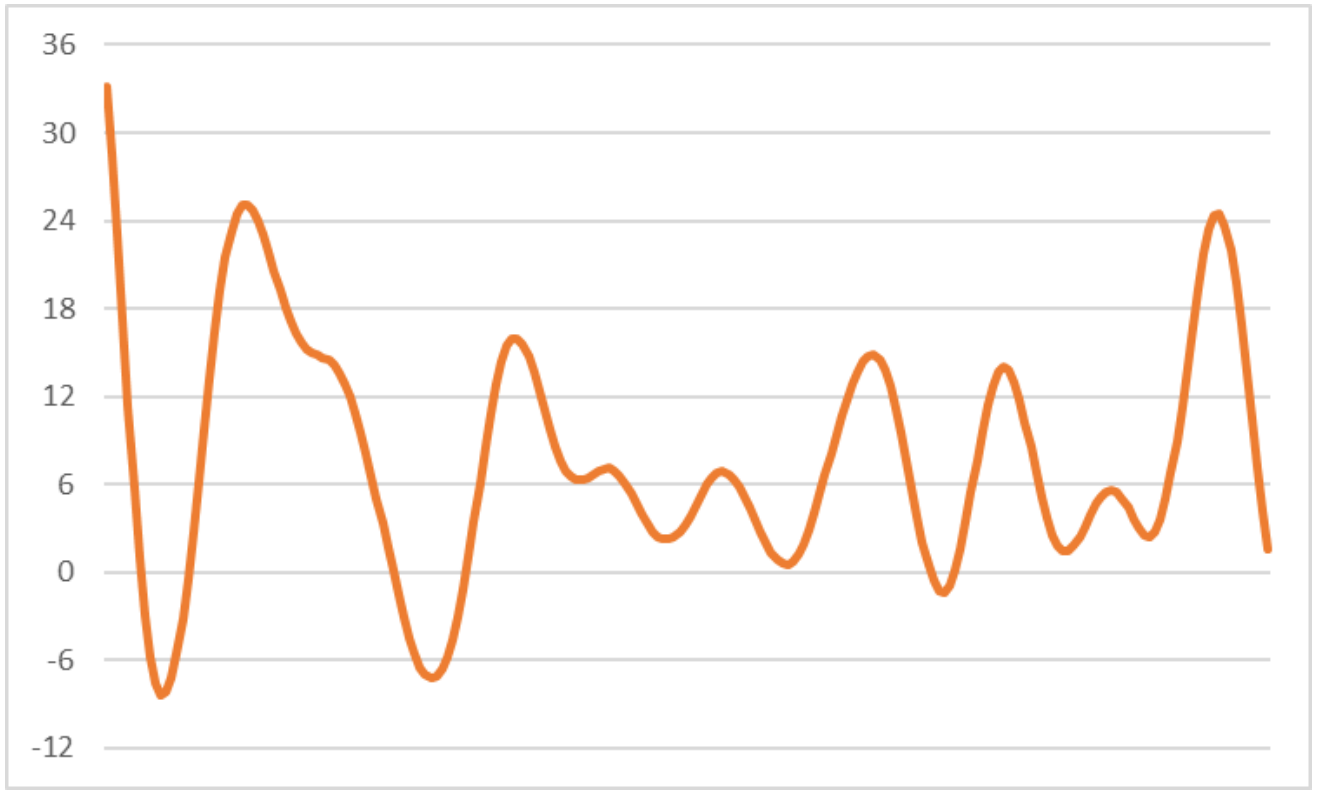
EUIPO
EUROPEAN UNION
INTELLECTUAL PROPERTY OFFICE

Trademark filings as leading indicators for the EU economy



CIPO-CIGI
5th Annual IP Data & Research Conference

Carolina Arias Burgos
EUIPO
24th March 2022

Cyclical analysis of EUTM filings

Annual rates of EUTM filings: turning points

Economic indicators: GDP, Domestic Demand, Confidence Indices, etc.

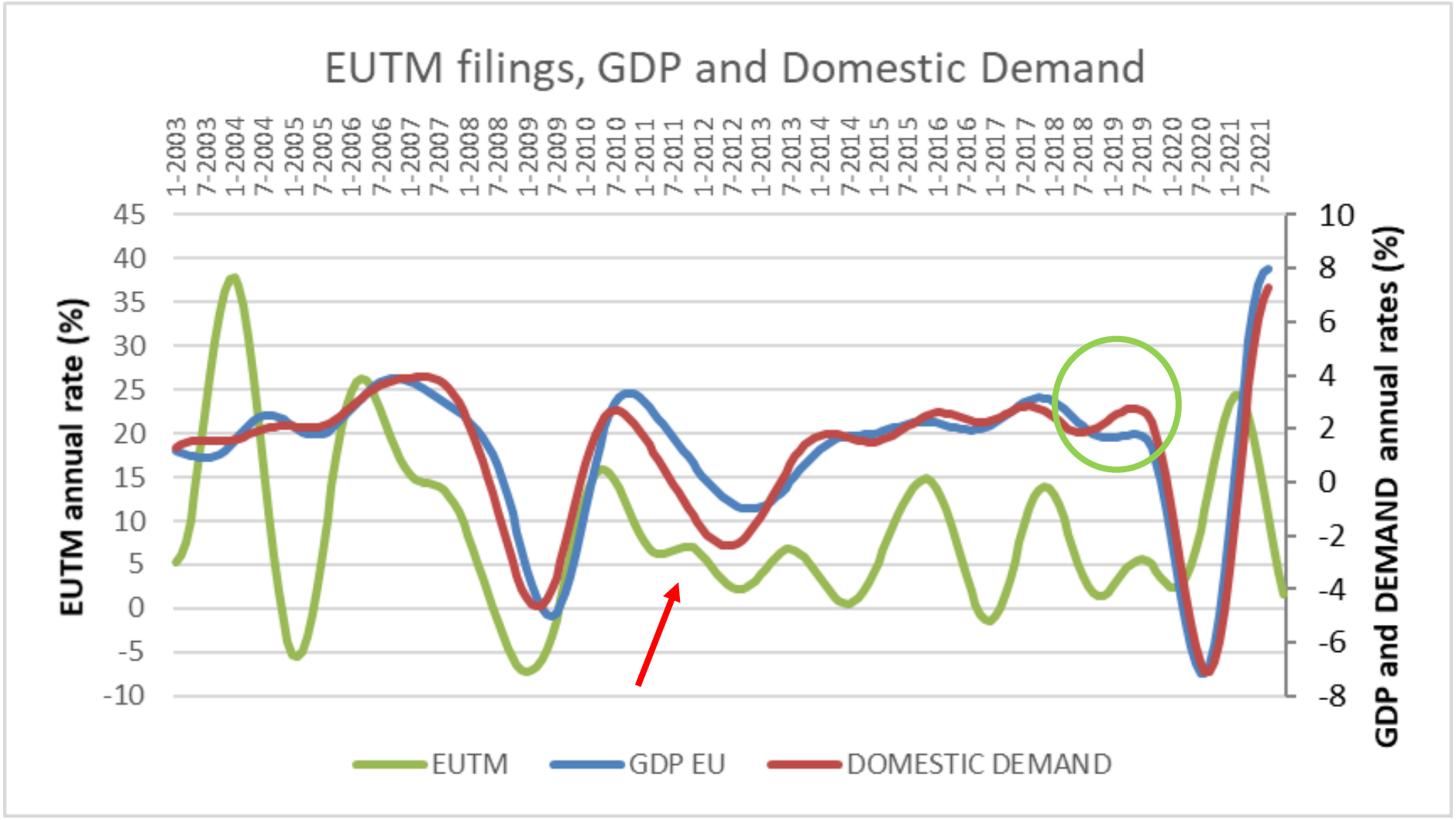
Cycles of economic indicators are compared with those of EUTM filings. Are they leading, coincident, lagging or acyclic? Which economic indicators are closer to EUTM filings trend?

Univariate models: monthly vs quarterly data

Univariate ARIMA models for EUTM filings are compared based on monthly and quarterly data: which models have better properties?

Multivariate VAR models (Granger causality)

Multivariate VAR models include EUTM filings and some economic indicators to improve forecasts.


EUTM filings, GDP and Domestic Demand
1-2003
7-2003
1-2004
7-2004
1-2005
7-2005
1-2006
7-2006
1-2007
7-2007
1-2008
7-2008
1-2009
7-2009
1-2010
7-2010
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1-2016
7-2016
1-2017
7-2017
1-2018
7-2018
1-2019
7-2019
1-2020
7-2020
1-2021
7-2021
45
40
35
30
25
20
15
10
5
0
-5
-10
EUTM annual rate (%)
10
8
6
4
2
0
-2
-4
-6
-8
GDP and DEMAND annual rates (%)
EUTM
GDP EU
DOMESTIC DEMAND

More economic indicators

- GDP excluding public services and agriculture
- Employment: total and excluding public services and agriculture
- Hours worked: total and excluding public services and agriculture
- **Gross Capital Formation**: total, machinery, transport and IP
- **Sentiment (confidence) indicators**: ESI (European Sentiment Indicator), industry, construction, services, retail, consumer
- **STS retail sector**: Retail sale (G47), non-specialized (G471), non-spec. with food beverages and tobacco predominating (G4711), other non-spec. (G4719), food, bev. and tobacco in specialized stores (G472) automotive fuel in spec. stores (G473), via mail and internet (G4791), food, IT and culture, textile, audio and visual, computers, medical, exc. food, exc. food and fuel.

More economic indicators

- GDP excluding public services and agriculture
- Employment: total and excluding public services and agriculture
- Hours worked: total and excluding public services and agriculture
- **Gross Capital Formation**: **total**, machinery, transport and IP
- **Sentiment (confidence) indicators**: ESI (European Sentiment Indicator), industry, construction, services, **retail**, consumer
- **STS retail sector**: Retail sale (G47), non-specialized (G471), non-spec. with food beverages and tobacco predominating (G4711), other non-spec. (G4719), food, bev. and tobacco in specialized stores (G472) automotive fuel in spec. stores (G473), **via mail and internet (G4791)**, food, IT and culture, **textile**, audio and visual, computers, medical, **exc. food**, exc. food and fuel.

Main findings:

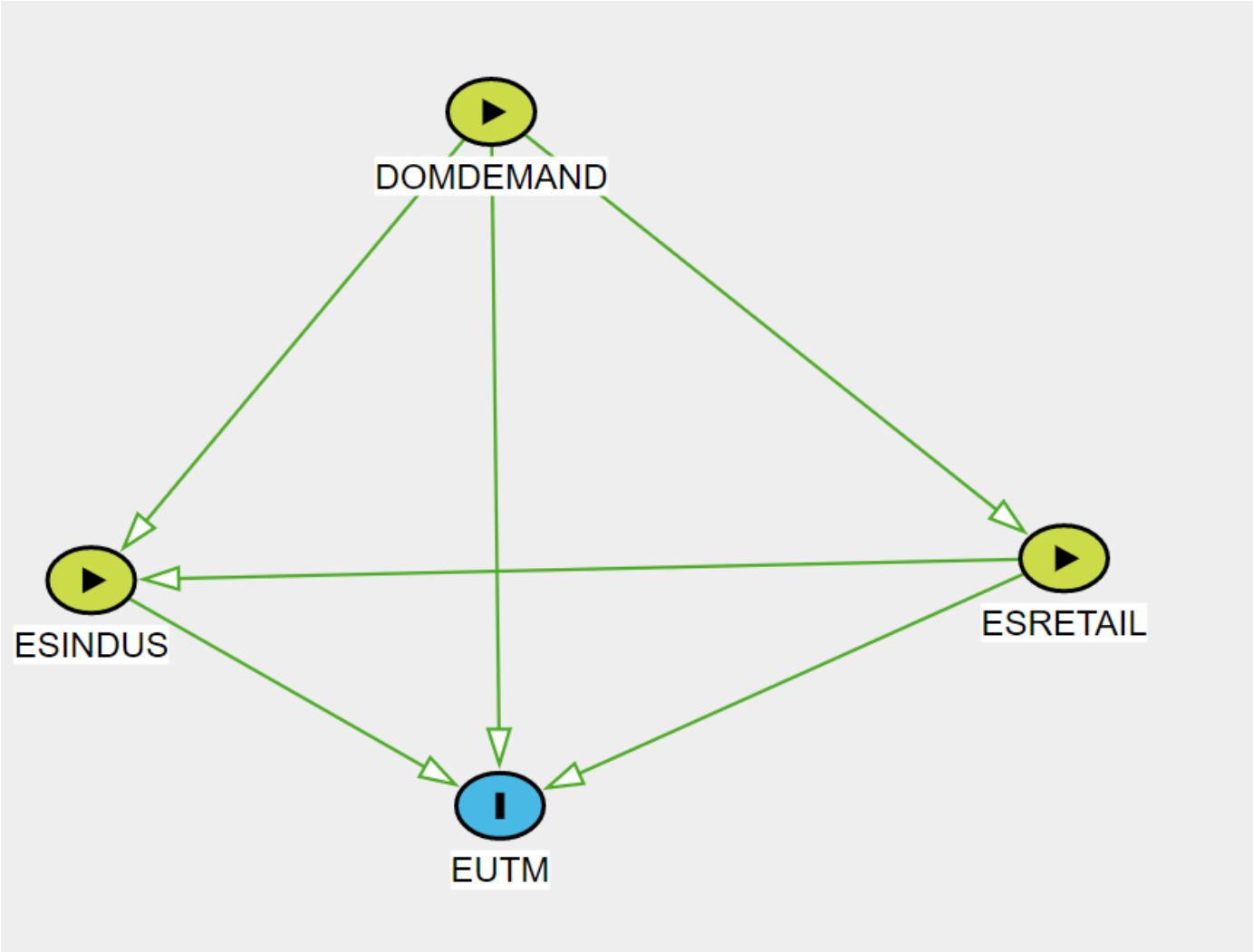
- Domestic Demand, Confidence indicator for retail sector and Gross Capital Formation have better cyclical correspondence with EUTM filings
- STS for retail trade sector: retail sales excluding food, beverages and tobacco and internet sales
- Better forecasts when EUTM registered from China are analyzed separately
- Quarterly univariate models have better than monthly univariate models based on fit of models and forecasts

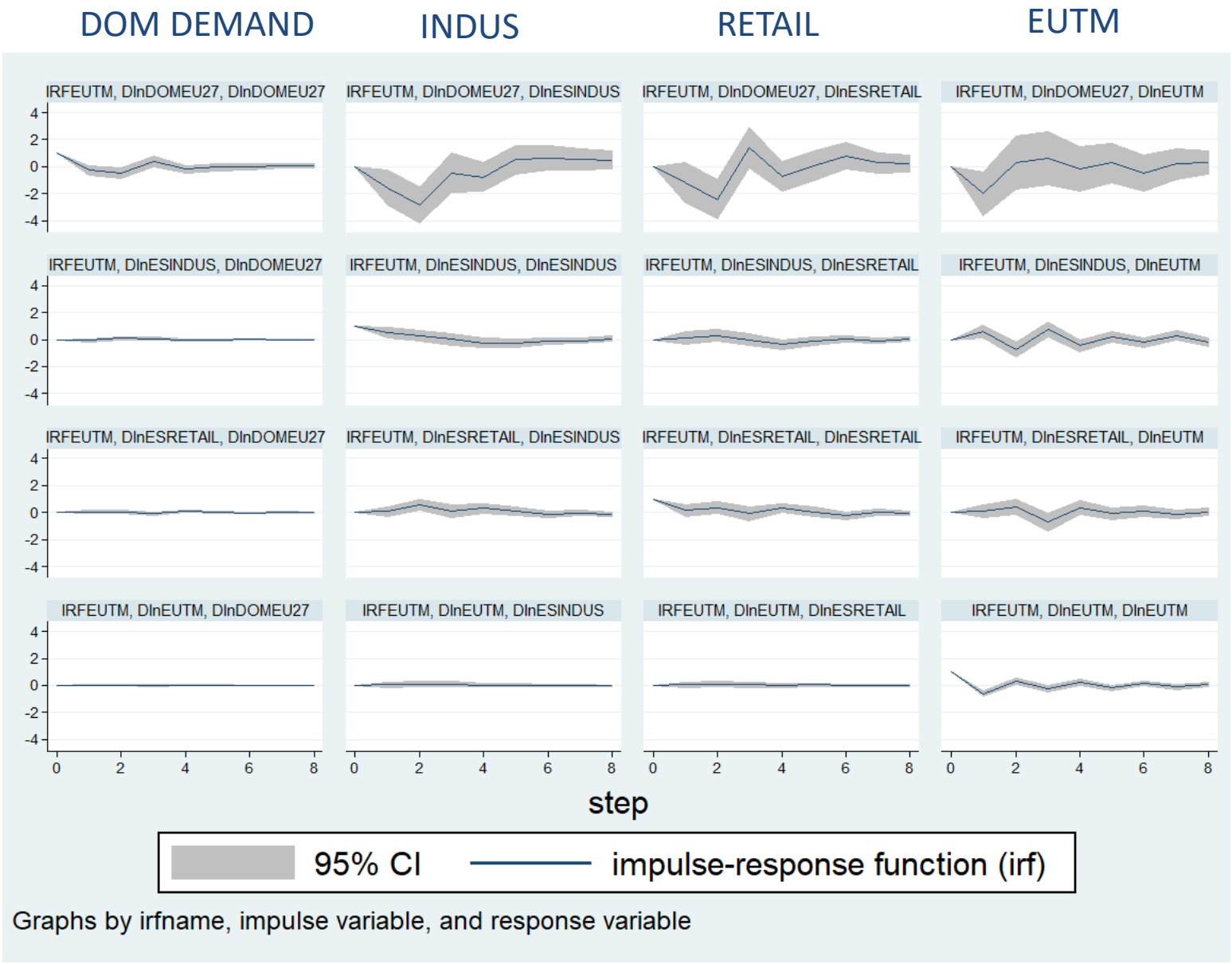
MULTIVARIATE analysis: VAR models

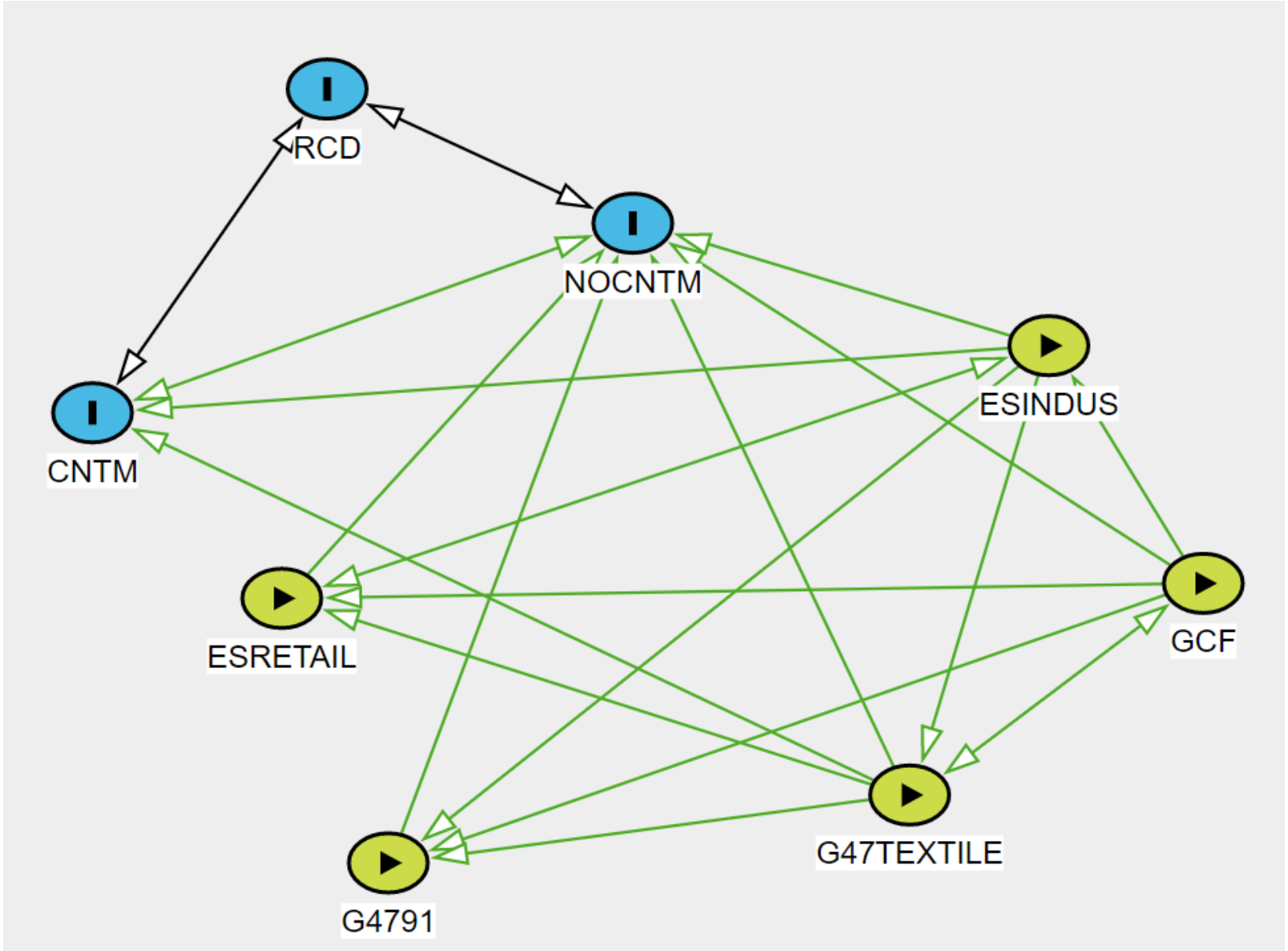
All variables (EUTM, GCF, confidence indicators, retail sales indicators, etc) are explained by their own past values and the current and past values of the other variables

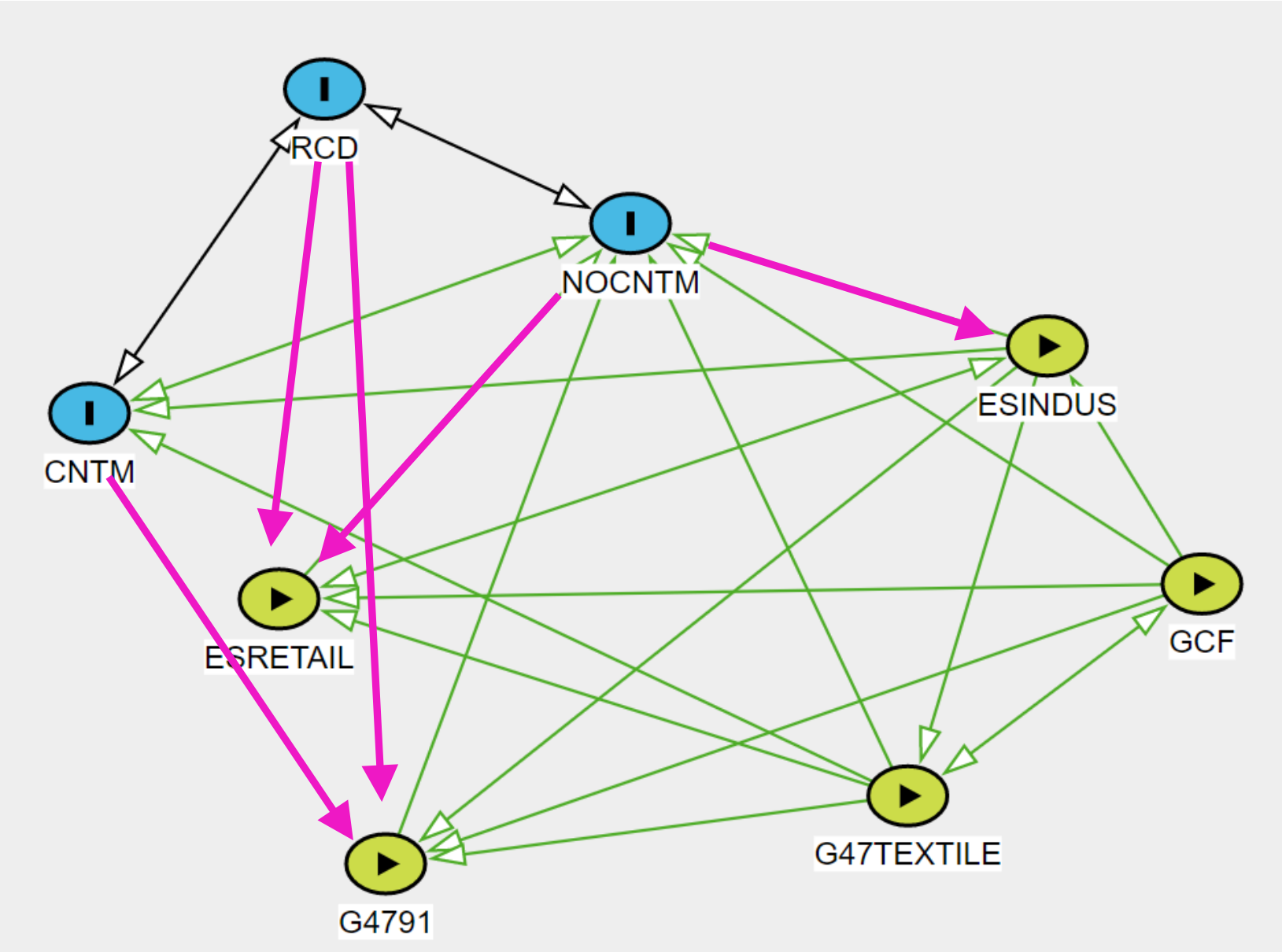
$$\begin{pmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \end{pmatrix}_t = \begin{pmatrix} \mu_1 \\ \mu_2 \\ \mu_3 \\ \mu_4 \end{pmatrix} + \begin{pmatrix} \alpha_{111} & \cdots & \alpha_{114} \\ \vdots & \ddots & \vdots \\ \alpha_{141} & \cdots & \alpha_{144} \end{pmatrix} * \begin{pmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \end{pmatrix}_{t-1} + \begin{pmatrix} \alpha_{211} & \cdots & \alpha_{214} \\ \vdots & \ddots & \vdots \\ \alpha_{241} & \cdots & \alpha_{244} \end{pmatrix} * \begin{pmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \end{pmatrix}_{t-2} + \ldots$$

$$+ \begin{pmatrix} \alpha_{\mathrm{p}11} & \cdots & \alpha_{\mathrm{p}14} \\ \vdots & \ddots & \vdots \\ \alpha_{\mathrm{p}41} & \cdots & \alpha_{\mathrm{p}44} \end{pmatrix} * \begin{pmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \end{pmatrix}_{t-\mathrm{p}} + \begin{pmatrix} u_1 \\ u_2 \\ u_3 \\ u_4 \end{pmatrix}_t$$


DOMDEMAND
ESINDUS
ESRETAIL
EUTM


DOM DEMAND
INDUS
RETAIL
EUTM
DOM DEMAND
INDUS
RETAIL
EUTM
IRFEUTM, DlnDOMEU27, DlnDOMEU27
IRFEUTM, DlnDOMEU27, DlnESINDUS
IRFEUTM, DlnDOMEU27, DlnESRETAIL
IRFEUTM, DlnDOMEU27, DlnEUTM
IRFEUTM, DlnESINDUS, DlnDOMEU27
IRFEUTM, DlnESINDUS, DlnESINDUS
IRFEUTM, DlnESINDUS, DlnESRETAIL
IRFEUTM, DlnESINDUS, DlnEUTM
IRFEUTM, DlnESRETAIL, DlnDOMEU27
IRFEUTM, DlnESRETAIL, DlnESINDUS
IRFEUTM, DlnESRETAIL, DlnESRETAIL
IRFEUTM, DlnESRETAIL, DlnEUTM
IRFEUTM, DlnEUTM, DlnDOMEU27
IRFEUTM, DlnEUTM, DlnESINDUS
IRFEUTM, DlnEUTM, DlnESRETAIL
IRFEUTM, DlnEUTM, DlnEUTM
4
2
0
-2
-4
0
2
4
6
8
step
95% CI
impulse-response function (irf)
Graphs by irfname, impulse variable, and response variable


RCD
NOCNTM
CNTM
ESINDUS
ESRETAIL
GCF
G47TEXTILE
G4791


RCD
NOCNTM
CNTM
ESINDUS
ESRETAIL
GCF
G47TEXTILE
G4791

Next …

- More variables (leading indicators: investment, imports and confidence indicators for selected industries …)
- Restrictions in VAR (BVAR)
- Include forecasts from EC and other international organizations
- Country data?

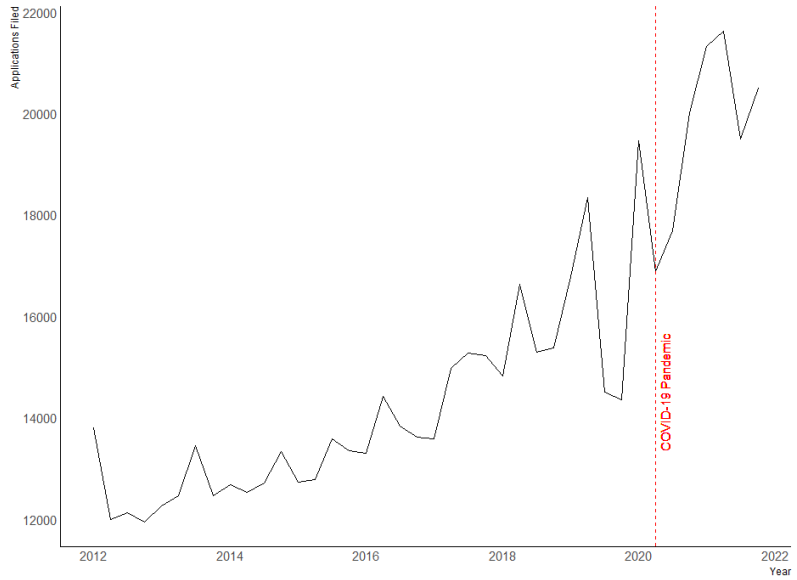
Thank you!

Innovation, Science and Economic Development Canada
Innovation, Sciences et Développement économique Canada
Canada

Textual Analysis of Trademark Activity During the COVID-19 Pandemic

Gray Barski & Alex Lehmann
Canadian Intellectual Property Office

What happened to trademarks during the COVID-19 pandemic?



- Trademark activity hit record highs during the COVID-19 pandemic
- Most recessions cause declines in trademark activity

Data & Methods

Data

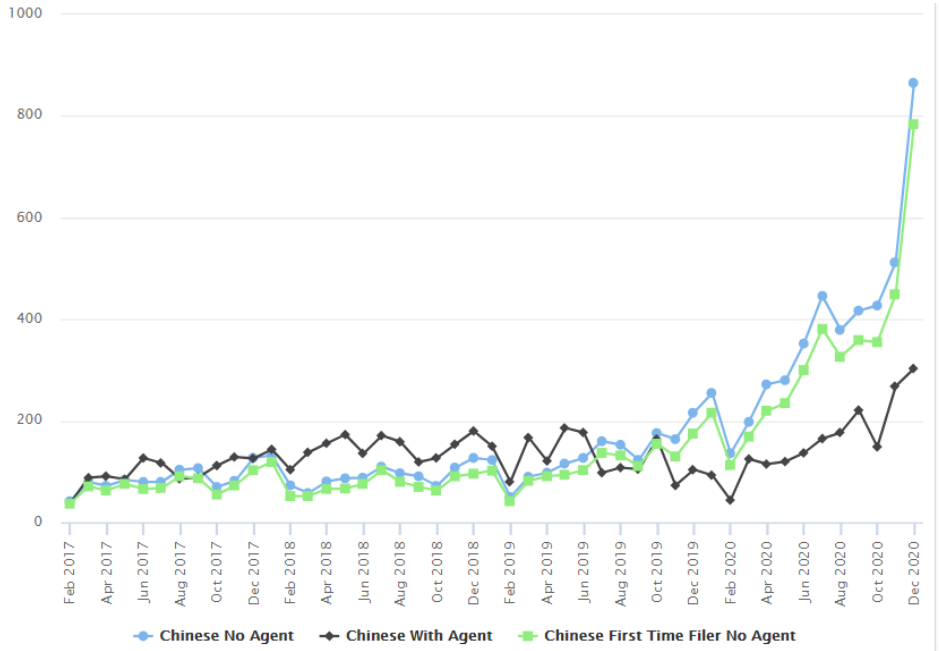
- 352,727 trademark applications, 2010-2021
- Extracted goods and services statements
- Retained Nice class(es), country of origin

Methods

- Topics: Lines of Trade
  - Country/Nice-level effects
  - Number of topics
- Word Meanings
  - Change in context over time

Application Growth Drivers

- Notable Contributors
  - Chinese Filings
  - Canadian Filings
  - First-Time Filers
  - Filings Without Agents



Application Wording

- Information per application increases:
  - More G&S classes per each Nice class for applications referring to goods.
  - ‘Purposes’ and connectors become more prevalent.

Pre- and During-Pandemic Differences

- Is there a difference between the topics before and after the pandemic began?
- Use topic models and permutation tests to see if there's a difference

H_0: The topic distributions before and after pandemic onset are the same.

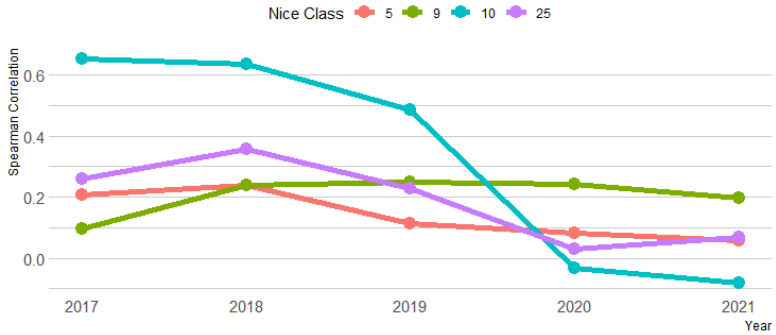
vs.

H_a: The topic distributions before and after pandemic onset are different.

Nice Class	Obs. Similarity	p-value	Accepted
Class 5	0.838	< 0.0001	Confirmed
Class 9	0.916	< 0.0001	Confirmed
Class 10	0.955	< 0.0001	Confirmed
Class 25	0.928	< 0.0001	Confirmed

*Monte Carlo permutation tests with 10,000 permutations at 5% level of significance

Differing Impacts



Study Locality of Text – Does the context remain the same?

Model: Word2Vec

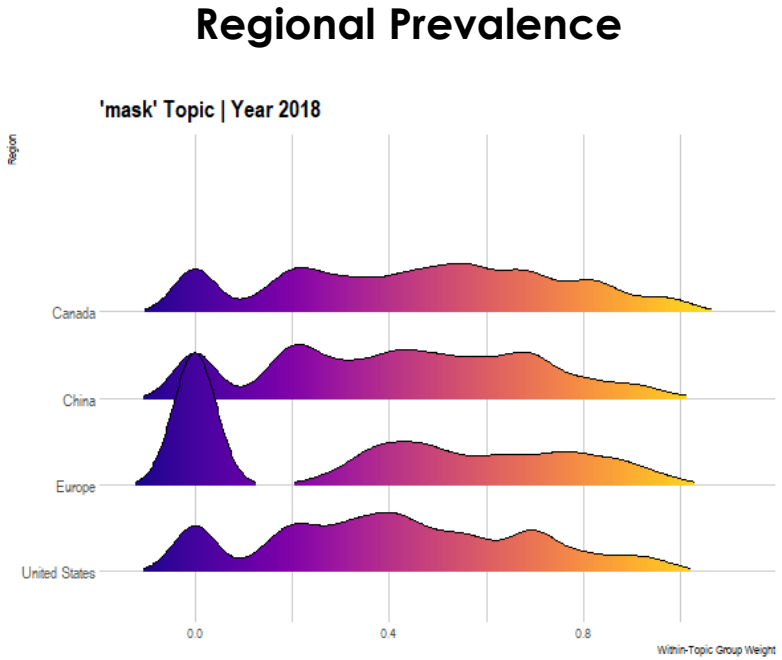
- **In-sample**: 2012 – 2016
- **Out-of-Sample**: 2017-2021

Spearman Correlation on Similarities:

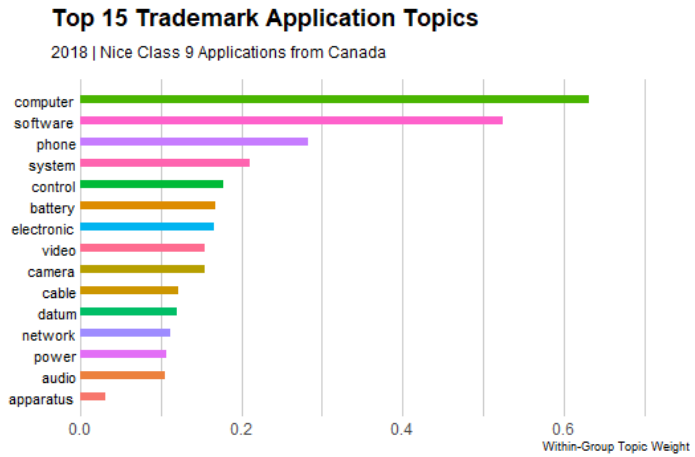
- **Value of 1**: Words are being used in similar context.
- **Value of -1**: Words that differed the most in context now have the same meaning.

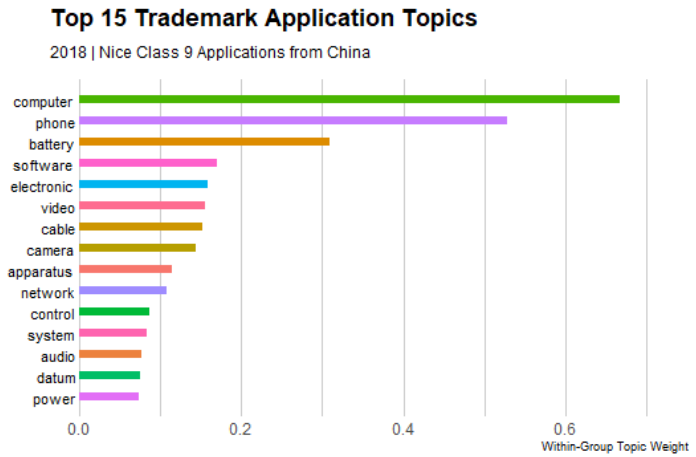
Regional Variation

- Does pandemic effect heterogeneity extend to regional variation?
- Find approximate time-dependent topic distributions for various regions



Regional Topic Variation





Topic Growth Drivers

- **Class 5:** Disinfectant and pharmaceutical goods become more prevalent, dietary supplements decrease.
- **Class 9**: Consumer electronics.
- **Class 10**: Mask, sanitary, and protection.

Conclusions

- Pandemic-era trademark activity is characterized by a fundamental change in application text content.
- The behaviours of these changes vary based on factors such as Nice class and application country of origin.
- Further research into other factors affecting trademark application text content and the implications of these effects is warranted.

Thank you!

Contact:

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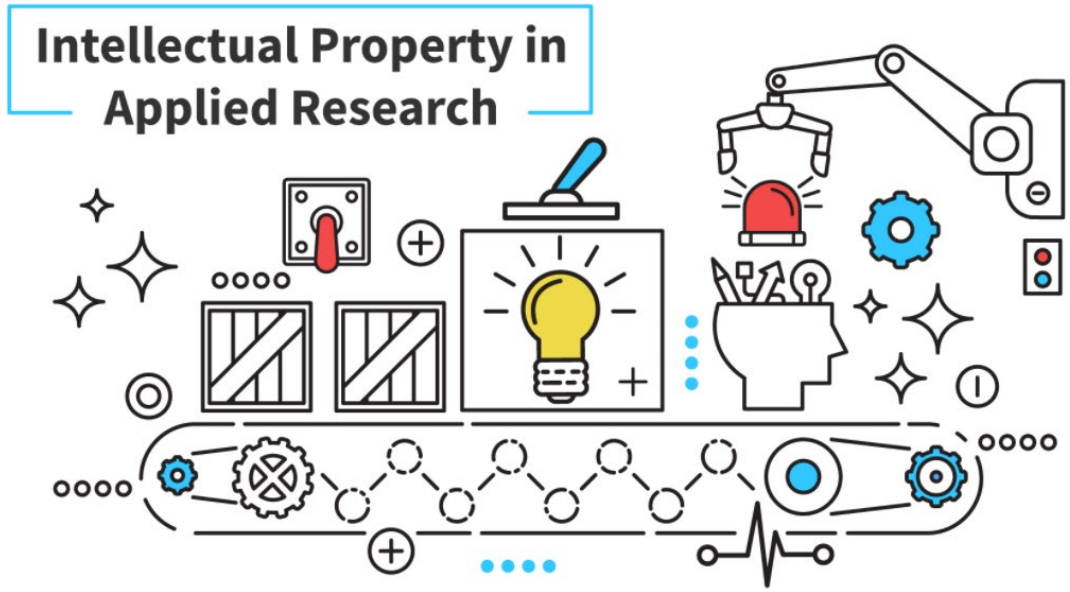
Educating Students on Intellectual Property in Applied Research Settings: The Impact in Using an Interactive Module

Annual IP Data & Research Conference
March 24th 2022



ecampus Ontario · CANADORE college.ca · George Brown College · LA CITÉ · Ontario

The dream team

Dr. Nathalie Méthot
Director
Research & Innovation
College La Cité

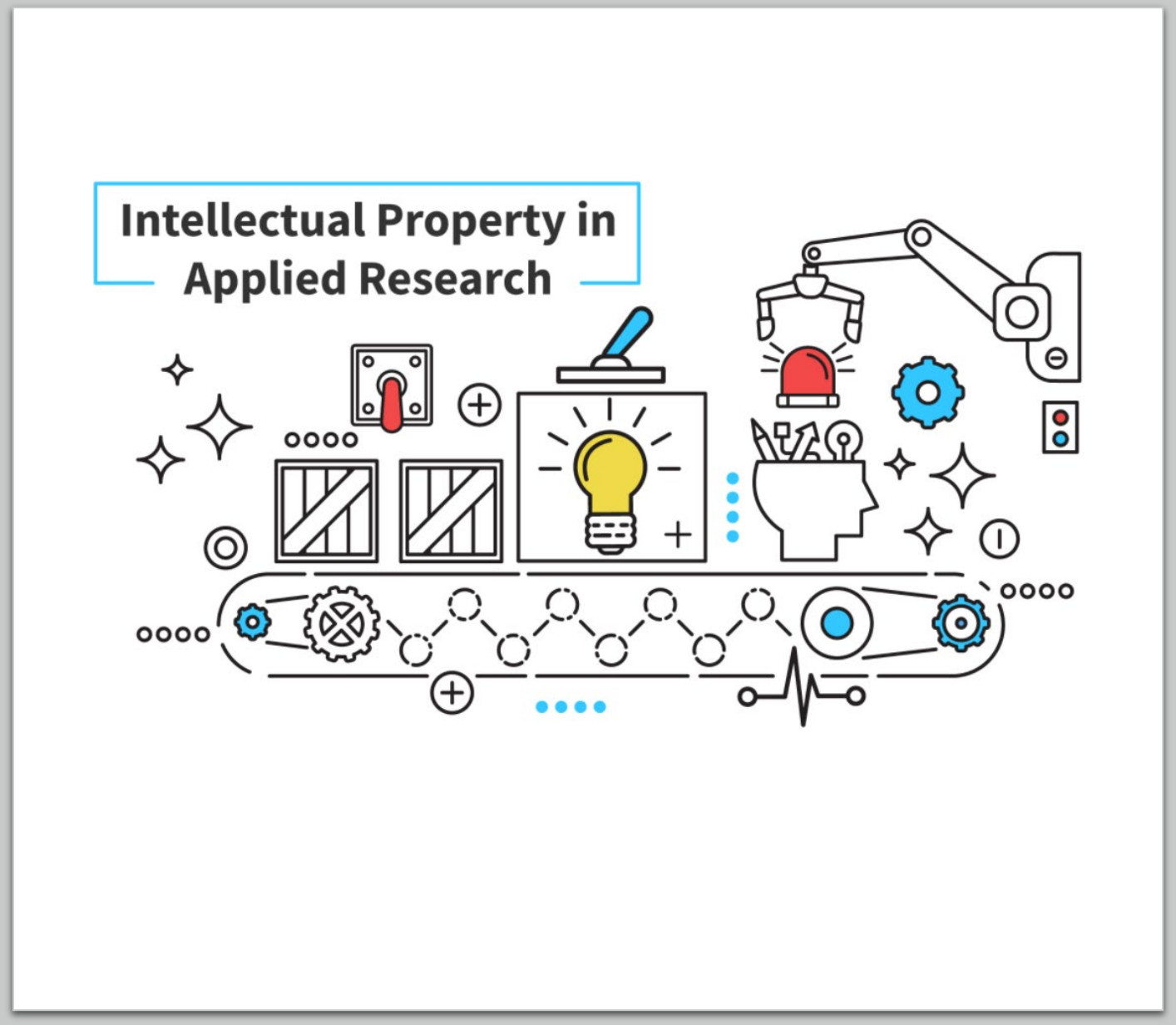
Dr. Krista Holmes
Associate VP
Research & Innovation
George Brown College

Dr. Christina Deroche
Manager
Research & Innovation
Canadore College

Our goals

- Raise IP literacy in the context of applied research in colleges
- Responded to the virtual learning strategy of eCampus Ontario to create an online module
- Early in the project: a consultation with 50 respondents from Ontario colleges, 89% indicated that they had little knowledge of IP and 81% were interested in training on the subject

- Online module
- Will be available on the eCampus Open Library
- Link: https://view.genial.ly/6136579670f2620d80296767



Intellectual property in college research :

THE PROJECT

It all began **when...**

Smart Paints wants to produce a new paint using natural pigments, instead of using chemicals.

They have already developed a **prototype** of a paint, but they need help to improve the product.

To get more help, they started a collaboration with your college, through the **Applied Research Center** in Smart Painting.

CONTINUE

EN

FR

Section 1

Introductory session

START

Section 2

The industry partner

START

Section 3

The applied research project

START

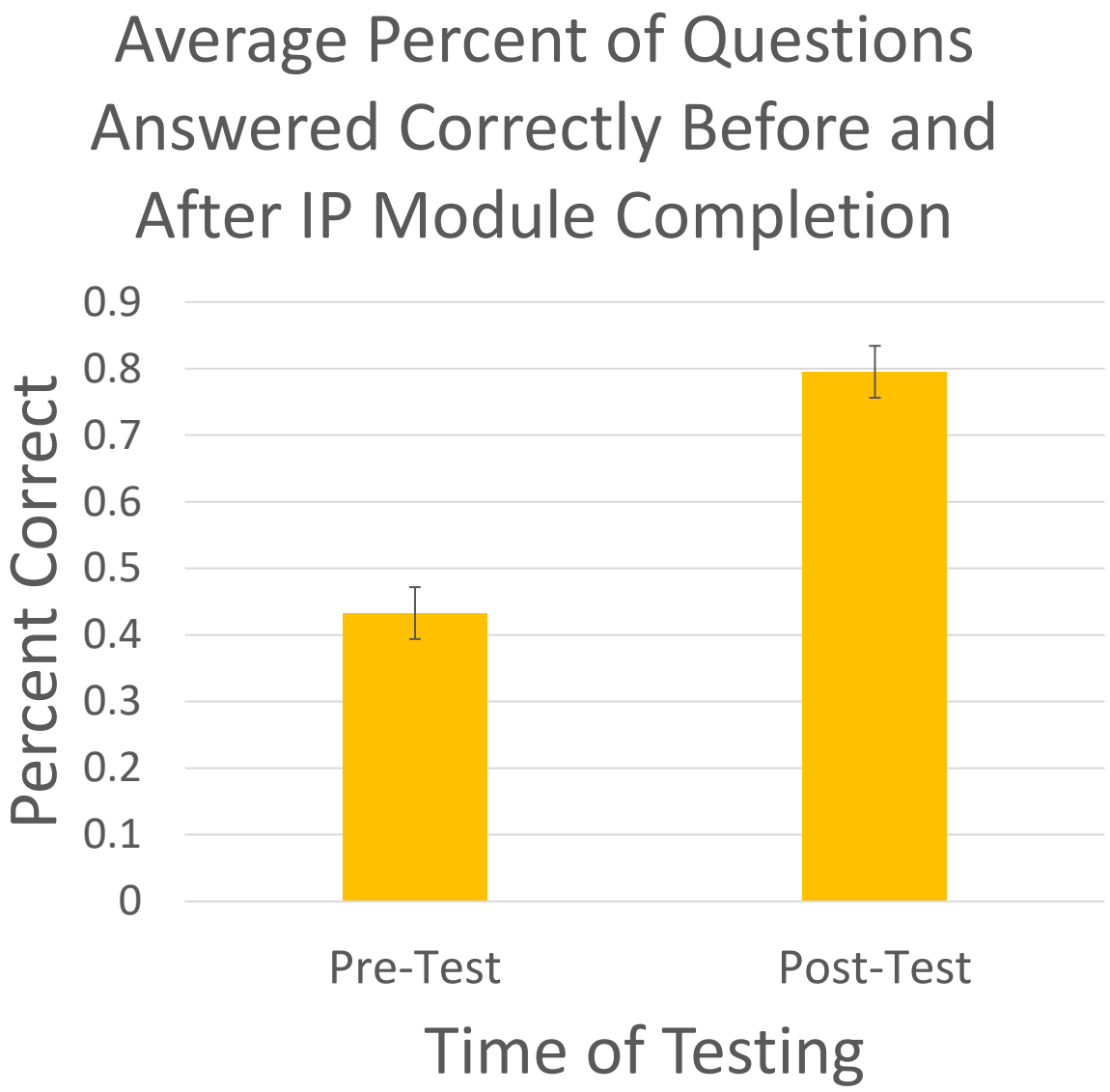
Section 4

Ask an expert

START

Module Evaluation

- Importance of evaluating
- Three groups in focus: students, researchers and industry partners
- Feedback Form
- Students: pre- and post- assessment in addition to feedback form
- Incentivizing student participation
- Results will be shared


Average Percent of Questions Answered Correctly Before and After IP Module Completion
Percent Correct
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Pre-Test
Post-Test
Time of Testing

definitions
information
engaged
job
clarity
interaction
gives
understanding
full
available
ip
examples
enough
decent
pacing
colorful
enjoyed
used
teaching
voice
know
subject
interactive
looking
point
clear
illustrations
informative
monotone
yes
activities
liked
amount
pace
throughout
things
realistic
good
perfect
quite
learning
better
follow
easy
understand
organized
study
starting
case
explained

Acknowledgements

eCampus Ontario

Heads of Applied Research

Christina Berkers, Conceptrice pédagogique, La Cité

Caroline Lefebvre, CIPO

Richard Derham, George Brown College

John Harris, Gowling WLG

Luanne Morrow, Borden, Ladner Gervais LLP

Questions???

Fig. 2

Context Matters

How FDI & IP Interact in Canadian Innovation

Information and Communications Technology Council (ICTC)

Mairead Matthews, Faun Rice, March 2022

m.matthews@ictc-ctic.ca

f.rice@ictc-ctic.ca

What is the relationship between inward FDI and IP in Canada?

- Development, ownership, commercialization, retention
- Bi-directional

Mixed methods

- 43 semi-structured interviews
- Thematic analysis/grounded theory approach
- Secondary data to test interviewee narratives

- Market Size, Critical Mass, Maturity
- Talent
- Private Investment, Exit Planning, Acquisitions
- Government Regulation, Financing, and Innovation Infrastructure

Case Studies

Medical Devices Talent Ecosystem ◆ Carbon Capture, Utilisation, and Storage PE/VC Availability ◆ Artificial Intelligence Patenting and Acquisitions

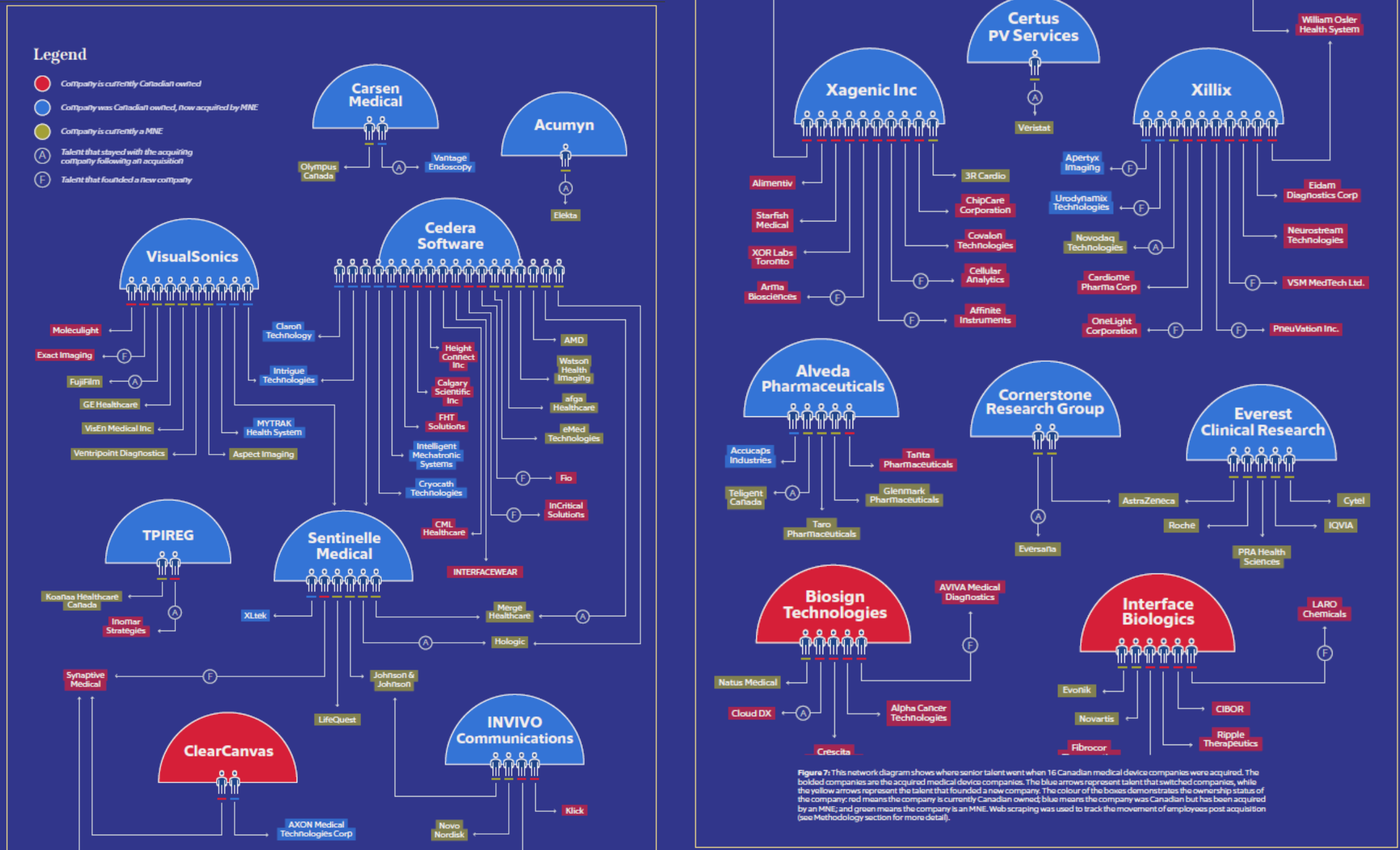


Figure 7: This network diagram shows where senior talent went when 16 Canadian medical device companies were acquired. The bolded companies are the acquired medical device companies. The blue arrows represent talent that switched companies, while the yellow arrows represent the talent that founded a new company. The colour of the boxes demonstrates the ownership status of the company: red means the company is currently Canadian owned; blue means the company was Canadian but has been acquired by an MNE; and green means the company is an MNE. Web scraping was used to track the movement of employees post acquisition (see Methodology section for more detail).

Opportunities to…

Strengthen the impact of FDI on Canadian innovation

- VC/PE ecosystem
- Tax planning
- Procurement
- Business density, incentives, & networks
- IP literacy & access
- R&D funds
- Industry associations
- Talent attraction

Conduct future research

- Improve granularity of FDI indicators
- FDI & Data
- GBA+ in FDI
- FDI & freedom to operate
- Include role of FDI in survey of Canadian business IP use

Fig. 2

Get in Touch

How FDI & IP Interact in Canadian Innovation

Information and Communications Technology Council (ICTC)

Mairead Matthews, Faun Rice, March 2022

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