

# How to measure the impact of an innovation team in advanced analytics for Desjardins, its members and clients?

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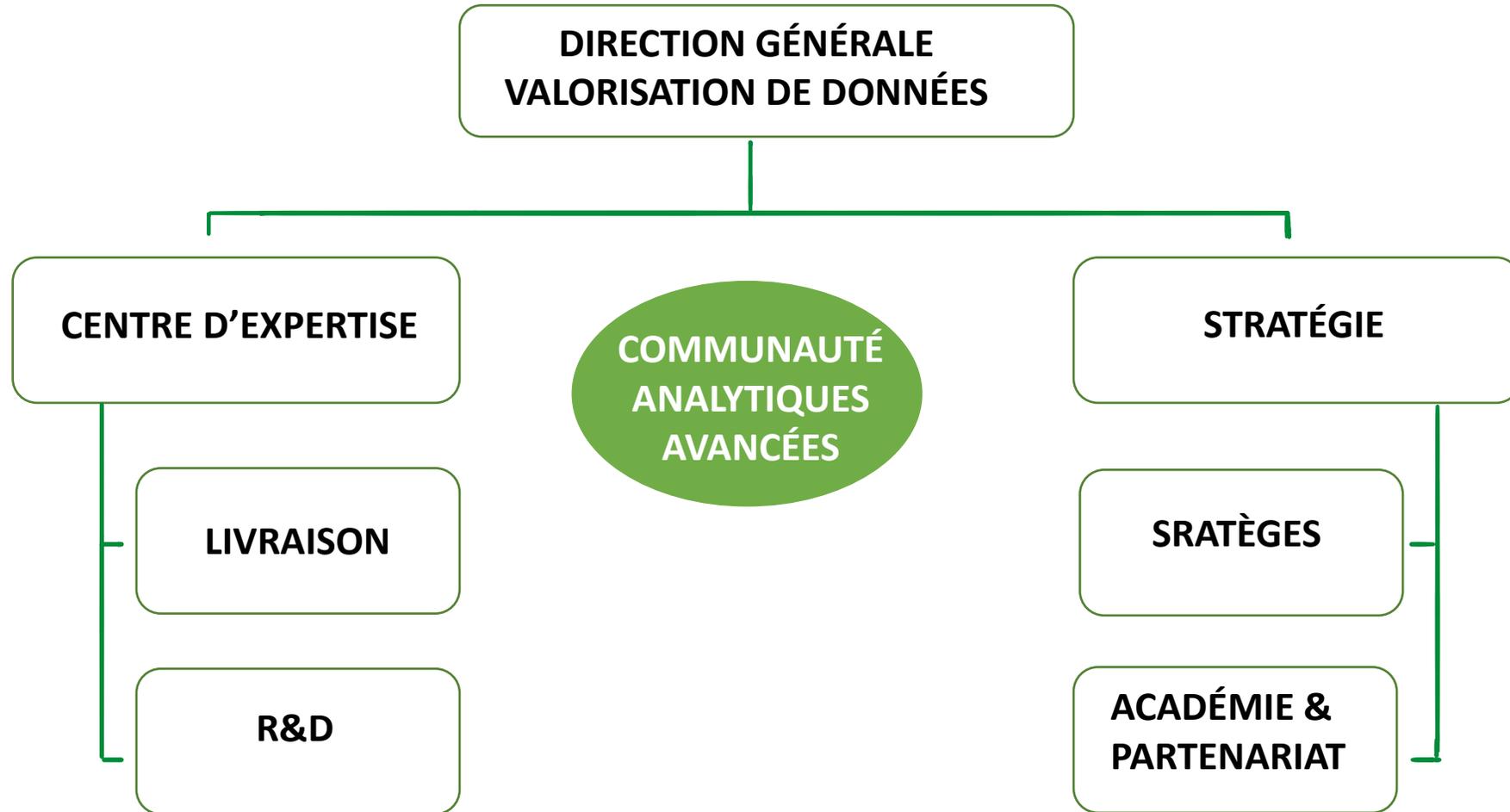
# PROBLEM DEFINITION

Metrics are vital organizational tools for directing and motivating members toward desired results. It guides actions, inform management on progress and enable improvement, which make them a suitable tool for high- performing organizations to support agile practices and behavior.

**CHALLENGE** — How to combine and align different measurement areas – as processes, systems, infrastructure, and social & human subsystems – in an advanced analytics context ?

**CASE STUDY** on « Academia & Partnership » and « Advanced analytics communities » teams of Desjardins' « Direction Principale Valorisation de données ».

# STRUCTURE of DATA VALORIZATION BUSINESS UNIT



## CREATE A METHODOLOGY

- The general impact of the DP could be seen with a perspective on time and space.
- **TIME** ; for the necessity in research and development to seize scientific potential and transform it in a useful tool for business lines. This process needs specific knowledge both on science, market and implementation that takes time to apprehend.
- **SPACE** ; for the scope of the impact inside and outside the organization. Do the activities involve different teams, departments, communities; do they involve external people and organizations?
- Between these two dimensions of time and space, there is the whole question of information flows, exchanges (formal and informal); and their simplicity of creation and access.

# RESEARCH METHODOLOGY - Interviewee Selection

## PERSONAS

Mounia : Data Scientist



Sima : Research Scientist



Samir : Director - Data Valorization



Samuel : Director – Mortgage Management Info.



Julian : Strategist - Insurance



Isabelle : Vice president  
"Strategy, data et client knowledge"



Julie : HR Data Analyst



## TEST INTERVIEWS

Distribution of Participants by Role	Number of Interviews
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Delivery Data Scientist	2
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R&D Data Scientist	1
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Strategist	3
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# WHAT WE LEARNED 1

## Difficulties in Measuring the impacts at the current time

- It is difficult to know where the activities and initiatives came from
- The required hindsight for evaluation was not permitted due to the new configurations of general director
- However, the roles of Academic & Partnership and community pillars are found essential by their stakeholders, despite their impact could not be measured quantitatively

## WHAT WE LEARNED 2

### Popularization or deepening of knowledge

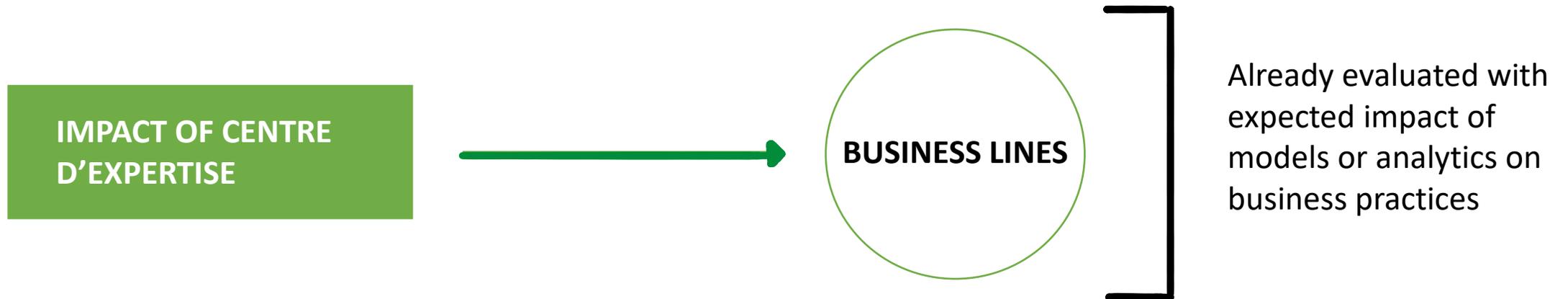
- Community in advanced analytics activities previously reserved for R&D and Delivery teams
- Today, invitations are sent to a larger number of people (strategists, business units).
- The impact of the Community on technical performance may therefore be limited

## WHAT WE LEARNED 3

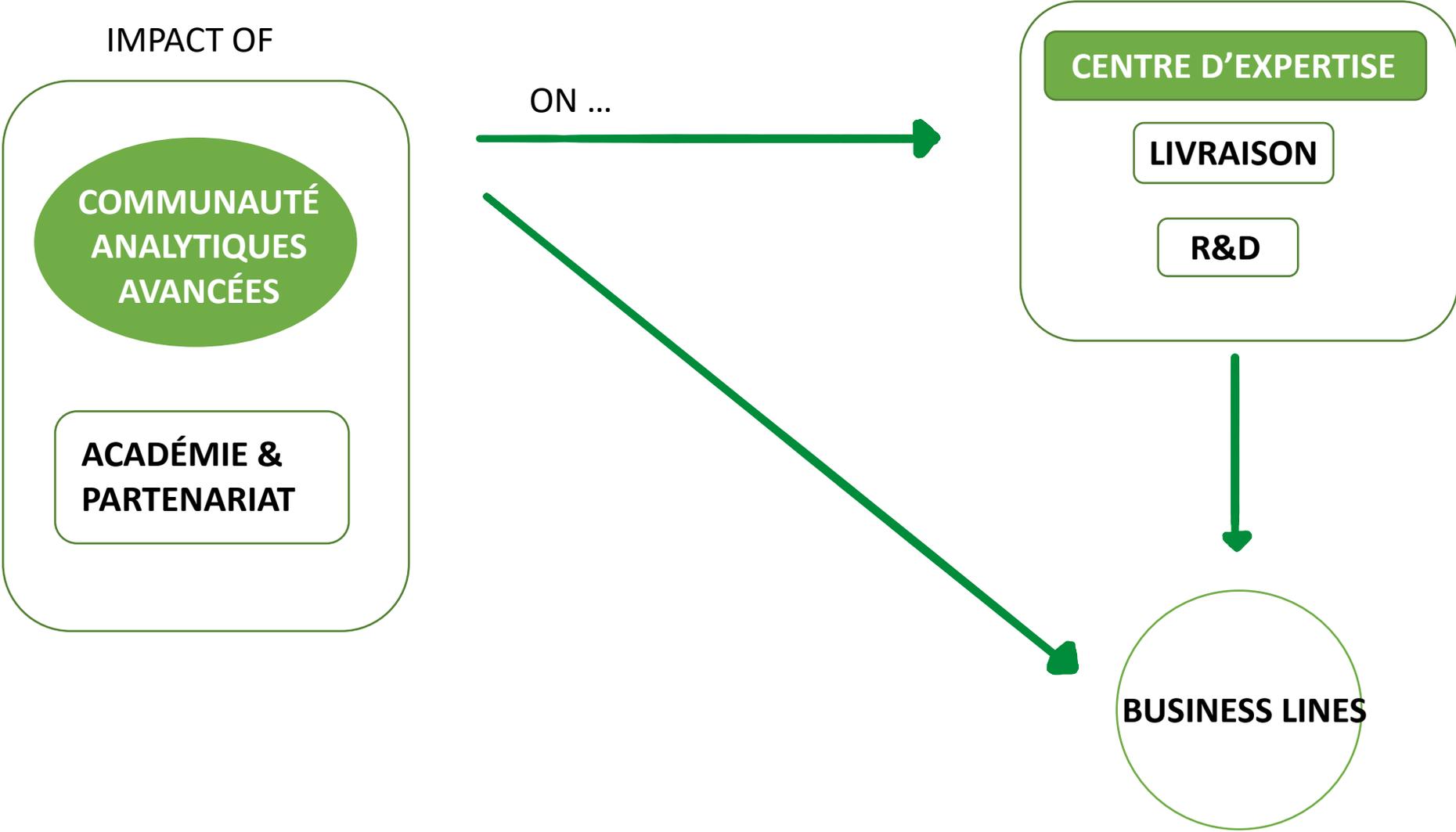
### A broadcasting issue

- Desired levels of involvement to facilitate access to community activities “We can imagine three levels of interest :
  - 1- **personal interest** (to know more about a subject, to learn)
  - 2- **visualization of needs** (business sector, customers, new technologies)
  - 3- **needs for daily work** (need for technical knowledge)”
    - Internal team channels (a form of **sub-community**) on very specific topics (Python code, R, NLP...)

# WHAT IS ALREADY MEASURED?



# WHAT DID WE MEASURE ?



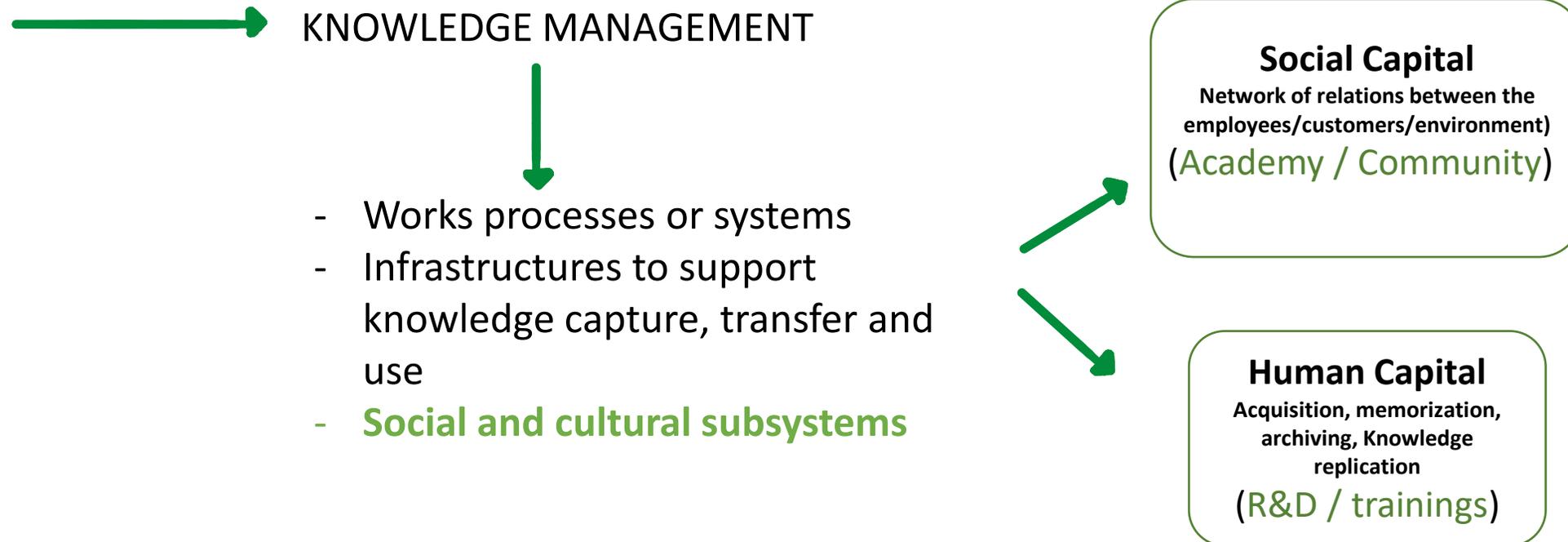
# EVALUATION CRITERIA

CRITERIA	DEFINITION
<b>Productivity</b>	Ratio between production and all the inputs required to produce it. Measure of the effectiveness and how taking advantage of resources.
<b>Efficiency</b>	Make things the right way.
<b>Reactivity</b>	Ability and responsiveness of steering faced with an unexpected event.
<b>Agility</b>	Adaptability of processes.
<b>Sustainability</b>	Ability to be maintained to a great level of knowledge and performance through time (science and market); (employees retention, renew partnerships).
<b>Robustness</b>	Ability to withstand disruptive fluctuations of uncontrollable factors.
<b>Reliability</b>	Ability to reduce the chance of malfunctions in processes (time, budget) or final product.

# LEARNING CAPACITIES & KNOWLEDGE MANAGEMENT

**Learning Capacities** : The ability to perceive and understand the environmental conditions - science, technology, market, implementation. This entails the building, sharing, and integration of a knowledge structure representative of reality.

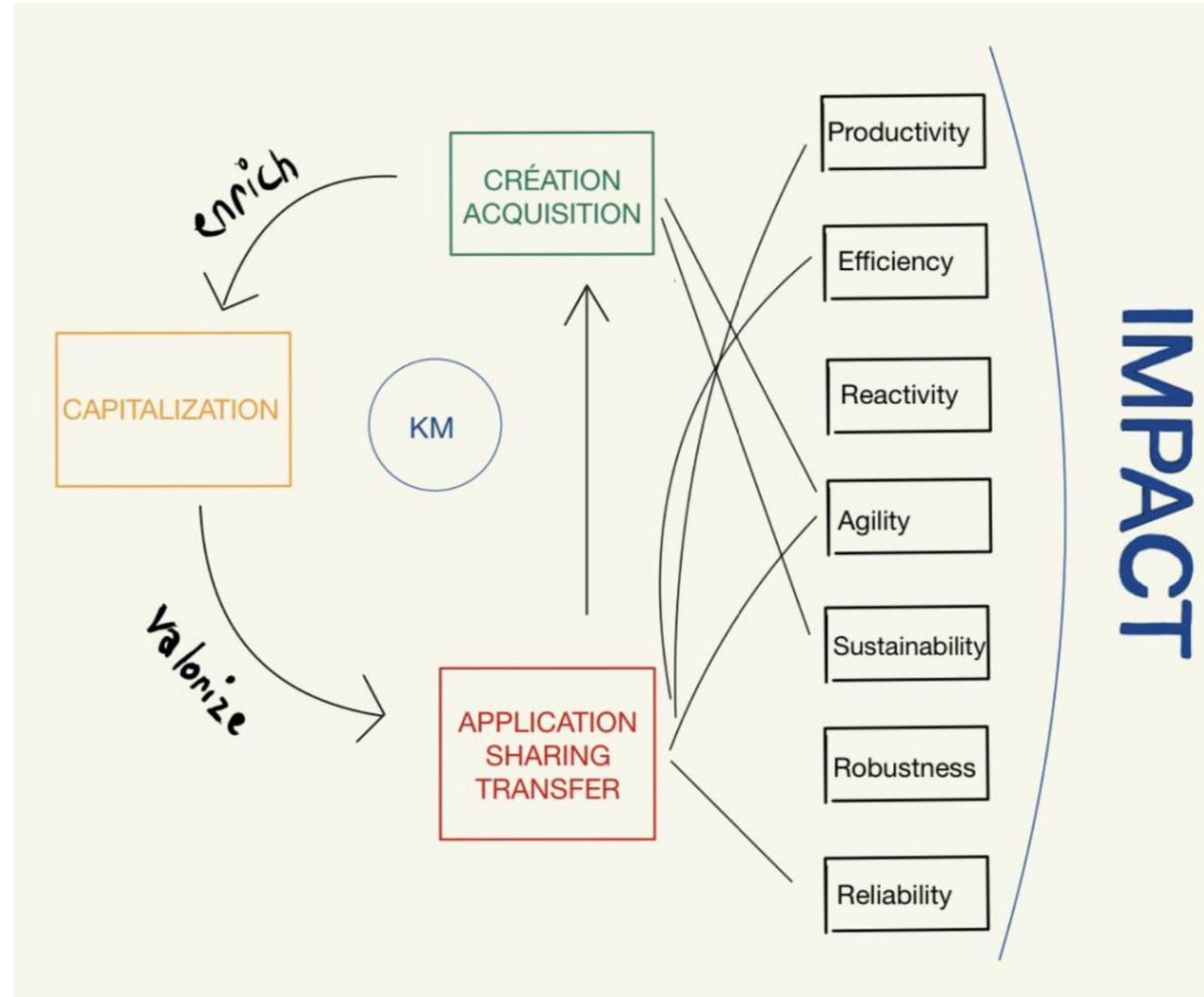
Prieto, I. M., & Revilla, E. (2003). The social approach of knowledge management: The effect on the organizational learning capacity. Working paper.



# KNOWLEDGE MANAGEMENT TITLES

Titles	Definitions and Cractristics	Expected Inputs	Teams
Knowledge <b>ACQUISITION</b>	Recourse to external experts	Agility & Reactivity	Partenariat
Knowledge <b>TRANSFER</b>	Interaction between people and/or groups/activity.  ... requires a commitment of actors and organizational support (infrastructure, animators, time clearances).	Profitability	Communauté
Knowledge <b>SHARING</b>	Collective dimension where every person of development team makes its contribution to the company intelligence and memory.	Productivity	Communauté & Académie
Knowledge <b>CREATION</b>	Faculty to adapt and to design. Solve problem smartly and overcome obstacles and predict needs.	Robustness	Stratégés & Académie
Knowledge <b>CAPITALIZATION &amp; APPLICATION</b>	Action to extract, formalize and preserve the knowledge acquired and held in the daily practice of an activity - Retain and secure the company's memory.	Effectiveness, efficiency.	Académie

# Evaluation and Measure of Knowledge Management Impact on Performance Evaluation Criteria



# THE METHOD OF IMPACT MEASUREMENT

1 – Enter our methodology and data capture into time (T0, T1, T2)

The Delphi procedures usually comprise three rounds of survey at least.

**FIRST ROUND (T0)** aim to solicit opinions on a certain issue in an open-ended way from the expert panel. This is what we did with the first six interviews but it should be generalized to a broader panel within the Direction générale. It constitute the T0 period.

**SECOND ROUND (T1)** consist to ask panelists to rate the statements in a questionnaire according to their opinions on the subject. This relate to our T1, and consist to rate the statements from 1 to 5.

**THIRD ROUND (T2)** is about asking panelists to reassess the ratings in the light of the consolidated results from Round 2. It will end in our case to the question “What if those kind of activities, intuitives would have not exist?”.Rounds of the survey may continue until a consensus among panelists can fulfil the requirement on some or all of the items.

# STEP 1 - Evaluating KM elements impact on each evaluation criteria

	Team	T0 Expectations and feeling	T1 1 year evaluation	T2 2 years evaluation	Measure of ...
<b>Knowledge Acquisition</b>	Partnership	Does recourse to external experts would be helpful to improve your skills?	Think about specific partnership or external intervention and evaluate its impact on your capacity to apprehend your tasks ? 1 2 3 4 5	What if this kind of initiative had not existed? It would impact the efficiency of your work capacity at which terme ? 1 2 3 4 5	<b>Efficiency</b>

Short : 1  
Medium : 3  
Long : 5

	Team	T0	T1	T2	Measure of
<b>Knowledge Transfer</b>	Communauté	Does activities or structure allowing a great translation of needs for customers or business units	Rate the capacity of activities to help you better understand the clients/ business unit needs 1 2 3 4 5	What if Community activities didn't exist ? How would it impact the capacity the seize the needs ? 1 2 3 4 5	<b>Efficiency / Productivity / Robustness</b>

## STEP 2 – Relative impact

Calculating the relative impact of each KM elements on the evaluation criterias set

<div style="text-align: center;">KM</div> <div style="text-align: center;">ACQUISITION</div> <div style="text-align: center;">TRANSFER</div> <div style="text-align: center;">SHARING</div> <div style="text-align: center;">CREATION</div> <div style="text-align: center;">CAPITALIZATION</div> <div style="text-align: center;">APPLICATION</div> <div style="text-align: center;">TOTAL</div> <div style="text-align: center;">%</div>	ACQUISITION	TRANSFER	SHARING	CREATION	CAPITALIZATION	APPLICATION	TOTAL	%
<b>Productivity</b>								
<b>Efficiency</b>								
<b>Reactivity</b>								
<b>Agility</b>								
<b>Robustness</b>								
<b>Sustainability</b>								
<b>Reliability</b>								
	<b>TOTAL</b>							
	<b>%</b>							

The impact of each KM elements on all evaluation criteria will be determined by:

$$I = \sum (\text{Performance criteria} * KME_j)$$

The impact of all the KM elements on every criteria will be determined by :

$$J = \text{Performance criteria} * \sum KME_j$$

## BETA Method - T1 / T2

The BETA method as a way to be measured on the measured impacts and not to overestimate it

- A mixed measurement technic based on first-hand data gained through interviews that can be applied in different scales.
- It measures the impacts through :
  - A **quantitative way** to formulate a minimum estimation of an impact and through
  - A **qualitative way** with the added values from interviews that can not be addressed quantitatively

## BETA Method - T1 / T2

The minimum financial effect of Academia & partnership team activities  
(fictional examples)

Partnership activities	The alternative	The average cost of the alternative
Two-month saved with the solution proposed by a MITACS agent	Two-month of average salary of an expert in administration aware of data science industry	20 000 CADS for two months
Contributing on changing the Knowledge management culture	Hiring a consultation firm specialized on this field	40 000 CADS per year
<b>TOTAL</b>		<b>60 000 CADS</b>

## CONCLUSION

- DYNAMIC SYNERGIES through **SOCIAL CAPITAL & HUMAN CAPITAL**
- A replicable methodology for different departments of Innovation