

This is a sample report for your internal use only. Details on the parameters used are explained in the methodology section at the end of the report.

# Strategic Patent Analysis Report: Technology Analysis

Selected Field: 3D-Printing Technology

Selected companies: Stratasys, 3D Systems, BASF, Electro Optical Systems, Carbon3D, voxeljet, Renishaw, ExOne, MarkForged, Organovo , SLM Solutions Group, HP Inc., United Technologies, Evonik, Bego

Reporting Date: 28/09/2017

Retrieval Date: 03/10/2017



# Introduction

# Strategic patent analysis: What for?

Smart solutions for your competitive advantage

Acquire fundamental information to make your business decision with reduced risk

## OUR STRATEGIC PATENT ANALYSIS

### DEFINITIONS

- Topic
- Package

### ANALYSIS

- Basic
- Advanced
- Professional

### RESULT

- Report
- Charts
- Key figures

## YOUR BUSINESS DECISION

- BUSINESS STRATEGY
- PATENT STRATEGY
- MARKET STRATEGY
- PRODUCT STRATEGY
- EXPERTISE

→ MITIGATE YOUR RISK

# Select your favorite package

## From individual needs to tailor-made reports

Choose the package that fits most to your requirements and resources

### BASIC

- Search task
- Basic data set
- Bibliographic analysis
- Standardized report
- Access to individual patent documents

### ADVANCED

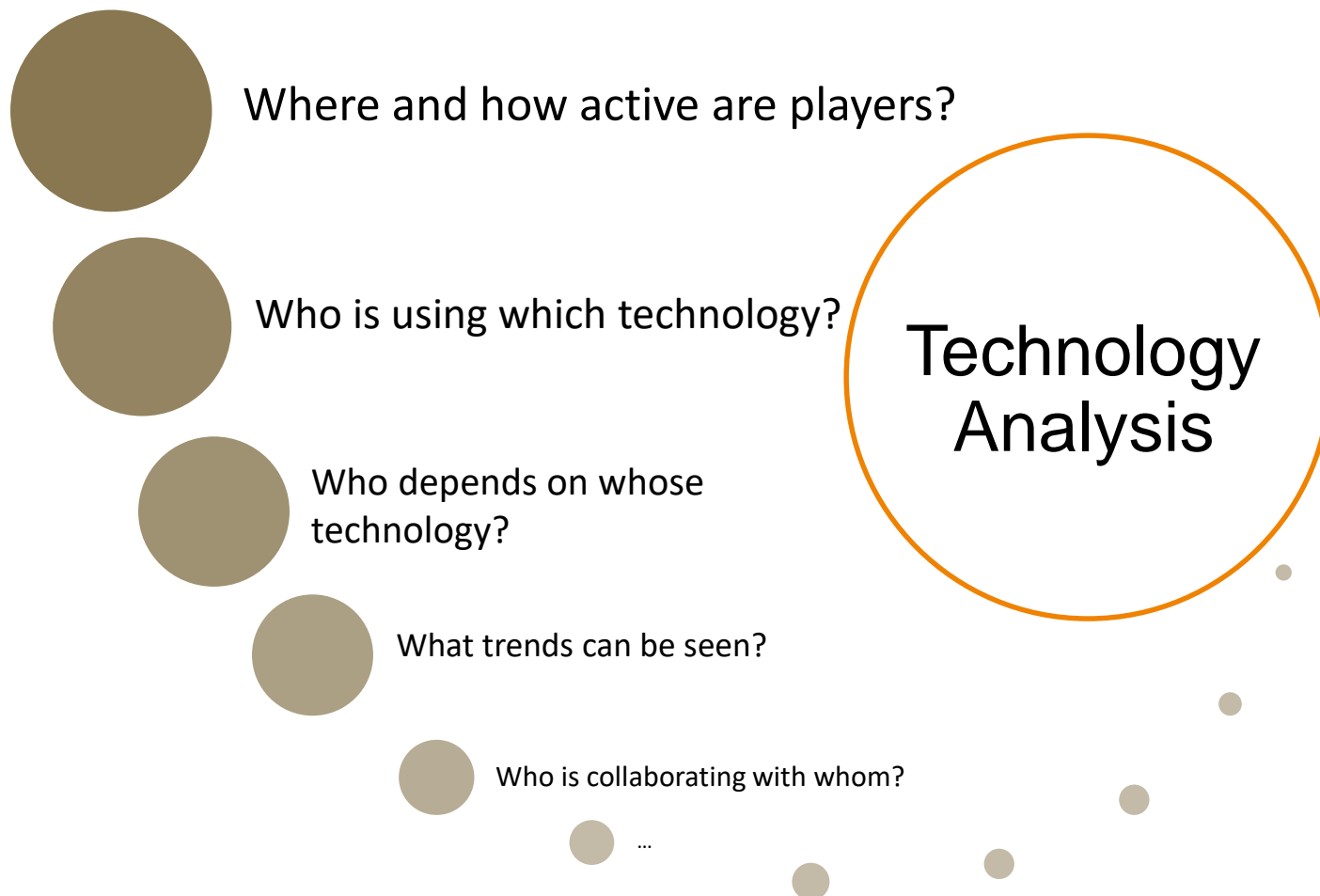
- Basic package
- + In depth analysis
- + In depth communication
- + Categorization
- + Individualized report
- + Legal status data

### PROFESSIONAL

- Advanced package
- + Analysis workshop
- + Data presentation
- + Dashboard (full data access)

# What the patent technology analysis tells you <sup>5</sup>

Focus: Identify players and analyse trends and activities in a specific technological field



# Unique features of our strategic patent analysis

**1 Technological field as reference**  
Your patent portfolio is compared to a defined set of patents representing your technological field

**2 Quality parameters**  
Besides a quantitative analysis parameters for quality of patents are used

**3 Corporate information**  
Identification of companies is key, our corporate service provider ensures best quality

**4 Active documents**  
Patent documents legally kept alive are of major interest

**5 Focus on key figures**  
Reduced to the essentials to save your time and money

**6 Graphics tell the story**  
Easy to understand visualisation in powerpoint slides



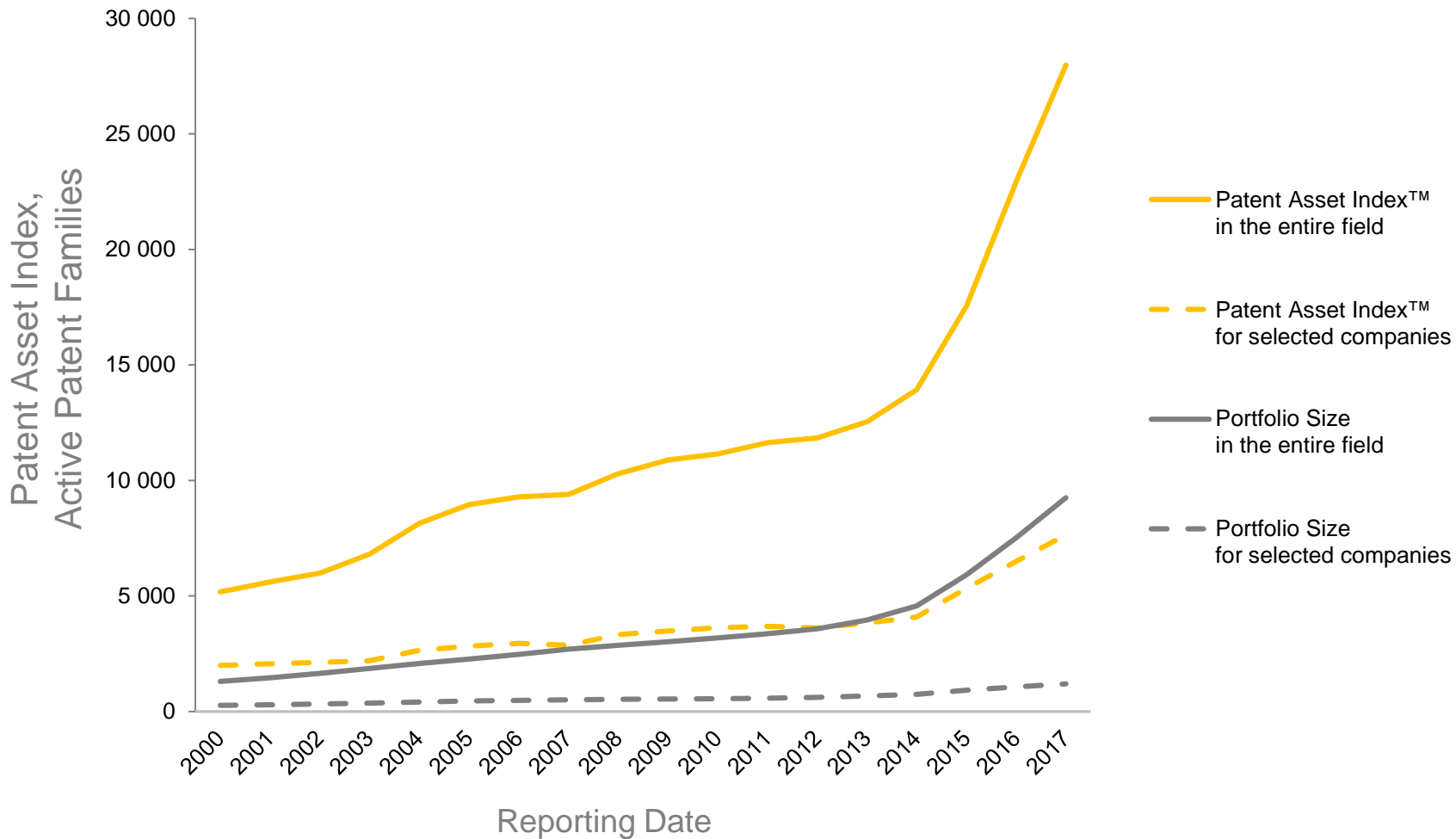
# Key Figures



IGE | IPI  
ip-search

# Development of the entire field and of specified players

Question: How active are players





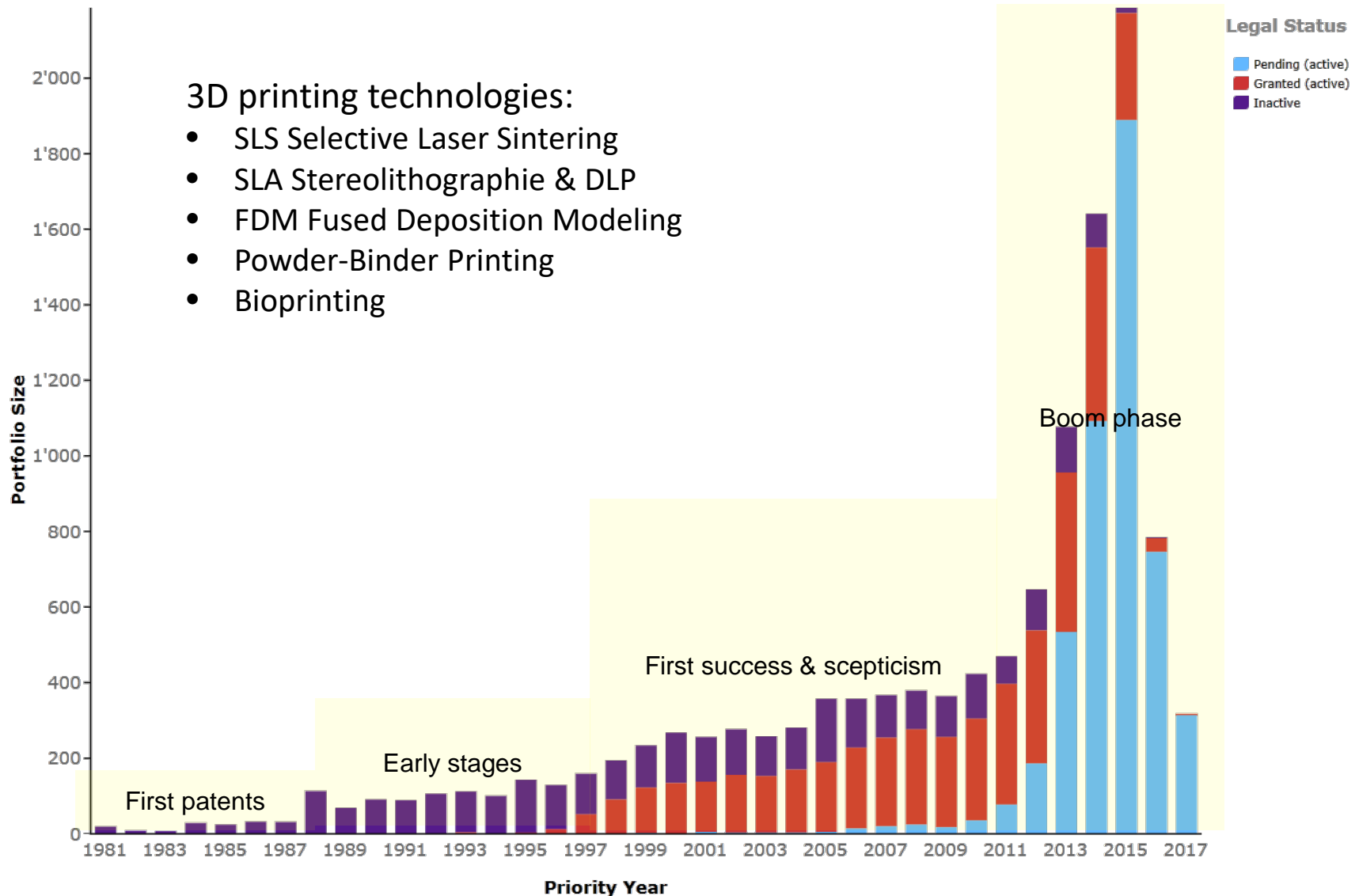


# Development of the selected 3D printing technologies

Question: How active are players

## 3D printing technologies:

- SLS Selective Laser Sintering
- SLA Stereolithographie & DLP
- FDM Fused Deposition Modeling
- Powder-Binder Printing
- Bioprinting

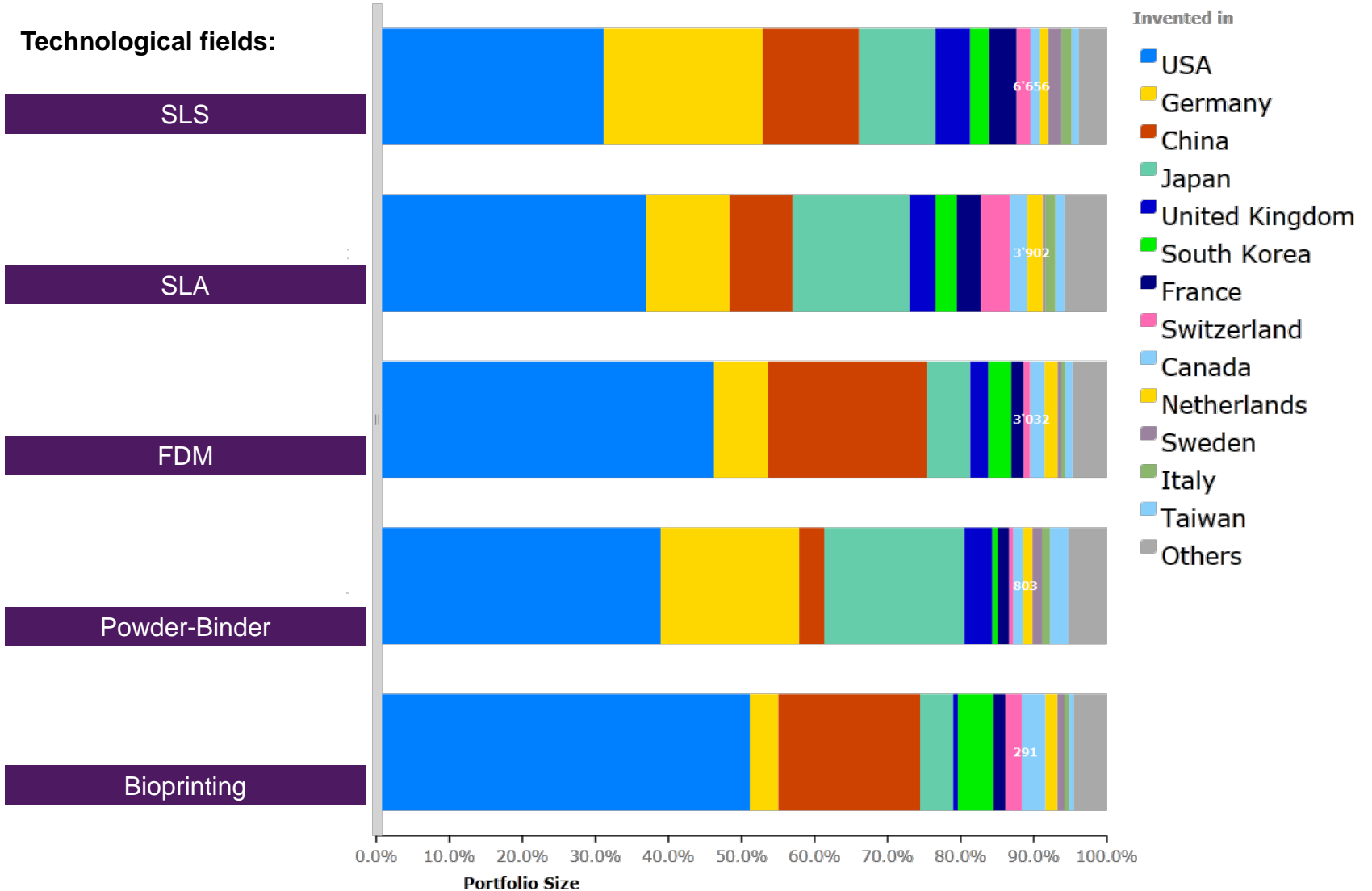




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# R&D locations of the entire field: Portfolio share per country\*

Question: Where are players active



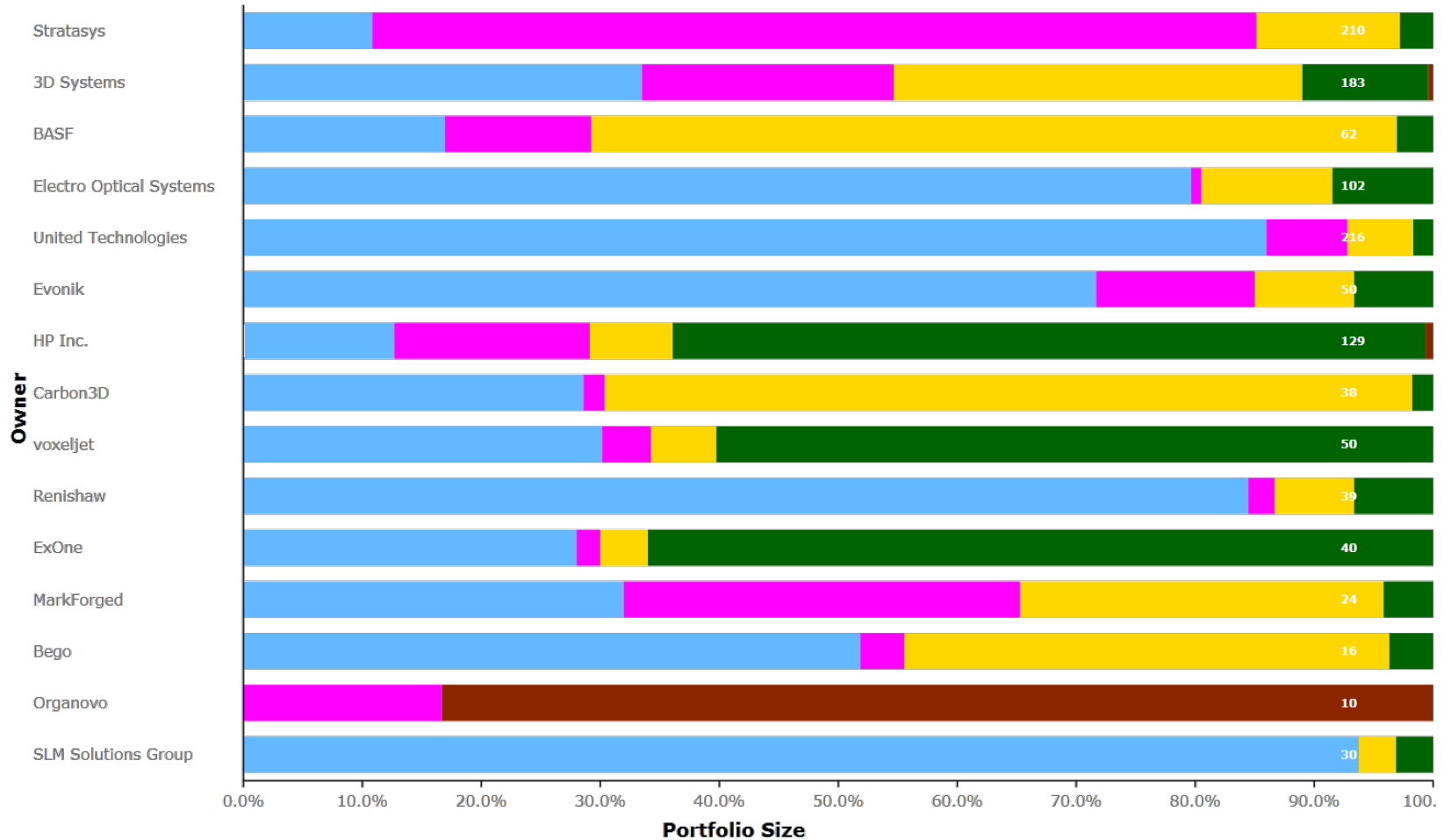
\* Calculation is based on inventor addresses



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# Technology share of top 15 companies in the entire field: by Patent Asset Index™

Question: Who is using which technology



SLS

SLA

FDM

Powder-Binder

Bioprinting



# Company dependencies: Active patents of company A which relates to active prior art of company B

Question: Who depends on whose technology

## Owner of derived technology (A)

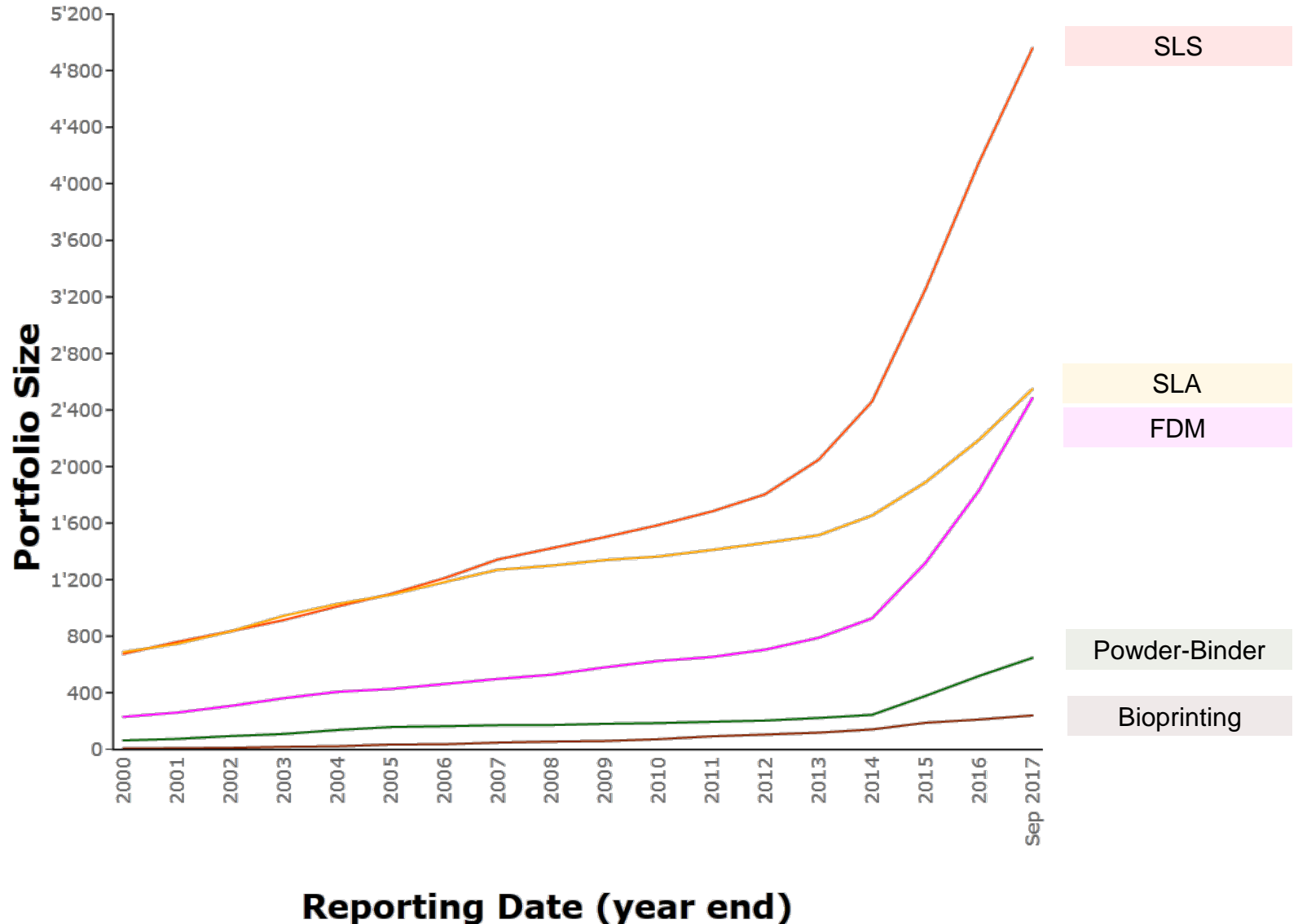
Owner of protected prior art (B)	Stratasys	3D Systems	BASF	Electro Optical Systems United Technologies	Evonik	HP Inc.	Carbon3D	voxeljet	Renishaw	ExOne	MarkForged	Bego	Organovo	SLM Solutions Group	
Stratasys		31	2	6	9	6	37	5	18	2	5	15	4	4	
3D Systems	68		1	35	20	25	56	5	29	13	20	13	5	4	11
BASF	2	3		1		5		5	1						
Electro Optical Systems	24	38	3		18	33	19		22	14	17		7	4	13
United Technologies		3		3		3	3	1	1	7		7	2		2
Evonik	18	8	3	8	3		36	2	6	2	2				3
HP Inc.	26	11		7	1	6			19		5		1	4	1
Carbon3D										1					
voxeljet	6	26	2	11	4	2	7			4	19	7	1		2
Renishaw	9	1		8	10	1	2				1				4
ExOne	2	20	2	3	3	2	5		29	1			1		2
MarkForged	3					1									
Bego	2	4		8	5		2		7	2	1			4	1
Organovo		1													
SLM Solutions Group				7	1	1			1	2			2		

Number of active patents of the “owner of derived technology” in 3DSelectedTechnologies that cite active patents of the “owner of prior art” (in any field).



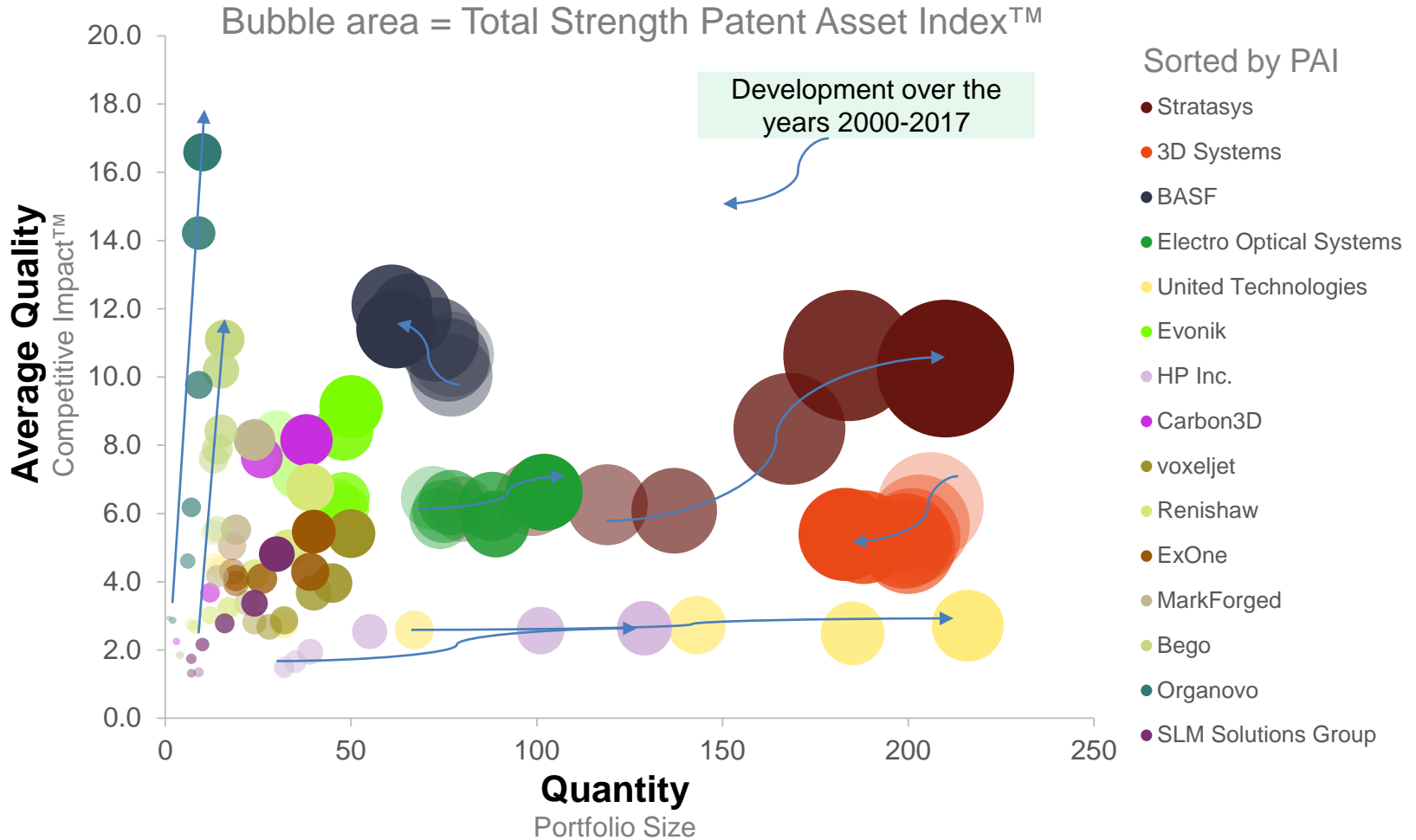
# 3D printing technologies: Trend

Question: What kind of trends can be seen



# Selected companies: Trend

Question: What kind of trends can be seen



Note: Increasing translucency of bubbles means they mark an earlier point in time. The development over time is shown for Reporting Date 2011 to 2017.



# Co-ownership\* of selected companies

Question: Who is collaborating with whom

Selected companies	Co-Owner	Shared Patent Asset Index™	Shared Portfolio Size
3D Systems	Huntsman	34	4
Electro Optical Systems	3D-Micromac	19	3
Electro Optical Systems	MTU Aero Engines	18	4
Electro Optical Systems	Siemens	16	1
voxeljet	ExOne	7	1
SLM Solutions Group	DMG Mori Seiki	6	2
Stratasys	BOSSIERE JOSEPH EDWARD	6	1
BASF	Novartis	4	2
3D Systems	Toshiba	0	1
HP Inc.	Hewlett Packard Enterprise	0	1
voxeljet	MANI INC	0	1

\* Most important co-owners of active patent families also owned by selected companies

## And many more ...

- This is a sample report only. It shows some of the most important basic information in order to give you a first impression on the content of such landscape reports.
- The major questions applicable to this type of strategic patent analysis will be answered in a full report.
- Additional questions may arise when reading the full report. We would be happy to answer those in a top-off analysis.

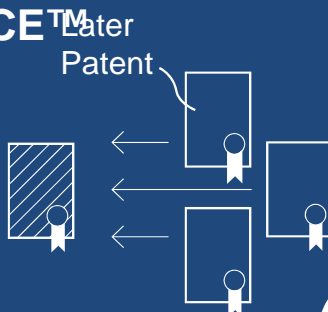


# Methodology

## TECHNOLOGY RELEVANCE™

Worldwide citations received from later patents, adjusted for age, patent office practices and technology field

Average value: 1



X

## MARKET COVERAGE™

Market size protected by active patents and pending patent applications on a certain invention

Value of a granted US patent: 1



## COMPETITIVE IMPACT™

(Individual patent strength)

The relative business value of a patent

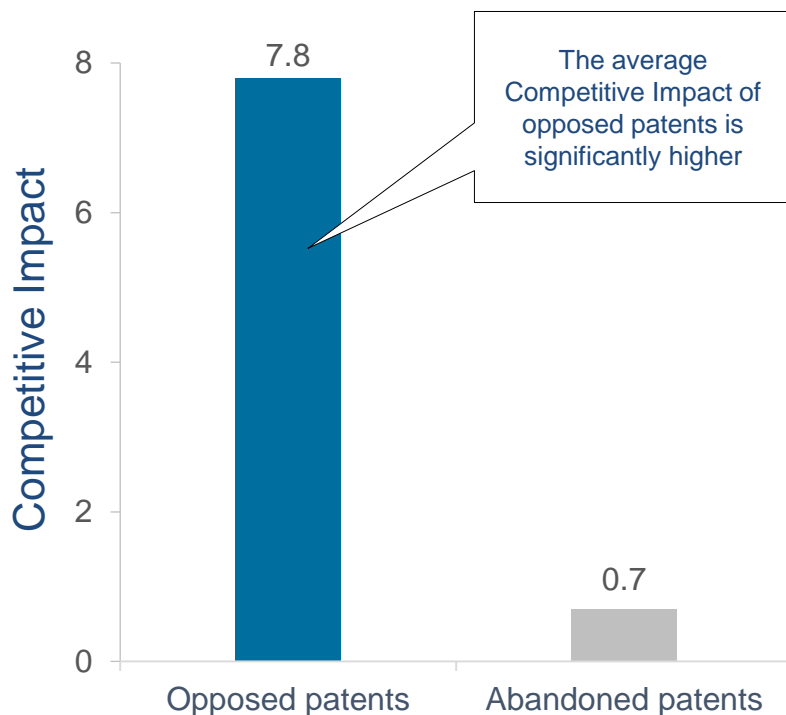


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## PATENT ASSET INDEX™

(Sum of all Competitive Impacts of an entire portfolio)

The scientific publication was made in: Ernst, H., Omland, N. (2011): The Patent Asset Index – A New Approach to Benchmark Patent Portfolios. World Patent Information 33, pp. 34–41. An overview can be found in the document “Introduction to the Patent Asset Index” available from PatentSight.



## Validation studies

Patents with a high Competitive Impact are more frequently

- ✓ CONSIDERED A KEY PATENT
- ✓ ATTACKED AND DEFENDED
- ✓ ENFORCED IN COURT
- ✓ MAINTAINED LONGER
- ✓ COMMERCIALIZED
- ✓ STANDARD-RELEVANT

Sample: 74.732 patent families. Source: *Ernst, H., Omland, N. (2011): The Patent Asset Index - A New Approach to Benchmark Patent Portfolios. World Patent Information 33, pp. 34–41.*

- **Technology Relevance™ (TR)**

The relevance of a patent for technical development. It is measured by looking at worldwide prior art citations to the patent (similar to how Google rates web pages by the links they get from other web pages). **Internal TR** is based on the citations made by patent families of the patent owner himself, **external TR** is based on citations made by patent families of third parties only.

- **Market Coverage™ (MC)**

The existence of active patent rights to the invention in world markets. If a larger market size is protected, Market Coverage™ is higher and the patent thus has a higher Competitive Impact™.

- **Competitive Impact™ (CI)**

The economic and strategic value of patents as measured by the product of their Technology Relevance™ and Market Coverage™. Competitive Impact™ is stated relative to other patents in the same field (e.g. a value of three means that the patent is three times as important as the average patent in the field).

- **Patent Asset Index™ (PAI)**

The measurement of the overall strength of a patent portfolio. It is calculated as the sum of the Competitive Impact™ of all patents contained in the portfolio.



- ***Active patents***

Patent families comprising at least one pending application or a granted patent, which is not lapsed, withdrawn, invalidated or rejected at the respective date (according to Inpadoc database). “Active” means at least one granted patent or a pending patent application exists (at that date NOT (yet) rejected, withdrawn, lapsed, invalidated, etc.)

- ***Reporting Date***

Reference date for the determination of certain patent portfolio parameters as they would have been at that “reporting date” back in history.

- ***Patent Owner***

Most probable owner of the aggregated patent portfolio, according to Inpadoc database as well as to a consolidated patent owner database provided by PatentSight.

### IN CASE OF QUESTIONS – FOR PLACING ORDERS



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