Digital Reinvention in Manufacturing

Leverage Digitization to Create New Business Value

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Introduction & Objectives

IBM is looking for partners / clients for developing (cognitive) **usecases** **HOW** to improve the service and product flow incl. machinery, lines, supply with a better support in :

- **Troubleshooting**
- **Pre-emtive / Predictive maintenance**
- **From Product to Service**
- **(Virtual) Cognitive Enterprise**

All the above is based on a

1. **better, more continuous link to the machine to check**
2. **real-time conditions of operation plus digitized workflow**
3. **enrich the information gathered adding sensors**

Scope of IBM intervention :

1. Understand and master the **IOT** stack
2. Master the **production process / supply chain** side
3. Understand **new business models derived** from big data
4. Imagine **which kind of additional sensors** or **information** are needed to replicate the understanding of the process done today by the expert technician in front of the machine (artificial intelligence)
5. **Manage the huge amount of information** received from existing and future input, creating algorithms to connect them in a meaningful mode (BIG Data management)
6. Understand **the impact and improvement necessary on connectivity and security protection** required

IBM proactively leads transformations with clients to help and support clients with their strategy & execution

Make markets by transforming industries with data

$24B Invested to date to build capabilities in Big Data and Analytics.

$1B to establish the Watson Group.

1000 University partnerships.

Innovate technology back-bone for the era of IoT, vdigital cognitive enterprise

$3B Invested in IoT in the coming years.

$7B Invested to build Cloud capabilities.

500+ Developers contributing to open-standards projects.

Enable "systems of innovation" for enterprises. And lead by example

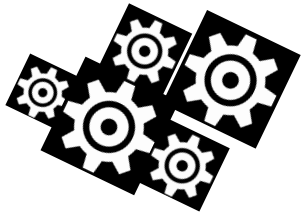
8 + 12 companies acquired in mobile + companies acquired in security.

6000 security professionals.

4300+ patents in social, mobile and security.

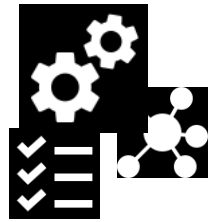
IBM works with manufacturing companies facing similar strategic or operational challenges

We need to maximize asset uptime and stability

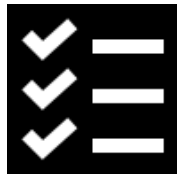


We need to decrease maintenance and field service costs

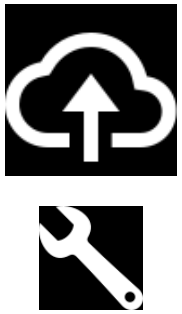
We need to drive customer experience by providing a flawless customer service



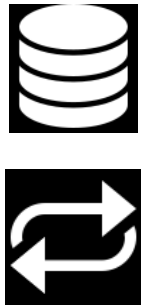
We have assets deployed all over the place and need an orchestrated repair process



We need to improve pro-activeness in all parts of the organization



We need to shift workload from field service to remote service



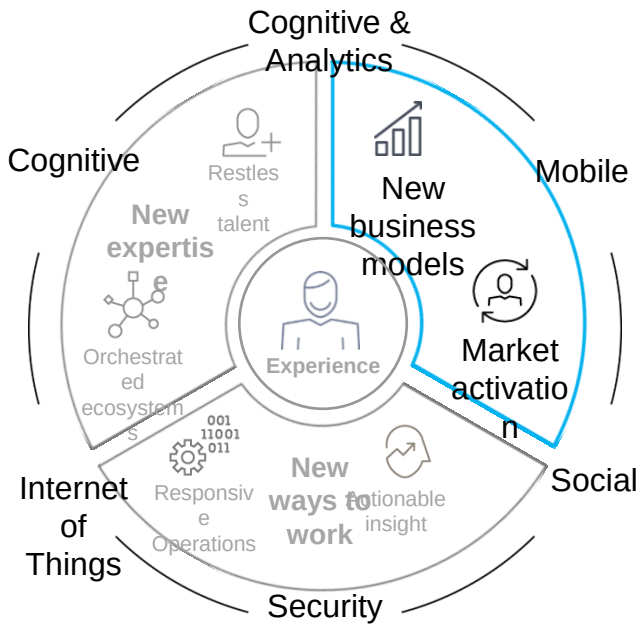
We want to drive continuous improvements through a data-driven approach

We should plan our service on condition repairs instead of time-based maintenance

We need to find new sources of revenue by moving to new service-business models

The work on multiple levels to co-create the 4.0 manufacturing enterprise

What to do: *new focus*



New business models

Develop new ways of realizing and monetizing value

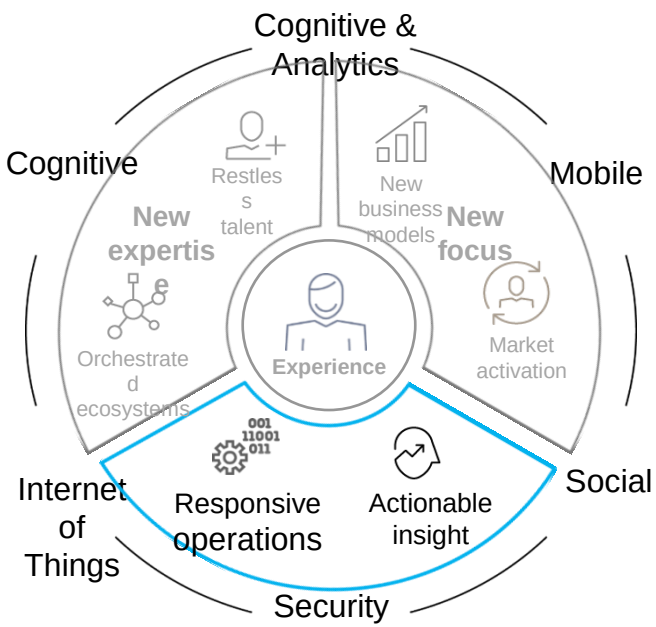
Spawn new business models, financing and risk assessment

Market activation

Create the strategy and execution plan for delivering experiences to the market

Engage and monetize customer relationships

What to do: *new ways to work*



Responsive operations

Digitize products, services and processes to redefine experiences with customers

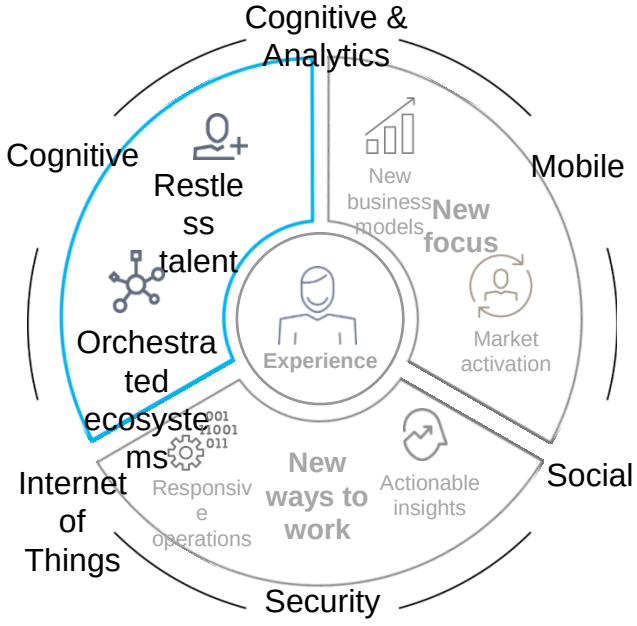
Leverage predictive analytics, cognitive computing, Internet of Things and automation

Actionable insights

Employ predictive and advanced analytics to optimize both experience and operations

Leverage cognitive analytics to create deep and advanced competitive differentiation

What to do: *new expertise*



Restless Talent

Identify, retain and build the right talent for a digital organization

Create a culture of design thinking, agile working and experimentation

Orchestrated Ecosystems

Decapitalize infrastructure and leverage partnering and full network strengths

Develop novel relationships that unleash new sources of value

new experience

What you need to do + how to make it happen

Proven

What to do

Embrace digital drivers

New focus: Employ advanced analytics across organization and build new business models

New expertise: Build the right talent for an agile and innovative organization and actively participates in ecosystems

New ways to work: Digitize product, services and processes across organization and employ design driven innovation

New experiences: Create experiences that customers desire and want

How to make it happen

Envision: Use design thinking to understand customers, brainstorming ideas and visualizing scenarios

Create: Create prototypes using agile development, test them with customers, and get them to market

Deepen: Augment capabilities and continue to build and deploy applications aligned to the target operating model and ecosystem strategy

Orchestrate: Build a robust team to guide the program, and ensure embrace of holistic reinvention, not a series of point solutions

Real Example : Cognitive computing in manufacturing (cement)

Business Need

- Cement plants efficiency and product quality depends on the experience of the operator; especially when using AFR (alternative fuel resources).
- Experienced operators will deviate from standard procedures based on an intangible set of inputs (type of raw materials - humidity, quality, uniformity, fuel mix), vary temperature, pressure settings and processing times, based on experience.
- Operator knowledge is lost when a very experienced operator leaves the company.

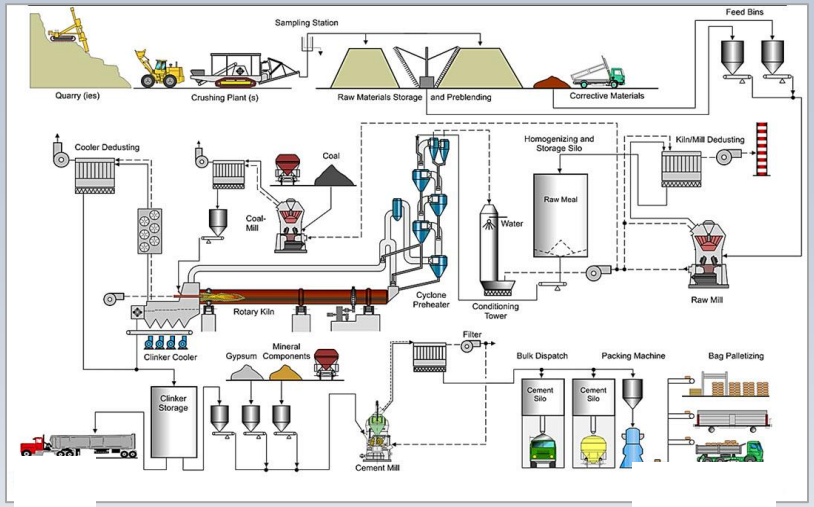
Solution Approach

- Utilize IBM Watson technology to build an intelligent advisor to cement manufacturing
- Historical data from plants
- Tests results (e.g., grindability – PDF & Word)
- Technical documentation (specifications, tables, text)
- Reports: performance, mill level audits

Results Achieved

- Ability to identify how to produce a better product at lower cost considering the given raw materials and existing equipment capabilities
- Improve energy efficiency

Cement Manufacturing Process



Knowledge Context Build from Data