Demystifying Open Innovation

A proven approach to improving open innovation effectiveness by combining best practices from Organizational Design and Creative Problem Solving

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About Rockdale Innovation

Rockdale Innovation is a global network of Innovation Guides with over 100 years of combined experience facilitating teams through the Creative Problem Solving process.

Our team has helped P&G grow its Billion Dollar Brands for over 20 years, and we are reapplying those best practices in Business-to-Business, Business-to-Consumer, and Nonprofit organizations around the world.

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Acknowledgements

Jillian Moffit – Head of Open Innovation at Scottish Enterprise

Beverly Wagner – Professor at Strathclyde Business School

Alan Gordon – Innovation Director for the Stena Sphere

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1st Cohort - Member Organizations

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Today's Agenda

- Open Innovation Readiness Assessment
- Open Innovation Roadmap
- Open Innovation Case Study

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What is Innovation?

Proactively seeking new problems to solve, new ways to solve existing problems, and new ways to implement business building ideas

To learn more about the Simplexity method, visit www.basadur.com

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What is Open Innovation?

Actively engaging external subject matter experts in the definition of technical problems, identification of potential solutions, and implementation of the best solutions

To learn more about the Simplexity method, visit www.basadur.com

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Examples of Open Innovation

- Joint Development Agreements between customers and suppliers
- Contract R&D
- University research sponsorship
- Crowdsourcing
- Customer Suggestion Systems
- Commercialization Partnerships

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Procter & Gamble Case Study

- Start with a well defined technical problem linked to an unmet customer need
- Seek win-win solutions by free exchange of technical knowledge and resources
- *Collaboration with key film supplier resulted in:*
  - *Superior dissolution in hot and cold water*
  - *Expanded product formulation flexibility*
  - *Increased film supply at reduced cost*
  - *Improved runnability on Pod converter*
- To learn more visit https://www.youtube.com/watch?v=gh65B9kmx8Y

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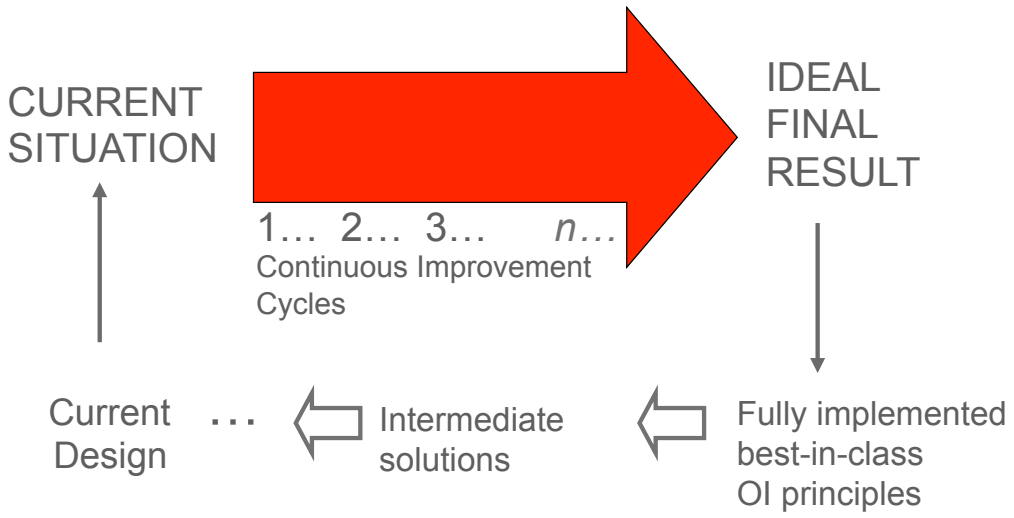
OPEN INNOVATION READINESS ASSESSMENT

Organizational Design For Open Innovation



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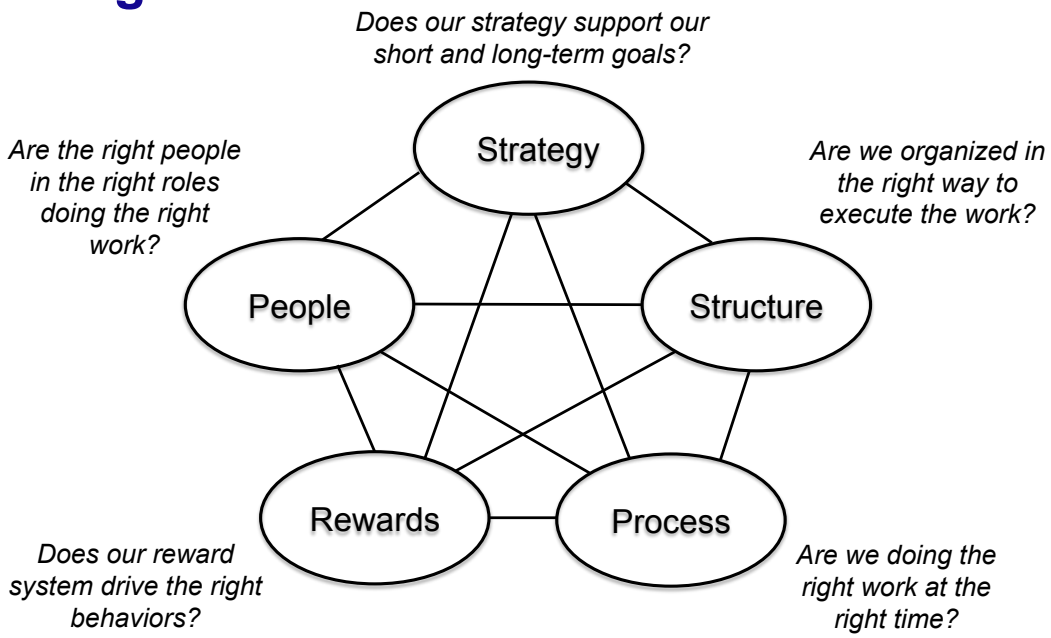
Galbraith Model for Organizational Design



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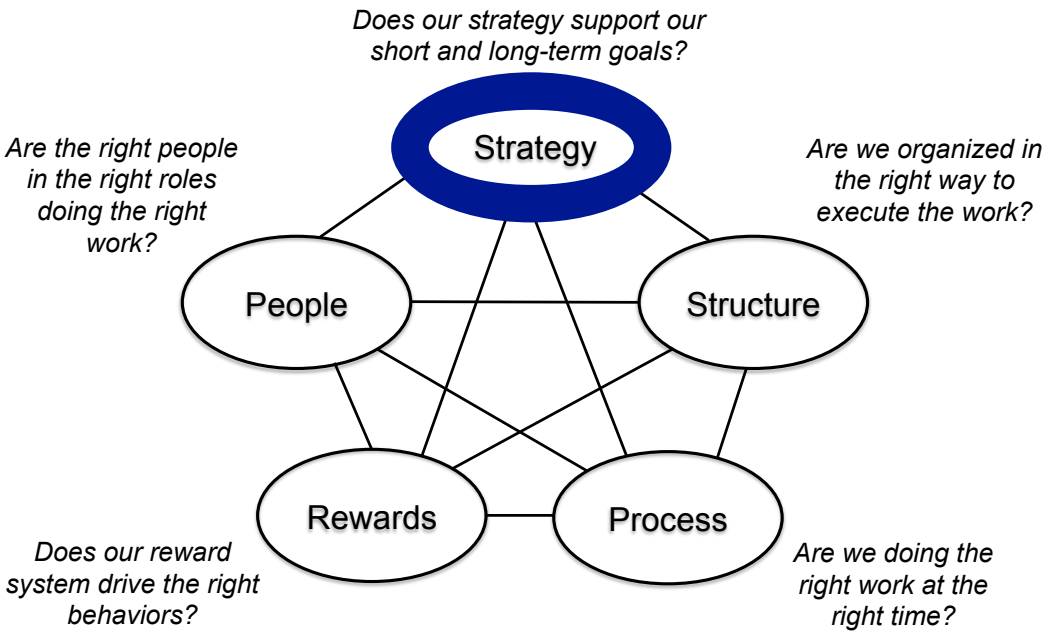
Galbraith Model



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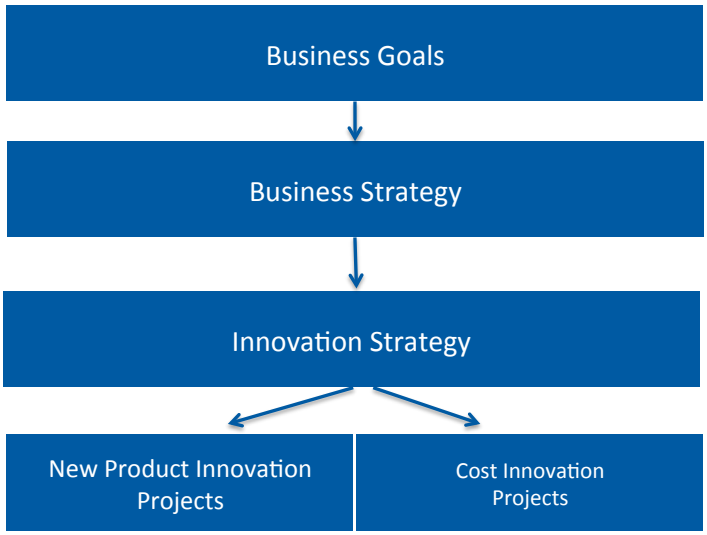
Linking Business Goals to Open Innovation Projects



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INNOVATION STRATEGY

Our innovation strategy and program are clearly linked to our business strategy and growth goals.

Our innovation strategy leverages our organization's unique competitive advantage.

We have broadly communicated our "Where to Play" and "How to Win" choices.

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Role of Open Innovation

- A robust Open Innovation program greatly expands a Company's sense of "What's Possible" when setting business goals and strategies
- External industry experts can help identify "Where to Play" and "How to Win" opportunities for category expansion

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OI ASSESSMENT TOOL – *STRATEGY*

Open Innovation
Organizational Readiness Assessment

For each of the statements below, indicate how closely they match the current innovation work process in your organization, using the following scale:

1 – Strongly Disagree
2 – Somewhat Disagree
3 – Neutral
4 – Somewhat Agree
5 – Strongly Agree

INNOVATION STRATEGY					
Our innovation strategy and programs are clearly linked to our business strategy and growth goals.	1	2	3	4	5
We have broadly communicated "Where to Play" and "How to Win" strategies.	1	2	3	4	5
Our innovation strategy leverages our organization's unique competitive points of difference.	1	2	3	4	5

INNOVATION PROCESS					
We have a proven Idea Generation process that identifies new product and service opportunities to address compelling unmet customer needs.	1	2	3	4	5
We maintain a robust portfolio of innovation projects with sufficient staffing and resources to deliver our 3-5					

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Using the OI Readiness Assessment

- Individually, have the members of your leadership team rate the organization's Open Innovation Readiness.
- As a team, review the individual ratings, paying particular attention to elements where individuals have significantly different ratings.
- For elements that are rated low, discuss potential causes and/or barriers to improvement.
- Brainstorm ways to overcome the most important barriers, strengthening innovation effectiveness in your organization.

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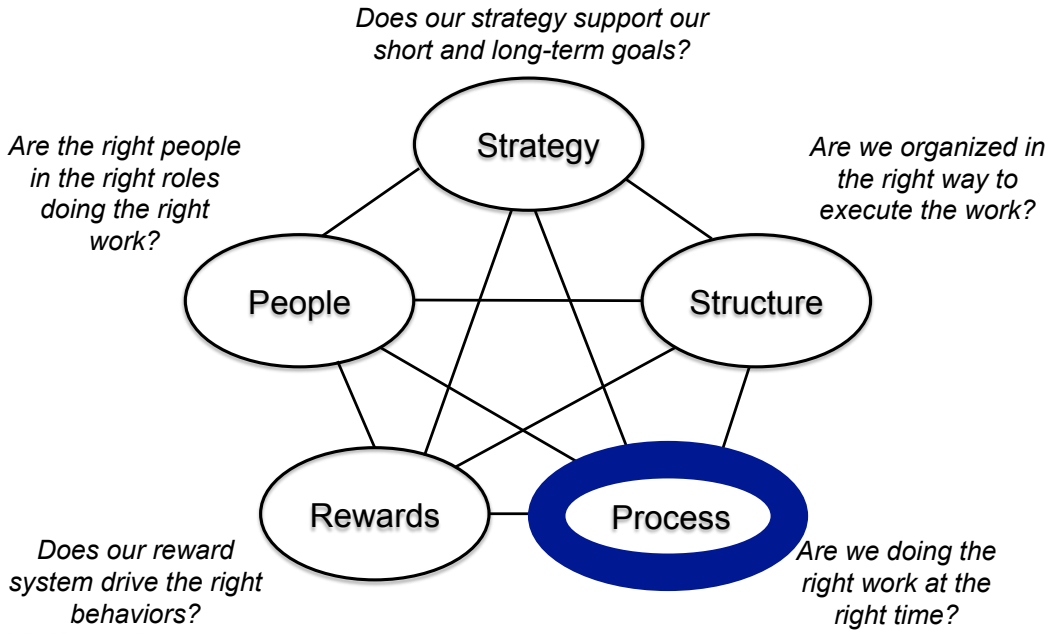
Galbraith Model



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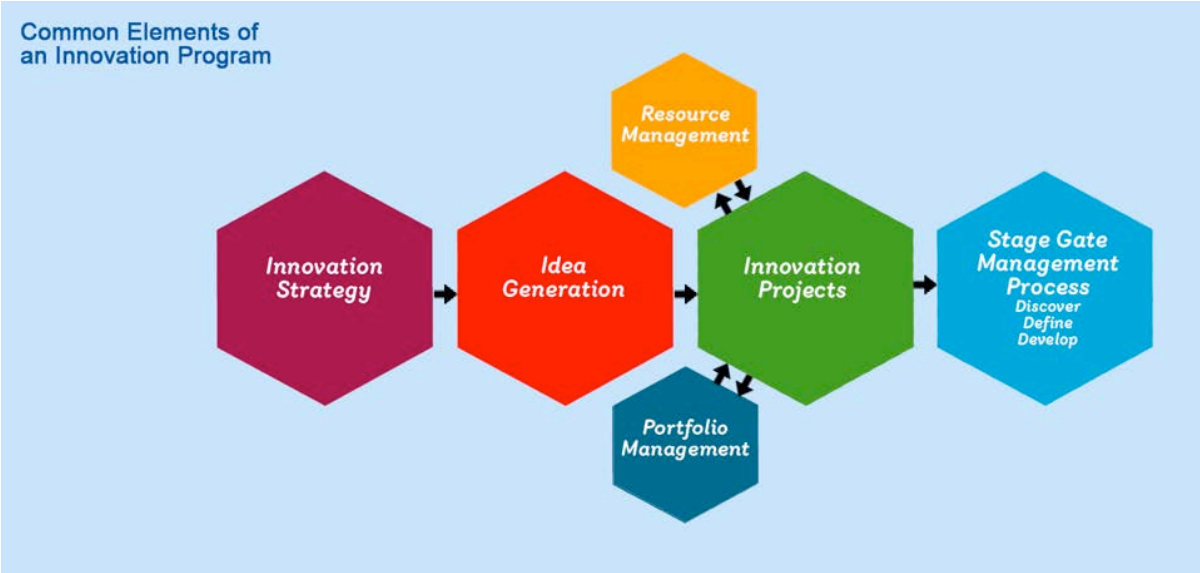
Innovation Work Process



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Cincinnati Bell Case Study

- Local telephone company, seeking to replace declining revenues from traditional land line services with cloud services.
- Conducted extensive customer interviews, sales calls, product installations, and service calls.
- *Collaboration with hardware and software providers to develop superior product and service offerings for business customers.*

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XAVIER LEADERSHIP CENTER

Cincinnati Bell BUSINESS

INNOVATION PROCESS

We have a proven Idea Generation process that identifies new product and service opportunities to address compelling unmet customer needs.

We maintain a robust portfolio of innovation projects with sufficient staffing and resources to deliver our 3-5 year business goals.

We manage innovation projects with a balance of risk and rigor using a disciplined phase-gate approach.

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Role of Open Innovation

- External experts can help create bigger, better ideas that support the company's innovation strategy
- External organizations can help accelerate innovation projects by providing resources (staff and facilities) to the project teams

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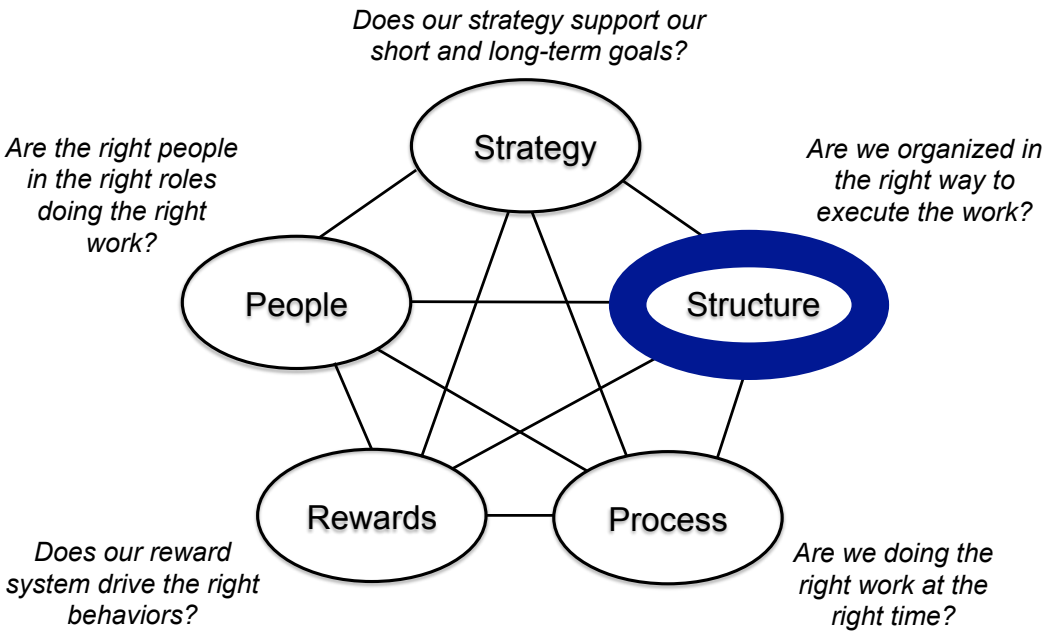
Galbraith Model



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Dedicating Resources for Innovation

Maintaining the Core Business

Developing Innovations

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INNOVATION STRUCTURE

We have sufficient multifunctional resources dedicated to execute innovation projects in a timely fashion.

We have internal processes for integrating innovation project work into the base business.

We have strong partnerships with key customers and suppliers for commercializing innovation project work.

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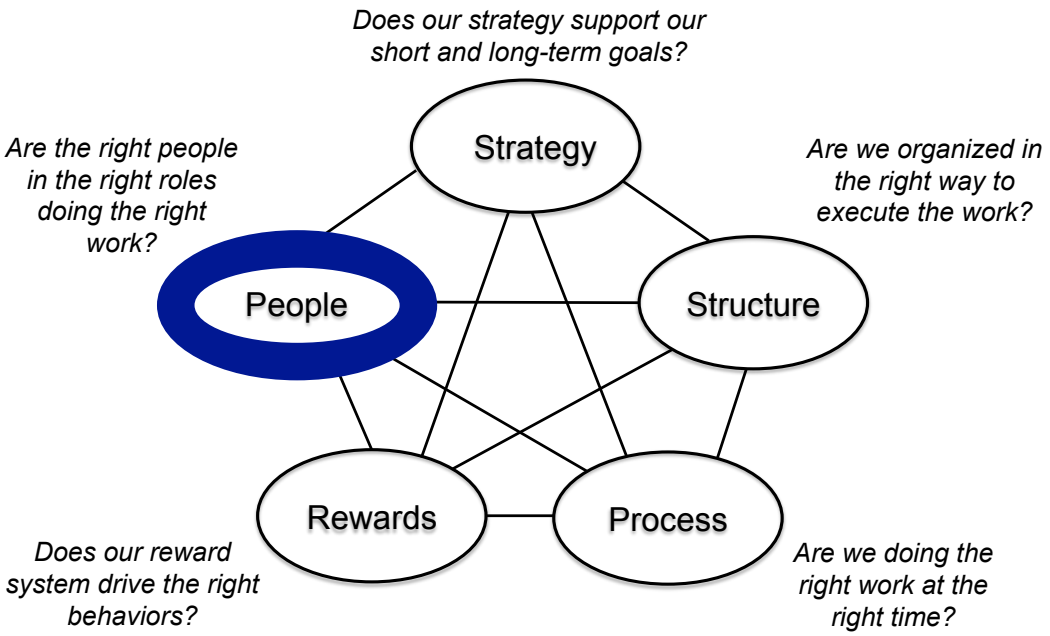
Galbraith Model



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INNOVATION RESOURCES

Innovation resources have sufficient training and experience in innovation best practices.

Innovation resources understand how their role is essential to delivering business results.

The company has a sustained culture of innovation across all levels of the organization.

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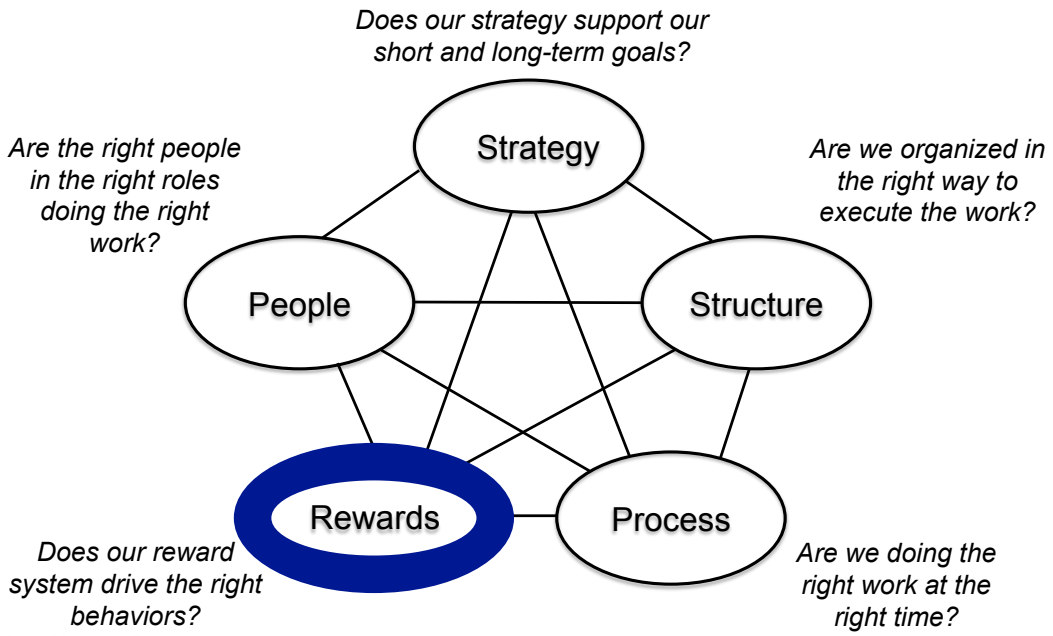
Galbraith Model



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INNOVATION REWARDS

Senior leaders regularly communicate the importance of innovation to delivering long-term business results.

Compensation systems include rewards for driving long-term success.

Innovation successes and failures are celebrated.

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Open Innovation
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INNOVATION STRUCTURE					
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We have strong partnerships with key customers and suppliers for commercializing innovation project work.	1	2	3	4	5

INNOVATION RESOURCES					
Innovation resources have sufficient training and experience in industry best practices.	1	2	3	4	5
Innovation resources understand how their role is essential to delivering business results.	1	2	3	4	5
Innovation resources work in a sustained culture of innovation across all levels and areas of the organization.	1	2	3	4	5

INNOVATION REWARDS					
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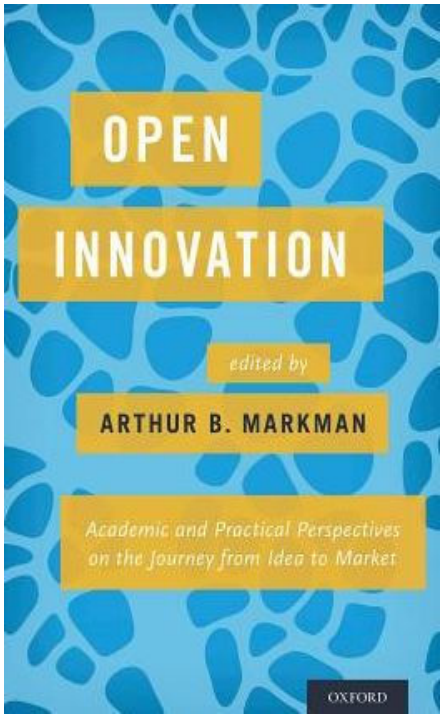
Open Innovation Best Practices



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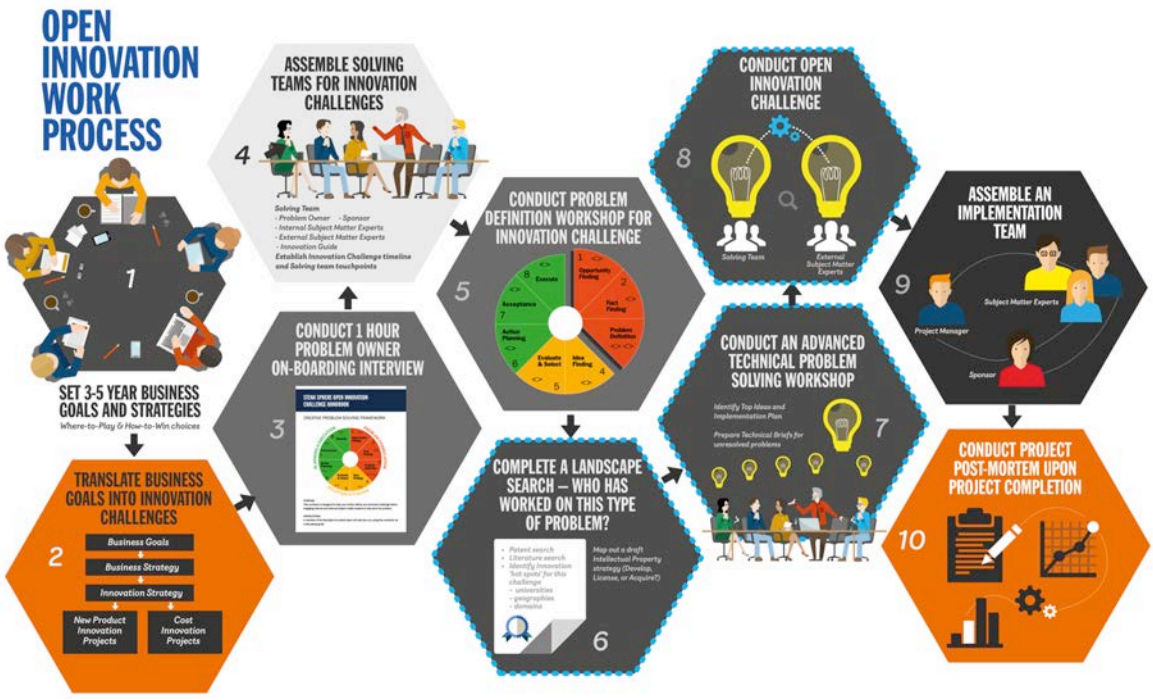
OPEN INNOVATION ROADMAP AND STENA CASE STUDY



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Typical cycle time for this process is 3-6 months.

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Biofouling Open Innovation Challenge

How Might We improve the energy efficiency of freight and ferry ships by reducing biofouling of ship hulls.

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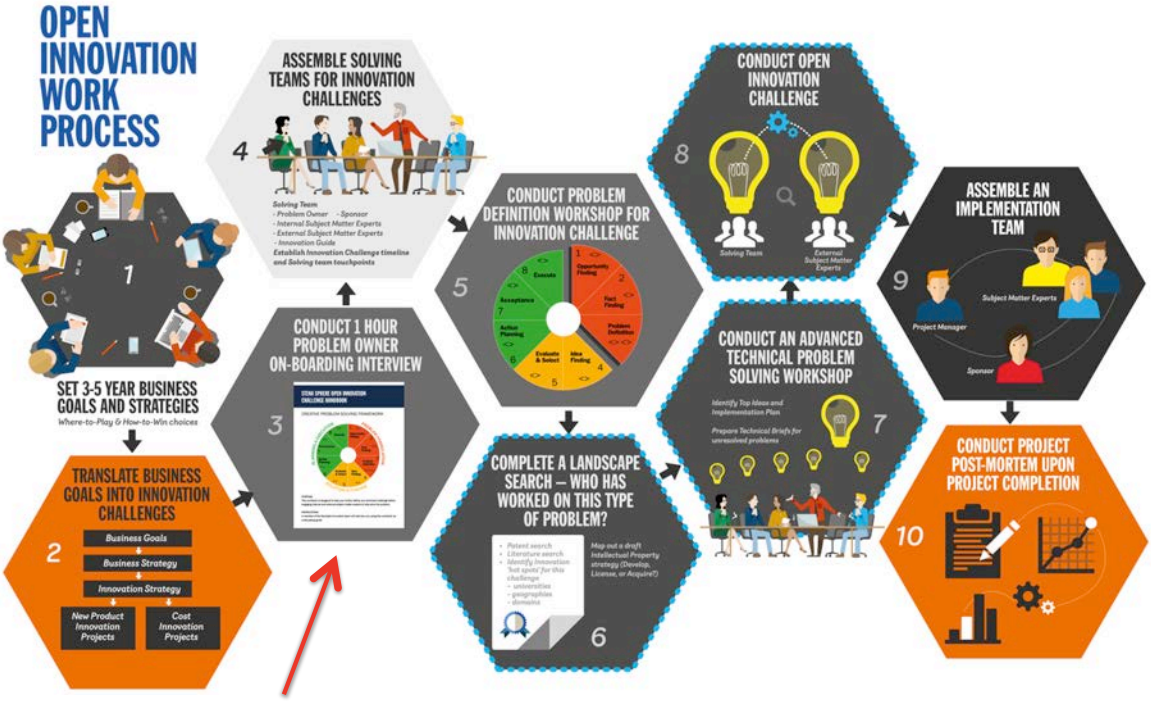

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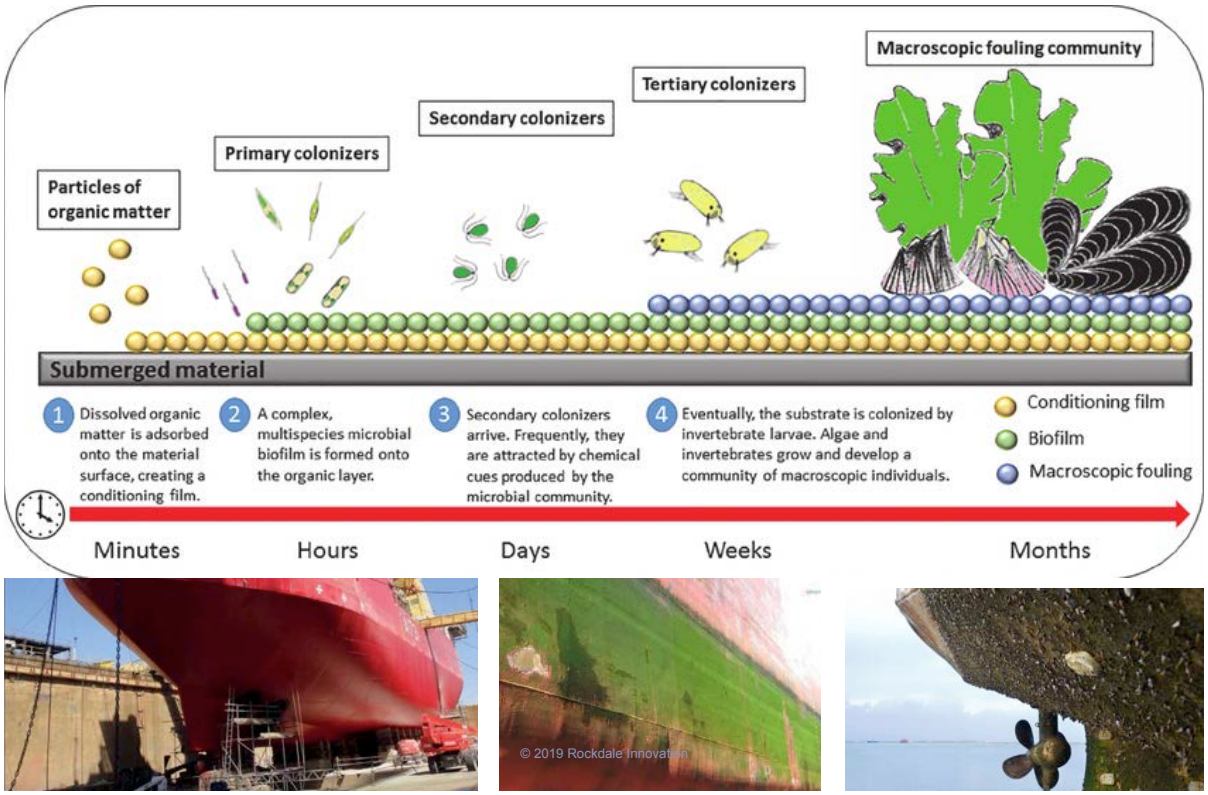
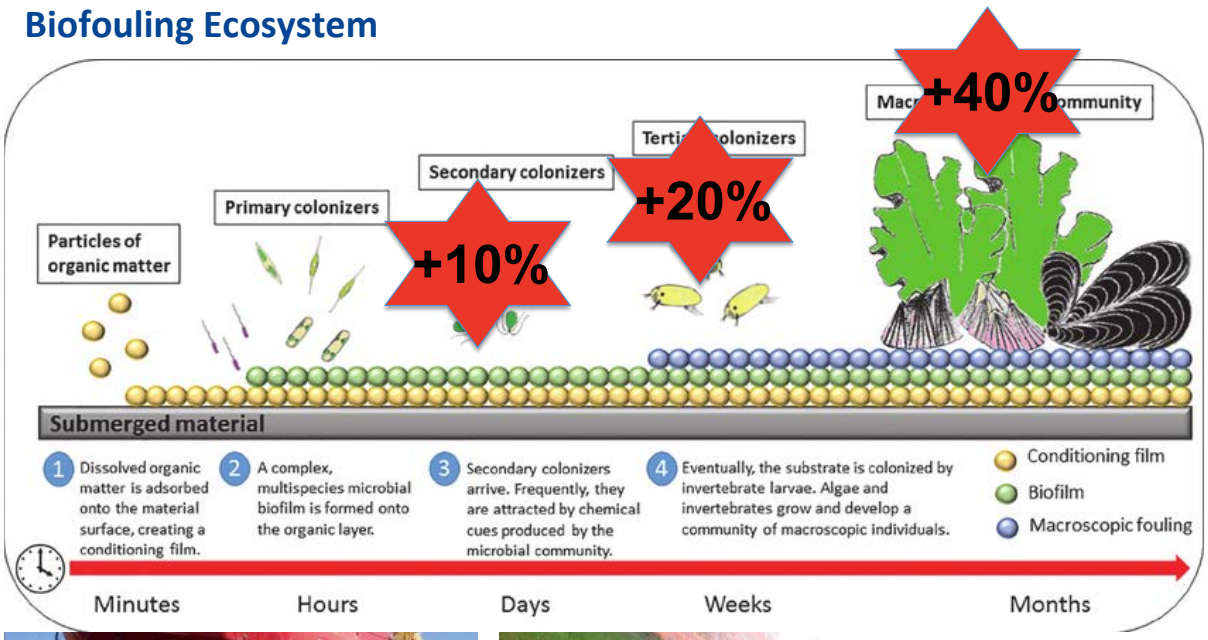
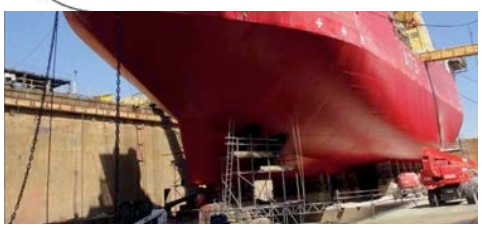
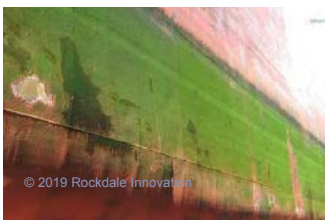
Biofouling Ecosystem

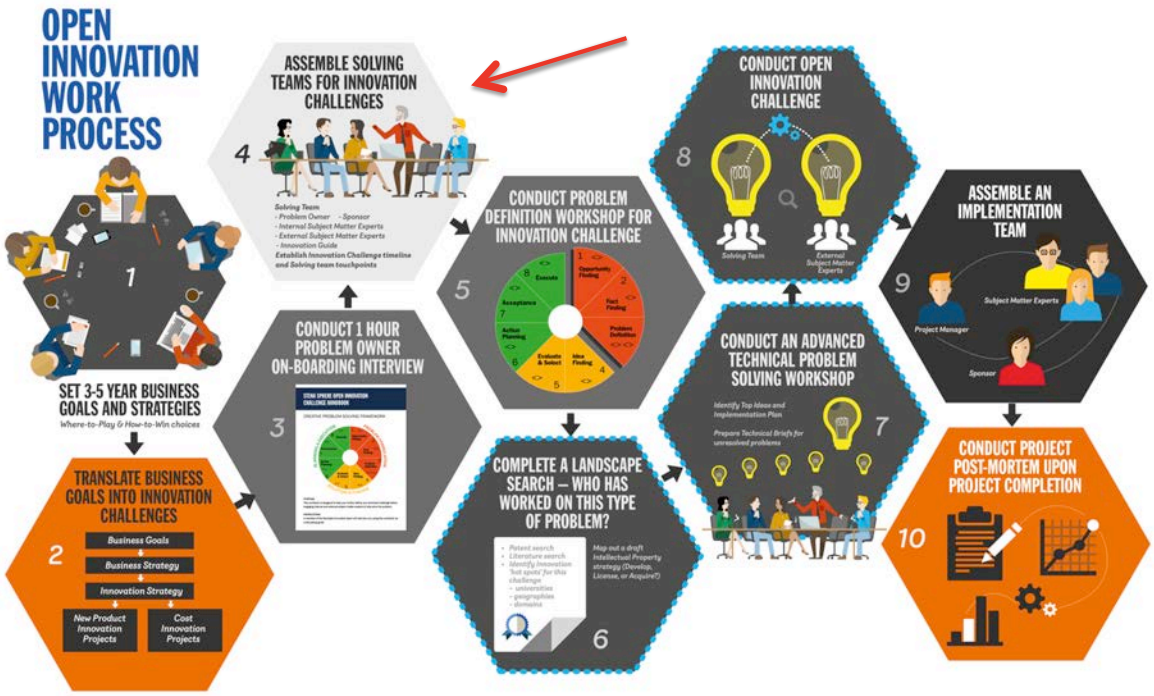


Biofouling Ecosystem









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Stena Biofouling Solving Team

Team members

- Henrik – Technical Manager, problem owner
- Harry – Technical Director, sponsor
- Alan - Innovation Director
- Wayne – Innovation Guide
- Stena subject matter experts
- Lena – marine biologist at local university

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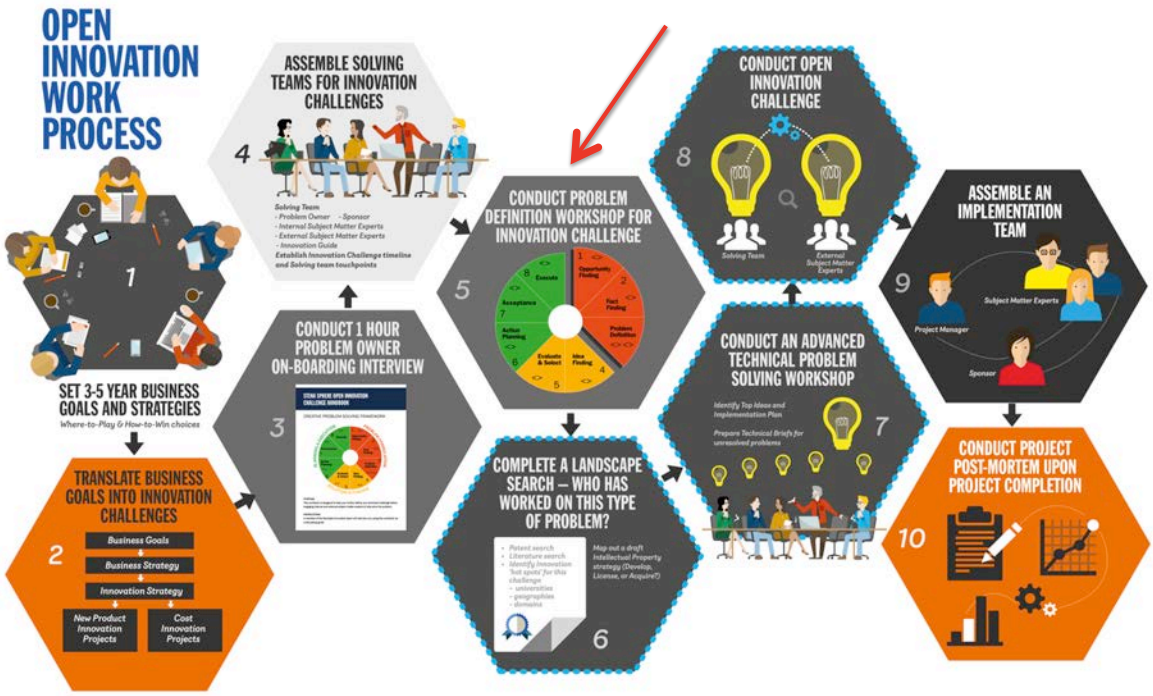

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PROBLEM DEFINTION WORKSHOP - AGENDA

Welcome/Agenda/Objectives

- Introductions

Open Innovation approach

- Creative problem solving process
- Solving team roles & responsibilities

Background on the problem

- Financial losses due to biofouling
- Current suppliers and research partners
- Proposed solution approaches (industry, academia)
- Known challenges and potential future challenges

Effective Problem Definition

- Key barriers and why-why-why analysis
- Nine windows analysis
- Ideal final result

Preparation of technical briefs.

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Workshop output – Three Technical Briefs

After fully exploring the root causes of ship hull biofouling, draft Technical Briefs were prepared for three potential solution approaches:

1. **Automatic continuous ship hull cleaner**
2. **Constantly changing paint surface**
3. **Signal emitting non-toxic anti-fouling hull coating**

Landscaping Process

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Technical Brief – Automatic Continuous Ship Hull Cleaning

We are seeking novel approaches to keep a ship's hull continuously clean of marine organisms (prevent and/or continuously remove biofouling).

Background:

The companies comprising the Swedish-based Stena Sphere represent the largest private shipping group in the world. We are seeking solutions that can be applied to cargo and passenger ships that travel in all of the world's oceans.

Biofouling is a natural process that occurs with any structure placed in contact with water where there is the presence of marine micro-organisms. This problem has plagued shipping since the days of the Phoenicians. It begins immediately after the object is placed in the sea, by the adhesion of organic substances and materials dissolved in water, developing in 4 stages with the growth of marine macro-organisms such as algae, barnacles and mussels. Growth of marine organisms is most prolific in warm shallow waters and when at anchor.

Routes to Consider:

Stena is interested in solutions that go beyond the marine biocide and release paint/coatings currently available or under development today. Stena is seeking alternative approaches that are longer-lasting while being more environmentally benign.

We are especially interested in durable solutions that may incorporate Light, Sound, Vibration, Aeration, Electro, Mechanical, or other means that can serve as a replacement to or in conjunction with traditional coatings.

Impact:

The expense relating to fuel in the shipping industry is up to 50% of the total cost of operation for long-haul ocean going vessels. Studies have shown that marine growth on a heavily bio fouled hull can increase the power requirements by more than 40%, as compared to a newly coated smooth hull.

Evaluation Criteria:

1. **Technical Viability**-- Solutions proposed must be based on sound scientific principles and have laboratory or marine data that demonstrate efficacy. Solutions with in-situ data have more value.
2. **Scale up Potential**—Solutions proposed must have a clear pathway to be commercialized on ships. Solutions already in marine markets have higher value.
3. **Costs**—lower installation and operating costs (including labour) have higher value.
4. **Durability**—Solutions that offer longer durability than today's coatings have higher value.
5. **Ownership**—Solutions covered by patents have higher value. At a minimum solutions must show they are not prohibited by other patents in the field.

Killer Issues:

Solutions will not be considered if, in Stena's opinion:
- Installation and operating costs would exceed today's paint/coatings.
- Durability is less than today's paint/coatings
- Proposals lack sufficient supporting laboratory or marine data
- Solutions don't adhere to global maritime environmental or safety regulations

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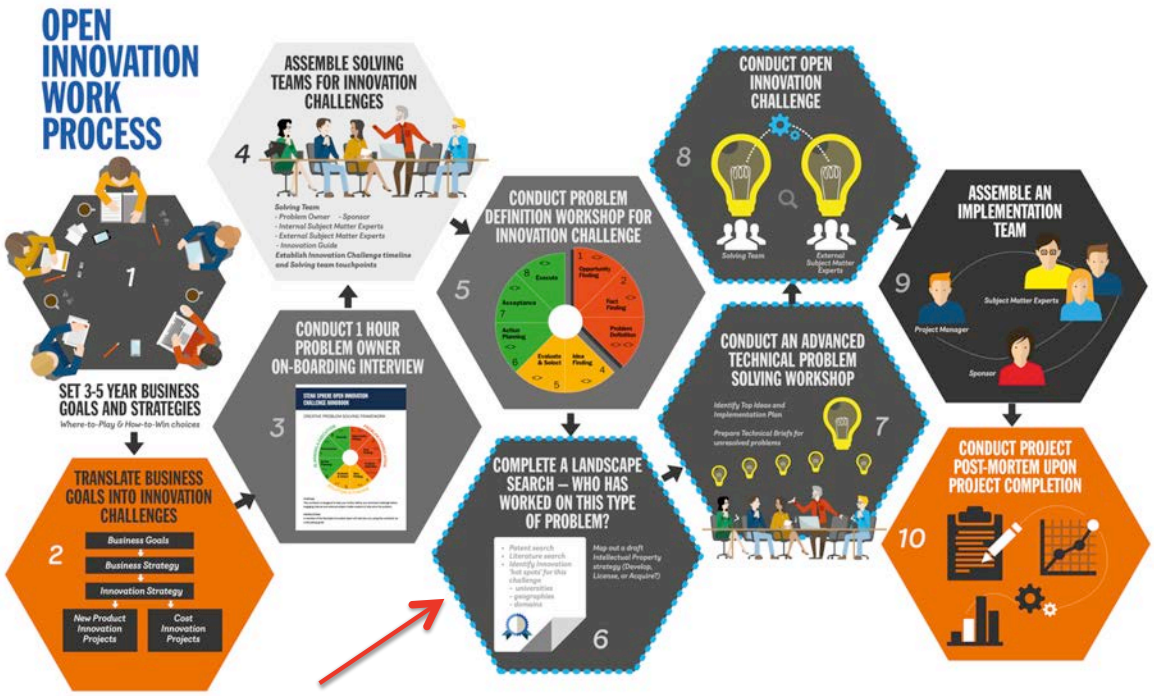

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Landscape Assessment - Results

<u>20+ Solution Providers identified, including:</u>

- **US Navy**
- **Philips Research**
- **SeaRobotics**
- **Ultrasonic Antifouling**
- **Efficient Sonics**

World-wide solution providers, across different industries

Working on alternative approaches for 20+ years

Solutions nearing commercial availability

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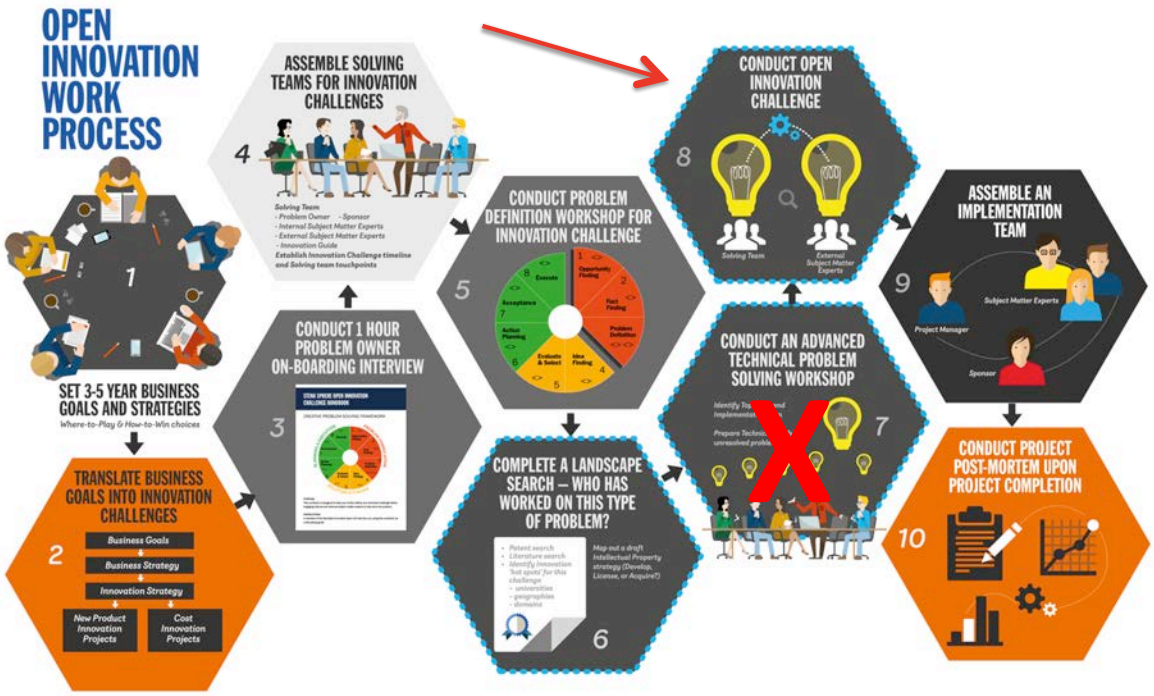

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Open Innovation Challenge - Approach

- Sent Technical Brief to most promising solution providers
- Conducted telephone interviews
- Rated each solution provider using standard evaluation criteria (sent to SME in advance)
- Follow-up site visit with highest rated solution providers
- Pilot underway with top candidate

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Example Evaluation Report

Evaluation Criteria:

Technical Viability: 4
Extensive static and dynamic testing underway with university partners to evaluate cleaning efficacy and coating damage. Working prototypes have been built to demonstrate proof-of-principle for maintaining contact with ship hull with sufficient force for cleaning and grooming. Filtration technology is being developed as mandated by environmental regulations (cleaning at port).

Scale up Potential: 4
Full-size prototypes have been built but not field tested to demonstrate cleaning efficacy in field conditions.

Costs: 4
Conservative estimates on fuel savings (10%) should provide ample cash flow to cover capital, operating, and maintenance costs for the device. However, SeaRobotics should conduct a proper NPV sensitivity analysis as an important next step.

Durability: 5
The device is designed to work with existing coating systems or enable longer-lasting coating systems..

Ownership: 5
SeaRobotics either owns or has freedom to practice this technology (from US Navy).

Partnership Opportunities:
- Field testing of demonstration units to provide quantitative estimates of fuel savings and operational feedback
- Investment in continuous cleaning systems for ships in motion

Watch-outs/Concerns:
- Will the rapid port turn-around times provide enough time to mount the unit and clean a sizeable section of the hull

Next Steps:
- Alan to provide diagrams of ship hulls for a variety of Stena ferries and freight ships

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Problem Owner Testimonial

"With a clearly defined problem the landscaping process takes you on a journey that reveals how different technologies are used for other purposes. You may find what you look for or something totally different and unexpected"

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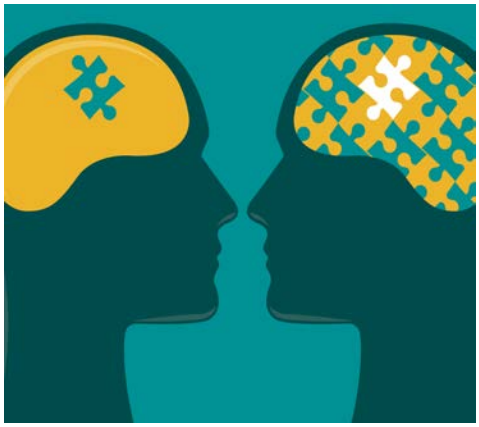
OPEN INNOVATION SOLVING COMMUNITIES
FIVE DISTINCT APPROACHES TO PROBLEM SOLVING



One defintion of Open Innovation is the active involvement of external Subject Matter Experts in the Creative Problem Solving process. We review here four powerful ways to identify and engage these experts.

Which approach is right to solve your Open Innovation Challenge?

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CROWDSOURCING

Crowdsourcing OI Service Providers contribute to problem solving by distributing well defined problem statements, or Technical Brief, to a broad range of Subject Matter Experts. NineSigma curates the world's largest solving community, with over 2 million registered Solvers.

The typical work process for Crowdsourcing:

- The OI Problem Owner is completely responsible for clearly defining the OI Challenge and preparing a clearly articulated Technical Brief.
- The Solution Provider posts the Technical Brief anominously to its Solving Community and shares any ideas with the Problem Owner.
- At the end of the Challenge period, the Problem Owner selects the best idea and the Solution Provider makes "introductions".
- The Problem Owner is completely responsible for any follow-up consultation agreement with the Solution Provider.

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NETWORKS OF NETWORKERS (MAVENS)

Networking organizations contribute to problem solving by actively soliciting a broad range of OI Challenges from regional employers and enlisting targeted Subject Matter Experts from their network to encourage collaboration, accelerate problem solving, and identify commercially relevant research opportunities.

The typical work process includes:

- The OI Problem Owner begins by defining the OI Challenge and preparing a clearly articulated Technical Brief.
- The Networking group aggregates the Technical Briefs and distributes to relevant SMEs in the region.
- The Networking group makes introductions and encourages the Problem Owner and SME to establish a dialog for their mutual benefit.

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EXPERT AGGREGATORS

Expert Aggregator OI Service Providers contribute to problem solving by enlisting targeted Subject Matter Experts from their network to engage in (typically) face-to-face technical problem solving workshops.

The typical work process includes:

- The OI Problem Owner begins by defining the OI Challenge and preparing a clearly articulated Technical Brief.
- The Solution Provider works with the Problem Owner to refine the Technical Brief and identify the most important areas of SME needed to address the Challenge.
- The Solution Provider recruites the necessary SMEs and facilitates a technical problem solving workshop.
- The Problem Owner evaluates the solutions offered and arranges for any follow-up consultation agreement with the relevant SMEs.

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CONNECT WITH EXPERTS

Need to connect with a subject matter expert for an hour, a day, or a week?

YourEncore was founded as a collaboration between Procter & Gamble, Eli Lily, and Boeing Corporation. YE has a network of 11,000 experts, mostly with advance degrees, that can be contracted on a short-term basis for consulting or hands-on problem solving.

AlphaSights, based in the UK, helps organizations get up to speed in a new technology/business and establish industry best practices by assembling a variety of experts for one-hour interviews.

The typical work process includes:

- The OI Problem Owner begins by defining the OI Challenge and preparing a clearly articulated Technical Brief.
- The Solution Provider supplies the Problem Owner with a list of resumes to review.
- The Solution Provider establish short-term contracts with the experts invoices the Problem Owner, and pays a portion of the revenues to the experts for their time.

yourencore®

AlphaSights

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TURNKEY SOLUTION PROVIDERS

Turnkey Solution Providers contribute to problem solving by assembling a problem solving team from their own employee base and/or external networks to generate solutions and conduct proof-of-principle testing of the top ideas.

The typical work process includes:

- The OI Problem Owner begins by defining the OI Challenge and preparing a clearly articulated Technical Brief.
- The Solution Provider works with the Problem Owner to refine the Technical Brief and immerse the Solving Team in the OI Challenge.
- The Solving Team generates a broad range of solution approaches and conducts a thorough Option Analysis of the top ideas.
- The Solving Team conducts proof-of-principle testing of the lead idea(s) This could include rapid prototyping and usability testing, modeling and simulation, and Should Cost analysis for manufacturing.

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OPEN INNOVATION CHALLENGE WORKBOOK

OPEN INNOVATION CHALLENGE
PROBLEM OWNER WORKBOOK

Purpose:

This workbook is designed to help you better define your technical challenge before engaging internal and external subject matter experts to help solve the problem.

The prompts on the following pages that follow focus on the Problem Formulation phase of the Creative Problem Solving framework. In our April meeting, we will use this background information to prepare a Technical Brief and conduct a preliminary Landscape Assessment for your challenge. This work has been found to be invaluable to a conducting a successful Open Innovation Challenge.

Instructions:

In order to better prepare for our Cohort meeting in April, please take a few minutes to outline an important challenge for your organization that would lend itself to the Open Innovation work process. When complete, forward an electronic copy to wayne@rockdale-innovation.com

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Using the OI Challenge Workbook

- The workbook is designed to be used in an interview format. Typically, an Open Innovation Guide is interviewing a Problem Owner.
- If you are the Problem Owner, have a colleague interview you.
- It is often possible to prepare a draft Technical Brief and begin preliminary Landscaping immediately.
- For more a more complex or poorly defined Challenge, use the workbook to identify potential participants for a Problem Definition workshop.

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