



CRiQ
INNOVATION PARTNER

INDUSTRY 4.0

DIGITAL TRANSFORMATION

Innovation and
productivity driver

WHAT IS A SMART FACTORY?

Factories are getting smarter and now have the capacity to continuously relay and analyze supply and production data, as well as information on customer sales and requests. This opens the door to new opportunities for automatic feedback to optimize yields and boost productivity.

TECHNOLOGY AND EXPERTISE

- Internet of things (IoT)
- Artificial intelligence
- Computer vision
- Complex data analysis
- Predictive analytics
- Machine learning
- Advanced robotics

Smart factories are responsive, adaptable, and geared to your customers' specific needs. Companies can use the Internet of things and cyber-physical systems to tap into artificial intelligence and complex data analysis in order to automate production management. Sensors that communicate with one another, as well as with production systems, allow companies to remotely monitor production and perform their own diagnoses. These technologies help manufacturing companies make optimal use of their human and material resources.

BENEFITS OF DIGITAL TRANSFORMATION

- ↑ Improved product quality
- ↑ Easier communication and collaboration
- ↑ Better use of machines, tools, and human resources
- ↓ Reduced time to market
- ↓ Less change requests

Digital transformation entails a reliance on digital functionality at all stages of production, from product design to delivery. It also means access to real-time inventory, continuous tracking of production line performance, better product quality control, and reinforced client and supplier relationships.

THE CYBER-PHYSICAL FACTORY

An experimental laboratory and value-added services.

Innovative manufacturers who want to adopt Industry 4.0 technologies face a multitude of options for experimentation and validation in a specialized laboratory called the cyber-physical factory (CP factory).

This is a learning factory with a full assembly line reproducing different digital industry systems for simulation of production and potential gains. In the learning factory, technicians and business decision-makers can become familiar with new production equipment and receive practical training directly applicable to their business context.

The CRIQ and Festo recently entered into an agreement with the objective of accelerating the implementation of Industry 4.0 and intelligent factor principles in the Québec manufacturing context.



CRIQ IS AVAILABLE TO ASSIST YOU WITH THE DIGITAL TRANSFORMATION OF YOUR FACTORIES



OUR SERVICES

DIGITAL QUALIFICATION

- Execute an Audit 4.0.
- Identify the steps which will transform your organization.
- Estimate the investments needed to attain that goal.
- Prioritize the projects to be undertaken.

The digital qualification service is a customized support approach undertaken by a team of experts who help you evaluate the effort and investment needed to transform your factory and enhance its productivity and competitiveness.

At the end of the qualification you will receive a report including a systematic evaluation of your plant's digital capacity, as well as comments and recommendations, and a prioritized list of projects to be implemented.

AUTOMATING OPERATIONS MANAGEMENT

- Automate a complex operation for which skilled labour is scarce.
- Automatically obtain information that is hard to calculate.
- Revamp your processes to boost profits and improve quality.

CRIQ's operations management automation service aims to optimize the management of your manufacturing operations—such as production planning, supply management, and quality control—by cutting waste and boosting productivity.

Depending on your needs, CRIQ helps you target and automate operations that are either wasteful or that could generate additional revenue.

ARTIFICIAL INTELLIGENCE FORECASTING

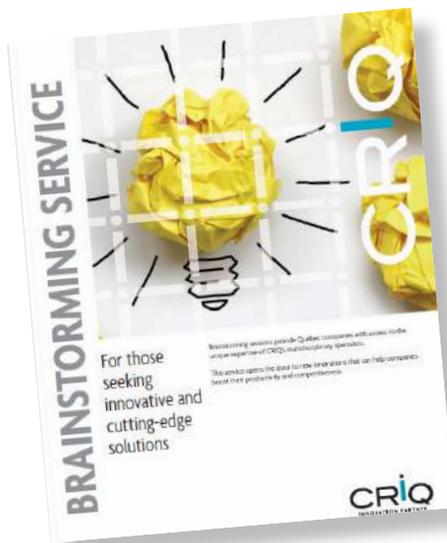
- Discover the potential inherent in your existing data and improve your productivity.
- Get a handle on factors that impact your results.

Our artificial intelligence forecasting service, which gathers data from various manufacturing systems, helps you understand how factors related to supply, the environment, production, and equipment wear and maintenance impact production line productivity.

Using a machine learning process, artificial intelligence systems forecast complex situations that would otherwise be impossible to evaluate. This information is then used to refine operations management.

INQUIRE ABOUT OUR OTHER SERVICES

Industrial brainstorming



First collaborative robot



Complex automation



SELECTING A PILOT PROJECT

Looking for a quick way to take advantage of digital excellence? Why not target one of these forward-looking projects:

ANALYZE HOW A NEW PRODUCT AFFECTS PRODUCTION



The CRIQ team will simulate the introduction of a new product into your current production planning to determine its potential impact on profitability.

Utilizing information on your production process over a given period of time, a project like this allows you to assess the repercussions of a variety of known situations in the context of different production start-up scenarios.

UPKEEP AND MAINTENANCE OPERATIONS FORECASTING



It can be a challenge to forecast and schedule maintenance and upkeep operations in accordance with your equipment, production schedule, and other underlying constraints.

The CRIQ team will study your digital data history and, using artificial intelligence, program your management system to provide you with the data and alerts required to optimize your maintenance and upkeep operations.

IDENTIFY MAJOR GAIN AND LOSS FACTORS



Our experts can assist your organization by identifying the root causes behind gains and losses related to your processes and by implementing an automatic feedback system.

This system will help you identify the variables and constraints with the greatest effect on your processes. Based on this information, the system will be capable of suggesting various adjustments to optimize your process settings.

OUR EXPERTS

Our experts are available to assist you on a number of levels in your quest for digital excellence:

- Operations connectivity
- Digitization of manufacturing operations
- Digital products
- Availability of digital data
- Employee knowledge and training requirements
- Organizational strategy

We invite you to contact us and get started today!



Guy Genest, Eng.
Industry Adviser
1 800 667-2386, ext. 2879
guy.genest@criq.qc.ca



Michèle Boies, M. Sc.
Process optimization and
computer vision



Corinne Chabot, B. Sc. A.
Optimization and big data



Maxime Diamond, B. Sc. A.
Connectivity and big data



Feng Ding, Eng., Ph.D.
Artificial intelligence and
mathematical modelling



Nicholas Drolet, Eng., EMD
Industrial engineering



Richard Gagnon, Eng.
Modelling and
computer vision



Jean-Yves Gameau, B. Sc. A.
Internet of things and
connectivity



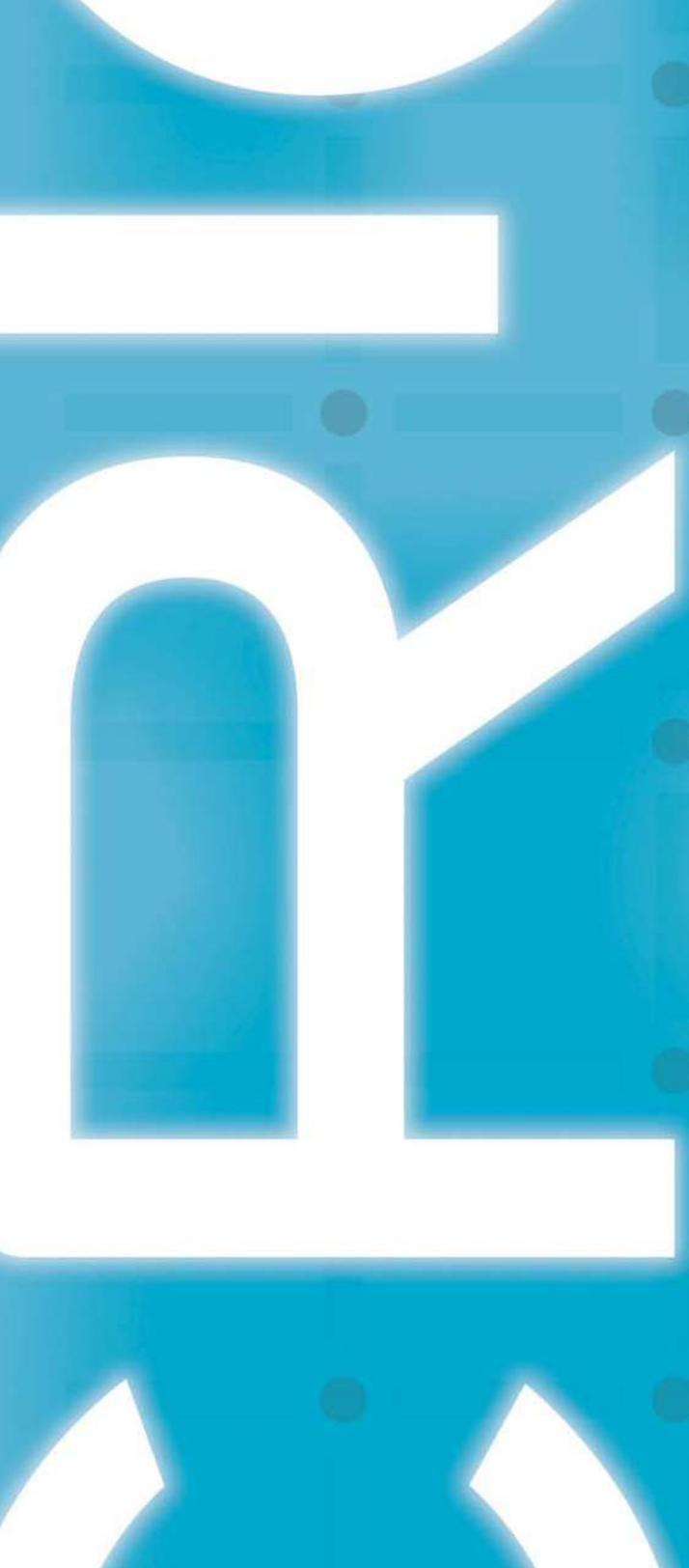
Jacques Labrie, B. Sc. A.
Connectivity and big data



Claude Lejeune, Ph.D.
Artificial intelligence and
mathematical modelling



Jocelyn Paul, Eng.
Industrial engineering



Contact Us

Québec City

333 rue Franquet
Québec City, Québec
G1P 4C7
Tel.: 418 659-1550
Toll free: 1 800 667-2386
infocriq@criq.qc.ca

Montréal

1201 boulevard Crémazie Est,
Suite 1.210
Montréal, Québec
H2M 0A6
Tel.: 514 383-1550
Toll free: 1 800 667-4570
infocriq@criq.qc.ca

www.criq.qc.ca