



# Use of Patent Landscape Reports for Commercial Activities

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**Intellectual Property Dept**  
**Information Research**

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Classification: PUBLIC

# Contents

- Syngenta
- Patent Research group and Patent Analytics agenda
- People – Process – Tools
- Example 1: Open Innovation - identification of in-licensing opportunities
- Example 2: Maximize value – 2<sup>nd</sup> uses

# Helping small and large farms meet the challenges of global food security

## Our ambition

is to bring greater **food security** in an environmentally **sustainable** way to an increasing populous world by creating a **worldwide** step-change in farm **productivity**



8M

large-scale farms  
>100 Ha



450M

smallholder farms  
~2.0 Ha

# With passionate people and a strong platform



Over  
**\$1.25 billion**  
annual R&D investment  
and more than  
**5,000**  
R&D staff



Over  
**27,000**  
employees  
in some **90**  
countries



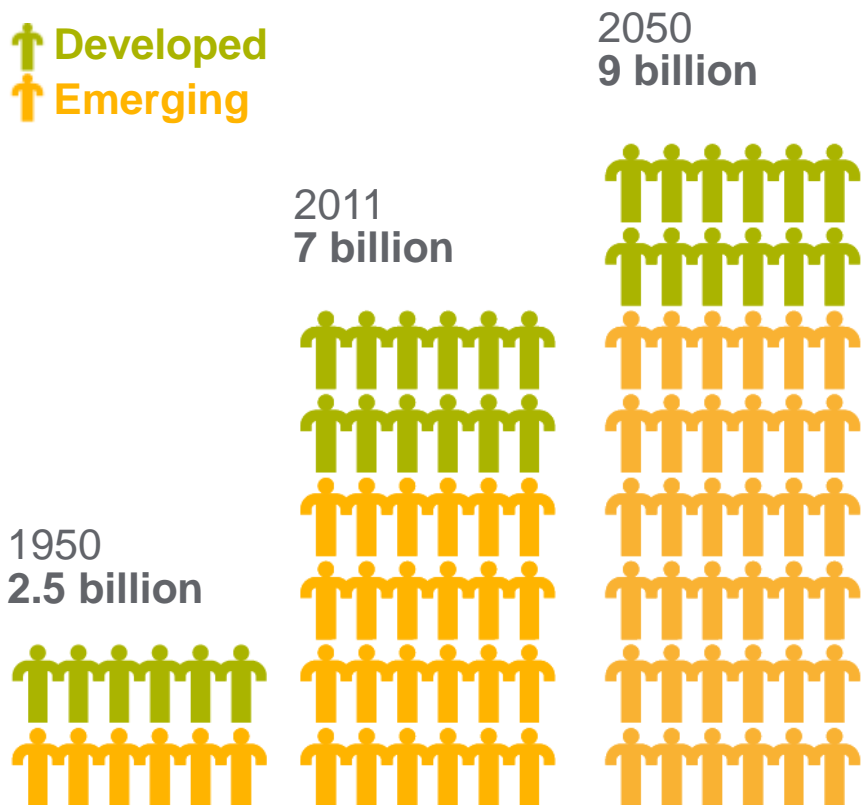
**\$14.2bn**  
sales in 2012



# Demand for food is driven by population growth and rising calorie consumption

World population  
> 80% of growth happens  
in emerging markets

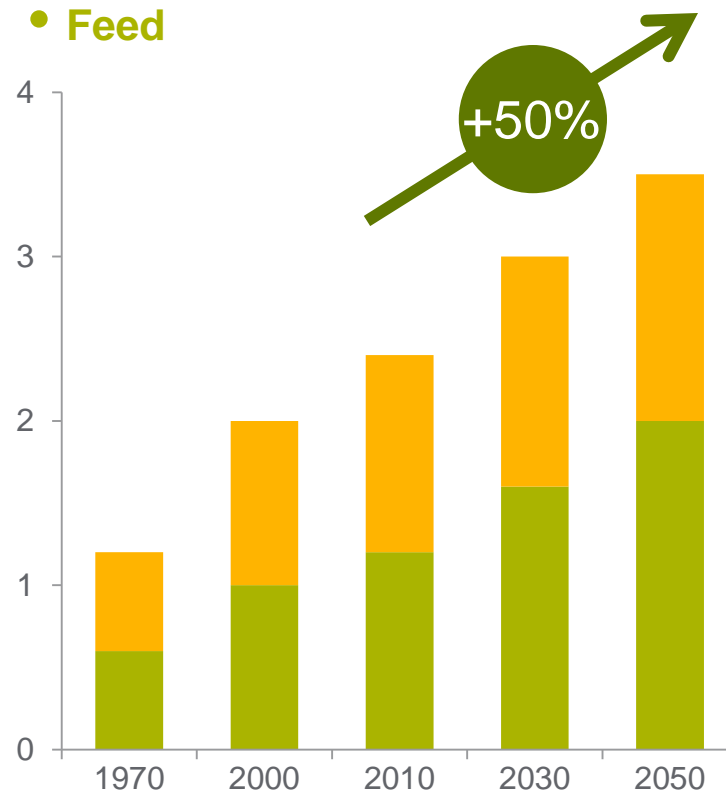
↑ Developed  
↑ Emerging



Source: FAO, Syngenta analysis

World demand for major crops\*  
bn tonnes

• Food  
• Feed

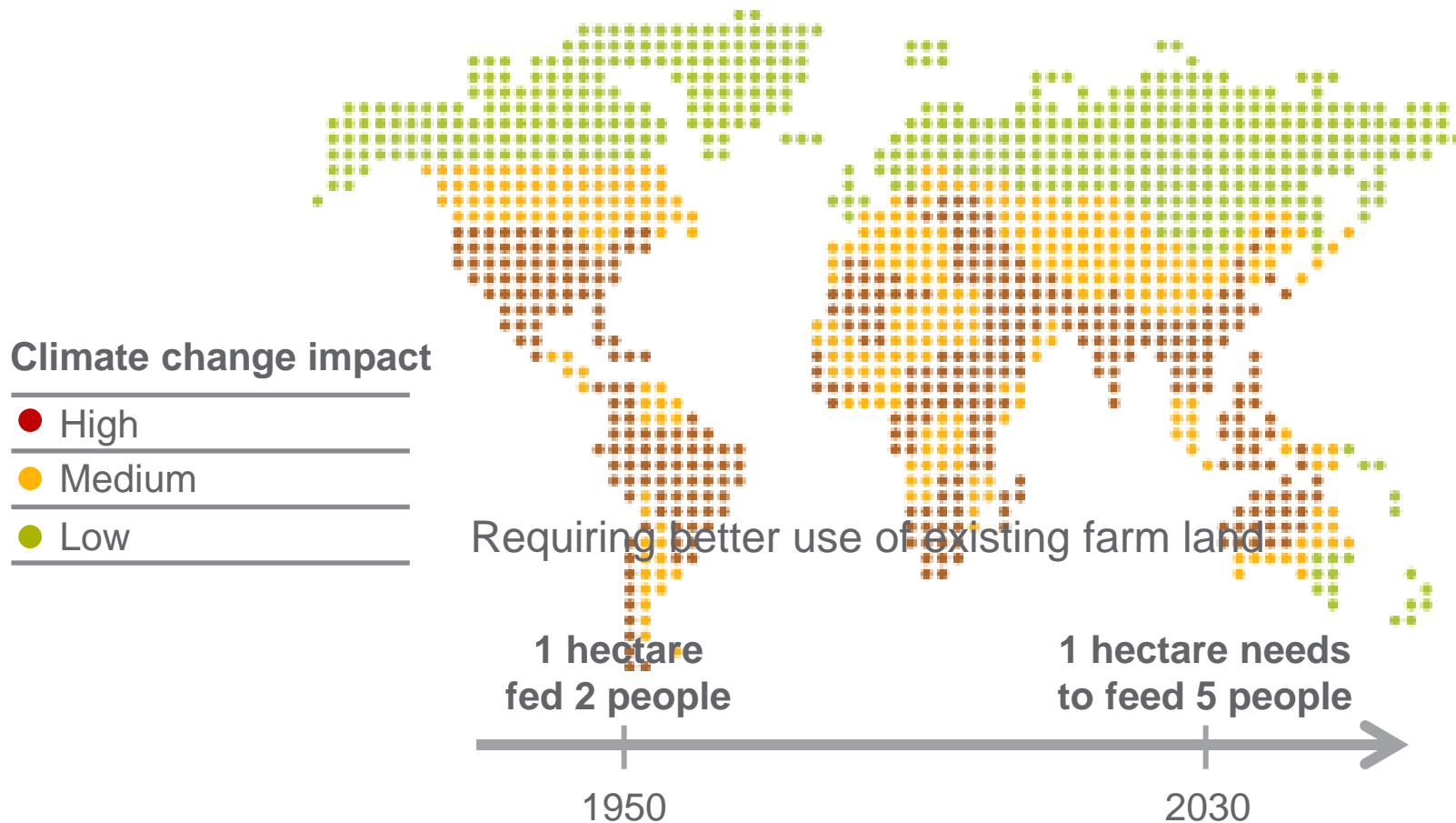


\* Includes cereals, rice, corn and soybean

# Environmental stresses are increasing

## World stress map

The change in climate is already reducing water and arable land



Source: UNEP, Cline, Syngenta

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# The Information Research group

- Organizationally integrated in the Intellectual Property Dept
  - located in Basel (CH); global service: 'center of excellence' approach
- People with strong scientific background in
  - Biochemistry
  - Biology/Biotechnology
  - Chemical Engineering
  - Organic Chemistry
  - Physical Chemistry



# Aligned information research services

## Business Environment

VUCA\*

### Syngenta

Provide integrated solutions

Create global platforms

Leverage across org boundaries

### Information Research

Patent Information strategies & priorities aligned with Business

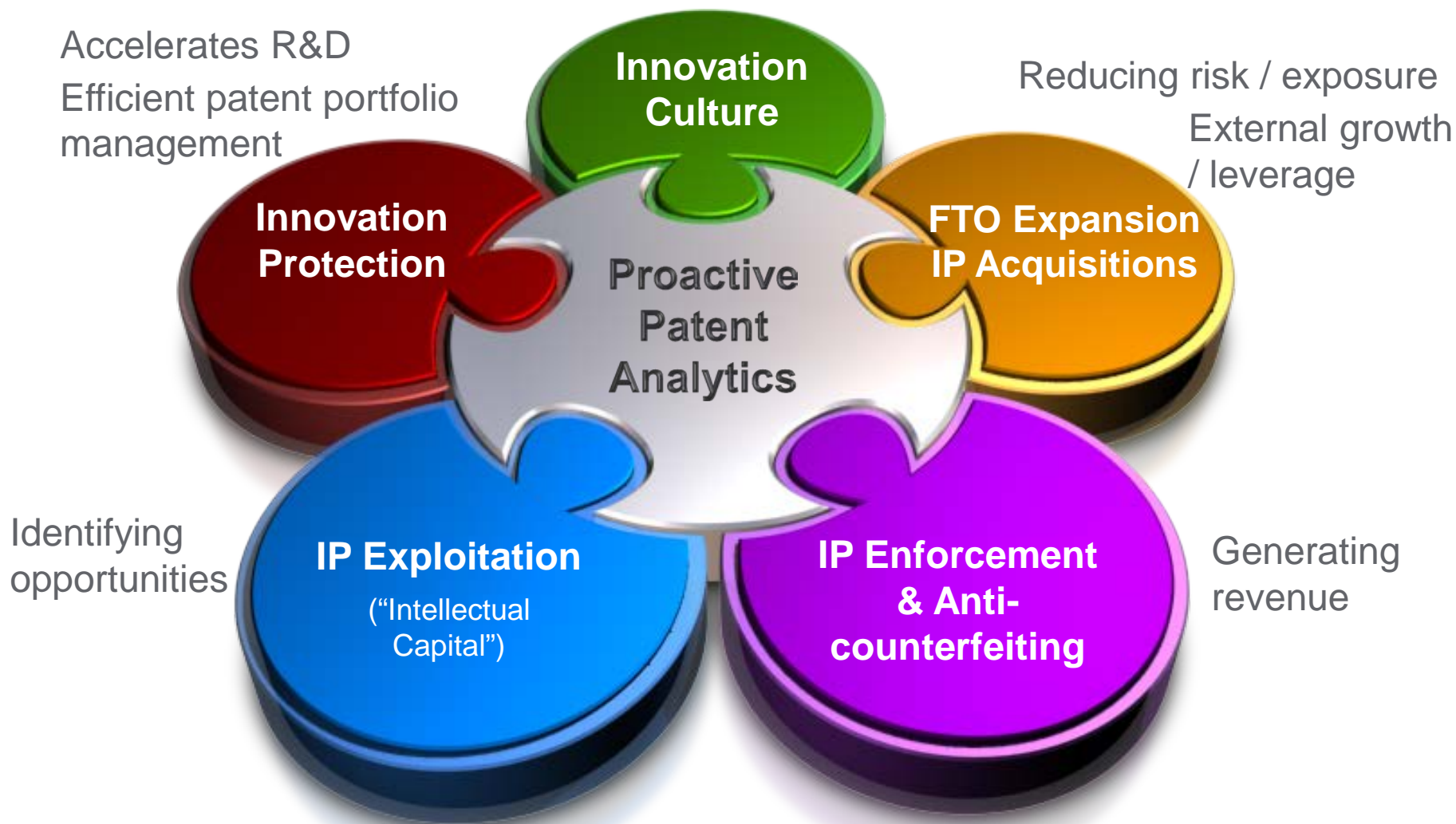
Provide value-added information incl. Tech Mining

Manage and maintain databases and tools

Technology Alerting systems

\*VUCA = Vulnerability, Uncertainty, Complexity, Ambiguity

# Patent Analytics shapes and drives.....



# Patent Analytics agenda

## The deliverables

### Innovation Culture

- White space analysis
  - redesign of patent portfolio by filing in identified gaps
- Open Innovation
  - external sourcing of inventions/know-how/skills
  - acceleration of R&D

### Innovation Protection

- Patent valuation
- Patent portfolio management
  - where to create IP barriers
  - licensing-out vs. licensing-in
- Tracking fundamental inventions vis-a-vis incremental innovations
- Life-cycle management

### Capitalize on IP Investment

- 2<sup>nd</sup> uses of technologies
  - adjacent technologies
- Identify new value capture models
- Niche market identification
- Discover new technologies and processes and their use for product development

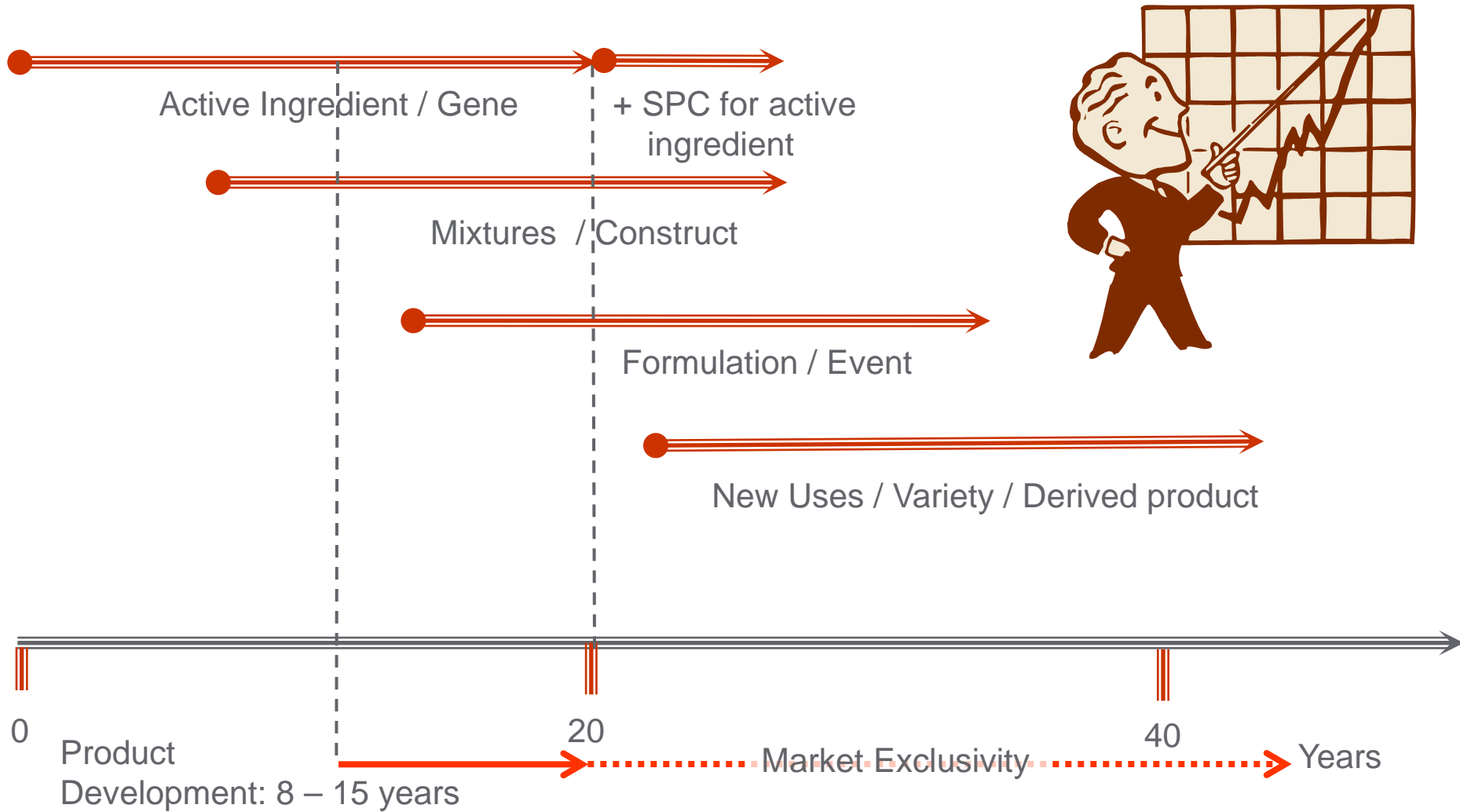
### FTO Expansion & IP Acquisition

- Understand potential risks and benefits of new approaches or entering new markets
- Identify acquisition targets
- Competitor patent profiling
  - understand strategies of competitors

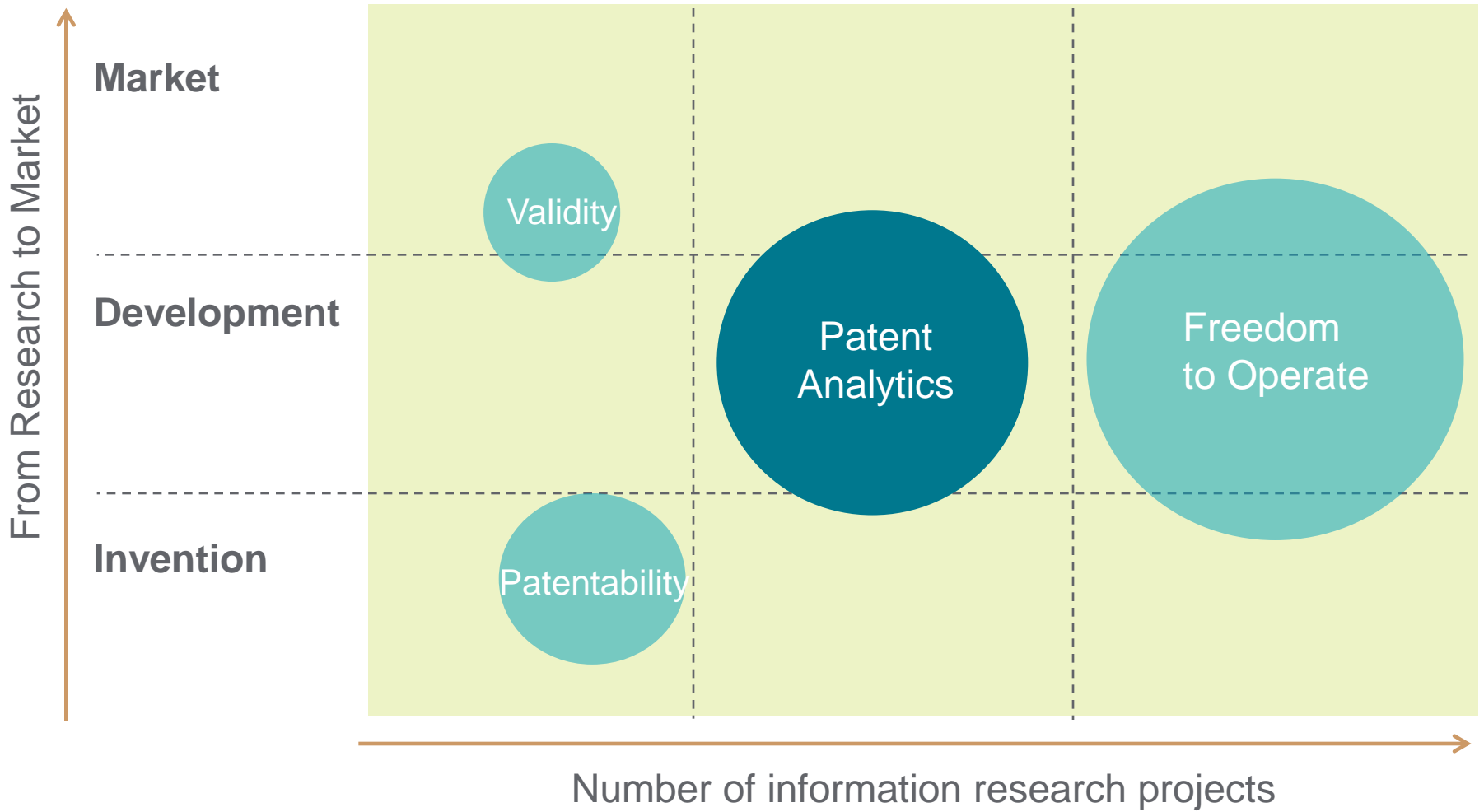
### IP Enforcement & Anticounter-feiting

- Infringement detection
- Understand potential risks and benefits of new approaches or entering new markets
- Identify activities of real and potential competitors

# Life-cycle management and Patent Analytics



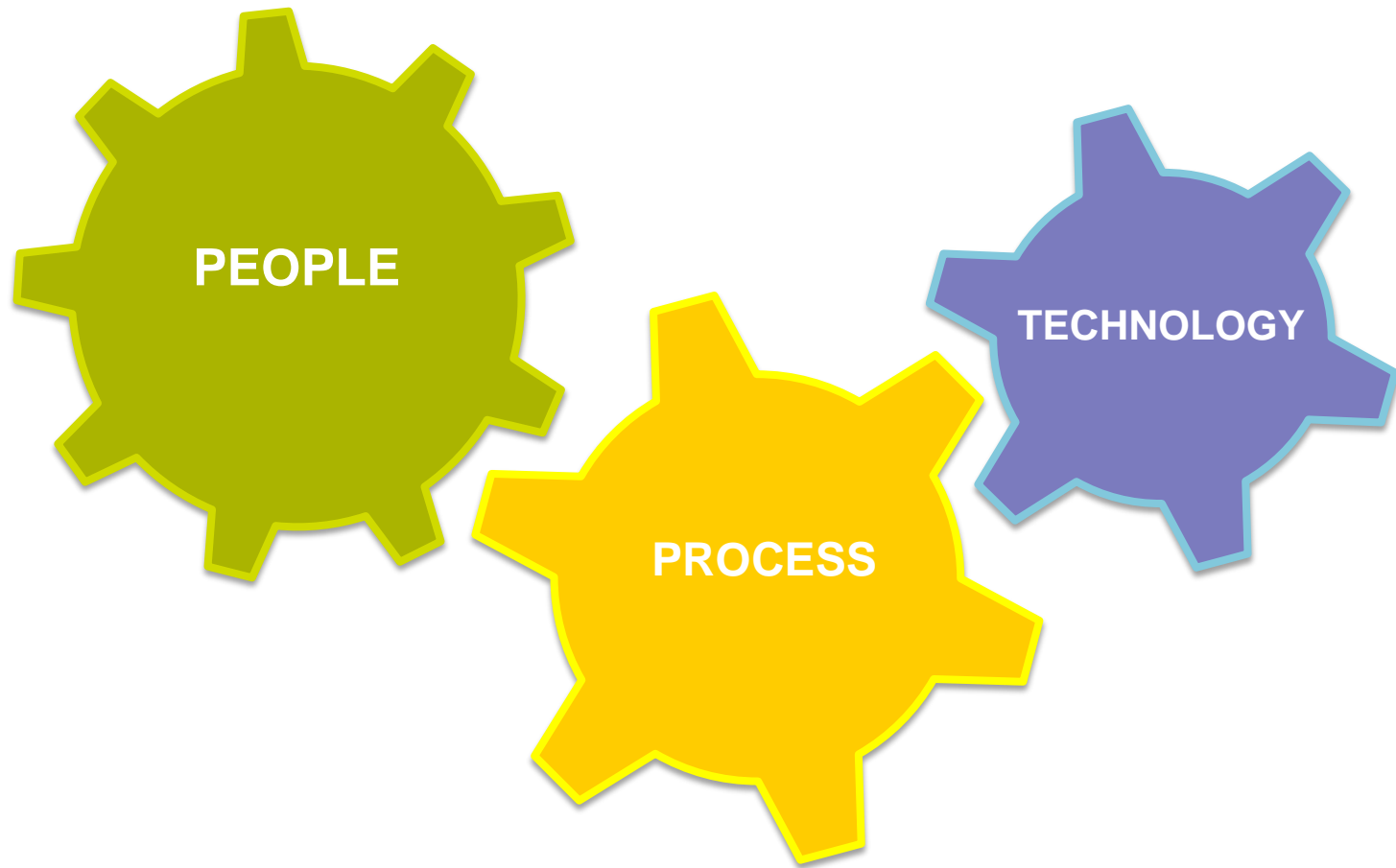
# The today's Information Research landscape



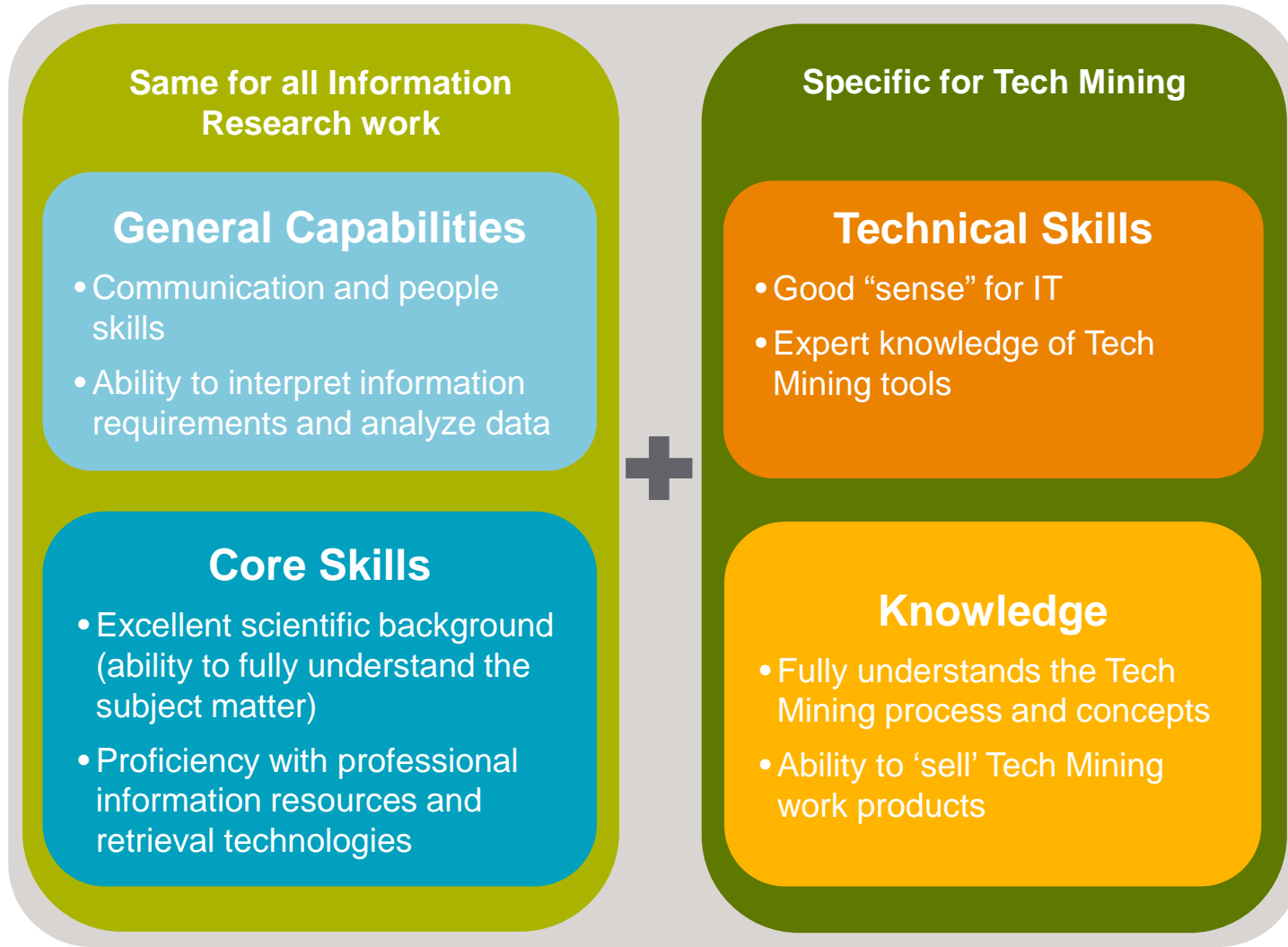
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# Essential elements in the implementation of Patent Analytics



# Required competencies



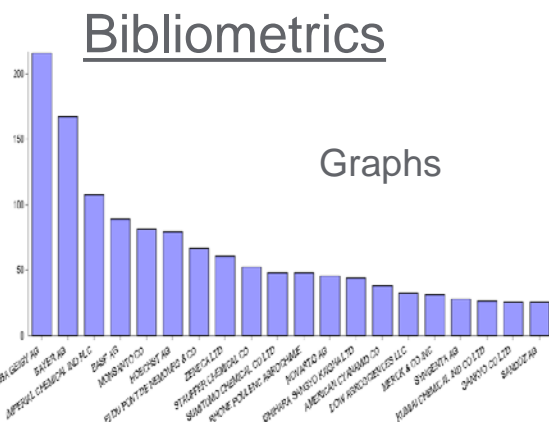
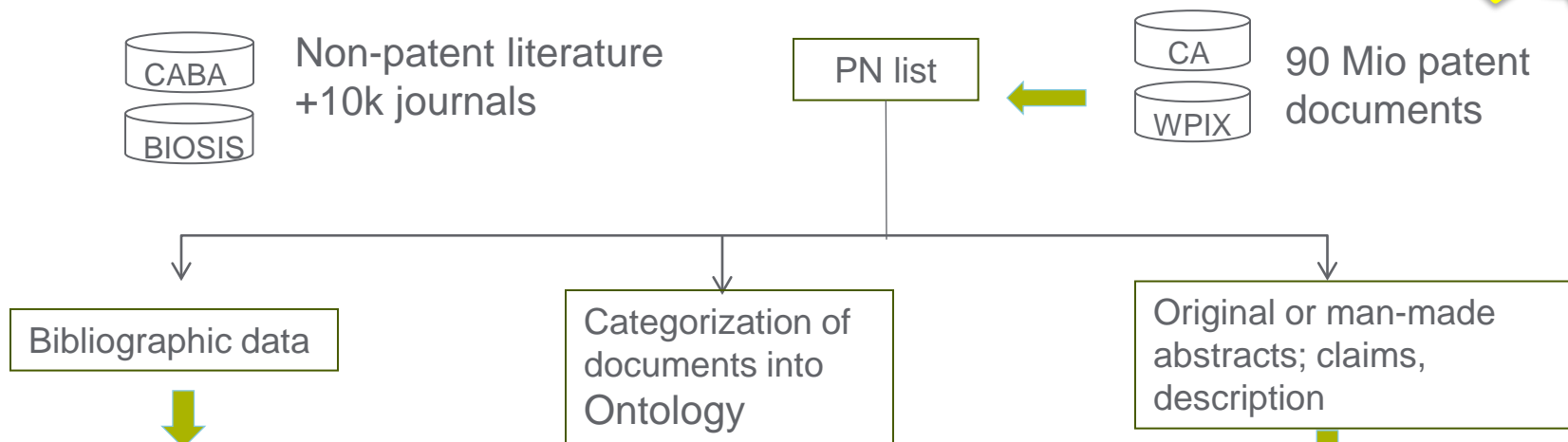


# The process



- Understand the question & translate into search strategies
- Chose appropriate data resources with analytic tools in mind
- Interactive retrieval, "Piece meal" approach
- Remove irrelevant documents (Garbage-in/Garbage-out)
- Application of thesauri (company and inventor)
- One document per patent family
- Man-made abstracts preferred over original abstracts
- No "one tool fits all" approach
- Collaborate and communicate

# Data - Tools



UDC_Category	Total	Seeds			
		Seeds	Breeding Technologies	Transgenic Technologies	Cultivars_Varieties_Irbred Lines
Assignee_Name					
Total	422	422	75	180	233
DU PONT/PIONEER	120	120	26	39	78
MONSANTO	111	111	46	34	71
SYNGENTA	101	101	3	20	81
BASF	34	34		34	
BAYER	16	16		16	
DOW	12	12		10	2
DIVERGENCE INC (DIVE-N)	11	11		11	
DEVGEN NV (DEVG-N)	9	9		9	
STINE SEED FARM	8	8	1		8
UNIV NORTH CAROLINA	7	7		7	

## Text mining & mapping




Maps

# Expectations are different



**Δ Picture**



is worth

**Δ thousand words.**

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Creamy, delicious, yummy, fudge ice cream, smooth, chocolate-chip mini ice cream, strawberry ice cream with real chunks of strawberry, colored sugar sprinkles, waffle sugar cone, sweet, wonderful, tastes great, cold nice to eat, dessert, good, yummy, toppings, chocolate sprinkles, comforting, good fun, dipping, terrific,

There is no value in it for me!



**Need for aligned Patent Analytics!**

# Customer expectations drive data and visualization analysis



## Business Development

- 80:20 retrieval and quality of data sufficient
- Use of Patent Classifications and database specific codes for retrieval

## Research

- Almost complete retrieval and quality of data
- Use of classifications, keywords for retrieval
- Removal of obvious irrelevant documents

## Intellectual Property

- Comprehensive and high quality data set
- Retrieval includes generic query expansion
- Manual categorization of documents

# Quality of data set



- Remove irrelevant documents
  - low-cost sources/flat fee tools; “enhanced” titles
- Company/organization thesaurus to account for
  - subsidiaries
  - mergers and acquisitions
  - research collaborations
  - transactions
- *Inventor – patent agent - company/organization* thesaurus to account for non-company/organization information in US patent applications

# Tools



## Pivot table analysis

- Import of bibliographic data into MS Excel or other visualization tools
- “Drag and drop” creation of pivot tables and related charts

## Data source integrated

- Built-in analysis tools
- Convenient for occasional users
- Drilling down option

## Data Mining

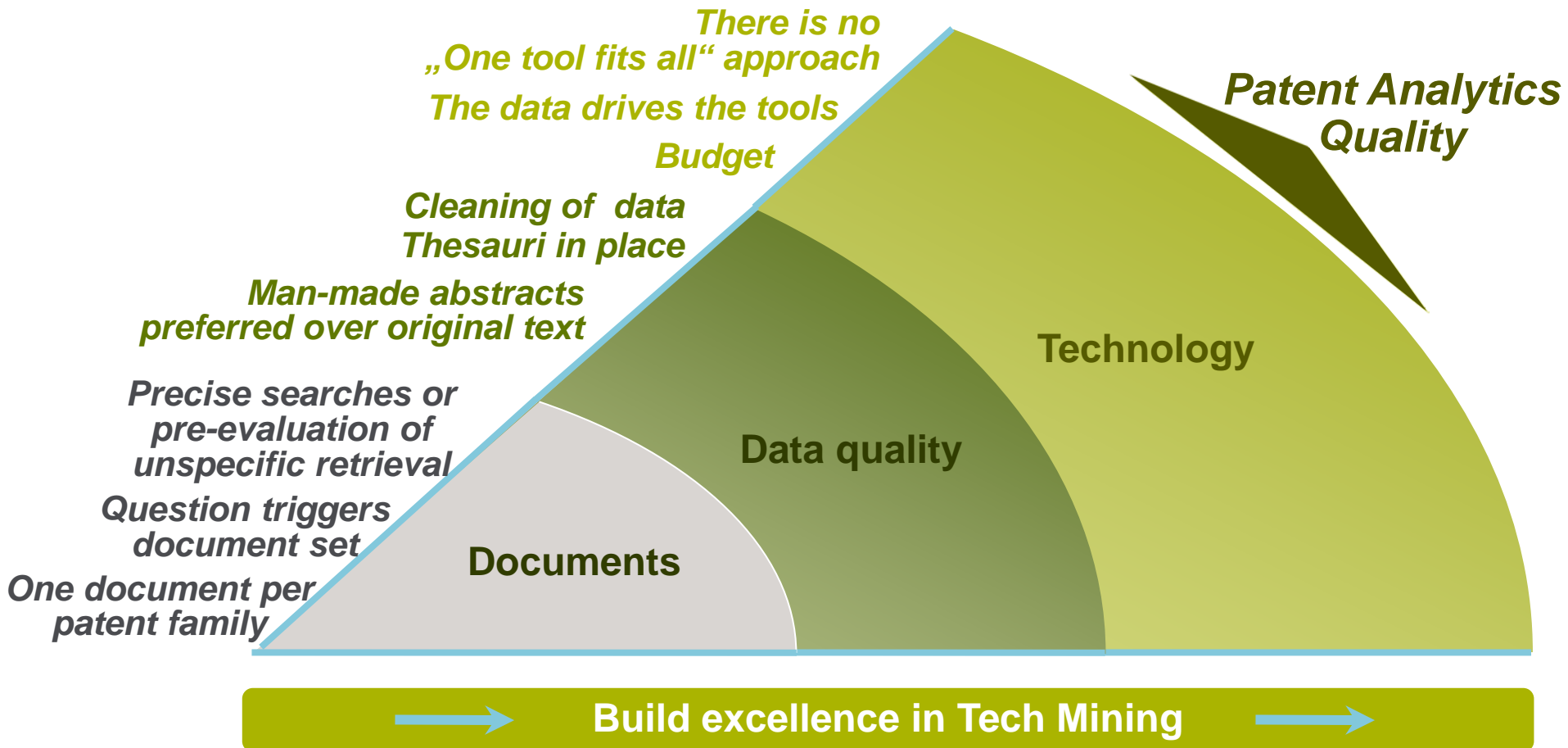
- Specialized on statistics; data is imported from various resources
- Provides a plethora of analysis and visualization functionalities

## Text Mining

- Import of data and text via various filters
- Focused on text mining, black box

Host integrated Patent Analytics

# Summary: Patent Analytics quality



# Metrics of Patent Analytics

## Driving value

### Business Impact

- Sustainable innovation protection
- Effective IP exploitation
- Open Innovation
- Efficient IP portfolio management
- FTO Expansion & IP Acquisition

### Business Partnering

(Shape & Drive)

- Patent Analytics is involved in business strategy
- Effective processes & feedback
- No. of iterations to agree
- No. of impact / total time in meeting

### Value Creation

- % Patent Analytic reports effectively used
- Value add analysis
- Value capture beyond traditional business models

### Operations & Costs

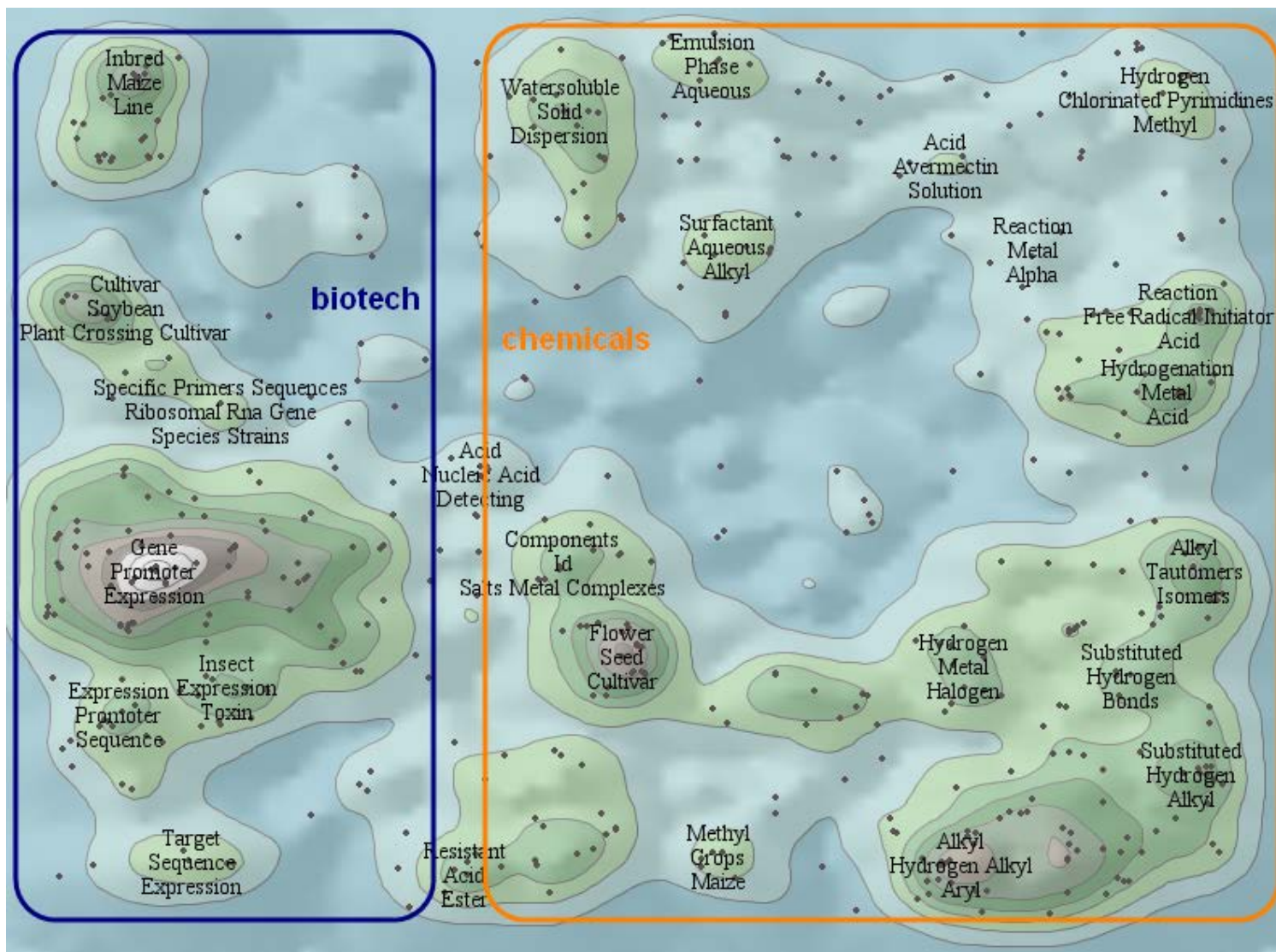
- Costs per project and overall
- No “one tool fits all”
- Time to deliver
- Balance in-house vs outsourcing



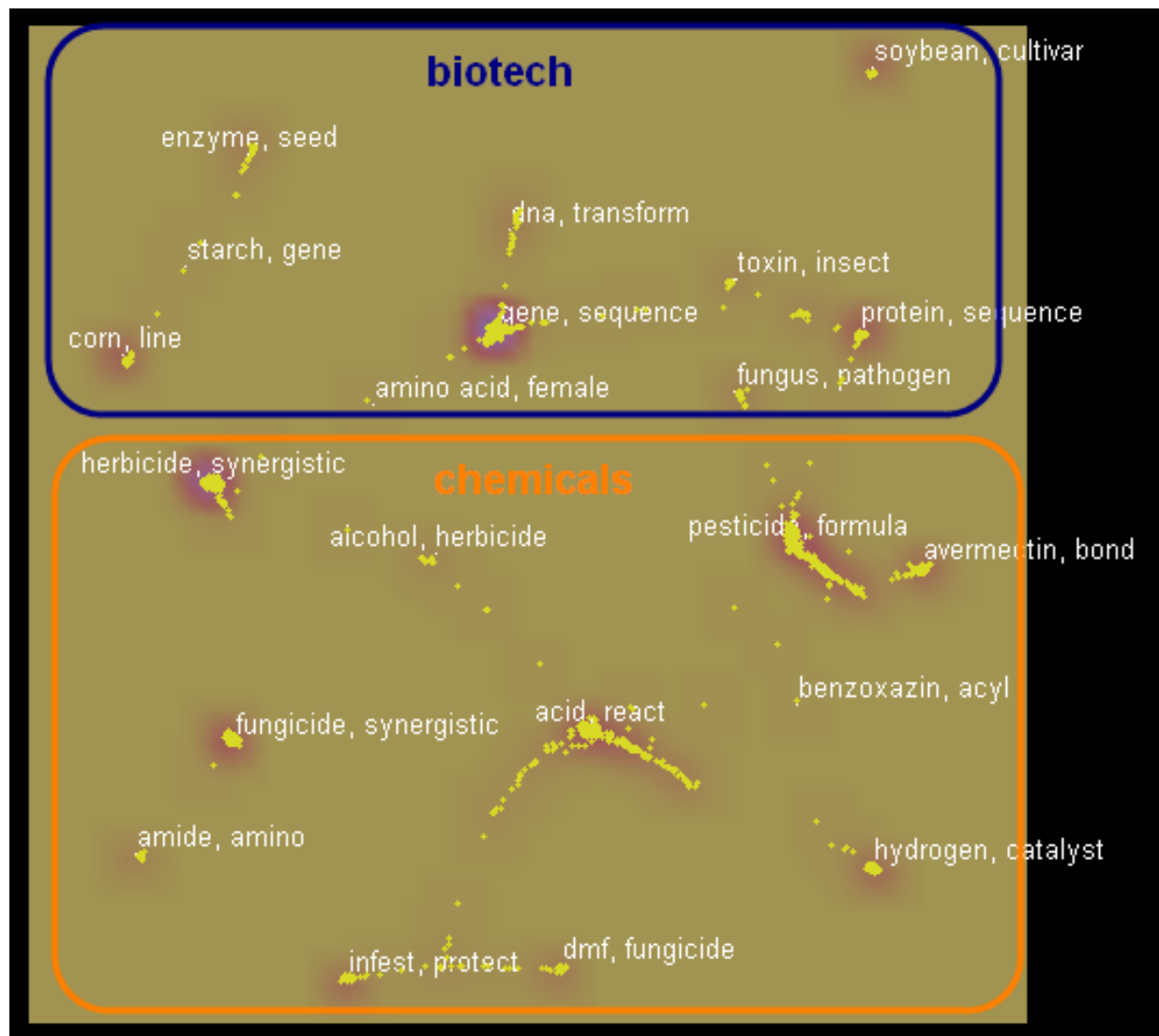
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# Text mining of a patent portfolio with Themescape®



# Text mining of a patent portfolio in STN AnaVist



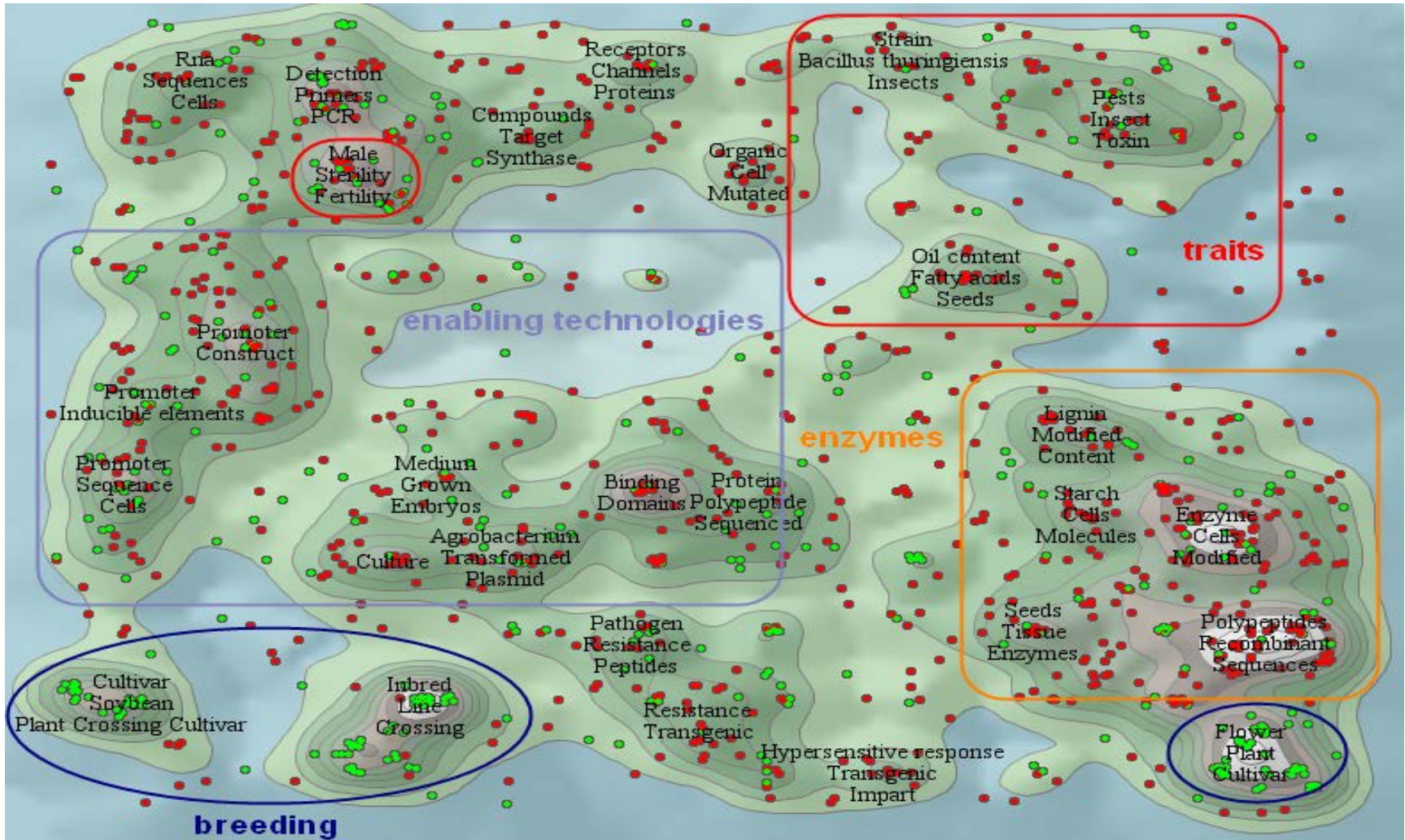
# Themescape® map of Syngenta's Seeds & Biotech patent portfolio



# Themescape® map for the identification of licensing opportunities

● Syngenta's patent portfolio

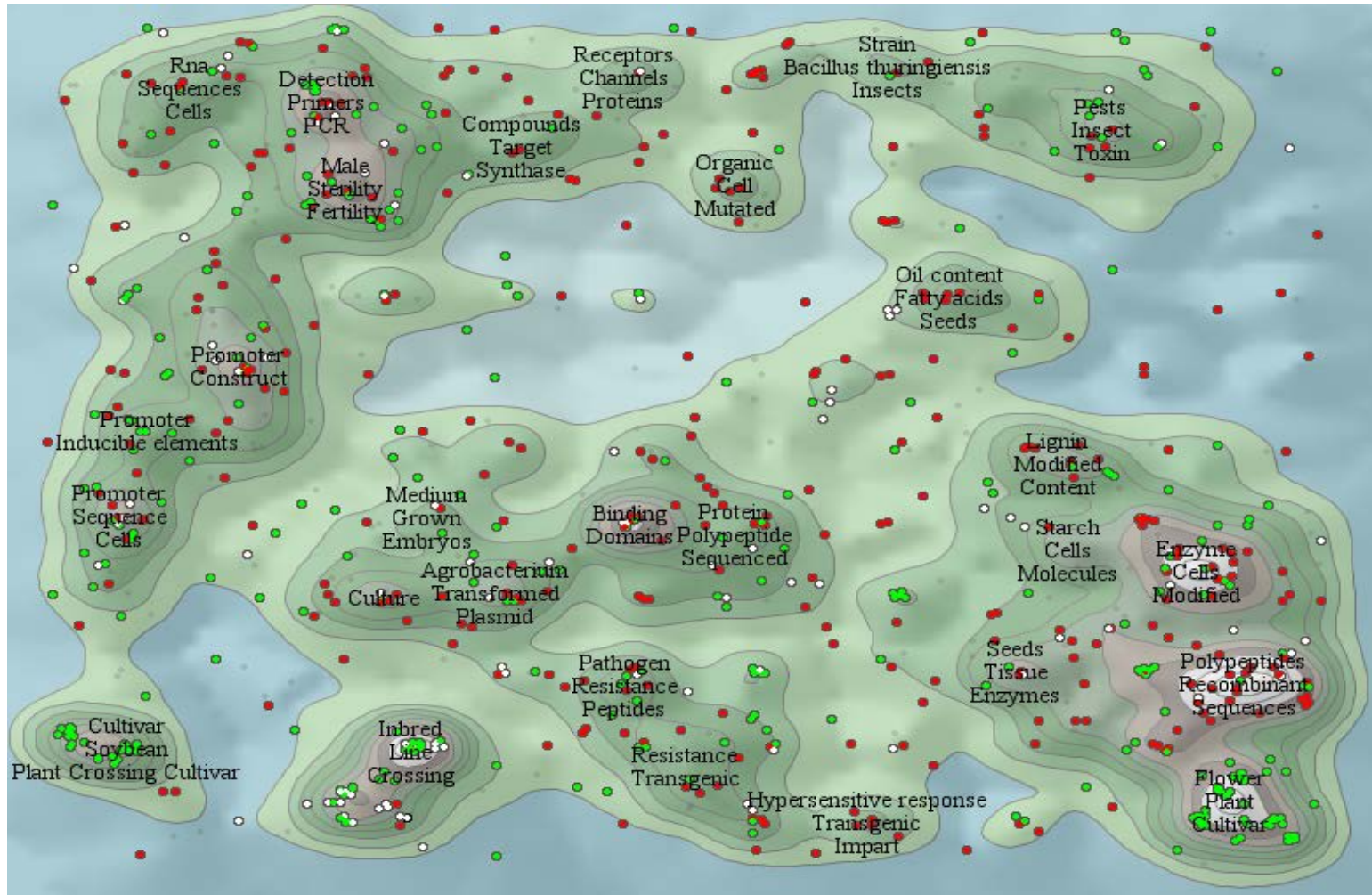
● Citing patents of third parties



# In-licensing

● Syngenta's patent portfolio

● Citing patents universities/institutes



# Contents

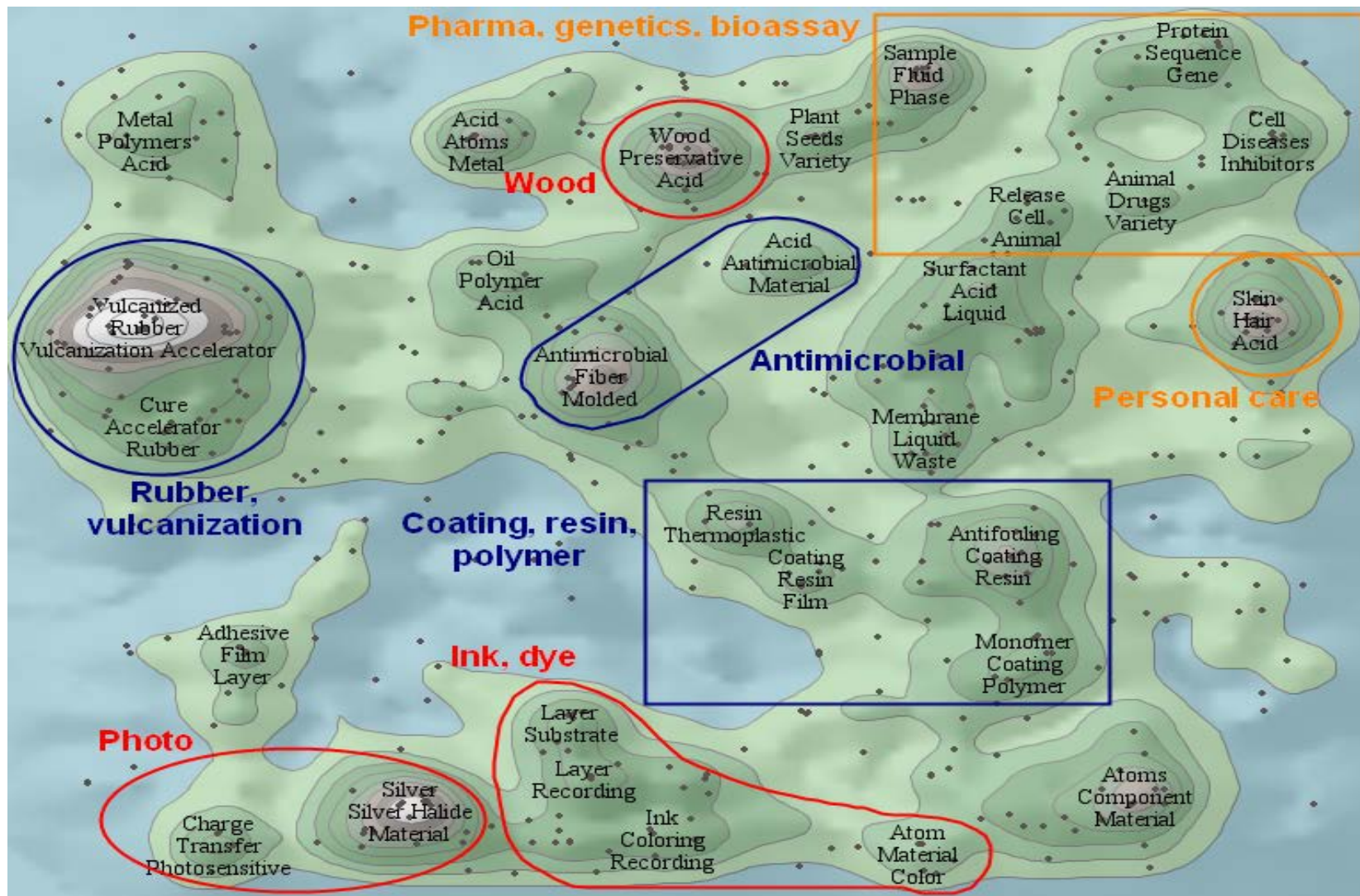
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# Create data set for text mining on non-Agri use of fungicides

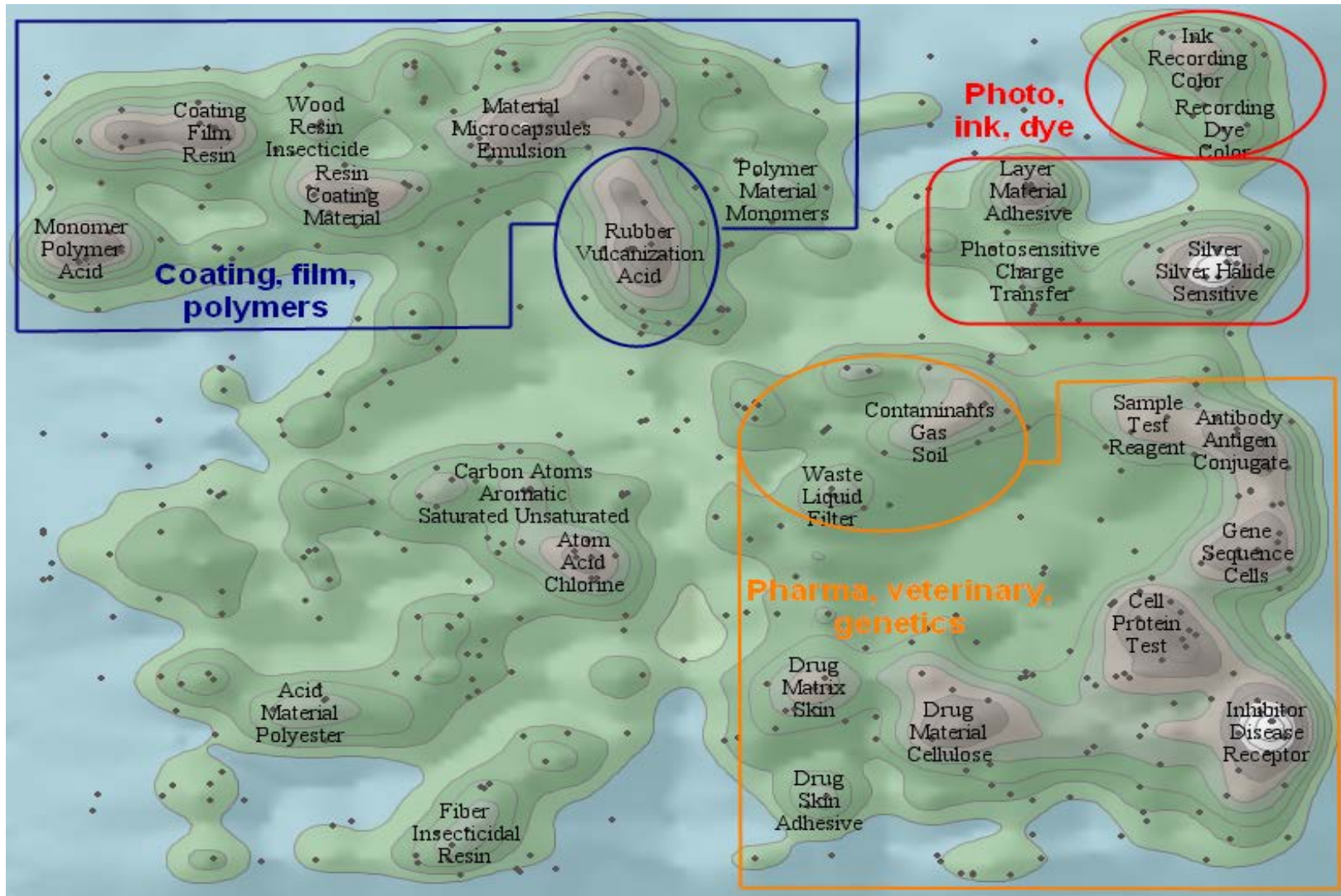
1. Compiling a comprehensive list of fungicides
2. Search fungicides compounds in database covering all technologies
3. Identify typical database and patent classifications used for fungicides in the agrochemical field
4. Exclude typical agrochemical patents via database and patent classifications
5. Text mining on the remaining document set



# Themescape® map for non-Agri use of fungicides



# By similar process: Themescape® map for non-Agri use of insecticides



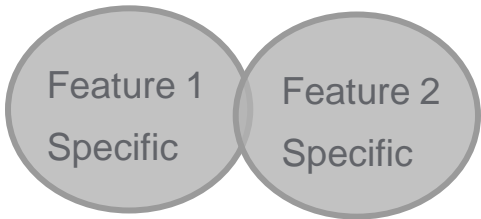
*Bringing plant potential to life*



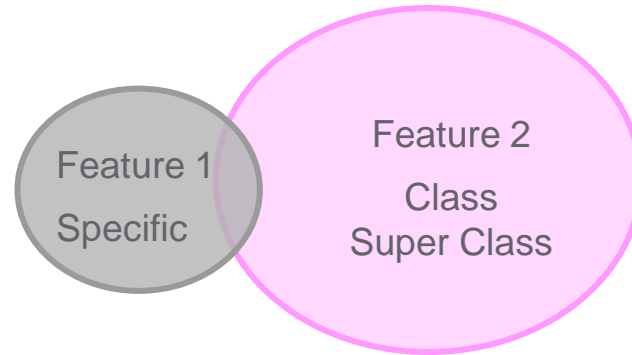
## Back-up slides

Classification: PUBLIC

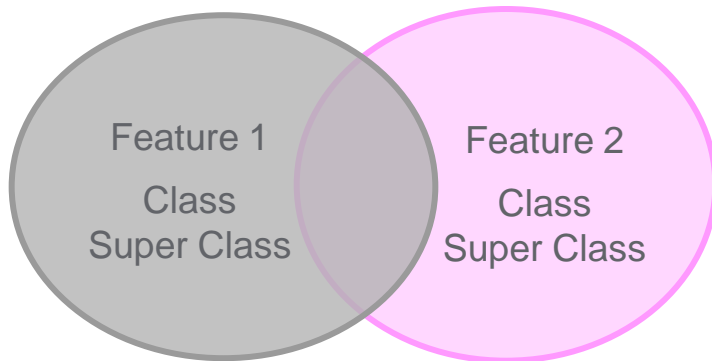
# High quality data sets: Keeping control in retrieval



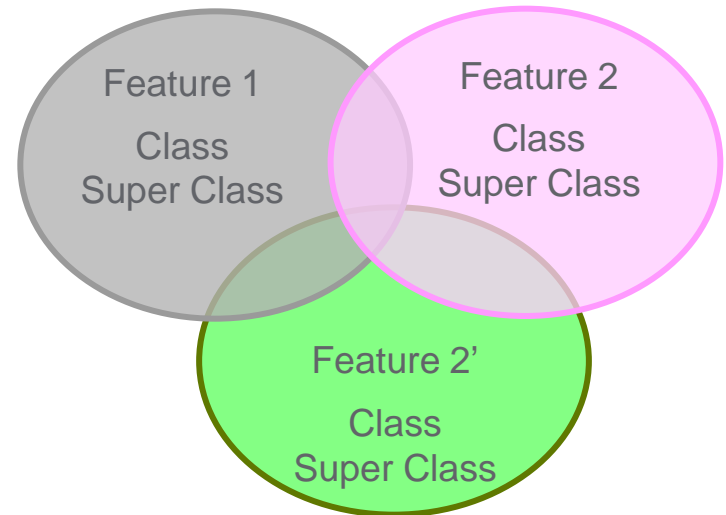
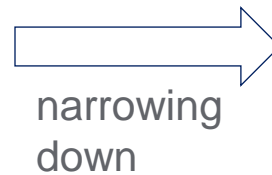
low recall and high precision



medium recall and precision



high recall and low precision



# High quality data sets: Best practice general (1)



- Start with reverse searching
  - display controlled terms, patent classifications and database specific codes of relevant documents
  - search for inventors (authors) and companies active in the field
- Do not mix up narrow and broad Feature Terms/Codes in “OR” term sets
- Narrow down broad strategies to major competitors, inventors and technical field
- Piece meal approach: run many strategies
  - prepare strategies offline and paste in command input window or run in script

## High quality data sets: Best practice general (2)



- For multi-featured technology start with strategies focusing on two features at a time and if necessary add additional terms/codes in a second step if answer sets are too broad
- Use “fielded” searching for broad feature terms instead of running search in default basic index only
- Search one database at a time preferred over multibase searching
- Keep the search process interactive by checking retrieved answer sets on the basis of low-cost formats and refine
- Start search in bibliographic databases and then expand to full-text databases and other sources

# Generic feature expansion: an example

- Anti-Inflammatory agents
- Analgesics
  
- Hydroxybenzoic acids
- Salicylic acids
  
- Aspirin
- Acetylsalicylic acid
- CAS RN 50-78-2

