

Digital



MAY 18, 2022

ABB Capital Markets Day

Process Automation

Helsinki, Finland

Important notices

This presentation includes forward-looking information and statements including statements concerning the outlook for our businesses.

These statements are based on current expectations, estimates and projections about the factors that may affect our future performance, including global economic conditions, and the economic conditions of the regions and industries that are major markets for ABB Ltd. These expectations, estimates and projections are generally identifiable by statements containing words such as “expects,” “believes,” “estimates,” “targets,” “plans,” “outlook,” “on track,” “framework”, “ambition” or similar expressions.

There are numerous risks and uncertainties, many of which are beyond our control, that could cause our actual results to differ materially from the forward-looking information and statements made in this presentation and which could affect our ability to achieve any or all of our stated targets or anticipated transactions.

The important factors that could cause such differences include, among others:

- Business risks associated with the volatile global economic environment and political conditions
- Costs associated with compliance activities
- Market acceptance of new products and services
- Changes in governmental regulations and currency exchange rates
- General market conditions, and
- Such other factors as may be discussed from time to time in ABB Ltd’s filings with the US Securities and Exchange Commission, including its Annual Reports on Form 20-F.

Although ABB Ltd believes that its expectations reflected in any such forward-looking statement are based upon reasonable assumptions, **it can give no assurance that those expectations will be achieved.** We caution that the foregoing list of factors is not exclusive, and you should not place undue reliance upon any forward-looking statements, including projections, which speak only as of the date made. We do not undertake or accept any obligation to release publicly any updates or revisions to any forward-looking statements to reflect any change in our expectations or any change in events, conditions or circumstances on which any such statement is based.

This presentation contains non-GAAP measures of performance. Definitions of these measures and reconciliations between these measures and their US GAAP counterparts can be found in the “Supplemental Reconciliations and Definitions” section of “Financial Information” under “Quarterly results and annual reports” on our website at www.abb.com/investorrelations. Reconciliations can be found on our website under “Process Automation Capital Markets Day 2022”.

This presentation shall not constitute or form part of, or be construed as, an offer, invitation or recommendation to purchase, sell or subscribe for any securities in any jurisdiction or a solicitation of any offer to purchase, sell or subscribe for any securities in any jurisdiction and neither the issue of the information nor anything contained herein shall form the basis of or be relied upon in connection with, or act as any inducement to enter into, any investment activity. This presentation should not be construed as a prospectus or offering document and investors should not subscribe for or purchase any shares in ABB Ltd or any affiliate thereof on the basis of or in reliance on the information contained in this presentation. The spin-off and IPO referred to in the presentation will be undertaken, if at all, in transactions not subject to the registration requirements of the Securities Act of 1933 or the Securities Exchange Act of 1934.

Digital: industrial software & digital services

INTEGRATED SYSTEMS

4 DIGITAL



3 AUTOMATION



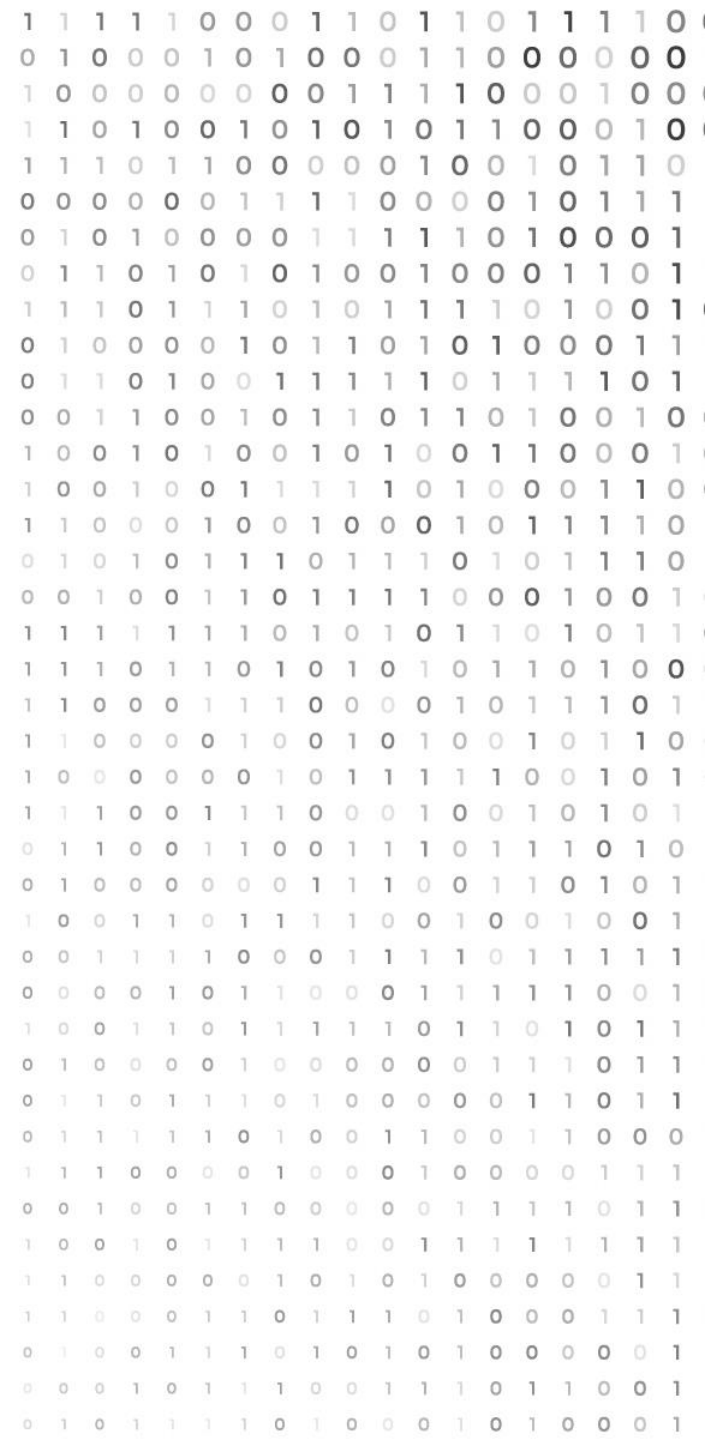
1 SENSING



2 ANCHOR PRODUCTS



ELECTRICAL & MOTION



Digital

What this session will be about

1 **Clarification** on what our **digital** business is and how it is performing

2 Our **organic strategy** and how it compares against alternative approaches

3 **Deep-dive** on our **offering** with examples on how we execute on our strategic priorities



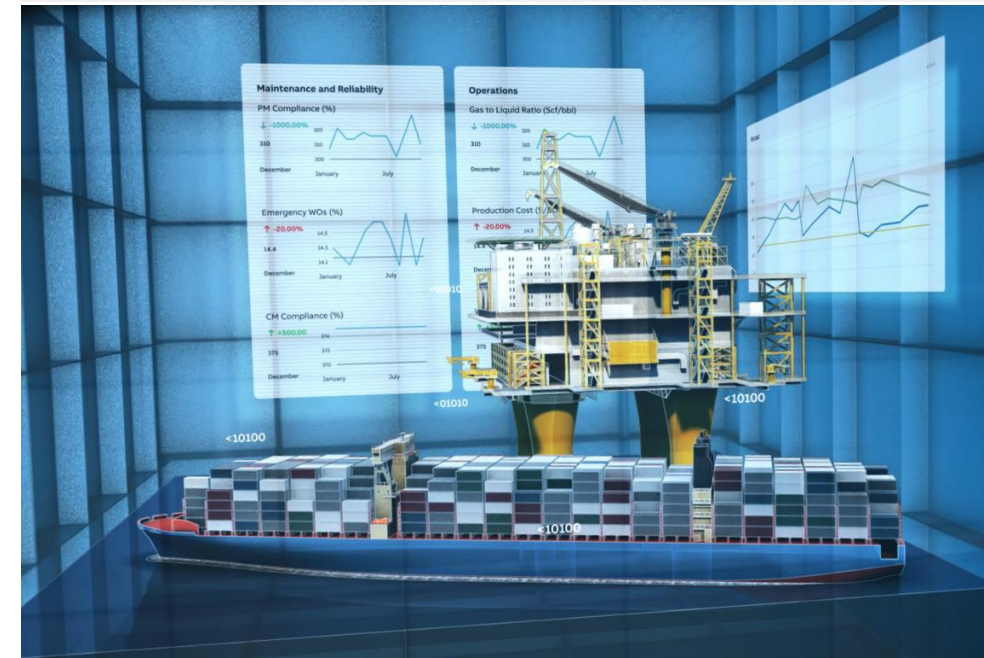
Peter Terwiesch
President,
Process Automation



Juha Koskela
Division President,
Marine & Ports



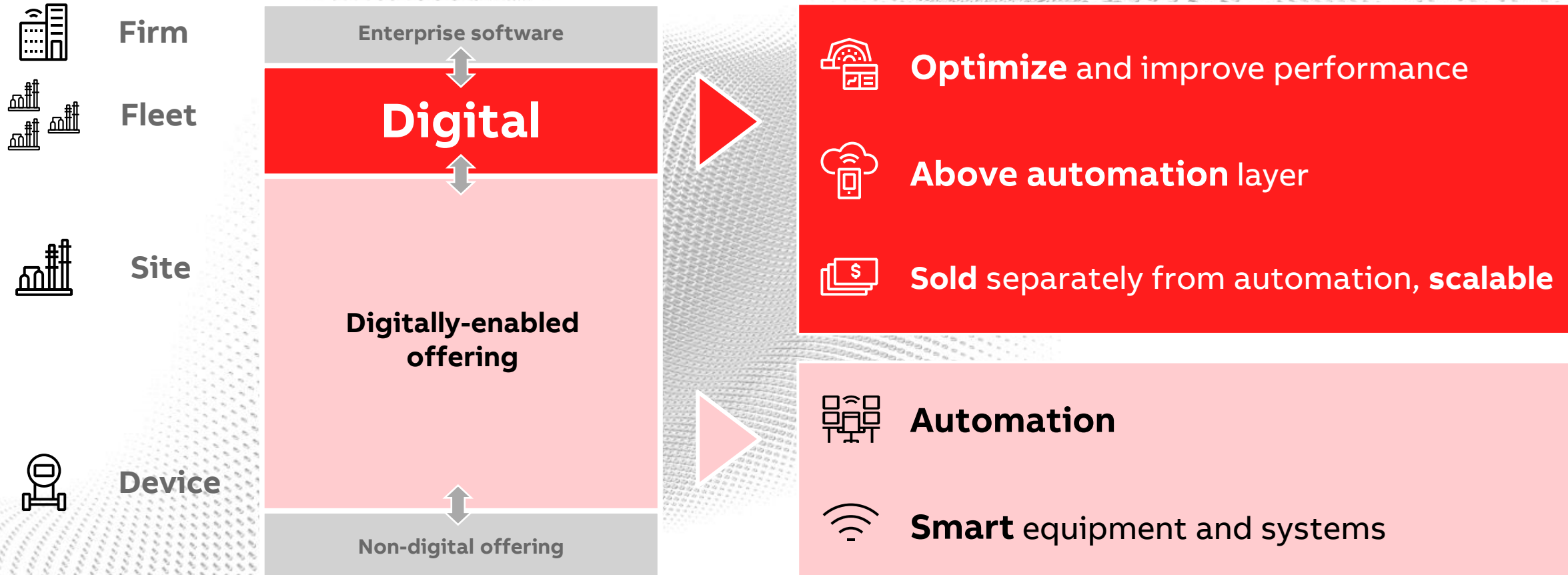
Brandon Spencer
Division President,
Energy Industries



Digital

What do we mean

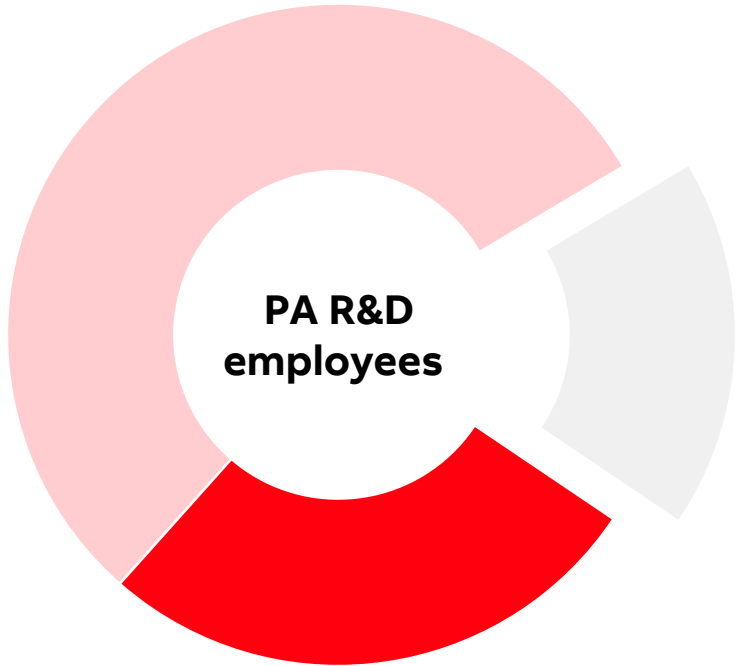
~\$500M industrial software & digital services business today



Software development

Core capability for decades

Automation and other embedded software



Hardware

Digital – industrial software

```
> common-hmi > src > validator > TS validator.ts > layoutBreakp
column: Validator.positiveNumber,
row: Validator.positiveNumber,
spanColumns: {
  validator: Validator.positiveNumber,
  optional: true,
},
spanRows: {
  validator: Validator.positiveNumber,
  optional: true,
},
});

export const layoutBreakpointGridValidator = Validator.object({
  type: Validator.textual({ equals: "grid" }),
  columns: layoutColumnsValidator,
  rows: layoutRowsValidator,
  gap: {
    validator: Validator.positiveNumber,
    optional: true,
  },
  objects: Validator.arrayOf(Validator),
});

export const layoutBreakpointGridValidator = Validator.object({
  type: Validator.textual({ equals: "grid" }),
  columns: layoutColumnsValidator,
  rows: layoutRowsValidator,
  gap: {
    validator: Validator.positiveNumber,
    optional: true,
  },
  objects: Validator.arrayOf(Validator),
});
```

3K+ OUTPUT DEBUG CONSOLE TERMINAL GITLENS

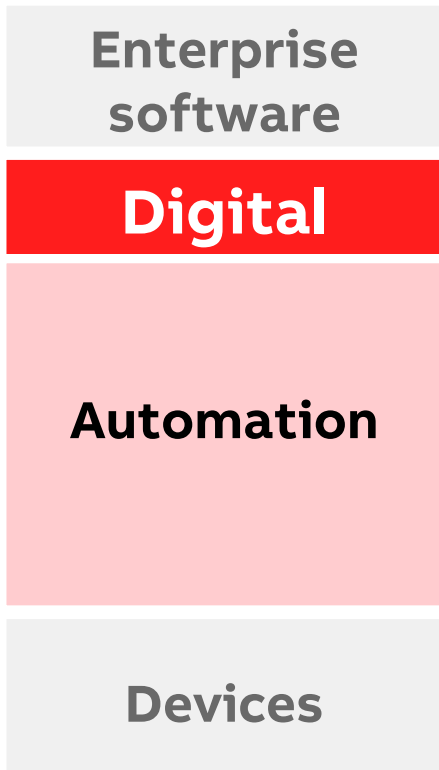
ules by path ../services/hmi-service-logger/dist/*.js 9.73 KiB 3 m
ules by path ../services/hmi-service-logger/dist/transforms/*.js 4
../services/hmi-service-logger/dist/transforms/console.js 2.5 KiB
../services/hmi-service-logger/dist/transforms/notification.js 2.32
es by path ../services/hmi-service-events/dist/*.js 4.82 KiB
services/hmi-service-events/dist/index.js 1.01 KiB [built]
services/hmi-service-events/dist/event-dispatcher.js 3.81 KiB [bu
es by path ../services/hmi-service-i18n/dist/*.js 9.79 KiB
services/hmi-service-i18n/dist/index.js 1020 bytes [built]
services/hmi-service-i18n/dist/I18n.js 8.79 KiB [built]
5.72.0 compiled successfully in 705 ms
: Compiled successfully.

>80% of our R&D related to software

Market growth dynamics

Fastest growing part of industrial “stack”

Market growth



Key digital growth drivers



Productivity

Optimize operations in relatively mature industrial sectors



Sustainability

Improve environmental impact in “hard-to-abate” industries

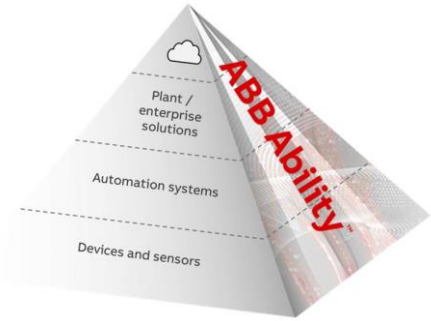


Risk management

Cyber security to prevent downtime, theft and other harm

Organic digital strategy

Disciplined execution against the strategy defined several years ago



Focus on customer value

Build on existing strengths

Organic growth, partnerships, bolt-on acquisitions

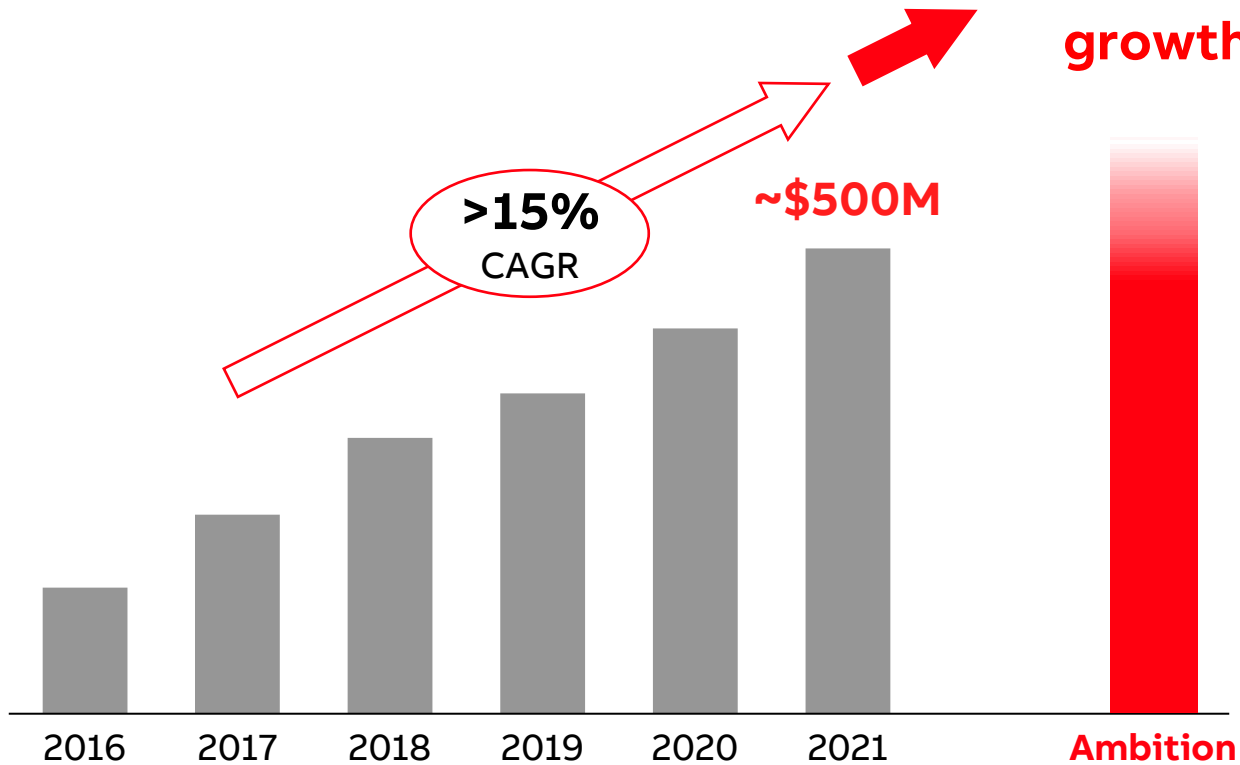
ABB Ability

Our \$500M digital business

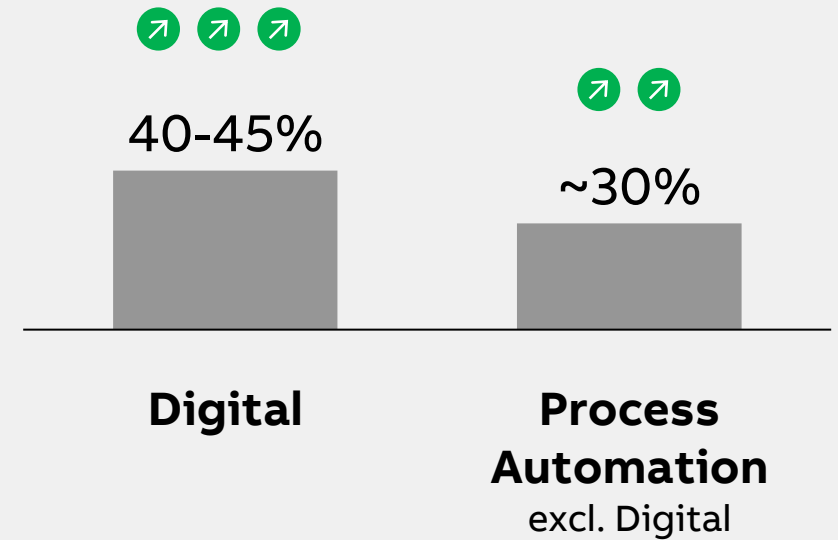
Margin-accretive, double-digit growth

Process Automation Digital orders

Continued double-digit growth



Gross margin

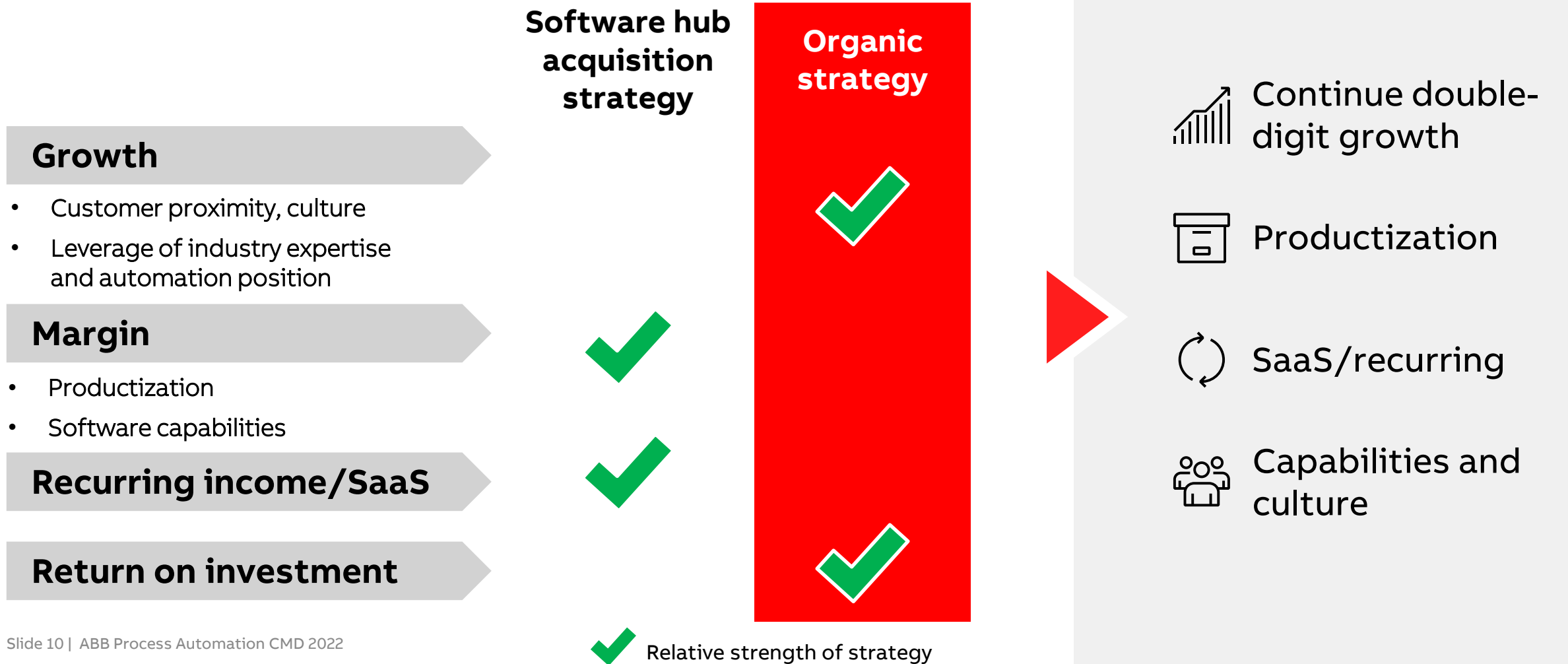


Recurring revenue



35-40%

Strategy comparison and implications



Our offering across the six value pillars – examples shown today



Extended Automation software updates



Cyber Security



Asset Performance Management



Process Performance Management



Operational Excellence



Sustainability

Size

Examples shown during CMD



ABB Ability™ System 800xA – extended capabilities



ABB Ability™ Cyber Security services suite



ABB Azipod® system predictive maintenance

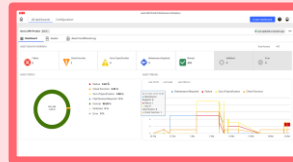


ABB Ability™ Genix APM Suite

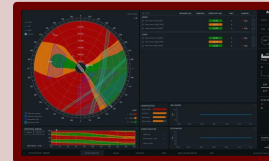


ABB Ability™ OCTOPUS Marine Advisory System



Oversea fleet support as a service



ABB Ability™ Operation Mgmt System for Mining



ABB Ability™ Energy Mgmt Optimax



ABB Ability™ Genix Datalyzer

Digital solutions improve efficiency & safety

~1,600 vessel subscriptions today



VESSEL operation optimization

- Route optimization
- Motion monitoring
- Energy optimization



ASSET performance management

Collaborative Operation Centers

- Remote diagnostics
- Analytics
- Condition-based maintenance



FLEET management

- Cloud-based fleet portal
- Operation Centers as-a-Service





Asset Performance Management

Asset Performance Management

Data-driven customer support

Background

- All new vessel deliveries are digitally enabled
- ~500 vessels connected today
- 90% recurring revenues

Solution

- Onboard data collection, satellite to data cloud
- Remote services from Collaborative Operation Centers
- Advanced analytics to enable condition-based and predictive maintenance

Benefit

- Increased asset availability and vessel uptime
- Up to 50% reduced service and maintenance cost

Collaborative Operation Center



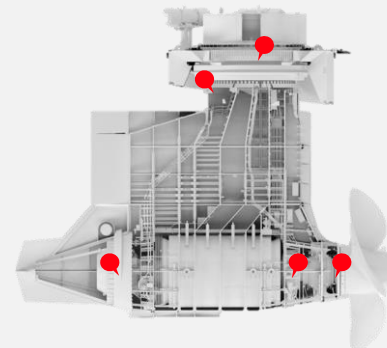
Remote diagnostics

Analytics


Condition-based maintenance





Vessel





Condition monitoring

 Vibration monitoring

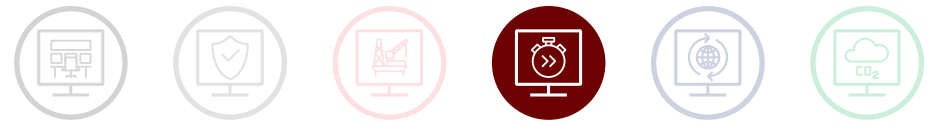
 Water in oil analysis

 Metal particle analysis

 Slewing seal grease sampling

 Borescopic inspection

 Acoustic emission monitoring



Process Performance Management

OCTOPUS Advisory suite

Vessel energy and motion optimization

Background

- Offering not dependent on ABB installed base
- >1,000 vessels connected today
- 70% recurring revenues

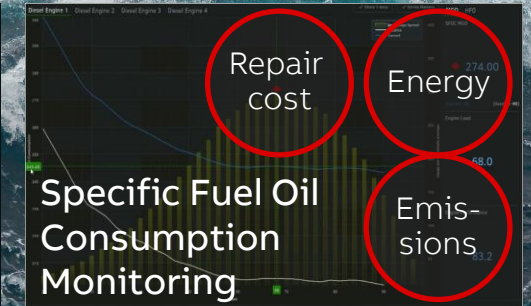
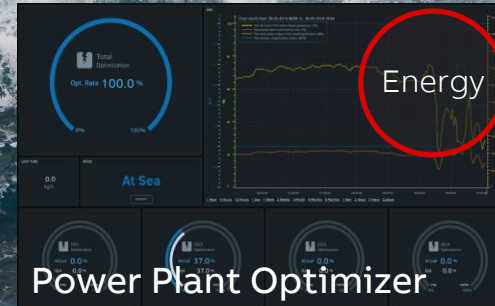
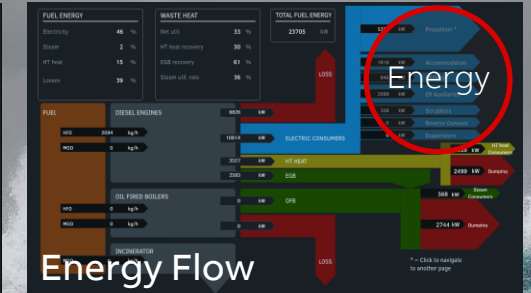
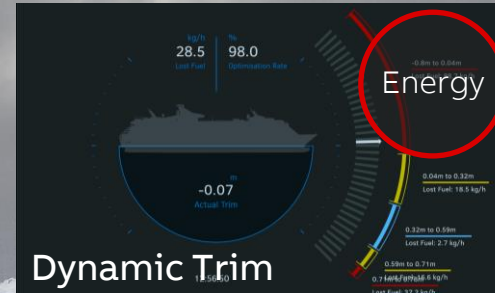
Solution

- Monitors operational and performance-based signals
- Advice how to operate vessel in a safe and efficient way
- Data availability onboard, via fleet portal and ABB's Operation Centers

Benefit

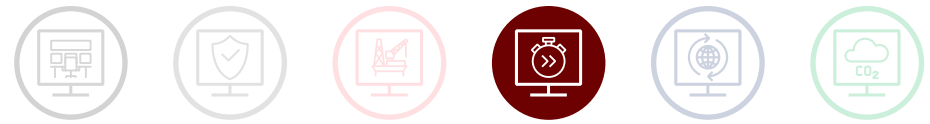
- 3-5% fuel and emission savings
- Improved safety of passengers and cargo

Energy Advisory



Motion Advisory





Process Performance Management

Vessel Operation Optimization

ABB Seakeeping SaaS for best route

Background

- Due to the bad weather, >3,000 containers lost at sea in 2020, ~\$150M

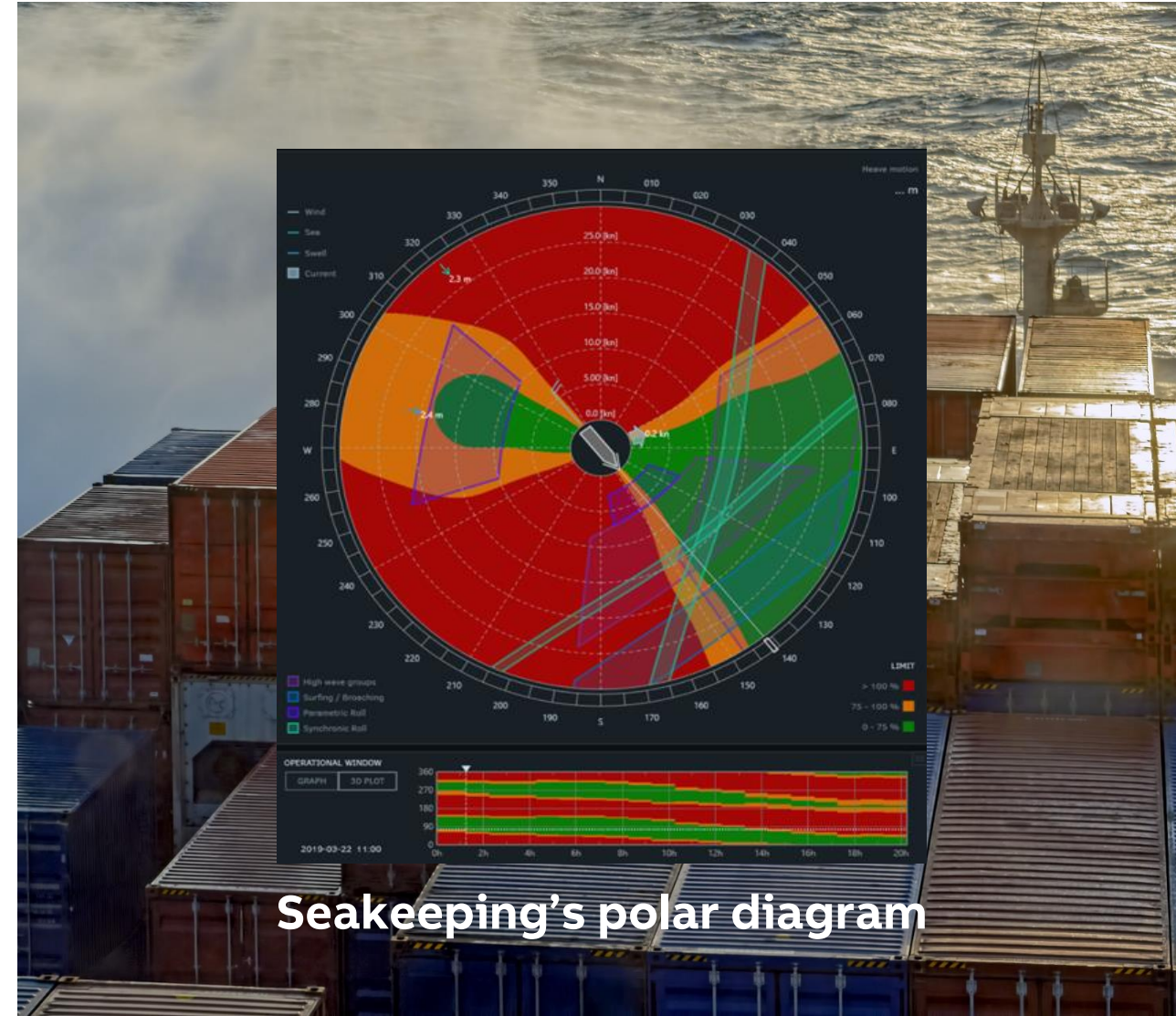
Solution

- Combines wave measurement, weather forecast, motion measurements and navigation data with ship's characteristics and loading condition
- Provide routing advice to avoid excessive ship motions

Benefit

- Improved safety
- Reduced cargo damage and loss
- Additional cargo on board

SaaS scalability: 350 of total 750 vessels signed in 2021



Seakeeping's polar diagram



Operational Excellence

Fleet Operation Centers

Oversea | Fleet Support Center as a Service

Background

- Partnership between ABB & Wallenius Marine
- First in the market; Fleet Support Center as a Service
- 20,000 vessels market potential

Solution

- Combines Wallenius expertise with ABB's digital
- Runs on ABB Ability™ Genix platform
- Comprehensive Asset, Voyage and Environmental performance digital services

Benefit

- Access to Support Center and digital services
- >10% fuel saving potential and lower maintenance cost
- Improved safety and environmental performance

WALLENIUS  MARINE

ABB



Asset Performance

Hull & Propeller, Main Engine, Auxiliary Machinery



Voyage Performance

Speed, Route, Trim & Ballast



Environmental Performance

Operational Efficiency, CII
Environmental Reporting (DCS, MRV)

Digital in Energy Industries

 **Sustainability**

 **Asset performance management**

 **Operational excellence**

 **Cyber security**

 **Process performance management**

 **Extended Automation software updates**

Energy Industries represents half of the Process Automation digital portfolio



Sustainability

Sustainability

Helping our customers reach a NetZero future

Background

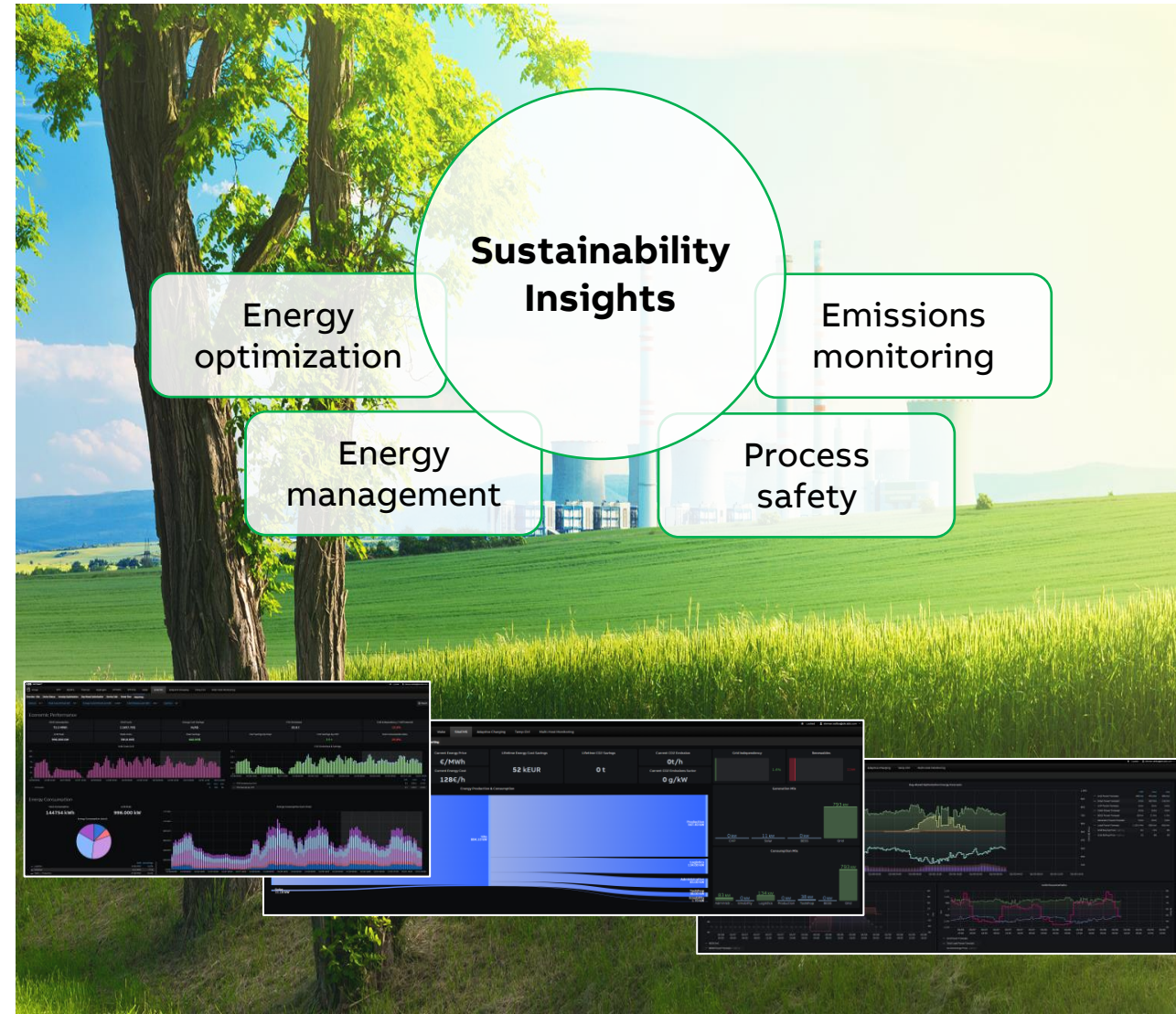
- Productized offerings into sustainability solutions suite
- Over ~\$30M business today
- One of the fastest growing pillars

Solution

- Energy and emissions monitoring application stack
- Visualize and optimize from asset to enterprise

Benefit

- Reduce energy consumption by 2-5% annually
- Cutting emissions at scale in the energy industry
- Example refinery application: support savings of 3-5% on steam and 7-10% in electricity with ROI < 1 year





Cyber Security

Cyber Security

Protecting our customers' operations

Background

- Average deal size \$65K, can expand to millions
- Orders growth >300% past 3 years
- Portfolio approaching \$100M annually

Solution

- Assessments and program consulting
- Implementation and maintenance
- Security operations: detect, monitor, respond

Benefit

- Risk management for entire plant
- Newly launched product enables 4X addressable market
- Expansion into IT/OT cyber security with partnerships

Security Status

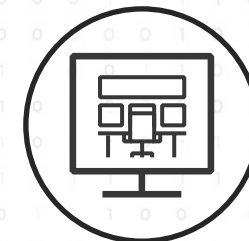
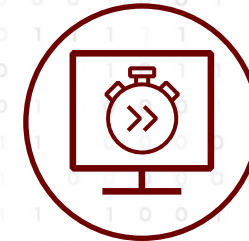
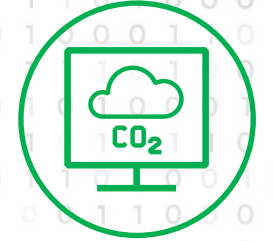
Automated Updates

One View

TASK	STATE	STATE DETAILS	STARTED	FINISHED
ForceWusCheckin	Failed	Error(s) occurred during execution	2020-07-11 19:34:11	2020-07-11 19:34:11
UpdateNode	Finished	Node 6032PHIASCs has been updated	2020-09-16 09:00:47	2020-09-16 09:00:47
UpdateNode	Failed	Error(s) occurred during execution	2020-09-25 05:43:25	2020-09-25 05:43:25

Digital a key contributor towards sustainable performance and growth

- 1 Digital business** of ~\$500M, built mostly organically
- 2 Drive margin** and **recurring share** through increased productization and platforming
- 3 Continue** double-digit, **margin-accretive growth** with continued focus on customer value creation



ABB