Lecture 8

Innovation and Entrepreneurship

Searching for Opportunities

Learning Outcomes

- The need for a strategy to shape the search for opportunities.
- Dimensions of search space-incremental/radical and old/ new frame.
- Strategies for covering the space- exploit and explore.
- Tools and structures to support these strategies.
- The concept of discontinuous and disruptive innovation.
- The role of entrepreneurship as a mindset underpinning search, whether in new venture start-ups or in renewing established organisations.
- The concept of absorptive capacity.

Challenges

- Innovation can be triggered by a wide range of stimuli
  - Forest of opportunities
  - How to manage the search stage of the innovation process to help find opportunities?

Importance of search strategy

- to help an organisation in developing a search capability to detect triggers of discontinuous innovation.
- to help an organisation to exploit and explore their business opportunity in order to remain their competitive and durable

The Innovation Treasure Hunt

- To have a map of innovation search space
- The ground (2 axes):
  - Create a simple view of the search space
  - Look at strategies, tools and methods to search across it.

Incremental/Radical Innovation

- Innovation can happen along a spectrum of incremental to radical:
  - Incremental(Do it better)
    - improvement on what has gone before
  - Radical(Do it differently)
    - Be ‘new to the world’
- Advantages:
  - a degree of familiarity, lower risk, can search for opportunity-tools & directions –are essentially well established and systematic.

Differences

	Do It Better	Do It Differently
Product (service)	Product improvement	..and now for something completely different
Process	Getting lean, the quest for ‘excellence’	Radical process change
Position	Extend, deepen, segment markets	Find new playing fields
Paradigm (business concept)	Change the business model	Rewrite the rules

TABLE 6.1 From incremental to radical

Innovation type	Incremental – do what we do but better	Radical – do something different
'Product' – what we offer the world	Windows Vista replacing XP – essentially improving on an existing software idea VW EOS replacing the Golf – essentially improving on established car design Improved performance of incandescent light bulbs	New to the world software – for example, the first speech recognition program Toyota Prius – bringing a new concept: hybrid engines LED-based lighting, using completely different and more energy efficient principles
Process – how we create and deliver that offering	Improved fixed-line telephone services Extended range of stock broking services Improved auction house operations Improved factory operations efficiency through upgraded equipment Improved range of banking services delivered at branch banks	Skype and other VOIP systems Online share trading eBay Toyota Production System and other 'lean' approaches Mobile banking in Kenya, Philippines – using phones as an alternative to banking systems
Position – where we target that offering and the story we tell about it	Haagen Dazs changing the target market for ice cream from children to consenting adults Low-cost airlines University of Phoenix and others, building large education businesses via online approaches to reach different markets Dell and others segmenting and customising computer configuration for individual users Banking services targeted at key segments – students, retired people, etc.	Addressing under-served markets – for example, the Tata Nano which targets the huge but relatively poor Indian market using the low-cost airline model – target cost is 1 lakh (around $3000) 'Bottom of the pyramid' approaches using a similar principle – Aravind Eye Care, Cemex construction products One laptop per child project – the $100 universal computer Micro-finance – Grameen Bank opening up credit for the very poor

(*continued*)

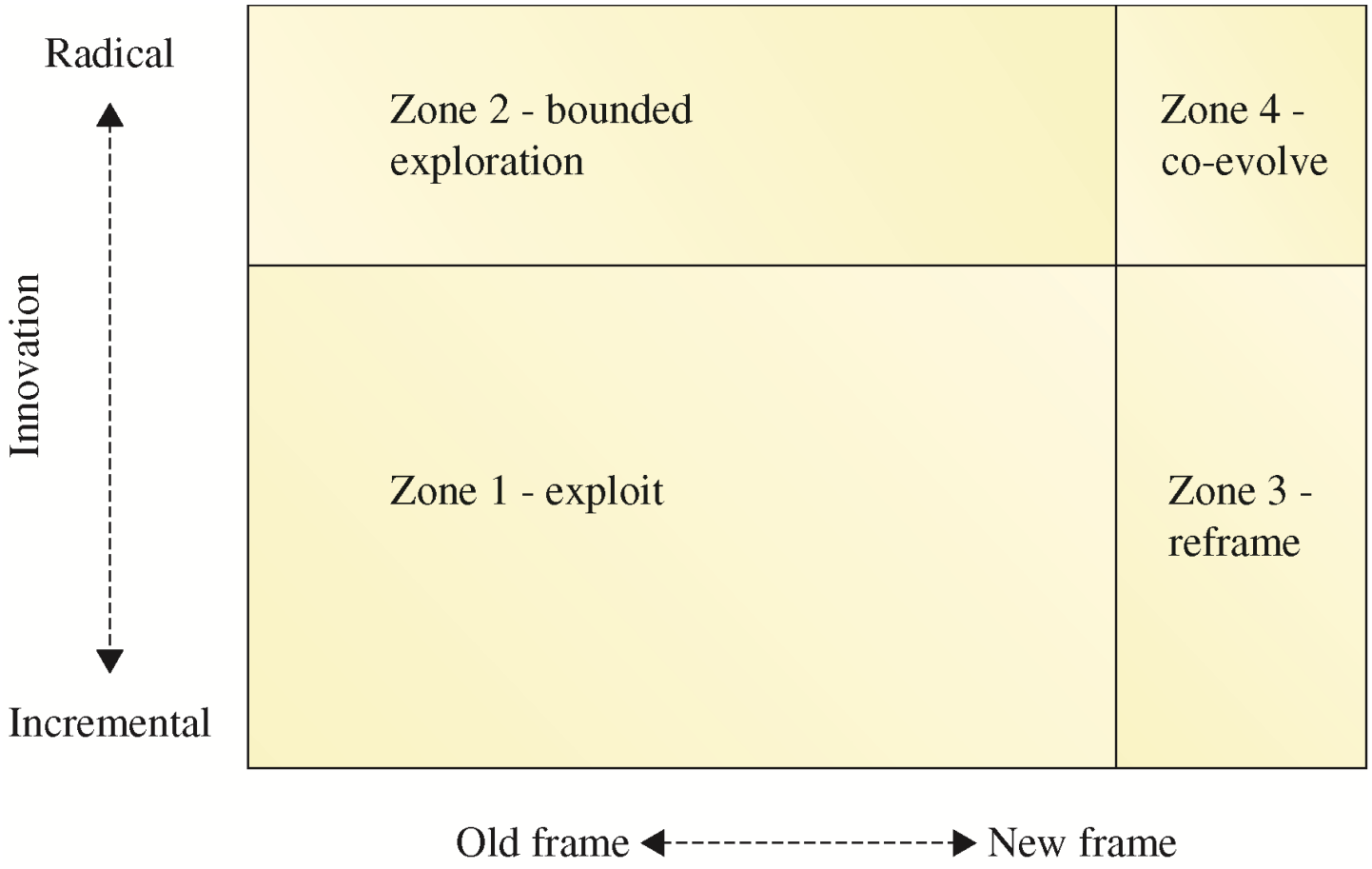
TABLE 6.1 (*Continued*)

Innovation type	Incremental – do what we do but better	Radical – do something different
Paradigm – how we frame what we do	Bausch and Lomb – moved from 'eye wear' to 'eye care' as their business model, effectively letting go of the old business of spectacles, sunglasses (Raybans) and contact lenses all of which were becoming commodity businesses. Instead they moved into newer high-tech fields like laser surgery equipment, specialist optical devices and research in artificial eyesight IBM moving from being a machine maker to a service and solution company – selling off its computer making and building up its consultancy and service side. VT moving from being a shipbuilder with roots in Victorian times to a service and facilities management business	Grameen Bank and other micro-finance models – rethinking the assumptions about credit and the poor iTunes platform – a complete system of personalised entertainment Rolls Royce – from high quality aero engines to becoming a service company offering 'power by the hour' Cirque de Soleil – redefining the circus experience

A Map Of Innovation Search Space

- A framework map of search space
  - Incremental/radical dimensions (vertical axis)
  - The way we frame things (horizontal axis)
- Strategies to search across it
  - Exploit? – using what we already know as the foundation for further incremental innovation
  - Explore? – involves big leaps into new knowledge territory, risky but enable to do new and very different things.

A Map Of Innovation Search Space

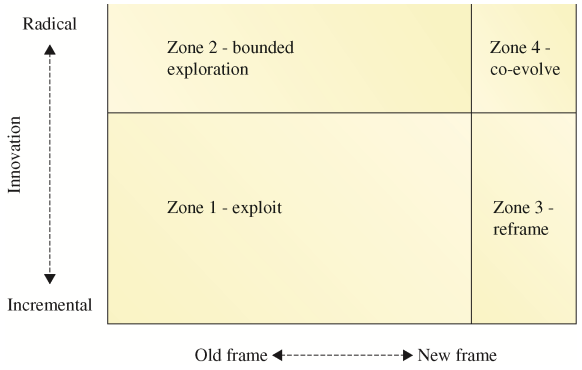


Innovation search Strategies

- In reality, no clear cut between the ‘zones’
- Idea behind the map - Likely to experience very different challenges in each area.
- Findings opportunities need different strategies.

Zone 1: Strategies For 'Exploit'

- assume a stable and share frame within which adaptive and incremental development takes place.
- Search 'routine' associated with refining tools and methods for technological and market research, deepening relationships with established key players.
- Search behaviour - Clearly defined with relevant actors carrying them out



Zone 1: Strategies For 'Exploit' .....(continued)

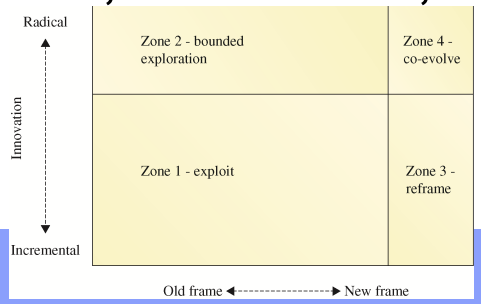
- R&D is augmented by high levels of participation across the organization
  - The search questions are clearly defined and widely understood high involvement of non-specialists is possible
- Favors established org. because they have the resources to organize and manage systematic search across the territory.
- Startup org. simply don't have the capacity to cover all the ground

Zone 2: Strategies For 'Explore'

- Involves search into new territory, pushing the frontiers of what is know and deploying different search techniques for doing so.
- Still take place within established framework
  - Shared mental model - business model as usual
  - Market research similarly – get close to user but to push the frontiers via empathic design, latent need analysis.
  - Risky & exploratory but still governed strongly by the frame for sector – common patterns which shape the behaviour of all the players.

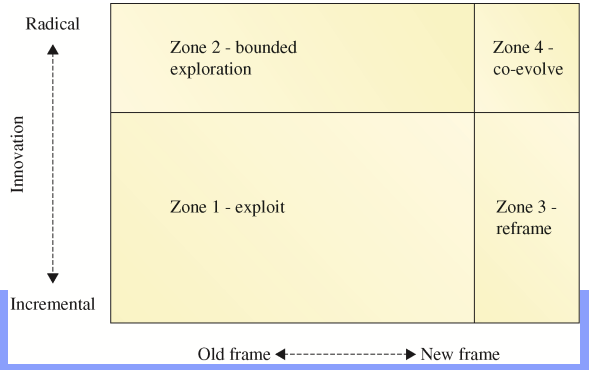
Zone 2: Strategies For 'Explore'.....(continued)

- R&D investments are on big bets
  - high strategic potential, patenting & IP
  - Aim at marking out, defend territory, riding key technological trajectories.
  - Highly specialised
  - Mobilisation of a network of external – formation of specific strategic alliances and joint ventures around a particular area of deep technology exploration.
- Advantage for new & established org.
- Common patterns in fields like pharmaceuticals, electronic, software and biotechnology.



Zone 3: Breaking Out The Frame

- Associated with *reframing*
  - Alternative architectures generated
  - Exploring different permutations
  - Combinations of elements in the environment
- Often happens by working with elements in the environment not embraced by established business models
  - Eg: working with fringe markets, looking at the 'bottom' of the pyramid' or collaborating with 'extreme users'



Zone 3: breaking out the Frame .....(continued)

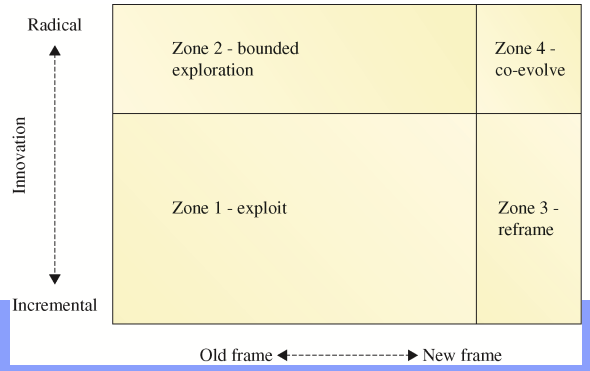
- Favours entrepreneur on the outside of established organisations
  - Can see & frame the world differently, see ways of putting the pieces together differently.
  - Not involve pushing technological frontiers
  - About change in the ways the architecture works.
- Sometimes an org needs to change its perspective in radical fashion
  - reframe in order to survive & compete under different conditions

Zone 3: breaking out the Frame .....(continued)

- Eg: Low-cost airline
  - Not a development of new product or process
  - Still involve airports, aircrafts, etc
  - Instead the innovation was in position & paradigm, reframing the business model by identifying new elements in the markets.
    - Eg: students, pensioners – who did not yet fly but might if the costs could be brought down.
  - rethink the business model required extensive product and process innovation to realise it
    - Eg: in online booking, fast turnaround times at airports, multi-skilling of staff

Zone 4: Exploring Complexity – Work At The Edge Of Chaos

- Innovation emerges as a product of a process of co-evolution.
  - Different interacting elements begin to converge on a particular solution
  - Eg: the way ice crystals can form into the particular & organised pattern of a snowflake.
- Many different elements involved – each affects the other – becomes impossible to predict the outcome.



Zone 4: Exploring Complexity –Work At The Edge Of Chaos

- Simple rules:
  - Be in the game early
  - Be in there actively and prepared to experiment
  - Be prepare for failure
  - Be aware of others in the system picking up weak signals and amplifying what seems to work.
- Favours an entrepreneurial mindset, prepared to look at things differently and make use of new opportunities which emerge.
- Eg: the way internet has opened up space for radically different ways of carrying out many established activities but is now moving to enable completely new ones.

Navigating the search space

- Need TWO(2) different kinds of innovation organisation:
  - aimed at ‘exploit’ in the activities – a high degree of stability in the frame
  - Need more flexibility – high uncertainty as we move to the right-hand side of search space

TABLE 6.3 Challenges in navigating innovation search space

Zone	Search challenges
1 'Business as usual' – innovation but under 'steady-state conditions, little disturbance around core business model	Exploit – extend in incremental fashion boundaries of technology and market. Refine and improve. Build close links/strong ties with key players. Favours established organisations with resources – start-up entrepreneurs are looking to spot niches within the mainstream
2 'Business model as usual' – bounded exploration within this frame	Exploration – pushing frontiers of technology and market via advanced techniques. Build close links with key strategic knowledge sources, inside and especially outside the organisation. Entrepreneurs with key knowledge assets – for example, spin-off ventures from a university research lab – can benefit from this search process and link their ideas with the resources which a major organisation can bring
3 Alternative frame – taking in new/different elements in environment. Variety matching, alternative architectures	Reframing – explore alternative options, introduce new elements. Experimentation and open-ended search. Breadth and periphery important. Entrepreneurs have a significant advantage here since they can bring fresh thinking and perspectives to an established game. Mainstream organisations often seek to explore here through setting up internal entrepreneurial groups – corporate venturing, 'intrapreneurs', etc.
4 Radical – new to the world – possibilities. New architecture around as yet unknown and established elements	Emergence – need to co-evolve with stakeholders • Be in there • Be in there early • Be in there actively Entrepreneurs have advantages here since this resembles the 'fluid' state in innovation life cycle and requires flexibility in thinking, tolerance for failure, willingness to take risks, etc. Big problem is the high rate of failure here which established organisations have some capacity to absorb but which is an issue for start-up entrepreneurs

TABLE 6.4 Two different types of innovation organisation for steady-state and discontinuous innovation

Type 1 Innovation organisation	Type 2
Operates within mental framework based on clear and accepted set of rules of the game	*No clear rules – these emerge over time* *High tolerance for ambiguity*

(*continued*)

TABLE 6.4 (*Continued*)

Type 1 Innovation organisation	Type 2
Strategies path dependent	*Path independent, emergent, probe and learn*
Clear selection environment	*Fuzzy, emergent selection environment*
Selection and resource allocation linked to clear trajectories and criteria for fit	*Risk taking, multiple parallel bets, tolerance of (fast) failure*
Operating routines refined and stable	*Operating patterns emergent and 'fuzzy'*
Strong ties and knowledge flows along clear channels	*Weak ties and peripheral vision important*

Implementing Search Strategies

- building rich and extensive linkage with potential sources of innovation are important:
  - Spotting opportunities to make connections which others might have missed.
  - Innovation is triggered in all sorts of ways
  - Strategy is to cast the new as widely as possible.
  - True when move into ‘explore’ spaces on the map
  - Need different knowledge sets and perspectives.
  - Innovation is a multi-player game

Open Innovation Model (Chesbrough)

- US Professor Henry Chesbrough coined the term ‘Open Innovation’
  - Describe the challenge facing even large organizations in keeping track of and accessing external knowledge rather than relying on internally generated ideas.
  - Put simply open innovation involves the recognition that ‘ not all the smart guys work for us.

Comparison Of Principles

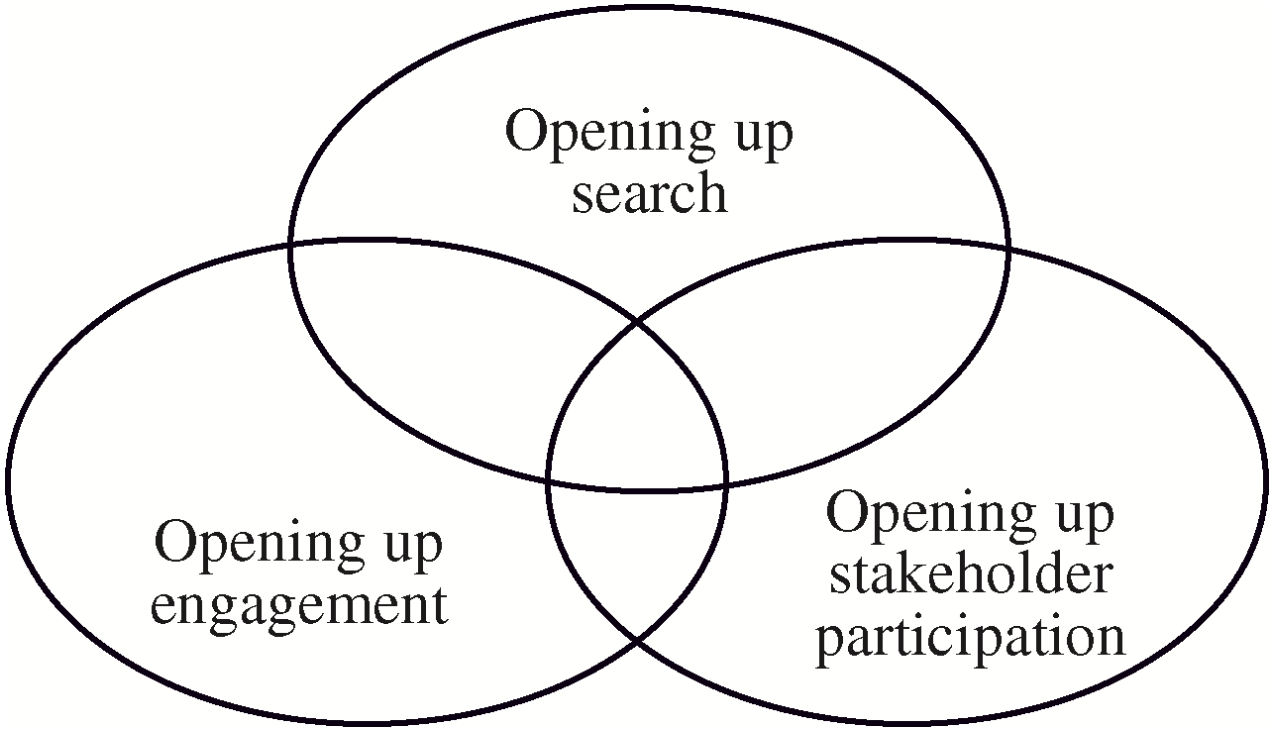
	Closed innovation	Open innovation
People and Talent	The smart people in the field work for us.	We need to work with smart people inside and outside the company.
R&D Funding and Resources	To profit from R&D, we must discover it, develop it, and ship it ourselves.	External R&D can create significant value: internal R&D is needed to claim some portion of that value.
Discovery	If we discover it ourselves, we will get it to the market first.	We don't have to originate the research to profit from it.
Speed to Market	The company that gets an innovation to the market first will win.	Building a better business model is better than getting to the market first.
Ultimate Critical Success Factor	If we create the most and the best ideas in the industry, we will win.	If we make the best use of internal and external ideas, we will win.
Intellectual Property	We should control our IP, so that our competitors don't profit from our ideas.	We should profit from others' use of our IP, and we should buy others' IP whenever it advances our business model.

Chesbrough, 2003

TABLE 6.5 Changing context for innovation (Source: Bessant and Venables[1])

Context change	Indicative examples
Acceleration of knowledge production	OECD estimates that close to $750bn is spent each year (public and private sector) in creating new knowledge – thus extending the frontier along which 'breakthrough' technological developments may happen
Global distribution of knowledge production	Knowledge production is increasingly involving new players, especially in emerging market fields like the BRIC (Brazil, Russia, India, China) nations – hence the need to search for innovation opportunities across a much wider space. One consequence of this is that 'knowledge workers' are now much more widely distributed and concentrated in new locations – for example, Microsoft's third largest R&D Centre employing thousands of scientists and engineers is now in Shanghai
Market fragmentation	Globalisation has massively increased the range of markets and segments so that these are now widely dispersed and locally varied, putting pressure on innovation search activity to cover much more territory, often far from 'traditional' experiences – such as the 'bottom of the pyramid' conditions in many emerging markets
Market virtualisation	Increasing use of Internet as marketing channel means different approaches need to be developed. At the same time emergence of large-scale social networks in cyber-space pose challenges in market research approaches – for example, Facebook currently has over 500 million subscribers. Further challenges arise in the emergence of parallel world communities as a research opportunity – for example, Second Life now has over 6 million 'residents'
Rise of active users	Although users have long been recognised as a source of innovation there has been an acceleration in the ways in which this is now taking place – for example, the growth of Linux has been a user-led open community development. In sectors like media the line between consumers and creators is increasingly blurred – for example, You Tube has around 100 million videos viewed each day but also has over 70,000 new videos uploaded every day from its user base
Development of technological and social infrastructure	Increasing linkages enabled by information and communications technologies around the Internet and broadband have enabled and reinforced alternative social networking possibilities. At the same time the increasing availability of simulation and prototyping tools has reduced the separation between users and producers

Convergence Around 'Open Innovation'



A significant acceleration in the opening up of the innovation search game in a number of converging areas.

Convergence Around 'Open Innovation'

- Opening up of search
- Opening up engagement
- Opening up stakeholder participation

Tools, Structures And Mechanisms To Enable Search

- Discuss twelve (12) different experimental strategies for developing a search capability to detect triggers of discontinuous innovation.
- These strategies are useful for more conventional innovation and all organisations to make new connections in order to remain both competitive and durable.

TABLE 6.6 Developing new ways of searching
(for more details on these, see J. Bessant and B. von Stamm[3]; www. aimresearch.org)

Search Strategy	Mode of operation
Sending out scouts	Dispatch idea hunters to track down new innovation triggers.
Exploring multiple futures	Use futures techniques to explore alternative possible futures; and develop innovation options from that.
Using the Web	Harness the power of the Web, through online communities, and virtual worlds, for example, to detect new trends.
Working with active users	Team up with product and service users to see the ways in which they change and develop existing offerings.
Deep diving	Study what people actually do, rather than what they say they do.
Probe and learn	Use prototyping as a mechanism to explore emergent phenomena and act as boundary object to bring key stakeholders into the innovation process.
Mobilise the mainstream	Bring mainstream actors into the product and service development process.
Corporate venturing	Create and deploy venture units.
Corporate entrepreneurship and intrapreneuring	Stimulate and nurture the entrepreneurial talent inside the organisation.
Use brokers and bridges	Cast the ideas net far and wide and connect with other industries.
Deliberate diversity	Create diverse teams and a diverse workforce.
Idea generators	Use creativity tools.

(1) Sending Out Scouts

- Send out idea hunters to search actively for new ideas to trigger the innovation process.
  - Look at products & technology also keep an eye on changes in social trends, new business models, even in political situations.
- To see and anticipate connections between currently unconnected fields
- Eg: People from R&D attend conferences & keep abreast of development.

(2) Exploring Multiple Futures

- To imagine alternative futures, especially those do not necessarily follow current trajectory.
- Effectively through scenario-based approaches.
- Must also take action to help shape & influence emergent alternatives.
  - Eg: building links with stakeholders & being a part of future which co-evolves out of those interactions.
- build concept models & prototype –scenarios jointly with other org – cross industry collaboration.

(3) Using Web

- Web is a passive info resource to be searched.
- Provide links across extranet & intranets.
- Multi-directional info marketplace.
- Can be employed as online lab for conducting experiments or prototype testing.
- Ex: BMW make us of the web to enable a virtual innovation agency – a forum where suppliers from outside the normal range of BMW players can offer ideas.
  - Ex: recent suggestion – carbon recycling out of factory waste.

(4) Working With Active Users

- User can provide the starting point for new directions & help create new markets, products and services.
- Find the things which market/ no-one has yet notices

  Eg:

  - user-developed prototype from a cyclist
  - open source movement to develop high quality sw as co-operative process
  - tools like prototyping, simulation & computer-aided design help create the spaces where active users can interact with professional designers.

(5) Deep Diving

- Take a much deeper look at how people actually behave – as opposed to how they say they behave
- Use of techniques to get closer to what people need and want in the context within which they operate.
- Observe everyday life of real people, capturing the experiences of peoples

(6) Probe And Learn

- Concept of prototyping
  - Learning & refining an idea
- Concept of pilot-scale testing
  - Select a small but relevant testing ground, offers a deliberate learning strategy & experiment to get more info about what & what not to do.
- Allow firms to devise experiments to explore alternative hypotheses.

(7) Mobilise The Mainstream

- To make better or different use of existing resources – mobilise mainstream players in new/additional roles.
- Eg: refocus the core tasks of groups like procurement, sales or finance staff to pick up peripheral info about trends in the wider world.
- The use of multiple stakeholders –ppl who are players but may not always share the same values/opposed to the core business model
  - Use their objections & concerns as a stimulus for new innovation direction.

(8) Corporate Venturing

- The setting up of special units with the remit & budget to explore new diversification options
- To provide some ring-fenced funds to invest in new directions for the business
- Eg: SAP, set up a venture unit called SAP inspire to fund start ups with interesting technologies.

(9) Corporate Entrepreneurship & Intrapreneuring

- Various way of mobilising high involvement innovation across organisation.
- To build on ideas generated within and across the organisation to move it into new areas.
- Requires a commitment of resources, a set of mechanisms to take bright ideas forward, include various internal development grant and an increasingly difficult venture funding process.

(10) Use Brokers And Bridges

- Connecting different bodies of knowledge
- Making or facilitating connections – bridging small worlds.
- Looking outsides their normal knowledge zones
- Org. start to use social networking analysis & other tools to map their network and spot bridges.

(11) Deliberate Diversity

- To Create Diversity Of Vision By Hiring Different Skills And Experiences Sets / Creating Heterogeneous Groups & Teams Within The Firm
- Collaborate With Strange Partners To Learn New Perspectives.
- Ex: Idea, Design & Innovation Consultancy Hire People From Medicine, Engineering, Anthropology & Physics To Create A Team With A Strong Track Record In Coming Up With Groundbreaking New Ideas.

(12) Idea Generators

- Using creativity tools and techniques to increase the flow of radical ideas.
- Rather than using internal resources, an increasing number of firms use an external agency.
  - Act as early warning systems for weak signals about changing trends.
- Eg: IBM hires school kids as trend spotters & an info feed to its pattern recognition toolkit.

TABLE 6.7 Searching the innovation space

Zone	Search challenges	Tools and methods	Enabling structures
1 'Business as usual' – innovation but under steady-state conditions, little disturbance around core business model	Exploit – extend in incremental fashion boundaries of technology and market Refine and improve Close links/strong ties with key players	'Good practice' new product/service development Close to customer Technology platforms and systematic exploitation tools	Formal and mainstream structures High involvement across organisation Established roles and functions (including production, purchasing, etc.)
2 'Business model as usual' – bounded exploration within this frame	Exploration – pushing frontiers of technology and market via advanced techniques. Close links with key strategic knowledge sources	Advanced tools in R&D, market research. Increasing 'open innovation' approaches to amplify strategic knowledge search resources	Formal investment in specialised search functions – R&D, market research, etc.

(*continued*)

TABLE 6.7 (*Continued*)

Zone	Search challenges	Tools and methods	Enabling structures
3 Alternative frame – taking in new/ different elements in environment Variety matching, alternative architectures	Reframe – explore alternative options, introduce new elements Experimentation and open-ended search Breadth and periphery important	Alternative futures, weak signal detection User-led innovation Extreme and fringe users Prototyping – probe and learn Creativity techniques Bootlegging, etc.	Peripheral/ad hoc Challenging – 'licensed fools' CV units Internal entrepreneurs, scouts Futures groups, brokers, boundary spanning and consulting agencies
4 Radical – new to the world – possibilities. New architecture around as yet unknown and established elements	Emergence – need to co-evolve with stakeholders • Be in there • Be in there early • Be in there actively	Complexity theory – feedback and amplification, probe and learn, prototyping and use of boundary objects	Far from mainstream 'Licensed dreamers' Outside agents and facilitators