BizTech Model Design Dialogue

General Instructions

- Students can send in their research write-ups in teams of three
- There are two parts- Analysis and Synthesis
- All the questions in first part (Analysis) are compulsory, for required subject background.
- Students can choose any two themes and send in their research reports.
- The team which would have submitted the best research shall present during the event.
- One team per theme would be selected. You may choose the theme strategically.
- Describe the background work which was done to complete the research report.
- Interesting wrong answers are valued more than correct answers, at Sciensation!
- If you disagree with any implicit assumptions in the question, please state your point of view explicitly. You'd receive extra marks.
- Sciensation is very generous when it comes to awarding points, creative answers receive extra-marks!

Selection Criterion

- Examples- Can the student provide intuitive examples to justify the logic?
- Eloquence- Were the arguments explained carefully?
- Rigor- The arguments/assertions need to be justified.
- Robustness- Can the argument break down easily? How general is it?
- Elegance- Were the arguments beautifully constructed?

Scoreboard

	Examples	Eloquence	Rigor	Robustness	Elegance
Analysis: P1	/5	/5	/5	/5	/5
Analysis: P2	/5	/5	/5	/5	/5
Analysis: P3	/5	/5	/5	/5	/5

	Examples	Eloquence	Rigor	Robustness	Elegance
First Theme	/5	/5	/5	/5	/5
Second Theme	/5	/5	/5	/5	/5

(Will be considered under both the themes)
Total (Analysis + Synthesis):

Analysis Part One: What is a model?

Q1: 2,4,6,8, __, ___? India, Australia, South Africa, ___, ___? How do we solve these questions? How do we see patterns? What is a pattern? A few coaches use man to man mapping as a strategy in hockey/soccer, can this be used in other sports as well? What is the common pattern? Why would one want to see these patterns? Why do we find similarities amongst objects? Why do we use a map or a globe? Why did scientists come up with models of the atom? Why use a model when you can talk about the actual atom? Why are imaginary models easier to understand, in comparison to real atoms? If models are simple, why does one consider them to be boring when they first see them? If real objects are more interesting and if models are simpler, which one should we use?

Q2: Adolf Hitler used a strategy called "blitzkrieg" (meaning lightening) - he wanted his troops to attack like lightening, without giving their opponents a chance to react back. Sri Lankan cricket team used the same strategy when fielding restrictions were introduced in cricket, Sanath Jayasuriya and Romesh Kaluwitharana would attack the opposition's bowlers in the first 10 overs (almost all teams used to play the first ten overs quietly). Why did the Sri Lankan team call this strategy blitzkrieg? Can this strategy be used in a business situation as well? Can lightening or blitzkrieg be considered as a model?

Q3: A market consists of several watermelon sellers. A boy wants to help his mother in improving her sales. He comes up with the concept of "ready to eat fruits" after interviewing a few customers who refused to buy watermelons at his mother's shop. Is this an invention? Is this model useful (let us assume "ready to eat fruits" concept didn't exist before)? Do businesses need such models?

Q4: Is a model practical or theoretical? Does a model have to be tangible? What is a concept? What is a conceptual model? Does everybody develop models in his/her mind? Generally when you hear the word model, you think of something physical, why? Does every model have to be a working model? When the word model is used you think of science projects, may be working models or display models, but why not conceptual models?

Q5: What would be the difference between a cooking competition and a recipe making competition? Is cooking a purely practical competition and is recipe making purely theoretical? Can one design recipes without an understanding of cooking processes? Does one have to be a master chef to design recipes? Can recipes be understood as conceptual models? If students have to be taught the ability to build conceptual models, what should they be taught? Why do you think business or technology education require conceptual model design?

QFD: What is a conceptual model, with an example created by you [Hint: observe patterns]

Analysis Part Two: Problem Solving

Q1: If you're a hospital in the USA, you have an emergency case at 3am in the morning, a nurse is available, but doctors are not available, what can you do? 3am in USA might correspond to afternoon in India, so would doctors be available? How can an Indian doctor treat a patient in the USA? What is the advantage of using technology in this case? How does technology make doctors available to more locations? Can this model be used to solve more problems? If telecallers are cheaper in India, what do you do? Why are harddisks repaired/ manufactured in Taiwan, why are phone parts manufactured in China? What is BPO? What is globalization?

Q2: Why are all businesses interested in getting more information about people? Does a smart-phone know a person better or do his/her parents know him/her better? What can businesses do with this data? Why do websites store cookies (files which store your information)? Why do you think you see advertisements of travel agencies immediately after doing a lot of searchers about places in France? How do you think Google knows what to sell you? How does this information help businesses in selling the right product to the right customer at the right time at the right place? If you know taste preferences or reading habits of the entire world, how can you use it to develop a business? Why do businesses need data? If you had access to everybody's emails, what business would you get into?

Q3: The ecommerce revolution ensured that buyers and sellers could meet online, without requiring a physical meeting. But how does a mobile phone make this even better? Can you think of works which cannot be done in front of a computer, which may pop up suddenly? How does a mobile phone enable a technologist to provide solutions to customers? How is access to mobile technologies transforming entertainment/food/health spaces? Why is this massive?

Q4: Does technology refer to AI, mobiles, IoT, virtual reality, augmented reality alone? Does technology refer to computer science/electronics alone? How are humans using technology to improve life expectancy? Why do humans invent new vaccines/medicines? Why do we have more IT startups than Health/Pharma startups? Would development of new seeds or agricultural practices be considered technology? Would weapon design be considered technology? What would human beings do if we have enough of basic resources and if we everyone doesn't have to work? Will that ever happen?

Q5: Is it important to know possibilities to solve problems? How would you know about the possibilities? Do technological revolutions make the impossible possible? If that's the case, would the possibilities change with time? If problem solving depends on these possibilities, how do we update ourselves about these possibilities? How do we look at technology as potential?

Question for Discussion: Explain an interesting possibility of problem solving using technology

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Analysis Part Three: Business Value

Q1: Steve Forbes defines money as the measure of value? What does value mean? If you were struck in a desert and if someone offers you a bottle of water for a hundred diamonds, would you pay? If you were in an air-conditioned classroom with a clean-water dispenser just outside, would you pay Rs20 for a liter of water? Would two different people "value" water equally? Do we need a measure for value? Why do we need these measures? Why do we need cm, km, liters, shoe sizes etc? If someone pays Rs200 for a pen and somebody else pays Rs20 for a pen, what can we conclude? What if someone refuses to pay even Rs1 for that pen?

Q2: Let us reconsider the watermelon story. A customer was not willing to buy the watermelon, but when cut pieces were served in a plate, she was willing to pay Rs20. What does this indicate? Does it mean that she can't afford to pay Rs50 for the water-melon? If she pays Rs20 daily, doesn't she end up paying Rs140 in a week, isn't she better off buying two water-melons instead? Is the shop-keeper creating value for her? Thinking on similar lines, do we see value creation in the path from cotton to fabric to clothes? Why would pay lot more for a better design? How do you think value is created?

Q3: Do we have a difference between value creation and value delivery? Does a good product or good service ensure customer satisfaction? What if your food delivery is delayed, even if the food is tasty/ economical? What if your computer crashes all the time? How do you ensure value delivery? How can you preempt such problems? If you can't, then how do you fix it? Can we iterate and evolve? Does empathy help? Can you think of a business which delivered value?

Q4: Dell/HP have a margin of around 5% while Apple has a margin of around 20%. Why do you think Apple commands such a high profit? Do you think R&D requires this? A business creates value for a customer, but does it have to capture some of that value? What does value capture mean? Is Apple capturing more value or is Dell capturing more value? Does value capture always mean high profit? Would you prefer a onetime profit or a small profit spread over a large period? Do you think innovation is required for value capture? Does value capture help in raising prices? Warren Buffet calls this a test for value capture (raising prices without losing customers)

Q5: Does business value depend on the social/cultural/economic context? Would every country or culture value every product equally? Do you think society's perception can prevent somebody from purchasing a product? How would you design your restaurant's menu if you lived in a vegan dominated area, where the tradition goes against meat? Why do we see so many pure veg hotels in such areas? Why not have both? Why does gold sell a lot in India?

QFD: Give your one example of business value creation and capture.

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Synthesis One: Technology Models

Q1What is technology? The definition of technology before 200 years was "useful arts", why do you think it changed? Is technology about "useful art" or "useful science"? Can you think of examples of technology? Can a water bottle or wheel be considered technology? Can you think of modern examples of technology? Is technology just about computers and digital initiatives?

Q2: Can technology be considered as a superpower? Can you imagine Uber app's work being done by a human? What would the human do? Does every tech product/service require an input, process and an output? What input/process/output does Uber work on? If Uber can bring taxi to the customer, why does a human have to take the customer to a taxi? Why technology? How many different kinds of superpowers do we have?

Q3: Can technology cannot replace humans? Does it add value to human time? Does technology help a human in booking a lot of cabs in a limited time period? Does technology help a good teacher in reaching more students? Does technology kill the jobs of mediocre professionals? Is AI scary? Can AI replace humans? If AI can kill lots of white collar jobs, why is it a threat to Higher Education? How should education system respond to AI? How can we use AI to create new jobs? Why is it important to discover new technological models and sustainable business models using AI? Do we need conceptual (or recipe) tech projects at school?

Q4: How does one understand a new technology in a simple way? Does Feynman Technique help? Why does it make sense to come up with a description which even a five year old can understand? Does this ability help us in matching problems with technologies?

Q5. Once an Uber app is available to you, can you find more uses of the app? Can it be used for book cabs alone or does it have other uses as well? Can you think of various use-cases of Whatsapp? How does one think of use-cases of technology? Can users help in thinking of new use-cases? Is a business model built on top of use-cases? How do you identify scope for bringing in technology? How do you identify scope for automation? How do you identify repetitions in your work? Once you identify a repetition how do you think of a way to automate it? If an executive's job is to just add all expenses and all fee amounts, can this be done by a machine, how? If a telecaller answers the same set of questions, can you get a flow chart and pre-recorded calls to do the job? Would you classify this example under business or technology? Does it make sense for every student to study basics of technology irrespective of their career preferences? How does technology empower lives?

Question for discussion: Explain your own technological model which can solve problems

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Synthesis Two: Business Model Design

Q1: Al-Debei, Avison defined a business model to be an *abstract representation of an organization?* Why does one require an abstract representation? Steve Jobs often spoke sentences like "Apple stands for", "we don't do this, IBM does that" etc. Does a business have an identity, like that of a person? Why is Steve Jobs so particular about such an identity? Why does an organization need a DNA?

Q2: Are business models a product of human genius? How do people design ideas like that of Uber or Amazon? How do they manage to be the first to do it? Does the first company always win? Does it emerge out of various iterations? Some experts say that business model design is dynamic? What do you mean by dynamic? When and where do these people get ideas? Why does one have to eat, sleep and drink startups? Where do dots connect?

Q3: Now that business model design is dynamic, how do you start? What details get into your model? Should it contain answers to Peter Drucker's questions- 'Who is the customer? What does the customer value?' How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?'Why is it important to define the assumptions of your business? What should a business do when its assumptions break? What happened to Nokia, Blackberry mobile phones? Why do many businesses disappear after a period of time?

Q4: How does Google make money? Did you pay it for its services? How does Britannia make money? How does Jio make money? How is Jio able to give so many freebies? How does Internshala make money? Why do universities offer so many free lectures/resources? How does Wikipedia generate its funds? Can Zomato make money by giving advice to restaurants? Do your customer and consumer have to be the same? Can we have models wherein consumers are paid for the services? Some coaching institutes pay students to study, why do they do that? Why do companies innovate around their revenue models? How do you decide which models suits your business best?

Q5: Is value creation sufficient? Does a business requires its customers to perceive it's value? Is the company hallucinating, if the people are not willing to pay for the goods/services? Why do some businesses fail to get customers? How does a business perfect its money generation strategy? Why do you think engineers/designers or any non-business graduate have to study business? Why does one have to understand business when the Marketing/Finance team takes care of it anyway? Why should an employee understand the business value cycle of an organization? Can value be created by MBA grads alone or can the entire team create value? Can you think of an example wherein tech guys create value?

QFD: Design your own sustainble business model for a tech based product/service

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