



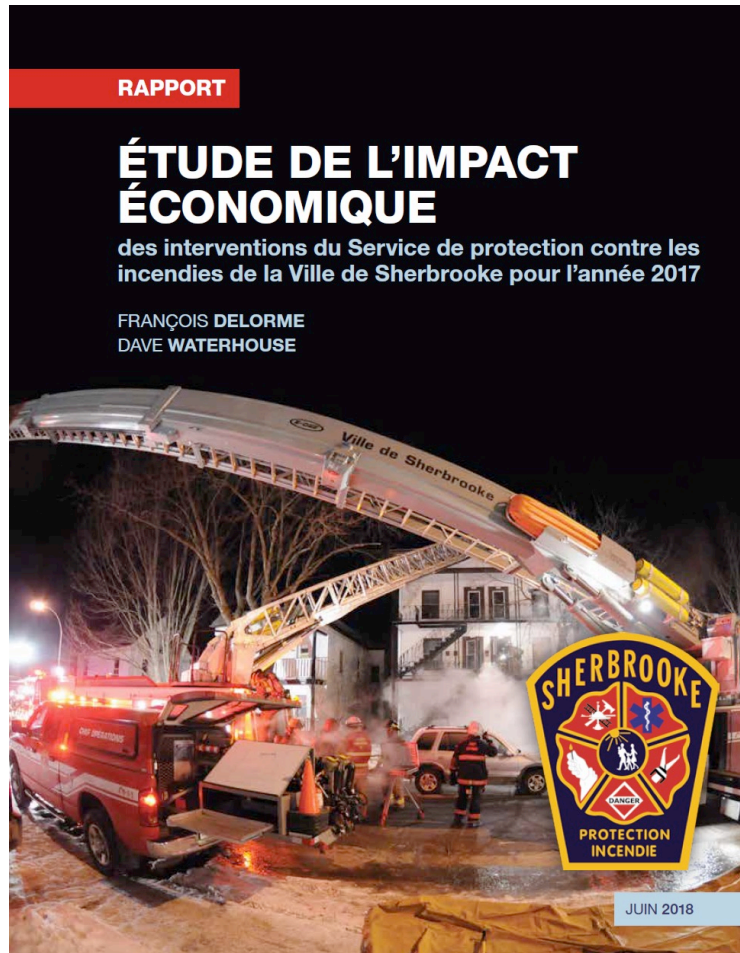
Citizens and cities facing new hazards and threats

30th November to 4th December 2020

The economic impact of a Fire Department's operational activities

Pr. François Delorme

M. Dave Waterhouse

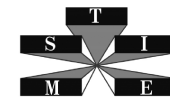


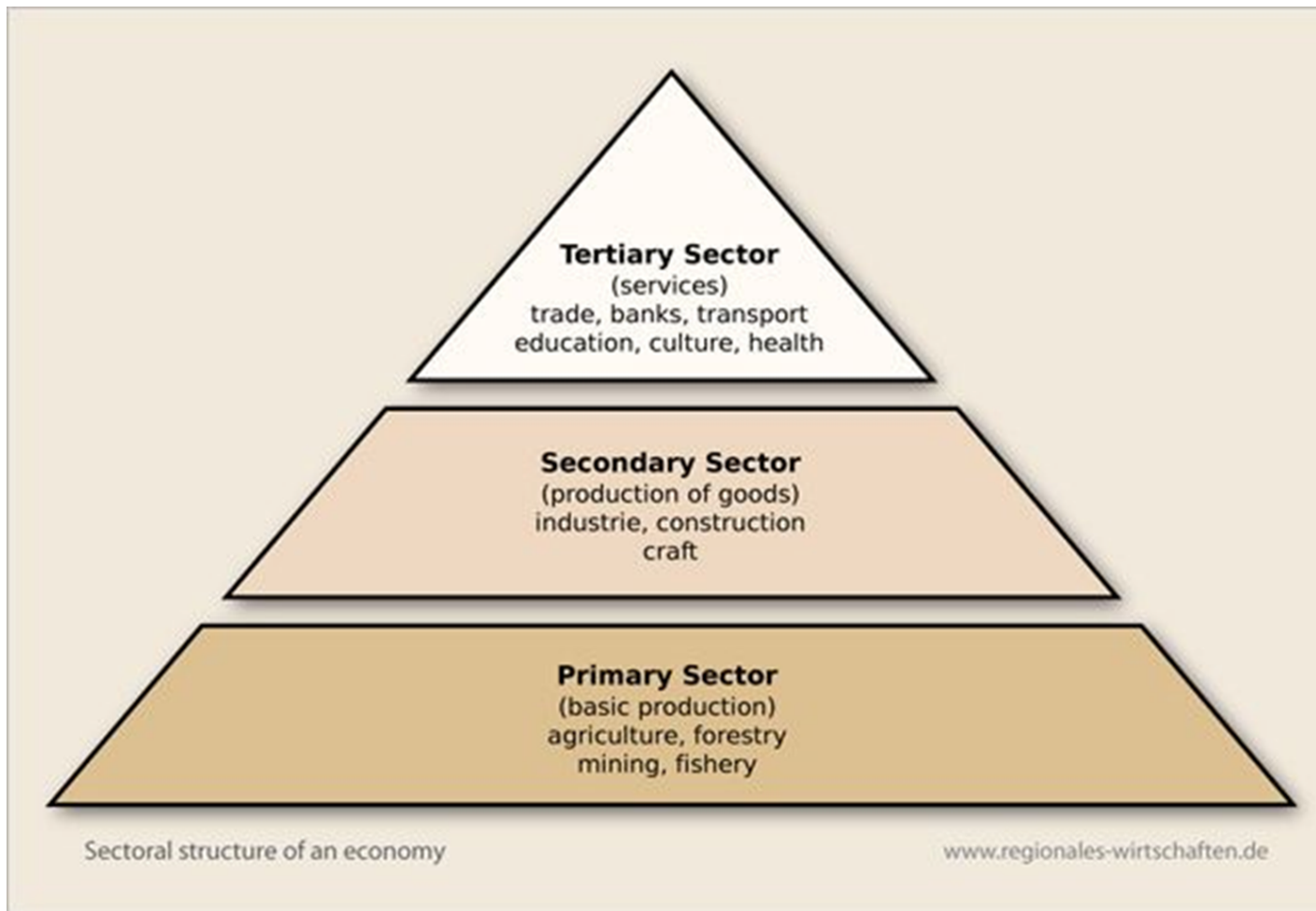
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OPERATIONAL ACTIVITIES

The main goal is to estimate the value of what was saved by the work of firefighters (economic impact) and not what was lost: *Sherbrooke FD case study*

- **Part 1:** Fires in commercial buildings
- **Part 2:** Economic value of interventions in a prehospital medical emergency
- **Part 3:** The strategic importance of protecting key economic sectors
- **Part 4:** Comparative analysis





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Methodology



Fires in commercial buildings (part1)

- Input-output modelisation
- NAICS code classification for each fire stricken business
- Personnel call to each business owner - business revenues for 1 year

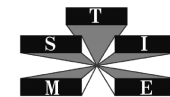
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Prehospital medical emergency interventions (part 2)

- Value of a Statistical Life
- Utstein chart to narrow down cardiac arrest victims, who got resuscitated by FF and survived without neurological disabilities



Methodology



The strategic importance of protecting key economic sectors (part 3)

- Analyse the main economic sector of a particular region / city
- Determine which of the economic sectors were mostly stricken by fires.

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Comparative analyses with other studies (part 4)

- Use different metrics to compare the results of other economic impact studies
- Create ratios that helps decipher trends and/or give more information on what topics should be deepened

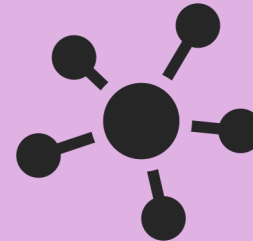


Empirical results



**SPCIS
effectively
saved a total
of 1,917 jobs
in 2017**






**The economic
value preserved
from the 10
businesses
affected was
\$368.8M for the
commercial
building fires**



**With a median
value of \$8.1M,
the total
economic value
for CRA calls in
2017 is
estimated at
\$64.8M**

**Given the total
generated value
of \$433.6M, it has
been
demonstrated
that every \$
invested in
SPCIS (\$20M
budget) in 2017
yielded a ROI of:
2,168%**



Summary Table						
						
Commercial building fire	Number of interventions	42	44	271	16	20
	Excluded	N/A	16	97	3	8
	Eligible	42	28	174	13	12
	Response rate	N/A	N/A	63%	84.6%	83.3%
	Final sample	42	28	110	11	10
	Economic value preserved	\$650M (US, 2012)	\$831M (US, 2014)	\$1.55B (2015)	\$63.3M (2017)	\$368.8M (2017)
	Number of jobs saved	7,446	10,082	20,903	695	1,917
FR-CRA	No. of persons in CRA	N/A	N/A	735	29	97
	CRA survivors	N/A	N/A	43	4	8
	CRA economic value	-	-	\$348M (2015)	\$32.4M (2017)	\$64.8M (2017)
Conclusion	Total economic impact	\$650M (US, 2012)	\$831M (US, 2014)	\$1.89B (2015)	\$95.7M (2017)	\$433.6M (2017)
	Annual budget	\$297M (US, 2013)	\$469M (US, 2014)	\$360.5M (2015)	\$20.1M (2017)	\$20M (2017)
	Return on investment	219%	177%	527.5%	478.5%	2,168%
Analysis	Total economic impact per intervention	\$15.5M (US, 2013)	\$29.7M (US, 2014)	\$17.2M (2015)	\$8.7M (2017)	\$43.4M (2017)
	Jobs saved per intervention	177	360	190	66	191

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Conclusion

SPCIS can no longer be considered as simply an expense, it rather represents an investment that has a direct impact on economic activity and employment in the city of Sherbrooke and the province of Quebec



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Other activities that can be studied to identify sources of economic impact

Case study: The economic impact of a FD's operations on highways

Cars stuck in traffic due to an accident represents an economic cost.

The economic activity is reactivated when the incident is being neutralized and the traffic is put back in movement, giving the Fire Department an economic impact of its activities on highways.

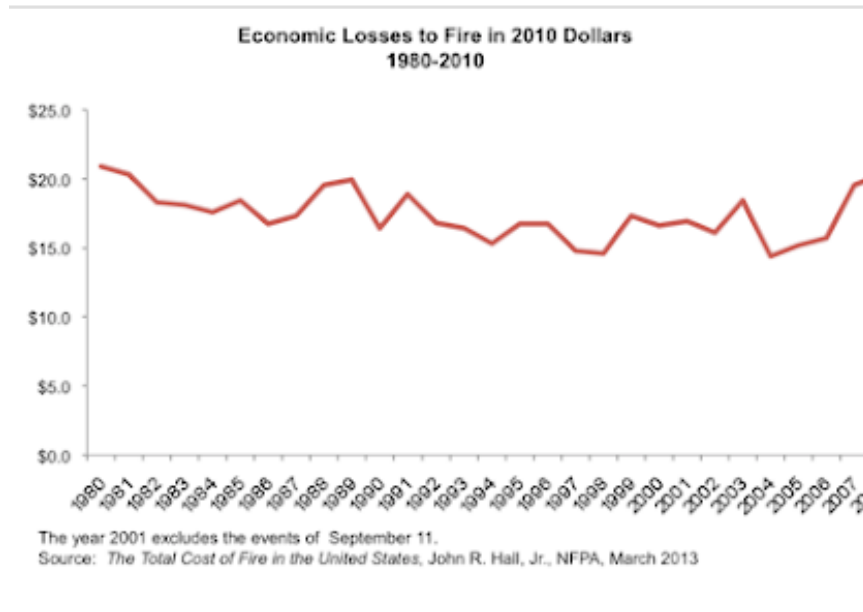




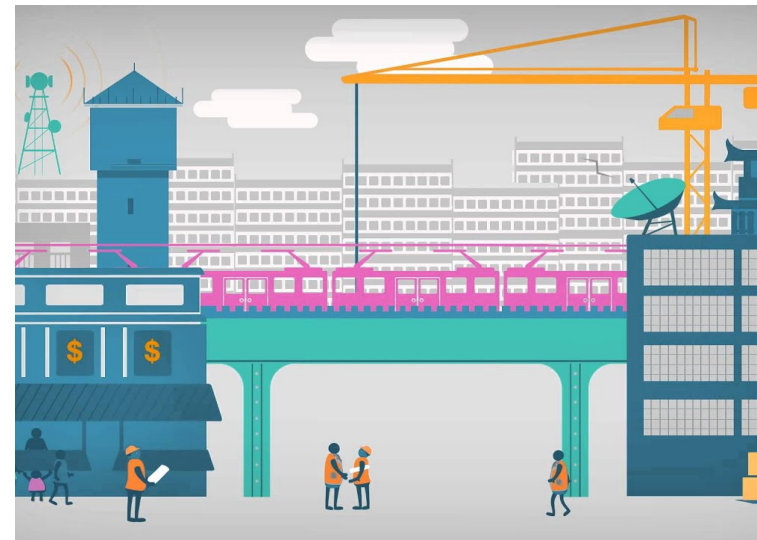
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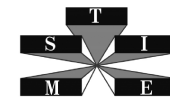
Study: The economic and socio-economic impact of Fire Prevention



Study: Total Cost of Fire in Canada 2020-...

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Questions?

Thank you!

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