# Modelling chains of critical events using a schematic timeline, a methodological tool for the retrospective study of cases of local intersectoral action


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**Methodological tool that simplifies our lives**, as researchers, as part of a **retrospective multi-case research** study of local intersectoral action projects, **using the critical incident technique (CIT).**

**A methodological tool that we want to share with you** although it is still being refined.

Your comments and suggestions are welcome!

# Presentation outline

## PART 1

1. What is a critical incident ?
2. Memory fades in retrospective studies
3. The solution we propose

## PART 2

4. Schematized timelines and maps of mobilized networks
5. The results
6. Limits
7. Conclusion

# 1. The critical incident technique Historical overview

- The critical incident technique (CIT) was developed in 1944 (Flanagan, 1954)
- It has its roots in **industrial psychology**. (Leclerc et al., 2009)
- Classification and selection procedure of US Army Air Force air crew (Flanagan, 1954): the **truly essential requirements** for **the success of a mission /job, etc.**

**Nowadays, CIT is a qualitative research methodology that is widely used** (Butterfield, 2005).

- It is recognized as an effective exploration and investigation tool (Woolsey, 1986; Chell, 1998; Butterfield, 2005). in several disciplines (Butterfield, 2005):

# 2. Definition

## THE DEFINITION OF A CRITICAL INCIDENT

- A CI is defined as **any action that has had a positive or negative impact on an intervention, a project, an activity, etc.** (Borvil et al., 2018)
- A critical incident **does not need to be a spectacular event** (Cordeiro, 2016)
- A CI constitutes a thread of key events that lead (or do not lead) to the desired effects.

## THE CREDIBILITY OF EACH CRITICAL INCIDENT

Is based on the level of detail provided by the participant regarding that particular event (Flanagan, 1954):

- **full, precise details given** about the incident itself (Butterfield, 2005)

## SAMPLE SIZE

**The number of critical incidents required: No simple answer!**

(Flanagan, 1954)

- 50 or 100 critical incidents: a simple activity, job or intervention;
- 1000 – 1200 critical incidents: for a semiskilled or skilled job/semi-complex intervention, activity, etc.;
- Up to 4000 critical incidents: highly complex job, intervention, activity, etc.;

# 3. The memory fades

## STUDY #1 – Short term : 1-2 weeks

A project undertaken in 1948 by the American Institute for Research revealed: **selective recall of dramatic or other special incidents.**

| GROUPS UNDER STUDY | FREQUENCY OF REPORTING INCIDENTS |
|---|---|
| Group A | Recorded incidents daily = **315 CI** |
| Group B | Reported incidents at the end of each week = **155 CI** |
| Group C | Reported incidents only at the end of the two-week period **= 63** |

**Imagine after 7-12 years!**

Flanagan, 1954, p. 5

## STUDY #2 – We have forgotten!

**A refresher was given at the beginning of the focus group. Most of the participants:**

- Had forgotten about some events in which they were involved 3–4 years ago.
- Throughout the individual interviews, participants **struggled to define the events**, even though the list had been sent prior to the interview.
- Most participants **found it difficult to describe "an event" in detail** without mixing it up with other events."

Borvil et al., 2018

# Bias and challenges that we can overcome !

**QUESTIONS :**

1. In a retrospective context, **how can we get the finest level of information**: **with the most critical incidents** with as many specific details as possible?

2. **How can we help refresh the memory of interviewees** without having them reread all their reports all the while maintaining the methodological rigour and ensuring an accurate chronology of events?

3. As researchers studying multiple case studies, **how can we see the critical incident database quickly** to understand the story of the project (case study) instead of reading a report each time and perhaps forgetting important details?

# 4. The solution we propose…

The **use of schematized timelines** and maps of mobilized networks.

During interviews, the **schematized timelines** facilitate the reconstruction and validation of the storyline, critical incidents and the processes for studying intersectoral actions retrospectively.

# Our project

## LOCAL INTERSECTORAL ACTION PROJECTS

Carried out and developed by the Montreal Neighborhood round tables.

## OBJECTIVES

Validate the **systemic model of transitory outcomes** which represent the change processes that lead to the effects (Bilodeau et al., 2018).

Highlight the significant events that are **markers of progress** towards the desired effects in the living environment.

# Methodology

**DOCUMENT REVIEW about the project and its context**

**Using three (3) kinds of data**

- Meeting minutes
- Other documents (i.e. : reports)
- Face to face interviews

**ANALYSIS #1**

Analysis from a grid : based on the actor-network theory

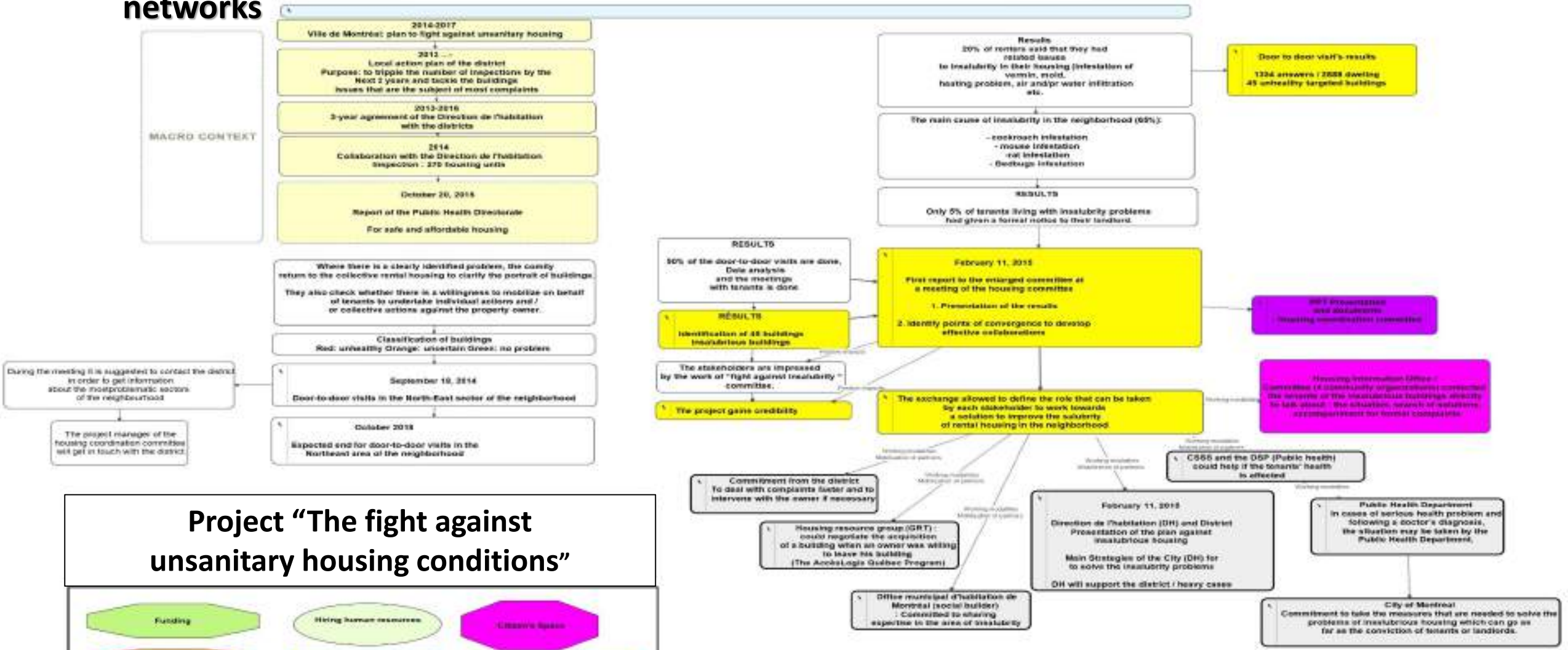
**ANALYSIS #2 - FROM THE CRITICAL INCIDENTS**

We created a **schematized timeline with the critical incidents and maps of mobilized networks**

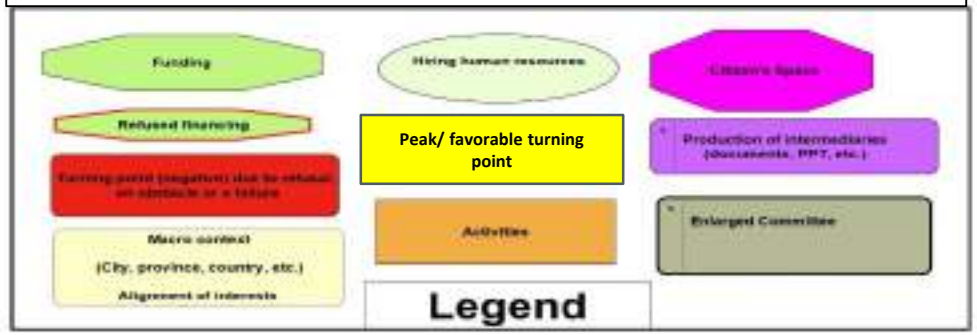
"The **Visual Understanding Environment (VUE)** is an Open Source project . http://vue.tufts.edu/

# 5. Schematized timelines and maps of mobilized networks

## Project “The fight against unsanitary housing conditions”
### Timeline – Phase 1
### Part 2- August 2014 to March 2015




## Project “The fight against unsanitary housing conditions”



# 5. Schematized timelines and maps of mobilized networks

# ZOOM-IN view

MACRO CONTEXT

2014-2017
Ville de Montréal: plan to fight against unsanitary housing

2013 ...
Local action plan of the district
Purpose: to tripple the number of inspections by the Next 2 years and tackle the buildings issues that are the subject of most complaints

2013-2016
3-year agreement of the Direction de l'habitation with the districts

2014
Collaboration with the Direction de l'habitation
Inspection : 270 housing units

October 20, 2015

Report of the Public Health Directorate

For safe and affordable housing

## ZOOM #1

Where there is a clearly identified problem, the comity return to the collective rental housing to clarify the portrait of buildings.

They also check whether there is a willingness to mobilize on behalf of tenants to undertake individual actions and / or collective actions against the property owner.

Classification of buildings
Red: unhealthy Orange: uncertain Green: no problem

September 18, 2014

Door-to-door visits in the North-East sector of the neighborhood

October 2018

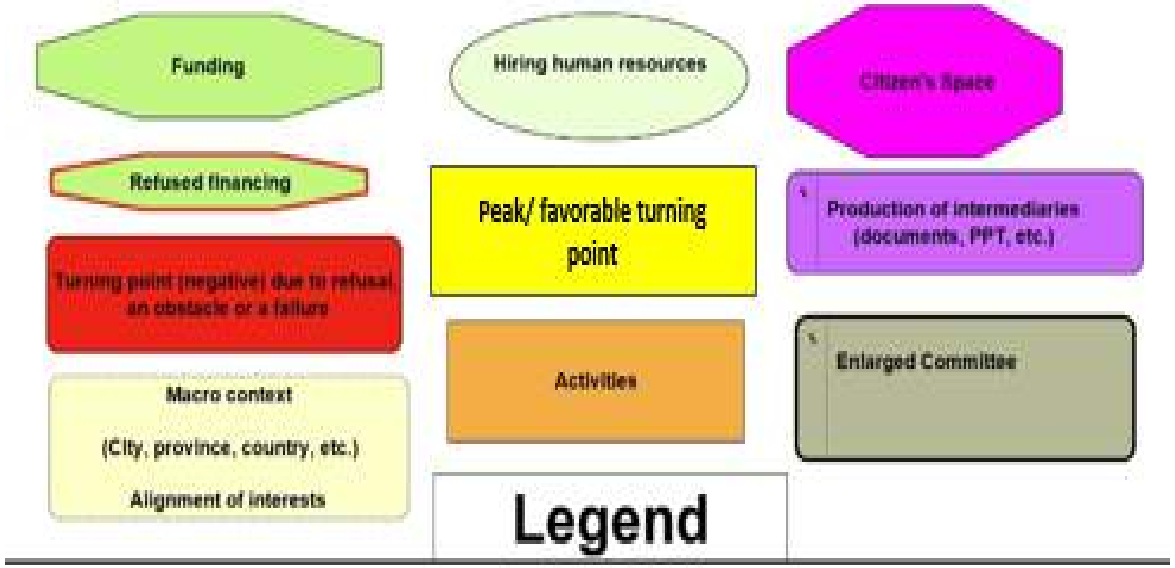
Expected end for door-to-door visits in the Northeast area of the neighborhood

e meeting it is suggested to contact the district in order to get information about the mostproblematic sectors of the neighbourhood

The project manager of the housing coordination committee will get in touch with the district.

## ZOOM #2

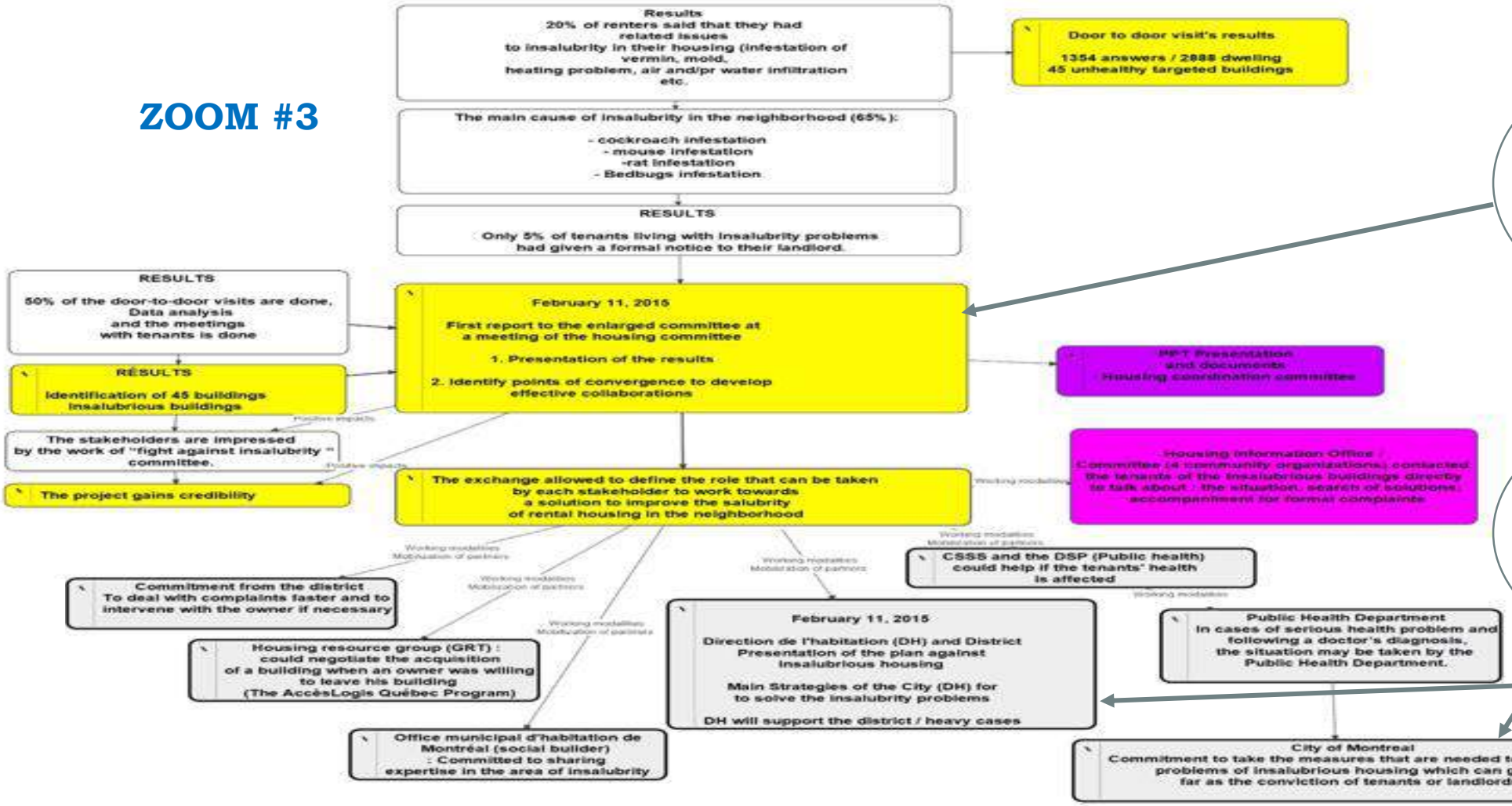
Project "The fight against unsanitary housing conditions"



# 5. Schematized timelines and maps of mobilized networks

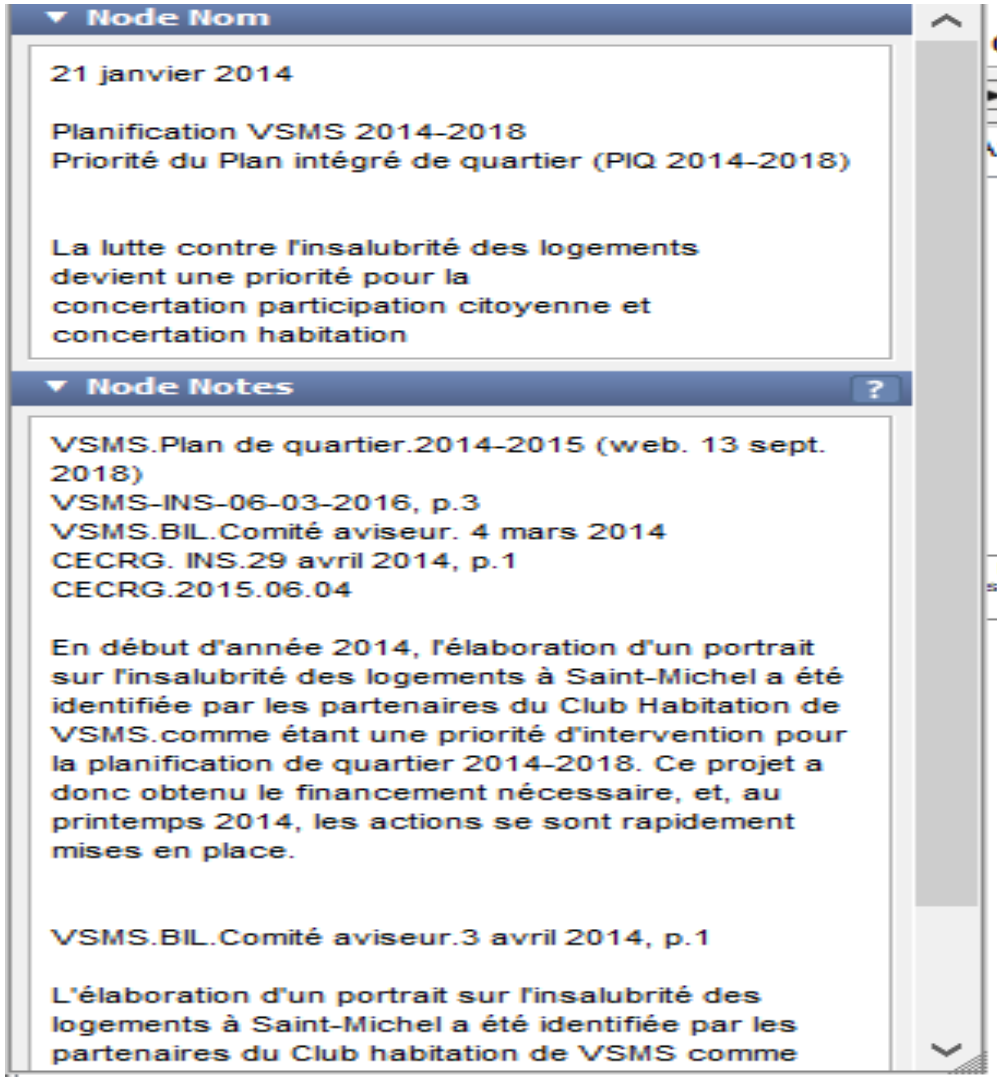
# ZOOM-IN view

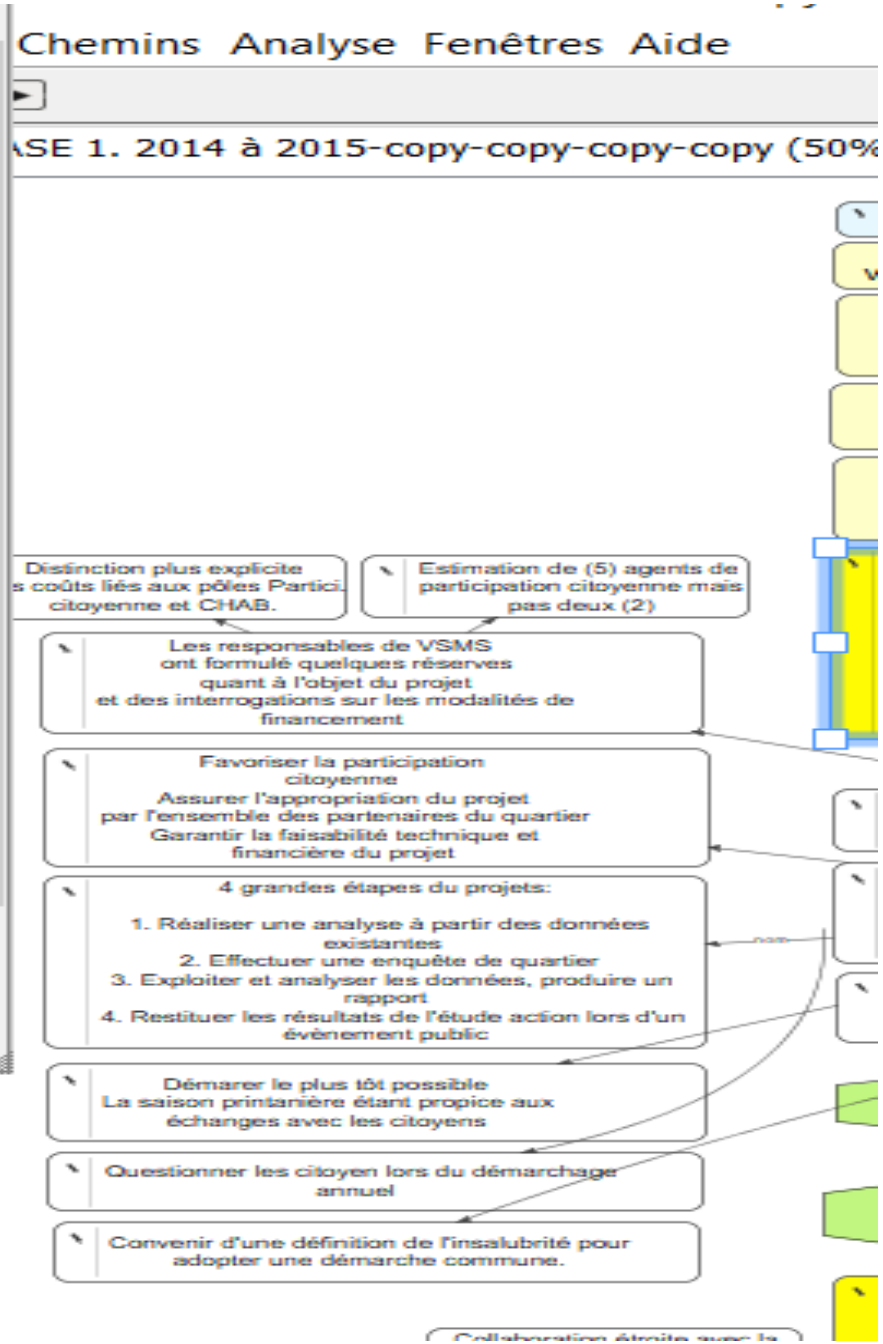
## ZOOM #3




**Peak, positive turning point for the project**

**Mobilized network of actors who have the necessary levers to enable change to take place.**




**Interesting feature**

# 6. The results

## HELPS US AS RESEARCHERS

- We see the critical incidents of a project quickly
- Team meeting to discuss the different case studies
- We can get the finest level of information
- The references are included.

## HELPS REFRESH THE MEMORY OF INTERVIEWEES

- It allows for quick and easy visual recall of past critical events and specific dates related to the project.
- Allows new employees to appropriate parts of the history of a project on which they work.
- A plus for them: the research brings us something.

Tested : 8 case studies and 18 interviews

# CREDIBILITY CHECKS

| | |
|---|---|
| 1. **Participant cross-checking** : second interview with the participant for validation. | X |
| 2. **The CI are then analysed by two team members and discussed with the researcher**. Critical incidents are either maintained, added, deleted, or amended. | X |
| 3. "Researchers routinely track **the point at which exhaustiveness or redundancy is achieved."** (Flanagan, 1954, Woolsey, 1986; Butterfield et al.,, 2005) | X |
| 4. **Reviewing of the categories by some experts** (Barbey, 2000, p.487) | X |
| 5. **Cross analysis of all the case studies** and statistics to determine if certain patterns emerge (adapted) | X |
| 6. **Theoretical validity:** "presence or absence of **agreement within the community of inquirers** about the descriptive or interpretive terms used." (Butterfield and al., 2005) | X |
| 7. The concept of **descriptive validity used to ensure accuracy**: work directly from the tapes, or to have them transcribed and work from the transcripts as a way of accurately reproducing the participants' words (Alfonso, 1997, Butterfield and al., 2005). | X |

Butterfield and al., 2005

# 7. Limits

| # PROJECTS | LIMITS/DIFFICULTIES |
|---|---|
| **8**<br><br>**18 interviews** | o 2 participants did not have time to read the documents prior to the interview<br><br>o Some simply could not remember everything<br><br>o Some participants **struggled to define the events**<br><br>o Some participants **found it difficult to describe "an event" in detail** without mixing it up with other events.<br><br>o Controversies |
| **1/8** | **WE HAD TO EXCLUDE ONE (1) OF THE PROJECTS:**<br><br>o We did not have **enough documents**<br>o **Lack of available stakeholders to interview**<br>o Project manager (retired) : left before the end of the project<br>o Controversies, delays, financial problems |

# Even if memories fade over a short period of time…

- ***Schematized timeline and map of mobilized networks*** are an innovative methodological tool that can be employed in a **retrospective research** study **using the CIT.**

- Although it is still being refined…

- We wanted to share this **methodological tool that simplifies our lives**, as researchers, hoping it will simplify yours as well!

CHAIRE DE RECHERCHE DU CANADA
APPROCHES COMMUNAUTAIRES ET INÉGALITÉS DE SANTÉ

IRSPUM
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# THANK YOU!

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# BIBLIOGRAPHY


- Bilodeau, A. & Potvin, L. Unpacking complexity in public health interventions with the Actor-Network Theory. Health Promotion International Advance Access. (2016); 1–9

- Bilodeau, A., Galarneau, M., Lefebvre, C. et Potvin, L. **Linking process and effects of intersectoral action on local neighbourhoods: systemic modeling based on Actor-Network Theory**. Social Science & Medecine. 2018; 41 (1): 165-179 https://onlinelibrary.wiley.com/doi/full/10.1111/1467-9566.12813

- Butterield, L. D., Borgen, W.A., Amundson, N.E., Maglio, A-S T. **Fifty years of the critical incident technique.** Qualitative research. Sage Publication. (2005); 5 (4): 475–497

- Borvil, A. D. , Kishchuk, N., Potvin, L. **The use of critical incident technique in population health intervention research: lessons learned. Int J Public Health** (2018) 63:429–430

# BIBLIOGRAPHY


- Chell, E. **Critical Incident technique.** In Symon, G. & Cassell, C. (eds). (1998) Qualitative Methods and Analysis in Organizational Research : A Practical Guide. Pp.51-72. London : Sage.

- Croisile, B. **Approche neurocognitive de la mémoire**. Fond. Nationale de Gérontologie. « Gérontologie et société ». (2009). 3 (32) : 11-29

- Durat, L. **Les expériences d'incidents critiques, des ressources pour le développement des compétences ?** Activités [en ligne]. (2014). http://activites.revues.org/1062

- Flanagan, J.C.. **The critical incident technique**. Psychological Bulletin. (1954). 51 : 4

- Figueiro, A.C., Oliveira, S. R. , Hartz, Z., Couturier, Y., Bernier, J., Freire, M., Samico, I., Medina, M.G., De Sa, R, F., Potvin, L. **A tool for exploring the dynamics of innovative interventions for public health : the critical event card**. Int. J Public Health (2017). 62 : 177-186

# BIBLIOGRAPHY


- Lea-Roback. **Quels sont les effets de l'action intersectorielle locale sur les milieux de vie et comment sont-ils produits ?** Le Point sur… l'action intersectorielle. 2018; 4. www.centrelearoback.ca

- Leclerc, Bourassa, B. et Filteau. **Utilisation de la méthode des incidents critiques dans une perspective d'explicitation, d'analyse critique et de transformation des pratiques professionnelles**. (2019) 11:4

- Figueiro, A.C., Oliveira, S. R. , Hartz, Z., Couturier, Y., Bernier, J., Freire, M., Samico, I., Medina, M.G., De Sa, R, F., Potvin, L. **A tool for exploring the dynamics of innovative interventions for public health : the critical event card**. (2017). 62 : 177-186



- Lea-Roback. **Quels sont les effets de l'action intersectorielle locale sur les milieux de vie et comment sont-ils produits ?** Le Point sur… l'action intersectorielle. 2018; 4. www.centrelearoback.ca



- Woolsey, L.K. **The critical incident technique: an Innovative Qualitative Method of Research**. Canadian Journal of Counselling. (1986). 20: (4): 242-254