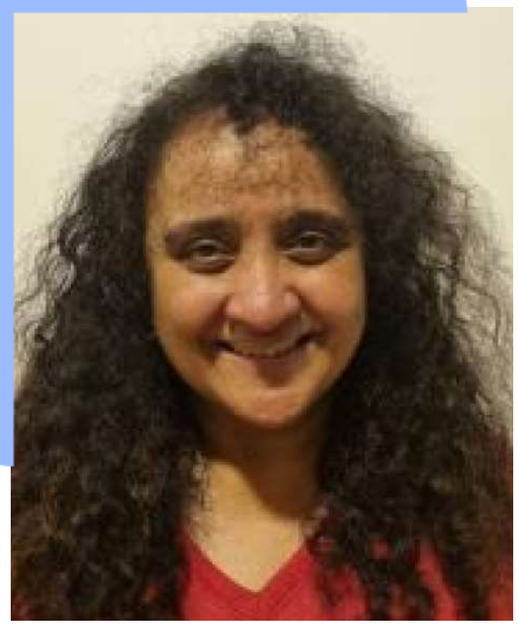
Session 8 :
Understanding the activities of a TTO

Tech marketing, lead development and management , Q&A

Anu Narasimhan, Premnath V

Who's Speaking



Anu Narasimhan

PhD

Anu Narasimhan, Professor-of-Practice at IIT Bombay's Desai Sethi School of Entrepreneurship, works in technology transfer and startups. With 24 years in corporate strategy and marketing, she now leads startup programs, helping innovators grow. She mentors founders, women leaders, and brand managers while serving on global boards. An IIT Bombay and IIM Bangalore alumna with a doctorate from SMU, she has won top awards for her work. Passionate about problem-solving and ecosystem building, she helps connect research with industry to turn ideas into real-world solutions.

Affiliation

- Professor-of-Practice and Head of the Desai Sethi School of Entrepreneurship (DSSE) at IIT Bombay
- Ex-VP Marketing, Britannia Industries Ltd

Who's Speaking

Premnath Venugopalan

PhD, RTTP, FSTEM

Dr. Premnath, Director of Venture Center and Head of NCL Innovations, is a leader in technology transfer, IP commercialization, and venture creation. He has shaped national policies and established award-winning innovation management initiatives, fostering technology commercialization, startups, and deep-tech incubation across India through CSIR-NCL and Venture Center.

Affiliation

- Director, Venture Center, Pune

Technology marketing and its role in Tech Transfer

Premnath V

TTO: Roles & Organization

Roles a TTO may play:

- Awareness, training, enabling policies
- Identifying/ sourcing technology assets
- IP protection and management
- Patent analytics for decision support
- Technology translation and readiness; innovation/POC funding
- Technology assessment
- Technology marketing
- Advancing a lead closer to deal making
- Technology transfer deal structures/ agreements
- Technology valuation
- Negotiations and closing a deal
- Post-deal contract life cycle management
- Tech venturing and spinouts; seed funding
- Other models of technology commercialization

IP Protection & Portfolio Management:

- Awareness, training, enabling policies
- Identifying/ sourcing technology assets
- IP protection and management
- Patent analytics for decision support

Valorizing technology assets:

- Awareness, training, enabling policies
- Technology assessment
- Technology translation and readiness; Innovation/POC funding

Tech marketing and transactions:

- Technology assessment
- Technology marketing
- Advancing a lead closer to deal making
- Technology transfer deal structures/ agreements
- Technology valuation
- Negotiations and closing a deal
- Post-deal contract life cycle management

Venturing & other routes to market:

- Awareness, training, enabling policies, clubs
- Tech venturing and spinouts; seed funding
- Other models of technology commercialization

Skills & Orientation

IP Protection & Portfolio Management:

- Awareness, training, enabling policies
- Identifying/ sourcing technology assets
- IP protection and management
- Patent analytics for decision support

Science, engineering and allied disciplines
IP law & procedures of IP offices
Collaboration agreements
Networks with IP attorneys
Cost management

Valorizing technology assets:

- Awareness, training, enabling policies
- Technology assessment
- Technology translation and readiness; Innovation/POC funding

Technology translation experience
Industry experience
Project management
Grant sourcing & management

Tech marketing and transactions:

- Technology assessment
- Technology marketing
- Advancing a lead closer to deal making
- Technology transfer deal structures/ agreements
- Technology valuation
- Negotiations and closing a deal
- Post-deal contract life cycle management

Value proposition analysis
Marketing; Communication
Lead development
Networks with tech scouts in industry/ industry leaders
Deal structuring; Licensing; IP law
Valuation
Negotiations
Contract management and enforcement
Revenue management

Venturing & other routes to market:

- Awareness, training, enabling policies, clubs
- Tech venturing and spinouts; seed funding
- Other models of technology commercialization

Startup experience
Seed investing
Raising investments
Networks with incubators, accelerators, investors
Equity portfolio management

What is being transacted

Knowhow

A recipe!

Knowledge on how to do a certain task or carry out a certain process or make/produce something useful.

Disclosed under an confidentiality agreement	Publicly disclosed

Patent

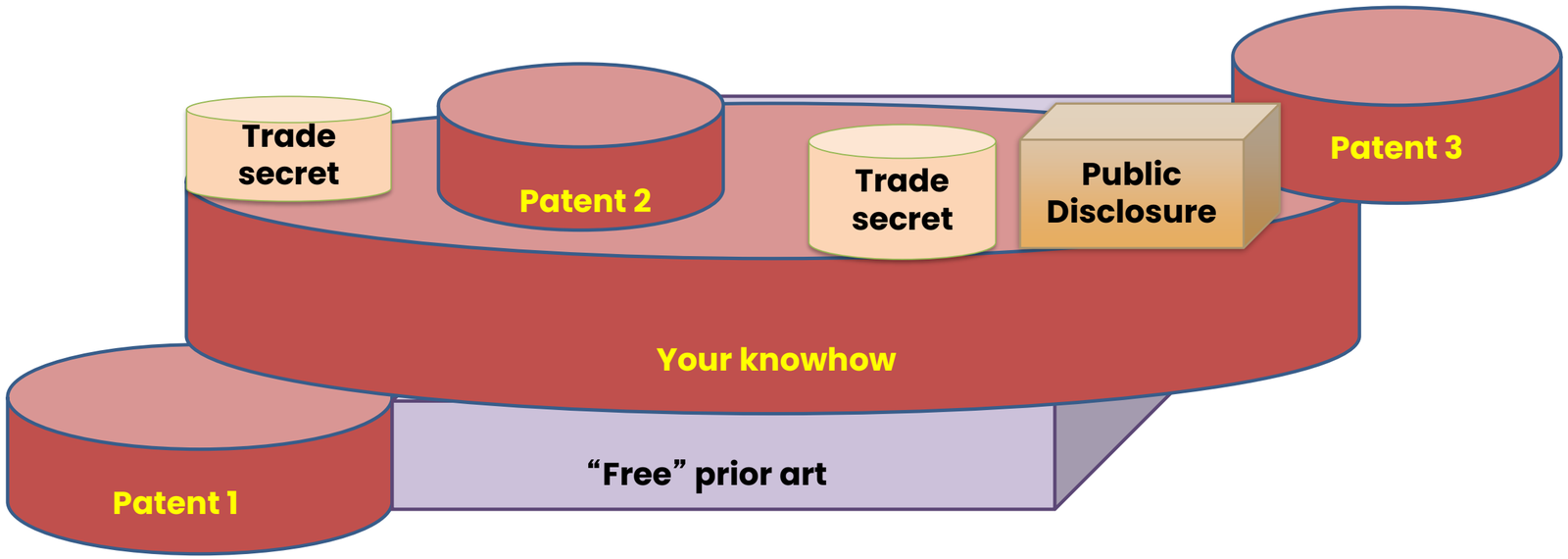
A right to exclude others from practicing the art disclosed in the patent.

Publicly disclosed

Knowhow and Patents

	Knowhow - Yes	Knowhow - No
Patents-Yes	Knowhow + Patents	Only Patent Rights
Patents-No	Knowhow Without Patents	None

How do they intersect?



What is being transacted?

- Knowhow (with presumed Freedom to Operate)
- Right to exclude others from practicing the art (valid patent rights) ➔ Source of sustainable, competitive advantage !
- Research and technical support for validating, scale-up, valorizing knowhow/patent rights and commissioning.

Why value proposition is important?

Inventors

Language
- Different/ unique
- First
- Latest/ contemporary
- Features/ Beats others
- Peer recognition

Industry

Language
- Benefits to industry/end-user; rewards
- Benefits compared to alternatives
- Risks
- Costs
- Business impact

Example: Process Innovations in Pharma

Inventors

Language
- **Minimum number of steps**
- **Atom economy**
- **Continuous flow**

Industry

Language
- **Lower raw materials cost**
- **FTO**

Ref: https://www.techex.in/matchmaker/08/

What is being transacted?

Licensor

Customer: Licensee (s)

Alternative tech

Customer: End-user 1

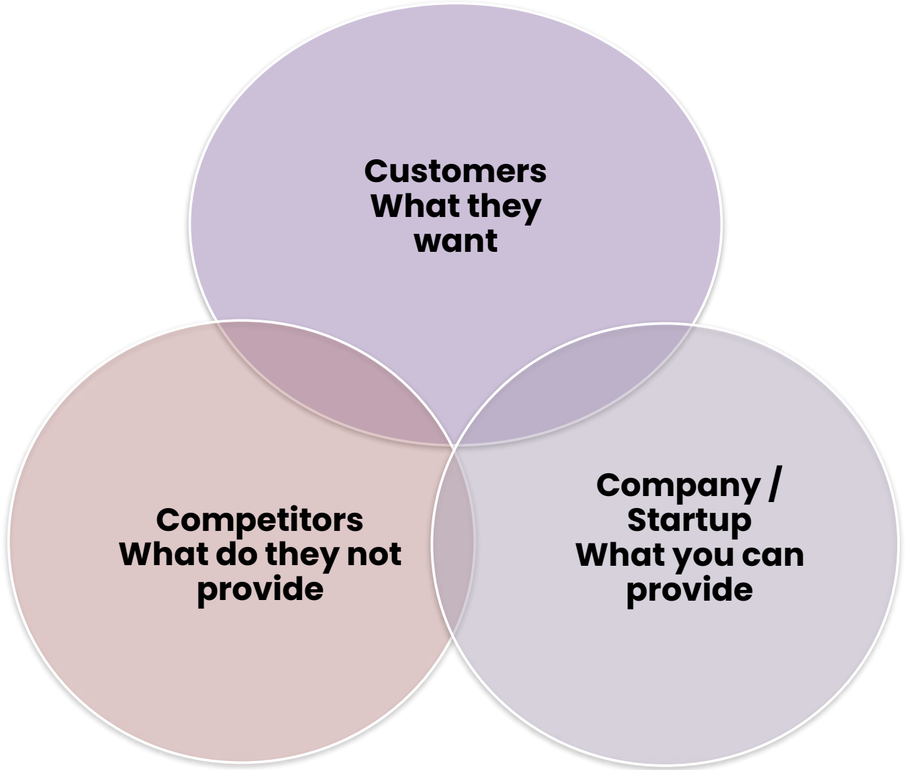
Alternative products

Customer: End-user 2

Alternative products

Understanding and communicating value proposition

Proposition : Why Buy Me ?



Branding : Who am I ?

Image Source : Internet

What are Value Propositions

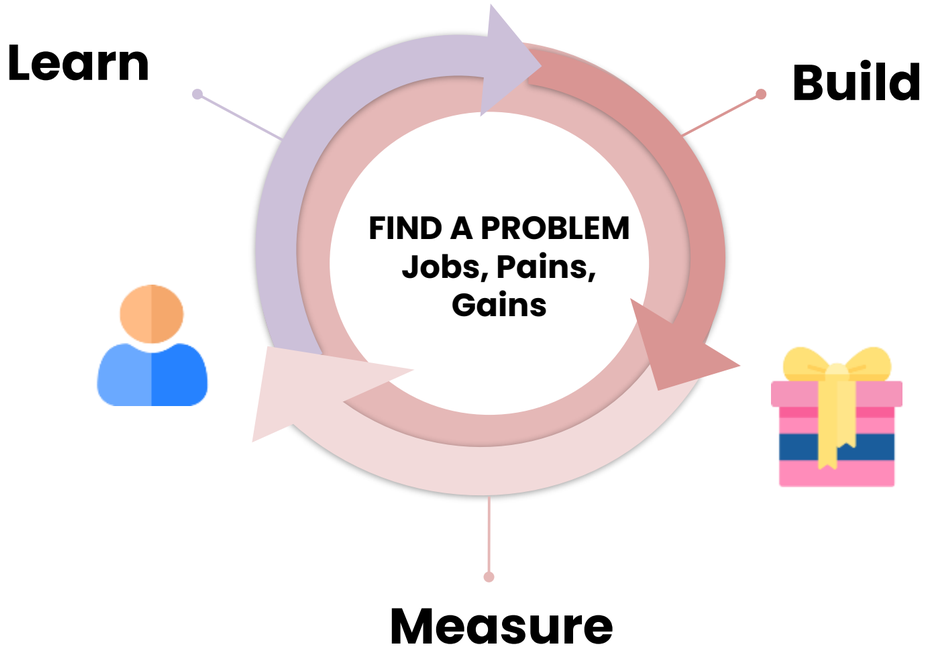
- Describes why a customer should buy the product
- Targets a well-defined customer segment
- Demonstrates superiority to competitive products

- Value Propositions can be **Quantitative**
- Value Propositions can also be **Qualitative**

What are Value Propositions

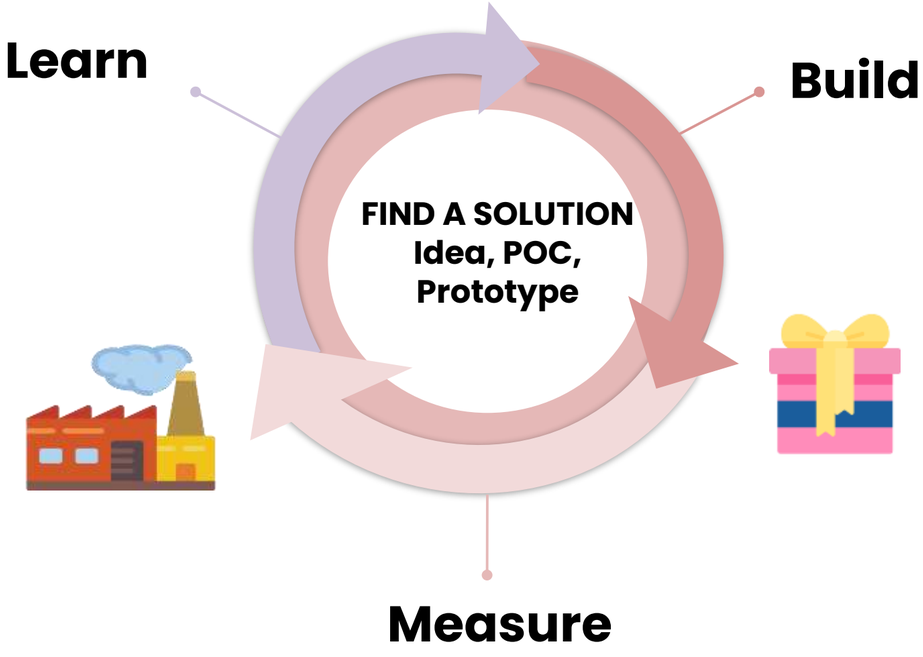
Technology Push

Solution Available



Market Pull

Problem Discoverable



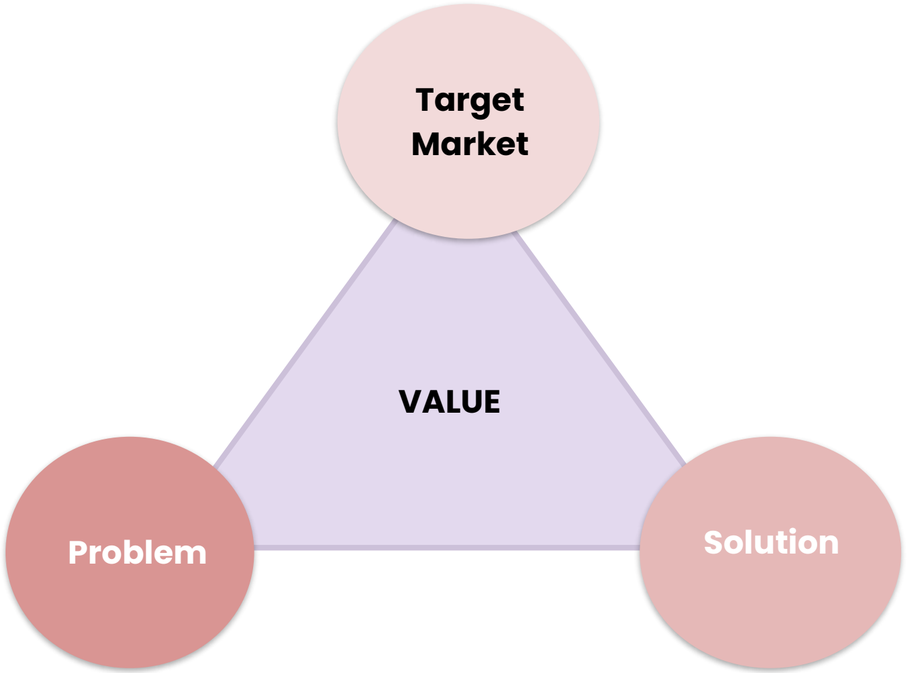
Elements of Value

Value :

worth, importance/relevance or usefulness

Value and Price :

Value (what you get) = worth of the social and economic benefits a customer pays (price; in monetary terms) for an offering



Value Propositions: 5 Key Components

Product

Performance, Quality, Features, Brand

Price

Fair, Reasonable, Consistent

Access / Availability

Convenient to find

Service

Ordering, Delivery, Return, Check out

Experience

User interface, Customer relationships

Elements of Value: B2C

PROVIDES HOPE

Definition: Providing something to be optimistic about

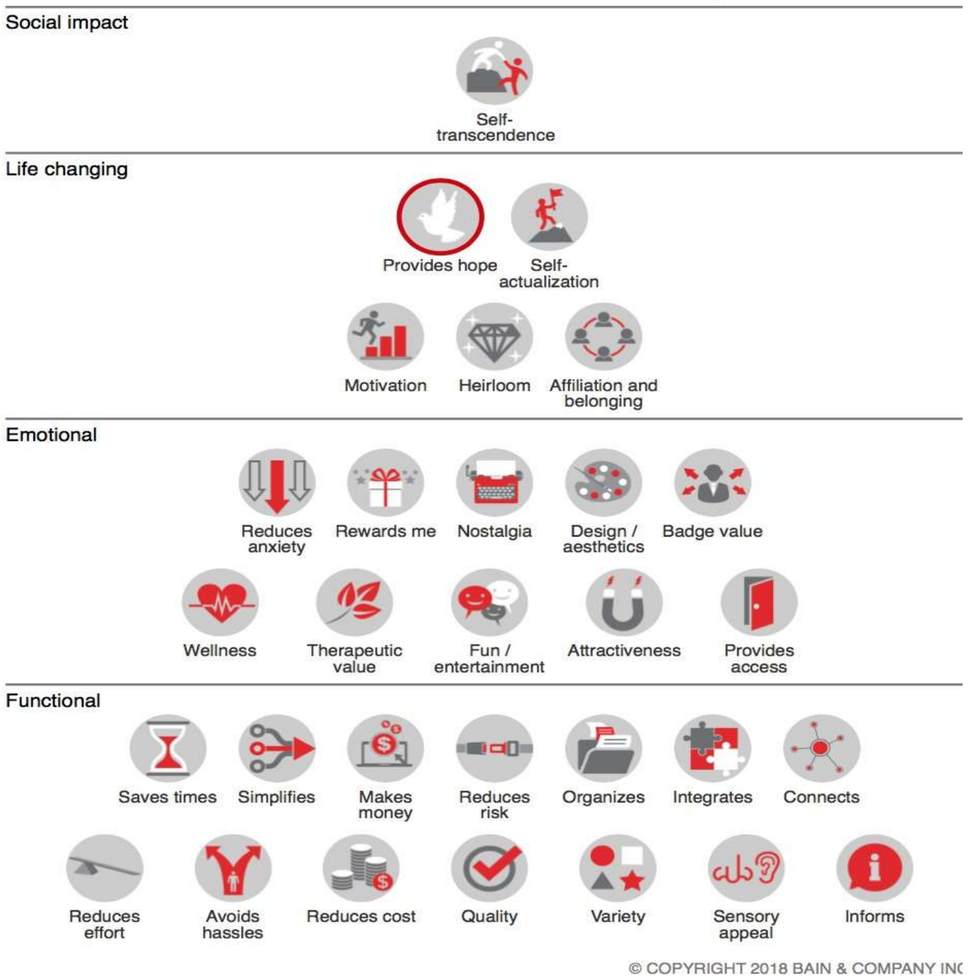
Example: GNC stores sell a wide range of weight loss, nutritional supplements and other products designed to improve consumers' health and fitness.

What elements are most important to consumers in different industries?

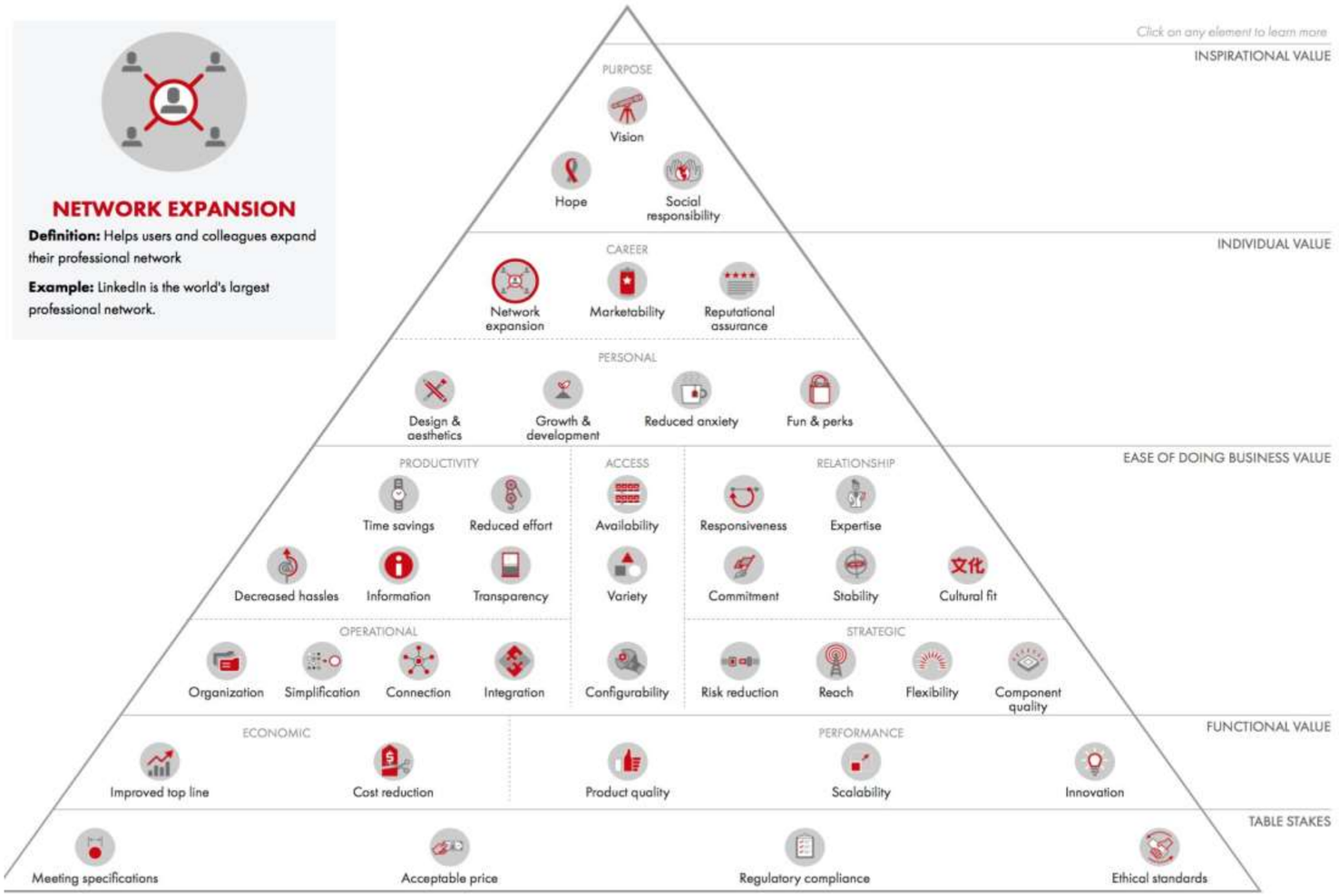
Click on each industry below to view the top five elements influencing loyalty for each.

- Apparel retail
- Discount retail
- Grocery
- Food and beverage
- Smartphones
- TV service providers
- Consumer banking
- Brokerage
- Auto insurance
- Credit cards

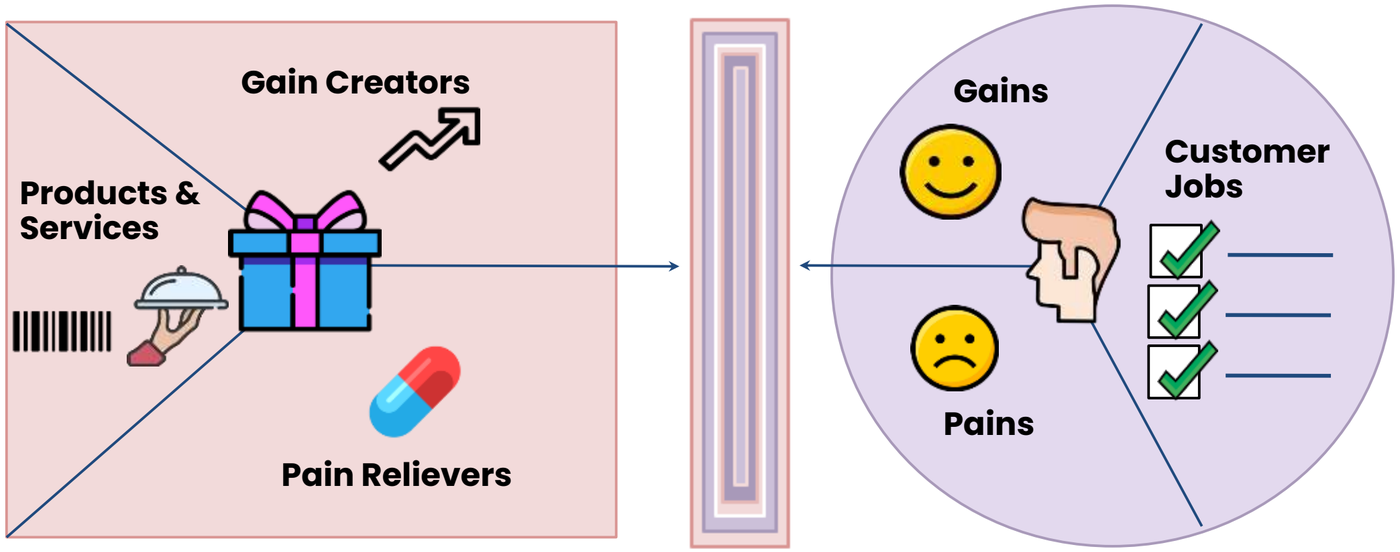
Reset



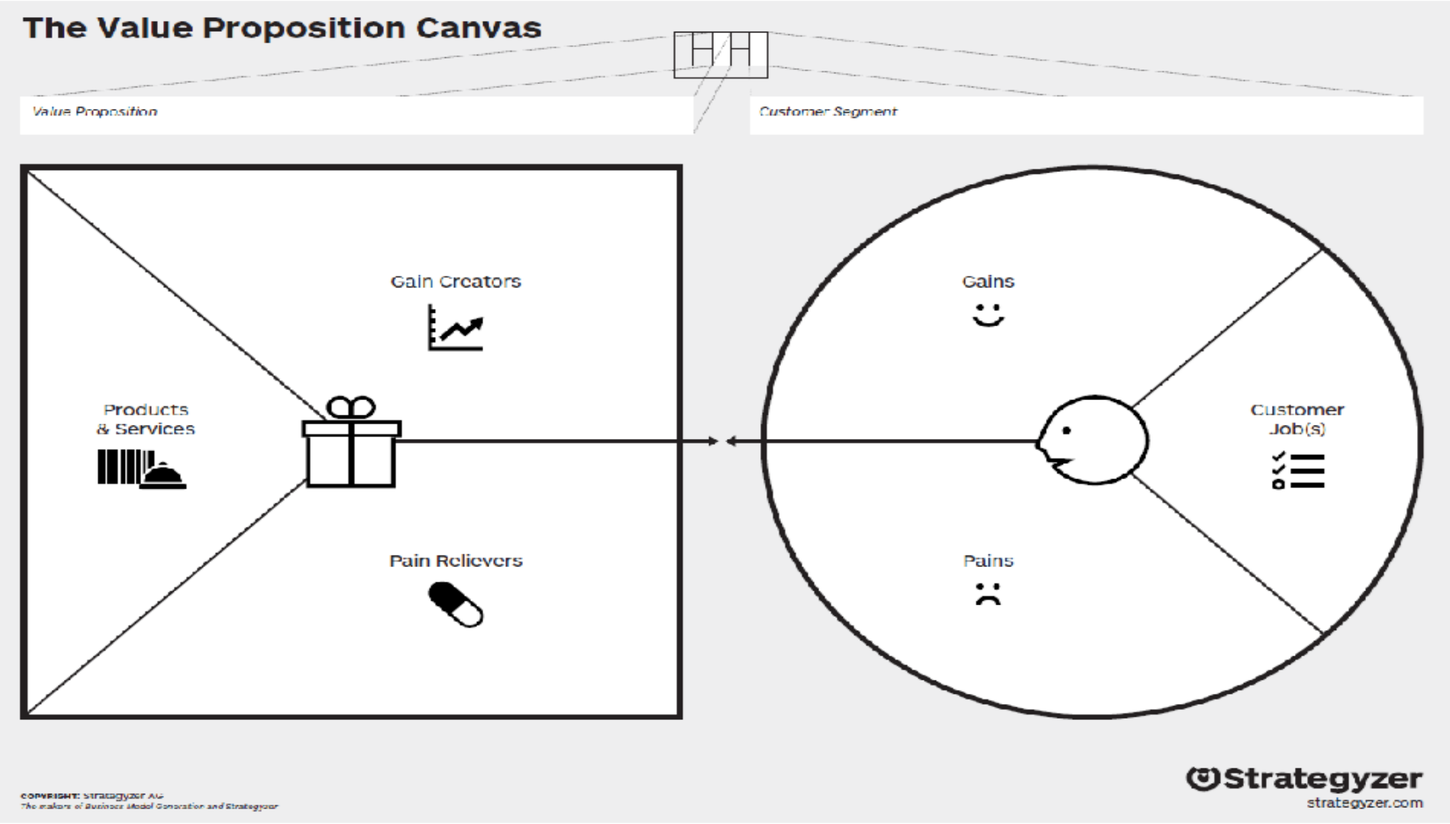
Elements of Value: B2B



How do we create our value proposition?



A FRAMEWORK TO DESIGN VALUE PROPOSITION

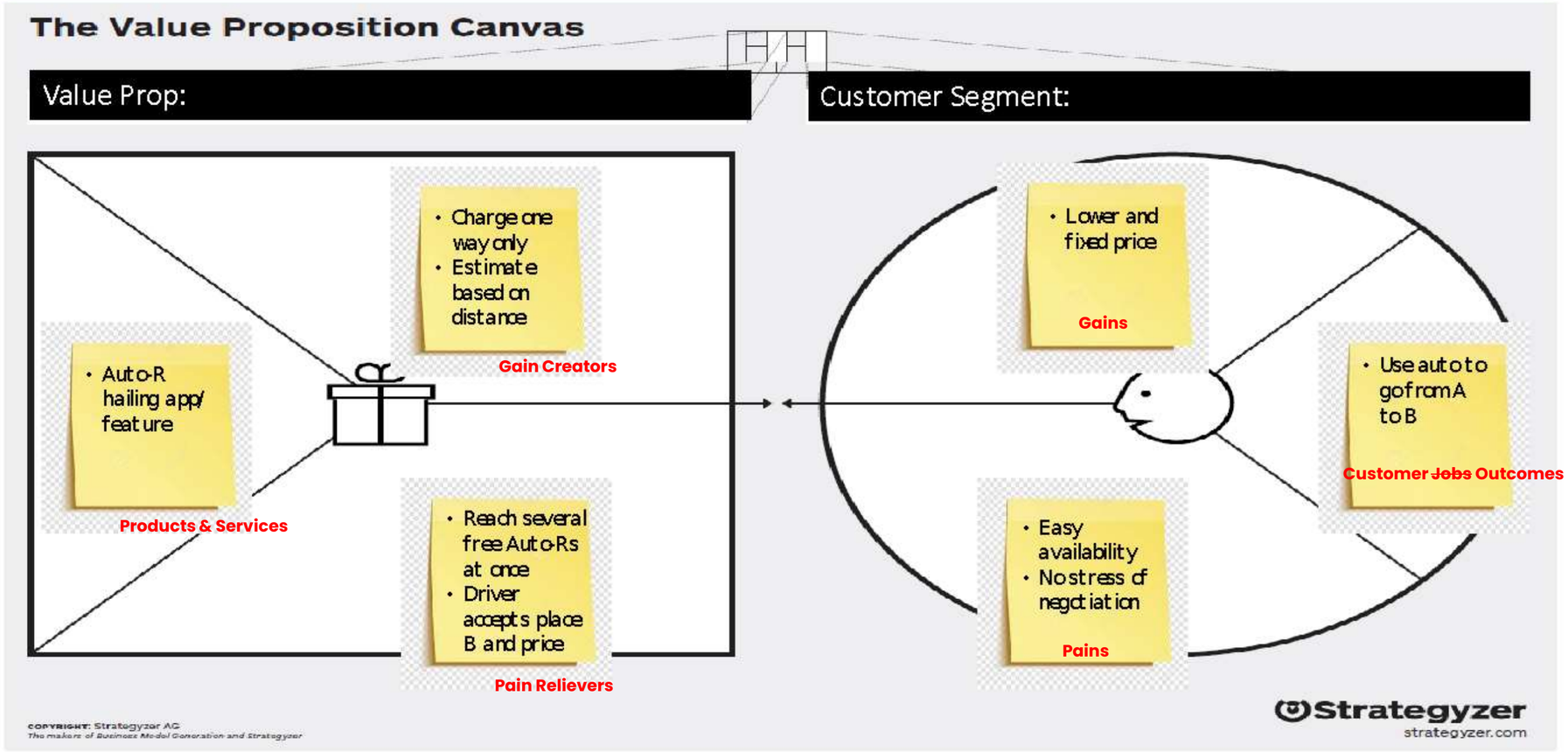


- You can start either side of the canvas; but starting with Customer Jobs (Customer Journeys) makes it easier
- Know the Customer's functional, emotional and social needs.
- Try to be as quantitative as possible
- Focus on one User Persona in each canvas-- (N = 1) approach
- User – Customer mapping is essential
- Don't confuse jobs (=activities, processes) and outcomes (=results)
- Keep unit economics in context

Courtesy: Sundara Nagarajan, IndusAge

AN EXAMPLE OF VALUE PROPOSITION MAP: AUTO-RICKSHAW HAILING APP

INDUSAGE SCALE UP ADVISORS



Courtesy: Sundara Nagarajan, IndusAge

Exercise: Value Proposition

Use the Value Proposition Canvas to illustrate value proposition of a 1 litre milk pouch (as product) that gets delivered in your house.

Exercise:
Value Proposition

Name:

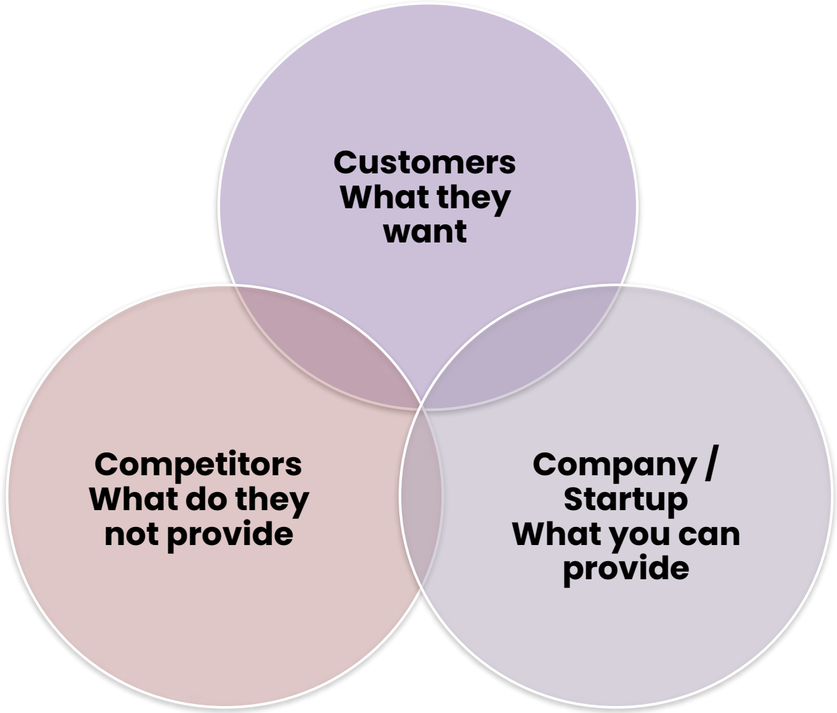
3. Customer offering/ product	7. Gain creators (Features)	8. Gains	1. Customer segment
4. Alternatives/ competing products	6. Pain reliever (Features)	5. Pains	2. Desired customer outcomes

Exercise: Comparison

Name:

Alternatives ➡ Benefits (Gains/ Pains) ⬇			

How do we create our value proposition?



Value Proposition: A reference

What is it : The world's largest search engine that allows

Who is it for : Internet users

Why is it valuable : To find relevant information quickly and easily

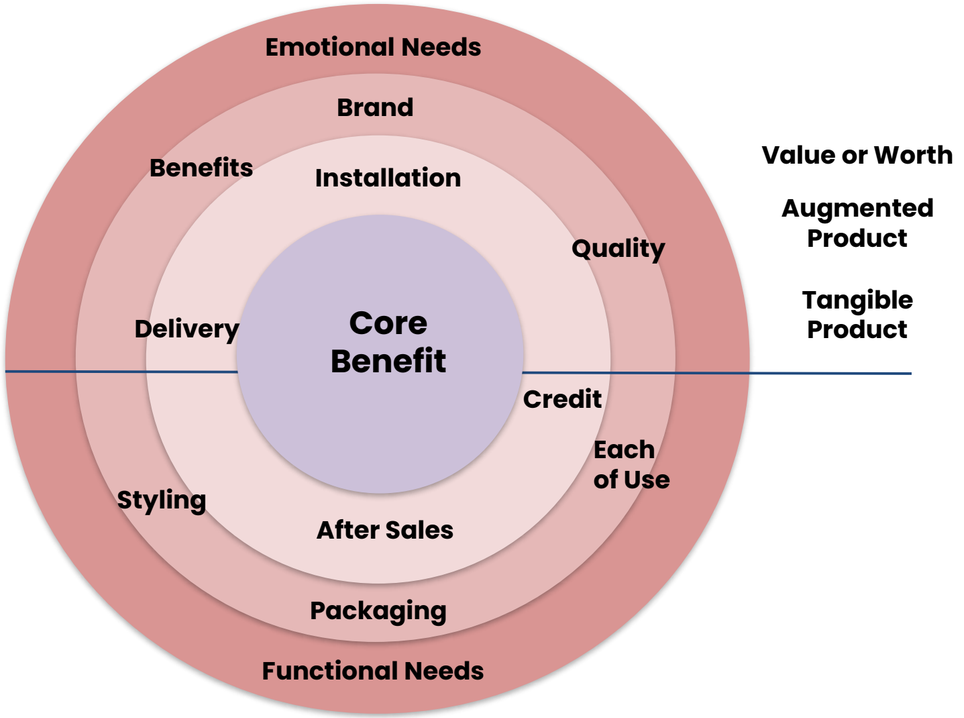
From Features to Benefits

- **Examples of Functional Benefits**
  - Saves money, saves time, saves effort
  - Sensory appeal
  - Provides information, connects, organizes
- **Examples of Emotional Benefits**
  - Design, Aesthetics, User Experience
  - Provides sense of belongingness, community
  - Badge Value, Status

Building a Tech Product

Is not only about the Tech

- Functional Product
- Technical Service
- Price
- Access or Availability
- Customer Experience



Examples: Communicating value proposition for IP

Example: Medication for Migraines

Inventor says:

- New drug for migraine
- Plant based, natural
- Can be formulated as a nasal spray
- Low cost of production

Example: Medication for Migraines

Potential licensee (pharma company) says:

- Efficacy compared to alternatives?
  - -- Use case 1: Prevention, precautionary
  - -- Use case 2: Mitigation of pain
- Safety?
- Side effects?
- Contraindications?
- FTO?
- Patent protection, strength and life?
- Potential financial upside
- Investment, cost, risks
- Current market preferences/ trends & perceived gaps
  - -- Currently in vogue: CGRP antagonist; Reduce vasodilation

Technology Briefs

TechEx.in
Tech Transfer Hub at Venture Center
Supported by NBM - BIRAC

National Chemical Laboratory

Technical Brief

Ref No: Tech Brief/2022/04

Anakinra Biosimilar

About Anakinra

Anakinra, sold by Swedish Orphan Biovitrum, under the brand name Kineret, is a recombinant, nonglycosylated form of the human interleukin-1 receptor antagonist (IL-1Ra), that can reduce the activity of interleukin-1, a key driver of inflammation in autoimmune and autoinflammatory diseases. It is used in rheumatoid arthritis as a second in line treatment to a Disease Modifying Anti Rheumatic Drug, in addition to treating Stills disease, Neonatal-onset multi-system inflammatory disease, and more. However, treatment costs remain high, with $ 1194 (for 4.69 ml) and $ 3811 (for 18.76 ml).

Technology Offering

- Clone, upstream and downstream process for producing biosimilar Anakinra
- Soluble expression of Anakinra eliminating in-vitro refolding step
- Purification process involving novel multimodal chromatographic purification steps > 2X improvement in productivity
- Time and cost effective expression avoiding in-vitro refolding of protein
- Soluble protein expression > 1gm/L of fermentation broth

Market Potential

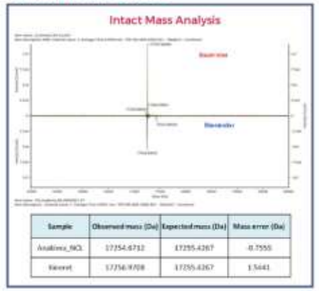
Nearly 4% of the world's population is affected by one of more than 80 different autoimmune diseases, rheumatoid arthritis being one of the most common. However, very few companies seem to be working on developing biosimilars of the molecule. The biosimilar is also currently being tested for newer indications such as COVID.

Current Technology Status

- Development of Hypotheses and Experimental Designs Done
- Non-clinical *in-vitro* studies: Physicochemical characterization for Biosimilarity Done
- Non-clinical *in-vitro* studies: Functional characterization for Biosimilarity Done

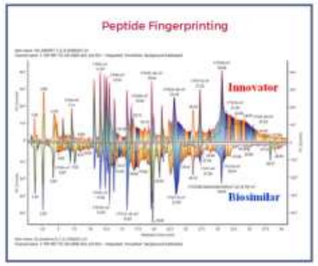
Selected Biosimilarity Data

Intact Mass Analysis



Sample	Observed mass (Da)	Expected mass (Da)	Mass error (Da)
Anakinra_NCL	17254.6712	17255.4267	-0.7555
Kineret	17254.9708	17255.4267	-1.5441

Peptide Fingerprinting



For more info and biosimilarity data, please click:

Tech Pitch PPT Tech Pitch Video

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MIT TLO Technology Licensing Office

Bacterial High-Yield Production of Biofuels and/or other chemicals and chemical precursors from Non-edible Plant Sources

Technology #12971

Applications

- A novel bioprocess for the production of lipid biofuels and/or other chemicals and chemical precursors
- Rhodococcus opacus bacteria, having a natural high capacity to store lipids at up to 70% dry weight, are engineered to metabolize both glucose and xylose from plants into triacylglycerides (TAGs)
- Our efficient and sustainable microbial system enables large-scale manufacturing of TAGs

Problem Addressed

While economic and environmental concerns surrounding the use of fossil fuels have led to an increased interest in alternative technologies, current processes to generate biodiesels are not sustainable or efficient. The preferred production method converts plant oil to biodiesel but unfortunately generates a food-fuel conflict in supply chains leading to higher crop prices and also large quantities of undesirable glycerol waste that are hard to dispose of without further processing.

Our invention maximizes the use of low-cost, lignocellulosic biomass found in non-edible dried plant matter and the plant biofuel waste biproduct glycerol to abundantly make TAGs that can be chemically converted into biofuel and/or other chemicals and chemical precursors. The technology offers the potential to revolutionize TAG production as a cheaper, more efficient, and higher yield process over plant-based purifications through the use of an engineered bacterial expression system.

Technology

1. This technology describes a method to obtain high cell density and TAG production using batch fermentation through optimized carbon to nitrogen (C/N) ratio, constant pH and oxygen levels.
2. This technology also allows microbial production of TAG via xylose and glycerol consumption. Plasmids allowing expression of enzymes to metabolize xylose and glycerol are constructed and introduced into *R. opacus*.
3. Lastly, the technology identifies ways to optimize TAG production from within the cell. Through genetic screening, tadA, tadR, tadB, and tapD were identified to influence TAG production. Overexpression of TadD, tadR, and tadB induces TAG accumulation.

Advantages

Low cost, efficient production of TAGs using optimized growth conditions:

- *Lower raw material costs:* Uses lignocellulosic biomass and glycerol as carbon sources
- *Lower operational costs:* Amenable to batch fermentation processes (simpler setup, easier to operate, lower risk of contamination) and lower operation and maintenance costs as compared to fed-batch fermentation)
- *High yield TAG production:* *R. opacus* grown in large batches can achieve up to 25.1 g / L

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Technology Spotlight

TechEx.in
Tech Transfer Hub at Venture Center
Supported by NBM - BIRAC

Deployable Toilet System: Toilets for a non-sewer system

Vishwakarma University has developed an affordable toilet system which is pathogen and odor free. The system is modular and easy to assemble on-site.

Features

- Modular, separable and easy to assemble Toilet system
- Filtration unit for recycling of waste water to flush tank
- Toilet Pot developed from Electronic Waste (e-waste) material
- Cost effective

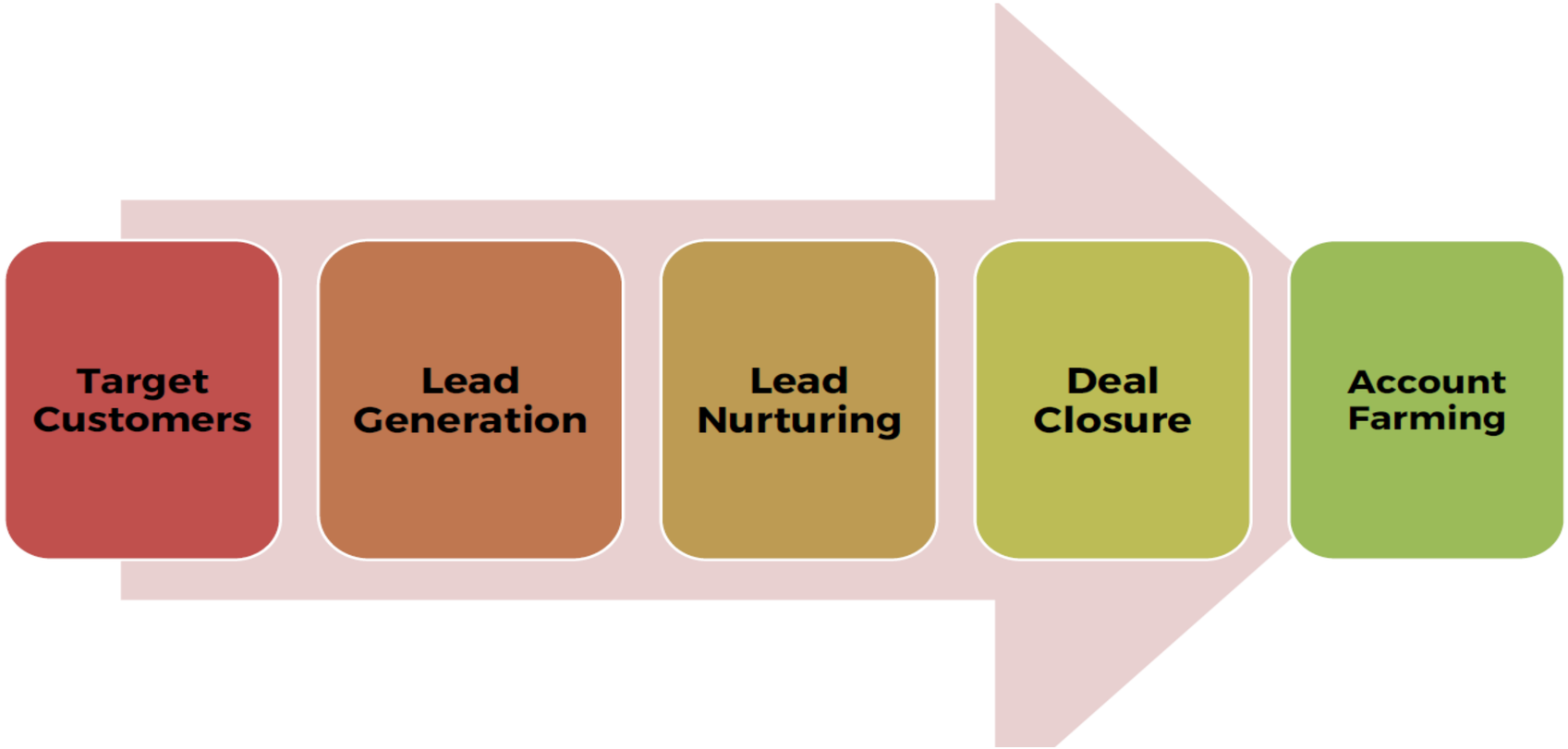
Technology Readiness Level 6
System demonstration in real world

Seeking Licensee

Contact Us: Email: tto@venturecenter.co.in | Ph: +91 7410045655

Generating leads and progressing along the sales funnel

Sales Funnel



Target Customers

- Do you know your customer segments?
- Decision-maker / Buyer / User / Influencer

- What behavior do you observe ?
- What mindset drives that behaviour ?

- What could change that mindset (Insight)

- How integral a role does your brand play?

Customer Segmentation - Examples

Examples of criteria B2C

Demographics

- Age
- Salary
- Status
- Education
- Family Size
- Gender
- Occupation

Psychographics

- Preferred brands
- Price sensibility
- Hobbies
- Lifestyle
- Information sources
- Sensibility to trends
- Influenceability
- Social relationship

Examples of criteria B2B

Demographics

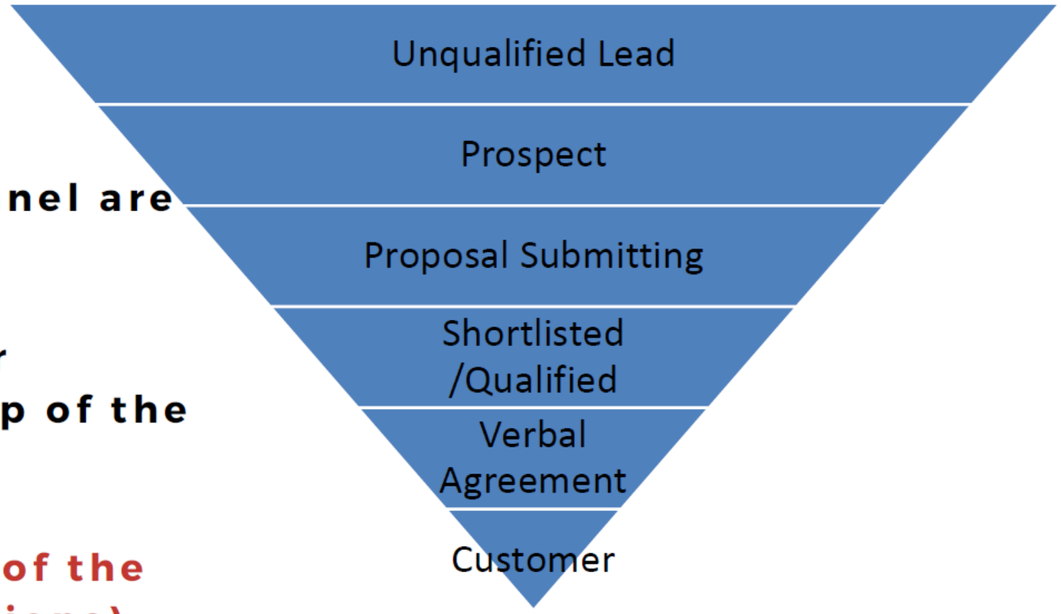
- Sales
- Number of employees
- Industry
- Number of locations
- Business age
- Served markets
- Products/Services
- Position
- Experience level

Psychographic

- Change aversion
- Diversification
- Openness/Rigidity
- Growth
- Technology
- Professionalism
- Risk aversion
- Dynamism

Information / Insight based Sales Funnel

- **Where in your sales funnel are the challenges ?**
- **Do you have metrics for conversion at every step of the funnel**
- **How do you keep track of the sales funnel (CRM solutions)**



Examples: Finding and progressing leads for marketing KH/IP

Tech Marketing in Practice

Spray and pray

- Websites, portals, online dBs
- Social media
- Mailing lists
- Advertisements

Lesson: Reputation, track record, trust matters

Targeted marketing

- Decision makers in identified companies
- Referrals from industry experts
- Industry specific tech showcases
- Articles in industry magazines
- Trade shows, industry conferences, meetings with companies (esp. by inventor)

Lesson: Networks, understanding industry needs matter

Targeted Marketing

Some approaches:

- Inventor's networks; Connects made by inventors via conferences
- Known players in the field (existing industry players; those filing IP; those who have talked about interest areas publicly)
- Leverage personal networks of senior professionals in the relevant industries; "Can you suggest who I can talk to in order to understand who may be interested"
- Industry specific technology showcases
- Concept selling to Founders/ Board Members

Example: Technology Showcase

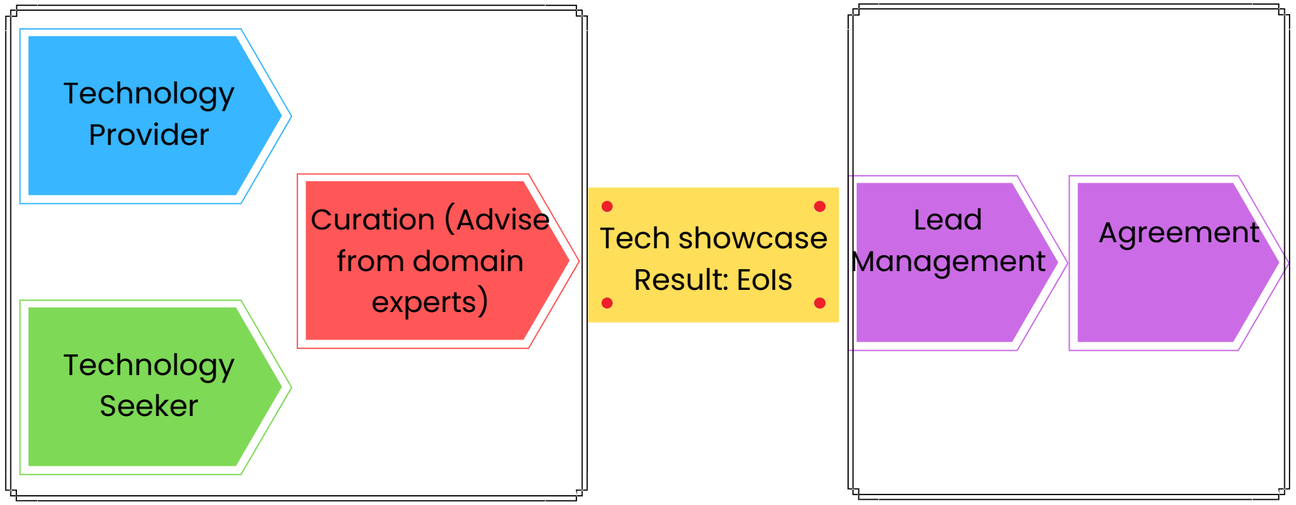
https://www.techex.in/matchmaker/06/
https://www.techex.in/matchmaker/06/online-showcase-for-personal-care/

https://www.youtube.com/watch?v=G9oQ3hl0394

Methodology:

- Focused, industry-specific technology showcases
- Explained in simple language minus jargon
- Curated cohort of technologies; Curated by industry experts
- Highlights points that industry experts say are important
- **Directly talk about value proposition**
- Invite industry professionals through networks of industry experts

Example: Technology Showcase

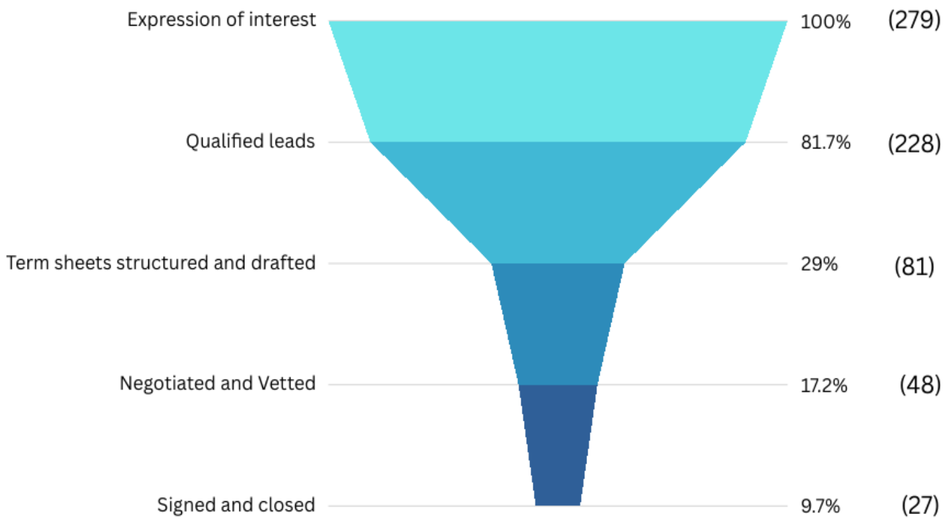


Example: BIRAC ETA experience

- **Methodology:**

- Study target technology for:
  - -- Who has interest in end-product?
  - -- Who uses same raw materials? Who may wish to vertically integrate?
  - -- Who has equipment/ capabilities that is needed?
  - -- Who has M&S investments in related end markets?
  - -- Who is investing in related themes?
- Contacts of inventors
- Pitching whole portfolio to Venture Studios

Example: Tech Marketing Funnel
Technology transfer activities: Cumulative



Number of technology licensing transactions / term sheets negotiated	51
Termsheets to be converted into licensing agreements	27

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Contact Us

https://www.low-carbon-innovation.org/

https://www.venturecenter.co.in/

https://www.techtransfer.online/

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