extracting the best of team members with appropriate checks and balances to avoid dysfunctions and problems.”*
  - During my presentations in Australia (Melbourne, Sydney, Brisbane), February 2018, I stressed:  
*“By 2020, the Project Managers and associated managers will be able to rapidly appreciate the issues and dynamics within their specific contextual environment, giving rise to self-confidence as well as in others; adequate tolerance to uncertainties and risks from various sources. Further, the ability to adapt to changing conditions and shifting objectives with superior capacity to learn quickly accompanied with flexibility in delivery associated with emerging technologies are to be understood to be the attributes expected from such professionals.”*

### **Three Courses of Action to Improved Performance & Success**

- 1.. Evaluating the project leader on the basis of Roles <sup>13</sup> is an innovative approach to generate value added in public projects.
- 2.. Establishing standards for public projects categorization and formal attestation of project leaders <sup>14</sup> is worth exploring.
- 3.. Provide coaching services much like those available to public servants and managers, especially those having to do with complex projects can also be an interesting pathway.

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<sup>13</sup> Roles actually played in the real projects of its public organization, among a short list of less than 30 roles, considering the type of project involved and the sector concerned (i.e.: Infrastructure / IT / etc.).

<sup>14</sup> i.e.: by Level of Complexity of public projects and / or Level of Investment in the Business solution.

## A4.. Assessing the Performance of the Project Team

### Project Team performance

- In his book dedicated to *High performance project teams*, Pépin (2012)<sup>15</sup> suggested:

*“Five criteria to measure the performance of project teams, namely:  
Efficiency, Effectiveness, Innovation, Learning; and Team Members Satisfaction.”*

- During a presentation to PMI Montreal, François Chiocchio (2010) provided several examples of contributive measures to meet the objectives, such as a list of advices presented to the project manager and associated managers:
  - Realistically evaluate the level of difficulty of objectives and related tasks.
  - Assign training objectives and/or performance, which are clear and difficult to reach.
  - Informing the staff to generate confidence towards the tasks and delivery strategies.
  - Promote self-created objectives both personal and collective related to allocated objectives.
  - Be Informed about the nature and number of initiated actions.
  - Be up to the task.
  - Be informed about deficiencies and compensating strategies for dysfunctions & possible solutions.
  - Assess and evaluate performances.
  - Provide ongoing specific feedback with respect to the attainment of objectives.

### Dynamics Associated with Team Processes

- Dynamics of the realization of team processes should be clearly understood.
- Google™ during the course of their project *Aristotle* attempted to uncover the secrets of performing work teams. Beyond a friendly and pleasant project manager they surmised the factors are probably along the following characteristics:
  - Clear structures and targeted goals.
  - Co-dependence; no one can do it alone.
  - Impacts.
  - Psychological security.
  - Making sense.

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<sup>15</sup> *Les équipes de projet haute performance*. ISBN: 978-2890942738.

- On the other hand, Pépin (2013) <sup>16</sup> created a **Model for a High-performing Team**, which conceivably could be applied to other types of work teams as well. (Not yet describe in English).

INPUTS		TEAM PROCESSES		RESULTS
Members – Competent	Planification process	Action process	Interpersonal processes	Team performance
Team– Task Composition	Analysis of the project vision	Communication	Socialization	Effectiveness
Organization	Objectives specifications	Cooperation	Motivation	Efficiency
Organization Culture & Atmosphere	Establishment of standards	Coordination	Conflict management	Innovation
Support	Role clarification		Managing emotions	Learning
				Member satisfaction

#### **A5.. Other Dimensions in Assessing Public Projects**

Other dimensions (or perspectives) to be considered applicable to public projects evaluation:

- Type of projects: i.e. General Contractor; Private-Public-Partnership (PPP's).
- Evaluating Individual & Collective Competencies.
- Evaluating Change Management Flowing from the Project.
- Evaluating the Management of Benefits Accomplished Relative to the Investment.
- Evaluating Risk Management.
- Evaluating Management of Project Impacts: PESTELOD (describe earlier in Foreword).
- Evaluating Management of Results Notably in Context of New Public Management.
- Evaluating the Participation of Stakeholders & Users.
- Evaluating Client Satisfaction & Business Solution.
- Evaluating Value Added.
- Evaluating Grading, Rating & Ranking.
- Statistical Measurement of Usage of the Business Solution Asset.
- External Benchmarking, Comparing against another Similar Public Organization <sup>17</sup>
- Internal Benchmarking, against another Internal Administrative Unit or Prior Project.

<sup>16</sup> Free translation: *Comment bâtir des équipes de projets hautement performantes ?* / Richard Pépin in *Revue internationale de Gestion*. HEC Montreal, 2013, Vol. 38, no.1 pp. 42-55.

<sup>17</sup> In fact, trying to compare oneself with private companies, like GAFA (Google <sup>™</sup> / Amazon <sup>™</sup> / Facebook <sup>™</sup> / Apple <sup>™</sup>), does not serve the cause of the sound management of public organizations. Actually, we should think twice before comparing an apple to APPLE <sup>™</sup> ... (-;-)

## A6.. Project Assessment Management (PAM)

- The Project Assessment Management (**PAM**) processes use systemic analysis to gather data and reveal the effectiveness and efficiency of your management.
- Project evaluation can be broken down into three main categories: Pre-project (*ex-ante*) evaluation; Ongoing evaluation and Post-project (*ex-post*) evaluation.
- Project assessment is formed by four main PAM processes: Planning / Implementing / Completing / Reporting & Dissemination (*Details in next section, A7*).
- Remember that the project evaluation, like other business activities evaluation, is based on a finality, main goals and supporting SMART business objectives, in example:
  - Accountability.
  - Command & Control.
  - Capacity building through evaluation...
  - Impact.
  - Improvement of a Process:
    - Delete activities / Modify activities / Adding missing activities / ...
  - Innovate...
  - Knowledge documented via: Best practices / Lessons Learned / Post-mortem...
  - Strategic plans. Etc.
- Evaluation (and Assessment) can take various forms such as:
  - Color codes (green / yellow / red).
  - Strict quantitative notation (i.e. counted or marked at 86%).
  - Likert scale, psychometric scale used in questionnaire (i.e. 1.Strongly disagree / 2.Disagree / 3 .Neither agree nor disagree / 4.Agree / 5.Strongly agree).
- Thomas (2015) mentioned some Approaches & Methods to conducting Evaluation:

*“Evaluation is about proving, judging, assessing, analyzing, criticizing, questioning, and a whole host of related activities to make a determination of merit (quality), worth (value), or significance (importance). Hence, there is a wide variety of approaches that support evaluation.*

*The following list is not intended to be all-inclusive but provides some of the popular approaches and methods : Audit / Action research / Critical Incident Technique, CIT / Deficiency Assessment / Findings / Gap analysis / Investigation / Key Performance Indicators, KPIs / Key Success Factors, KSFs / Meta-Evaluation \* (or Evaluation of an Evaluation) / Meta-Analysis \* / Needs Assessment / Observation / PERT (Project Evaluation Review Technique) / Reevaluation \* / Risk assessment / Root Cause Analysis / Sub-evaluation / SWOT Analysis / Triangulation \*”.*

*“NOTE: Asterisk \* denotes a second-level evaluation process.”*

- Thomas (2015) also describes Measurement practices:  
*“Measurement practices are the assumptions, constraints , theories, approaches, and scales an organization adopts and uses to support valid and reliable findings. Validity is concerned with accuracy, correctness, and truthfulness, Whereas reliability is concerned with consistency, reproducibility, and redundancy. Measurement practices must support both validity and reliability.*  
  
*What factors determine if a measurement practice is both valid and reliable?*
  - 1.. *Authorities: Who in terms of person or organization indicates it is so?*
  - 2.. *Experience: What empirical evidence supports the hypothesis?*
  - 3.. *Proof: Where in history can we find situation that indicate this approach?*
  - 4.. *Time frame: When is it considered applicable...*
  - 5.. *Rationale: Why is it considered to be so?*
  - 6.. *Justification: How were the conclusions reached?*
  - 7.. *Standards: Which guidelines or rules substantiate it?”*
- Globally, Evaluation can lead to so-called:
  - Neutral situations (i.e. no advice / simple consideration, ...)
  - Moderate influence (i.e. written Suggestion / Formal Recommendation, ...)
  - Strong influence (i.e. Technical Requirement).
  - Imposition (i.e. Administrative directive & decision / Bylaw & Law, ...).

## **A7.. Reporting & Promoting**

### **Reporting**

- Reporting should be done to inform formally board members, senior officials, project stakeholders, etc. about the project evaluation processes and results.  
Here are some types of information that can be found in your Project Evaluation Report (PER):
  - Executive Summary (Key results / Main processes & steps...).
  - Audience (Trigger and applicant / Client / Stakeholder...).
  - Introduction:
    - Rationale for evaluation
    - Brief background on the project and its logic
    - general context
    - Definition & Description...
    - Type of evaluation...
    - Principles & Key values...
    - Resources (Financial, human, material, informational resources used for evaluation)...
  - Purpose, scope and clients of evaluation.
  - Methodology, Tools & Techniques used...
    - Suggested analytical framework
    - Inputs (i.e. Project charter / all project plans / Lesson Learned)...

- Templates (i.e. Checklist, forms, guidelines)...
- Techniques (i.e. for measurement / for benchmarking)...
- Presentation of findings regarding project performance.
  - Main outputs (facts, ...)
  - Comparison (Best practices, Learned Lessons)...
  - Possible generalizability...
  - Impact assessment.
- Conclusions.
- Implication for the future:
  - Advice / Recommendation / Requirement / Explanation...
  - Actions required
  - Management arrangements, work plan & Timeframe
  - Responsibility assigned to...
- Best practices; Lessons Learned; Post-Mortem.
- Addendums...

### **Promoting (Dissemination)**

- Of course, once the evaluation is complete, you need to record and give access to some results. This creates a historic record that will provide Lessons Learned (LL) for the future.
- The way you are going to disseminate the report depends of regulations, organizational Public communication policy, senior officer point of view, etc. There might be a protocol for this already established in your public organization.
- Deliver your report to your stakeholders to keep them updated on the progress of the project. Perhaps the stakeholders prefer a meeting to get the results face-to-face. You must know your audience and target your report to them, as well as their preferred format.
- In governments, rules about this issue mostly come from Treasury Board Secretariat (TBS), General Auditor, Comptroller General or Accountability office (i.e. U.S. GAO <sup>18</sup>).

### **A8.. Dashboard & Project performance**

- Globally, Management Control Dashboards (MCD) are designed to control consumed resources and see results obtained. It is a system interfaced and integrated reporting with Information –in fact, mostly Data and Information-- systems of the organization. The reporting is designed to select, consolidate, format and report on a timely basis the required management information. It contains a certain number of pre-programmed indicators and indices touching on the operational functions.

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<sup>18</sup> From U.S. GAO website (June 18, 2019): The U.S. Government Accountability Office (GAO) is an independent, nonpartisan agency that works for Congress. Often called the "congressional watchdog," GAO examines how taxpayer dollars are spent and provides Congress and federal agencies with objective, reliable information to help the government save money and work more efficiently.

- The Project Management Dashboard (PMD) --like the dashboard in your car-- collects all the valuable information you need to drive a project forward successfully in one place. That means you can see at a glance how your project is progressing. There is no better tool to give you the data you need, when you need it. Of course, the importance of real-time data for an effective project evaluation process cannot be understated... (-;-)
- With Project management dedicated software (i.e. Microsoft Project™) or even Generic tool (i.e. Microsoft Excel™) with appropriate development (APS) you can track workload and tasks, because your project team is constantly updating their status in real-time or regular basis... (-;-)
- You're getting the most accurate picture of the project possible in real-time. These Data & Information and sometimes related Knowledge<sup>19</sup> will eventually be used to evaluate the project.
- Dashboards are easy to set up in a PM software because all the planning data, Gantt charts and task lists are fed into the dashboard. In fact, the dashboard crunches the numbers for you, and then creates colorful graphs and charts that make those figures simple to understand. Even better, those graphs and charts can be filtered to reflect only the data you want and then shared in whatever format you prefer, with only a keystroke... In theory, of course ! (-;-)

## A9.. Collaborative Assessment

- I strongly agree with this quotation catch on *UK Evaluation Society* website:  
*"Many issues in the social world involve the interaction of multiple factors from different domains which may be difficult to quantify. Often knowledge about an issue will be distributed between different types of stakeholders, who may not communicate meaningfully. Successful policy interventions or management in these circumstances require collaboratively - generated whole system understanding"* <sup>20</sup>.
- Collaborative evaluation could be a use in a way to demonstrate how COLLECTIVE INTELLIGENCE be applied to Project evaluation, revealing more issues, impacts or point of views strengthening adages like:  
*"The whole is worth more than the soul of its parts"*      **(Synergy effect)**  
*"One for all, all for one" if problems occur.*              **(Solidarity effect)**
- In fact, apart from the straight calculations of financial profitability --as Return on investment (ROI) and also Fiscal profitability-- that can be carried out individually, most other valuation methods could advantageously be used in groups: qualitative and quantitative evaluations, cost-benefit analyzes (CBA), multi-criteria evaluation methods, multiplier effect methods, etc.

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<sup>19</sup> To get the Data-Information-Knowledge most accurate BIG picture to avoid: *Garbage in Garbage out...*

<sup>20</sup> Attribute to Regent's University, London, UK.

- Some Project Evaluation activities could be done partly at one level and be completed by another. In example, Post-mortem usually start at individual level, each team member doing its own analysis and introspection, followed by a team-work analysis to find out common ideas and particularities and some contradictions.
- Globally, collaboration in projects carries several useful purposes, notably:
  - Increase participation, commitment, assumption of responsibilities, legitimacy, trusts and work satisfaction.
  - Increase synchronization of activities, individual and collective performance and capacity to deliver.
  - Enhance quality and make it ongoing.
  - Creativity and innovation: environmental monitoring and analysis, market watch and reporting on new products and services and work organization.
  - Utilize own distinctive abilities and capacity.
  - Decision-making considering the different points of view, interests, expectations of the various intervening stakeholders, as well as areas of influence, power and impacts.
  - Easier identification of the levers of creativity and creation of value-added.
  - Enhanced coordination of limited scarce resources.
  - Enhanced value-added per the client's perspective.
  - Promotes communications sharing knowledge and experience with those from various communities of practice, project management being one of them, including all types.
  - Collective solving of emerging problems.
  - Unit cost reduction and/or revenue improvement.

\* \* \*

#### **A10.. Professionalize the Field of Project Assessment Management (PAM)**

- Project Controller is a job function and not yet a certificate professional as PMP<sup>21</sup> or Prince 2 Practitioner<sup>22</sup> for instance.

*“Project Controller (or PCO, known as a Project Control Officer) is responsible for planning, updating and steering projects. Becoming a PCO can be a great stepping-stone towards a position as Project Manager. A PCO reports on a project's status and is often seen as a project's co-pilot. While you do not make decisions critical to the project, you play a pivotal role in communication and stakeholder success”<sup>23</sup>.*

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<sup>21</sup> Wikipedia: Project Management Professional (PMP) is an internationally recognized professional designation offered by the Project Management Institute (PMI)... The exam is based on the PMI-PMBOK.

<sup>22</sup> Projects IN Controlled Environments. PRINCE2® is a standard developed by the UK government.

<sup>23</sup> <https://www.pmimontreal.org/en/i-am-project-control-officer>

- In fact, the use of an accredited evaluation specialist is not very common, in public or even private organizations. Personally, I think that each organization with over 500 employees should have easy access to services of an Evaluation specialist, who is also quite familiar too with measurement (Metrology) and Quality approaches, principles, methods and tools.

- We can find in *UK Evaluation Society* website a **Framework of Evaluation Capabilities**. This Framework is structured in three domains: evaluation knowledge, professional practice, qualities & dispositions, in each of which are a number of specific capabilities.

For example:

- Evaluation theory and their use.
- Evaluation designs and approaches.
- Make effective use of evaluation methodologies.
- Socio-political context.
- Demonstrate ability to manage and deliver evaluation.
- Demonstrate interpersonal skills.
- Demonstrate ability to adapt to changing circumstances in a principled manner.

**This is a very good example of what could be done by  
Project Management Associations and/or by Government authority (TBS; GAO...)<sup>24</sup>**

## **Part B.. Public Project Assessment Approach**

### **B1.. Field Experience Feedback Assessing Public Projects**

- During the years 2006-2007, while I was *Associate to the Quebec Deputy Minister, Office of the Government CIO*, I had the advantage of participating actively in seven pilot projects, which allowed me to test and adapt the MAREVA methodology and both main tools<sup>25</sup> applicable to the type “*Public Service*” within the framework of Electronic Services Delivery (**ESD**) in Canada.

- During the course of this experimentation, I was accompanied by two professors renowned in their respective field doing research, namely: Maurice Gosselin, Laval University *Accounting & Asset Valuation* and Gilles St-Amant, UQAM whose work was closely monitored by Laurent Renard, Associate Director, *Management & Technology* Department UQAM-ESG.

- MAREVA articulates across four stages in two main tools, evaluating public projects such as ESD. It was developed in 2005 by BearingPoint France™ for the French Agency “*Development of Electronic Administration*” (*DEA*) in order to evaluate 140 projects of the French ESD program.

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<sup>24</sup> Treasury Board Secretariat (TBS); Government Auditor Office (GAO).

<sup>25</sup> MAREVA ‘s two main tools are: (1) – EXCEL tool for project Benefit analysis. (2) – EXCEL or WEB tool for Assessment of public project value added.

- MAREVA with some local adaptations became applicable in other countries just as well. For example, MAREVA-QUEBEC paying attention to historical <sup>26</sup> constraints as portrayed in an excerpt from a French Journal <sup>27</sup>

*“In 2003-2006 the Ministries and Departments of the Quebec Government, initiated seventy public services of the government online. Given the scale of resources deployed, the Quebec Auditor General asked the Quebec Government to show the pertinence of such investments in a more objective manner. In response to that request, the government sought various methods on the international scene to evaluate such investments and chose MAREVA to be applied to seven pilot projects to establish a benchmark baseline regarding the value generated.” (Free translation)*

**IMPORTANT:** *The information below sections B1 & B2 are partly UQAM-ESG and also public documentation from BearingPoint France™.*

- MAREVA stands in English for Method., Analysis, Raising, Value.  
It is a multi-criteria methodology supportive of decision-making, evaluating specific investments here *Electronic Service Delivery (ESD)* and also to assess comparative investment portfolios in the public sector, turns out to be a useful tool. It is relatively easy to compare projects with this method applicable to project programs or project portfolios just as well.

- The public value of an investment in an ESD project is defined by 5D or five Dimensions, perspectives or complementary axes, each being assessed using sub-dimensions, such as represented below in parentheses:

- (D1) – Profitability <sup>28</sup>

Pay attention to both: capital outlay in projects and the savings generated resulting thereof, direct and indirect costing, Ad hoc and recurring gains:

*A.. Sub-dimensions considered: Productivity gain; job and task suppression; speed of information retrieval, enhanced efficiency and decision-making, economies of scale, positive cash flow, raising revenue and other advantages.*

*B.. Numerical Method to assess value: Payback period, Rate of Internal Return, NPV Net present value.*

- (D2) – Risk Control

*Sub-dimension: Project deployment risk, technical risk, legal risk, and business risk once the service deployed.*

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<sup>26</sup> Quebec had already institutionalized certain frameworks for example MACROSCOPE™ Fujitsu DMR Systems Development, S:PRIME Project Risk and MEHARI Security Risk & Exposures.

<sup>27</sup> France, Prime Minister’s Office: *Evaluation Report: Mission, Evaluation of Public Policies*. No. 3, January 2009, P.21.

<sup>28</sup> Three variables to consider: Capital expenditure in project; Ongoing operational cost; and the Benefits flowing from the project.

- (D3) – Externalities

*Sub-sections: Service quality improvements, number of users implied, effectiveness and advantages for end-users versus ESD availability. Outsourcing impacts, promoting the information society .*

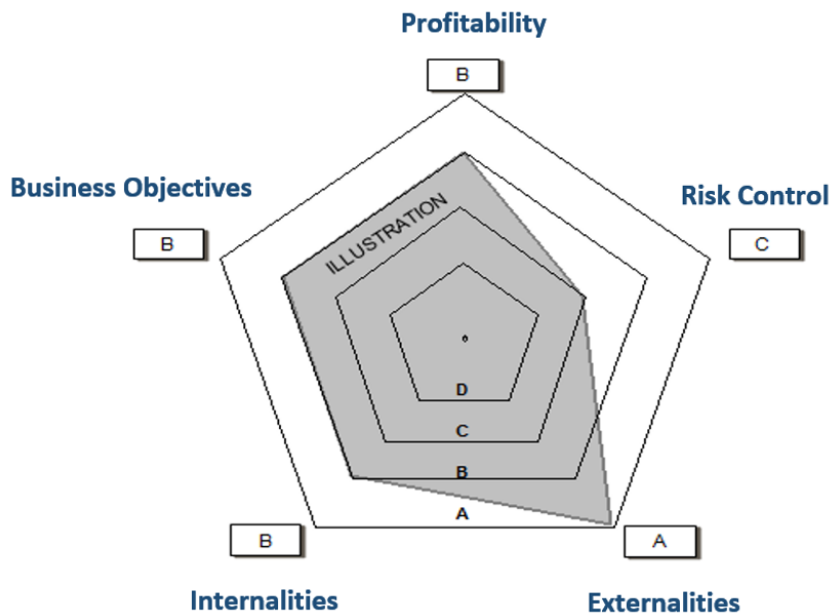
- (D4) – Internalities

*Sub-dimension: HR impacted, de-centralizing the state, state employee job enrichment.*

- (D5) – Business Objectives

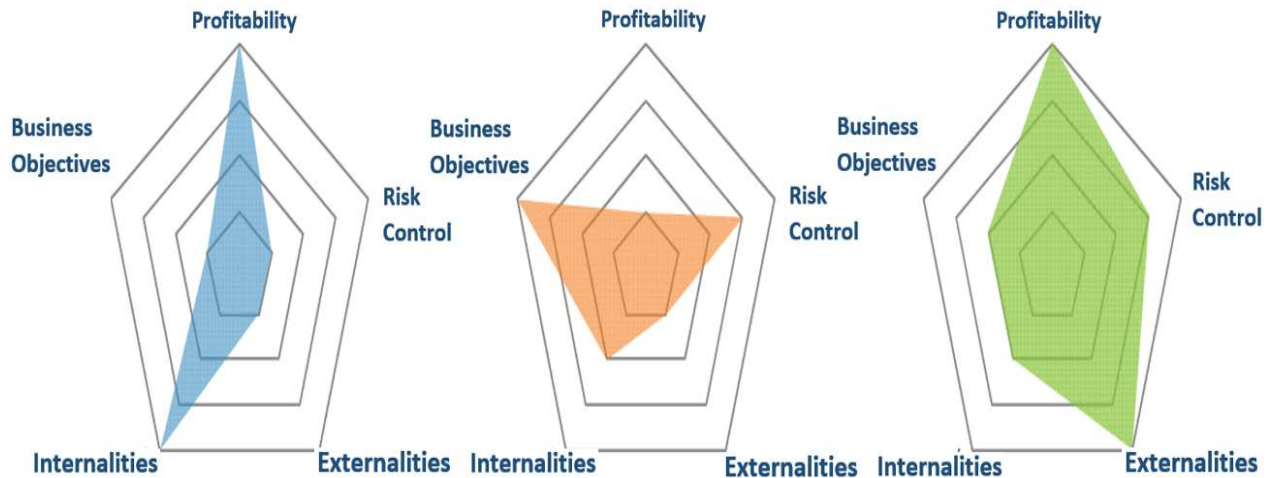
*Sub-dimension: Administrative efficiency sought, application of the law, ministerial decision, authentication, end of vendor support.*

- It is possible to issue a performance grades from **D = Weak** to **A= Strong**, applicable to these five dimensions. In the pentagonal shaped figure below called *Spider Diagram* allows reporting grades on all five dimensions simultaneously specific to a project. This visual provides a more accurate appreciation of the report on all five dimensions concurrently. This is better than a mere ROI number... (-;-)
- Starting at the center (mark D) and moving towards the edge (mark A) gives an instant report indicating an improvement.



- For example, a specific Electronic Service Delivery (ESD) project called “ABC” obtain five marks, shown in clockwise order:
  - B mark for financial Return on investment, ROI (Profitability) ...
  - C ... for Risk control... (identify, evaluate, mitigate, etc.) ... (Ref : D2, page 51)
  - A ... for Externalities: Impacts on clientele...
  - B ... for Internalities: Internal impacts (ex: on the personnel)...
  - B ... for Business Objectives achievement...

The figure below allows this time to visually compare three projects with each other.



- As a method MAREVA is applied via four types of analysis (A):
  - (A1) – Pre-Project Analysis  
*Need awareness; Defining scope and depth or simply perimeter border reach; Identify options and alternate solutions; Define project lifecycle; Data and information gathering; Identify risks and exposures and impacts of the project.*  
 NOTE: Possible option, analysis of main processes.
  - (A2) – Profitability Analysis <sup>29</sup>  
*NOTE: Additional profitability for the state <sup>30</sup> or the profitability of the external public organization managing the project sometimes evaluated if pertinent.*
  - (A3) – Value-Added Analysis  
*(According to dimensions D1 to D5 described above)*
  - (A4) – Post-Implementation Review  
*(Aggregation of the important elements extracted from the other 3 types of analyses).*
- The overall MAREVA methodology is resting on four principles (P):
  - (P1) – Strategic Alignment of the project with the strategic plan of the public organization right from the pre-project planning phase.
  - (P2)– Economic Profitability of the Project Investment during the profitability analysis.
  - (P3) – Analysis of the Standardized Public Value, for all significant investment in public projects at the value analysis phase.

<sup>29</sup> Beyond the elements reported in D1 above, let us highlight: Full costing; Productivity and Impacts on systems expenditures and information technology.

<sup>30</sup> Also called “Global profitability of the public sphere” generally considered under dimension internalities rather than profitability dimension, notably when the value generated is external to the organizational perimeter of the organization managing the project

- (P4) – Ongoing Project Monitoring over the life of the project once the project definition is done and the feasibility study has been completed, however before the official launching of the project; Assessment in the course of the project for fine-tuning purposes; post implementation review, even a year following signoff.
  
  - For example, here are a few elements to consider applicable to D2 Risk Control, which can be identified according to the four types of analysis mentioned above, by asking a series of questions, first alone --and then by committee-- allowing the opportunity to test one's own assessment against the other committee members.
- NOTE: A point of behavioral interest is the concept of Groupthink, which can be dysfunctional and critical given the circumstances.
- D2a – Project Risk relating to the execution of the project  
*Are the Project Objectives well founded? Are the Scope and Depth well defined?  
 Is the team well composed? Are the required competencies well known and obtained?  
 Is the project leadership adequate? And so on...*
  - D2b – Technological Risks  
*Is it cutting edge technology? Is it highly complex technology requiring scarce expertise?  
 Is it a high degree of integration? Is there great resistance to change? How is security impacted? And so, on...*
  - D2c – Legal Risk  
*Is there a requirement to amend current laws or regulations? Is the processing of private data adequate? What about the legal entity encompassing the partnership? And so on...*
  - D2d – Execution Risk for a public Electronic Service Delivery (ESD) application  
*Are the operational management and deployment of events adequate? And so on...*
- Having provided answers as best as possible to some 80 fundamental questions and related sub-questions, it becomes possible to address adequately under the auspices of MAREVA the specific concerns tailored to each specific ESD project with respect to the five dimensions D1 to D5 aiming at the finality sought by the public organization responsible for the project and also in the best interest of the state, which by extension also for the wider society in general.
  - Concluding Section B1, let us take a note from the French <sup>31</sup> (-):  
*"The project assessment analysis provided by MAREVA is in itself a key success factor and a determinant to insure the successful execution of a groundbreaking project.*
    - *Effective communication of the objectives with target numbers for the project team, inciting the staff to rally around those objectives ongoing.*
    - *A quantitative analysis of the project impacts on stakeholders to define the extent of training needed for practical operational application.*
    - *ROI only shows the external portion of the iceberg.*

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<sup>31</sup> IDEM: Free translation : France – Prime Minister's Office: Evaluation Report: Mission to Evaluate Public Policies No. 3, January 2009. Pages 21-22.

*For a thorough analysis, the following must be paid attention to:*

- *...the qualitative benefits of the project, its required nature and related level of risk. Those are features, which sometimes are more important than pure financial profitability.*
- *Post implementation review and the learning curve are pre-requisites to yield the benefits, reassign staff functions and business processes.*
- *Selling the project to external parties highlighting the real advantages."*

- As mentioned in France – IGF (2016), Addendum 4, item 3.2.1. (See: References Section):

For IT projects, MAREVA (Méthode d'Analyse et de REmontée de la VAleur) measure their strategic potential and economic profitability ... ..

... .. since 2014, IT projects whose cost exceeds 9 M€ <9 million euros> are subject to a notice of compliance of the *Direction interministérielle du numérique et des systèmes d'information et de communication (DINSIC)* prior launching their realization ... ..

In order to be able to "clarify the structuring choices related to projects", this method must be "sincerely and similarly applied between projects".... ..

This method consists in apprehending the value of a project by giving it a score out of 20, itself composed of a note called "strategic" and a note of "economic profitability", in order to take into consideration:

- the **"business impact" of the project**: its improvement of the quality of the service rendered and its creation of value for the users of the information system (citizens, agents of the state <i.e. Employees>) ... its capacity to support profound transformations (reorganizations, reforms ...), its contribution to a public policy and its regulatory necessity;
- the **impact of the project on the State's information system**: its alignment with the State's common strategic framework, its capacity to respond to urbanization, security and obsolescence issues;
- its **economic profitability**: its impact on the recurrent maintenance expenses in operating conditions and the gains made to the business operations.

In order to facilitate its appropriation by the project leaders, this method is the subject of frequent presentations of the DINSIC and is accompanied by practical supports, in particular Excel spreadsheets.

More precisely, three dimensions are explored, in the form of three Excel spreadsheets to be completed :

- a first dimension is constituted by a multi-criteria analysis on criteria other than financial ones, qualified as "strategic";
- the second dimension corresponds to an economic analysis and profitability calculations; the values of the various indicators being directly calculated from the data entered in the spreadsheet;
- the third dimension, of "synthesis", consists of a ranking of the different competing projects (which are variants of the project) from the average obtained from them.

(Free translation) : France – IGF Rapport N° 2016-M-058..

## B2.. Stakeholders Needed for Assessing Public Projects

- Here is a very short list of characteristics conferred to ensure an adequate assessment of public projects, which must be conducted according to criteria:

**Rigor; Multivariate approach; Credible and Reliable.**

- Main contributing Actors & Roles in Public Project are identified in *Addendum G8*.

NOTE: Some Evaluation method, as MAREVA, has two Modes:

- Standard Mode: not accompanied with an Auditor.
- Specific Mode: accompanied with an Auditor.

\* \* \*

## B3.. Principles Required for Public Project Assessment

- There are ten innovative Principles to be applied for such evaluation: Rigorous; Systematic; Multi criteria; Holistic; Reliable and more Credible <sup>32</sup> of public projects.

### 1. First of all, using the established terminology.

- Always make sure the proper terminology is used avoiding clichés ... (-;-)

NOTE: The following sources are available to check on the terminology: granddictionnaire.com; CICPA for Accounting; PMI & IPMA for Project Management; ISACA for Insurance, Auditing and Security...

- For reasons of effective communications, terminology is king and must be used discriminately and expertly. While assessing projects, it is important not to blur the semantics using confusing inadequate vocabulary relative to the meaning sought. For example:

- Quantifiable & Unquantifiable.
- Tangible & Intangible.
- Sensitive & Insensitive to...
- Short Term & Long Term.
- Certain stakeholders are not well versed with such terminology as:
  - Direct Costing: Allocated directly to the project.
  - Overhead Cost: Allocated on a reasonable basis to a number of projects. (i.e.: Training on new technology, software applications communication protocols and more...).

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<sup>32</sup> The evaluation should be examining the widest possible picture, multivariate in nature with the scope and range covering all the attributes and functionalities foreseeable. It must be conducted by, credible certified experts specific to a project. Being public, controversy must be avoided, where many times it is 'politically sensitive' & 'media driven'.

## 2.. State clearly the Applied Methodology of the respective public organization

- For example, delineate well the following:

(i..) Method not strictly financial (i.e. Mareva covering 5 dimensions or perspectives)

(ii..) Strictly financial Methods

- Methods held not time valued refer to previous section-A2; hence ROI and internal rate of return (IRR).
- Methods applying time value of money (TVM) hence **Net present value (NPV)** referred to above.

Following a cost benefit analysis (CBA) user departments assess the pertinence of the project financially and operationally and following that a Go/ No-go decision is issued regarding the investment in the project, whether to launch or kill the project outright.

Much like the other methods NPV is not perfect as are all others, however it pays attention to cash flow through time. Given the method looks at the whole span of time involved, it therefore loses sight of the fact the organizations have the leisure to adapt and modulate their investments as a function of results ongoing as they emerge. Pervasively the method sheds no light on strategic concerns or alternate solutions, which can be far more viable. ... (-)

**NPV is not appropriate to compare projects.**

NOTE: As seen in Section-A1, **Earned Value Analysis (EVA)** is not a valuation methodology; rather it is a method to establish the degree of advancement within an ongoing project, given the resources consumed and of course establishes what is left yet to accomplish.

Bankers are not familiar with EVA a technical item in terminology, representing quite a lot behind the scene; however...

**EVA is a fundamental tool in traditional engineering project management.**

## 3. Selecting one method applied consistently across a public organization

- Having selected an approach, then it should be applied consistently across the organization through time. It is not a good idea to change evaluation methods just because it appears not doing this time what is intended <sup>33</sup> ... (-)
- Consistent application is the purview of auditors, expert reviewers and senior management, where it is necessary to keep a credible basis of comparison through time. The underlying idea is an organizationally accepted basis of assessment otherwise referred to as benchmark.

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<sup>33</sup> Attention must be paid to abrupt changes of methodology and/or accounting perimeter policy, as it might be covering inappropriate situations. (-)

**4.. The selected method must be appropriate to provide adequate accountability and levels of assurance, answering to pre-listed questions specified by the authorities**

- Can the advantages and disadvantages be clearly defined?
- Can this be assessed properly with the right indicators?
- Can it be quantified for purposes of comparison?
- Can financial valuation be placed on most of the alternatives?

NOTE: These four questions are from *Strategic Planning for Information Systems* / Ward & Pepper. Wiley. ISBN: 978-0470841478.

**5.. Quantifying properly the advantages and disadvantages of a public project is carried out by a series of specialists**

- Having a global perspective sometimes referred to as holistic <sup>34</sup> representative of the reality of the stakeholders <sup>35</sup>.
- For example, quantify the Gains Dimension-D<sub>1</sub>, MAREVA (Section-B<sub>1</sub>); done in 4stages:
  - i.. Define unit of measurement for the gain.  
For money: the currency and size Ex: dollars, euros and in thousands or millions. For labor: person/days or person/months.
  - ii.. Define pertinent indicators to assess the various layers of the gain.
  - iii.. Provide the total <sup>36</sup> and the unit gain for each indicator.  
Quantify each indicator using reliable sources, ideally official in order to justify the premises; Estimate the impacts: for services, agents, number of tasks; time saved, economic savings relative to current situation.
  - iv.. Determine a reasonable annual coefficient of accomplishment of the gains, as a realistic probability of accomplishment.

**6.. Be in compliance with a significant number of attributes with respect to the Rigorous Integrated Public Project Assessment (RIPPA) <sup>37</sup> ideally more than less <sup>38</sup>.**

- *Addendum-F* identifies over 100 properties which might be useful for the purpose of RIPPA.

**7.. Having an appropriate project governance distinct from operational management is mandatory, also based on fundamental principles.**

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<sup>34</sup> Holistic refers to the largest possible view, all aspects and dimensions in terms of scope and depth. In short the big macro picture.

<sup>35</sup> Stakeholders' needs, wishes and expectations are of great interest but must also commit fully to the project becoming involved participating in the project.

<sup>36</sup> For example, \$1,000 = \$1k gain, 12,000eu = eu12k saved.

<sup>37</sup> If needed, refer to the required attributes or specified by the accrediting agencies such as certifying organizations and/or analysis laboratories, measuring science or metrology.

<sup>38</sup> Avoiding evaluation purely for the form and no substance. Those evaluations without follow-ups proposing no corrective measures or actions and so on, are to be avoided.

• The unique and fundamental project governance principles applicable to public organizations are based for example on four Project Governance Principles Identified by Garland (2009) and presented as follows:

- 1.. Have a single point for accountability ensuring project success.  
Select the right people at the right place at the right time the making official nomination to be transparent, coherent and efficient <sup>39</sup>.
  - 2.. The owner of the business solution determines the orientation of the project  
The department responsible for the creation of value has to be the owner of the project.
  - 3.. Ensure segregation of duties and functions *Managing Stakeholders Ongoing* (\*) and the activities leading to *Important Decision-Making* (\*\*)
  - 4.. Have an enlightened separation (\*\*\*) of Project governance from the Organization  
NOTE: As detailed in *Addendum-G* (\*) Project Management responsibility  
(\*\*) Project Governance (\*\*\*) We know what linkages are responsible for what...
- The project governance structure must be appropriate, encompassing the perimeter of the project to cover, the type of project, big. Small including the functions: exchanging points of view; mediation and arbitration; final decision and guiding value.

• **Pay sufficient attention to the level of public project management Maturity** <sup>40</sup>

• An appropriate structure of project governance, covering the full perimeter; the nature and type of project; the size and functionalities. Interactive points of view; mediation; arbitration; final decision-making and value driving

• Respecting “*Natural business rationale*” <sup>41</sup>

Starting: • Stakeholders, needs, leverage, clients, and users

- SMART Objectives, strategic organizational.
  - Strategic alignment of portfolios, programs and projects.
    - Portfolios, programs and projects objectives.
    - Results; output, benefits, effects, impacts.

• Respecting Government Governance Logic:

***Structured Questioning; Principles to be Respected; Targeted Objective; Means...***

Here is an example <sup>42</sup> of structured questioning for an improvement:

1.. What levers are available to incite change?

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<sup>39</sup> Avoiding misreading status and internal razzle-dazzle.

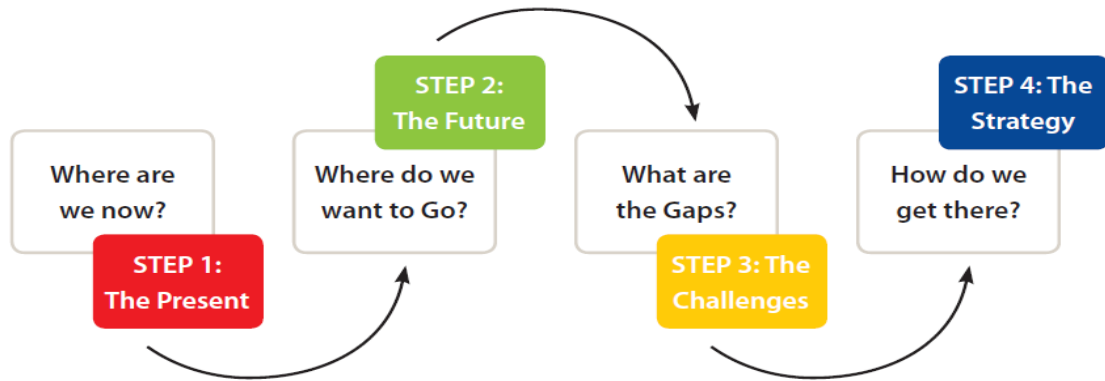
<sup>40</sup> Being able to explain why “*it is impossible to commit to a particular project at this moment*” is indicative of a certain level of maturity in Project Management, which is well known and applied in the private sector. The be a YES MAN to the boss may turnout bad and very costly in a public organization ... (-)

<sup>41</sup> Avoiding inversions, such as “The tail wagging the dog” ... (-)

<sup>42</sup> From COBIT 2019, Website ISACA.ORG

- 2.. Where are we at this time?
- 3.. Where do we want to go?
- 4.. What must be done to get there?
- 5.. Course of action, detailed planning, needed resources?
- 6.. Can we test we factually got there?
- 7.. How to sustain the *momentum* and institutionalize the initiated change?

- Figure drawn from a European Union publication (2010) that I appreciate a great deal:



- Proposed guideposts should be by themes and revised systematically every four years just like it is the case applied to standards and frameworks of best practices, methodologies, published compendium of knowledge, even if it only serves to update the references ... (-;-)

**8.. Evaluate public projects as a function of the fundamental requirements of the public organization outside the perimeter of the project, notably Administrative, Legal, Political and Societal <sup>43</sup> thereby avoiding “Doing well the wrong thing...” <sup>44</sup>**

**9.. Clearly distinguish the roles and responsibilities of the intervening parties (i.e. stakeholders) to the project, notably the main team staff in order to avoid ambiguities and incoherencies now and over time.**

**10.. Public projects supportive of organizational performance with lasting power**

- It is usually a pleasant exercise for a senior manager or an elected official to launch a public project <sup>45</sup>

<sup>43</sup> PESTELOD can be useful in detecting the challenges and impacts of the political kind, economic, social, technological, environmental, legal and ethical, organizational and demographic

<sup>44</sup> Developing a system with significant faults, especially the type affecting personal information and privacy, security of the information assets, public security, public health and more

<sup>45</sup> As journalist or auditor, there are three questions that would be interesting to field against the speaker: (Q1) how does the project propose to enhance organizational performance and/or advantages the client significantly over time? (Q2) What is the projected number of clients over time? (Q3) What is the expected satisfaction?

- This public project should be resting on a:  
***Sustainable Organizational Performance Culture***
  
- A ***Sustainable Organizational Performance Culture*** cannot be created overnight, it takes time. A lot is involved, balancing, arbitrating and deciding with criteria, difficult to reconcile and sometimes conflictual:
  - Latent & Expressed Expectations  
Vs (versus) Delivered Results
  - Current Behavioral Patterns  
Vs Expected Results
  - Short Term  
Vs Intermediate, Long & very Long Sustainable Development
  - Creativity & Innovation Sought  
Vs Respecting Current Functionalities Compliance with the policies
  - Quantity  
Vs Quality Outputs
  - Prime Satisfaction for Shareholders  
Vs Multi- party Satisfaction Win-Win
  - Extended Services  
Vs Basic Services
  - Effective Solution Cost Delays  
Vs Ideal Optimized Solution
  - Temporary Solution  
Vs Permanent Solution
  - Working Individually  
Vs Collective Work
  - And so on...

#### **B4.. Dimensions and Criteria Used in Assessing Public Projects**

- I will now identify several Dimensions (D) and Criteria (C) used for the evaluation of public projects based on my experience during the pilot projects under MAREVA method. Refer to Sections B1 & B2 and my university lectures on the subject, more particularly the ones addressing other methods with multi-criteria assessment of public projects, as **PVAT**.<sup>46</sup>
  
- The assessment of public projects as described in this work, provides the practitioner with the ability to verify the state of health of a specific public project, more specifically to an electronic services delivery (ESD).

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<sup>46</sup> I even obtained a user license for PVAT to become better acquainted with its application.

Open Government Portfolio Public Value Assessment Tool (PVAT), is a joint development of the *Center for Technology in Government (CTG) University of Albany, New-York and the United States General Service Administration (US-GSA)*.

- The goal of an exhaustive examination, ideally devoid of hidden defects is essentially to highlight the management activities and style over a given period and managed according to a specific stage of the project, which could be:

***Prior to the project; During the Project; Post Implementation.***

- The assessment is impartial, global and based totally on the facts and evidence of the project. **The intention is not to replace more specific examination with unique methodologies** <sup>47</sup>.
- As seen in Part-1, measuring, monitoring and assessing <sup>48</sup> reviews are ongoing activities being part and parcel of the fundamental documentation of the project <sup>49</sup> and all three <sup>50</sup> must be monitored closely throughout <sup>51</sup>.
- The project assessment is carried out with close collaboration with the project manager in a positive and constructive manner.
- The ongoing review allows corrective action where needed in cases of certain anomalies having been detected. If all is fine, then just stay the course given the review has confirmed the project is on course. (-)
- The *head-in-the-sand syndrome* must be avoided, that is “*seeing nothing bad, everything is just fine*” The **ongoing review** is a pro-active process designed to guarantee the project process in on course and under control and if any defect is highlighted immediate corrective action is applied. It is a fact that any later corrective action will be far more costly to correct
- The public project review is carried out through an independent committee, which might be ad-hoc or permanent, or yet by the Project Management Office (PMO) described in *Addendum-G*.

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<sup>47</sup> For instance, risk evaluation of projects with the assistance of S: PRIME or X: PRIME, do not replace the use of a multi-criteria method applicable to public project like MAREVA or PVAT.

The reverse is also true when considering the management of benefits or the change management of the said project.

Feeding MAREVA with the project data through S: PRIME is quite possible or other methods in fact. The tools retain the traceability of the data.

<sup>48</sup> Section-1 explains well what must be understood. The first is an opinion the second aims at an improvement of performance.

<sup>49</sup> As the Project management Plan.

<sup>50</sup> The framework COBIT 2019 of the International Association of Information Systems Auditors (ISACA.ORG) uses MEA for “Monitor, Evaluate & Assess”.

<sup>51</sup> IDEM. The Project management Plan.

- As seen in Section B1 the review of an ESD public project can be carried out with respect to the five dimensions (5D) of MAREVA or dozen other widely used published methods; and in the process get the support of the *community of users of that particular method*, if available.

- It is also conceivable other approaches can be used such as Dimensions or Perspectives in order to review and assess a public project, for example the chapter on attributes and competencies provide a good description in the first part of a Compendium of Knowledge in project management such as *PMBok version 6 of the Project Management Institute (PMI)*:

*Fundamental Elements (Chapt-1); Project Environment (Chapt-2); Roll of Project Manager (#3); Project Integration (#4); Project Scope & Perimeter (#5); Agenda (#6); Costing (#7); Quality (#8); Staffing (#9); Communications (#10); Project Risks (#11); Project Sourcing (#12); Stakeholders (#13).*

NOTE: PMBoK second part covers another six chapters on the methodology.

- Other dimensions are added to MAREVA basic five, such as the ten pointed out above that is form chapters 4 to 13 and evaluated .

For instance:

- Delivered Functional Quality.
- Human Resources Whole Team Involved .
- Multiple project interdependence within a project program or portfolio.
- Project Governance or Program Governance  
or even Portfolio Governance and so on...

### **How to “Kill” a Public Project the Right Way**

- It is not clear in “the public mind” why it is expensive killing (definitively stop) a public project and that it is not a simple matter in response to a legitimate ministerial intention, whether it is communicated publicly or not...

- Imagine a tunnel 90% completed. Killing the project would surely raise a lot of public controversy wasting good tax dollar for nothing. This situation would be indicative of gross incompetent public management, as it would serve no business solution. It is clear such a case would in time be completed, otherwise it would be severe financial mismanagement and be treated as a capital loss in the government budget, unless you want to turn it into a car wash (-;-)

- This can hardly apply to information systems (IS) development advanced to 90% which would still represent a workable asset serving adequately a certain number of users given the functionalities already implemented.

## B5.. Resources Needed to Assess Public Projects

- Section B4 details the actual costing process for public projects. Direct labor staff including consultants as extensions of staff. Direct costing of material and variable overhead plus licensing fees for the use of frameworks Section-B4, also consulting on an expertise basis is allocated directly to the projects. Even a portion of the fixed overhead cost like the use of office space can be charged to the project. It is mostly a question linked to the accounting policies of the organization.
- In 2007 I tallied \$22,000 CDN minimum expenditures out of an allocated project budget of \$175,000 CDN representing 12.6% of the overall budget on account of merely evaluating a multi-criteria public project as a business solution.
- Costs are a direct function of the nature, size and complexity of the project, which can be single or multi-organizational.
- Over time learning effects can be generated, doing faster and better in order to accomplish economies of scale, such as: a large number of reviews carried out by the same group. Also evaluating similar projects at the same time. Network effects and calling on the same people or even their collaborators.
- As for me I learned three rules of thumb from my active experimentation using MAREVA during the course of seven pilot projects in 2006 and 2017 in the Quebec government:
  - 1.. For a project exceeding \$ 1M CDN (700 000 euros): a mandatory multi-criteria assessment would be carried out, wanted by the government or municipal authorities.
  - 2.. For a project between \$200,000 and \$ 1 M CDN: a certain degree of leeway for execution would be allowed to the public organization by the authorities.
  - 3.. For public projects of less than \$200,000 CDN: you should think about it twice rather than once...
- Of course, money is not the only determinant. Other factors can cause the business function “Assessing multi-criteria public projects” be judged useful or mandatory even if more than 10% of the budget is spent on the assessment alone.
- For example, if a public project is susceptible to be contested by pressure groups, such as: groups of citizens; militant unions; certain communities, or other.
- For example, if public audiences are required by law, regulation, or administrative policy.

- Cost relating to Evaluation of IT Public project variate from 12 100 \$CDN to 20 700 \$ CDN (for a Canadian experimentation in 2007 CDN dollars ) per project depending on :

- Project complexity.
  - Quality of project documentation.
  - Scope of project.
  - Quality of Support (internal, external)  
(i.e. access to the good person at the right moment...).
- Cost distribution is typically allocated as follow:
    - \$2,600 CDN in Training for 4 persons well versed in the kind of project to be evaluated.
    - \$7,900 CDN in Salaries for these 4 persons during the course of evaluation  
(approx. 42 hours each).
    - \$1,600 to \$10,200 CDN for needed support, according to criteria referred to above.

\* \* \*

## **CONCLUSION**

- Starting in mid-1990's and with the advent of the new millennium <sup>52</sup> governments of the industrialized nations have progressively proceeded towards the digital transformation of the state, enrolling citizens using information technologies and communications massively.
- Then emerged a large number of public projects in rapid sequence, soliciting the organizational capacity calling upon both internal and external resources and new competencies, attempting to coordinate and control the spread to the public sphere with a tighter management of the benefits and better assessment of public project values ongoing in a fast moving technological business environment and overall society.
- Several technological means have allowed the implementation of public services in various ways, namely the Electronic Service Delivery (ESD) in a transparent manner with open data, with the participation of citizens in a highly enhanced processing environment managing the information intelligently and contextually through big data, as well as applying artificial intelligence (AI).
- The world of Project Management (PM) has also been pressed across mutations starting in 2012 turning to the development of non-technical competencies called (Soft Skills) <sup>53</sup> then Agile Mode Agile in 2017 leading the way towards, what might perhaps be an eventual integration between Project Management and Change Management, flowing from implemented projects <sup>54</sup>
- Assessing public projects is surely a fascinating world, given the amount of literature and fundamental research, action, experimentation and concrete accomplishments in public organizations. The rigorous application of a multi-criteria assessment method to public projects quite unique for public organizations or even generalized across an entire administration is not an option, it is an obligation generating value on end for taxpayers and citizens in general.

***Doing the Right Thing Better, at the Right Time for the Project and the Organization.***

\* \* \*

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<sup>52</sup> Following the Y2K Problem huge experiment whose intent was to reduce the impact on systems and technologies IS/IT stalled in older format and poorly adapted to more modern computing, the exercise had positive fallouts by providing a useful base of information (registry) regarding prior software applications in existence as well as under development and the current computing assets and telecommunications in operation.

<sup>53</sup> Adding "Traditional project management (PM) mode" also called "Project Engineering" being "Project Management of Human aspects", whose non-technical competencies and mixed-mode approaches as presented in Version-6 in the Body of Knowledge PMBoK, 2017: Traditional PM mode + Human Aspects mode + Agile PM mode.

<sup>54</sup> This would represent Change Management (CM) -AND- Project Management (PM) integrated in the same Body of Knowledge (CPM) ... coincidentally the acronym of the first disk operating system I used in mid 70's ... (-:-)