

GOOD
PRAC
TICES

EFQM
Leading Excellence

Passion 4 Excellence

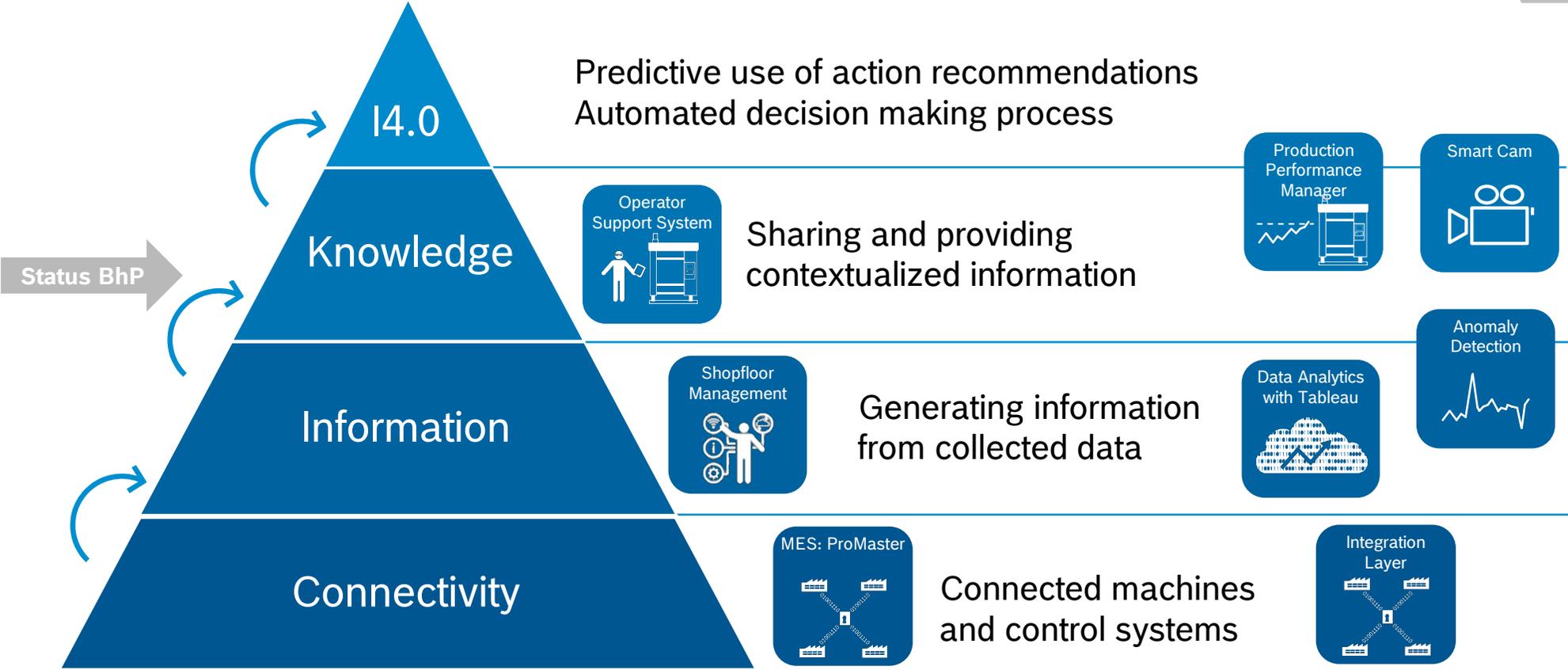
Be part of the network

EFQM EXCELLENCE
AWARD 2017
AWARD WINNER

 **BOSCH**

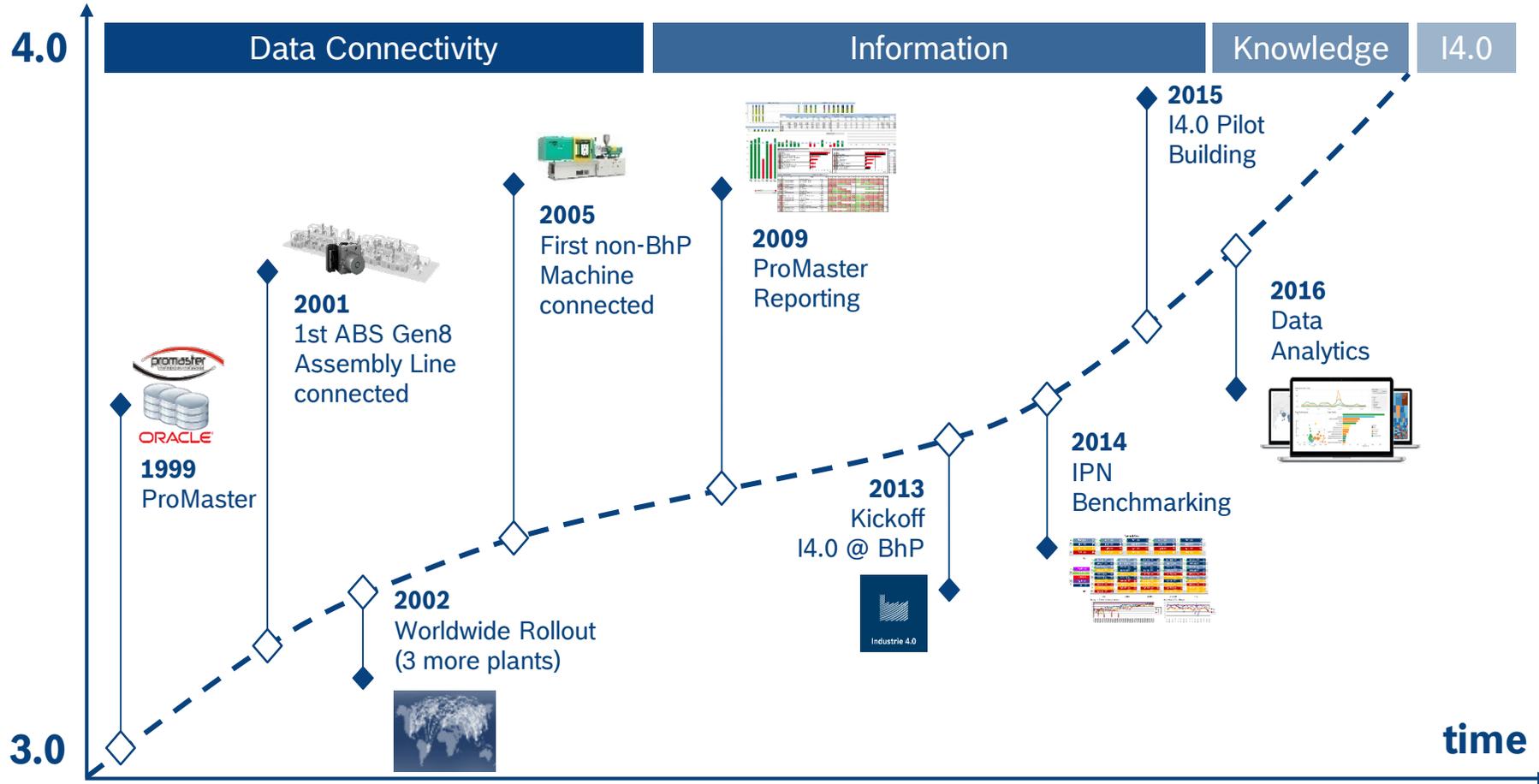
Industrie 4.0 @BhP

What



INDUSTRIE 4.0

Why



FACTS AND FIGURES



PLANTS WORLDWIDE

11



MACHINES CONNECTED
WORLDWIDE

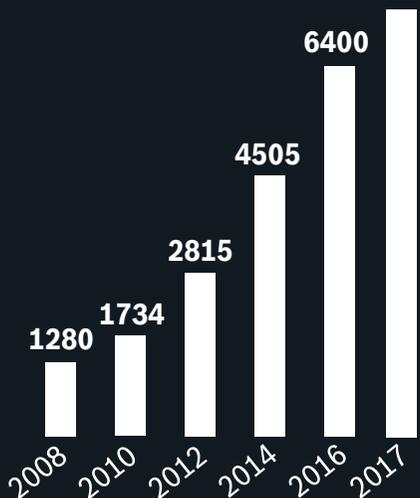
7400



1999

EXPERIENCE IN YEARS

19



VOLUME 2017 WORLDWIDE
MILLIONEN UNITS

35

INDUSTRIE 4.0

Why

MES Reports – Daily | automatically

Top Management – Shop Floor Personnel

International Production Network



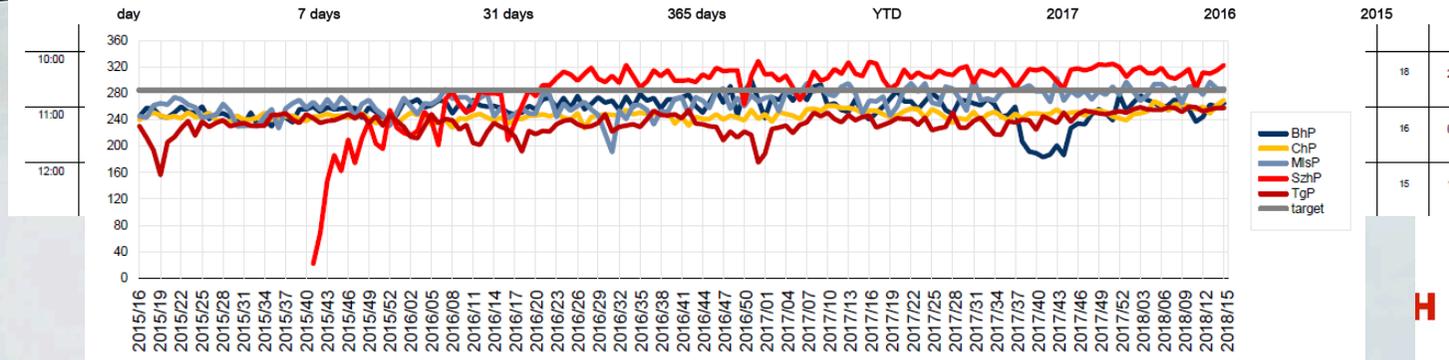
Production Control Sheet (Plant + Automation Lines) [pcs/h]

Line Performance

Int. Production Network Performance

Group: HUG		Ø 280	Ø 283	Ø 275	Ø 266	Ø 274	Ø 264	Ø 255	Ø 244							
1	SzhP 320	100% ESP	SzhP 316	100% ESP	SzhP 314	100% ESP	SzhP 311	100% ESP	SzhP 308	99% ESP	SzhP 289	94% ESP	MisP 286	92% ESP		
2	MisP 295	93% ESP	MisP 297	92% ESP	MisP 289	93% ESP	MisP 281	94% ESP	MisP 286	92% ESP	MisP 279	95% ESP	BhP 285	71% ESP	BhP 251	68% ESP
3	ChP 270	100% ESP	BhP 276	77% ESP	ChP 262	100% ESP	ChP 262	100% ESP	BhP 261	70% ESP	ChP 250	100% ESP	MisP 262	95% ESP	ChP 239	95% ESP
4	BhP 266	71% ESP	ChP 268	100% ESP	BhP 261	75% ESP	BhP 248	70% ESP	ChP 268	100% ESP	BhP 246	71% ESP	ChP 244	100% ESP	TgP 230	35% ESP
5	TgP 260	84% ESP	TgP 263	91% ESP	TgP 265	91% ESP	TgP 244	92% ESP	TgP 266	91% ESP	TgP 237	92% ESP	TgP 228	88% ESP	SzhP 188	96% ESP

Group: HUG		day	7 days	31 days	365 days	YTD	2017	2016	2015							
Group: HUG		Ø 280	Ø 283	Ø 275	Ø 266	Ø 274	Ø 264	Ø 255	Ø 244							
1	SzhP AR9 325	100% ESP	SzhP AR9 318	100% ESP	SzhP AR10 319	100% ESP	SzhP AR10 317	100% ESP	SzhP AR10 320	100% ESP	SzhP AR9 310	100% ESP	SzhP AR9 290	94% ESP	MisP A1 281	95% ESP
2	MisP A1 315	100% ESP	SzhP AR10 315	100% ESP	SzhP AR9 310	100% ESP	SzhP AR9 305	100% ESP	SzhP AR9 308	100% ESP	SzhP AR10 308	97% ESP	BhP A2 279	92% ESP	BhP A2 267	86% ESP
3	SzhP AR10 314	100% ESP	BhP A2 308	98% ESP	MisP A1 295	100% ESP	BhP A2 293	95% ESP	BhP A2 294	95% ESP	BhP A2 289	95% ESP	MisP A1 268	100% ESP	ChP AR3 265	100% ESP
4	BhP A3 285	29% ESP	MisP AR2 302	84% ESP	BhP A2 289	97% ESP	MisP A1 290	100% ESP	MisP A1 291	100% ESP	MisP A1 289	100% ESP	ChP AR3 281	100% ESP	MisP AR2 260	89% ESP
5	ChP AR3 283	100% ESP	MisP A1 292	100% ESP	MisP AR2 283	95% ESP	MisP AR2 271	87% ESP	MisP AR2 280	84% ESP	MisP AR2 268	90% ESP	MisP AR2 258	90% ESP	BhP A3 244	48% ESP
6	MisP AR2 278	85% ESP	ChP AR3 277	100% ESP	ChP AR3 268	100% ESP	ChP AR3 260	100% ESP	ChP AR3 264	100% ESP	ChP AR3 260	100% ESP	BhP A3 257	48% ESP	TgP AR1 241	43% ESP
7	BhP A2 269	90% ESP	ChP AR1 273	100% ESP	BhP A3 264	32% ESP	ChP AR1 268	100% ESP	ChP AR1 261	100% ESP	ChP AR1 265	99% ESP	ChP AR1 237	99% ESP	ChP A2 233	100% ESP
8	TgP AR2 269	79% ESP	BhP A3 272	36% ESP	ChP AR1 262	100% ESP	TgP AR2 246	90% ESP	TgP AR2 260	89% ESP	BhP A3 245	39% ESP	ChP A2 234	100% ESP	ChP AR1 230	92% ESP
9	ChP AR1 265	100% ESP	TgP AR2 261	88% ESP	TgP AR2 260	89% ESP	BhP A3 245	30% ESP	BhP A3 259	21% ESP	TgP AR2 238	90% ESP	TgP AR1 232	91% ESP	TgP AR2 217	26% ESP
10	ChP A2 261	100% ESP	ChP A2 263	100% ESP	ChP A2 255	100% ESP	TgP AR1 241	94% ESP	TgP AR1 262	94% ESP	ChP A2 237	100% ESP	TgP AR2 224	84% ESP	SzhP AR9 188	96% ESP
11	TgP AR1 251	89% ESP	TgP AR1 245	94% ESP	TgP AR1 250	94% ESP	ChP A2 240	100% ESP	ChP A2 251	100% ESP	TgP AR1 236	95% ESP	SzhP AR10 0	-	BhP A5 -	-
12	BhP A5 243	100% ESP	BhP A5 243	100% ESP	BhP A5 228	100% ESP	BhP A5 149	100% ESP	BhP A5 225	100% ESP	BhP A5 64	100% ESP	BhP A5 -	-	MisP AR3 -	-
13	MisP AR3 -	-	MisP AR3 -	-	SzhP AR10 -	-										



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Value added

Active Cockpit



Data Analytics



Production Performance Management



Operator Support System



Smart Cam



PLAN DO
ACT CHECK

CIP IPN



Worldwide Knowledge Database

Data Analytics



Bosch Tool



BhP Tool

INDUSTRIE 4.0

Value Added



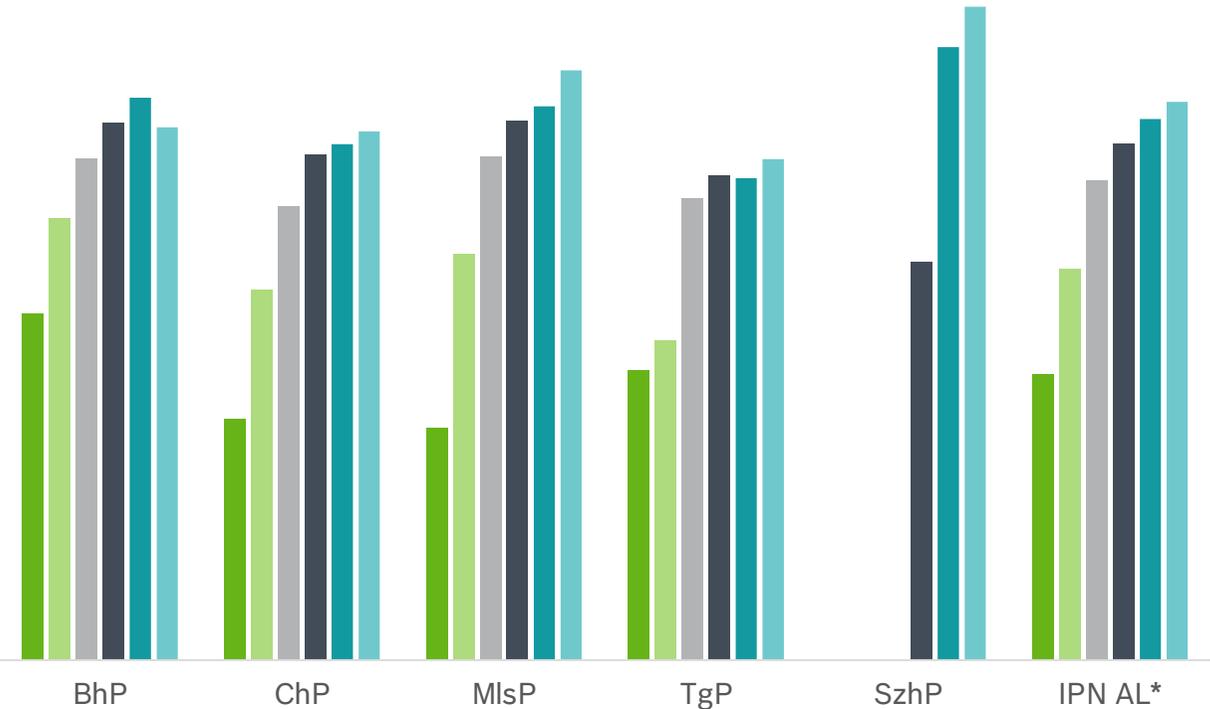
BhP Tool



Bosch Tool

PRODUCTIVITY (IPN ABS / ESP | PIECE PER HOUR)

Automatic – Lines ■ 2012 ■ 2013 ■ 2014 ■ 2015 ■ 2016 ■ 2017



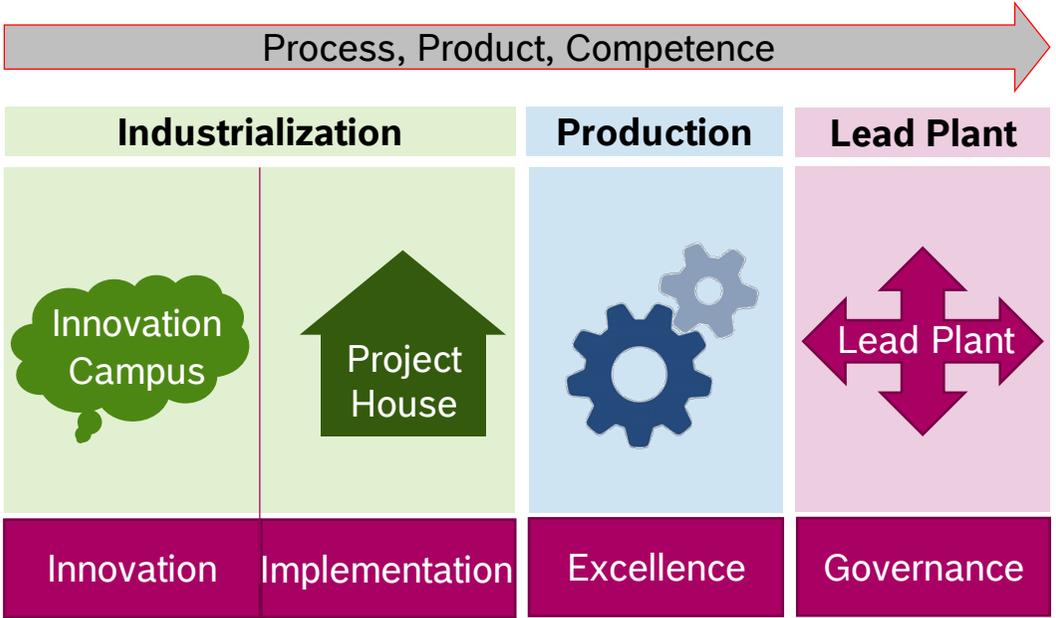
+15%/a

INDUSTRIE 4.0

Following Steps

Organization

Strategy and process defines organization



Technology

5 Fields of actions for a digital plant



THANK YOU