

Economics of Innovation

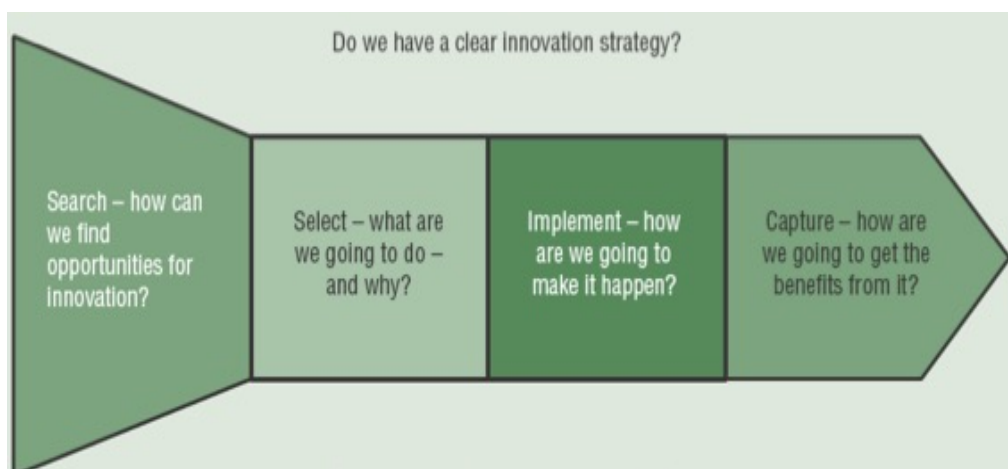
Topic 2 Building an innovative organization

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Slides are taken/adapted from:

J. Tidd, J. Bessant and K. Pavitt, *Managing Innovation. Integrating Technological, Market and Organizational Change*
John Wiley & Sons Ltd, 2018

Managing innovation



<https://www.youtube.com/watch?v=qxmookUeLJc>

Key stages in the process

- Searching for trigger ideas.
- Selecting from the possibilities the one we are going to follow through.
- Acquiring the resources to make it happen.
- Developing the idea from initial 'gleam in the eye' to a fully-developed reality.
- Managing its diffusion and take up in our chosen market.
- Capturing value from the process.

Key questions about how we manage innovation

- Do we search as well as we could?
- How well do we manage the selection and resource acquisition process?
- How well do we implement?
- Do we capture value? Improve our technical and market knowledge for next time? Generate and protect the gains so they are sustainable?
- Do we learn from experience? How do we capture this learning and feed it back into the next time?

Different versions of the core process model

- For a start-up entrepreneur the 'search' stage is often called 'opportunity recognition' – but once they have spotted something they think they can exploit the challenge is of making it happen. They have to acquire resources making various pitches to get backing and buy-in.

Then they have to develop the venture and finally launch it into their chosen marketplace and capture the rewards and also the learning to allow them to do it again.

Different versions of the process model (continued)

- For a new product development team in a company it is about searching for ideas (maybe in the R&D lab, maybe via customer survey, maybe some combination of both). Then they have to secure internal resources – pitching for backing against other competing projects from different teams. Then they manage the development process, bringing the product through various stages of prototyping and simultaneously developing the market and launch plans. Finally launch and, hopefully, widespread adoption – and capturing the gains in commercial terms but also in terms of what has been learned for next time.

Different versions of the process model (continued)

- For a public service team in a hospital the search may be for more efficient ways of delivering the service under resource constraints. Once again an individual or team has to convince others and secure resources and the permission to explore, they have to develop it and then diffuse it as a new method to an internal market of people in the service who will adopt the new way. And once again they capture value, in terms of efficiency improvement but also in learning.

Different versions of the core model (continued)

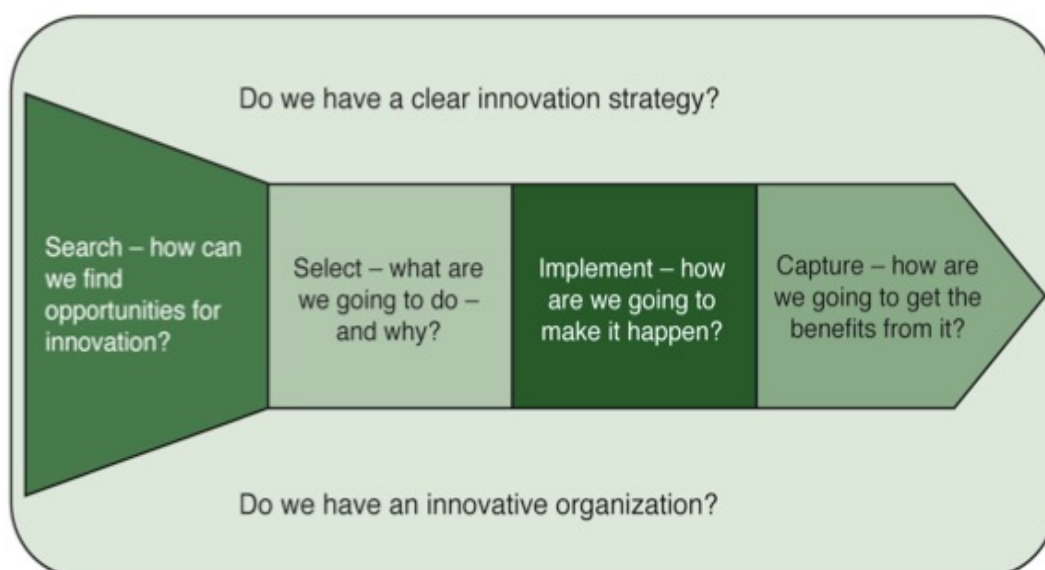
- For the social entrepreneur it is about finding a trigger need, then developing and sharing a vision around how to meet that need better. Securing support and buy in is followed by development, implementation and hopefully widespread adoption – and the value is captured in social improvements as well as learning.

Influences on the process

Innovation needs:

- Strategy;
- Innovative organization;
- Proactive linkages;
- Learning and improvement loop.

A model of the process



Why strategy?



Innovation is about change – but simply changing things randomly and in different directions is not likely to move the organization forward.

As the old saying has it, ‘if you don’t know where you are going, you’ll probably end up somewhere else!’.

So we need an innovation strategy, some kind of roadmap for guiding and shaping change and making sure we try and spend our limited resources as wisely as we can.

Strategy as a roadmap for change



Innovation strategy provides a **direction for change**, helping the organization get towards where it wants to go. It may not be a simple ‘master plan’ or the realization of the entrepreneur’s initial Business Plan; more likely it will adapt and change over time.

But it is a **guiding framework** which helps focus and deploy limited resources in change projects that move the organization forward. That’s important if the organization is to survive and grow over time.

What's in an innovation strategy?

1. Strategic analysis – what could we do?
2. Strategic selection – what are we going to do, and why?
3. Strategic implementation – how are we going to make it happen?

1. Strategic analysis



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- Where could we innovate?
 - Why would it be worth doing so?
 - Map the environment – technologies, competitors, markets, politics, etc.
 - Opportunities and threats?
 - Internal capabilities – strengths and weaknesses?

Tools to help strategic analysis

A comprehensive list:

http://www.innovation-portal.info/toolkits/innovation-fitness-test/?sort=task&term_id=113

PEST analysis <http://www.innovation-portal.info/toolkits/pest-analysis/>

Rich Pictures <http://www.innovation-portal.info/toolkits/rich-pictures/>

SWOT analysis <http://www.innovation-portal.info/toolkits/swot-analysis/>

Porter's 5 forces <http://www.innovation-portal.info/?s=five+forces>

2. Strategic selection

The issue here is choosing out of all the things we could do which ones we will do – and why? We have scarce resources so we need to place our bets carefully, balancing the risks and rewards across a portfolio of projects. There are plenty of tools to help us do this – from simple financial measures like payback time or return on investment through to complex frameworks which compare projects across many dimensions.

Decision matrix:

<http://www.innovation-portal.info/toolkits/decision-matrix/>

Checklists:

<http://www.innovation-portal.info/toolkits/checklists/>

Strategic competencies

We need to consider that we don't have completely free choice in innovation. We need to recognize that there is a degree of what is called '*path dependency*' – what we accumulate by way of knowledge and other resources shapes what we can – and can't – do. For example, if we see an opportunity for nuclear power as a new energy source this might be an interesting possibility – but pretty hard for us to achieve if we are in the business of ice cream selling! This 'resource-based' view looks from the inside out and suggests some of the ways in which we could deploy our particular strengths to advantage.

3. Strategic [planning for] implementation

The third stage in innovation strategy development is to plan for implementation. Thinking through what we are going to need and how we will get these resources, who we might need to partner with, what likely roadblocks might we find on the way – all of these questions feed into this step.

Tools for implementation planning

Failure Mode Effect Analysis - FMEA

<http://www.innovation-portal.info/wp-content/uploads/FMEA.pdf>

Potential problem analysis

<http://www.innovation-portal.info/wp-content/uploads/Potential-problem-analysis.pdf>

Scenarios

<http://www.innovation-portal.info/toolkits/scenarios/>

Business cases/canvas

<http://www.innovation-portal.info/wp-content/uploads/Business-model-canvas.pdf>

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Blue Ocean Strategy

Through innovation, companies can create new industries where competition does not exist (*blue ocean*)

... instead of fighting for positioning & market share in existing markets (*red ocean*)

This is the case with iPhone or Bla-bla car

Red ocean strategy	Blue ocean strategy
Compete in existing market space.	Create uncontested market space.
Beat the competition.	Make the competition irrelevant.
Exploit existing demand.	Create and capture new demand.
Make the value/cost trade-off.	Break the value/cost trade-off.
Align the whole system of a company's activities with its strategic choice of differentiation <i>or</i> low cost.	Align the whole system of a company's activities in pursuit of differentiation <i>and</i> low cost.

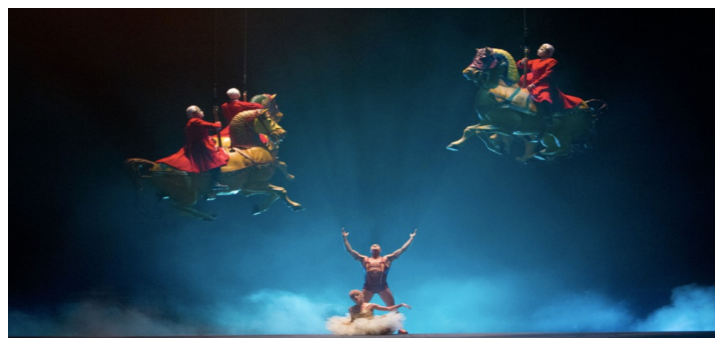
Past examples of Blue ocean strategies

Key blue ocean creations	Was the blue ocean created by a new entrant or an incumbent?	Was it driven by technology pioneering or value pioneering?	At the time of the blue ocean creation, was the industry attractive or unattractive?
Ford Model T Unveiled in 1908, the Model T was the first mass-produced car, priced so that many Americans could afford it.	New entrant	Value pioneering* (mostly existing technologies)	Unattractive
GM's "car for every purse and purpose" GM created a blue ocean in 1924 by injecting fun and fashion into the car.	Incumbent	Value pioneering (some new technologies)	Attractive
Japanese fuel-efficient autos Japanese automakers created a blue ocean in the mid-1970s with small, reliable lines of cars.	Incumbent	Value pioneering (some new technologies)	Unattractive
Chrysler minivan With its 1984 minivan, Chrysler created a new class of automobile that was as easy to use as a car but had the passenger space of a van.	Incumbent	Value pioneering (mostly existing technologies)	Unattractive

Source: W.C. Kim & R. Mauborgne, Blue Ocean Strategy, Harvard Business Review, October 2004

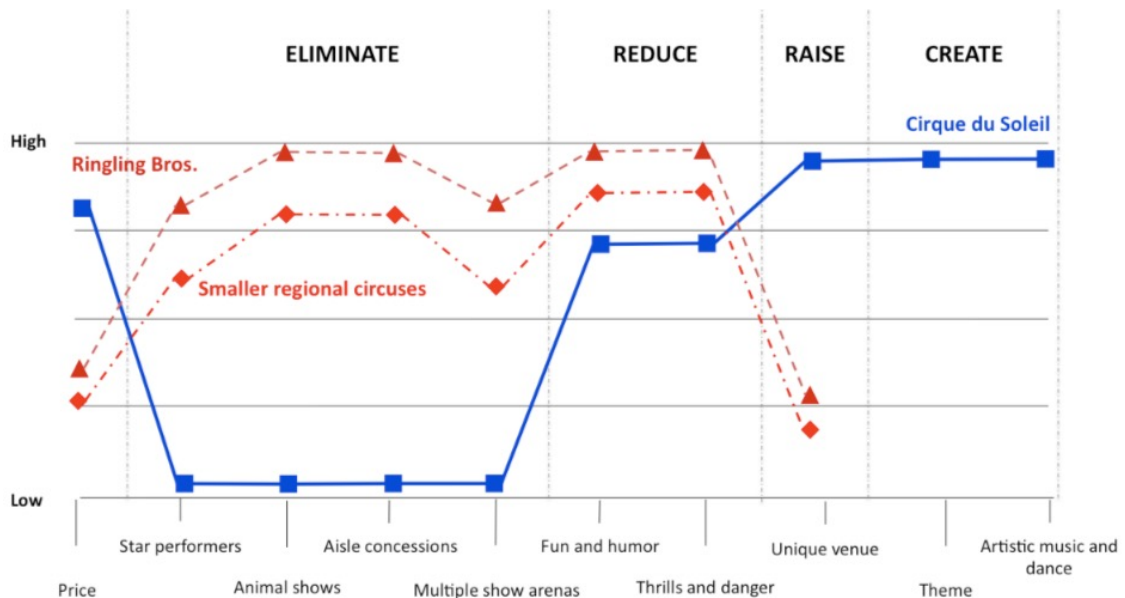
Cirque du Soleil

Cirque du Soleil redefined circus entertainment positioning themselves in a new segment of entertainment



Revising the offering....

A “blue ocean” strategy redesign the company offering, cutting out (or at least reducing) negative elements
As well as including new & attractive positive features



Communicating strategy

- Need to share and enable ‘buy in’;
- Need to break top level objectives down into manageable targets;
- Policy deployment.



Firm size and innovation

TABLE 2.2 Advantages and disadvantages for small firm innovators

Advantages	Disadvantages
Speed of decision making	Lack of formal systems for management control – for example of project times and costs
Informal culture	Lack of access to key resources, especially finance
High quality communications – everyone knows what is going on	Lack of key skills and experience
Shared and clear vision	Lack of long term strategy and direction
Flexibility, agility	Lack of structure and succession planning
Entrepreneurial spirit and risk taking	Poor risk management
Energy, enthusiasm, passion for innovation	Lack of application to detail, lack of systems
Good at networking internally and externally	Lack of access to resources

The problem of partial models

If innovation is only seen as the result can be
Strong R &D capability	Technology which fails to meet user needs and may not be accepted – ‘the better mousetrap which nobody wants’
The province of specialists in white coats in the R&D laboratory	Lack of involvement of others, and a lack of key knowledge and experience input from other perspectives
Meeting customer needs	Lack of technical progression, leading to inability to gain competitive edge
Technology advances	Producing products which the market does not want or designing processes which do not meet the needs of the user and which are opposed
The province only of large firms	Weak small firms with too high a dependence on large customers

The problem of partial models (continued)

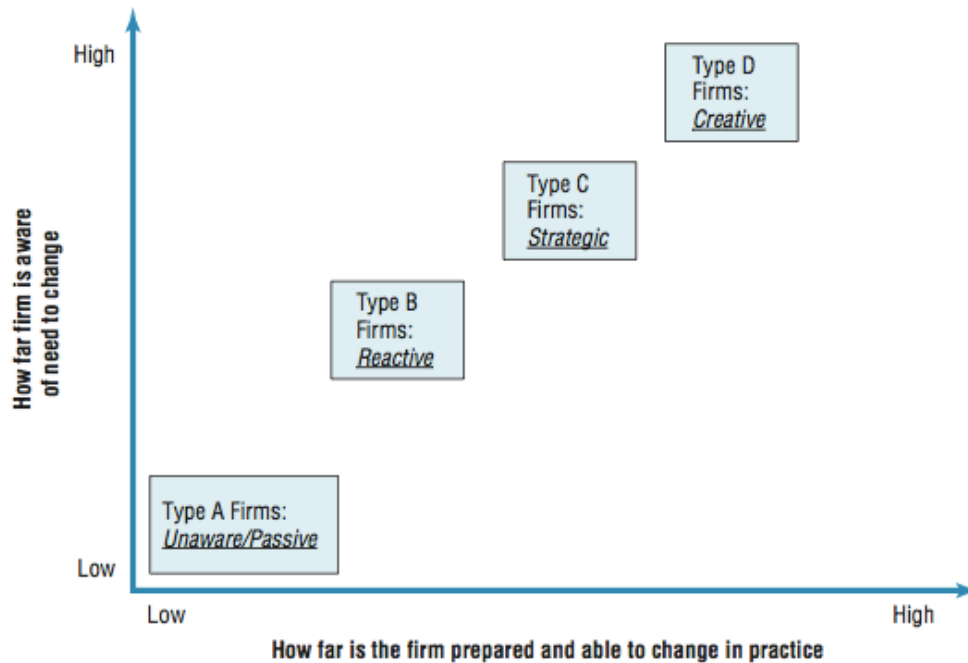
If innovation is only seen as the result can be
Only about 'breakthrough' changes	Neglect of the potential of incremental innovation. Also an inability to secure and reinforce the gains from radical change because the incremental performance ratchet is not working well
Only associated with key individuals	Failure to utilise the creativity of the remainder of employees, and to secure their inputs and perspectives to improve innovation
Only internally generated	The 'not invented here' effect, where good ideas from outside are resisted or rejected
Only externally generated	Innovation becomes simply a matter of filling a shopping list of needs from outside and there is little internal learning or development of technological competence

Core abilities in innovation

TABLE 2.7 Core abilities in managing innovation

Basic ability	Contributing routines
Recognizing	Searching the environment for technical and economic clues to trigger the process of change
Aligning	Ensuring a good fit between the overall business strategy and the proposed change – not innovating because it is fashionable or as a knee-jerk response to a competitor
Acquiring	Recognizing the limitations of the company's own technology base and being able to connect to external sources of knowledge, information, equipment, etc. Transferring technology from various outside sources and connecting it to the relevant internal points in the organization
Generating	Having the ability to create some aspects of technology in-house – through R&D, internal engineering groups, etc.
Choosing	Exploring and selecting the most suitable response to the environmental triggers which fit the strategy and the internal resource base/external technology network
Executing	Managing development projects for new products or processes from initial idea through to final launch Monitoring and controlling such projects
Implementing	Managing the introduction of change – technical and otherwise – in the organization to ensure acceptance and effective use of innovation
Learning	Having the ability to evaluate and reflect upon the innovation process and identify lessons for improvement in the management routines
Developing the organization	Embedding effective routines in place – in structures, processes, underlying behaviours, etc.

Developing innovation capability



Dynamic capability

Dynamic capability is 'appropriately adapting, integrating and re-configuring internal and external organizational skills, resources and functional competencies towards a changing environment':

- competitive and national positions (technology and intellectual property, as well as its customer base and upstream relations with suppliers);
- technological paths (the strategic alternatives available to the firm, and the attractiveness of the opportunities which lie ahead);
- organizational and managerial processes (the set of routines which define 'the way we do things around here').

Dynamic capability

Dynamic capability – need to update and change our routines in a changing world.

Key questions in dynamic capability are, of the ways we do things round here – our routines – for innovation:

- Which should we do more of?
- Which should we do less of, or even stop?
- Which new things do we need to learn to do to add to our repertoire?

The innovative organization

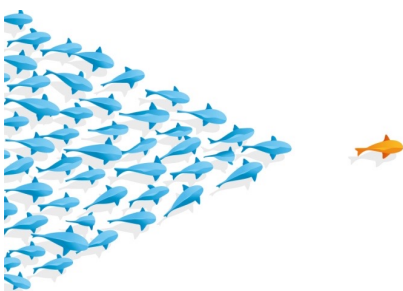
Research shows these factors are associated with good performance:

Component	Key features
Shared vision, leadership and the will to innovate	Clearly articulated and shared sense of purpose Stretching strategic intent 'Top management commitment'
Appropriate structure	Organization design which enables creativity, learning and interaction. Not always a loose 'skunk works' model; key issue is finding appropriate balance between 'organic and mechanistic' options for particular contingencies

The innovative organization (continued)

Component	Key features
Key individuals	Promoters, champions, gatekeepers and other roles which energize or facilitate innovation
Effective team working	Appropriate use of teams (at local, cross-functional and inter-organizational level) to solve problems Requires investment in team selection and building
High-involvement innovation	Participation in organization-wide continuous improvement activity
Creative climate	Positive approach to creative ideas, supported by relevant motivation systems
External focus	Internal and external customer orientation

Innovation leadership



Reviews of research on leadership and performance suggest leadership directly influences:

- Around 15% of the differences found in performance of businesses;
- Contributes around an additional 35% through the choice of business strategy;
- So directly and indirectly leadership can account for half of the variance in performance observed across organizations.

Characteristic traits of good leaders

- bright, alert and intelligent;
- seek responsibility and take charge;
- skillful in their task domain;
- administratively and socially competent;
- energetic, active and resilient;
- good communicators.

BUT

There is no brief and universal list of enduring traits that all good leaders must possess under all conditions.

Key factors for leaders to focus on

1. Upper management should establish an innovation policy that is promoted throughout the organization. It is necessary that the organization through its leaders communicate to employees that innovative behavior will be rewarded.
2. When forming teams, some heterogeneity is necessary to promote innovation. However, if the team is too heterogeneous, tensions may arise, when heterogeneity is too low, more directive leadership is required to promote team reflection, for example, by encouraging discussion and disagreement.
3. Leaders should promote a team climate of emotional safety, respect, and joy through emotional support and shared decision-making.

Key factors for leaders to focus on (continued)

4. Individuals and teams have autonomy and space for idea generation and creative problem solving.
5. Time limits for idea creation and problem solutions should be set, particularly in the implementation phases
6. Finally, team leaders, who have the expertise, should engage closely in the evaluation of innovative activities.

Creative style

Kirton's 'adaptors and innovators' spectrum:

- **Adaptors** characteristically produce a sufficiency of ideas based closely on existing agreed definitions of a problem and its likely solutions, but stretching the solutions. These ideas help to improve and 'do better'.
- **Innovators** are more likely to reconstruct the problem, challenge the assumptions and to emerge with a much less expected solution which very probably is also at first less acceptable. Innovators are less concerned with doing things better than with doing things differently.

Collective and social aspects of innovation

- 'It takes five years to develop a new car in this country. Heck, we won World War 2 in four years...'
- Ross Perot's critical comment on the state of the US car industry in the late 1980s captured some of the frustration with existing ways of designing and building cars.



Collective and social aspects of innovation (continued)

- The power of team working
- Lew Varaldi, project manager of Ford's Team Taurus project put it, '... it's amazing the dedication and commitment you get from people...we will never go back to the old ways because we know so much about what they can bring to the party...'
- Groups are not necessarily teams....

Key factors in high performance teams

Key elements in effective high-performance team working include:

- clearly defined tasks and objectives;
- effective team leadership;
- good balance of team roles and match to individual behavioural style;
- effective conflict resolution mechanisms within the group;
- continuing liaison with external organization.

Tuckman's model of team development

Teams typically go through four stages of development:

- forming
- storming
- norming
- performing

Team development applied to consulting

Development stages	Forming	Storming	Norming	Performing	Adjourning
Team dynamics	<p>Formation of new team</p> <p>Team is excited: most team members are positive and polite</p>	<p>Members experience stress and anxiety. They are uncertain about processes and structure</p> <p>They challenge the leader's authority; engage in competition and conflicts; show lack of participation</p>	<p>Members accept processes and structure</p> <p>Establishment of hierarchy</p> <p>Members' commitment and involvement develop</p> <p>Members start to work as a team</p>	<p>Members work together as a team</p> <p>They have a shared vision</p>	<p>Closure of project</p> <p>Break-up of team</p> <p>Members experience sadness and stress</p>
Team leader actions	<p>Take lead: assume leader role</p> <p>Set clear objectives</p> <p>Explain the project</p>	<p>Set clear processes and structure</p> <p>Resolve conflicts</p> <p>Stimulate development of good relationships between team members</p>	<p>Step back and help to make the team take the responsibility</p> <p>Organize a team-building event</p>	<p>Celebrate the successes</p> <p>Delegate as far as possible</p>	<p>Celebrate the achievement of the project objectives</p> <p>Acknowledge the contributions</p>

Advantages and disadvantages of groups



Potential assets of using a group	Potential liabilities of using a group
1. Greater availability of knowledge and information	1. Social pressure toward uniform thought limits contributions and increases conformity
2. More opportunities for cross-fertilization; increasing the likelihood of building and improving upon ideas of others	2. Group think: groups converge on options, which seem to have greatest agreement, regardless of quality
3. Wider range of experiences and perspectives upon which to draw	3. Dominant individuals influence and exhibit an unequal amount of impact upon outcomes

Advantages and disadvantages of groups



Potential assets of using a group	Potential liabilities of using a group
4. Participation and involvement in problem solving increases understanding, acceptance, commitment, and ownership of outcomes	4. Individuals are less accountable in groups allowing groups to make riskier decisions
5. More opportunities for group development; increasing cohesion, communication and companionship	5. Conflicting individual biases may cause unproductive levels of competition; leading to 'winners' and 'losers'

Source: S. Isaksen and J. Tidd (2006) *Meeting the Innovation Challenge*, John Wiley & Sons, Ltd, Chichester

High performing teams

High performing characteristics are:

- a clear, common and elevating goal;
- results-driven structure;
- competent team members;
- unified commitment.

Collaborative climate:

- standards of excellence;
- external support and recognition;
- principled leadership.

Appropriate use of the team:

- participation in decision making;
- team spirit;
- embracing appropriate change.

Context and climate

- Climate is defined as the recurring patterns of behaviour, attitudes and feelings that characterize life in the organization.
- Objectively shared perceptions that characterize life within a defined work unit or in the larger organization.
- Climate is distinct from culture in that it is more observable at a surface level within the organization and more amenable to change and improvement efforts.
- Culture refers to the deeper and more enduring values, norms and beliefs within the organization.

Climate factors influencing innovation

Climate factor	Most Innovative (score)	Least Innovative (score)	Difference
Trust and Openness	253	88	165
Challenge and Involvement	260	100	160
Support and space for ideas	218	70	148
Conflict and Debate	231	83	148
Risk-taking	210	65	145
Freedom	202	110	92

Source: Derived for Scott Isaksen and Joe Tidd (2006) *Meeting the Innovation Challenge* (Wiley).

Summary

Innovation needs:

- Clear strategic leadership and direction, plus the commitment of resources to make this happen.
- An innovative organisation in which the structure and climate enables people to deploy their creativity and share their knowledge to bring about change.
- Pro-active links across boundaries inside the organisation and to the many external agencies who can play a part in the innovation process – suppliers, customers, sources of finance, skilled resources and of knowledge, etc.

Leadership and organization of innovation is much more than a set of processes, tools and techniques, and the successful practice of innovation demands the interaction and integration of three different levels of management, individual, collective and climate.