

# INNOVATION

## THE STADLER WAY



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## STADLER RAIL

**Stadler** is an international company and international technology leader with consolidated sales of ca. CHF 2,2 – 2,5 billion (plan for 2016) and 7000 employees. Stadler Rail delivers comprehensive range of innovative products in the commuter rail and railway segments: trams, tram trains, underground trains, regional and commuter rail trains, intercity trains and high-speed trains. In addition, Stadler manufactures main-line dual-mode locomotives, shunting locomotives and passenger carriages, including the most powerful diesel-electric locomotive in Europe.



# INNOVATION - WHAT IT ACTUALLY MEANS?

## DEFINITION:

The ability to deliver solutions in order to gain competitive advantage and create sustainable growth for the good of the associated companies.

Innovative development is the entrepreneur's ability to introduce new solutions through technology and knowledge transfer influencing company products, people and partners.



R & D  
only ?



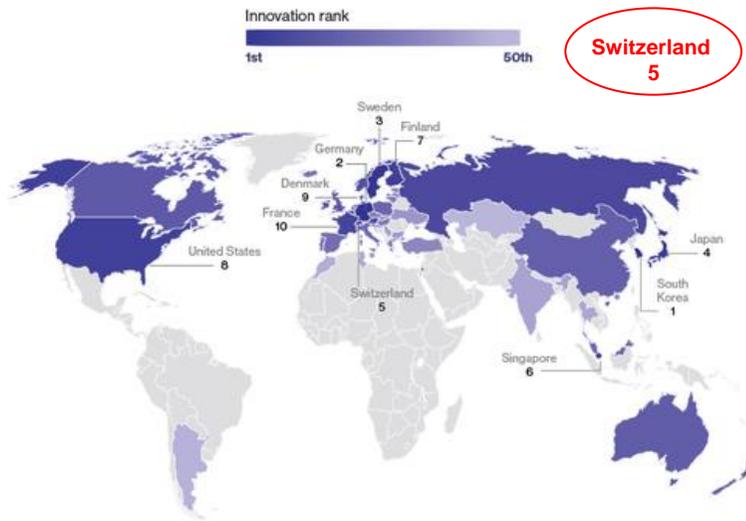
# INNOVATION = COMPETITIVENESS ?

## INNOVATION AND KNOW-HOW

FORM THE FOUNDATION STONE OF PROSPERITY SINCE AS A SMALL COUNTRY WITHOUT ITS OWN NATURAL RESOURCES, SWITZERLAND HAS ALWAYS HAD TO RELY ON A WEALTH OF IDEAS AND OPENNESS. NOW, DUE TO HIGH EXCHANGE RATE OF CHF, EXPORT ORIENTED SWISS COMPANIES ARE FURTHERMORE FORCED TO BE INNOVATIVE.

### Fifty Most Innovative Economies

South Korea has the most innovative economy, the U.S. ranks 8th



Sources: Bloomberg, International Monetary Fund, World Bank, Organization for Economic Cooperation and Development, World Intellectual Property Organization, United Nations.



**The top 10 most competitive global economies**

WORLD ECONOMIC FORUM  
COMMITTED TO IMPROVING THE STATE OF THE WORLD

Country	Global rank*
Switzerland	1
Singapore	2
United States	3
Germany	4
Netherlands	5
Japan	6
Hong Kong SAR	7
Finland	8
Sweden	9
United Kingdom	10

Source: The Global Competitiveness Report 2015-2016  
\* 2015-2016 rank out of 140 economies

FREE ACCESS TO MARKETS, CONTRACTUAL FREEDOM, PRINCIPLE OF LIABILITY, IMMUTABILITY OF ECONOMIC POLICY ARE THE BEST MEANS OF PROMOTING A COUNTRY'S

## COMPETITIVENESS

## INNOVATION BY STADLER

Innovation is the core of our business.  
But what innovation really means to Stadler?

### INNOVATION = PATENTS ? NO

Restrictive patent policy often kills innovation and makes knowledge diffusion impossible.



STADLER UNDERSTANDS INNOVATION AS ITS WAY OF DEVELOPING  
**THE HIGHEST QUALITY PRODUCTS, KNOWLEDGE AND SKILLS** TRANSFER BETWEEN  
EMPLOYEES WITHIN THE GROUP AND **COOPERATING WITH PARTNERS AND SUPPLIERS** ON  
LOCAL AND GLOBAL MARKETS.

# INNOVATION BY STADLER - PRODUCTS

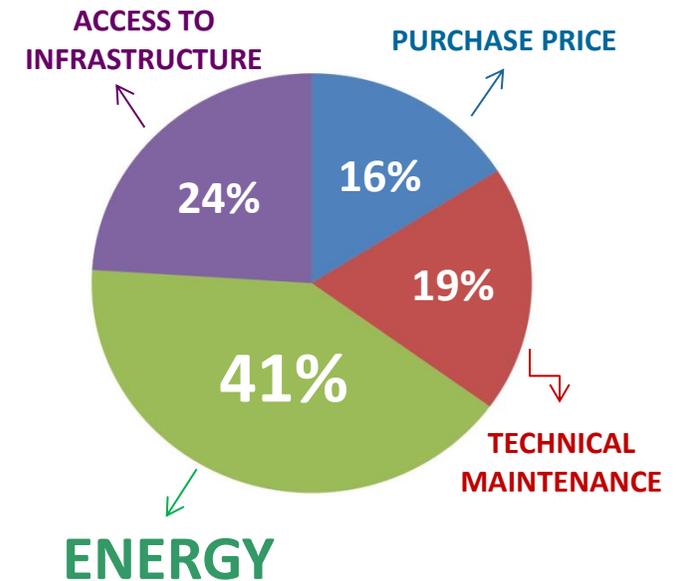
## 1. PRODUCT - THE WAY WE DEVELOP

Our products serve the public, so their quality, reliability and economy are of utmost importance.

Thanks to a specially developed, lightweight aluminum construction our vehicles are lighter, thus generate lower operating, energy and maintenance costs.



## LIFE CYCLE COST (LCC) (example 30 years)



ENERGY IS THE UPPERMOST COST, WHICH DEPENDS MAINLY ON THE WEIGHT OF VEHICLE.

# INNOVATION BY STADLER – PRODUCTS

Segmentation		Modular concept Classic drive		Tailor made concept Classic/gear drive	
Urban railway	Light rail vehicles	Trams			
		Trams			
		Trains	$\leq 100$ km/h		
	Metro	Metro	$\leq 100$ km/h		
Railway vehicles	DMU	Regional Trains / Suburban trains	$\leq 140$ km/h		
	EMU	Regional Trains / Suburban trains	$\leq 160$ km/h		
		Intercity	$\leq 200$ km/h		
		High speed train	$\leq 250$ km/h		
	Locomotives	Line-, diesel-, and bi-modal Locomotives			
		Special vehicles			
Carriages	Passenger carriage				
					
					

## INNOVATION BY STADLER - PRODUCTS

This year, Stadler will be part of a historic event, as the longest train tunnel in the world, the Gotthard Base Tunnel, is officially opened in June 2016. From 2019 onwards, the new EC250 trains produced by Stadler will carry passengers from Zurich to Milan, and later from Frankfurt to Milan, in record time.



## INNOVATION BY STADLER - PRODUCTS

**EC250** - multisystem train connecting Switzerland with neighboring countries. The trains ordered by SBB are a further development of the proven FLIRT concept, for high-speed lines, with particular focus on a customer friendly solutions for families, senior citizens and persons with reduced mobility. They feature advanced thermal and acoustic insulation and meet high requirements of the New Rail Link tunnel through the Alps.



- **THREE CATENARY SYSTEM POWER SUPPLY WITH AUTOMATIC SWITCH OVER**
- **SEATING CAPACITY – 403 (1ST CLASS 117 / 2ND CLASS 286)**
- **WHEELCHAIR SPACES – 4 (1ST CLASS 2 / 2ND CLASS 2)**
- **MAXIMUM SPEED - 250 KM/H**
- **LOW-FLOOR BOARDING AT ALL DOORS**
- **FOUR AUTOMATIC TRAIN CONTROL (ATC) SYSTEMS**

# INNOVATION BY STADLER – PEOPLE AND PROCESSES

## 2. PEOPLE AND PROCESSES - THE WAY WE WORK

We are focused on **training our employees**. We **transfer knowledge** and develop employees personal qualities. All Stadler factories all over the world are based on the same standards and procedures.



## INNOVATION BY STADLER – PEOPLE AND PROCESSES

### The career path of Stadler Polska employee:

04/06/2007 – employed as a line mechanic

01/01/2009 – promoted to Team Leader - Internal Assembly

09/09/2009 – attends German course financed by Stadler

01/01/2012 – promoted to Team Leader – Mechanical Assembly

01/01/2013 – promoted to the Manager of the Manufacturing Unit

10/03/2014 – 31/08/2014 – working in Altenrhein, Switzerland

Since 09/2014 – managerial position in Stadler Siedlce  
leading over 150 employees

IN LESS THAN

**7 YEARS**

FROM A LINE

MECHANIC TO A

INTERNATIONALLY

TRAINED

DEPARTMENT LEADER



# INNOVATION BY STADLER – PEOPLE AND PROCESSES

## Dual education system in Stadler Polska:

- Preferred directions of professional: electrician and mechatronics
- Preparation of the program by Stadler, according to the abilities and needs
- Offer of employment for the most talented apprentices



Mechatronics group, who completed  
the practice in March 2016

**ACADEMIC EDUCATION IS  
NOT THE ONLY PATH OF  
SUCCESS**



**DUAL EDUCATION SYSTEM  
IN SWITZERLAND IS A  
CENTRAL SUCCESS FACTOR  
OF INNOVATIVE STRENGTH**

## INNOVATION BY STADLER - PARTNERS

### 3. PARTNERS - THE WAY WE CORPORATE

We work very closely and share our know how with suppliers in every country.  
We are thinking globally but acting locally.



## INNOVATION BY STADLER - PARTNERS

### Stadler in co-operation with Spawssystem Gniewszczyzna:

- Established in 1998 Spawssystem, a small-sized company specializing in stainless steel and aluminum products, initiated co-operation with Stadler in 2009 – starting with production of small components
- Since then the company gained knowledge and understanding of highest quality standards for international Railway producers
- Step by step Stadler’s orders were more complexed and concerning entire, finished components
- In order to secure the flow of orders the company introduced various innovation investments – CNC machines and 3D laser cutter and implemented ERP production system

2009

INNOVATION IN THE PRODUCTION –  
3D LASER CUTTER AND CNC  
MACHINES

EXPORT TO OTHER STADLER RAIL  
GROUP PLANTS IN EUROPE –  
BUSSNANG, BERLIN AND MINSK

EMPLOYMENT GROWTH FROM  
30 TO 70 EMPLOYEES



2016

*„The experience gained from the co-operation with Stadler Polska, has strengthened the company market position. Today we are ready to compete with industry leaders. The quality of delivered products has resulted in the pursuit of contracts for Stadler Bussnang and Stadler Pankow as well as allowed us to start cooperation with other foreign customers”*

*Spawssystem Gniewszczyzna*

## INNOVATION BY STADLER - PARTNERS

### Stadler in co-operation with Opak-Met:

- Established in 1982 Opak-Met is a medium-sized family business with headquarters in Inowrocław initiated co-operation with Stadler in 2009
- Since then a number of up-to-date advanced CNC equipment have been installed and number of employees increased by 100%
- In 2014 the company introduced innovative powder paint shop qualified for the rail industry in accordance with the guidelines of Deutsche Bahn
- In 2014 Opak-Met started exporting products to Stadler Bussnang and Stadler Minsk
- In 2016 almost 75% of company production is focused on solutions for the Railway and Automotive sectors

2009



2016

KNOWLEDGE TRANSFER:  
DIN6701 SINCE 2012  
IRIS SINCE 2014

EXPORT TO OTHER STADLER RAIL  
GROUP PLANTS IN EUROPE –  
BUSSNANG AND MINSK

100% GROWTH IN THE NUMBER  
OF EMPLOYEES



# STADLER POLSKA 2006 - 2016

All these innovations stands behind the success of Stadler Polska.

Opening ceremony  
October 2007



Assembly hall  
July 2008



Expansion of the plant  
2011



2015-2017 – new investments worth **40 mln PLN**  
6000m<sup>2</sup> production area and 2000m<sup>2</sup> office area

# STADLER POLSKA 2016

## Stadler Polska in 2016:

- the biggest exporter in the railway segment in Poland
- 800 employees – one of the biggest employer in the Siedlce
- 2000 Polish suppliers
- 252 already produced vehicles (54 for Polish clients)

## POLISH CLIENTS



**Koleje Mazowieckie**  
10 FLIRT EMU (3 kV DC)  
2007-2008



**Łódzka Kolej Aglomeracyjna**  
20 FLIRT EMU (3 kV DC)  
2013-2015



**Koleje Śląskie**  
4 FLIRT EMU (3 kV DC)  
2007-2008



**PKP Intercity**  
20 FLIRT EMU (3 kV DC)  
2014-2015

# STADLER POLSKA - INTERNATIONAL CLIENTS



BZD, Bielarus, 2013-2014  
6 FLIRT EMU (25 kV AC)



FNM Ferrovie Nord Milano, 2010-2015, Italy 24 GTW DMU



ST Sistemi Territoriali S.p.A., Italy  
4 GTW DMU-2-2/6, 2 GTW DMU



MSH, Germany, 2013-2015  
10 FLIRT EMU (15 kV AC)



GySEV, Hungary, 2013 - 2015  
10 FLIRT EMU (15 kV AC/3kV DC)



LEO Express, Czech Republic, 2012  
5 FLIRT EMU, (3kV DC)



STA, Italy, 2013 - 2014  
10 FLIRT EMU (15 kV AC/3kV DC)



Arriva, Nederland, 2008 - 2015  
44 GTW DMU



BeNEX/Arriva ODEG, Germany,  
6 GTW DMU / 2010 - 2011



Rosenheim, Germany  
10 FLIRT3 EMU (15kV AC) 2013



ELRON, Germany  
2012-2013      18 FLIRT  
EMU, (3kV DC)  
2012-2014      20 FLIRT  
DMU

and others...

STADLER POLSKA - NEXT STEPS

What is next?

R & D?



**THANK YOU**

