

British Rototherm Co Ltd: Innovation and Sustainability

- Insight into background & implementation of its recent innovations.

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Content

- Introduction
- History & Market Sectors
- Rototherm Innovation History
- Mapping Innovation to Satell's matrix
- Ultrasonic Measurement
- Medical PPE
- Lean Journey
- Renewable Energy
- Environment protection
- Conclusions
- What we learned
- References



Rototherm History

- Rotherm's heritage dates back to the 1840s
- Invention of the steam pressure gauge by Sydney Smith Dennis
- The first bi-metallic thermometer was invented by the company in the early 1900s
- Rotherm supplies measurement and control solutions to customers in over 90 countries
- Rotherm is an ISO 9001 certified, privately owned manufacturing company
- Rotherm Group employs Lean Principles throughout its manufacturing sites and operations
- Rotherm employees are all trained in Lean Principles



World's first Steam Pressure Gauge
designed by Sydney Smith in 1847

Market Sectors

- Oil & Gas
- Power Generation
- Heat Treatment
- Food and Beverage
- Water & Waste
- Pharmaceutical & Medical
- Defense
- Petrochemical



Images: rototherm.co.uk

Leadership Styles

- As managing director and owner of British Rototherm Oliver leads the company with a mix of a Visionary and Coaching style of leadership.
- He clearly outlines the direction that the company is going and the role the employees play in that vision
- He heavily invests in the training and wellbeing of the employees to help their long-term development
- He empowers his staff, so they can make big decisions at the lowest level of the company hierarchy
- “Better today than Yesterday” Oliver Conger

Pacesetting Primary objective: Accomplishing tasks to a high standard of excellence - Leads by example or 'modelling' - Has high standards and expects others to know the rationale behind what is being modelled - Is apprehensive about delegating - Takes responsibility for tasks away if high performance is not forthcoming - Has little sympathy for poor performance - Sees coordination with others only as it impacts the immediate task	Coaching Primary objective: Long-term professional development of staff - Helps staff identify their unique strengths and weaknesses in the light of their aspirations - Encourages staff to establish long-term development goals - Reaches agreement with staff on both the leader's and their own roles in the development process - Provides on-going advice and feedback to facilitate staff development - Makes doff immediate standards of performance for long-term development
Visionary Primary objective: Providing long-term direction and vision for staff - Develops and articulates a clear vision for the organisation - Solicits staff perspective on the vision, without surrendering authority - Sees selling the vision as a key part of the job - Persuades staff by explaining the 'whys' behind the vision - Sets standards and monitors performance in relation to the larger vision - Uses a balance of positive and negative feedback	Commanding Primary objective: Immediate compliance - Gives lots of directives - Expects immediate staff compliance - Controls tightly, through close monitoring - Relies on negative, corrective feedback - Motivates by stating the negative consequences of non-compliance
Democratic Primary objective: Building commitment among staff and generating new ideas - Trusts that staff have the capability to develop the appropriate direction for themselves and the organisation - Invites staff to make decisions affecting their work - Reaches decisions by consensus - Holds many meetings and listens to staff concerns - Rewards adequate performance and rarely gives negative feedback	Affiliative Primary objective: Creating harmony among staff and between leader and staff - Promotes friendly interactions among staff - Places less emphasis on task directions, goals and standards than meeting staff's emotional needs - Pays attention to and cares for 'the whole person' and stresses things that keep people happy - Identifies opportunities for positive feedback but avoids performance related confrontations - Rewards personal characteristics as much as job performance

Change Management

The mantra within Rototherm is “Better today than yesterday”. To facilitate this vision the management work on:-

- **Clarity** – at the top level be absolutely clear on the vision the company is trying to achieve
- **Focus** – focus on this vision to identify the business needs
- **Unity** – All teams and employees unite to help the business meet the needs
- **Action** – Every person in the business has a role to play in making the business a success

Paul Akers 2 Second Lean principles and the Toyota Production System are used to eliminate waste in every process and procedure to continually Improve

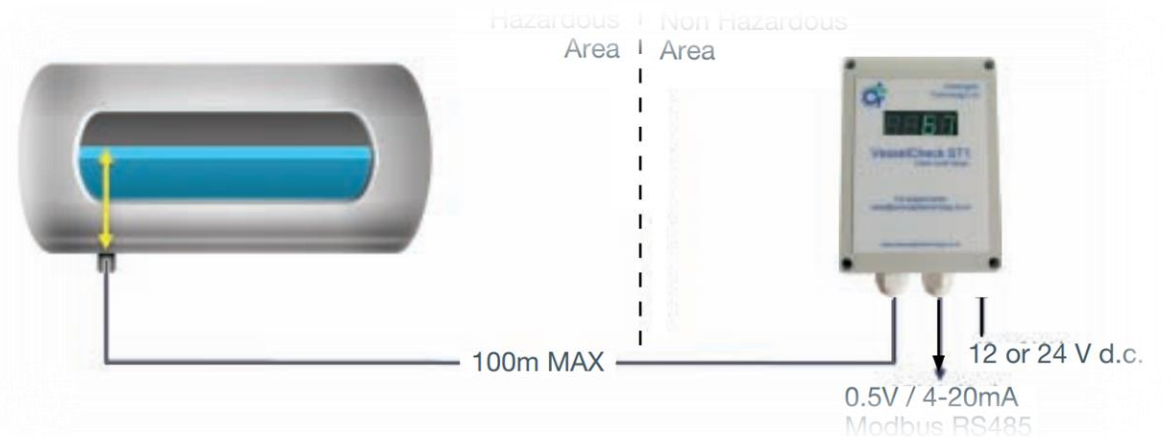


Toyota Production System (Taiichi Ohno)

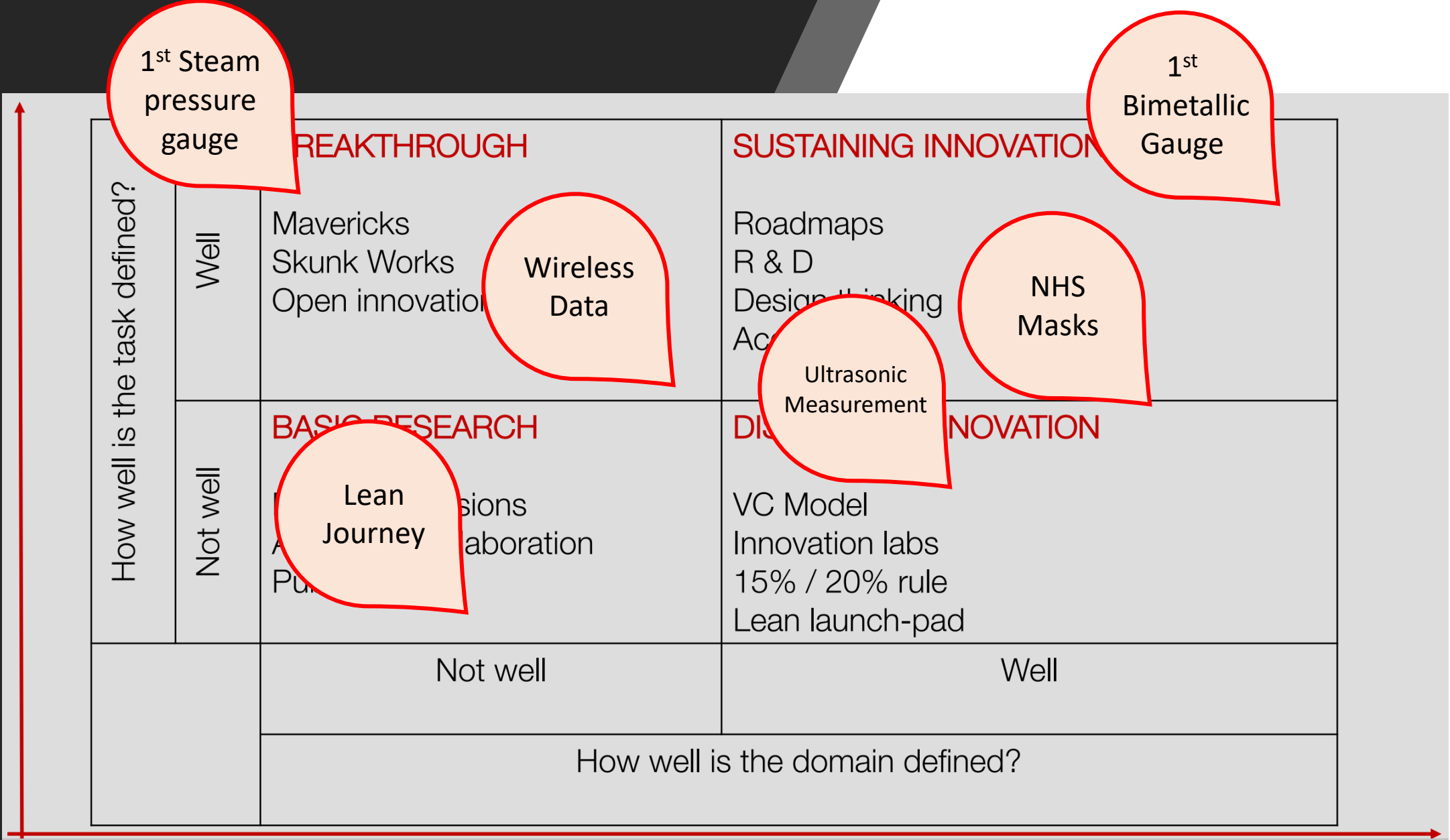


Rototherm Innovations

- Steam Pressure Gauge
- Bimetallic Gauge
- Lean Journey
- Wireless Data
- Ultrasonic Measurement
- Medical Mask



Satell's Innovation Matrix



Ultrasonic Measurement

Changing to ultrasonic sensors started off as an incremental innovation but after several iterations, traditional R&D and failed solutions but ended up with a more radical solution.

- Rototherm changed the project management to highly focused small teams.
- Customer feed back to get a product that met all their needs.
- Rototherm Acquired Micronics Flow in 2021

This innovation has led a unique product and 200-300% market growth.

Rototherm are planning be international market leaders in 3 to 5 years



Ultrasonic Measurement

Key Partners  • International distribution network • BSI Standards association • ISO Standard • NACE standard • (NSN) • Loma Systems	Key Activities  • Supply chain management • Long standing customer relations • In depth product knowledge • Service and calibration	Value Proposition  • Great heritage in pressure and temperature gauges. • Wide variety of ranges, materials, sizes, connections. • Accurate, reliable and durable gauges for all types of industries • Can be retrofitted to existing systems with out invasive procedures	Customer relationship  • No invasive procedures in hazardous areas • Digital transfer of information • Customer service	Customer Segments  • Heat Treatment • Gas Transmission/ Distribution • Industrial Ovens/Furnaces • Pharmaceutical Process Lines • Dairy Pasteurisation • Hydrostatic Pressure Testing
Key Resource  • International warehousing and distribution network • Highly skilled workforce			Channels  • Online Catalogue • 28 distributors • 7 regional sales offices	
Cost Structure  • Logistics • Materials and manufacturing costs • Skilled Labor • Accreditation and testing		Revenue Stream  • New Projects • Up grade of old systems • Military and Defense projects • Service and Calibration		

Medical PPE Uncertainty

As for most other companies, the start of the pandemic was a very uncertain time for Rototherm. With their innovative approach and continuous improvement background Rototherm was agile enough to assess the risks and produced an innovative solution to the problem and turn a potential crisis in to an opportunity. They took up the Government PPE challenge.

The main risks they identified were:-

- Getting the relevant standards.
- Time was against them.
- Installing the machines and technology.
- Getting enough staff.



Medical PPE

We're always investing in Technology.

Our investment and technological innovation of our mask range has resulted in the expansion of a fully certified Cleanroom within our facility. The machines we use within our Cleanroom are from a company called Expert, who have vast experience in automation processes and the result is machines with very high reliability as well as great support and service which enables us to keep the machines running and produce our masks at a very high standard.



Lean Journey

Using Paul Akers 2 second lean and the first 30min each day, ALL employees are encouraged to make changes to improve their products, processes or procedures.

- Each improvement is recorded, and the procedures updated
- The employees produce videos and display them in weekly meetings
- All employees take part in 3's actives to keep the facilities in order
- There is a continuous improvement workshop on the shopfloor to enable employees to make what they need to improve their areas.

“FIX WHAT BUGS YOU” Oliver Conger



Protecting Environment

Rototherm realize the importance of protecting the environment.

Rototherm house multiple beehives on site.

- Bees are vital to the eco-system as they are pollinators transferring grains of pollen from one plant to another, to fertilize the ovaries of flowers. This is not only benefitting the agricultural industry it also benefits the spread of wildflowers and plants.
- Bees are part a group of animals called pollinators. Pollinators transfer pollen from one flower to another, fertilizing the plant so it can grow and produce food. Cross-pollination helps at least 30 percent of the world's crops and 90 percent of our wild plants to thrive.
- It's estimated that bees pollinate around a third of the food that we eat.



Renewable Energy

- Rototherm realize the importance of protecting the environment.
- All Rototherm facilities are fitted with solar panels & All British Rototherm products are manufactured utilizing renewable energy
- (In 2019 wind farms, solar and nuclear energy alongside energy imported by subsea interconnectors, delivered 48.5% of Britain's electricity compared to 43% generated by fossil fuels. British Rototherm is playing important role to reduce use of fossil fuels.)



Our Learnings



- We learned about the innovation journey of British Rototherm.
 - Management working style has great influence on the innovation prospects.
 - Lean manufacturing is the key to the success.
 - Keeping company ready for any upcoming challenges is crucial for company success & improving company's market share.

- We learned about innovation best practices within British Rototherm.
 - Effective management & delegation of authority/responsibility is the key to success.
 - Innovation is team process. But its important to keep team size small for better results.
 - Keeping company ready for challenges & staying ahead in the game is always important.

- Innovation as Greg Satell describes in his book Mapping Innovation
 - “ Innovation is a drawn-out process involving the discovery of an insight, the engineering of a solution & then the transformation of an industry or field.”
 - We need to break it down into its constituent parts: Discovery, engineering & transformation.
 - Each of this requires distinct expertise, capabilities & processes & we need to approach each differently.

(Satell,2017, p07)

Our Contribution



- We went through lots of data about British Rototherm

Company website, media news, LinkedIn profile, YouTube video, company brochure.

- We tried to get in touch with company management.

We got opportunity to interact with Managing director Oliver Conger. During teams call we received valuable inputs about company's vision, management style, lean journey & innovation journey.

- We studied innovations happened in the British Rototherm in last few years.

It gave us opportunity to understand innovation process & analyze technologies used for innovation.

- We tried to map innovations happening in British Rototherm inline with Greg Satell's Innovation matrix.

- Based on our learnings we prepared this detailed presentation about British Rototherm.

Details in the presentation, formatting of the presentation & proper referencing method followed.

References



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