


Haydn Green Institute for Innovation and Entrepreneurship

Nottingham University Business School

Evaluating Innovations

Simon Mosey
Haydn Green Institute for Innovation and Entrepreneurship



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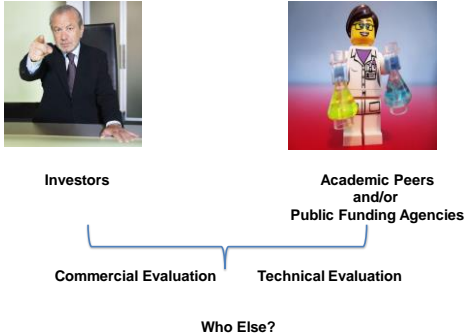
Defining Evaluation

The action of appraising or valuing (goods, etc.); a calculation or statement of value; (OED)

- Evaluation is a central to assess the value of an innovation and identify risks and failure points based on:
 - Evidence of a market and customer interest
 - Technical feasibility
 - Novelty
 - Team experience and strategy
 - An overview of financial projections

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Investors

Academic Peers and/or Public Funding Agencies

Commercial Evaluation

Technical Evaluation

Who Else?

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Example Innovation Evaluation

- The University of Nottingham proposes to give all first year undergraduates an ipad with access to all their lecture materials when they arrive
- What could possibly go wrong?

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How to Evaluate

- Studies agree upon need to evaluate
- Debate regarding how best to do this
- Quantitative modelling based upon past performance vs qualitative value judgements
- Agreement that cannot predict success but can pre-empt failures
- **Need checklist of appropriate 'failure' criteria**

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win2 Evaluation Criteria

(www.winsquared.co.uk)

- What will be the impact upon society?
- Is the market attractive?
- Can it be made, will it work, will it pay for itself?
- Has the company the necessary experience?
- What is the appropriate strategy?
(Udell 98, University of Nottingham 2002)

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Societal Impact

- What is the effect upon people's welfare?
- Does it meet current laws/ regulations?
- What are the safety implications of using or abusing this innovation?
- What will be the impact upon the environment of this innovation in use or when obsolete?

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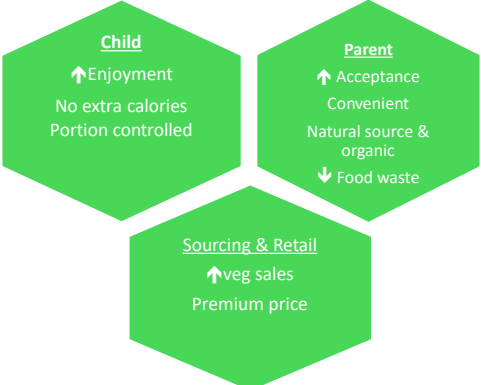
VegULike Vegetables with a sweeter flavour

- Discovered a new recipe and method to process natural, plant-based sweetness into a mist that produces a sweetened flavour
- Without changes to texture, appearance & shelf-life
- Properties remain stable at high and low temp.



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Welfare



Child

- ↑ Enjoyment
- No extra calories
- Portion controlled

Parent

- ↑ Acceptance
- Convenient
- Natural source & organic
- ↓ Food waste

Sourcing & Retail

- ↑ veg sales
- Premium price

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What are the barriers?

Laws/regulations

Safety

Environment


VegULike

- Meets FSA and EFSA regulations
- Risk Assessment conducted (occupational and consumer) & Quality Assured food chain
- Sustainably sourced
- Bio-degradable ingredients
- Food grade & microwave safe packaging

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Degree of Novelty

- Also consider the degree of novelty involved:
 - Incremental change
 - Online appointments for GPs
 - Radical Change
 - Skype consultations
 - Discontinuous Change
 - AI diagnosis via smart sensors



(Mosey (2005), Understanding new to market product development, IJOPM.)

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Market Attractiveness

- What are the size and dynamics of the potential market?
- How does it compare with the competition?
- Are there any barriers to acceptance?
- Can it be made and will it work?
- Will it make money!!!

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Market Attractiveness

- What are the size and dynamics of the potential market?
- How does it compare with the competition?

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Unique Selling Points

- ✓ long-distance
- ✓ highly active -15ft radius
- ✓ all biting insects
- ✓ long-lasting
- ✓ plant based
- ✓ value for money
- ✓ low-maintenance
- ✓ does not smell
- ✓ not a hazard

Approved by WHO & CDC



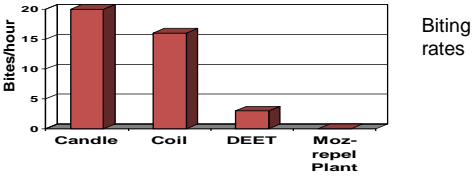


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Market Attractiveness

- Size and Dynamics of Market
 - 2002 market value: USA: £100 million
 - world wide: £4 billion+
- Comparison with Competition



Method	Bites/hour
Candle	20
Coil	16
DEET	4
Moz-repel Plant	1

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Feasibility

- Barriers to Acceptance
 - Will it work?
- Can it be made & will it work
 - Technology proven and tested in prototype
 - Scale up issues
- Will it make money


	£	\$	Gross Profit Margin
Cost of Production	1.13	1.89	
Wholesale Price	8.50	14.20	87%
Recommended Retail Price	20.00	33.50	58%

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Example - Pro cork

- Synthetic cork grown in the lab
- No fungus
- No cork taint in wine.



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Market Attractiveness

- Size and Dynamics of Market
 - 800 million bottles sold every year
 - Market increasing 2% per annum.
- Comparison with Competition
 - 5% of traditional corks tainted
 - Plastic corks do not allow fine wine to mature
- Barriers to Acceptance
 - Who pays for the benefit?
 - Frankencorks.

Feasibility

- Can it be made & will it work
 - Technology proven and tested in prototype

- Will it make money

Traditional cork 5p, New Pro cork 20p (5p profit)

5% of fine wines lost to cork taint

£10 per bottle x 5% = 50 p

Pro cork saves 50p – 20p = 30p per bottle

Market and Industry Research Resources

- Market research (Intel, Keynote)
- FAME (Financial Analysis Made Easy) (Industry averages (Profitability; Revenue; ROIC)
- Industry bodies (e.g., Aerospace/IATA; OFCOM etc)
- Business and Tech Press (FT, WSJ, TechCrunch)
- Company websites (e.g., Annual reports, Press releases)
- Investors' Websites and Technology Transfer Offices

Necessary Experience

- Marketing – mass vs niche
- Technology – develop and manufacture
- Finances – equity and cash flow
- Management – partners and employees
- Production – quality vs price vs volume
- Distribution – volume vs specialist

Example : Ooho

- Edible and biodegradable water container
- Made from algae and calcium carbonate
- Cost 1/5 the cost of a water bottle



Appropriate Strategy

- Should the innovation be exploited using partner organisations?
- Should the innovation be exploited as a new venture?
- How should the innovation be distributed?



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Ready Yet Strategy

Could not raise £2.5m for new venture
 Patent protected but who to license to?

- Label Manufacturers
- Avacado Growers
- Avacodo Importers
- Distributors
- Supermarkets

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The Perfect Search Engine

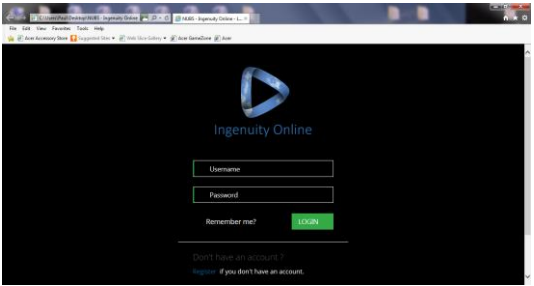


“understands exactly what you mean and gives you back exactly what you want.”

Larry Page

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Not the perfect search engine



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An adventure in technology entrepreneurship



The Universitas 2016 Global Ingenuity Challenge

This year's challenge looked for creative responses to problems associated with 'sustainable housing'. This was a deliberately broad challenge to encourage the widest possible range of responses.



universita21.com

'Global Ingenuity Challenge 2016' Inspires Student Creativity To New Heights

21 April 2016



Member List

- Thinking Internat
- 3MT FOUNDED BY THE US

Global Ingenuity Challenge 2016' Inspires Student Creativity To New Heights

The growth in the Universitas 21 Global Ingenuity Challenge since its launch last year reflects another step forward in the recognition of student creativity and problem solving. The doubling of the number of entrants from a broader span of countries generated some superb and novel solutions to the issue of sustainable housing. Teams of students from Korea University and the University of Connecticut were jointly awarded the top prize.

Professor Eva Wilberg, Executive Director of Universitas 21, commented that "The quality of all students' work was excellent and it was a difficult task for the judges to come to a final decision; it has been an exceptional result that two winners have been selected, we do not expect this to happen again in the future."

Universitas 21 Global Ingenuity Challenge 2016 video pitch entries

Watch the Global Ingenuity Challenge video pitch entries below

Fudan University

Korea University

Lund University

Shanghai Jiao Tong University

Shanghai Jiao Tong University

Shanghai Jiao Tong University

<http://www.nottingham.ac.uk/business/businesscentres/hgi/student-enterprise/global-ingenuity-challenge-2015/video-pitch-entries-2016.aspx>

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Using Win2

- Use Win2 is a starting point useful for
 - Gathering evidence of market attractiveness (who is the customer?) and demonstrating awareness of industry (e.g., competition)
 - Identifying failure points (e.g., barriers to acceptance, impact on society)
 - Explaining finances (gap + will it make money)
 - Evaluating the experience required and gaps
 - Justifying strategy

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Conclusions

- Can predict failures using generic criteria
- However even if 'passes', no guarantee of success but does highlight areas for further investigation/ development work.
- Cases shown here are 'obvious' as we know the outcome, now apply to your real innovations, where the outcome is uncertain