RCVS INNOVATION TRAINING

Session One – Finding a need, and having good ideas
INTRODUCTIONS


Our clients use us to drive concepts through the innovation timeline. Innovia Technology specializes in these five actions:

- **DEFINE**
  - Business specific

- **SOLVE**
  - Complex challenges

- **CREATE**
  - Winning products and services

- **MAKE**
  - The vision a reality

- **MAXIMISE**
  - Impact of innovation

RCVS Innovation Training Session One

RCVS Innovation Training Session Two
Whole program

• Enable interested and engaged veterinary healthcare professionals to advance animal welfare, their businesses, and the profession, by innovating effectively.

Session one

• Explain the innovation process, and provide tools to enable participants to explore their challenges, find their needs, and have good ideas.

Session two

• Explain the importance of concept development and iteration, and provide tools to enable participants to evaluate and refine concepts.
AIMS

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1 - INNOVATION PROCESS

2 - FINDING NEEDS

3 - GENERATING SOLUTIONS
We assume everyone understands the value of innovation. There are some other things we’re going to hold as true (and you are going to have to trust us because calculating these from first principles would take too long):

**Value** – “measure of the benefit provided by a good or service to an agent”. Could be financial, clinical, time saved, or something else. Losing value can be seen as the definition of a problem.

**Stakeholder** - The “agents” in the system. Should be provided with value. Could be the patient, the owner, the healthcare professional, the business owner, the local community, or the government.

**Opportunity Cost** – “the loss of potential gain from other alternatives when one alternative is chosen”. In biology, this drives evolutionary arms races. In economics, it is why businesses must innovate or die.

**Iteration** – In innovation, parameters are often uncertain and may be clarified by later steps. Normal process is to make any start and refine from there.
Progress by innovation turns ideas into new value:

Finding the strongest need leads to ideas in the right direction:

And most ideas suck, so the best ones must be selected:
Little Printer – By BERG

Incredible engineering to fit laser printer, wi-fi connectivity and sufficient lithium batteries for weeks of operation into a tiny box. Very cute design. Friends could send friends printed messages or keepsakes.

Launched to significant fanfare. Near zero uptake despite great reviews and customer feedback. Company poured money in, got nothing back, and eventually failed.

Why?
Minidisc

Ultra-high quality optical data storage. Re-writeable and able to fit in the pocket of a pair of jeans!

Launched. Some uptake. Then crashed and died.

Why?
1 - INNOVATION PROCESS

2 - FINDING NEEDS

3 - GENERATING SOLUTIONS
When buying consumer goods, the amount of money people are willing to spend is proportional to the strength of their demand (and also to their level of free income).

Demands = Needs (external) and Wants (internal).

Also, veterinary healthcare is not consumer goods. Needs are often dominant.

Either Needs or Wants can be used as the basis of innovation, but Needs are more reliable at driving uptake.

Extended from Mowery and Rosenberg (1979)
NOTE: A PROBLEM IS NOT A NEED

A Problem e.g. “I am cold”

A Need e.g. “I need to be warmer”

Understanding the problem reveals needs =
e.g. “There is a cold draft. I need to prevent it from getting to me.”

Understanding the ROOT OF problems reveals more useful needs = e.g. “The window is open. I need to close the window.”

Extended from Mowery and Rosenberg (1979)
In the exercises at the end of this section you’ll be able to choose from:

- 3 tools for finding needs
- 3 tools for assessing needs

We’re going to explain these tools now…
HOW DO YOU FIND A NEED?

Value mapping

Storyboarding

Consumer research
Value Mapping (VM) is a chronological method of hunting wasteful steps, by keeping track of the value that could get wasted and seeing where it goes.

Waste has a large opportunity cost. This is a problem, which can reveal needs.

In practice, Value Mapping an entire business is a useful thing for management or strategy activities, but maps for innovation tend to be more focused.

Use of physical resources? (£ spent, or Kg binned, etc.)
Time taken? (Minutes until next step poss.)
Output information? (Decisions guided, or bytes)
% Utilisation of worker? (Under/correct/over)
Clinical care improved? (Direct/indirect/no)
Emotional effort involved? (High/mid/low)
1 – Decide if you’re undertaking a complete VM of your business, or a smaller targeted investigation of one (or a few) interactions. If you can’t affect the whole business, limit the scope to what you affect.

2 – Work out the process steps that exist in the area in question.

3 – Think through the steps in order and track the value created or lost: Where is the client’s time used? Where does the nurse get time back? Where is information not captured? Where is emotional effort used?

4 – Talk about the map created. What is wrong with it? Is the waste value all unavoidable or are there problems? What do you need in order to correct the problems?
People can normally empathise with a theoretical (present or future) character well enough to identify their needs as they work through a timeline or storyboard. This is easier if the empathiser has had a similar life experience to the character (matching gender, age, education, etc). It can also be made more effective by:

- Repeating with other empathisers
- Seeing the character's past decisions/actions
- Letting the empathizer build the storyboard of events/decisions
- The 5 WHYS

An example timeline might look like this:

(nb. This is a similar diagram to VCA, but it’s used to find conscious needs, not lost value.)
**STEPS**

1 – Decide which stakeholder’s needs are being investigated. (In veterinary healthcare, we often focus on the client, or the patient, or do both and compare).

2 – Give the stakeholder a character and enough personality to empathise with. If you have demographic data, base the character on that. Do not assign multiple characters to one empathiser at one time.

3 – Work out the experiences, activities and decisions that stakeholder will perform during their interaction with your business.

4 – Talk through the steps of the interaction, thinking and feeling of the character’s wants and needs at every step. If they have a want, ask “Why?” again and again to get closer to a need.
The most simple way to find out what your stakeholders need is to ask them.

However, this method is also the most expensive and, sometimes, the least reliable:

**Most expensive** - Depending on how engaged your stakeholders are, getting back enough answers to meet statistical significance can consume significant time and/or other resources.

**Least reliable** – People can’t be trusted. Not only are their answers not only truthful, but often they don’t really understand what their Needs are. Surveys very often just turn up a list of this season’s Wants. (Also, one of our stakeholders can’t talk).

Ways to make consumer research work for you:

Ensure it’s anonymous. Give options to select/rank. Include a calibration question (with a known answer for that audience). **Don’t ask people what they want.**
1 – Open a line of communication with your stakeholders (email list, face to face, iPad in waiting room, etc.)

2 – You need problem options for people to select from. Work out the options for what the stakeholder might need (“Cheaper. Faster. Better.” are three traditional options. There are more in veterinary healthcare).

3 – Be meticulous in removing bias from your communication, and offer the stakeholder your options to select from.

4 – Data analysis: As with any trial, significance is determined statistically, not by just eyeballing the data. If you don’t have enough data to be sure, go and get more.
NEED FINDING
HOW DO YOU ASSESS A NEED?

Value mapping

Consumer research

Testing (but for that you need an idea)
Both Value Mapping and Customer Research offer some level of need assessment:

**Value Mapping**

Prioritise by: The amount and type of value shown to be wasted by the identified problem.

**Customer Research**

Prioritise by: The number of mentions in the responses gathered, and by their weighting.

Nb. Either of these methods can, if needs be, be used to assess the power of needs that have been generated in another way.
Both Value Chain Assessment and Customer Research offer some level of need assessment:

Customer Research

Prioritise by: The number of mentions in the responses gathered, and by their weighting.

Example of a value mapping of pre-contact, looking for wasted time.

- Pet shows symptoms
- Owner notices symptom 1 and watches more closely for other symptoms
- Owner notices symptom 2
- Owner Googles symptoms then waits, judging severity vs. likely cost
- Owner calls vet

300 hrs
6 hrs
3 hrs
24 hrs

Example of customer research revealing the strongest needs.

“How hard is it to do without products A, B, C?” Easy <-----------------------------Impossible

1 A B C
2 B A C
3 A B C
4 B A C
5 A B C

In this case, we can see that not only does product C provide the most needed benefits, but also that it is highly preferable to the second most needed (B).
Assessing needs by pre-prototype testing involves offering to solve your customer/client’s need and giving them the option to invest in that solution.

All (reasonable) models of innovation include testing and iteration, so we will go over this a lot more in the afternoon.
NEED ASSESSING
In summary:

• You can innovate however you want to, but targeting a strong need improves your chances of providing and capturing real value.

• Needs can be found by value mapping, storyboarding, and just asking your stakeholders.

• Needs can be assessed by value mapping, customer research, or pre-prototype testing.
EXERCISES
TIME TO PRACTISE – IN GROUPS

We’re now going to give you a problem to address using the tools we’ve described.

In the next forty minutes, think about the value of solving this problem, the stakeholders involved, and consider how you might find the needs using the need-finding tools we’ve described.

We’ll then come round with the results of each of the tools. In the following twenty minutes, think about how you could use the need-assessment tools to prioritise the needs.

This afternoon, you’ll come up with ideas to address these needs.
You’ve come prepared with up to three problems that you’ve observed at your own practice or within the wider profession.

In the next thirty minutes, think about the value of solving this problem and who the key stakeholders are. Plan how you would find the needs using the need-finding tools we’ve described, and prioritise them using the need-assessment tools.

When you get home, try applying a couple of these tools to the problem you’ve selected.
1 - INNOVATION PROCESS
2 - FINDING NEEDS
3 - GENERATING SOLUTIONS
Mousephone

Launched at the height of VoIP (internet phone calls). A phone handset for your computer that took up zero space when not in use. (i.e. it only took up the space that you’d otherwise be using for your mouse)

Very low uptake, and a high % of returns from the beginning.

Why?
Once needs are identified, assessed, and selected, solutions are generated by having ideas (ideating), developing those ideas, and then selecting which to make real.

Ideation is the fun bit of the process. It is the famous part that people think of when you say you’ve been innovating.

Developing and selecting ideas is harder work, and a lot more valuable.

We will discuss **creating and selecting ideas today**…
The final step of understanding your need is also the first step in ideation.

Knowing EXACTLY what the final solution needs to achieve, allows you to select only ideas that will actually work.

For example:
- How much can it cost?
- How long can it take?
- What regulations must it meet?
- What can’t it be made out of?

Be comprehensive with these at the start, so you can be ruthless with the ideas later on.
Whether an idea is great or useless depends as much on context as it does on content:

*Idea* – “Use two people to get the job done in less than half the time”

<table>
<thead>
<tr>
<th>Constraint</th>
<th>We haven’t got two people.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Idea is useless</td>
</tr>
<tr>
<td>Criterion</td>
<td>MUST only use one person</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strength</th>
<th>We’re the only practice around here <em>with</em> two people.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>The same idea is very attractive.</td>
</tr>
<tr>
<td>Criterion</td>
<td>Should use two people</td>
</tr>
</tbody>
</table>

So, make sure that your particular constraints and strengths are in mind while assessing ideas.
In the exercises at the end of this section you’ll be able to choose from:

- 4 tools for generating ideas
- 3 tools for selecting ideas

We’re going to explain these tools now…
IDEATION TOOLS

Novelty

Brainstorming

External

Open Innovation

Completeness

Taxonomy

Analogy
Brainstorming is a group creativity exercise intended to access new thinking through interaction and intuition.

A facilitator states the need in detail, and thinkers are briefed on any constraints. They then write ideas for 5-10 minutes, before the facilitator changes the framing and the process is repeated.

The process relies on two major mindsets: More is more; No downers.

- **More is more**: The aim is to get as many ideas generated in the available time as possible. So, think, write, release, repeat. This can be a hard mood to get into, but maximises the chances of capturing something that meets the need well.

- **No downers**: Criticism (of the idea, the process, the person, the weather, etc.) must be completely absent from the session. Many great ideas look *really* stupid at first.

If the hierarchy of the business prevents these mindsets, then it must be excluded from the room. Be careful not to exclude or alienate budget-holders.
**TIPS**

1 – Do something to break out of your normal thinking pattern: Be in an odd location (larger spaces are more effective). Play music. Change the smell of the room. Change the lighting. Wear a hat. (Also, larger spaces are more effective).

2 – The clearer the objective, the better the ideas. Take your time in setting the scene and describing the need.

3 – Empty the schedule. Find/make some time when people can devote themselves to the process. It doesn’t have to be long. 30 minutes can do it.

4 – Be ready. Many people can turn out 10 ideas a minute in full flow. Have you got enough post its? (Also, it sounds stupid, but get matching pens: people with worse pens have fewer ideas).
Building a taxonomy of all of the possible ways to do something is a reliable way to make sure that you haven’t missed anything. Anyone who has used a zoological key has experience with taxonomies.

Each fork in a taxonomy represents a yes/no answer to a question. Good taxonomies can be described as **MECE** because they are **Mutually Exclusive and Completely Exhaustive**.

An example of a taxonomy to improve coverage on a list of animals farmed for meat (UK).
TIPS

1 – Taxonomies are used in Innovation to provide completeness. They’re for when the easy things (like brainstorms) haven’t worked. If completeness is not required, do not put time into making a robust taxonomy.

2 – You can draw a tree or a table, but the order of the structure helps order your thinking. Remember MECE – Nothing missing and nothing in more than one place.

3 – Brainstorm first. Grouping ideas from a brainstorm is a way to see the basic structure of a taxonomy.

4 – Break it to make it. Attack your taxonomy. Invent things that don’t fit. Then iterate.
Where consumer research is about finding out what people need, Open Innovation is a more focused outreach to bring in new solutions to a problem.

People outside the company bring in ideas in exchange for a fee, or the opportunity to partner and work together.

Open Innovation is common amongst big businesses and start-ups, but less so in SMEs.
TIPS

1 – Be entirely certain what you want. If you get engagement from external partners, it will be aimed at the need description you communicate. If this is wrong, you’re done.

2 – Take every networking opportunity you can find. Big companies spend millions on “Open Innovation Portals”. Little ones need to be smarter.

3 – Share information. The more you are prepared to share, about the need and your capabilities, the more likely you are to find the right idea quickly. However, there is risk.

4 – Be realistic. There will be some bargaining involved. There will be mention of NDAs or CDAs (If you don’t know what those are, Google them). You will have to share something to receive something. Expecting otherwise is going to slow you down.
For any challenge, it is likely that someone or something has come up with an answer before. Finding their answers can inspire yours:

- **Understand need**
  - e.g. Owners talk slowly. A detailed history takes nearly 10 min

- **Generalise**
  - e.g. We need to examine/communicate faster

- **Search**
  - e.g. Using two colours gives optical fibre twice the bandwidth

- **Re-apply**
  - e.g. Two vets in one consult: A treats & examines, B types & talks

Taking ideas from nature is “Biomimicry”. From other industries is “Cross pollination” and from your competitors is “Industrial espionage”.

RCVS Innovation Training – Session One
TIPS

1 – The difficulty here is in generalising far enough to get a few hits, but not so much that you can’t re-apply it.

2 – Most vets find biomimicry very easy and can extend it beyond mechanical or engineering problems into logistical, or economic needs.

3 – We’re used to looking up the evidence for clinical decision-making. Academic literature on ‘softer’ aspects – optimising communication in a medical team, changing behaviours in different situations, etc. – will provide inspiration.
IDEA SELECTING

Score against criteria

Risk–reward plots

Power dotting
You created your criteria at the beginning (back before anyone had any ideas that would bias their thinking). Now is the time to use them to help you be objective!

- **Consumer/Brand**
  - fit, product line up

- **Commercial**
  - cost, fit to strategy

- **Market**
  - geography, demographics

- **Development**
  - timescales, risks, CAPEX

- **Internal**
  - acceptance, fit to other workstreams

- **Properties**
  - what it is, what it is made from

- **Sustainability**
  - recyclability, material use

- **Performance**
  - how well it works

**Example criteria**
TIPS

1 – As much as possible, make use of specific and measurable criteria. This makes it much easier to judge ideas, and not the way they’re presented or who made them.

2 – People’s first reaction to a new idea is to kill it. Meeting criteria can also be a good way to safeguard an idea. So, set your criteria at the beginning and keep them unchanged if possible.

3 – Know you’re weighting:

An example of a criteria-led evaluation table containing four ideas. Depending on the weighting, ideas 1, 3, or 4 could win.
Positioning ideas on a risk-reward plot makes comparisons very obvious. It is also impossible to do this without significant debate, which is very useful in selecting ideas.

**Risk:**
“How likely is it to work?”
- financial cost
- potential for low efficacy

**Reward:**
“How attractive would it be if it worked?”
- power of mechanism
- power of message
- fit to capability
TIPS

1 – Always do this in a group. The discussion can be as generative as the initial ideation.

2 – Placing the first couple of ideas is difficult, because there’s nothing to calibrate against. However, it gets easier as you go along.

3 – Remember that the aim is to compare the ideas to each other, not to some objective metric.

4 – Everyone should have their voice heard in the discussion, this is not a place for hierarchy.
In a large group, especially one with a perceived hierarchy, it can be hard to make progress with the open discussion methods.

Instead try returning to anonymity. Giving each person three choices (marked with identical stickers) forces people to make a choice, and shows which ideas the group believes are most powerful.

If possible, use a hidden voting app (e.g. easypolls.net) to blind participants from the vote while it is in progress. This with reduce groupthink.
IDEA SELECTING
In summary:

- Ideas make new value possible. They don’t have to be for new tech or products, but might instead be for new processes or interactions.

- Ideas can be generated through many methods including brainstorming, analogies, taxonomies, and opening your innovation system to partners.

- Ideas need to be selected based on constraints, strengths, and criteria. Three tools that can help are scoring tables, R/R plots, and power dots.
EXERCISES
In the exercise this morning, you identified the major needs of the garage business. Now, you’re going to come up with ideas to address one of those needs, and rank the ideas that you generate.

In the next forty minutes, think about what the garage’s key strengths and constraints are. Then select one of the tools from the list and use it to come up with a variety of ideas to address the need. Collect these ideas on post-it notes.

In the following twenty minutes, use one of the idea-selection tools to rank the ideas you have. Aim to select the best two ideas.
Earlier, you planned how you would find the need from the problem that you brought with you.

In the next thirty minutes, think about the key strengths and constraints that would guide your ideation. Plan how you would generate ideas using the idea-generation tools, and then how you’d rank them using the idea-selection tools.

When you get home, try applying a couple of these tools to generate ideas to address the need you’ve selected.
<table>
<thead>
<tr>
<th>Stage</th>
<th>Staff Size</th>
<th>Revenue Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Stage Startup</td>
<td>1 to 5</td>
<td>$0 to $1M</td>
</tr>
<tr>
<td>Early Stage Startup</td>
<td>5 to 30</td>
<td>$1M to $10M</td>
</tr>
<tr>
<td>Growth Stage Tech Co.</td>
<td>30 to 100</td>
<td>$10M to $100M</td>
</tr>
<tr>
<td>Later Stage Tech Co.</td>
<td>100 to 500</td>
<td>$100M to $1B</td>
</tr>
<tr>
<td>Unicorn Tech Co.</td>
<td>1 to 5,000</td>
<td>$1B+</td>
</tr>
</tbody>
</table>
You now each have two completed worksheets addressing one of the problems that you have brought with you. You should have a plan for how you can find and assess the need, and for how you can generate and prioritise ideas.

When you get home, try applying some of these tools to the problem. Involve other people if you can.

For the next workshop, bring your best idea. You will have time to work on refining it to deliver greatest value.
AIMS

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