Spatial Data Discovery and Support in a Library Setting

Marcel Fortin
Map and Data Library
University of Toronto

Expert Meeting on Spatial Discovery
Santa Barbara
June 2015
Spatial Communities - U of Toronto
# Student Enrollment

<table>
<thead>
<tr>
<th>Total</th>
<th>Fall 2014-15</th>
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<tbody>
<tr>
<td></td>
<td>Undergraduate</td>
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<tr>
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<td>68,114</td>
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<tr>
<td>UNDERGRADUATE</td>
<td>56,220</td>
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<tr>
<td>DOMESTIC</td>
<td>11,894</td>
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<tr>
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<tr>
<td>GRADUATE</td>
<td>16,442</td>
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<tr>
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<td>13,927</td>
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</table>
Total: 68,114
  - Undergraduate: 56,220
    - Domestic: 11,894
    - International: 44,326
  - Graduate: 16,442
    - Domestic: 13,927
    - International: 2,515
Student Enrolment: Fall 2014-15

Total

- Undergraduate: 68,114
  - Domestic: 56,220
  - International: 11,894
- Graduate: 16,442
  - Domestic: 13,927
  - International: 2,515

Faculty and Staff: Fall 2013

- Faculty Members*: 13,239
- Staff Members: 6,470
- Librarians: 141

* Faculty Members includes all active faculty members with teaching/research responsibilities but excludes Research Fellows, Sessional Lecturers and 4,778 Teaching Assistants.
U of T has international students from 161 countries and regions.
The top five countries/regions of origin are China, India, United States, Brazil, and South Korea.

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<tr>
<th>Country/Region</th>
<th>Students</th>
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<td>China</td>
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<td>United States</td>
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<td>595</td>
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<td>Korea (South)</td>
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<td>Japan</td>
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<td>Malaysia</td>
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Geospatial support in libraries - U of T - (data)
• Data acquisitions (purchase, license, store, etc.)
Geospatial support in libraries - U of T - (data)

• Data acquisitions (purchase, license, store, etc.)

• Data management
Geospatial support in libraries - U of T - (data)

- Data acquisitions (purchase, license, store, etc.)
- Data management
- Data dissemination
Geospatial support in libraries - U of T (support)
Geospatial support in libraries - U of T (support)

• Instruction & teaching (workshops / credit courses)
Geospatial support in libraries - U of T (support)

- Instruction & teaching (workshops / credit courses)
- Literacy skills
Geospatial support in libraries - U of T (support)

• Instruction & teaching (workshops / credit courses)

• Literacy skills

• Software / technology support
Geospatial support in libraries - U of T (support)

• Instruction & teaching (workshops / credit courses)

• Literacy skills

• Software / technology support

• Reference / Research Consultations
GIS Consultations breakdown

increasing level of difficulty

increasing number of questions
GIS Consultations breakdown

- finding/acquiring data
- software installation
- data use
- software licensing
- data licensing
- data access

increasing number of questions

increasing level of difficulty
GIS Consultations breakdown

- GIS basics
- finding/acquiring data
- software installation
- software licensing
- data access
- data use
- transformations
- mapping
- advanced cartography
- geoprocessing
- advanced GIS
- data analysis
- data creation

Increasing number of questions
Increasing level of difficulty
Challenges - demand

Map and GIS Reference
Challenges - increased demand
A new data culture?
“The ability to gather and reproduce data has far outstripped our ability to present it.”

Arthur Robinson, 1966
Increase in geospatial collection size: datasets

Year                  | Datasets
----------------------|---------
1999                  | 3       
2007                  | 400     
2012                  | 1,300   
2015                  | 1,600   

Datasets
Increase in geospatial collection size: GB

Size of Collection (GBs)
Increase in geospatial collection size: GB

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<tr>
<th>Year</th>
<th>Size of Collection (GBs)</th>
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<td>2007</td>
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<tr>
<td>2012</td>
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## CanMap RouteLogistics Toronto (CMA) Subset v2013.3

**Restricted Data:** Conditions of Use

**Temporal Extent (Data Date):** 2013

**Publication Date:** 2013-01-01

**Data/Image Set Access:** Download

**Listing in Geoportal:** NO

**Method of Access:** Web

**Contact:** gis.maps@utoronto.ca

**Data Creator:** DMTI Spatial Inc.

**Edition:** v2013.3

**Datum:** WGS84

**Projection:** geographic

**Publisher:** DMTI Spatial Inc.

**Publication Place:** Markham

**Description:** comprehensive road network file; roads, streets, etc.

**Type of Data:** VECTOR

**Copyright Owner:** DMTI Spatial Inc. dmtispatial.com

**Permission Required to Use?:** None

**Acknowledgement Required to Use?:** None

**Price for Use?:** None

**Who Can Use Data?:** FACULTY STAFF STUDENTS

**Entry Date:** 2012-09-17


**Geography Covered:** / TORONTO, CENSUS METROPOLITAN AREA

**Formats:** / SHAPEFILE
Shared Data Discovery
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U of T vector layers only (approximate)

Scholars Portal raster & vector layers

- 1999: 12
- 2007: 0
- 2012: 300
- 2015: 700
- 2019: 4,000
- 2023: 16,747
- 2028: 23,000
Research Data Management

...[T]he general preservation problem for geospatial data will simply compound over time with increasing quantities of data being produced by collection systems such as satellites and sensor networks. Historical geospatial data is of great value in understanding and modelling climate and land use change, for example, and hence future users and archivists are likely to want to use and curate increasing quantities of increasingly older geospatial data.

Technology Watch Report, 2009
• LAC can acquire government and ministerial cartographic material considered of historical or archival value.

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• Section 12: no government or ministerial geospatial data or maps shall be destroyed or disposed of without the consent of the Librarian or Archivist

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• LAC has responsibility to work with institutions to identify information that should be transferred to the LAC
Auditor general's fall 2014 report: $15M Library and Archives Canada system never used

Archives backlog includes 98,000 boxes of records — almost one-quarter of them military files, dating to 1890


Future generations may not be able to enjoy Canada’s recorded heritage — including photos, maps and important documents — because Library and Archives Canada is not collecting all of the material it should from federal agencies, the auditor general says.
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From Data to Records: Preserving the Geographic Information System of the City of Vancouver

Glenn Dingwall, Richard Marciano, Reagan Moore, and Evelyn Peters McLellan
# Census of Canada - Aggregate Statistics

Off-campus University of Toronto users login to myaccess first!

This table contains links to indicate the availability of aggregate statistics in computer-readable form from population censuses and disseminated by Statistics Canada.

Note: Documentation linked here is public access. Most of the census tables, however, are restricted access. If you are a member of a DLI member institution, contact your local DLI contact. Restricted links here are for the most part available only to University of Toronto, Brock University, York University, and Ryerson University faculty, students, and staff.


## Comparative table of Canadian census questions since Confederation

<table>
<thead>
<tr>
<th>Geographic level</th>
<th>Canadian overview tables (COTs)/Nation series</th>
<th>Special interest tables (SITs)/Dimensions series</th>
<th>Profile series</th>
<th>Basic cross-tabulations (BCTs)/Basic summary tabulations (BSTs)</th>
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<tbody>
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<td>Detailed subject matter, less detailed geography.</td>
<td>Less detailed subject matter, more detailed geography.</td>
<td>Less detailed subject matter, more detailed geography.</td>
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<tr>
<td></td>
<td>Tables containing one or more characteristics (e.g. age by sex by marital status); (Aggregate, multi-variate distributions.)</td>
<td>Additional detailed tables on special topics, and containing one or more characteristics (e.g. immigration status by income groups), at high levels of geography; (Aggregate, multi-variate distributions.)</td>
<td>Distribution of individual census characteristics (e.g. age by sex by marital status), by large and small levels of geography. (Aggregate, univariate distributions.)</td>
<td>Tables containing one or more characteristics (e.g. age by sex by marital status), by large and small levels of geography. (Aggregate, multivariate distributions.)</td>
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</table>

### 2006 Census

2006 Census homepage at University of Toronto: <http://data.lib.chass.utoronto.ca/cc06/cc06.htm>

<table>
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<th>Geographic level</th>
<th>Topic-based tabulations (TBTs)</th>
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<th>Profile series</th>
<th>Topic-based tabulations (TBTs)</th>
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<tbody>
<tr>
<td>Canada, provinces, territories</td>
<td>• Highlight tables tb06.htm</td>
<td>• tbt06.htm</td>
<td>• CHASS_census_analyzer E-stat profil06.htm Included in CD/CSD, FSA, FED &amp; DA profiles</td>
<td>• tbt06.htm Included in DA-level files.</td>
</tr>
</tbody>
</table>
Expand Market Reach and Increase Profits

Unlock the Power of Location Economics
Policies and Guidelines

Open Access

Tri-Agency Open Access Policy


NSERC, the Canadian Institutes of Health Research (CIHR) and the Social Sciences and Humanities Research Council of Canada (SSHRC), are pleased to announce a harmonized policy on access to research publications. The Tri-Agency Open Access Policy on Publications builds on the 2010 endorsement of open access principles by all three agencies and reflects the feedback we received from over 200 respondents through our online consultation in fall 2013.

NSERC and SSHRC researchers will be required to comply with the new policy for all grants awarded from May 1, 2015 onward. While CIHR-funded researchers will now refer to the new, harmonized policy, compliance requirements will not change for the health research community.

To learn more about the policy, and for answers to frequently asked questions and the Open Access Toolbox, please visit the tri-agency Open Access page on Science.gc.ca.

In the coming months, we will be hosting an open access webinar series to elaborate on the policy and answer your questions. More details will be available on the tri-agency Open Access page in the coming weeks.

We encourage you to visit NSERC’s Open Access page regularly for the latest information and updates on open access. Please send any questions or comments to openaccess@nserc-crsng.gc.ca.
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FREE!
FREE free! Free
Free Free
Free Stuff Free
University of Toronto Library  
130 St. George Street  
Map Library  
Toronto, ON  
M5S 1A5

Attention: Marcelle Fortin  
Map Librarian

RE: Quotation for Digital Mapping Products and Services

Dear Marcelle:

Further to our discussion, below are the prices for the DigiMap products and services in which you have expressed an interest:

<table>
<thead>
<tr>
<th>Qty</th>
<th>Product #</th>
<th>Description</th>
<th>Unit Price</th>
<th>Subtotal</th>
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<tr>
<td>1</td>
<td>NTD0250</td>
<td>National Topographic Data Base Digital Map Files 030m, 031d, 040o and 040p in MapInfo format, single user licence</td>
<td>$2,882.45</td>
<td>$2,882.45</td>
</tr>
</tbody>
</table>

**Total** $2,882.45

If you have any questions about these products or our services, please contact us. Thank you for your interest in DigiMap.

DigiMap Data Services Inc.

Marc R. Curtis  
Sales Manager
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Status: Closed  
Partner: No  
Representative: Michel Pagou (MP)  
Telephone: (416) 978-1958  
Fax: (416) 978-1608  
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Format: DXF  
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Fax: (416) 978-1608  
E-mail address: forin@library.utoronto.ca

Canadian Centre of Geomatics
EXECUTIVE SUMMARY

GEOSPATIAL DATA POLICY STUDY

Prepared for
GeoConnections
Policy Advisory Node

Submitted by
Garry Sears
KPMG Consulting Inc.
45 O’Connor Street, Suite 1000
Ottawa, Ontario K1P 1A4
Tel: 613-598-3661
Fax: 613-238-3698

Ottawa
March 28, 2001
#03-34257
data we thought we’d never see
Map Services

Open Data Home
Data Catalogue
Frequently asked questions (FAQ)
Glossary of terms
Licence
DATA eh?
Policy

Web Map Services

Owner: Geospatial Competency Centre
Currency: Current
Format: Web Service
Refresh rate: As Available - Publish or refresh
Attributes: There are three published OGC compliant WMS services to facilitate access to live geospatial data from the City of Toronto.

City Geospatial Web Service
Data mashups are great, but ......
Web Map Services

Owner: Geospatial Competency Centre
Format: Web Service
Refresh rate: Continuously - Real time refresh
Contact: gcc@toronto.ca

There are three published OGC compliant WMS services to facilitate access to live geospatial data from the City of Toronto.

City Geospatial Web Service
http://map.toronto.ca/servlet/com.esri.wms.Esrimap?ServiceName=CityGeoSpatial
This service includes parks regions and districts, various school board boundaries, various Toronto Police Service’s boundaries, City wards, property parcels, concession blocks, provincial ridings, address points, street centrelines and ortho imagery.

CitySPAR Web Service
http://map.toronto.ca/servlet/com.esri.wms.Esrimap?ServiceName=CitySPAR
This service provides access to a series of socio-demographic data. Layers in this service include faith organizations, dissemination areas, census tracts, city wards, neighbourhoods, priority neighbourhoods. Additional thematic layers include Income Inequality by Neighbourhood, Incidence of Low Income Households by Dissemination Area, and Couple Family Median Income by Census Tract.

Ortho Imagery Web Service
This service provides access to geometrically corrected ("orthorectified") aerial photography for the City of Toronto.
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Open Data - Issues - WMS
CanMap® Streetfiles and CanMap RouteLogistics

Leveraging Canada’s #1 digital street network, complete with detailed attribution and a wealth of additional non-map layers for display, analysis and location-based applications. CanMap Streetfiles and CanMap RouteLogistics provide an exceptional map fabric for business applications that support location-based services, market analysis and personal navigation. As a full product solution with hundreds of attribute fields, you can use CanMap Streetfiles or CanMap RouteLogistics as the foundation for your enterprise decision support systems or customer-facing location services.

Build a Solid Foundation with the CanMap Product Suite

DMTI is the industry leader in Canadian mapping data. Companies like Garmin, Google, Apple, GM OnStar, Department of National Defence, RCMP, Rogers, Bell and many others use CanMap products in their applications.

What do you get?

<table>
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<tr>
<th>Key Features</th>
<th>CanMap Streetfiles</th>
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<td>Significant Roads</td>
<td>✓</td>
<td>✓</td>
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Licensing & Copyright Challenges

Difficult and confusing terms that can’t be followed

“If you are accepting on behalf of your employer or another entity, you represent that you have full authority to bind your employer or such other entity to the Terms of Use.” [http://www.toronto.ca/open/terms.htm#licence](http://www.toronto.ca/open/terms.htm#licence)
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Fear

If, as a result of your breach of these Terms of Use, the City gets sued … you agree to protect the City and reimburse the City for everything which you cause the City to suffer…. you agree to defend, indemnify and hold harmless the City and all of its officers, employees, representatives and agents from any and all liabilities incurred in connection with any claim arising from any breach by you of these Terms of Use, including reasonable legal fees and costs. You agree to cooperate fully in the defence of any such claim.
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Which License?
GeoBase Unrestricted Use Licence Agreement

This is a legal agreement between you (Licensee) and Her Majesty the Queen in Right of Canada (Canada) as represented by the Minister of Natural Resources Canada. By accessing, downloading, printing or using the data, information and materials being provided with, or accessible pursuant to this agreement, you are agreeing to be bound by the terms of this agreement. If you do not agree to the terms of this agreement, you must immediately dispose of any such data, information, materials and any derived products.

I. WHEREAS Canada is the owner of or has rights in the data (the Data) addressed by the terms and conditions of this Agreement;

II. AND WHEREAS the Licensee wishes to obtain certain rights to the Data, on terms and conditions herein contained;

III. AND WHEREAS Canada represents that it has full authority to grant the rights desired by the Licensee on the terms and conditions herein contained;

IV. AND WHEREAS the parties hereto are desirous of entering into a licence agreement on the basis herein set forth.

NOW, THEREFORE, in consideration of the covenants contained in this Agreement, the parties agree as follows:

1.0 DEFINITIONS

1. Canada's Data means any and all Data, the Intellectual Property Rights of which vest with Canada.

2. Canada's Licensed Rights means those rights conferred upon Canada by third parties over the use of Data which is not Canada's Data.

3. Data means any digital data, meta-data, or documentation subject to the terms and conditions of this Agreement.
NEW OPEN GOVERNMENT LICENCE

Open Government Licence – Canada

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Copyright Issues

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http://publications.gc.ca/site/eng/ccl/index.html
Maps, under copyright, remain the same
6. The term for which copyright shall subsist shall, except as otherwise expressly provided by this Act, be the life of the author, the remainder of the calendar year in which the author dies, and a period of fifty years following the end of that calendar year.

R.S., 1985, c. C-42, s. 6; 1993, c. 44, s. 58.

6.1 Except as provided in section 6.2, where the identity of the author of a work is unknown, copyright in the work shall subsist for whichever of the following terms ends earlier:

(a) a term consisting of the remainder of the calendar year of the first publication of the work and a period of fifty years following the end of that calendar year, and

(b) a term consisting of the remainder of the calendar year of the making of the work and a period of seventy-five years following the end of that calendar year,

but where, during that term, the author’s identity becomes commonly known, the term provided in section 6 applies.

1993, c. 44, s. 58.
FIPs and 90 years
Shifts in use - Spatial History / HGIS / GeoHumanities
Data Creation
Aerial photographs 1947

Click an area of the map to see it in more detail.

To view and print these maps, you will have to download the free ExpressView Browser Plug-in (MEGIS) for Windows from LizardTech.

This plug-in is compatible with Microsoft Windows using Firefox 2 or 3 or Internet Explorer 7 or 8 web browsers.

1947 aerial maps index

Return to aerial photographs index
Don Valley Historical Mapping Project Background

Toronto’s Don River Valley is arguably the city’s most distinctive physical feature. As a provider of water, power, sustenance, building materials, and transportation, it has played an important role in the city’s settlement and development. The river valley has changed dramatically in the years since European settlement, particularly during the late nineteenth and early twentieth century, when the Lower Don River was straightened and channelized and the huge marsh at its mouth drained and filled. Today, the Lower Valley forms the foundation for one of the most densely populated areas in Canada, outlining as it does the eastern portion of Toronto’s downtown core and radiating residential areas.

This project documents historical changes in the landscape of the Don River Valley. Drawing from the wide range of geographical information available for the Don River watershed (and the Lower Don in particular), including historical maps, geological maps, fire insurance plans, planning documents, and city directories, the project uses Geographic Information Systems software to place, compile, synthesize and interpret this information and make it more accessible as geospatial data and maps.

The project is a work in progress. To date, we have scanned several dozen historical maps of Toronto and the Don River watershed, and compiled the following geospatial datasets: 1) changes to the river channel and shoreline of Toronto harbour, 1855-1918; 2) industrial development in the Lower Don River Watershed, 1857-1951 (as points, and in some cases polygons); 3) historical mill sites in the Don River Watershed, 1825-1852; and ownership in the watershed, 1860 and 1878; and 4) points of interest in the watershed. In the future, we hope to expand the project to include data from other Toronto area watersheds and other parts of the city.
Two year funding to develop a community/partnership/network of HGIS/Spatial History researchers

Applicant
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Co-applicants
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John Lutz is an Associate Professor of History at the University of Victoria

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Jim Clifford is an Assistant Professor of environmental history in the Department of History at the University of Saskatchewan
Josh MacFadyen – Assistant Professor, Arizona State University
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Ken Sylvester is Research Associate Professor, Inter-university Consortium for Political and Social Research, University of Michigan
Glenn Brauen is Lecturer in Geographic Information Science, Department of Human Geography, University of Toronto Scarborough
Marc St.-Hilaire is professor of human geography at Laval University
Robert Sweeny is a Professor in the Department of History, Memorial University of Newfoundland.

Project Manager
Byron Moldofsky, University of Toronto
HGIS Partnership/Network - Goals

- White papers
  - Visualization methods
- Survey of Canadian HGIS Datasets
- Existing and Emerging Technologies
- Standards for Data and Research Data Management and Preservation
- HGIS Education
- Build a pilot version of an open, accessible Historical GIS Data Portal
- Build a pilot accessible interactive mapping application for HGIS
New Challenges to come?
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• Spatial History / Digital Humanities
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• ESRI Licensing complications (more products, different licensing, authentication)
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• Internationalization