BEMAS
SERVICE MANAGEMENT COMMUNITY OF PRACTICE

SLF
SERVICE LOGISTICS FORUM

April 21, 2021

Additive Manufacturing for Service Spare Parts

We start at 15:00 CET

In case of technical issues, try to log out & re-enter or contact us by phone via +32 493 87 29 15.
A recording of the webinar will be available through the same link in 24h.

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Program 2021

- ✓ Online seminar Kick-off: Digital Building Blocks of Smart Service - January 27
- ✓ Webinar 1: Remote assistance & Touchless Service, the new trend in Service - February 24
- ✓ Webinar 2: Remote Service Delivery Benchmark - March 3
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AGENDA

- “Introduction to digital technologies applied in service”
  by Ruben Coetsier, PwC
- “Digital Inventory, a solution for current supply chain challenges”
  by Alexander Bours, DiManEx
- “Additive manufacturing in spare part supply chain”
  by Salih Boysan, Electrolux
- Q&A and conclusion

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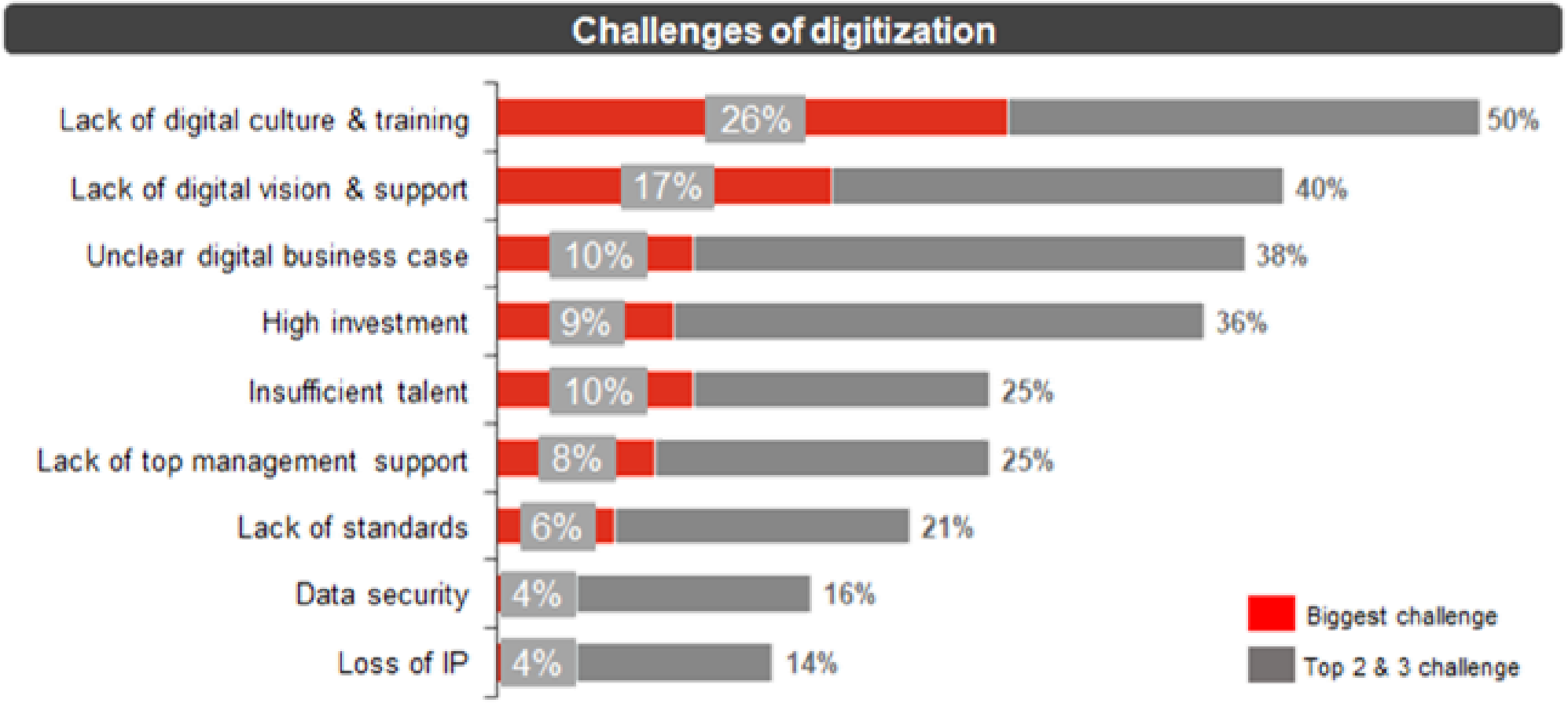
The 4th industrial revolution is driven by a fast and strong technological evolution…

We analyzed **250+** technologies to zoom in on the 8 having the **biggest business applications** today…
most of them also applicable in **Service**

… however technology is not the only important factor, as we need to transform the entire organisation and all people individually



Especially during challenging times like COVID19, new technologies can help you to continue operating and prepare for the future

Running in COVID19 (Short term) → **Robust Digital Service** (Long term)


You see what I see-support


Wearables


Augmented reality


Replaced F2F shopfloor communication


IoT sensors to capture data


Drone inspection


Cloud computing


Robotic Process Automation


3D printing of spare


Digital twins


Merged technologies


Flexible (r)(c)obots

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Digital Inventory at your Fingertips

Analyze & Identify

Import your inventory data, evaluate supply chain optimization potential and identify the right parts for Additive Manufacturing.

Digitize & Store

Upload your part designs to build your secure digital inventory. Request scanning and re-engineering services, as well as quality control tests directly on the platform.

Get parts delivered

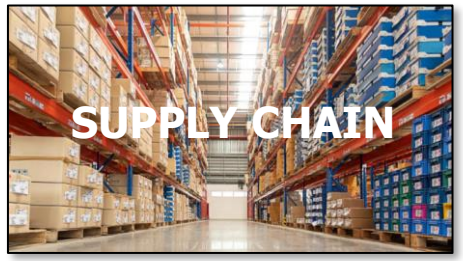
Order parts on demand. We handle the production and logistics through our network, you get tangible value delivered to your door.

Electrolux · Shell · Sidel · NS · Schneider Electric · CNH Industrial · Wärtsilä · KONE

Digitization & Supply Chain

ADS VALUE TO

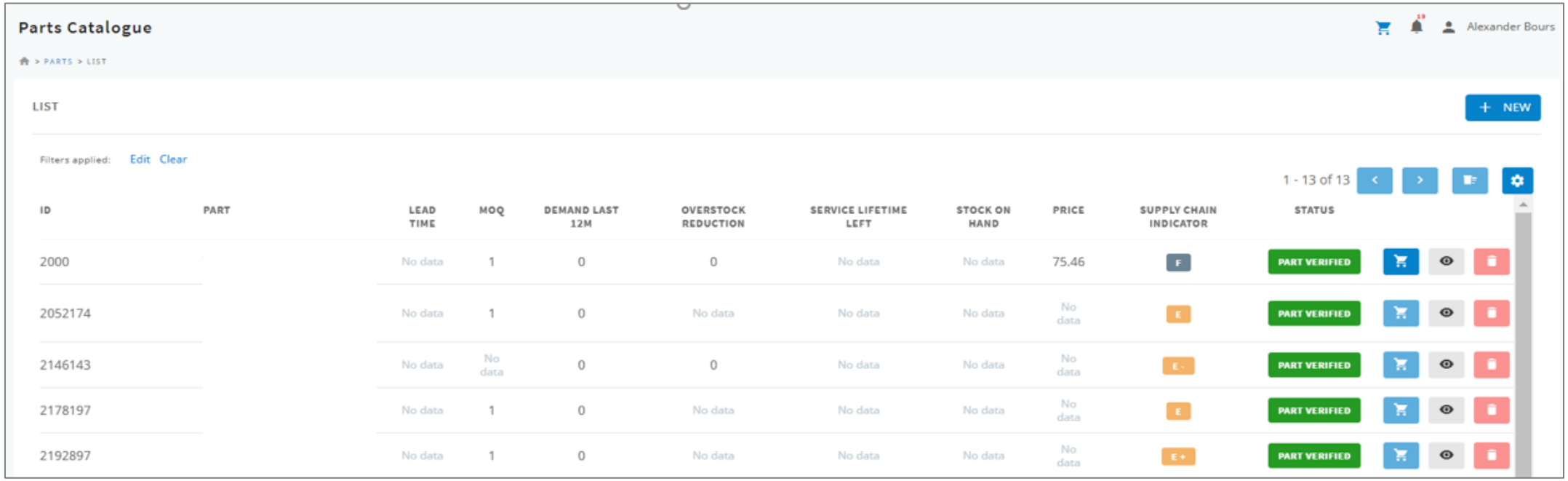
IMPROVED ANALYIS



SHORT TERM IMPACT

NEEDED FOR

A Digital Part Catalogue



BENEFITS:

- Better Inventory control
- Parts made available in short lead time
- No long tail; releasing cash for ops
- Serving remote areas with high reliability
- Sustainable solution (Carbon footprint, waste)

CONNECTING THE DOTS

Strategic choice; Business Model

Create Network organization

- **Cross functional**
- **External partnerships**

Business driven, AM is a mean

Value based: Risk, Time, Cost (TCO)

It is all about people

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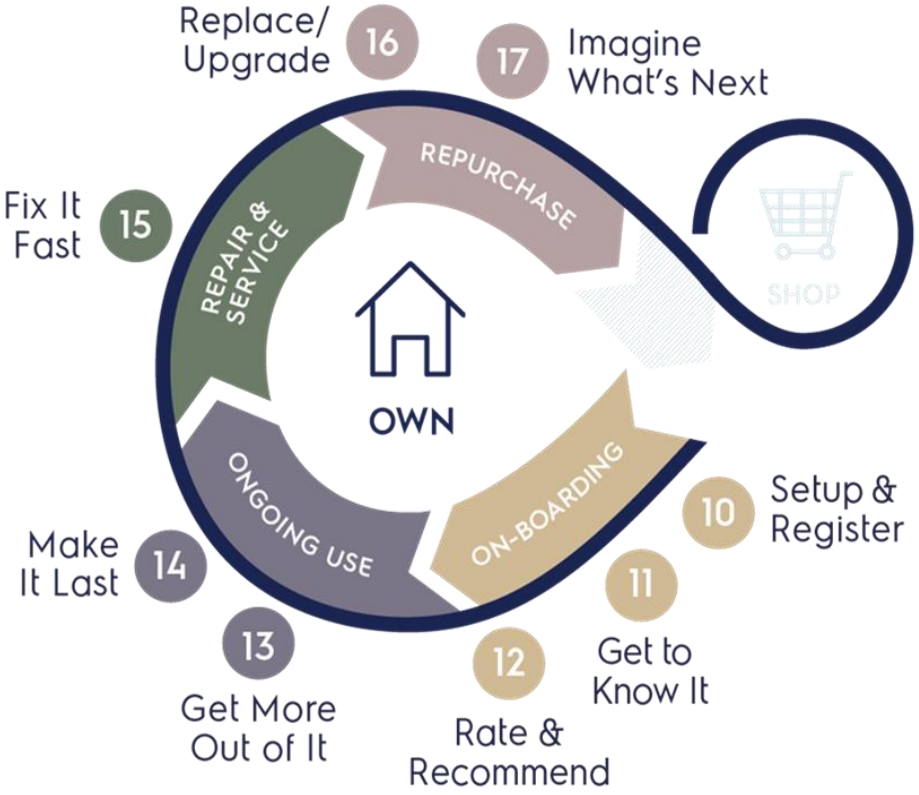
3D Printing TECHNOLOGY ON SPARE PARTS BUSINESS SUPPLY CHAIN

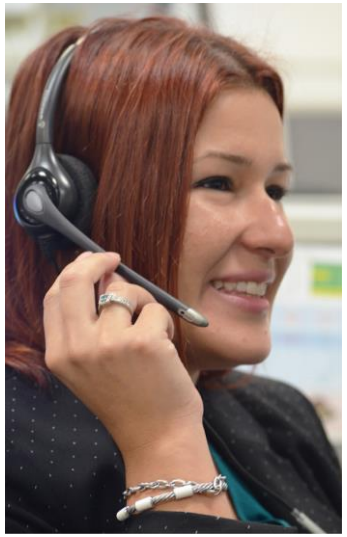
By Salih Boysan

Service Parts Business

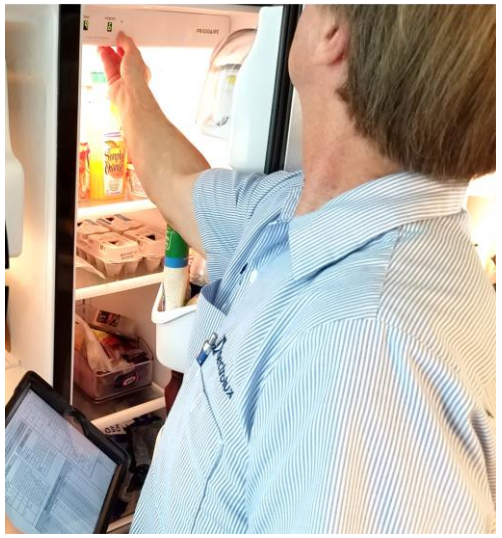
All of which, support the Ownership Journey



Part availability critical to drive loyalty



Consumers call for help



Service technician arrives to consumer's home quickly to diagnose the issue

Required part is available and immediate issue resolution

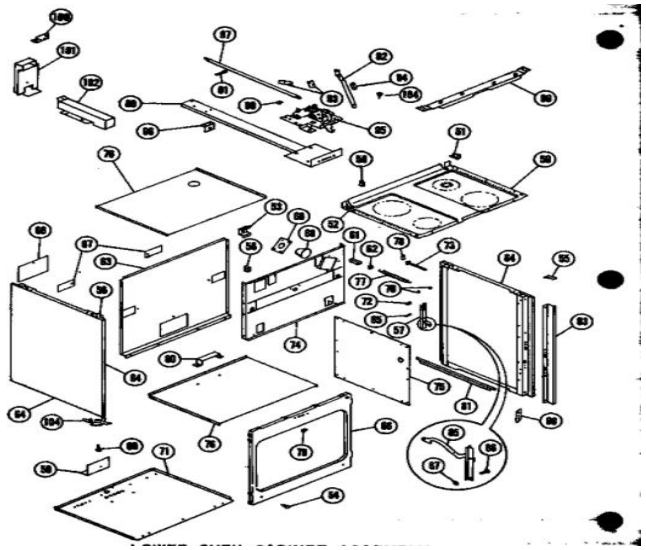
Required part is not available and resolution delayed

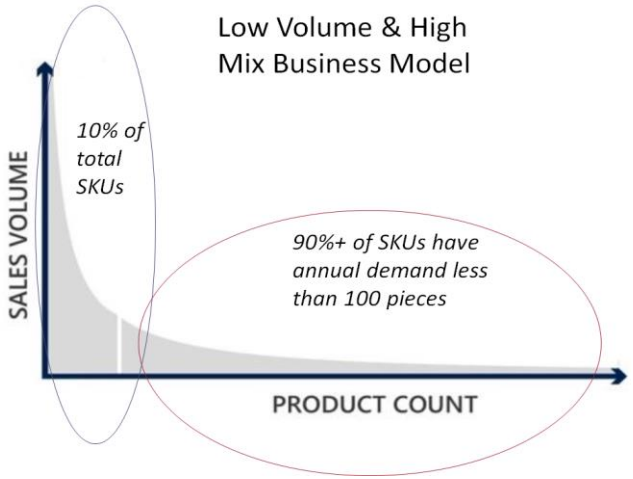
Loyal Consumer and positive reviews

Unhappy Consumer and negative reviews

Service Parts Business Model

High Complexity





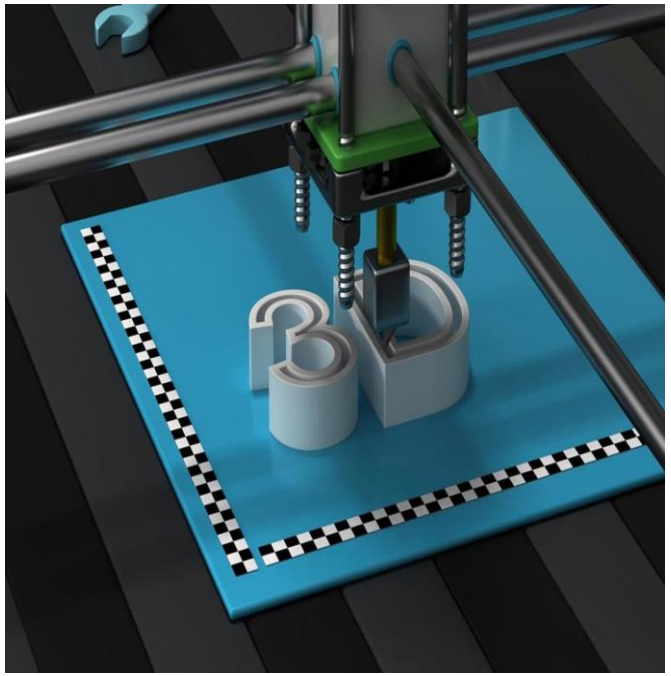
Drivers:

- Increase flexibility/agility
- Address demand fluctuations
- Complexity reduction
- Reduced lead time
- Supplier rationalization
- Inventory avoidance
- Mitigate tool repairs/investments
- Sustainability (Waste Free)

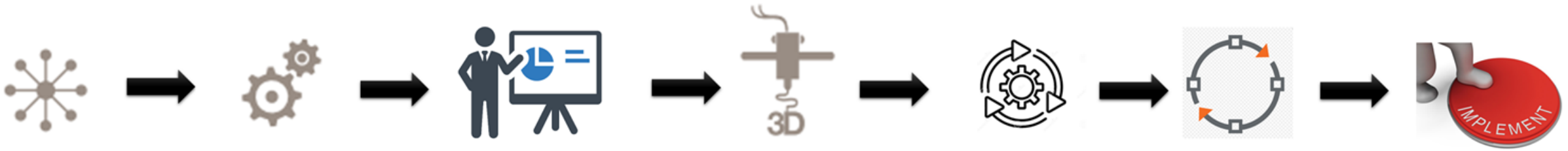
Complexity Reduction

Effortless Experience & Operational Excellence

Potential Solution



Approach to Take



Analyze the Spare Part Portfolio

Perform a 3D Printing Feasibility Study
- Technical Reviews
- Supply Chain Review

Develop the Business Case
- Cost Modeling
- Cost/Benefit Analysis

Define 3D Printing Strategy

Pilot Implementation
- Sample production
- Product qualification
- Specifications

Process Development
- Guidelines

Operational Excellence

CASE STUDY

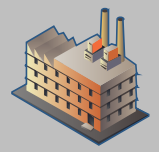
Activity flow in the case study

- Data Collection, Summary and process review
- Data Elimination
- Baseline model (Current state)
- Benchmark Model (3D Printed model)
- Scenario analysis
- Results Evaluation
- Recommendation

Methodology

Sample Size: 100 active spare parts
Supplier Count: 100 suppliers

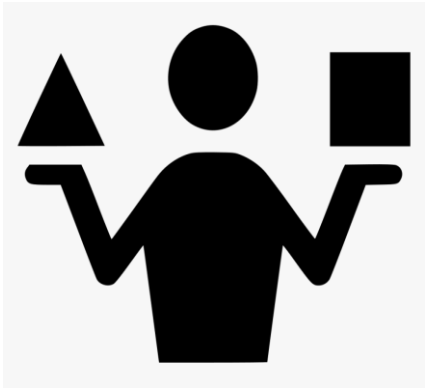
Current Model



= 100 Suppliers

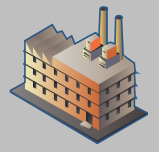
=100 Service parts

=Traditional lead times



Scenario analysis & Comparison

3D Model



= 1 Supplier

= 100 Service Parts

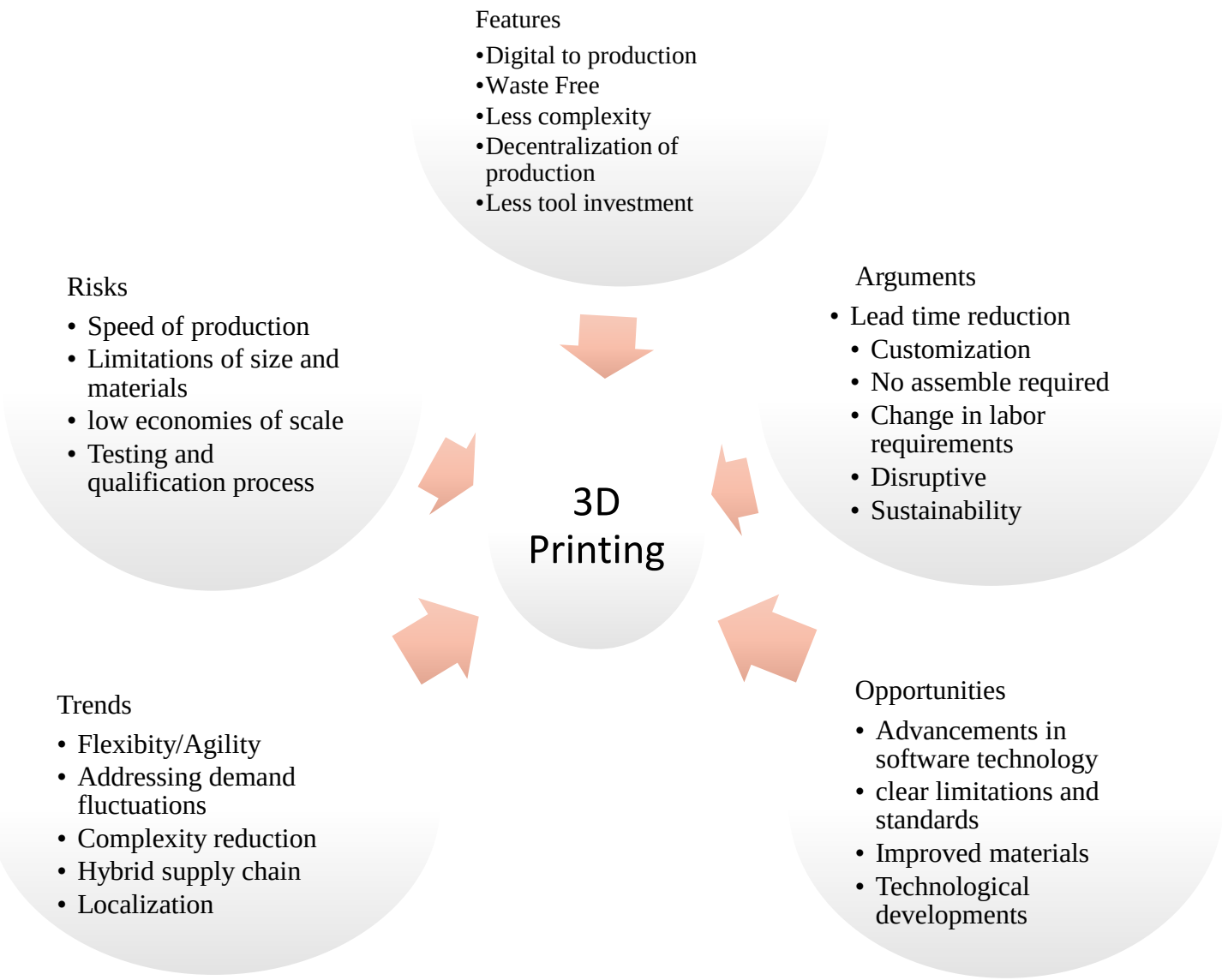
=3D Printing Lead time

Results/CONCLUSION

- 3D printing has a potential in service parts supply chain of a company in terms of cost savings, inventory reduction and supplier rationalization. Such as:
    - Total cost reduction: Case study showed that total cost can be reduced by 10%
    - Lead time reduction: Production lead time reduced from 6 weeks to 2 weeks.
    - Supplier Reduction: Significant reduction is supplier count can be achieved by using 3D printing or hybrid model
    - Tool/Fixture Maintenance or fixing cost: Cost avoidance on tool investments
- Case study revealed that there are common factors of the parts where 3D printing was the preferred method of production. (Part families, sizes, material used)
- Lastly, various challenges identified during this case study process such as:
    - Required skill set, training time, digitalization and quotation of parts, and qualification of the parts.

APPENDIX

3D PRINTING APPLICATIONS



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Questions?

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Thank you !

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