Where am I now & where do I need to be?
(A road map to your automation system of tomorrow)
Today’s Agenda

• TriCore Inc: Who are we?
• Where am I now?
• Where do I need to be?
• Planning for the future
• Case Study: Consumer Packaged Goods
Today’s Agenda

• TriCore Inc: Who are we?
• Where am I now?
• Where do I need to be?
• Planning for the future
• Case Study: Consumer Packaged Goods
WHO ARE WE?

Greg Clark

- Vice President of Engineering
- Email: gclark@tricore.com
- Phone: 262-886-3630

Tim Dresen

- Business Development Manager
- Email: tdresen@tricore.com
- Phone: 262-886-3630
ABOUT TRICORE

TriCore Inc.

- Founded in 1991
- International System Integrator

  - Corporate office:
    - Racine, WI
  - Regional offices:
    - Engineering, Sales & Support
      - Racine, WI
      - Los Angeles, CA
      - Indianapolis, IN
      - Calgary, AB
Recognized System Integrator Level

- Companies that are competent and committed to lead with our technologies and have mutually supportive relationship with our Sales and/or distributors.

Solution Partner Level

- Demonstrates the highest level of commitment toward our technologies and relationships, is an industry leader, and has differentiated service or solutions that complement or extend ours.

System Integrator Level

- Companies that want to take advantage of our software and competency development tools.

A ROCKWELL SOLUTION PARTNER
## INDUSTRY EXPERTISE

### Beverage
- Brewing
- Carbonated Soft Drinks
- Energy Drinks
- Fluid Milk
- Fruit Juices
- Tea

### Food
- Baking
- Candy & Confections
- Cheese Processing
- Ice Cream
- Jelly & Jam
- Ketchup
- Salad Dressing
- Sauces
- Syrup
- Yogurt

### Other
- Consumer Products
- Life Sciences
- Chemical
- Bioscience

---

*TriCore*
Programmed to please
Levels

1. Physical Devices & Controllers
   (The “Things” in IIoT, Sensors, Devices, Machines, etc.)

2. Connectivity
   (Communications & Networking)

3. Edge Computing
   (Real-Time Data, HMI’s & OIT’s)

4. Data Accumulation
   (Storage, SQL Server & Historians)

5. Data Abstraction
   (Aggregation, Transformation & Migration)

6. Application
   (Reporting, Analytics & Dashboards)

7. Collaboration & Processes
   (People & Business Processes)

Front Office

Plant Floor

TRICORE’s PLAYGROUND
TRICARE 24/7 IS THE SECURITY BLANKET THAT LETS EVEN THE MOST WORRISOME MANAGERS SLEEP LIKE BABIES.

• We do whatever it takes to keep your system up & running
• TriCARE 24/7 is peace of mind 24/7
  ○ Support engineer access 24/7/365
  ○ Help desk/call support
  ○ System health checks
  ○ Optional scheduled site service
  ○ Cloud based file storage
• Instrumentation Calibration
• Preventative Site Maintenance Trips
Today’s Agenda

• TriCore Inc: Who are we?
• Where am I now?
• Where do I need to be?
• Planning for the future
• Case Study: Consumer Packaged Goods
WHERE AND I NOW?

If you don’t know where you are; how do you know how to get where you want to be?
ROCKWELL’s PRODUCT LIFECYCLE

**ACTIVE**
Most current product offering within a category. 
Product does not have to be recently launched.

**ACTIVE MATURE**
Product is fully supported, but a newer product or family exists.
Gain value by migrating to a newer product of family.

**END OF LIFE**
Discontinued date announced – actively execute migrations and last time buys.
Product generally orderable until discontinued date.\(^1\)

**DISCONTINUED**
New product no longer manufactured or procured.\(^2\)
Repair/Exchange services may still be available.

---

\(^1\) Outages on specific items may occur prior to the discontinued date.
\(^2\) Limited stock may be available in run-out mode, regionally.
PLANT ASSESSMENTS

- Networking
- Plant Floor Devices
PLANT ASSESSMENTS

- Operations IT Infrastructure
- Data and Reporting
WHAT DID WE FIND

50% of process floor PC’s are end of support

- Active or Active Mature: 58%
- More information needed: 1%
- End of Life or Discontinued: 16%
- Modicon or Automation Direct: 25%
Today’s Agenda

• TriCore Inc: Who are we?
• Where am I now?
• Where do I need to be?
• Planning for the future
• Case Study: Consumer Packaged Goods
SO WHAT NOW!? 

Get Alignment!

- Create an Automation Standard
  - Create a Hardware Standard
  - Create Software Modules and Methodologies
- Data!
SO WHAT NOW!? 

**What automation standard is right for me?**

- Plant Pax
- Develop our own
- Have an SI develop them
What would you like to see happen?

- TriCore is there to be your tour guide in your control system journey
- Short Term Strategy
- Long Term Strategy
Today’s Agenda

- TriCore Inc: Who are we?
- Where am I now?
- Where do I need to be?
- Planning for the future
- Case Study: Consumer Packaged Goods
<table>
<thead>
<tr>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanization, water power, steam power</td>
<td>Mass production, assembly line, electricity</td>
<td>Computer and automation</td>
<td>Cyber Physical Systems</td>
<td>???</td>
</tr>
</tbody>
</table>

1760’s – 1900’s | 1900’s - 1970’s | 1970’s - 2010’s | 2010’s - ??? |

SO WHAT IS NEXT?
WHERE ARE WE TODAY?
IS THIS WHERE YOU ARE?
THE ASSEMBLY LINE IS BORN!
SO WHEN DID MANUFACTURING BEGIN?
HOW DO I GET READY?

1900's - 1970's (~70 yrs)

1760's – 1900's (~140 yrs)

1970's - 2010's (~40 yrs)

2010's - ??? (~20 yrs?)

2030's ?

WHEN DO YOU NEED TO BE READY?
Levels

1. **Physical Devices & Controllers**
   - (The “Things” in IIoT, Sensors, Devices, Machines, etc.)

2. **Connectivity**
   - (Communications & Networking)

3. **Edge Computing**
   - (Real-Time Data, HMI’s & OIT’s)

4. **Data Accumulation**
   - (Storage, SQL Server & Historians)

5. **Data Abstraction**
   - (Aggregation, Transformation & Migration)

6. **Application**
   - (Reporting, Analytics & Dashboards)

7. **Collaboration & Processes**
   - (People & Business Processes)

---

**IOT REFERENCE MODEL**
IOT REFERENCE MODEL

Levels

7. Collaboration & Processes
   (People & Business Processes)

6. Application
   (Reporting, Analytics & Dashboards)

5. Data Abstraction
   (Aggregation, Transformation & Migration)

4. Data Accumulation
   (Storage, SQL Server & Historians)

3. Edge Computing
   (Real-Time Data, HMI’s & OIT’s)

2. Connectivity
   (Communications & Networking)

1. Physical Devices & Controllers
   (The “Things” in IIoT, Sensors, Devices, Machines, etc.)

Front Office

Level 4

Plant Floor
IOT REFERENCE MODEL

Levels

1. Plant Floor
2. Level 2
3. Level 3
4. Level 4
5. Level 5
6. Level 6
7. Front Office

Information Technology

- IT
- Event Based
- Data at Rest
- Non-Real Time

- OT
- Data in Motion
- Real Time

Operational Technology
WHAT CAN DATA DO FOR YOU?

Reports
- Generally static snapshots in time.
- Formally documents what happened at a specific point in time such as a batch record.

Analytics
- Aggregates data over time from various data sources together.
- Brings visibility to variations in your process that may be difficult to see.

Dashboards
- Typically displays current or real time data.
- Displays a high level view of what is happening so tactical decisions can be made.

Mobile
- View real time & historical data on the go.
- Allows you to see KPI’s and other critical data from any location at any time.
WHAT LEVEL OF VISIBILITY IS RIGHT FOR YOU?

Information

Optimization

Higher

Total Value

No record of the event.

Did something happen?

What happened?

Why did it happen?

Prescriptive Analytics

Raw Data

Descriptive Analytics

Diagnostic Analytics

Predictive Analytics

Hindsight

Insight

Foresight

No Data

When will it happen again?

Can we make it happen again?

Level of Difficulty

Why did it happen?

Did something happen?

What happened?

No record of the event.

Level of Difficulty

Total Value

Optimization
WHAT ARE THE COMMON ROADBLOCKS?
The 3 most common roadblocks:

1. I don’t know where to begin
   • Build a roadmap & have a master plan

2. It costs too much / We don’t have the funds
   • Don’t try to do everything at once

3. I don’t have the required infrastructure
   • Where possible build progress into current projects
Today’s Agenda

• TriCore Inc: Who are we?
• Where am I now?
• Where do I need to be?
• Planning for the future
• Case Study: Consumer Packaged Goods
CASE STUDY: CONSUMER PACKAGED GOODS
THE CHALLENGE

A large Consumer Package Goods company in Southeast Wisconsin wanted us to build and deploy identical batching skids for use in multiple countries

Challenges:
- Recipe consistency
- Batching needed to be highly automated
- Reusable code
- Had to be modular & scalable
- System needed to be able to be supported around the globe
What automation standard is right for me?

- End User Develops Their Own
- Utilize Rockwell’s PlantPAx Library
- Have a 3rd Party or System Integrator develop standard
TriCore proposed a solution that includes comprehensive suite of products that exceeded the customer’s requirements.

**Tools Used**

- *Integrated Architecture® Builder*
- *PlantPAx® System Estimator (PSE)*
  - *Size PACs*
  - *Server Hardware Specs*
  - *Software Licenses*
THE HARDWARE FOUNDATION

Standardized hardware in all locations.

Globally supported hardware & software platform.

Can be managed centrally by TriCore, Corporate IT staff & Local Plant Staff.
THE HARDWARE FOUNDATION
SO WHAT DID WE USE & WHY?

- Owned and Maintained by Rockwell
- Create a common platform across the plant
- Training material and manuals
- Scalable and Modular
- Free!
SO WHAT DID WE USE & WHY?

- S88 Modeling – Easy to Standardize
- Scalable
- Training Materials and Manuals
- Global Support
ANY QUESTIONS?
Thank You