TOC & Industry 4.0
TocTp Conference
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Industry 4.0 Roadmap

- **Laboratory Solution**
- **Isolated / selective pilot installations**
- **Broad adoption of standard solutions**
- **Transition to "True Industry 4.0"**

**Existing Factories**
- **New Factories** (Brownfield)
- **Greenfield**

Today
- Mainly showcases or laboratory solutions in development

In next years mainly technology driven isolated standalone/plug-in solutions will be developed

Along the lifecycle of most production machinery the transition to true Industry 4.0 will start to be more comprehensive once most machinery, infrastructure and employees are Industry 4.0 ready
Start my discussions on Facebook / TOC Practicioners Worldwide

Hi to all.. Dieter has induced one of my thoughts which I have in mind. We can share a lot of experiences of TOC applications around the world, what is good, but what if we can use all this knowledge on structured way on what is now "In" at least for industry. Yes "Industry 4.0" A lot of people discuss about this now, so we can ("Use what we have between eyes"-Eli). So what, if we start to build TOC applications with TP and then S&T for each segments.. (and one overall)?

If you can see from bellow pics a lot of expected contributions which is expected from right to left pics have a lot invalid assumption and they come from "Big" consultant firm. Inner right circle can be the basics fields for start to discuss and build S&T how to use different TOC applications.

Too many NBR’s..
IoT

Convergence of IT and automation

1970s 1980/90s 2000s Today future

Information technology

Mainframe ERP Internet, ERP modules, MES, etc.

Integrated architecture

Fieldbus protocols, TCP/IP

Direct digital control

Industrial automation

ERP

MES

SCADA

PLC

I/O

5-layer architecture

ERP

MES

SCADA

PLC

I/O

Industrial Internet of Things

ERP = Enterprise Resource Planning  MES = Manufacturing Execution System  SCADA = Supervisory Control and Data Acquisition  PLC = Programmable Logic Controller  I/O = Input/Output signals  Source: IoT Analytics
Today it's for me the umbrella of all original TOC-solutions and all derived application solutions for Operations & Supply Chain Management.
The current development planning processes (without projects)

MRP - Manufacturing Resource Planning.
FCP – Finite Capacity Planning
ERP - Enterprise Resource Planning;
LP - Linear programming;
OPT - Optimized Production Technology;
APS - Advanced Production Scheduling;
IES - Integrated Enterprise Scheduling;
DBR - Drum-Buffer-Rope;
BM - Buffer Management;
S-DBR – Simplified DBR;
DDMRP - Demand Driving MRP;

TOC SW packages:
Symphony
DBR-Plus
DDMRP
IDEA LLC
CDS
CMS RoadRunner
NeoGrid
Goodstream
Stock-M
Mainway
Torus
Galaxy APS
That Complex system can be real managed just with TOC.
Old conflict

Critical Need
Align resources and efforts close to demand as possible

"Turn off formal planning!"

You guys are dinosaurs wedded to obsolete technology – **MRP is an over complication**

Critical Need
Visibility to the total requirements and status picture

"Keep formal planning!"

You guys don't get it. You think it's bad now? Turn off MRP and we will be blind – Lean is an over simplification

What if both sides are right?
Successful investment in building a competitive advantage

Necessary conditions

APQP/PPAP

S&T 5.0
S&T 5.1

TLS

S&T 5.2
S&T 5.3

Industry 4.0

S&T 5.4
S&T 5.5

Protecting the environment (Green cycle..)

S&T 5.6
S&T 5.7

Data acquisition, measurement and IS support IoT

S&T 5.8
S&T 5.9

Highly efficient and motivated employees

S&T 5.10
S&T 5.11

Mainly for Automotive sector, but it’s good to use..!

We have a lot of work to do!
What is all about?

- To be Successful?
- To be Happy?
- To have a Meaningfully life?

So use TOC and have a Great Day!
Value captured by data-modeling levers, example of global chemical maker, % of increased EBIT

Strategic

- Gain incremental sales through increased production capacity
  - Additional EBIT = 10.0%
- Optimize equipment usage and/or reliability
  - Additional EBIT = 10.0%

Tactical

- Optimize inventory planning
  - Additional EBIT = 5.0%
- Maximize utilization of waste-treatment unit
  - Additional EBIT = 7.5%
- Substitute an ingredient in a more efficient production line and reduce materials usage
  - Additional EBIT = 10.0%
- Make an ingredient instead of buying it
  - Additional EBIT = 12.5%

Additional EBIT = 55%

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1Earnings before interest and taxes.

Source: McKinsey analysis
Current stage im PM

Which of the below choices best describe the project management system(s) that you use? (Select all that apply)

- Spreadsheets
- On-premise software
- Cloud-based solution(s)
- Hosted software
- Proprietary System(s)
- Other
- Multi-tenant SaaS

Vir: Bussines Agility: Is It Easy to Pivot? Survey Results 2016,
www.changepoint.com