



Photonics Technologies in Switzerland and  
Innosuisse NTN Innovation Booster Photonics

Swissmem CTO Day – Innovation in Photonics 10. November 2020

presenter:

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Chairman Swissmem Photonics  
Board Member FISBA / RhySearch



# Photonics Technologies

**Why** is Photonics the perfect field for Product- /Process-Innovation?

**What** can Photonics provide to enable cross-technological innovations and multidisciplinary solutions?

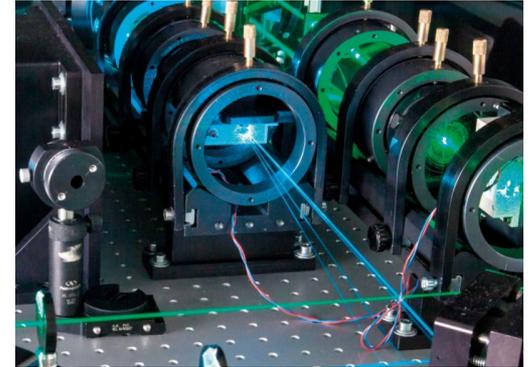
**Who** represents Switzerland's relevant Ecosystem today, and what can it accomplish in favor of our national economy?

**How** can you participate in the network and find attractive solutions for your innovations and your uniqueness in your companies and organizations

> > > find the answers, today – throughout this Swissmem CTO-Day

# Photonics – Key enabling technologies for innovations

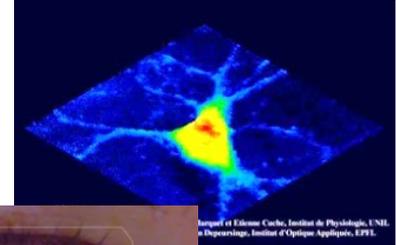
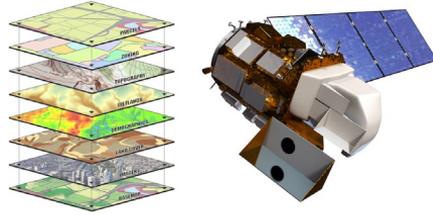
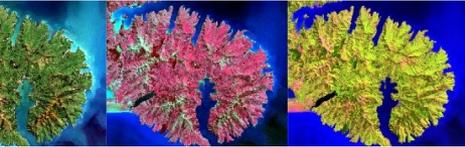
- *the* Technology of the 21<sup>st</sup> century
- recommended for:  
accelerated Innovation and Technology Research  
acc. our "White Paper Photonics Switzerland"
- an essential element for :
  - combinations of a wide range of modern technologies
  - attractive and unique solutions
  - applications of many kinds



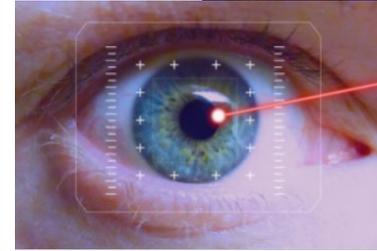
# Photonics: vast potential for modern society

better communication, low-energy, mobility – and improved sustainability

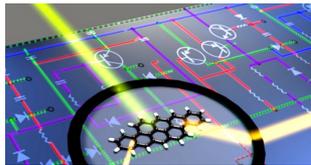
- Environment



- Health

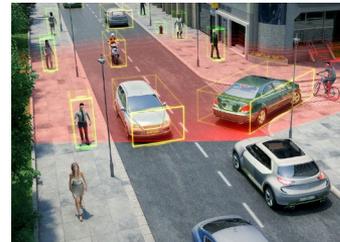


- Digitalization



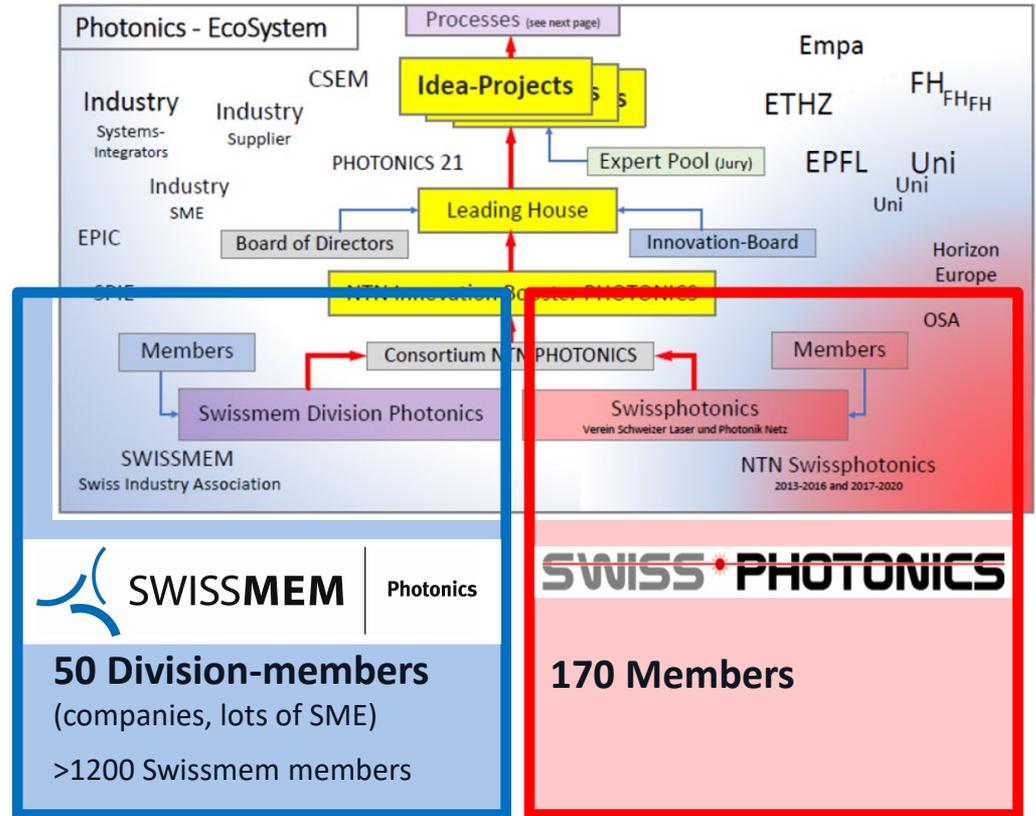
- Autonomous Driving

- and much more ...



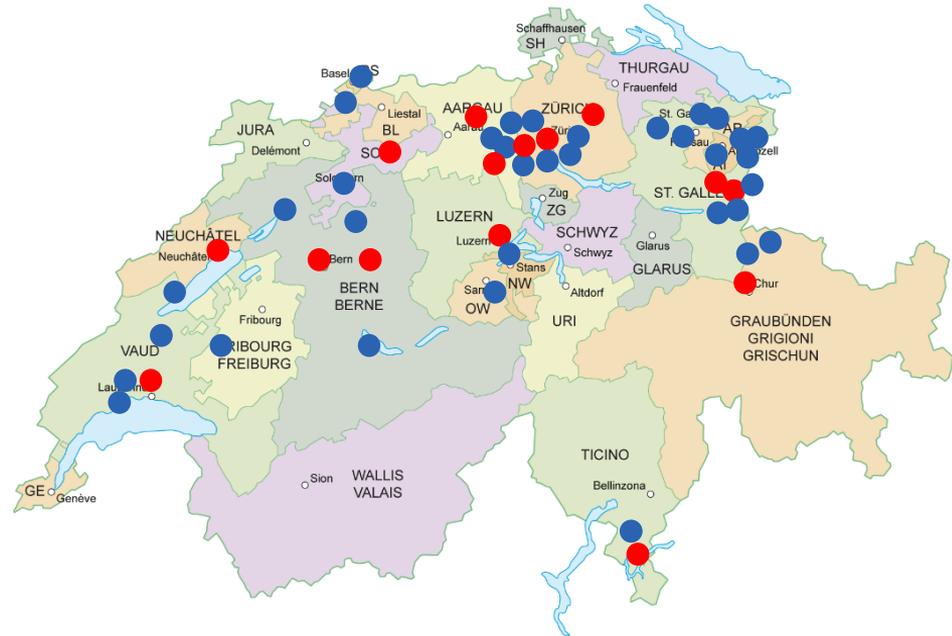
# Photonics: our EcoSystem

- **2 strong Swiss Organizations**  
**strong member-base**  
in both, industry and science
- covering all the regions of Switzerland
- strongly connected to the international science, industry and technology community



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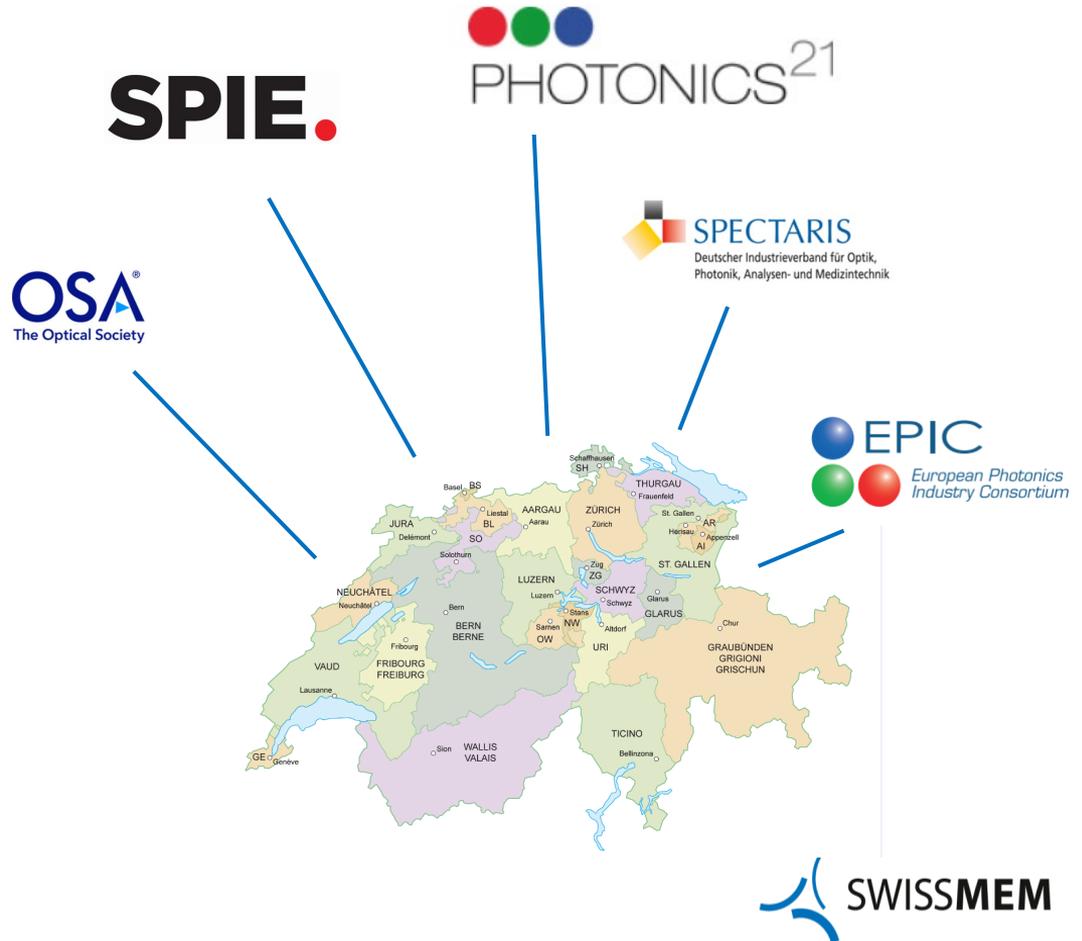
● Industry

● Science



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# The NTN Innovation Boosters

– a new Innosuisse instrument

1. bring together the most important players from science, industry and society in Switzerland – in promising fields of innovation
2. stimulate the testing of jointly developed, concrete innovation ideas in an open innovation culture



# The NTN Innovation Boosters

## – a new Innosuisse instrument

the 12 Boosters, selected by Innosuisse



- Additive Manufacturing
- Applied Circular Sustainability
- Blockchain Nation Switzerland
- Databooster
- Energy Lab
- Futur de la Microtechnique
- Living Labs for Decarbonisation
- Next Generation of Food Ecosystems
- **Photonics**
- Sport et Activité Physique
- Technology and Special Needs
- User-Centred Innovation in Medtech

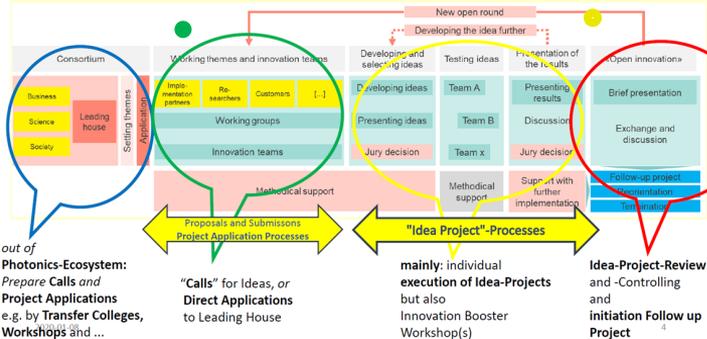
# The NTN Innovation Booster Photonics – its mechanism

find the **Challenges**  
*build the Innovation-Teams*

find the **Solutions**  
*test the Ideas*

- Calls
- **Webinars**
- Match making workshops
- Transfer colleges
- Technology workshops
- setting up the Innovation-Teams
- Submission and approval process

Execution of the NTN Innovation Booster Processes and Events  
 Understanding of the processes incorporated in the Innosuisse Process Overview

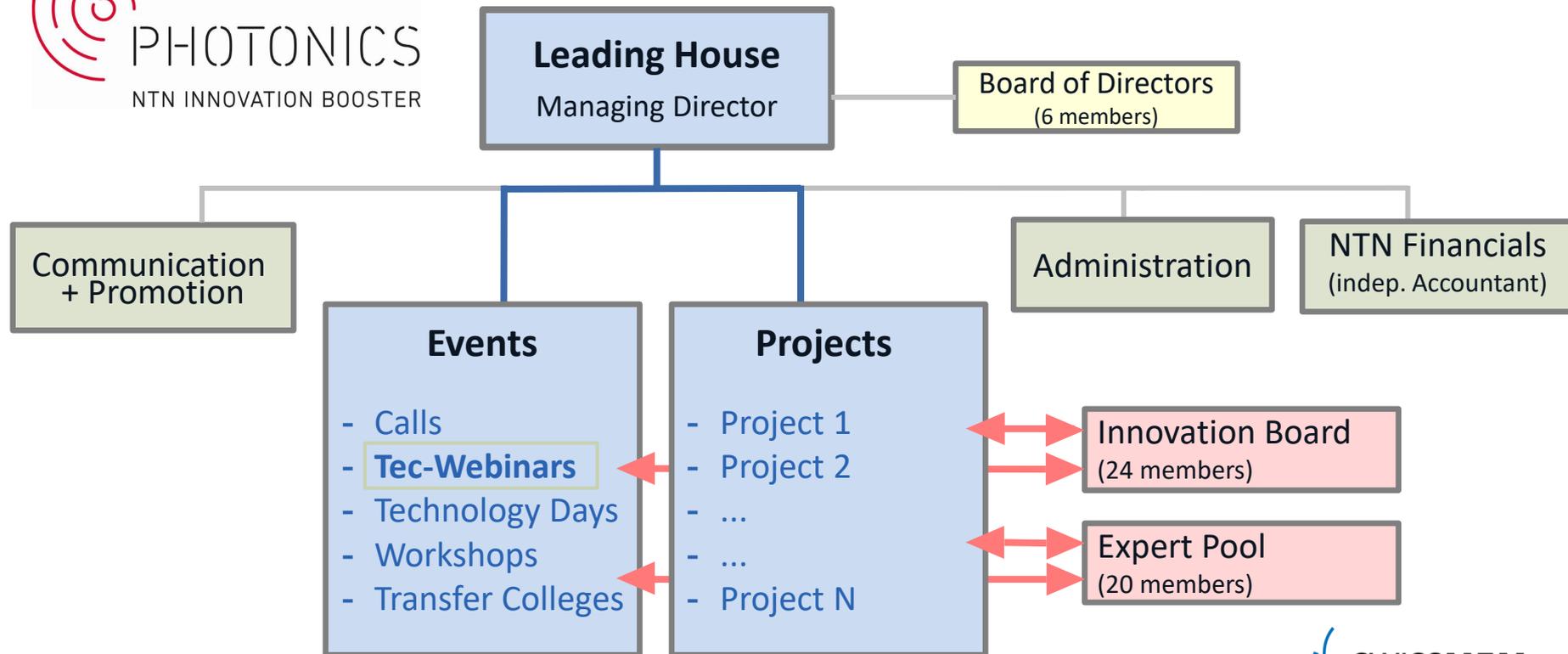


- coaching and controlling the "Idea-Projects"
- Video-Meetings
- Workshops
- Testing the Ideas
- Reviews by Experts
- Generate follow-up Development Projects (Innosuisse and more)

Process Architecture



# our NTN: the organizational structure



# The "White Paper Photonics Switzerland"

the **Editorial team**

Photonics Roundtable

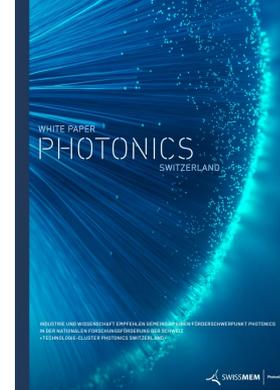
representing Industry and Science  
to be merged with NTN Innovation Board

## 5 Key-recommendations by the White Paper

one of them: «Neue Photonics-Schwerpunkte für die Schweizer Industrie»

1. Advanced Manufacturing
2. Industrie 4.0 und IoT
3. Smart Sensing, Digitalisierung und Messtechnik
4. Daten- und Bildverarbeitung, Augmented und Virtual Reality
5. Medizintechnik
6. Communication Systems

the underlying Photonics-technologies behind >>>



# The 7 Technology-Cluster for Photonics in Switzerland

derived from the recommendations in the White Paper Photonics Switzerland

1. Advanced / (Smart) **Materials and Surfaces** for Photonics-Elements
  2. Advanced **Processing/Manufacturing** of Photonics-Components/-Elements
  3. Advanced **Assembling** of Photonics-Moduls/-Systems
  4. Advanced **Manufacturing-Machinery / -Metrology / -Tooling** for / and or making use of Photonics-Products
  5. Smart **Sensors** and Electronics
  6. Smart Data and **Image Processing**
  7. Photonics in **Medical Applications and Bio-Photonics**
- (Photonics Technology **Transfer Platform** Switzerland; Photonics 4.0)

# Objectives of the "NTN Photonics Booster"

1. we **organize match making events** and **creative exchange** among potential innovators of Photonics-solutions
  - along the two relevant dimensions: a) **technology provider** / (the 7 technology-clusters) and b) **product/application/service provider** (market driven)
2. we **stimulate – support – test** the finding of novel, potential (disruptive) **solution approaches** in view of real innovation content
3. as a distillate: **we extract the ideas with strong innovation potential**
  - **we support the transformation** in subsequent Development Projects (Innosuisse / EU / internal)
4. Quantitative Goals:
  - 40 Hypothesis – 13 Idea-Projects – 5 Development Projects (per year, x4)

# How to run the "Ideation Phase" – how to involve you

> the most challenging and success-critical activity

1. promote, organize, manage the events and "ideation process"  
> attract potential innovators

Communication  
+ Promotion

2. offer frequently: **different forms of events**

accept also: **direct applications** (anytime)

we consider for the events

a coarse pre-selection of particular topics

- technology areas
- application / solution areas

## Events

- Calls
- **Tec-Webinars**
- Technology Days
- Workshops
- Transfer Colleges
- match making
- Pitch Events

# What can **you** contribute – what can you **benefit** from?

1. **participate** at the (appropriate) Ideation-Events of the Booster
2. **ask for** "strange" product-functions – unsolved so far, supposed unrealistic, crazy, disruptive, ...
3. **listen to** the offering and the sketched potential functions of the technology provider (photonics) (both: companies and science)
4. **be open for:**
  - explorative discussions of potential solutions
  - for collaborative, cross-disciplinary solution-approaches
  - working with modern innovation methods (Open Innovation, Design Thinking, ...)
5. **become Project team-member** of promising Booster-ideas, for
  - Idea-exploration and find a solution approach with innovation potential
  - selection for subsequent Innosuisse development-projects ...

## next steps for you

1. **join our workshops**, match making events, pitching for ideation, etc. called for as of beginning of 2021
2. **approach us** immediately, if you have already ideas/needs for innovation-exploration (engaging Photonics technologies, among others)
3. **find us** either:

via	Swissmem Photonics
or	SWISS•PHOTONICS
as of January 1 <sup>st</sup>	on <a href="http://www.ntnphotonics.ch">www.ntnphotonics.ch</a>
4. **stay active** in exchange with our Swiss Photonics Ecosystem



# Let's make an impact!