BUSM2615 OPEN INNOVATION · WEEK 7

The Vehicle Challenge

Role cards

Print single-sided, one card per person. Hand out by colour at setup — and never hand the rust card to anyone who is still in the room.

Design team	PM, designers, R&D, marketing
Production	out of the room until handover
The ecosystem	supplier, broker
User research	lead users and observers
Forms	logs, licences, scoring

DESIGN TEAM

Project Manager



You are accountable for a certified vehicle, on time and in profit. Nobody else is.

1 PER TEAM | HOLDS THE BUDGET | IN THE ROOM

HIDDEN INFO ●○○○

$10,000	$50/min	$250/min
BUDGET	DESIGN OVERRUN	BUILD OVERRUN

YOUR FOUR PHASES

1	2	3	4
Design sprint	**Open phase**	**Handover**	**Build**
10 min	15 min	5 min	15 min

THE RULE THAT BITES IN EACH PHASE

- Design sprint — internal only. No outside contact of any kind.
- Open phase — anything goes, and the clock does not stop while you walk.
- Handover — verbal only. Declare your prototype spend and hand your bag back.
- Build — you may not touch the vehicle. At all.

HOW YOU WIN

- Certification. An uncertified vehicle scores nothing at all.
- Distance travelled unaided after one push.
- Customer satisfaction. The customer is in the room and answers questions.
- Net position: $10,000, less every cost, plus any revenue you generate.

One job you cannot delegate

Every time someone outside your team asks you for something, write down who asked, what they wanted, what you decided and why. It will be collected.

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DESIGN TEAM

Design team member

You design a vehicle someone else has to build, from materials you may not have.

SEVERAL PER TEAM | IN THE ROOM

HIDDEN INFO ○○○○

Your team must design a prototype for a production model of a self-propelled vehicle.

NON-NEGOTIABLE

- Self-propelled. It must travel unaided after a single initial push.
- It must meet the needs of the customer, who is in the room.
- It must conform to all safety and regulatory requirements.
- It will be built by a production team who have never seen your design.

WHERE MATERIALS COME FROM

- The bag on your table, issued at the start. It is not the same as anyone else's.
- The supplier, once the desk opens — at a price and a lead time.
- Whatever is left in the bag goes back to the supplier at handover. Nothing carries into the build.
- Another team, once the desk opens — instantly, at whatever price you agree.

Everything you use for prototyping is charged to your budget at full production price, and your project manager reports the total to the ledger keeper at handover. Breaking something is a cost, not an accident.

WHO HOLDS WHAT

Person	What they control
Project manager	The budget and the clock
R&D	Technologies your labs have already developed
Marketing	The only line to the customer

> Nothing else is specified. How you organise yourselves, who leads, and who talks to whom is entirely up to you — and it is being watched.

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DESIGN TEAM

R&D — Volta Mobility

Two comfort technologies on the shelf. Whether anyone wants them is another matter.

1 PER TEAM · HOLDS TECHNOLOGY

HIDDEN INFO ●●●○

Free to you as prototypes. Anything that reaches the production model is paid for.

ON YOUR SHELF

Technology	What it is	Marker	Price
Entertainment system	Screens and audio to keep rear passengers occupied.	Red × 1	$100
Comms and office system	Hands-free connectivity, screens and a fold-out work surface — a mobile office.	White × 1	$250

The shelf is technologies only. Your team's materials sit in the bag the project manager holds, and are bought and sold separately.

WHAT YOU HAVE NOT BEEN TOLD

Whether any of this is unique to you. Whether anyone else needs it. Whether what you are missing is on someone else's shelf.

A technology you do not use is still an asset

It cost your labs money. It is worth something to somebody. What you do about that — nothing, a sale, a trade, a favour — is a decision you are being scored on, even though nobody will tell you so.

ANYTHING THAT LEFT OR ARRIVED

Technology	In / out	Who with	Price

DESIGN TEAM

R&D — Kestrel Motors

One line of research, two units on the shelf, and one vehicle to put them in.

1 PER TEAM | HOLDS TECHNOLOGY

HIDDEN INFO ●●●○

Free to you as prototypes. Anything that reaches the production model is paid for.

ON YOUR SHELF

Technology	What it is	Marker	Price
Collision avoidance radar	Forward-facing sensing that brakes before the driver reacts.	Blue × 2	$500 ea

You hold two units. Your own vehicle needs at most one. The second is yours to do with as you like.

The shelf is technologies only. Your team's materials sit in the bag the project manager holds, and are bought and sold separately.

WHAT YOU HAVE NOT BEEN TOLD

Whether any of this is unique to you. Whether anyone else needs it. Whether what you are missing is on someone else's shelf.

A technology you do not use is still an asset

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ANYTHING THAT LEFT OR ARRIVED

Technology	In / out	Who with	Price

DESIGN TEAM

R&D — Meridian Vehicles



Two technologies, both defensive. Nothing on this shelf makes the vehicle go.

1 PER TEAM · HOLDS TECHNOLOGY

HIDDEN INFO ●●●○

Free to you as prototypes. Anything that reaches the production model is paid for.

ON YOUR SHELF

Technology	What it is	Marker	Price
Advanced safety system	Reinforced structure and restraints beyond the legal minimum.	Green × 1	$500
Comms and office system	Hands-free connectivity, screens and a fold-out work surface — a mobile office.	White × 1	$250

The shelf is technologies only. Your team's materials sit in the bag the project manager holds, and are bought and sold separately.

WHAT YOU HAVE NOT BEEN TOLD

Whether any of this is unique to you. Whether anyone else needs it. Whether what you are missing is on someone else's shelf.

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It cost your labs money. It is worth something to somebody. What you do about that — nothing, a sale, a trade, a favour — is a decision you are being scored on, even though nobody will tell you so.

ANYTHING THAT LEFT OR ARRIVED

Technology	In / out	Who with	Price

DESIGN TEAM

Marketing



You are the only person in your firm allowed to leave and come back with the truth.

1 PER TEAM | TALKS TO THE CUSTOMER

HIDDEN INFO ●●○○

Work out what the customer actually wants and get it into your design team's heads. The written specification is not the whole story. It is not even most of it.

TWO RULES OF THE ROOM

- The customer will answer questions. The customer will never volunteer anything.
- Your team is judged on customer satisfaction, not on whether it followed the brief.

QUESTIONS THAT USUALLY WORK

- Who else uses it, and what do they do to it?
- Walk me through a bad journey. What went wrong?
- What have you given up on with the vehicle you have now?

Later in the session a user research station may open. Same principle: what you get out of it depends entirely on what you ask.

> Whether you share what you learn with the rest of your team, and how quickly, is your decision. So is whether you tell anyone outside it.

WHAT THEY ACTUALLY SAID — IN THEIR WORDS, NOT YOURS

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DESIGN TEAM

Price list



Everything costs money, and most things cost time as well. Keep this where the whole team can see it.

1 PER TEAM · THE PM HOLDS IT

HIDDEN INFO ○○○○

These are the prices you are charged for prototyping materials, and the prices your production team pays for everything that goes into the finished vehicle. Lead time is the wait between ordering and collecting, and the clock does not stop for it.

Material	$	Lead
Balloon	50	5
Rubber bands	10 ea	2
Small paper plates	10 ea	2
Large paper plates	20 ea	2
Blu Tack	50	2
Sticks	20 ea	2
Straws	30 ea	5
Sticky tape	50	2
Clothes peg	75	2
Pens	20 ea	5
Scissors	250	2
Paper clips	50	1
Pencil	50 ea	2
Paper cups	50 ea	2

Technology module	$	Lead
Entertainment (red)	100	5
Comms and office (white)	250	5
Advanced safety (green)	500	5
Collision radar (blue)	ask	—
Proximity sensor (yelllow)	800	5

YOU PAY TWICE

Whatever you use to prototype is charged at these prices. Whatever production buys to build the real thing is charged again. Prototype carefully.

RUNNING LATE

Design overrun costs $50 a minute. Production overrun costs $250 a minute, and an unfinished vehicle cannot be certified at all.

The supplier is shut until the Ecosystem Update

Until then you have only what is in your bag. After it you can buy from the supplier at these prices and these waits — or get what you need some other way, faster and possibly cheaper.

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Production

You will build something nobody has described to you yet.

2 PER TEAM · OUT OF THE ROOM · DO NOT SHOW ANYONE

HIDDEN INFO

15 min	2	$250/min
TO BUILD	PEOPLE	IF YOU OVERRUN

Your design team will brief you, and the clock starts the moment they stop. You hold no materials of your own, and their bag goes back to the supplier at handover — every single thing in the finished vehicle is bought from the supplier during the build, at a price and a wait. Do not leave this room unless your design team invites you.

HANDLING RULES — NOT NEGOTIABLE

Component	Requirement
Any adhesive or sticky-sided material	Gloves on
Any paper item	Goggles or sunglasses on
Any red-dot item	Two people handling it at all times
Any green-dot item	Tweezers only
Any blue-dot item	Two minutes cooling before assembly
Any white-dot item	Gloves on

Your design team does not know any of this

These apply to every dotted module the design team specifies, however they got hold of it. Four modules take far longer to assemble than one, and may not be buildable at all. This is written on your card and nowhere else. They can walk over and ask you at any point — do not go and tell them.

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THE ECOSYSTEM

Supplier



You hold everything they need, and one thing you simply cannot get.

OPENS AT THE UPDATE | ONE DESK | SERVES EVERYONE

HIDDEN INFO ●●●○

You are shut during the design sprint. From the Ecosystem Update you serve the design teams, and through the build you serve production — who hold nothing and must buy every part of the finished vehicle from you. Collect all three team bags at handover; they restock you for the build. Record every sale with the ledger keeper, and hold the lead times.

Item	$	Lead
Balloon	50	5
Rubber bands	10 ea	2
Small paper plates	10 ea	2
Large paper plates	20 ea	2
Blu Tack	50	2
Sticks	20 ea	2
Straws	30 ea	5
Sticky tape	50	2
Clothes peg	75	2
Pens	20 ea	5
Scissors	250	2
Paper clips	50	1
Pencil	50 ea	2
Paper cups	50 ea	2

Technology module	$	Lead
Entertainment (red)	100	5
Comms and office (white)	250	5
Advanced safety (green)	500	5
Collision radar (blue)	none	—
Proximity sensor (yellow)	800	5

HOW MODULES ARE PAID FOR

A team's own R&D module is charged at list price and never bought from you. A module licensed from a rival is paid for at the fee they agreed. Only a module bought from this desk costs your price, plus the lead time.

Read this before the session starts

You do not stock the collision avoidance radar and cannot get one. Offer the aftermarket proximity sensor instead: it satisfies the regulation, costs $800, and is a red-dot item. Do not explain what red-dot means, and never say who does have a radar.

USER RESEARCH

Mara

Courier. She is not here to help you — she is here to answer questions.

USER LAB | OPENS AT THE UPDATE

HIDDEN INFO ●●●●

40	9 hrs	0
DROPS A DAY	ON THE ROAD	TIME TO FIDDLE

HOW TO PLAY THIS ROLE

- Answer only what you are asked. Never volunteer anything.
- To any general or vague question, give the surface line and stop talking.
- Give the real insight only if someone asks specifically about a typical day, what goes wrong, or how she actually uses it.
- If nobody asks a second question, they leave with nothing. That is correct.

SURFACE LINE — ANYONE GETS THIS

> *"I want it to be quick. Speed matters in my job."*

THE REAL INSIGHT — ONLY IF PROPERLY ASKED

> *"The problem isn't speed, it's the restarts. I stop and start forty times a day. Anything I have to re-inflate, re-wind or reset with a tool between runs is useless to me — by the tenth drop I've given up. And I need somewhere flat to put the parcels."*

If a team finds it: A single-use balloon or a hand-wound elastic drive fails her outright unless the team designs a fast recharge. A flat load surface is a real requirement.

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USER RESEARCH

Dev

Parent of two under five. He is not here to help you — he is here to answer questions.

USER LAB | OPENS AT THE UPDATE

HIDDEN INFO

90 min	2	40 min
EACH WAY	SMALL PASSENGERS	BEFORE IT STARTS

HOW TO PLAY THIS ROLE

- Answer only what you are asked. Never volunteer anything.
- To any general or vague question, give the surface line and stop talking.
- Give the real insight only if someone asks specifically about a bad journey, what actually goes wrong, or what he has given up on.
- If nobody asks a second question, they leave with nothing. That is correct.

SURFACE LINE — ANYONE GETS THIS

> *"Safety, obviously. I have small children."*

THE REAL INSIGHT — ONLY IF PROPERLY ASKED

> *"Here's what actually happens. Forty minutes in they're bored, then they're screaming, then I'm turning round to deal with it instead of watching the road. The most dangerous thing in my car is boredom. Anything that keeps them occupied is a safety feature as far as I'm concerned."*

If a team finds it: Entertainment stops being a luxury add-on and becomes part of the safety case. A team that hears this values the red-dot module completely differently.

OBSERVER

Process observer



You are attached to one team. You help nobody, warn nobody, and answer nothing.

1 PER TEAM | SAYS NOTHING | REPORTS FIRST

HIDDEN INFO ●●○○

PART ONE — MOVEMENT LOG

Record every departure from your team's table after the Ecosystem Update. This log is the single most useful thing produced in the whole session.

Time out	Who	Where they went	Back

Total minutes away from the design table _____

PART TWO — WHAT TO WATCH FOR

- Who talks, who is listened to, and who quietly stops trying.
- When an idea arrived from outside, was it used, ignored, or argued down for being outside?
- Did anyone go and talk to the production team, and what did they come back with?
- What did the team decide not to do, and who actually made that call?

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OBSERVER

Ledger keeper



You are the bank. Every dollar that moves in this room passes through you.

ONE PERSON | NOT THE FACILITATOR

HIDDEN INFO ●○○○

Each team starts with $10,000. At the end you produce the net position that decides the winner. Record both sides of anything that moves between teams.

WHAT COUNTS

- Supplier purchases — team, item, amount.
- Money between teams — licensing fees, sold materials, anything negotiated.
- Overruns — $50 a minute in design, $250 a minute in production.
- Broker fees, if a broker is in play.

Time	Team	Transaction	Out ($)	In ($)

Flag two things for the facilitator: any team that earned money from another team, and any team that refused a deal. Both are worth more in the debrief than the winner is.

FORM

Knowledge decision log



For the project manager. Record your refusals as carefully as your agreements.

CLIPBOARD · COLLECTED AT THE END

Every time someone from outside your team asks you for something — a material, a technology, a piece of information, a partnership — write it down before you answer.

Time	Who asked	What they wanted	Decision	Why

REQUESTS YOU MADE TO OTHERS, AND WHAT CAME OF THEM

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FORM

Licence agreement



Any licence, sale, trade or favour between two teams. Both parties sign.

PRINT SEVERAL

PROVIDER

RECIPIENT

WHAT IS BEING PROVIDED

PRICE AGREED ($)

PAID NOW / ON DELIVERY / OTHER

CONDITIONS — EXCLUSIVITY, RESALE, USE RESTRICTIONS

SIGNED — PROVIDER

SIGNED — RECIPIENT

TIME

LOGGED WITH LEDGER KEEPER Y / N

Revenue received under this agreement counts toward the provider's net financial position. Selling something you were never going to use is not a betrayal of your team. It is a strategy.

FORM

Scoring sheet

Facilitator only. Certification is a gate — an uncertified vehicle scores nothing.

FACILITATOR DO NOT HAND OUT

	A — Volta	B — Kestrel	C — Meridian
Certified? (Y/N)			
Collision avoidance route			
Distance (cm)			
Customer fit (/5)			
Materials spend ($)			
Overruns ($)			
Licensing revenue ($)			
Net position ($)			
Minutes away from table			
Modules in final build			
Build completed? (Y/N)			

Customer fit: four wheels, blue, keeps children occupied, no obvious hazard. One point each, plus one for anything showing they actually asked you rather than guessed.

The two rows to read out together

Minutes away from the table, and build completed. If the team that searched hardest is also the team that did not finish, the class has produced its own evidence that openness has an optimum — and you never have to argue for it.