SIEMENS
Ingenuity for life

Your Partner in Battery Manufacturing

Information about the Company

- *Siemens Corporation is a U.S. subsidiary of Siemens AG, a global powerhouse focusing on the areas of electrification, automation and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies,*
- *379,000 employees in 190 countries,*
- *Siemens reported worldwide revenue of $94.0 billion in fiscal 2018.*

Strength in USA

- *Siemens in the USA reported revenue of $23.7 billion, including $5.0 billion in exports, and employs approximately 50,000 people throughout all 50 states and Puerto Rico.*
- 5 production and research facilities / 10 local offices
- Local battery experts and implementation support

»Contacts:
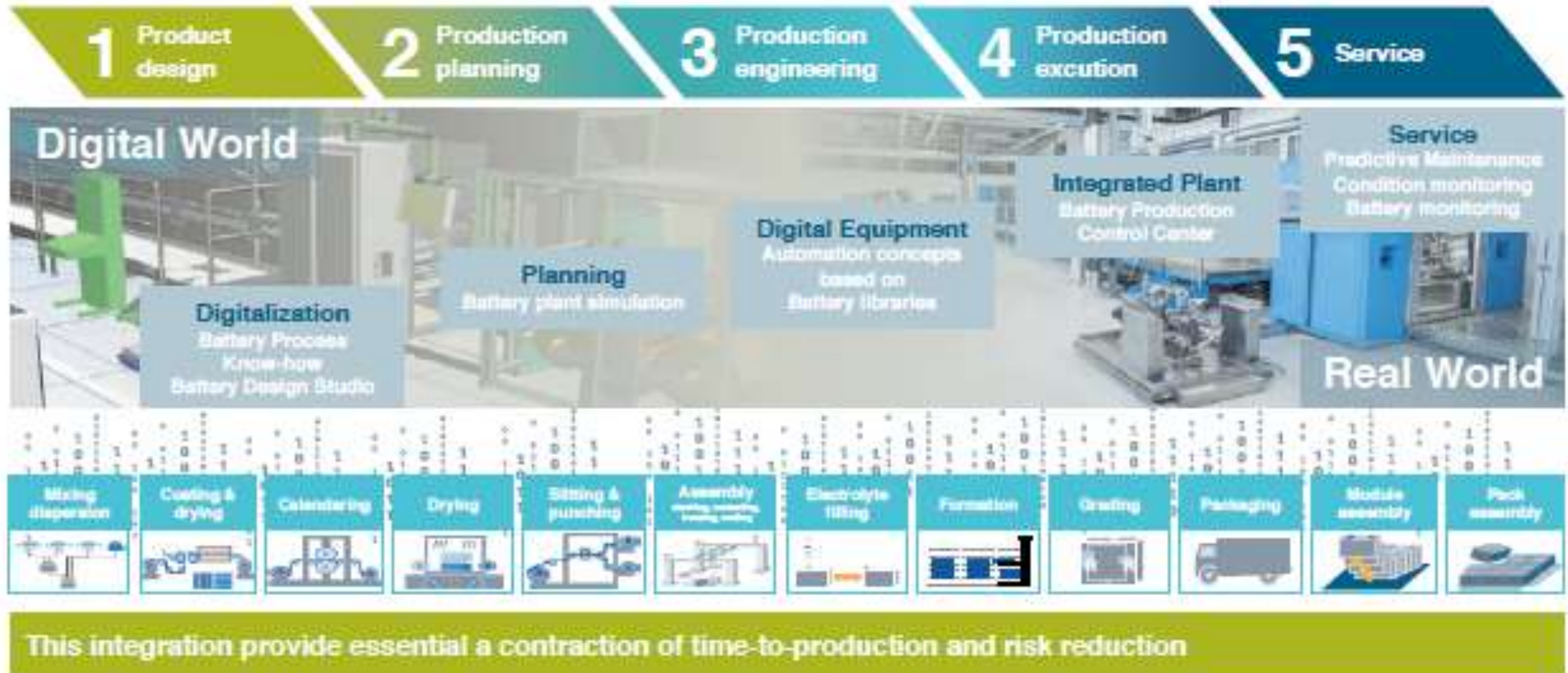- *Melanie Spare – Melanie.Spare@Siemens.com*
  US Business Development & Marketing – Battery
- *Phil Aponte – Phil.Aponte@Siemens.com*
  US Business Development – Electronic Assembly & Battery

Unrestricted
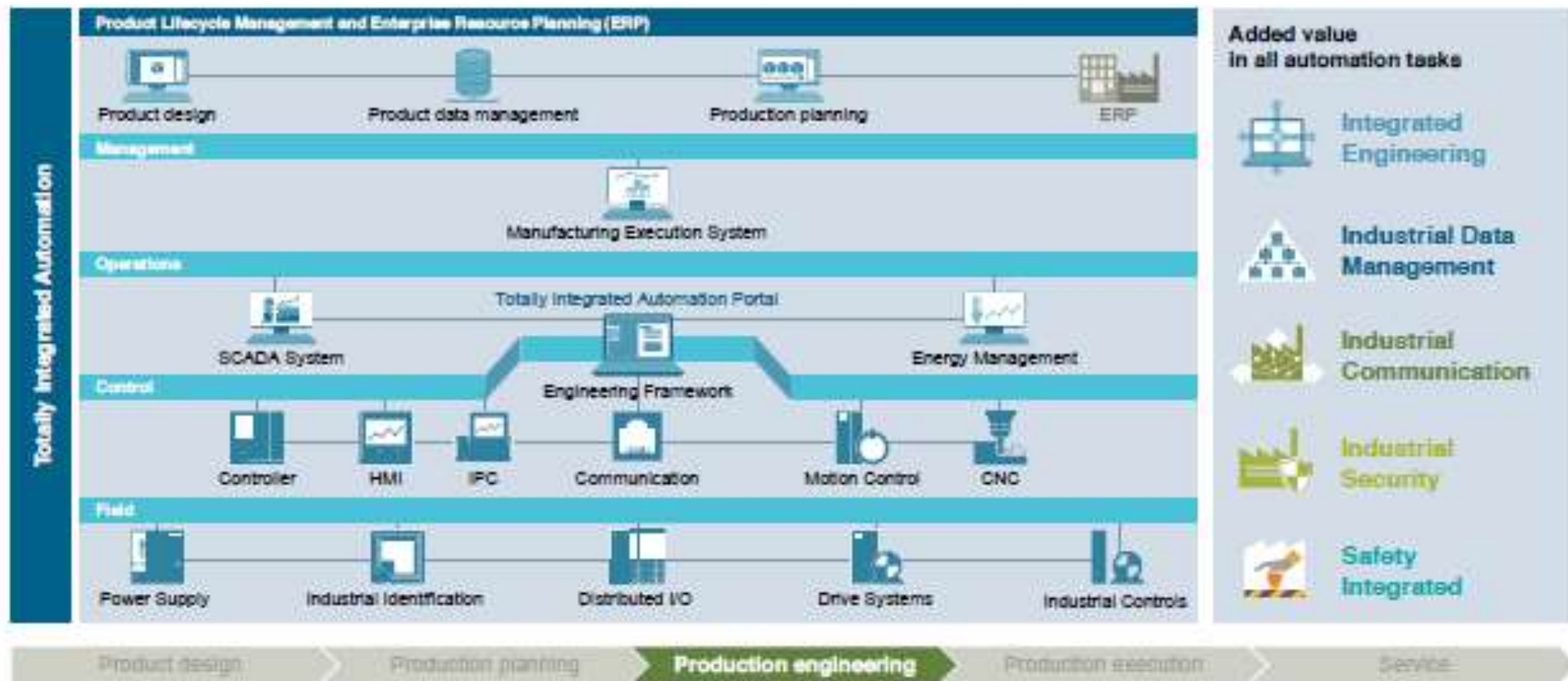
»The Battery Show 2019 - Booth # 2405
- **www.siemens.com/battery**

Digital Enterprise for battery industry

The Totally Integrated Automation portfolio

Perfectly tailored solutions for battery manufacturing in record time

Battery Converting Toolbox

Standardized automation packages with tested know-how for SIMOTION, SINAMICS and SIMATIC Systems

- Winding
- Coating and Laminating
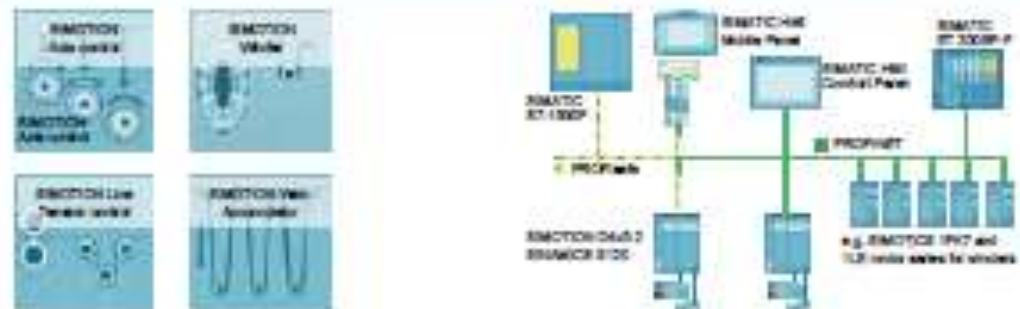- Cutting
- Punching
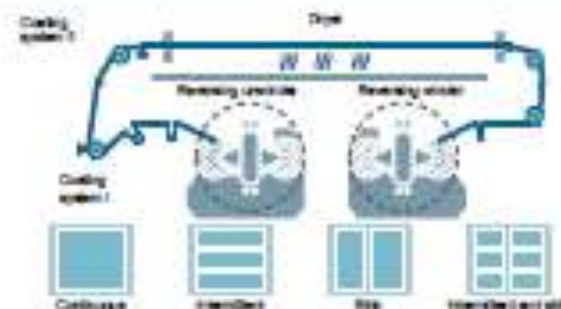- Spooling

Advantages of Converting Toolbox

- Time saving for commissioning and service
- Transparent and tested software
- Global APC support
- Open source for simple adaptations
- Solutions for SIMOTION, SINAMICS and SIMATIC
- The applications are free

Electrode coating

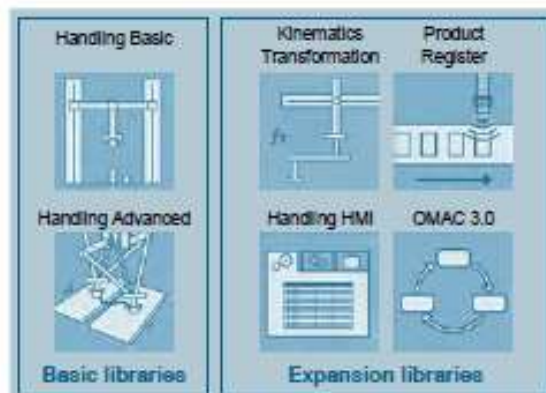### Automation solution with Converting Toolbox

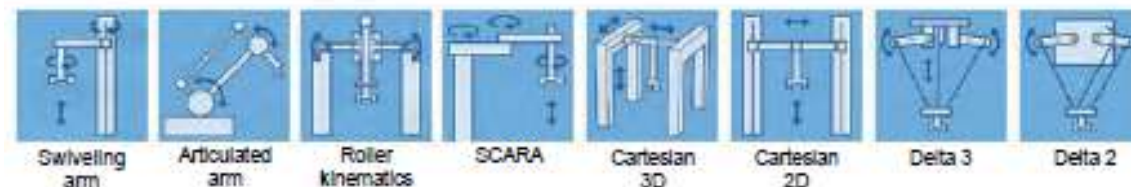### Machine

Fast and Efficient Programming

Battery Handling Toolbox

- Standard and modular Software library
- Handling with SIMOTION fulfills the OPL requirements

Handling Basic | Kinematics Transformation | Product Register
Handling Advanced | Handling HMI | OMAC 3.0
Basic libraries | Expansion libraries

Standard

- The so-called standard-kinematics are already integrated on the system
- The pre-configured blocks allows a fast and efficient engineering

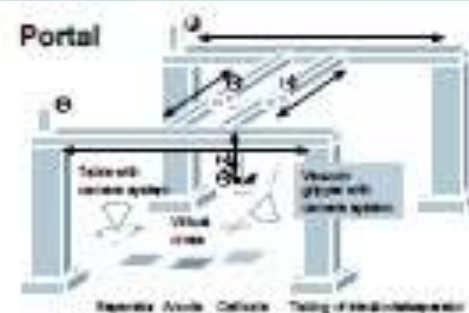### Most common kinematics are available in the standard system-blocks

Swiveling arm | Articulated arm | Roller kinematics | SCARA | Cartesian 3D | Cartesian 2D | Delta 3 | Delta 2

Kinematic for assembling of prismatic cell by stacking

Automation solution

SIMATIC S7 (F)

- Machine automation
- SIMOTION
- Standard handling application

I/O: ET200 (F)
SINAMICS S/G: Traction drive
PROFIsafe
PROFINET

Machine

Portal

Siemens is passing through the digital transformation itself and adapting its processes to the new reality

SIEMENS
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Example – Electronics facility in Amberg, Germany

Fast

~1 SIMATIC product per second >1,200 product variants in the team center

Flexible

24 hours between order and arrival at customer

Efficient

Roughly nine-fold increase in shop floor utilization since production start (1990)

High-quality

Fewer than 11dpm, for a quality level of 99.9989%