

ACPA7005

# Assessment A – Review the Innovation History

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200  
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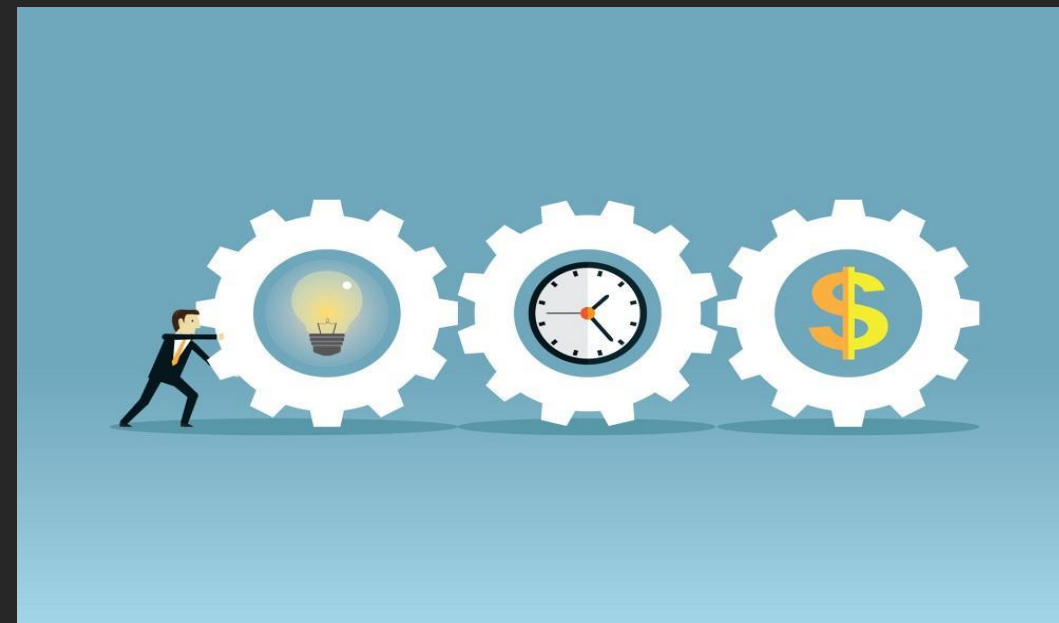
# Assessment Introduction



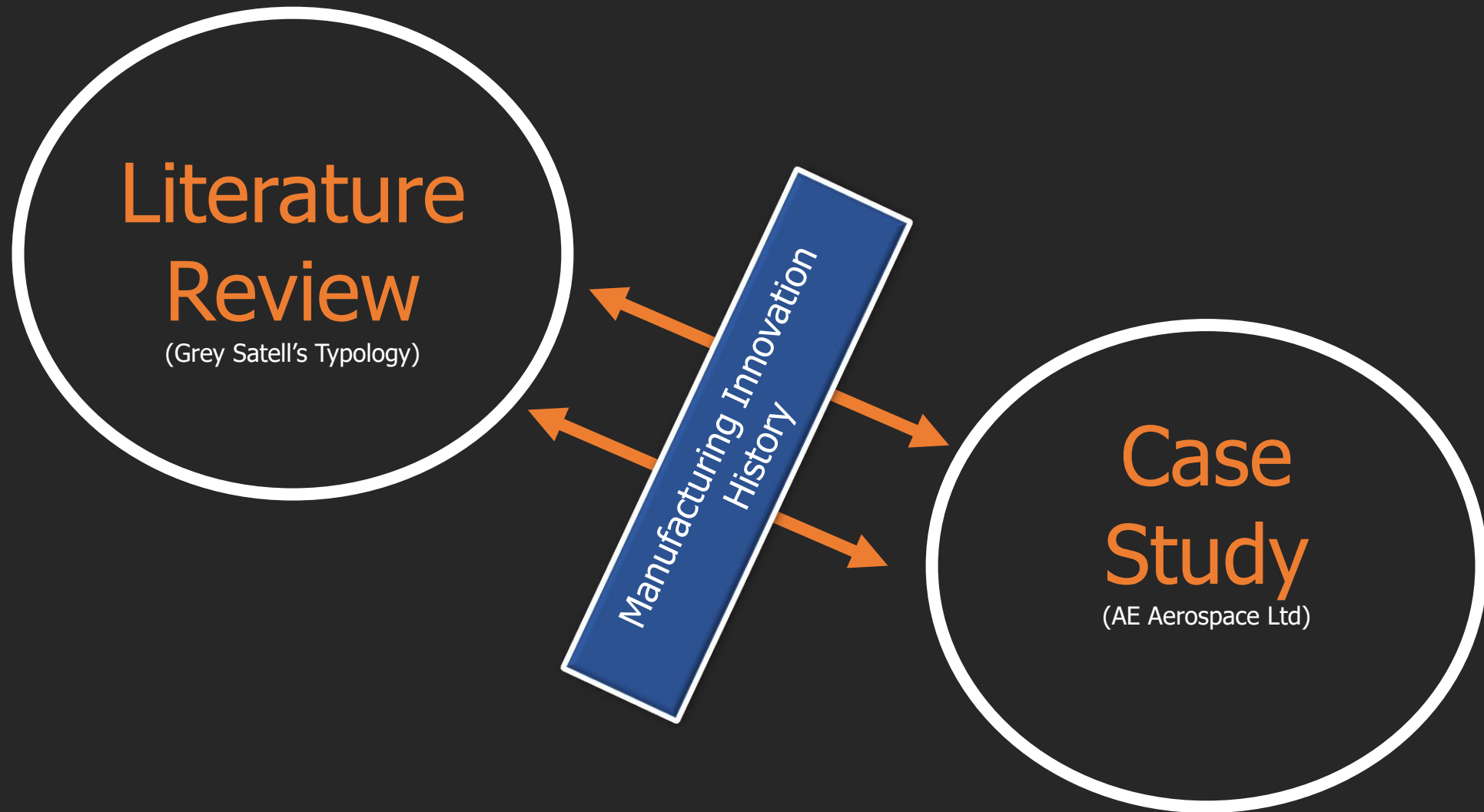
**A lasting challenge for Manufacturing businesses is to transform, adapt to the environment and innovate, hence knowing the factors that influence the capacity to innovate is vital information for these businesses (Ibujes-Villacis and Franco-Crespo, 2022).**

# Assessment Introduction

Innovation could be a basis for competitive advantage for businesses through the enhancement of systems and techniques capable of generating new products or services, or perfecting existing ones (Taques et al., 2021).



# Assessment Introduction



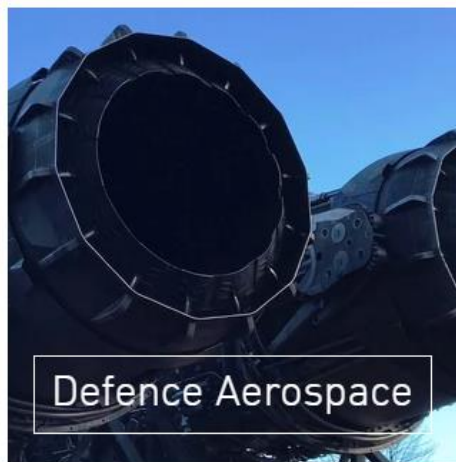
# Case Company Introduction

**AE Aerospace (Birmingham) Ltd founded 1996 is a AS9100 REV D machine to print, subcontract precision machining company for the Aerospace and Marine, Civil and Defence industries.**

**The business currently has revenues of £5 Million per year employing 65 people**



# Case Company Introduction



**Manufacture low to medium  
volume prototype components,  
through to original equipment  
and higher volume manufacture,  
plus spares & legacy parts.**

# Case Company Introduction

## Customers:



# Innovation Area of Focus

**Primary  
FOCUS**

| Type             | Manufacturing                                                                                                                                                                                                                                                                                                                                                            | Services                                                                                                                                                                                                                                   |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Products/Service | <ul style="list-style-type: none"> <li>- New Product Creation</li> <li>- Existing-product improvement</li> </ul>                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>- Adding benefits to existing services</li> </ul>                                                                                                                                                   |
| Process          | <ul style="list-style-type: none"> <li>- Production method alteration</li> <li>- Existing-method improvement</li> </ul>                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>- Implementation of new or improved procedures regarding services distribution</li> </ul>                                                                                                           |
| Marketing        | <ul style="list-style-type: none"> <li>- Remodelling in product design or package</li> <li>- Promotions and pricing strategies for market placing of products</li> </ul>                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>- Introduction of new methods implying changes in services</li> </ul>                                                                                                                               |
| Organisational   | <ul style="list-style-type: none"> <li>- Business practices within the organisation or in external relationships</li> <li>- Physical composition of the company</li> <li>- Training practices and knowledge generation</li> <li>- Improvement in employee satisfaction</li> <li>- Measures aimed at reducing administration costs, supplies and transactions.</li> </ul> | <ul style="list-style-type: none"> <li>- Change in a company's activities</li> <li>- More efficient uses of work assets and resources</li> <li>- Technical innovations or cooperation with other companies to enable innovation</li> </ul> |

**SECONDARY  
FOCUS**

Types of Innovation By Industry (Taques et al., 2021)

# Innovation Area of Focus

AE Process Innovation in the last 5 to 10 years:

## 2013 – EPIC Project

- ❑ Deployment of an Efficient Productivity and Information Control system.



## 2021 – Glass Factory Project

- ❑ Machine Time Servitisation, Mobile Asset Location & Calibration Tracking, and Product Quality Assurance.

Information transparency to supply chain in real-time.



# Reason for Innovation

## 2013 – EPIC Project

### Problem Statement

- ❑ Underutilisation of expensive ERP system investment
- ❑ Poor customer satisfaction due to poor services
- ❑ Zero access to reliable data to measure and improve business

### Project Objectives

Optimisation of ERP (Enterprise Resource Planning) system

1. Improve internal business visibility
2. Improve resource utilisation and productivity
3. Improve customer delivery performance



# Reason for Innovation

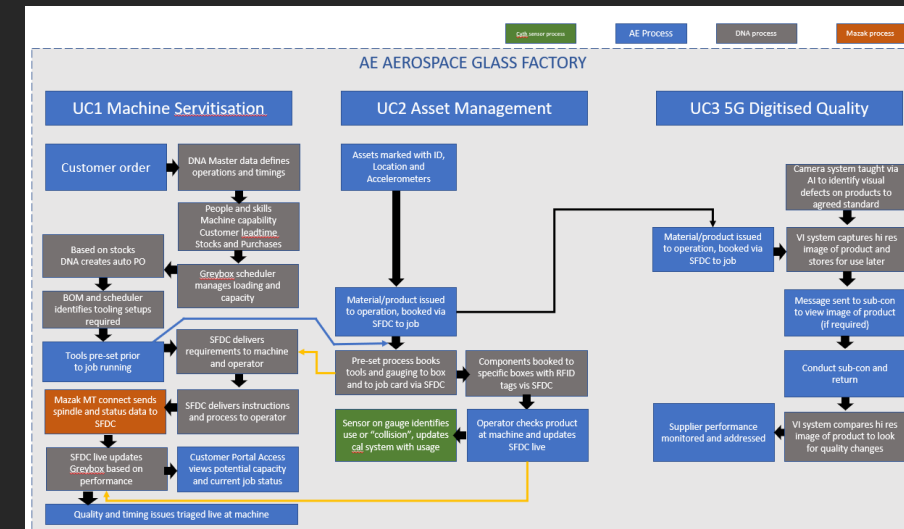
## 2021 – Glass Factory Project

### Problem Statement

- ❑ High administration for supply chain transparency/integration.
- ❑ High administration and inefficient tracking/management of assets.
- ❑ Late detection of product quality issues.

### Project Objectives

1. Transparency to external supply chain (Customers and Suppliers)
2. Automated asset management and tracking system
3. Automated preventive quality method for production



# Approach of Innovation

## 2013 – EPIC Project

- ☐ Problem was already clearly defined
- ☐ Skill and method for solving the problem was **known**

### Steps Taken

**Establish internal project team**

**Process mapping to identify AS IS & TO BE**

**Establish budget & project plan**

**Deploy and configure technology**

**Provide training & SOPs**

**Close Project**

# Approach of Innovation

## 2021 – Glass Factory Project

- ☐ Problem was already clearly defined
- ☐ Skill and method for solving the problem was **unknown**

## Steps Taken

**Establish internal project team**

**Process mapping to identify AS IS & TO BE**

**Research market and benchmarking**

**Establish budget & project plan**

**Contract third-party consultants**

**Deploy and configure technology**

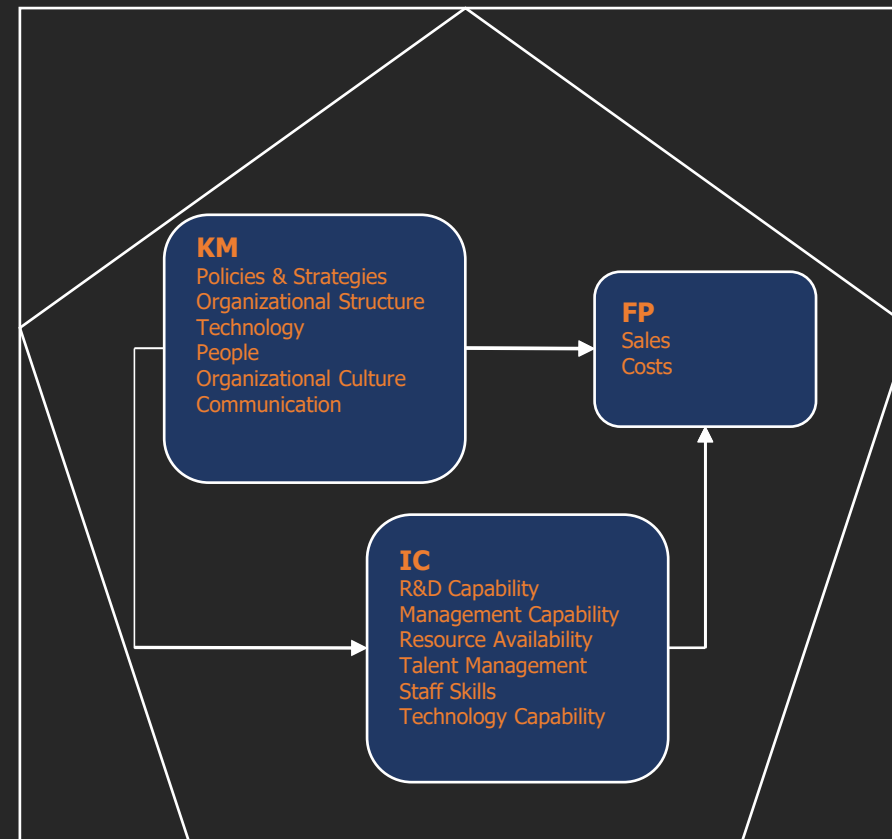
**Provide training & SOPs**

**Close Project**

# Literature Analysis

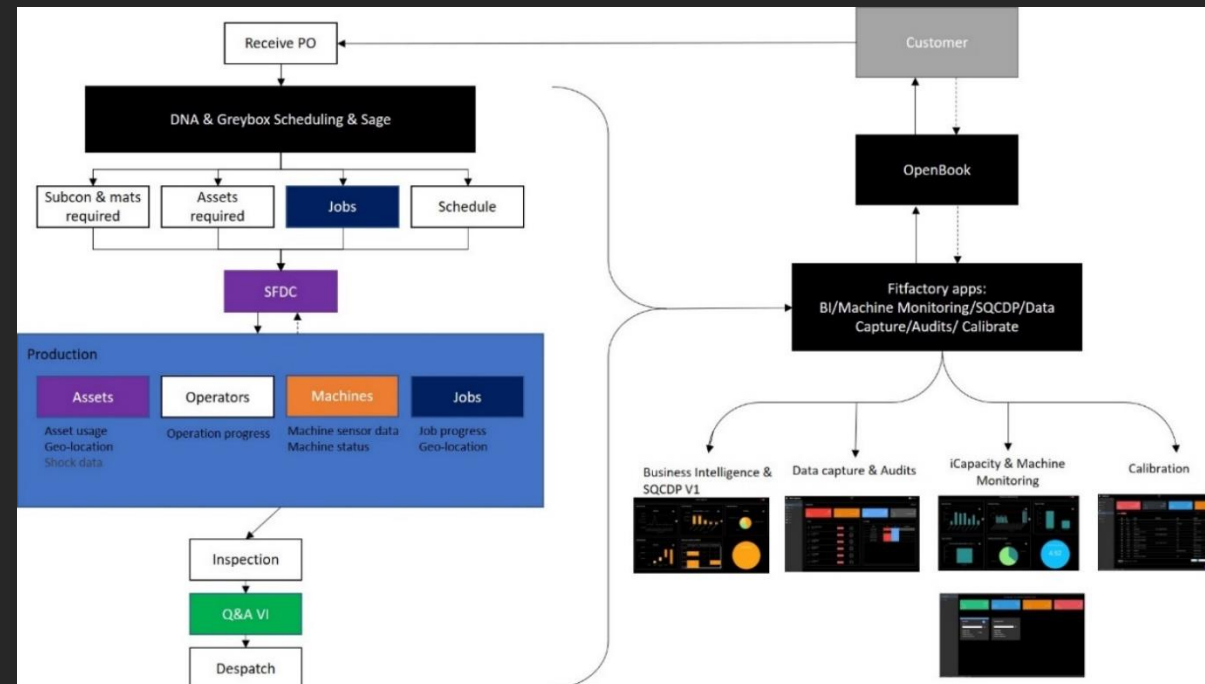
According to Ibufes-Villacis and Franco-Crespo, (2022) factors for the management of innovation in a company can be grouped into three core classifications:

1. Knowledge Management (KM)
2. Innovation Capabilities (IC)
3. Financial Performance (FP)



# Literature Analysis

Knowledge Management (KM), Innovation Capabilities (IC), and Financial Performance (FP) were key factors in the innovation journey of AE Aerospace in 2013 and 2021.

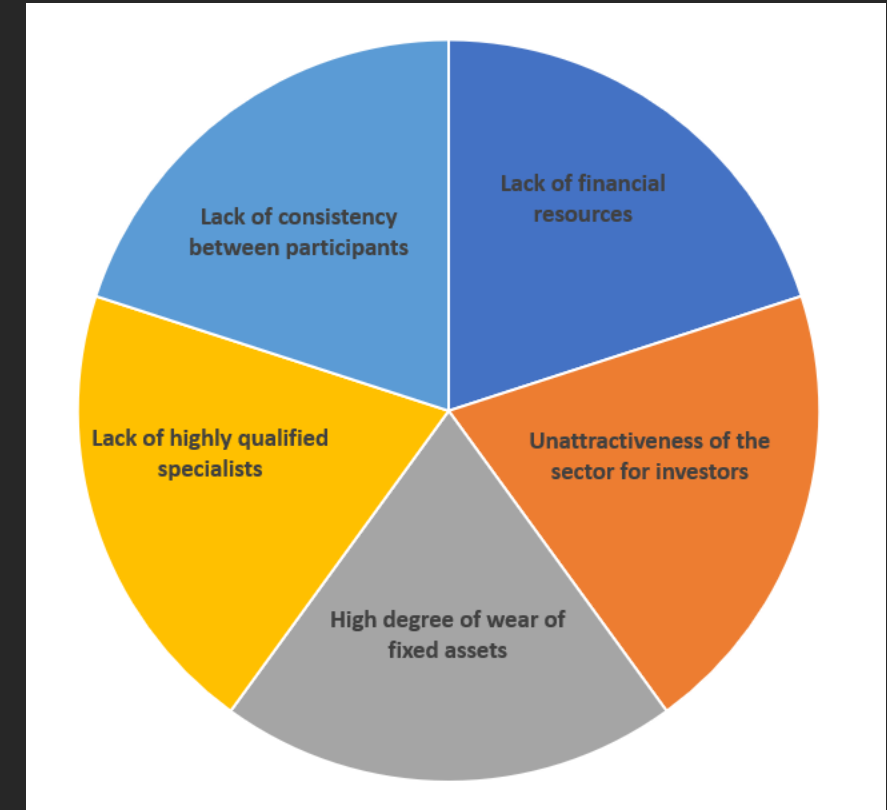


In 1942, Schumpeter argued that larger firms are more innovative than small firms. While several studies supports the Schumpeterian hypothesis, other studies show that small firms can prevail in innovation because of their enhanced communication, managerial advantages, and flexibility (Koo and Cozzarin, 2021).

# Literature Analysis

Research by Makoveev, (2015) shows that the problems of innovation in manufacturing are:

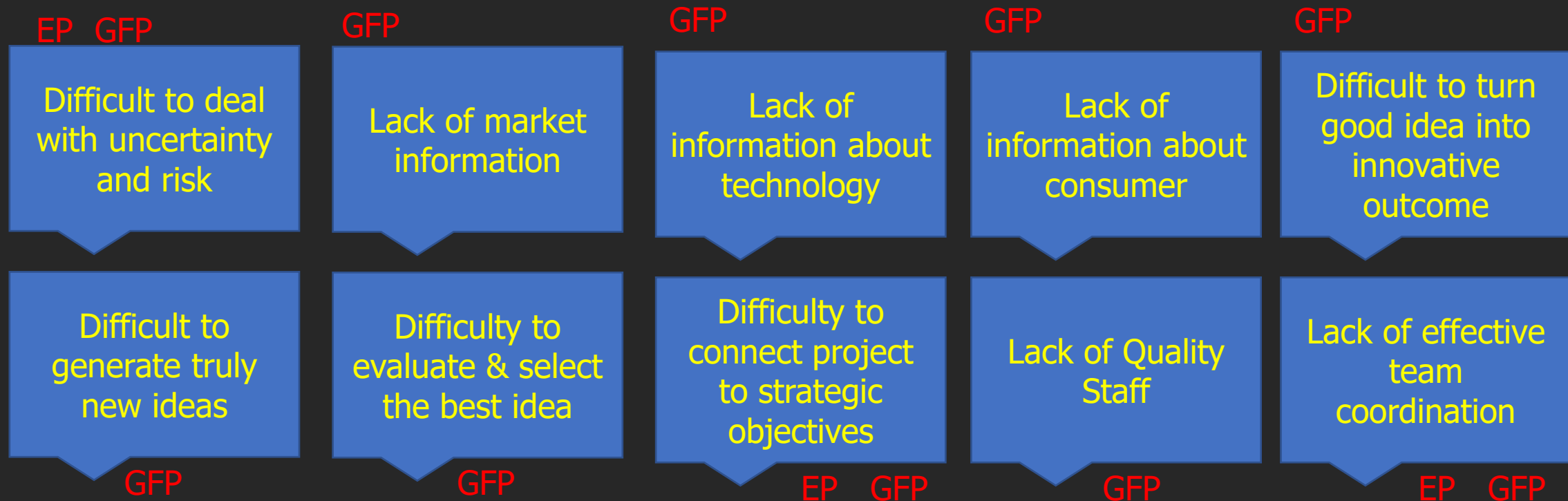
- ☐ Lack of financial resources
- ☐ Unattractiveness of the sector for investors
- ☐ High degree of wear of fixed assets
- ☐ Lack of highly qualified specialists
- ☐ Lack of consistency between participants



The above problems were evident in the case of AE Aerospace. It applied more to 2021 Glass Factory project than 2013 EPIC project.

# Literature Analysis

Nagano et al., 2014 also identified other challenges to innovation

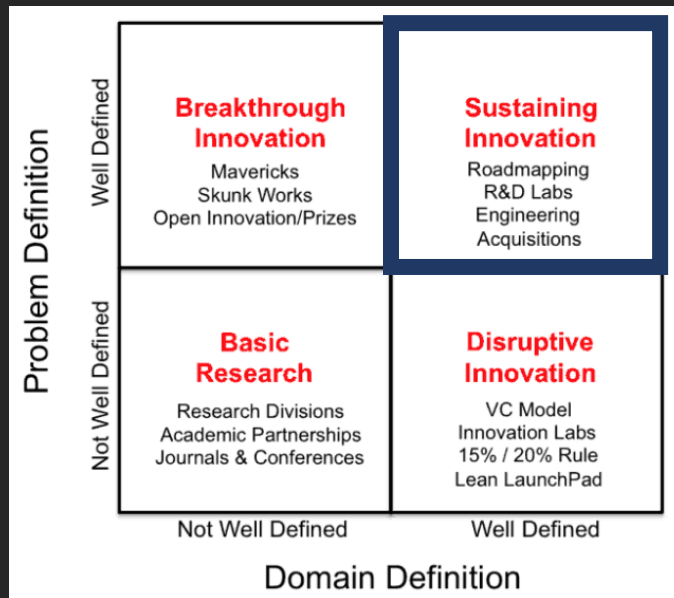


In the case of AE Aerospace only 3 of the above applied to 2013 EPIC project while all 10 applied to 2021 Glass Factory project.

# Literature Analysis

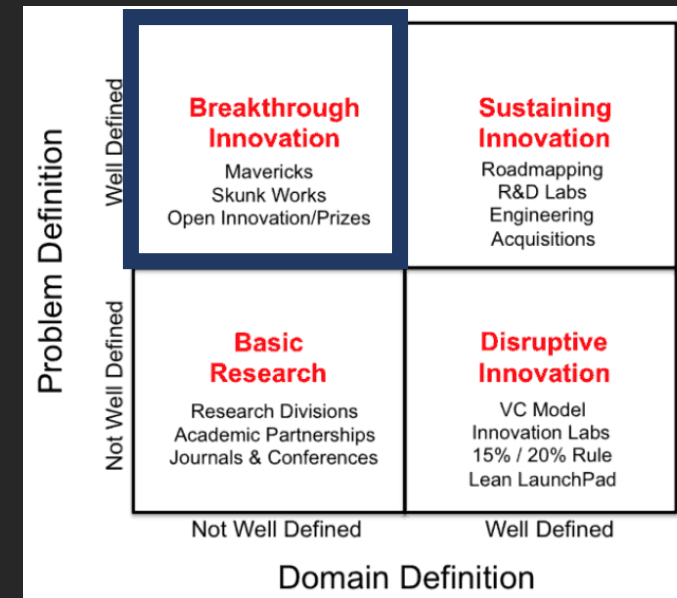
## Greg Satell's Typology

### 2013 – Epic Project



The problem was well defined, and the solution technology/skill was already known and available.

### 2021 – Glass Factory



The problem was well known however the domain was explored as part of the process of innovation

# Outcome of Innovation

## 2013 – EPIC Project

| Criteria                                                                          | Low | Medium | High | Comment                                                                                                                                       |
|-----------------------------------------------------------------------------------|-----|--------|------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Extent of shift to the company's market position                                  |     | +      |      | Improved control and visibility resulted in improved customer satisfaction.                                                                   |
| Extent of influence on the company's internal structures and management processes |     |        | +    | Huge positive impact on company structure. AE successfully moved from paper/manual-based processes to an ERP system.                          |
| Extent of technology dependent                                                    |     |        | +    | Use of technology was pivotal in the journey. Enhancement of existing ERP suite including SFDC and Scheduling module deployment.              |
| Extent of success                                                                 |     |        | +    | The objectives set at the conception of the project was achieved. The project is considered a success by AE and its customers and IT vendors. |

# Outcome of Innovation

## 2021 – Glass Factory Project

| Criteria                                                                          | Low                                                                                   | Medium                                                                              | High                                                                                | Comment                                                                                                                                 |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Extent of shift to the company's market position                                  |                                                                                       |  |                                                                                     | Customers and prospects were impressed with the innovative idea, but this slowly declined when the project failed                       |
| Extent of influence on the company's internal structures and management processes |                                                                                       |  |                                                                                     | The project presented opportunities from staff and process improvement even though it didn't achieve its ultimate objectives.           |
| Extent of technology dependent                                                    |                                                                                       |                                                                                     |  | Required huge technology deployment from network to system and hardware requirements.                                                   |
| Extent of success                                                                 |  |                                                                                     |                                                                                     | The project incurred extensive unforeseen costs and AE didn't have sufficient architecture and knowledge to make it a complete success. |

# Conclusion/Lessons Learnt

The bases of manufacturing business growth have shifted today from tangible assets to potential intangible assets like knowledge and innovation ability. Lack of innovation has been regarded in literature as an obstacle to corporate growth (Nagano et al., 2014).

Innovation in Manufacturing businesses is not without its challenges so manufacturers must understand the key elements of Innovation.

Although the typology of Grey Satell which includes: Basic Research, Breakthrough Innovation, Sustaining Innovation, and Disruptive Innovation could play strategic roles in Manufacturing Innovation, the case of AE Aerospace indicated that success lies with Sustaining Innovation where the Problem and Domain is well defined.

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# Q & A

