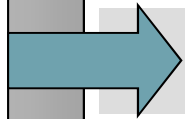


# Company Presentation: WITTENSTEIN Group

## Industrie 4.0 am Beispiel der smart Factory WITTENSTEIN

Roman Stauch

## Agenda



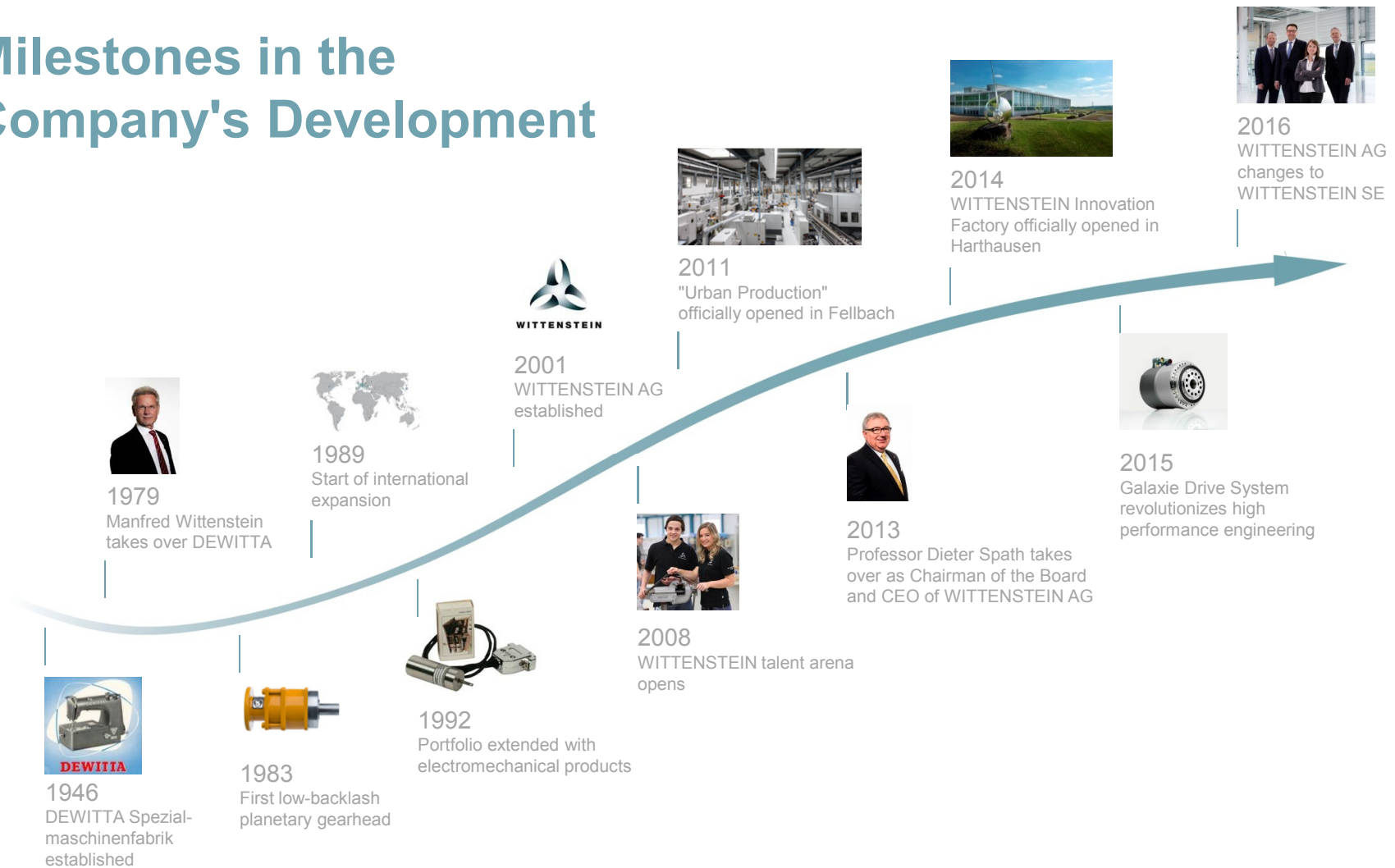
**WITTENSTEIN Group**

**WITTENSTEIN intens**

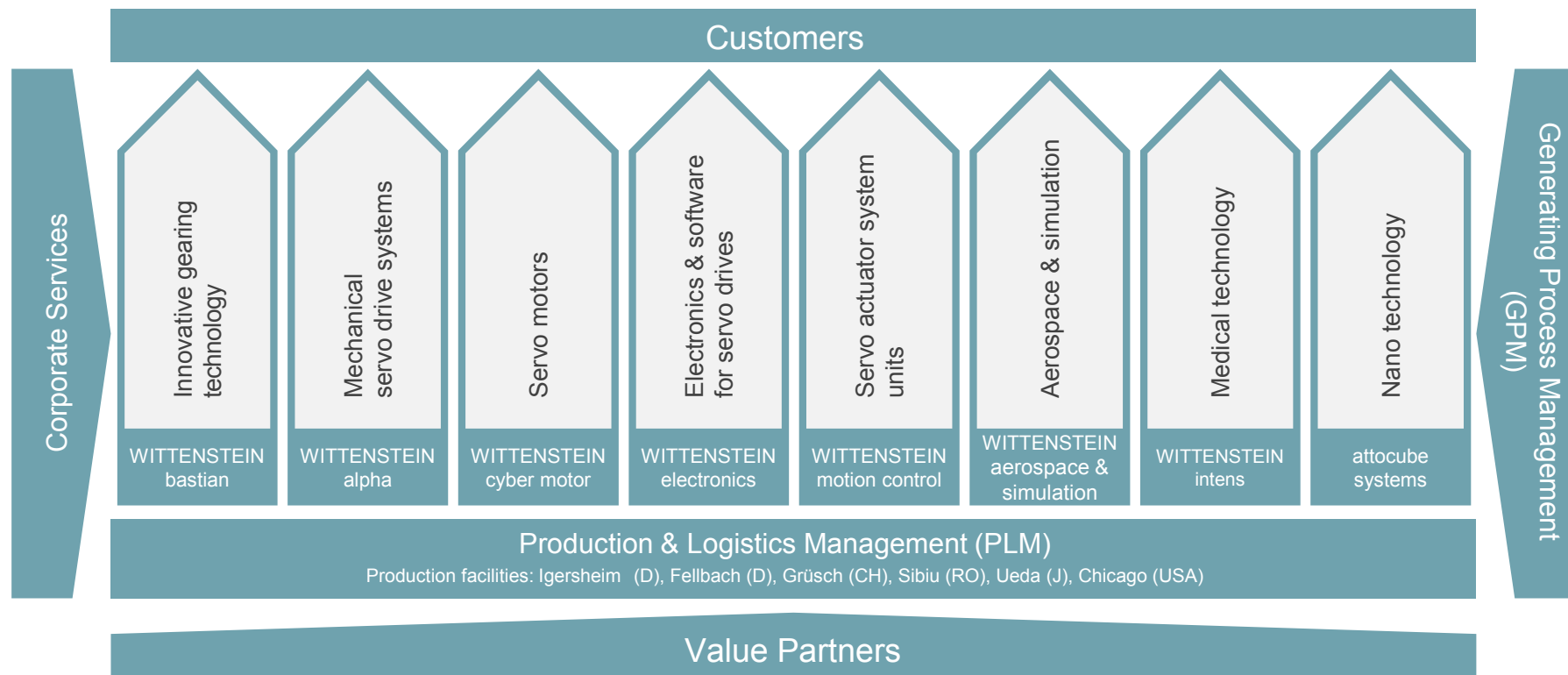
**FITBONE® – intens' core competency**

**Industry 4.0 - smart Factory WITTENSTEIN**

# Milestones in the Company's Development



## Structure of WITTENSTEIN SE



## WITTENSTEIN International

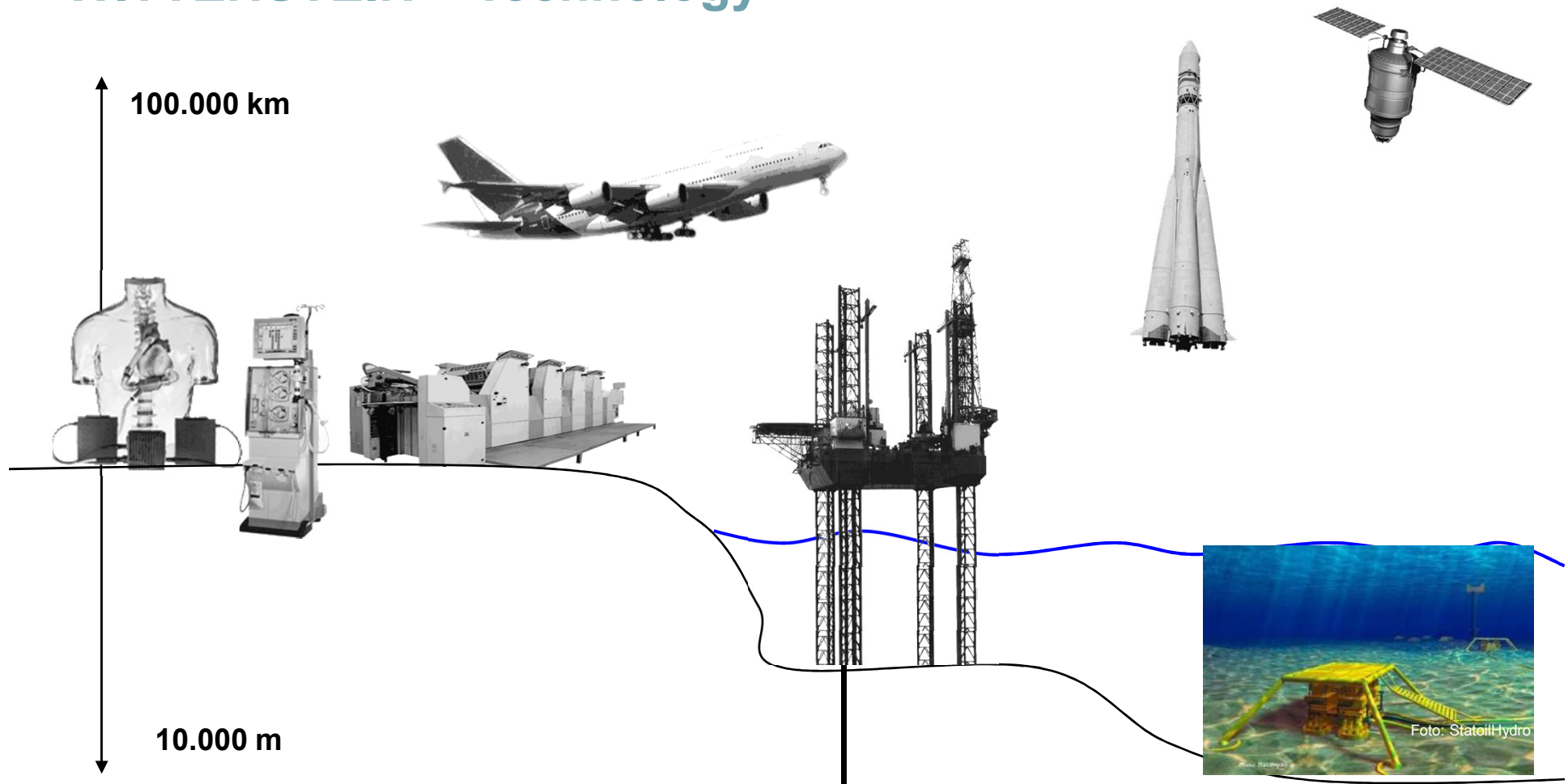


Company Headquarters

## Administration, Production and Assembly



## WITTENSTEIN – Technology





## Dr. Manfred Wittenstein is "Entrepreneur of the Year 2011"

### "The visionary among machine builders"

Dr. Manfred Wittenstein is "Entrepreneur of the Year 2011" in the "Industry" category. In addition to outstanding entrepreneurial commitment, the criteria assessed also included a clear employee focus, proven innovative vitality and future viability.

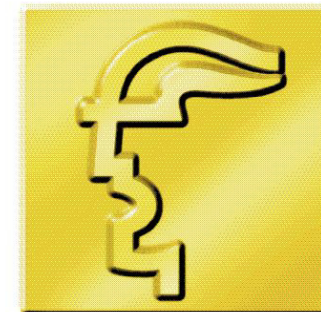
As Germany's representative at the "World Entrepreneur of the Year 2012" awards, Dr. Wittenstein was admitted to the "World Entrepreneur of the Year Academy".





## The "Oscar for engineers": HERMES AWARD 2015

WITTENSTEIN AG was shortlisted from a field of almost seventy entrants from ten different countries with its revolutionary Galaxie® Drive System and subsequently made the most convincing impression out of the five finalists.



HERMES  
A W A R D  
2 0 1 5

## DEBUT – European Opera Singing Competition



Winner in 2010:  
Hila Fahima



Winner in 2012:  
Kartal Karagedik

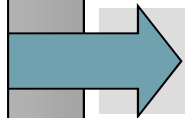


Winner in 2014:  
Adriana Ferfečka



## Agenda

**WITTENSTEIN AG**



**WITTENSTEIN intens**

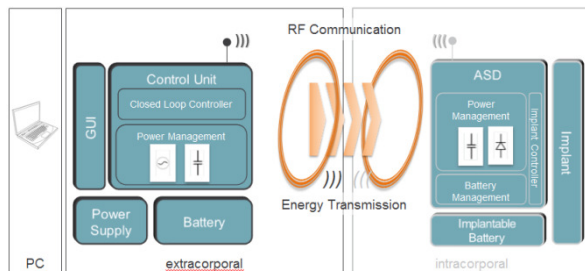
**FITBONE® – intens' core competency**



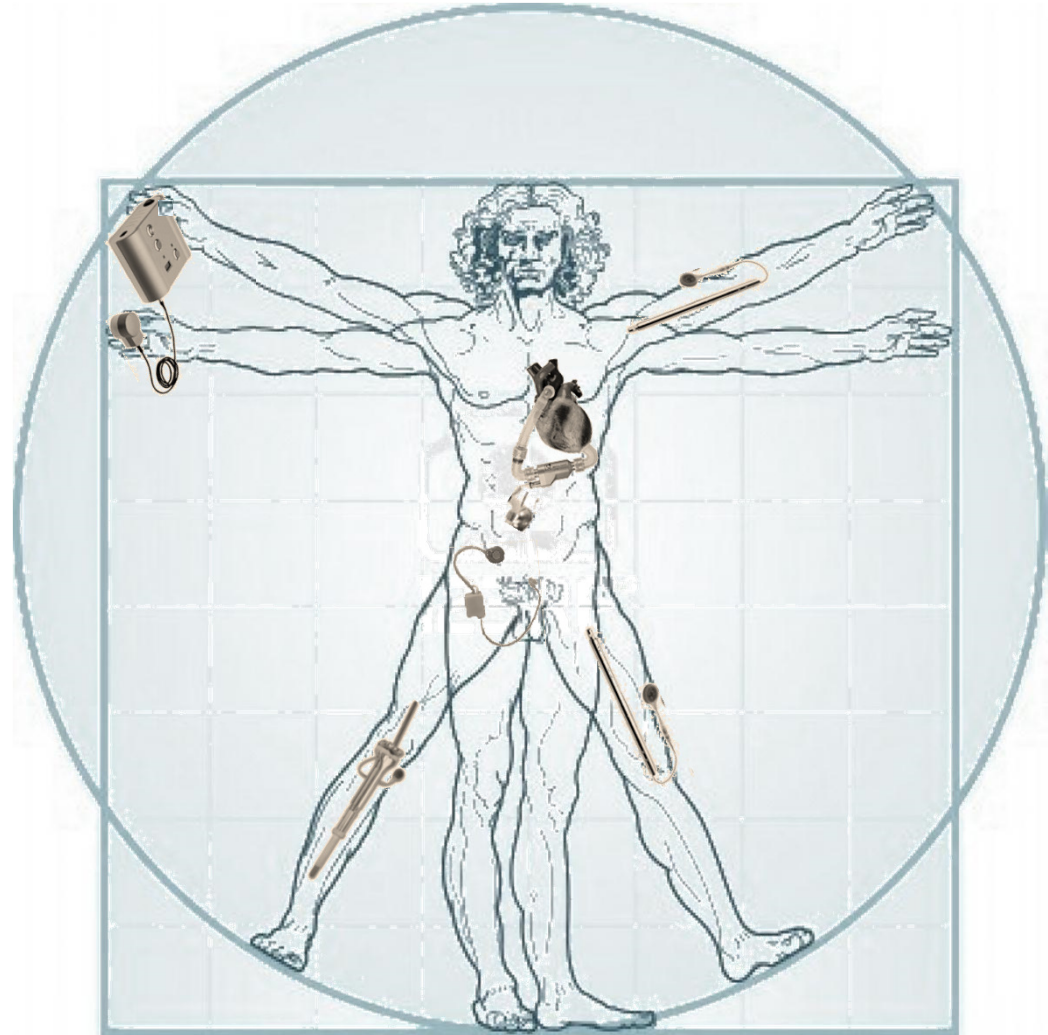
# WITTENSTEIN intens

Medical technology –  
intelligent and controllable drive  
solutions in and on the body

- Transcutaneous energy transmission (TET)
  - Based inductive energy transmission
  - Allows data transmission



- Controllable electromechanical drive systems in orthopaedic implants
- Intelligent implants (sensors)



# WITTENSTEIN intens

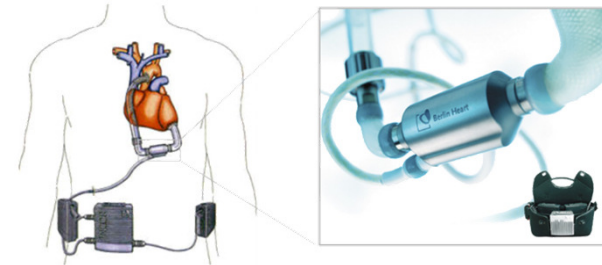
## Our products

### FITBONE® electromechanical intramedullary nail

- Leg lengthening and stump lengthening
- Segment transport
- Drive for tumour prosthesis

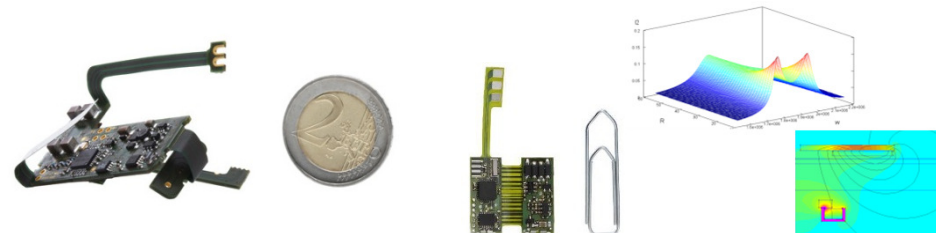


### Drive for axial blood pump



### Research & development of new products

- Sensors & electronics
- Drive systems
- Energy and data transmission
- Miniaturized



## Agenda

**WITTENSTEIN AG**

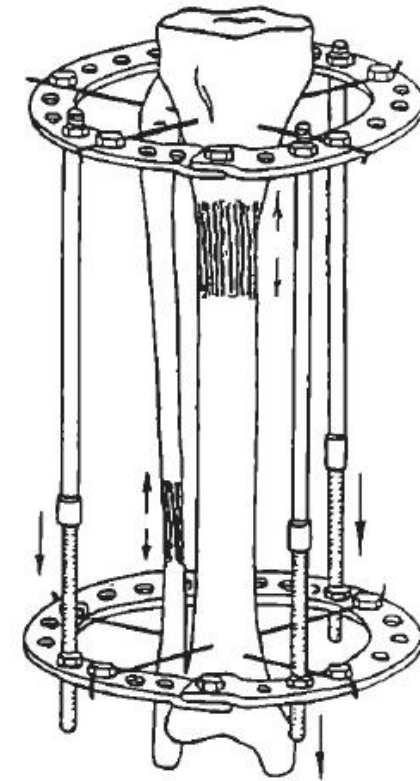
**WITTENSTEIN intens**



**FITBONE® – intens' core competency**

## Biological principle of bone lengthening

- Surgery:  
Osteotomy
- Period of rest:  
Callus formation (elastic)
- Distraction:  
Pulling the two bone parts apart (1mm/day)
- Consolidation:  
Hardening and mineralization of the callus





## Treatment options

Preliminary method

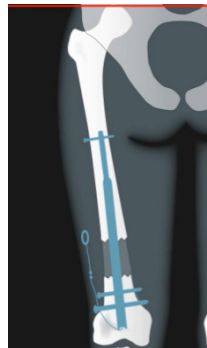
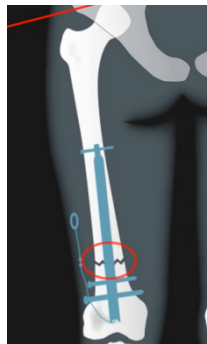


FITBONE® technique



# FITBONE® - Fully implantable electromechanical intramedullary nail for limb lengthening

## System:



## Indication:

- Leg length differences in femur and tibia

## Special Indications:

- Residual limb lengthening
- Segment transport
- After tumor or bone defect

A photograph of a modern industrial manufacturing environment. In the foreground, a large, curved glass safety enclosure is visible, with a QR code sticker on the right side. The background shows a complex assembly line with various mechanical components, including a large rotating wheel and a robotic arm. The scene is brightly lit by overhead industrial lights. A semi-transparent teal banner with white text is overlaid at the bottom of the image.

# Industrie 4.0 @ WITTENSTEIN

17.10.2016

## Industry 4.0 and WITTENSTEIN

We understand Industry 4.0 – the fourth stage of industrial development – to mean the fusion of production and Internet technologies.

- Our "Future Urban Production" facility in Fellbach represents a big step in the right direction.
- WITTENSTEIN is strongly involved in the CyProS research project as consortium leader.



Steam engine



Ford Model T



CNC lathe



Networked objects /  
Internet of Things

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## FITBONE® next Generation = Medicine 4.0

FITBONE® goes Medicine 4.0 (= fourth medical revolution)

**Medicine 1.0** Centuries of herbal medicine

**Medicine 2.0** Antibiotics and x-ray

**Medicine 3.0** New imaging methods and surgery robots

**Medicine 4.0** Intelligent electronic medicine

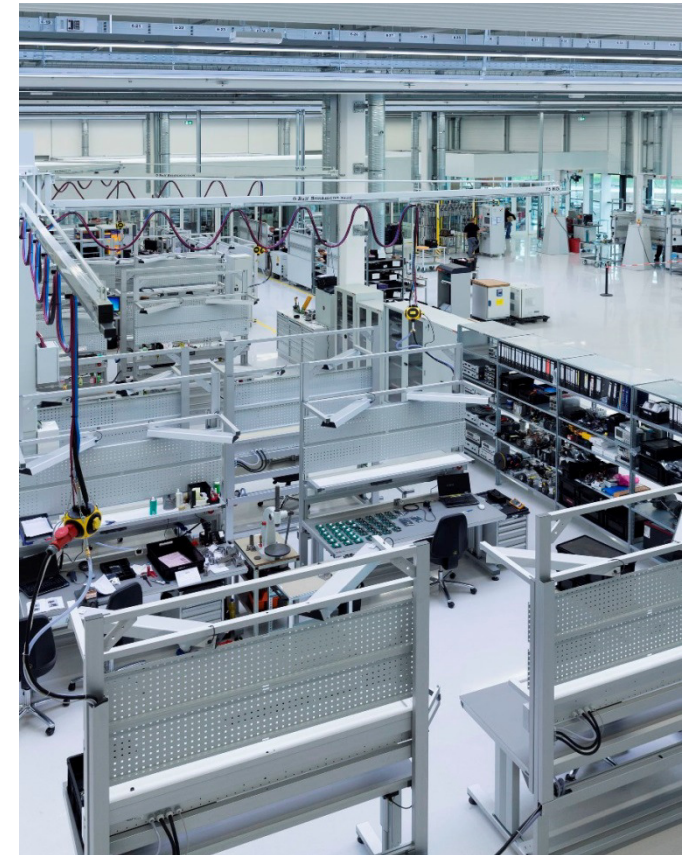
*„Diese Medizin 4.0 zeichne sich durch intelligente elektronische Systeme aus, mit denen sich Therapien vollkommen personalisieren ließen. Hierdurch werde es möglich, die Medizin zum Wohle des Patienten wesentlich zu verbessern und gleichzeitig das Gesundheitswesen zu entlasten.“* <http://www.devicemed.de/szene/articles/499096/?cmp=nl-225>



## The WITTENSTEIN SE Mechatronics Centre: Spearheading Industry 4.0

Through the Innovation Factory we are pushing ahead with the development of mechatronic products and systems for our customers' future applications in Industry 4.0. Parallel to this we are gradually establishing assembly processes in line with Industry 4.0 principles.

Our goal is the 'smart factory', which will provide staff with the tailored, real time information they need to take decisions in the right place and at the right time in order to sustainably enhance productivity and flexibility.



## Future Urban Production

### Industry 4.0 and Urban Production at WITTENSTEIN bastian in Fellbach

- Innovative overall concept comprised of optimized processes, the building itself and the energy supply systems
- Future Urban Production:
  - Low-noise, low-emission
  - Successful reconciliation of economic with ecological requirements





## WITTENSTEIN bastian GmbH

