No Transfer, No Production

Report by National Board of Trade

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"Data wanders in all directions, all the time, all over the world"

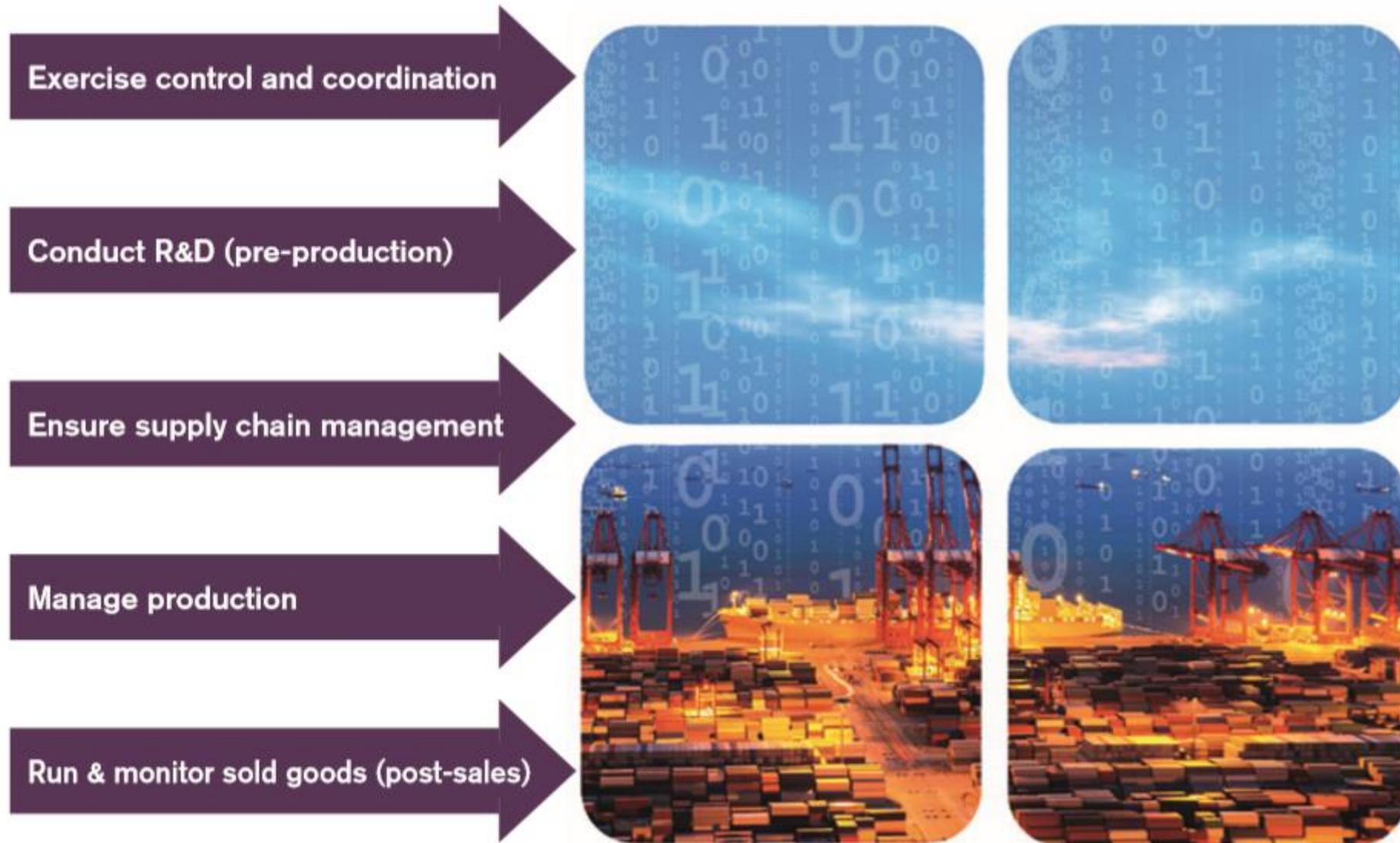**Figure 2: Five reasons why data must be moved**

Exercise control and coordination

Conduct R&D (pre-production)

Ensure supply chain management

Manage production

Run & monitor sold goods (post-sales)

Table 1: Example list of data that needs to be moved in production

Control/ coordination	Pre-production	Supply chain management	Production	Post-sales
- Employment data	-Market information	-Customs data	-Data from sensors	-Usage data
- Market data	- Usage data	-Customer data (incl. names and addresses)	-Instructions for robots, incl. communication between robots	-Performance data
- Market prices	- Social media data	-Package tracking	-Know-how/training	-Social media input
- Operations, planning, and processing	- Technical data	-Delivering input services	-Testing final product	-Customer reactions
- Production/ output data (from several facilities)	-Virtual design	-Payments (for products)	-Diagnostics, maintenance and repair	-Diagnostics, condition monitoring, maintenance and repair, incl. spare part management
- Production planning (incl. just-in time and adapting production)	-Test results	-Inventory levels	-Market data	-24 h service
- Monitoring performance	-Names of scientists	-Transport route optimization and transport time	-Product data	-Data from third parties (e.g., retailers)
-Demand forecasting	-Location data	-Procurement details	-Quality control	-Content as part of product
- Know-how/training	-Know-how	-Communications (e.g. e-mail)	-Technical data	-Storage management
- Licensing	-Customer data	-Info to logistics partners		-Data on parts availabilities
- Customer data	-Communications (e.g., e-mail)	-Orders, orders data		- "Life of product" (what version a customer has)
- Energy and material consumption	-Project information	-Sales data		-Technical data
-Internal communication (e.g., e-mail)		-Production schedules		-Product offer data
		-Performance metrics (quality data, lead times, queuing delays, service performance)		-Sales guides

All categories

Storage

Back-up

Software installation and updates

Troubleshooting and data repairs

Documentation of work flow

Table 2: Examples of personal data in production

	Personal data used	Personal data generated
Control/ coordination	Employee data, user data, social media	Employee data
Pre-production	User data, social media data	Names and CV of scientists/research-ers, test-persons' user data
Supply chain management	Customer data	Business contacts
Production	User data	Employee data
Post-sales	User data, sensor data	User data, social media data

Here customer data refers to data relating to a manufacturer's customers and their employees. User data is about how a product is used. Employee data can range from, for example, names and salaries, to how a person behaves and operates a machine.

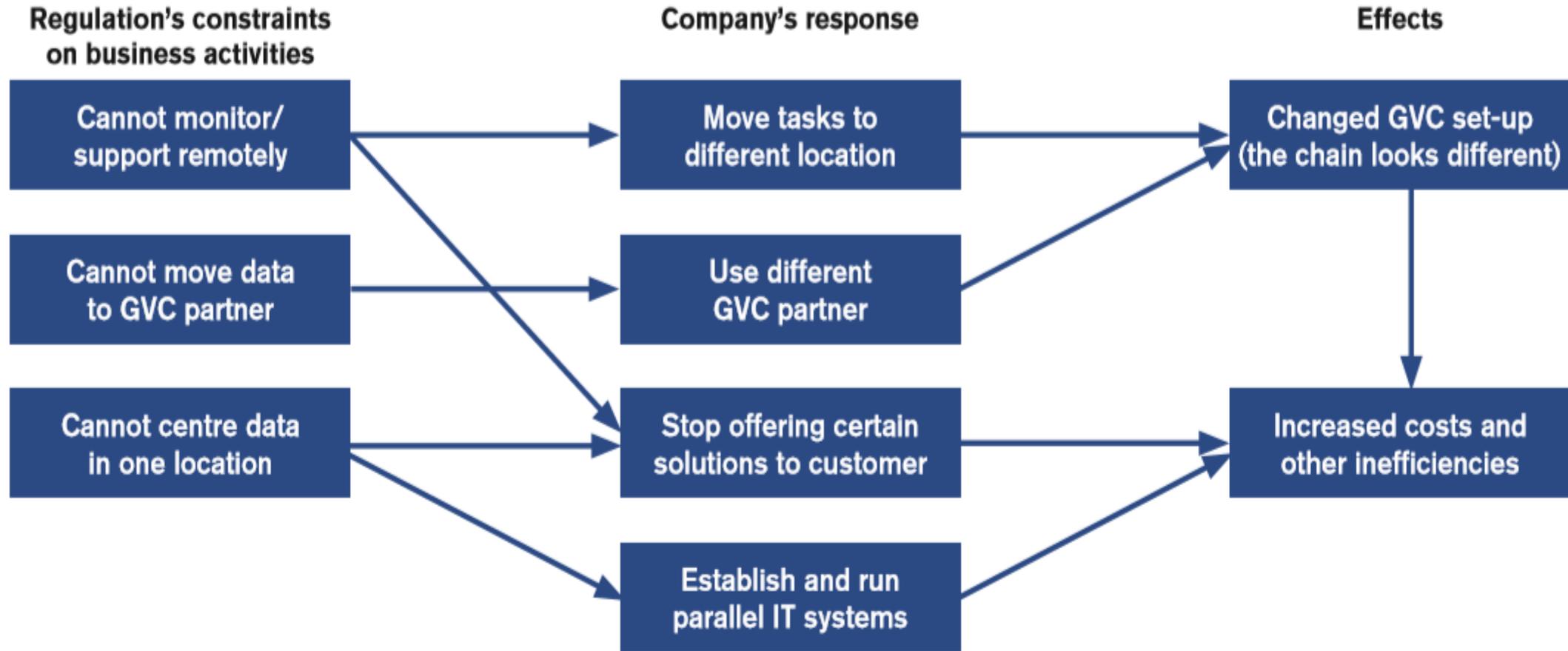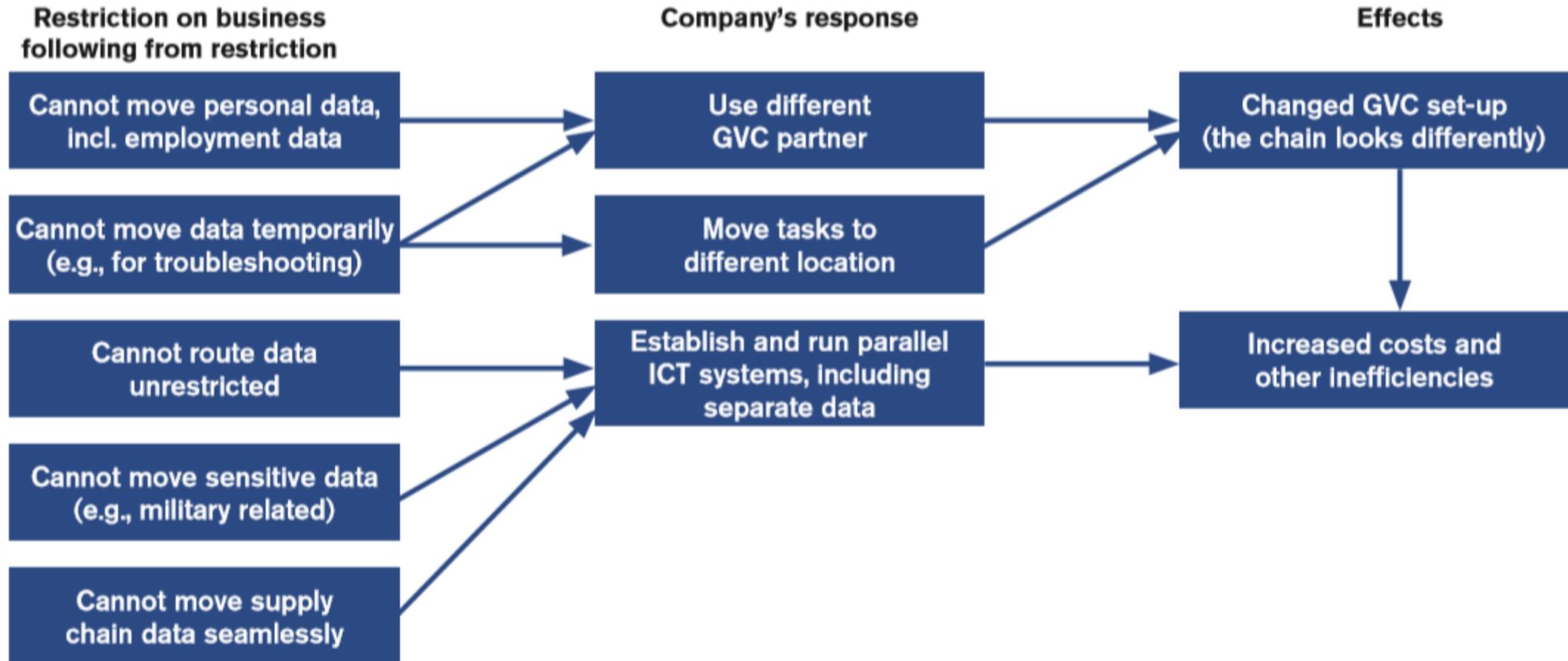# Figure 5: Forced localization – company response and subsequent effects

Figure 7: Restrictions on cross-border data transfers – company response and subsequent effects

Restriction on business following from restriction

- Cannot move personal data, incl. employment data
- Cannot move data temporarily (e.g., for troubleshooting)
- Cannot route data unrestricted
- Cannot move sensitive data (e.g., military related)
- Cannot move supply chain data seamlessly

Company's response

- Use different GVC partner
- Move tasks to different location
- Establish and run parallel ICT systems, including separate data

Effects

- Changed GVC set-up (the chain looks differently)
- Increased costs and other inefficiencies

The Fourth Industrial Revolution

Changing trade as we know it

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