

Stimulating Collaborative Innovation in Product Development and Manufacturing: Using the SynNovation Approach

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Abstract

Manufacturers need to become more innovative as markets constantly change due to influences including customer preferences, logistics, environmental and safety considerations, technology, competition, and legislation. They also need to ensure cost effectiveness and minimise waste in the supply chain. After decades of protection, international competitive pressures are forcing South African industries to become more innovative regarding both products and processes. SynNovation has adapted the world-renowned Syntectics process, and works with firms to develop creative, practical solutions with high levels of buy-in. The approach includes:

- Facilitated innovation sessions, sometimes with customers and / or suppliers, to develop shared solutions and action plans
- Training key people in the process, to act as “innovation champions”
- Creating opportunities to problem-solve together and learn from one another’s successes.

The process works in any situation where new thinking is required. It also promotes interpersonal and inter-group collaboration, and helps ensure efficiency and optimal solutions to customers. Key principles of the process will be discussed, and examples given of applications in various industries.

Keywords

Innovation, Creativity, Collaboration

1 INTRODUCTION

Manufacturers world-wide, and more so in South Africa, have to become increasingly more innovative and adaptable as markets constantly change due to various influences including customer and consumer demands, logistics, environmental demands, safety considerations, technology, supply factors, growing local and international competition, and legislation. They also need to ensure maximum cost effectiveness and minimise waste in the supply chain. In South Africa geographic distances and diversity in customers also need to be considered.

SynNovation, a consulting group that has adapted the world-renowned Syntectics process for use in South Africa, works with several firms to develop creative and practical solutions with high levels of buy-in.

The UK Department of Trade and Industry has defined innovation as “the successful exploitation of new ideas”. Syntectics pioneer Vince Nolan [1] says this **definition** “... leaves a great deal unsaid – it’s the tip of the iceberg. It’s as if you were to define *reproduction* as ‘the birth of healthy babies’, which, while accurate, also leaves out a lot – the exhilaration of the conception process (including the unsuccessful attempts), the nurturing and monitoring of the incubation process, and the upheaval and pain of the delivery process.” For the purpose of this paper we regard it as people – individuals or groups – doing new things, or doing things differently from what they have done before, including risks that new ideas may or may not work, and taking them as far as the delivery process. In

manufacturing, this could mainly involve product and process innovations – although new ways of handling people and systems could also apply.

Many people view only radical break-throughs that cause big changes or disruption as innovation (from Gutenberg’s printing press to cellphones); yet some equally valuable innovations are incremental, and occur as a series of small adaptations – true continuous improvement. Many break-thoughts also occur when different technologies are combined in novel ways: in the above two examples combining coin punches and the wine press to enable printing; and merging telephony and radio. And then the further combination of cellphones and computers as in the Nokia Communicator!

2 OVERVIEW OF SYNNOVATION APPROACH

The Syntectics approach, developed in Boston, US, has been used successfully worldwide to facilitate innovation since 1960, and since 1996 also in South Africa. The SynNovation group has adapted the approach for local use. It consists mainly of a way to create a climate in which it is easy for people to come up with novel ideas, a set of groundrules to achieve this, a powerful yet flexible task-tackling process, and a number of techniques that promote not only creativity, but also practical action plans and effective, collaborative implementation.

2.1 Key aspects of the process

2.1.1 The power of diversity

The name of the international firm and of the process – from the Greek words *syn* and *ectics* – means “bringing together diversity”. For problem solving we bring together people who provide different perspectives, and suggest a wide range of possible solutions. People close to a problem are often like someone in a hole: the more they grapple with the task, the deeper they dig themselves into the hole, the more aware they are of what “can’t work”. Outsiders are valuable resources (outside the hole) who can see new solutions or possibilities (passing a rope-ladder into the hole). So for innovation, outside experts, customers, suppliers, people from other departments, or even outsiders who are “naïve” regarding the problem in hand, can provide valuable fresh approaches and insights.

2.1.2 Creating a collaborative – not competitive – climate

In many groups, people are competitive, and shoot down one another’s ideas. In many firms, challenging others’ ideas is part of business culture, and is often believed to be the best way to “test” how good an idea is. “If you can’t shoot it down, it must be a good idea”. However, this often results in more energy and time going into point-scoring and protecting turf, than into problem-solving. In our workshops, participants learn to credit one another’s ideas and build on them, using ground rules that promote co-operation and mutual support. In this open climate, people have fun while producing rich new ideas. Usually, people take this new way of working back to the office, as it is both enjoyable and effective – and saves a lot of time and energy.

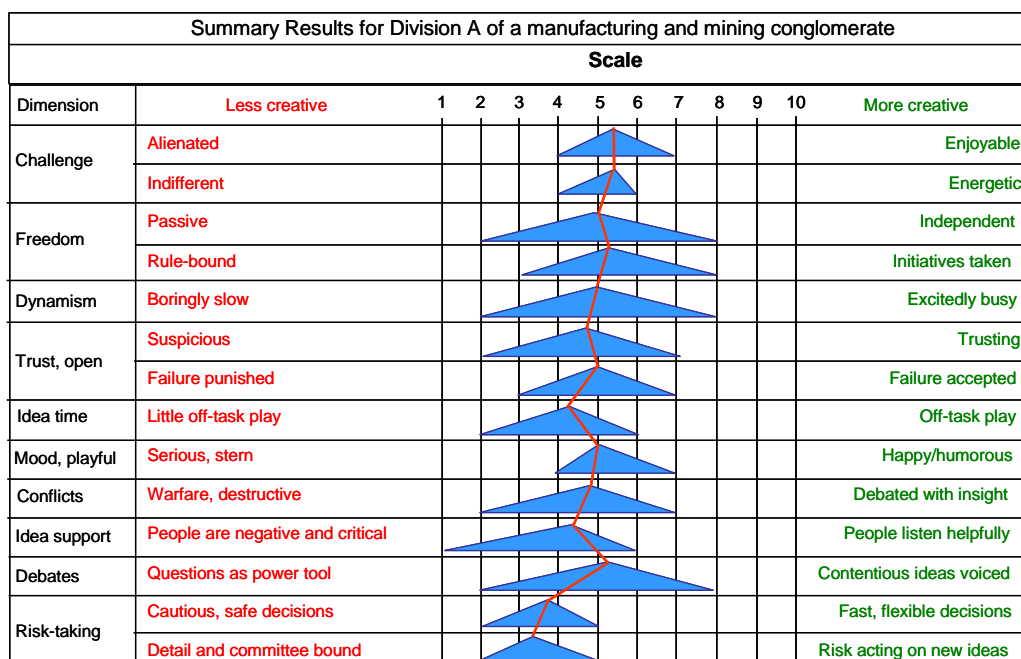
When the Synectics process was developed [2], the

founders discovered that some “positive” behaviours (being optimistic, joining, listening, setting up win-wins, valuing the learning in mistakes, protecting vulnerable beginnings) increase the chances of collaboration and successful innovation. However, other behaviours (such as being judgemental, critical, bored, dominant, competitive, or pulling rank, discounting, putting down, cross-examining, questioning) get in the way of innovation. Someone recently described the latter behaviours as “...unfortunately the default behaviour of many South African managers”.

Research done by Göran Ekvall [3] in various industries in Sweden and the United States confirms the need for the right climate to stimulate innovation. Using his Creative Climate Questionnaire he identified various dimensions – including challenge, freedom, idea support, idea time, trust, dynamism, risk-taking and playfulness – that were strongly evident in highly innovative divisions or firms, while scores on these dimensions were usually lower in “average”, and very low in “stagnated” companies.

Ekvall [4] identified four profiles of value orientations in companies, and how these relate to idea-management, ranging from Type A: *Bureaucratic with an authoritarian face*, Type B: *Bureaucratic with a human face*, Type C: *Entrepreneurial*, to Type D: *Culture of relations and co-operation*. He says, “In Type D we have no doubt the best conditions for a successful idea-handling system, one that brings forth both improvements and new concepts.”

In a recent workshop on innovation, the author asked 40 executives from a large manufacturing and mining conglomerate to rate their firms on a scale of 1 to 10, in terms of the key Ekvall dimensions. Figure 1 shows the results for one of the groups.



Based on the work of G Ekvall, The organizational culture of idea management

Figure 1. Dimensions of Climate that inhibit or promote Innovation and Creativity

The apex of each triangle denotes the mean rating, and the ends the extreme values. The differences show that even in one division, the perceived culture can vary widely. Reasons could include the respondent's own position, behaviour and attitudes, leadership styles of key people, the corporate setup, functional speciality, nature of business, size of firm or workgroup, and corporate, ethnic or country culture. However, dimensions that got ratings of 4 or lower on the mean, and much lower by individuals in one or several divisional groups, include Idea time (little off-task play), Risk-taking, Freedom (rule-bound), Trust and openness (Suspicious), and Idea Support (people negative, critical).

2.1.3 Groundrules that support a creative climate

The SynNovation process incorporates a number of groundrules that help to establish new ways of relating and working together, and facilitate the flow and quality of creative ideas.

A ground-rule that helps to build trust is "Assume positive intent". Usually we don't know whether others mean what they say or do positively, or negatively. Unsure, particularly if we are coming up with new or untested ideas, if we are working in a competitive, critical climate, or if we have previously been criticised – we tend to assume negative intent. We easily become defensive and counter-attack, or shoot down the other person's ideas. In this way the relationship spirals downwards. Yet if we assume others' intentions are positive (give them the benefit of doubt), the effect on us, and thus our response, can become positive. Thus we build co-operative relationships – even if things were initially negative. Although this may seem a bit optimistic or naïve, it is an amazingly effective approach. We have seen it work – even with known "difficult" persons, or in situations where there were very high conflict levels. It helps to create a climate of collaboration, in which people feel free to come up with way-out ideas, and where people credit, build on, support and enrich one another's suggestions.

Other groundrules include new ways to "listen for ideas" by noting loose thoughts and associations, "speak for easy listening" to promote a rapid flow of ideas, sharing airtime to ensure all contribute, and suspending judgement of others', and one's own, ideas while generating ideas or "brain-storming".

2.1.4 Being open-minded

Most people were brought up to be critical of others' – and their own – ideas. To become creative, we must learn to play with ideas. Even ridiculous, illegal, wild, impossible suggestions can be used as stepping-stones or "spring-boards" to other ideas, refined and developed until they become practical, do-able solutions. Often the ideas that lead to real break-throughs start out as way-out or "crazy" ideas. To quote Albert Einstein "If at first an idea is not absurd, there is no hope for it."

2.1.5 The innovative problem-solving process

After starting with a brief task statement by the task-owner, the process we use has three main stages :

- **Idea Generation** – open-minded exploration of any thoughts / wishes / associations / beginning ideas / "springboards" that open up the task, and suggest starting points for possible solutions. We use a variety of techniques and "excursions" to encourage novel ideas in this phase.
- **Selection** – the "task-owner" or "client" selects from suggestions, based on *intrigue* and *promise* rather than *feasibility*, to explore the most creative ideas, that will produce valuable break-throughs if we can find a way to make them work. Selecting on feasibility, as often happens in many brainstorming sessions, defeats the whole purpose of the exercise. If an idea is immediately feasible, it is unlikely to be new.
- **Idea Development** – the group helps the task-owner to overcome concerns and obstacles, to make "intriguing" ideas feasible. The benefit of the group having worked with the problem-owner to develop and refine the selected idea/s is that they also have ownership of the solutions, and work together enthusiastically to implement them – even if their own ideas were not chosen from the many ideas that emerged from the first stage.

All too often, traditional brain-storming or "creativity work" is fun, but doesn't lead to tangible results. However, we guide clients to ensure that promising ideas, that can make a difference, are turned into action plans, with responsibilities and deadlines allocated. Practical actions suggested in the idea development phase (and possibly some earlier suggestions from "idea generation") give task-owners a range of actions from which they can choose, to draw up an action plan. This ensures that we move forward from mere creativity to ensure implementation of innovations – new products or improved processes and systems – that lead to real bottom-line benefits.

3 USING THE APPROACH IN BUSINESS

The approach can be applied to a wide range of tasks in business. Practical examples follow later, but ways to use it include:

- Facilitated innovation sessions, in-house, or with a mix of company staff and customers, consumers and / or suppliers, or even naive outsiders, to develop new strategies and products, with shared solutions and action plans
- Training key people in the firm in SynNovation, to act as "Innovation champions" and work on innovations with colleagues, alongside outside consultants; this training also helps to create an innovation-friendly culture
- Creating opportunities for people trained in the process at various levels, to work together on problem-solving and to learn from one another's success stories

- Using the process as a tool for change or conflict management, and / or to build team effectiveness.

SynNovation works in any situation where new thinking is required. In a diverse company, it can be invaluable in promoting both better interpersonal relations, and collaboration between different groups or divisions. It also helps ensure efficiency and quality improvements, as well as optimal products and services to customers. And it provides firms with opportunities to “borrow” and adapt ideas that have worked in other companies or industries.

3.1 Examples of successful applications in manufacturing, operations and logistics

We list “headlines” of a few examples from various manufacturing firms, where the approach has been used in production and supply chain related tasks.

- How to restore the quality of instant dry yeast
- How can we better manage the issuing of instrumentation spares, in terms of budgets and controls
- How to manage the logistics of importing bakery enzymes and their delivery to customers country-wide (MRP development)
- How can we achieve synergy between different departments working on projects where they have shared interests
- How to improve efficiencies and quality in the value chain by involving relevant suppliers
- How to reduce the huge losses caused by the scuffing of wine bottles during transport
- How to develop a new, better name for our “Continuous Improvement and Innovation Committee”
- How to simplify systems and procedures that could block effective service delivery.
- How to overcome technical problems so that we can deliver at least the same quality as our competitors, with a very lucrative product

3.2 Examples of successful applications in product development and marketing

Below are task headlines of a few examples, where the approach has been used for product development or marketing in manufacturing firms.

- How to develop a new approach to the marketing of DDDDD (“our new state-of-the-art product”), while minimising potential conflict between the new product and competing existing products
- How to select from our entire range of potential services, the few new add-on products / services that will offer the most strategic benefit – for further development
- How can we communicate and collaborate more effectively within and between our two large organisations, to achieve innovation as a

strategic imperative in both companies (two major manufacturers, in food and packaging)

- How to ensure that in our product development we capitalise on the most important local and international consumer trends
- How can XXXX make your lifestyle easier and more fun for you and your family
- How to create a range of products that caters for families of various sizes and cultures
- How can Sales, Marketing, R & D, Production and Packaging work together throughout the development process, to help ensure the successful launch of new products
- How to market R&D services more effectively within our company.

3.3 Examples of applications in strategic and other areas in manufacturing firms

The next examples relate to use of the process to address other issues in manufacturing firms.

- How to establish an ongoing programme to build the identity and internal culture of our firm
- How can we establish communication within BBBB as a critical strategic and indispensable management activity
- How to create a climate in our division in which innovation will flourish
- How to ensure that all staff working in our call centre are well informed and project professionalism and enthusiasm
- How can the HR Division help to increase the general level of Interpersonal Intelligence (“emotional intelligence”) in our firm
- How to build trust, mutual understanding and commitment to shared action plans between different parts of our firm
- How can we persuade staff to come forward for HIV testing, and to declare their status if positive, so that they can benefit from treatment.

4 WHY IS INNOVATION IMPORTANT?

4.1 Evidence from the United States

Synectics did a survey on creativity and innovation in 150 major US corporations in 1993. [5] They identified three levels of performance in terms of innovation, and called them

- Stars ☆ – that had both adopted the practices and policies of innovation, and created a culture in which in which innovation was integrated into their operations. About one third of companies surveyed had “star potential”.
- Seekers (Se) ● – that displayed many of the right innovation techniques, but innovation was not yet a deeply held value, or seen as powerful in profit strategies.

- Spectators (Sp) 👁 – that had adopted few of the proven innovation practices and techniques, and were far from building innovation into their overall success.

The Stars consistently scored better than the other two groups on key performance variables:

Measurements in terms of key performance variables	Sp 👁	Se 💡	Star ★
Mean increase in sales over last year (%)	5,7	9,1	10,8
Mean increase in profits over last year (%)	14	56	51
Mean rating employee satisfaction and morale (1-5 scale)	2,6	3,0	3,5
Mean rating employee retention vs. overall industry (1-5)	3,4	3,7	3,9
Mean rating product / service quality over past year (1-5)	3,4	3,8	4,1
Percentage reporting increase in market share over past year	27	43	59

Table 1. Achieving on key performance variables

While 80% of those surveyed said innovation was important to their success, only 4% said they were excellent at making it happen. The study identified five reasons why many companies were not as good as they would like to be, at innovation:

1. Executives compete, rather than cooperate, with each other
2. They don't work together as cross-functional teams
3. They don't have productive meetings that lead to innovative results
4. They lack formal innovation programmes and techniques
5. They are unwilling to seriously consider outside or fresh perspectives.

In contrast, the "Stars" generally followed the following strategies:

1. Institute formal innovation programmes that include shared creative problem-solving, a dedicated innovation budget, designated facilitators for idea generation, and innovation rewards for both teams and individuals
2. Seek ideas and new approaches from outside sources, including competitors, customers and successful companies in other industries
3. Foster teamwork and communication by bridging communication barriers between different functions, encouraging cross-functional teamwork, reducing the "turf" mentality, and providing ample, constructive feedback.

4. Make meetings more productive by setting specific goals for meetings, focussing on producing innovative results, and soliciting different perspectives.
5. The CEOs are heavily involved in innovation and view it as critical to their long-term success.
6. Invest increasingly in R&D and innovation.

4.2 A study on innovation in a major South African manufacturer

SynNovation conducted a study in a major South African manufacturer in 2002, to establish the perceptions and attitudes of key sales and marketing staff in three main "product clusters" regarding innovation in the company, and to glean ideas on how the company could develop its innovation capacity. While the company regards innovation as strategically important, and is viewed as fairly successful at innovation, respondents in some clusters rated its success at innovation considerably lower than in others. From our experience, these findings would probably hold good for many South African companies that strive to be innovative.

4.2.1 Concerns expressed

- We are followers, not leaders, reactive rather than proactive
- There are many good ideas, but we do not know how to follow through and implement them
- The decision chain is too long, too centralised, and decision criteria for innovations are too bottom-line driven, with too short a payback time demanded
- People are under a lot of pressure. There is little time, space, energy available for innovative thought, or to make the investment of time and effort that implementation requires.

4.2.2 Sources of ideas for innovation

Both in the company as a whole and in divisions or regions – customers, including retail and end consumers, and their needs, requirements, demands are the main triggers for innovation

Sales staff often see innovation opportunities, for example to cut costs to benefit both the firm and the customer.

The firm needs to find ways to work with all involved in the supply chain – from suppliers to end consumers – to initiate innovation.

5 RECOMMENDATIONS AND CONCLUSION

We conclude with a few general recommendations for manufacturing firms that wish to gain both strategic advantage and operational efficiency through innovation.

- Top management must clarify and communicate the company's strategic position regarding innovation, and commit appropriate support and resources. This will include helping to create a

climate of open-mindedness which is essential if creativity and innovation are to flourish.

- Formulate a clear and comprehensive definition of innovation, and distinguish between copying, strategic alliances through licensing, adaptive / incremental innovation, and break-through / radical innovation. All of these have a valid place in an innovation programme. While people often think mainly of new products or production processes when talking innovation, the approach should be inclusive, and involve all aspects of business, such as finance, service raw material sourcing, marketing, sales, people management, and communication.
- Budget adequate funding, time and resources for innovation, also recognising the inherent risks, and allowing for the inevitable failure of some innovation initiatives.
- Proactively involve customers and consumers in a shared innovation process, as a major source of innovative ideas – rather than waiting for requests, to which the firm then “reacts”.
- Select enough individuals in divisions and in R&D who are interested in innovation, equip them with the necessary skills and an effective process. Let them work with outside facilitators when appropriate, and dedicate some time to collaborate on innovation with like-minded others, and help “task-owners” who need new approaches, to turn ideas into practical action and profitable innovation.
- Institute formal channels to communicate across and within divisions, and among different functions, regarding innovation. Sharing information on problems experienced or solved, ideas being developed, innovation successes, and awards or recognition received can do much to foster an innovative mindset. Get-togethers to share ideas, or bringing in colleagues from other divisions to provide fresh perspectives and help in creative problem-solving can bring great benefits.
- Ensure R&D has enough budget, time and resources to pay attention to innovation, so that they can balance the inevitable demands of problem-solving and trouble-shooting with real development and innovation.
- Establish a central database where people can post ideas, challenges and successes, search for solutions, and find information on local and overseas developments in relevant fields. People who have been overseas or attended conferences can be asked to share brief reports on what they think could be of value to others in the firm. More effective communication of such info could be a relatively low-cost, and quick way to stimulate shared learning and innovation.

Even if all these recommendations cannot be implemented simultaneously, a conscious attempt to

place innovation centrally in the minds of all staff can do much to improve the success of manufacturing companies. Returns on investment in innovations in both products and processes go far beyond efficiency and profitability – to affect the mindset of all involved, and to create a culture of pride, excitement and continuous improvement.

6 REFERENCES

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7 BIOGRAPHY



Truida Prekel is a management consultant specialising in creative problem-solving, innovation and change management – mainly using SynNovation, a South African adaptation of the internationally renowned Synectics process. Other areas of work are management of gender and diversity, team effectiveness, inter-cultural communication, and personal and career development of individuals, particularly women and people of colour.

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