

Mit Big Data Analytics zu Innovationen

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Wer bin **ich**?

Uni Professor Ulm / St. Gallen
(seit 10 Jahren)



ulm university universität
uulm

Verheiratet, 2 Kinder

Unternehmer (seit 10 Jahren)

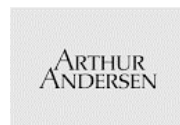
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NETCULATOR

Passionierter Segler



Management Consultant
(seit 20 Jahren)



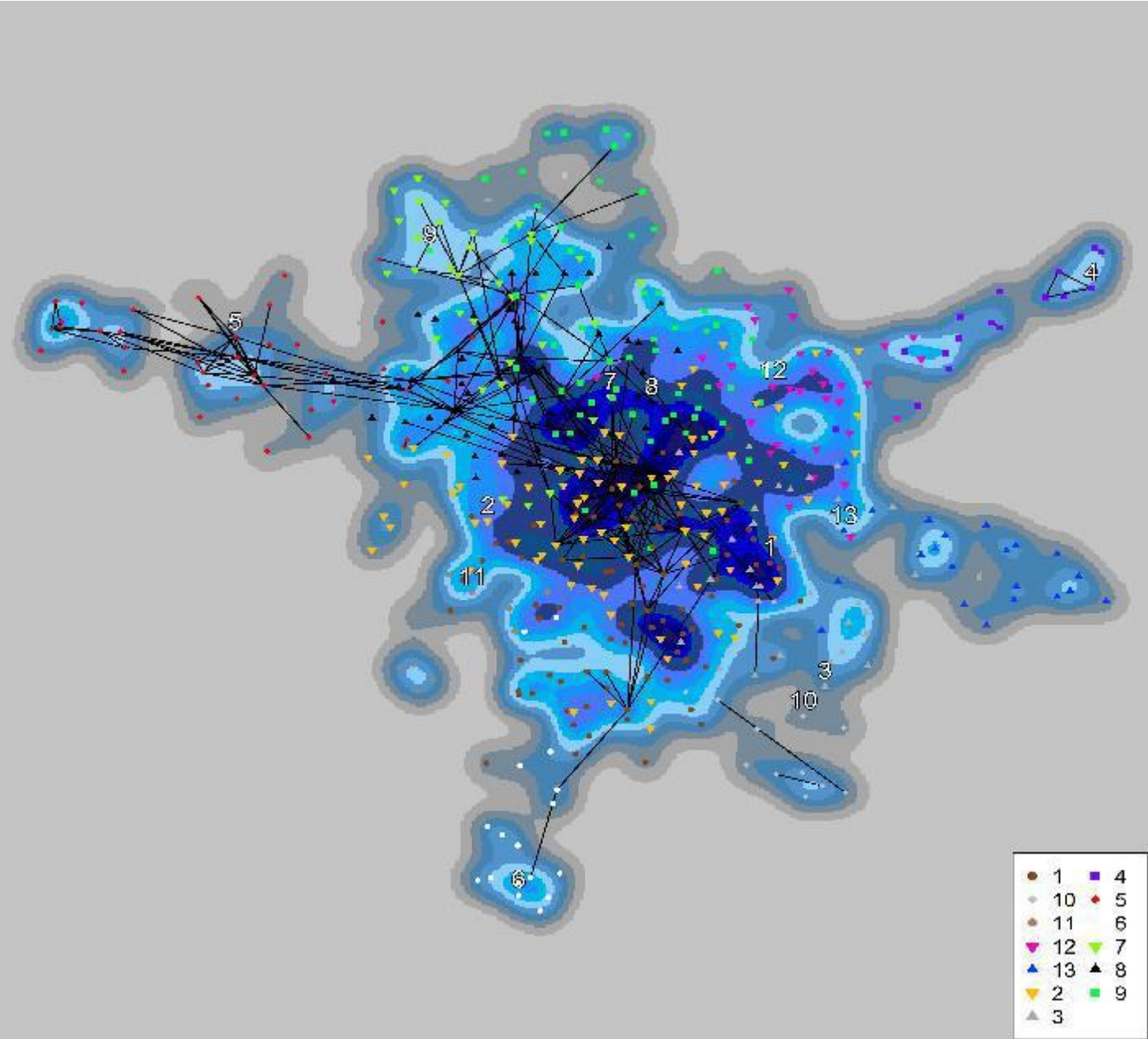
Arthur D Little

iTOP.PARTNERS
Design. Direct. Develop.

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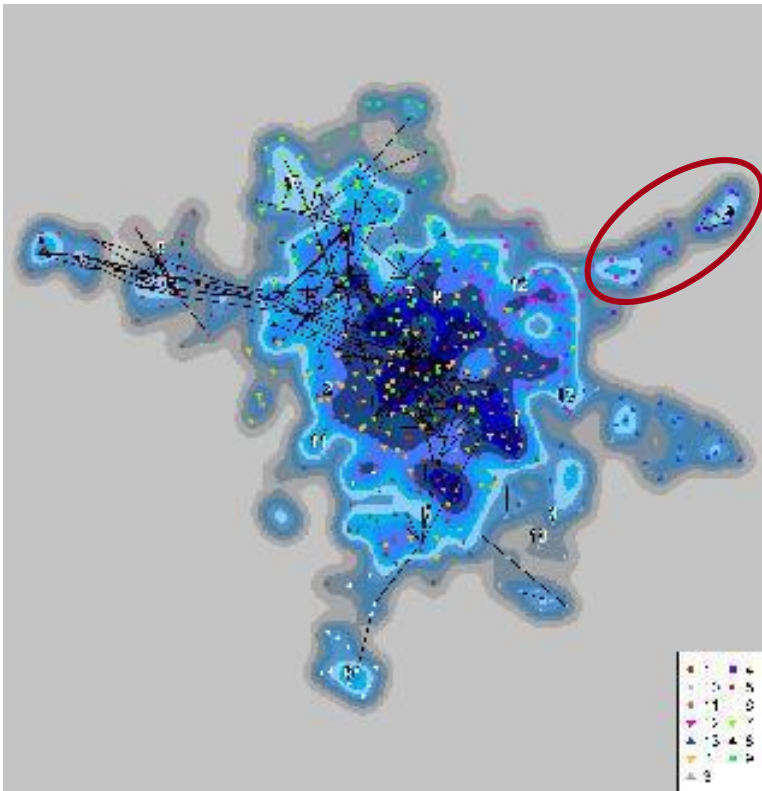
Was ist das?



Technologie als Enabler für Innovation

Innovationstrends

Innovationstrends gemäß ANALYTICS-
Auswertung von ALPORA



1. 3D-Druck
2. Augmented Reality
3. Big Data
- 4. Blockchain**
5. Cybersecurity
6. Drohnen
7. E-Learning
8. Fintech
9. Intelligente Fahrzeuge
10. Internet der Dinge
11. Künstliche Intelligenz
12. Nanodevices
13. Robotik
14. Quanten Computer



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Technologie als
Enabler für
Innovation

Wenn Innovation vernachlässigt wird



**Wieso hat kein
Telekommunikations-
unternehmen
Whatsapp erfunden?**



**Wieso hat kein
Taxiunternehmen
Uber erfunden?**

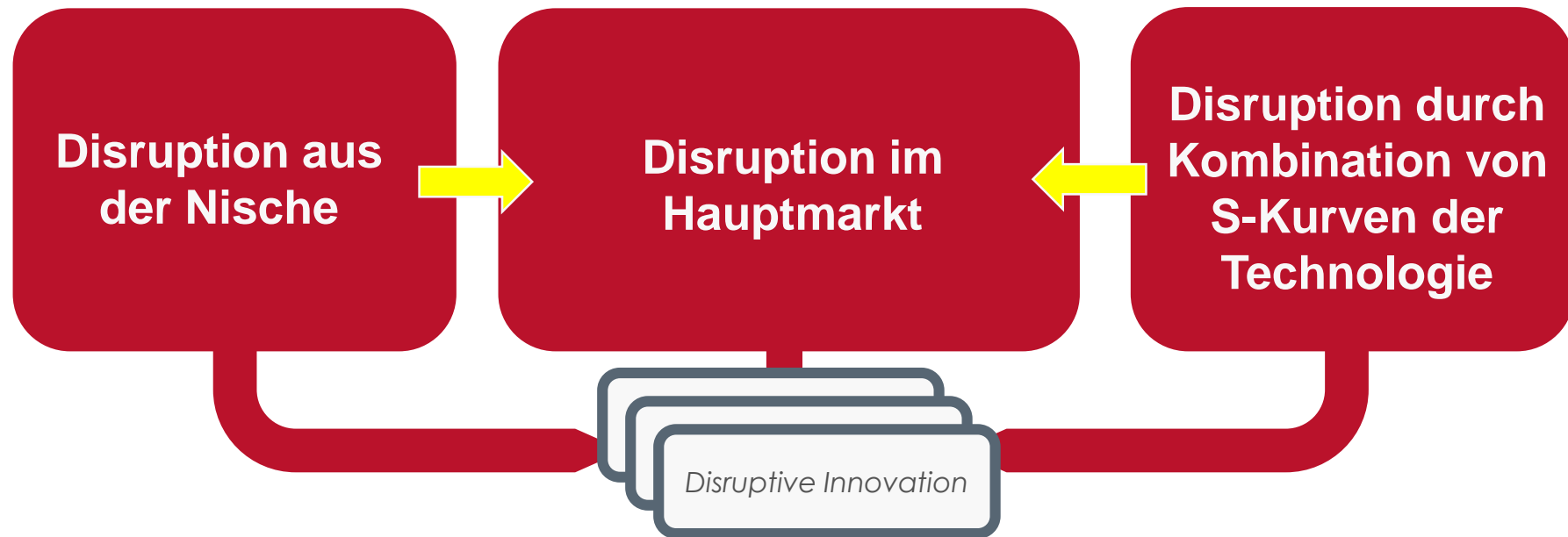


**Wieso hat nicht
Kodak
Instagram
erfunden?**



Unternehmen müssen laufend Ausschau nach neuen Innovationsfeldern halten, um neue Chancen **und mögliche Bedrohungen** zu erkennen.

Disruption folgt einem Muster



Disruption aus der Nische

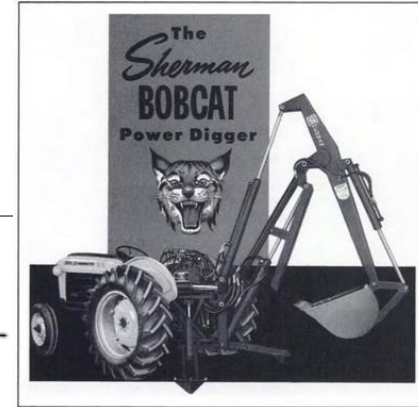
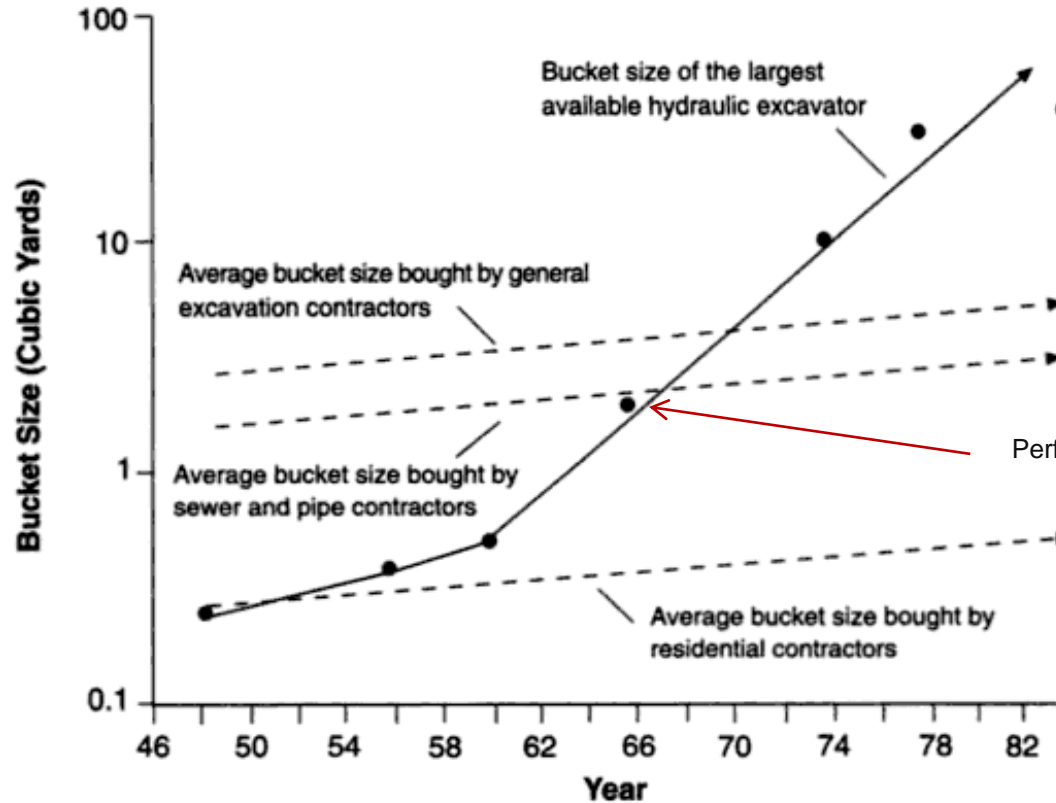


Figure 3.3 Disruptive Impact of Hydraulics Technology in the Mechanical Excavator Market



Requirements of the established market

Performance of hydraulic technology reaches the established market requirements

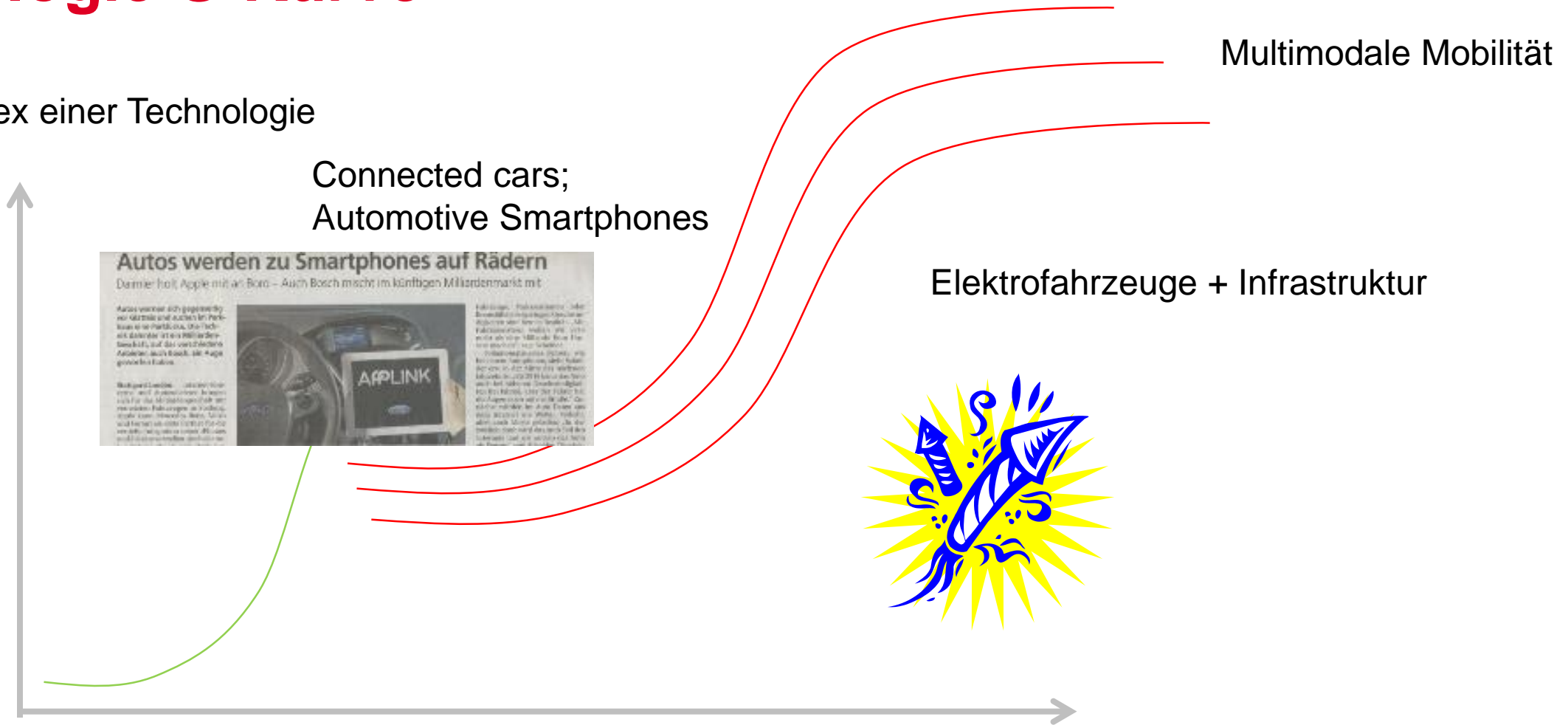
Requirements of the new small users market



Technologie als Enabler für Innovation

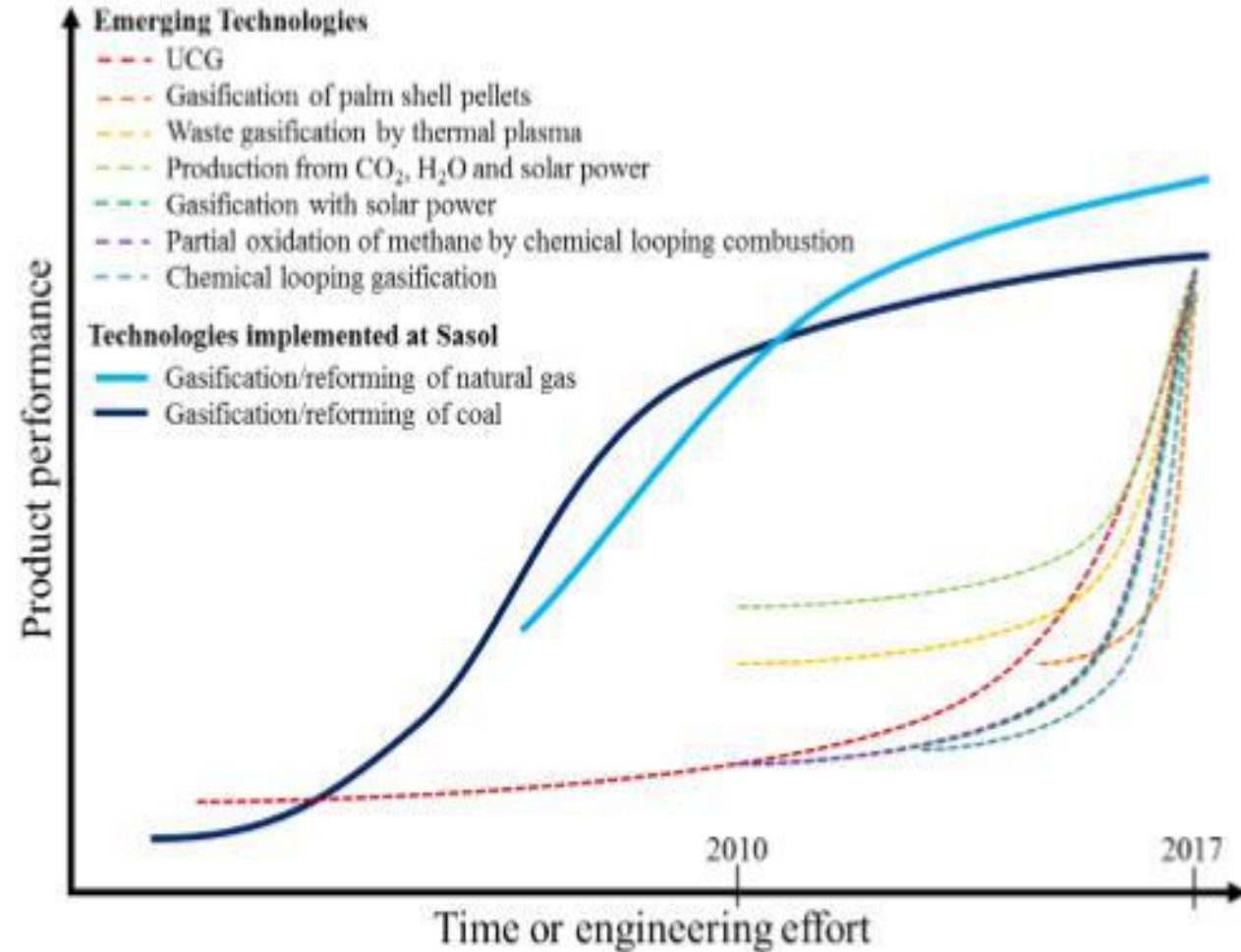
Technologie-S-Kurve

Leistungsindex einer Technologie



Technologie-S-Kurve Anwendung

- Technologie zur Syngasproduktion der Firma Sasol





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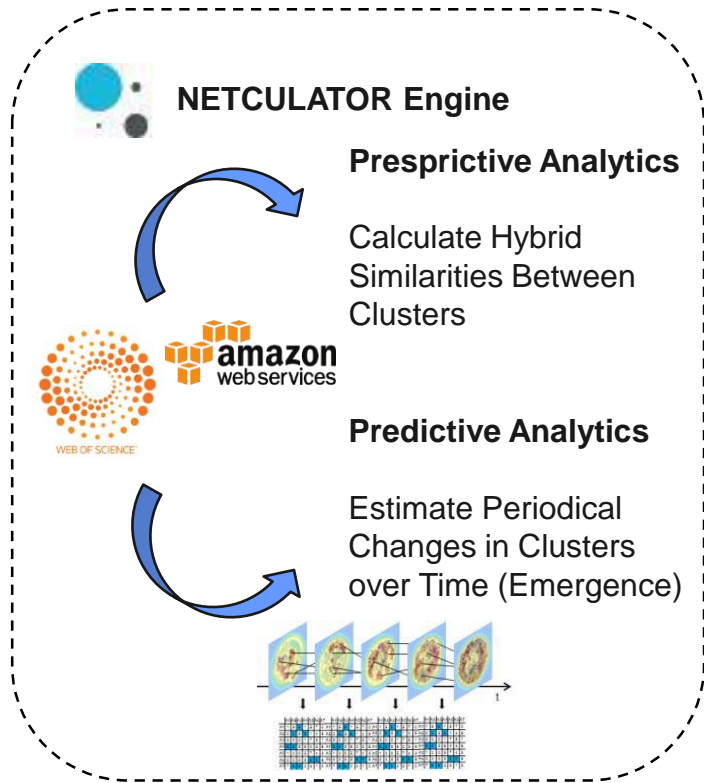
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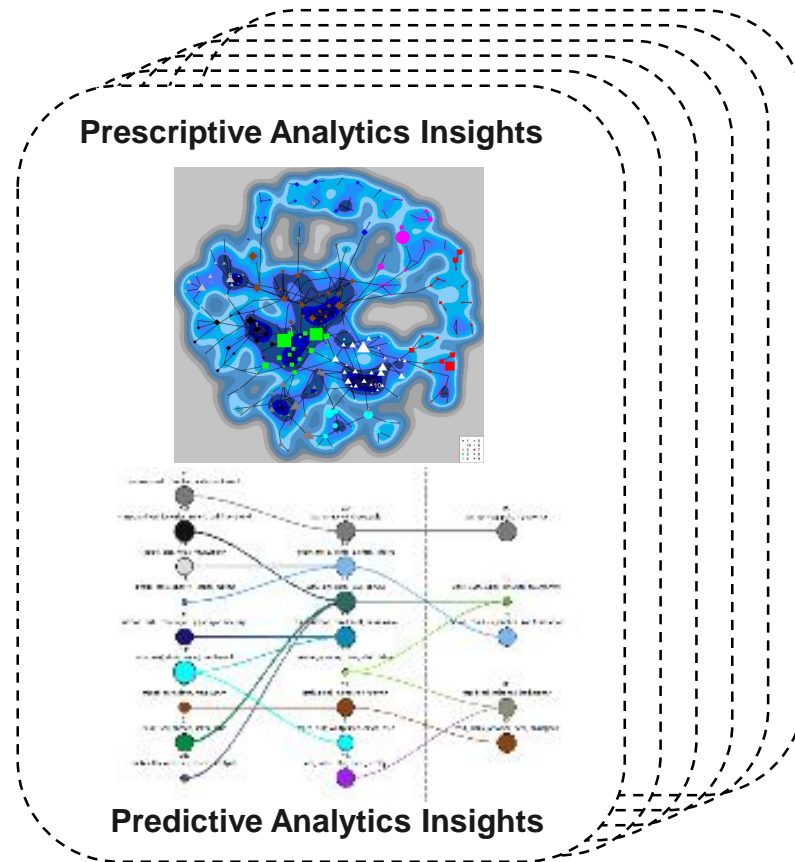
Mit Big Data Analytics
zu **Innovation**

Analytics für Wiss Publ und Patente

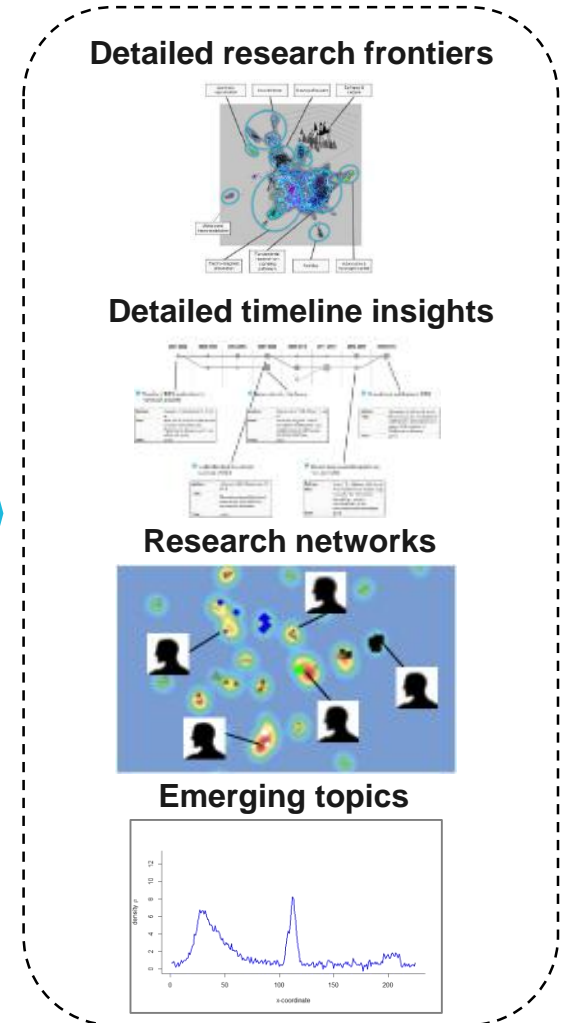
Data extraction, preparation,
and selection



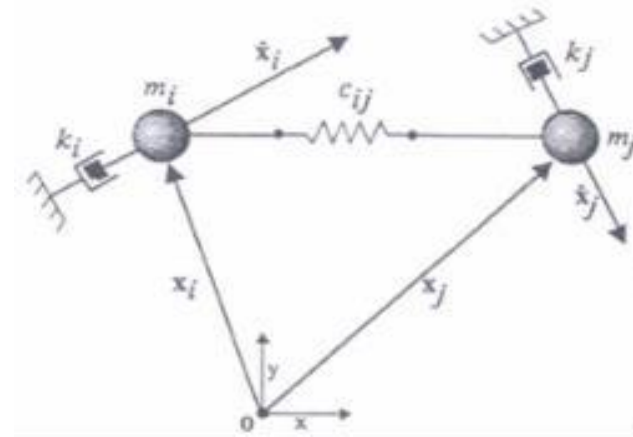
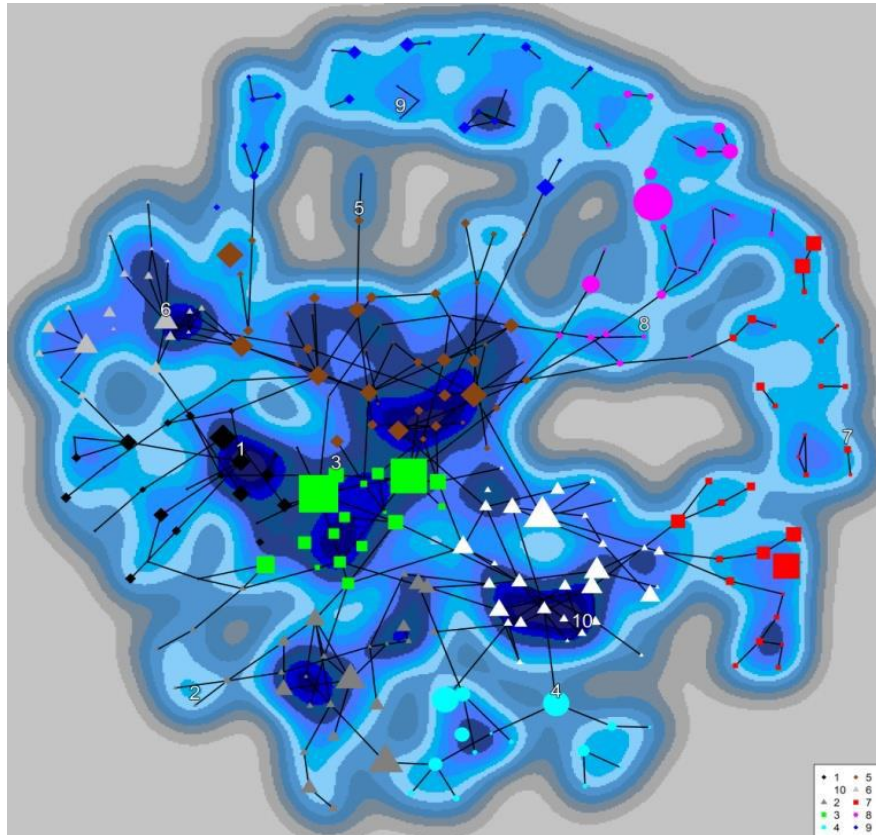
1-5 Iterations



Results



Modell



Kräftegleichgewicht

$$\begin{aligned} \vec{f}_{m_i} + \vec{f}_{k_i} + \vec{f}_{e_{ij}} &= 0 & \text{or} & & -m_i \cdot \ddot{\vec{x}}_i - k_i \cdot \dot{\vec{x}}_i + e_{ij} \cdot \Delta\vec{x}_{ij} &= 0 \\ \vec{f}_{m_j} + \vec{f}_{k_j} + \vec{f}_{e_{ij}} &= 0 & & & -m_j \cdot \ddot{\vec{x}}_j - k_j \cdot \dot{\vec{x}}_j + e_{ij} \cdot \Delta\vec{x}_{ij} &= 0 \end{aligned}$$

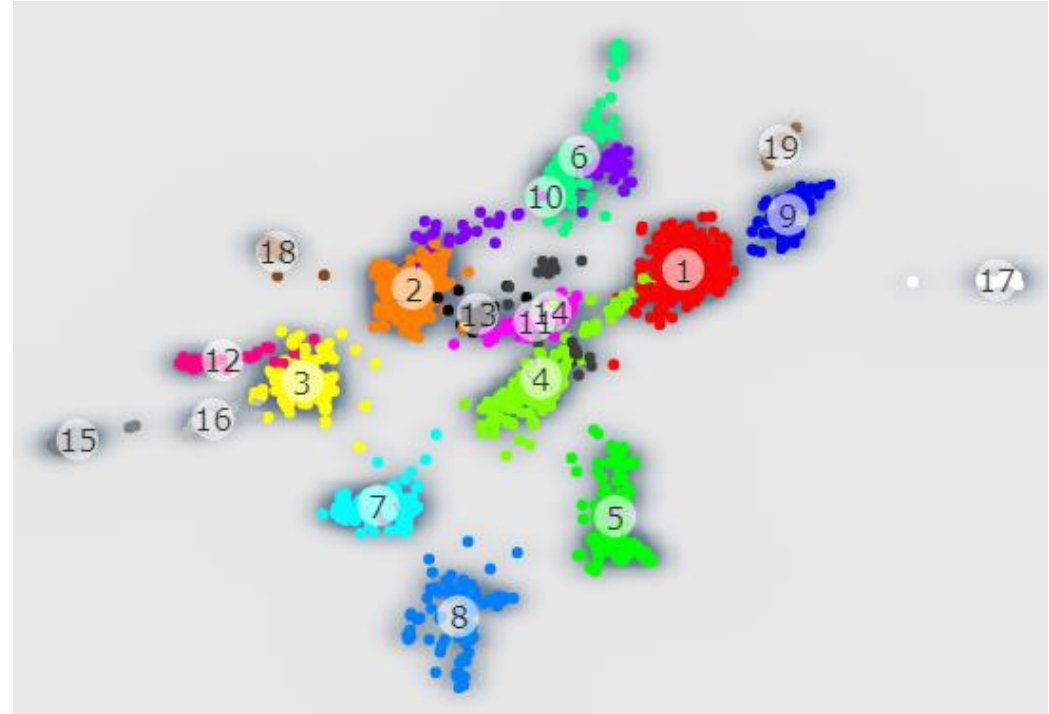
Iterationsgleichungen

$$\begin{aligned} x_1^{(t+1)} &= x_1^{(t)} + \frac{\Delta t}{k_1} \cdot \sum_{j \neq 1} e_{1j} \cdot \cos \alpha_{1j} \cdot |\Delta\vec{x}_{1j}| \\ x_2^{(t+1)} &= x_2^{(t)} + \frac{\Delta t}{k_2} \cdot \sum_{j \neq 2} e_{2j} \cdot \cos \alpha_{2j} \cdot |\Delta\vec{x}_{2j}| \\ &\vdots \\ x_n^{(t+1)} &= x_n^{(t)} + \frac{\Delta t}{k_n} \cdot \sum_{j \neq n} e_{nj} \cdot \cos \alpha_{nj} \cdot |\Delta\vec{x}_{nj}| \end{aligned}$$

Quelle: Schiebel, AIT, 2010

Anwendung

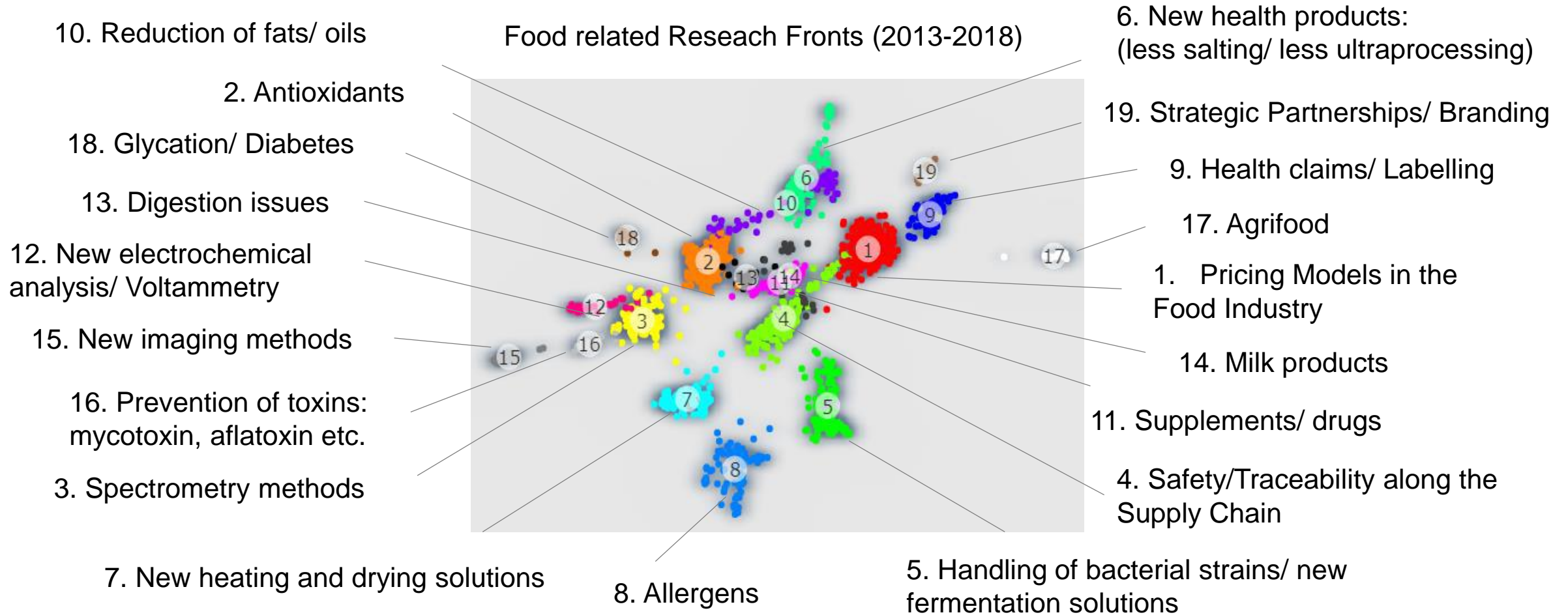
Identification of 25'711
scientific publications
concerning "Food"



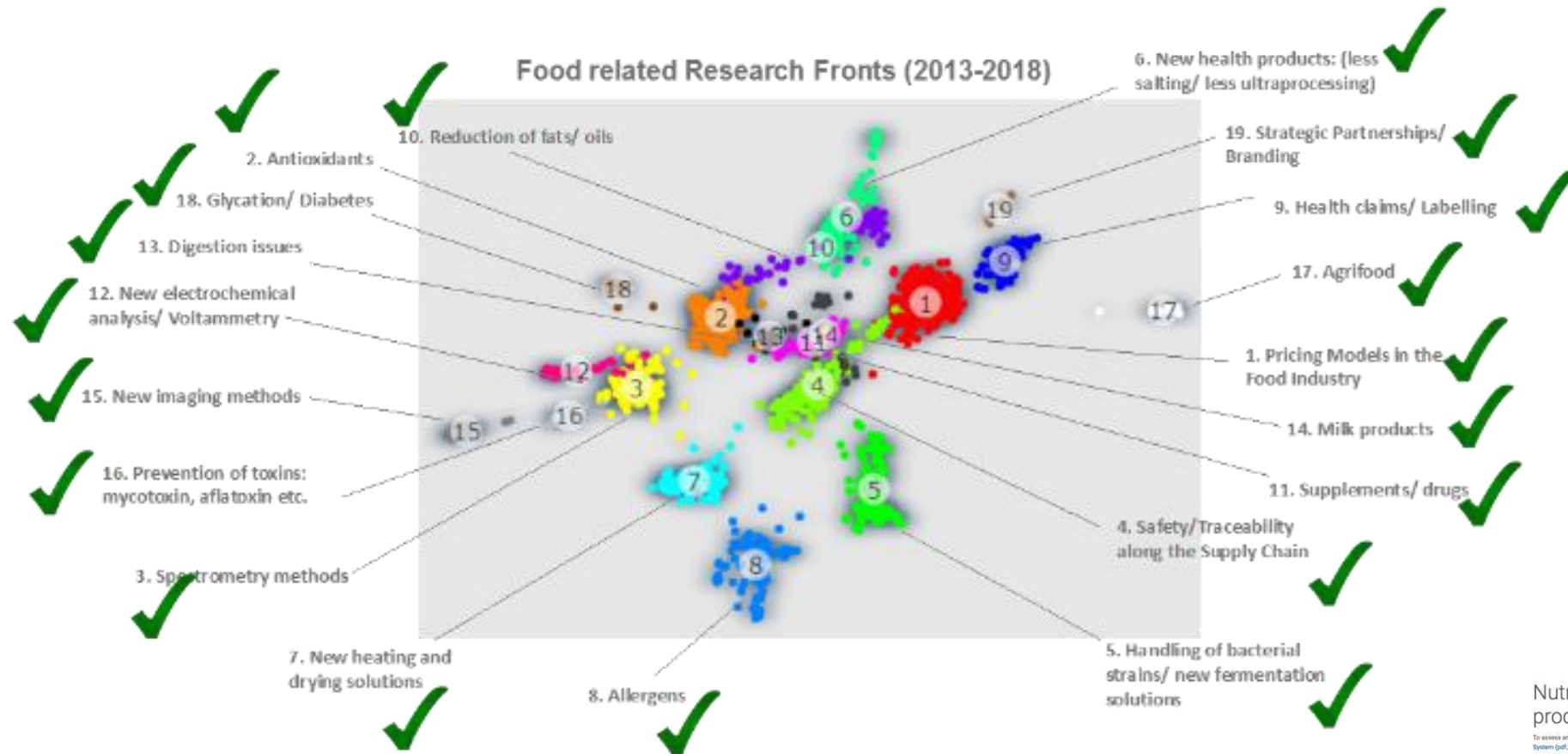
Food related Research Fronts (2013-2018)

Big Data Analytics: Innovation in Food

Food related Research Fronts (2013-2018)



Big Data Analytics: Innovation in Food



Nestlé's F&E-Portfolio with related research fronts

Nutritional profile of our products

To assess and improve the nutritional value of our products, we use the Nestlé Nutritional Profiling System (pdf, 892 KB) (1), which is based on dietary intake recommendations issued by authorities such as the World Health Organization.

Nestlé Nutritional Profiling System

1. Product category and its role in the diet	2. Which nutrients to limit or encourage	3. Who is the product for?
4. How much is a serving?	5. Assess the product	6. How we're doing

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**Besten Dank
für Ihre**

Aufmerksamkeit

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