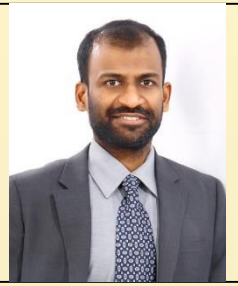
# To Automobile OEM

Launch your first
Cool ‘Concept or Technology’ Car

***Details related to Cool technology***

Enabling colorful times

# Executive Summary



Dear OEM global CEO / Executive team,

Its my pleasure to present this information to you. I am working towards getting all global Automobile OEM's to launch their respective brand's 'Concept Cool car' at a major automobile motor show.

My objective has been to demonstrate 'Live color change of a full car' at a global motor show. Maybe Geneva motor show or any of the top 20 global prestigious motor shows. In subsequent images (slides), I am presenting content related to the implementation of 'Cool technology'. It has to be noted that a 'Concept cool car' could be demonstrated at a motor show with partial surface or a single panel changing color, fairly quickly. However, when we speak of a full car color change of say 12-13 exterior panels, it will require some serious work, testing, fine tuning and most importantly a robotic system to perform the automated color change of the entire car in under 10 or 15 minutes.

Given the scale of a global brand OEM's annual R&D investments and R&D team size, the full car demonstration is also not a complex project. I think we could get there within 6 to 12 months, if we move with a focused program plan.

I look forward to the launch of your brand of Concept cool car and would like to discuss how we could get there at the earliest. I look forward to your comments / feedback on this collaboration. Please note that all images on this website and content are only informational and do not constitute a legal instrument or agreement.

Regards,

Srinivas DS,

Inventor and Author

# Inventor's near-term goals and current status of Cool Car Technology

- The objective and goal of Inventor Srinivas Devathi is as follows:
  - To promote the 'Color changing technology' or 'Cool concept' across the World.
  - To execute a lot more live 'Color change' demonstrations on vehicles in India and abroad.
  - To market and license the technology to several manufacturing companies by putting out marketing and promotional content. OR to do outright sale of IP rights and 100-year downstream businesses for one or more countries, to a prospective buyer, to practice and create wealth from exploiting the IP rights of the invention.
- Primary goal for 2020 is to "Conduct a full car live color change demonstration at one of the premier motor shows in the world". The list of premier motor shows given in next slide. Inventor has completed the following and current status is as follows:
  - Inventor has done 'Early stage pure concept demonstration' in Bangalore to a dozen media houses. Few of them have carried articles / publications. Other media houses are in touch to see the next full panel or full vehicle demonstration.
  - The media houses got a visual understanding of how the concept works.
  - Inventor has now abandoned the track of 'working with partner companies to build the perfect vest (2-layer vest) for an entire panel or an entire vehicle (two-wheel vehicle) for a live demonstration'. Also abandoned working on the 'material composition / blend' to fabricate the 2-layer vest or system.
  - Inventor has abandoned the plan of 'working with incisions, motor / pump to inject and remove color for demonstrations.'
  - Inventor has abandoned discussions with top global robotic manufacture / design companies to build a 'Robotic color change system'.
  - Bulk of the demonstration work has been abandoned, due to unavailability of funds or investors. In fact, due to the truth of USA and its corporations putting roadblocks to ensure Inventor is not financed to do the live demonstrations.
- **Current status –** Inventor is going for a ONE-TIME settlement or pay-out in a 'Cash out' model by selling the Global IP rights through court, by assigning the IP rights and downstream businesses to respective countries (62 of them in all, where he has sought protection).
- There will be no attempts by the Inventor to do any demonstrations; and now it is direct sale / assignment of rights and cashing out.

# Demonstrations by OEM's at major motor shows

| Major international motor shows | Timeframe | Location |
|---|---|---|
| North American International Auto Show (NAIAS) | Jan | Detroit, MI, USA |
| Chicago Auto Show | Feb | Chicago, USA |
| Geneva International Motor Show | March | Geneva, Switzerland |
| Seoul International Motor Show | April | Seoul, South Korea |
| New York International Auto Show | April | New York, USA |
| Concorso d eleganza villa d este | April | Munich, Germany |
| British International motor show | July-Aug | London, UK |
| Pebble Beach Concours d elegance | August | Pebble Beach, SF, USA |
| Moscow international motor show | Aug-Sep | Moscow, Russia |
| Paris Motor Show | Oct | Paris, France |
| Sao Paulo Auto Show | Oct-Nov | Sao Paulo, Brazil |
| Greater LA Auto Show | Nov-Dec | LA, USA |
| Tokyo Motor Show | Oct-Nov | Chiba-City, Japan |
| Essen Motor Show | Nov-Dec | Essen, Germany |
| Motor Show di Bologna (Salone Internazionale dell' Automobile) | Dec | Bologna, Italy |

- Listed here are the worlds biggest, most prestigious motor shows. OEMs feature their annual car models / concept cars at these shows regularly.
- In 2020 and later, your (OEM) brand could showcase and present the Cool technology.
- Once the first demonstration is done, the core (demonstration) team could repeat the feat at all the motor shows.
- The team could cover all top 17 Auto shows over a span of 2 years, from the first launch of the Cool concept.

# Intellectual Property and Collaboration instruments

## Intellectual Property

- Srinivas S. Devathi owns the global IP rights and patents for this technology. In all, in 62 World countries.
- It is a grant in a few territories. Others in process.
- Expectation is that the technology will be a grant in all territories applied for; as no one has conceptualized or implemented this technology till date. Some territories are in court ‘Claiming Grant’.

## Collaboration instruments

- Direct sale or assignment of IP rights and 100-year downstream businesses; to respective country Governments or their nominated companies. This is for 62 countries in all.
- The disbursement of IP rights expected to happen through ICJ (International Court of Justice) in Hague, Netherlands.
  - No other court provides such coverage of transactions / activities across 62 World countries.
  - After the disbursement of IP rights, the respective countries can have OEM’s do live demonstrations at Major Motor Shows.

# Cool technology launch options for OEMs

# Concept Cool Car
# Vision stage 1 – At a motor show

- Car partial vehicle surface changing color at a motor show.
  - OEM could launch the Concept cool car with a partial patterned portion of the entire car showing the change of color:
    - Pattern could be two parallel strips of vest going along the length of the car.
    - A vest on bonnet of the car, reading your OEM - brand name.
    - A vest on bonnet of the car with your OEM - brand logo.
    - Any other creative design or art or pattern on the vehicle surface.
  - Alternately, OEM could launch the concept cool car with a single car body panel showing the change of color:
    - This single panel could be the bonnet, the roof, a door or a bumper.
  - Other considerations:
    - Execute the Partial surface demo in year 2020.
    - Could be robotic or simply manual by using a motor / pump.
    - This will be the first time the 'Color of a surface' would be changed live on a stage. This will be visually tantalizing and amazing for audience.
    - The color change demonstrations could be spaced at 30-minute intervals and many different colors/shades could be used for the demonstrations.
    - Note that the paint / color used in a Cool car, shall have anti-freeze added to it, so as to remain in liquid state for draining the current color, and to refill a new replacement color.

# Concept Cool Car
# Vision stage 2 – At a motor show

- FULL car / vehicle changing color at a motor show.
  - As compared to Vision stage 1, this needs more work, planning and execution. Stage 2 will need more time than stage 1.
  - Given the R&D budgets and R&D team size of OEMs, this could also be planned for year 2020 or 2021.
  - This must be a robotic color change demonstration done under 10 or 15 minutes for the entire car.
  - Demonstrations at a major motor show could be done at intervals of 30 or 60 minutes; spanning all days at the show.
  - This will be an amazing visual for the audience and people all over the world.
  - We would create HISTORY by this full car demonstration.
  - This could potentially become the event of the century.
  - Amazing videos, narration files, will have to be created for the event. Websites, other marketing material, fliers, pamphlets to be created for show promotion.
  - Global entertainment shows will follow the evening on each day of the show.
  - Critical factors that would impact the timeline:
    - Designing the Cool car. Coming up with perfect material blend for fabricating vests.
    - Designing the fully functional ‘Robotic system’.

# Concept Cool Car
# Stage 1 v/s Stage 2

## Vision Stage 1

- Audience can see the visual of color changing
- OEM sets expectation of a new concept

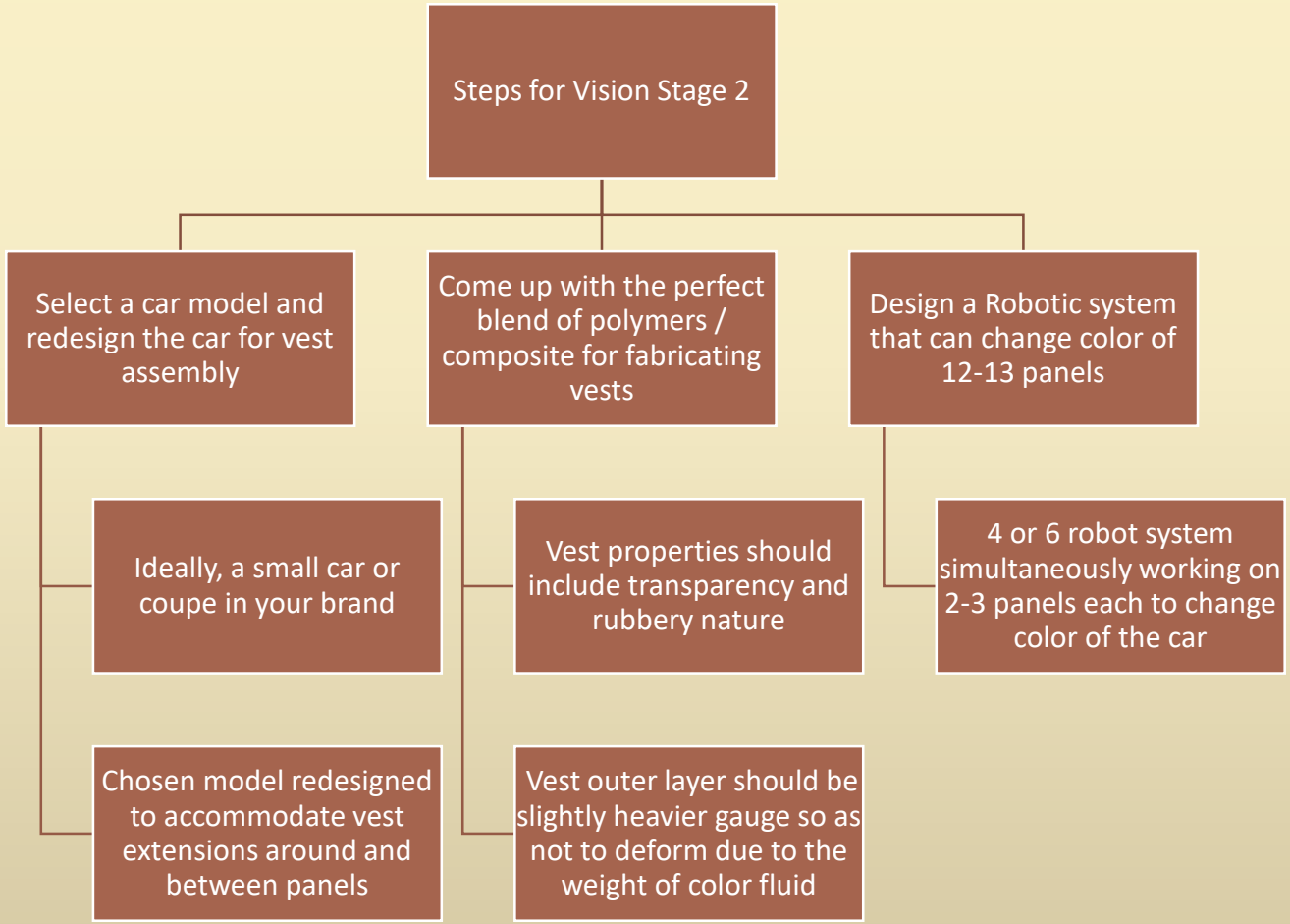
## Vision Stage 2

- When a 4 or 6 robot system changes color in under 15 mins, it will be the event of the century
- Audience will be blown away when they see full car color change
- OEM rebrands themselves with the Cool technology

- OEM considerations between Stage 1 and Stage 2 launch of vehicle color change.
  - The impact you want to create, as a large global brand is a key consideration to choose the stage.
- Going for Stage 1:
  - Ensures a quick launch and introduces the concept.
  - Ensures your brand is the first to introduce the concept, by beating other brands.
  - Can probably get it done in 3 to 6 months.
- Going for stage 2:
  - Needs more time, more man-months of effort, better planning, larger program to manage.
  - But the impact will be a sort of ‘Big bang’.
  - Seeing robots change the color of an entire car in under 15 minutes will be a show remembered for centuries to come.
  - OEM brand will reboot, revitalize and re-establish their brand at a global stage.
  - May need 8 to 12 months for Stage 2.

# Cool Car Design Details

# OEM Cool car design




- Key design considerations / factors:
- If a coupe or small car is chosen, there are fewer panels to change color. Robotic system will have lesser effort to complete.
- 12-13 panels (carrying equal number of vests) need color change only if a conventional full-sized car / sedan / saloon is chosen.
- In many of my trials, due to the thinner gauge of vest outer layer, it would quickly deform due to the weight of the color liquid. Hence a heavier gauge (maybe 0.5 or 1mm) vest outer layer with a lower fluid space thickness should be used.
- Effect of gravitational pull (on color fluid) has to be factored in for designing fluid space thickness of vests for various panels.
- The car would be heavier by say 30 kilos due to the added weight of the vests.

# OEM Cool car design Discussion

## Design of car

- The Cool car panels may be 1 or 2mm smaller in dimensions as compared to its conventional peer panels, to accommodate extensions of the vest, for vest assembly.
- The vest assembly consideration is a key factor for all car body panel dimensions.
- Vest outer layer should be thicker in gauge as compared to vest inner layer.
- The fluid tight space thickness across the panel surface could be varying to accommodate gravitational force and other forces (G-force, centrifugal force) acting on color fluid.

## Robotic system

- Depending on the car chosen, a suitable robotic system has to be designed.
- The system could be tailor made for live demonstration.
- The system could be custom designed for a fixed position of the chosen car at the show.
- The system should drain the existing color, clean interiors by using a solvent, wash and dry the interiors and then inject a new color of choice.
- This system may have fewer features as compared to a real life 'Robotic color change system' at a Colorium® station, which is capable of doing color change on any car of any make / model.

## Vest assembly techniques

- Adhesives will play a key role in vest assembly to the panels
- Abutting extensions between adjoining panels / objects.
- Combination of the above two methods.
- Riveting or stapling (usage of fasteners) the vest extensions and panel inseam is an option.
- Manually tied knots with strands.
- Above two techniques weaken the body panel. Panel thickness could be adjusted to maintain body strength.

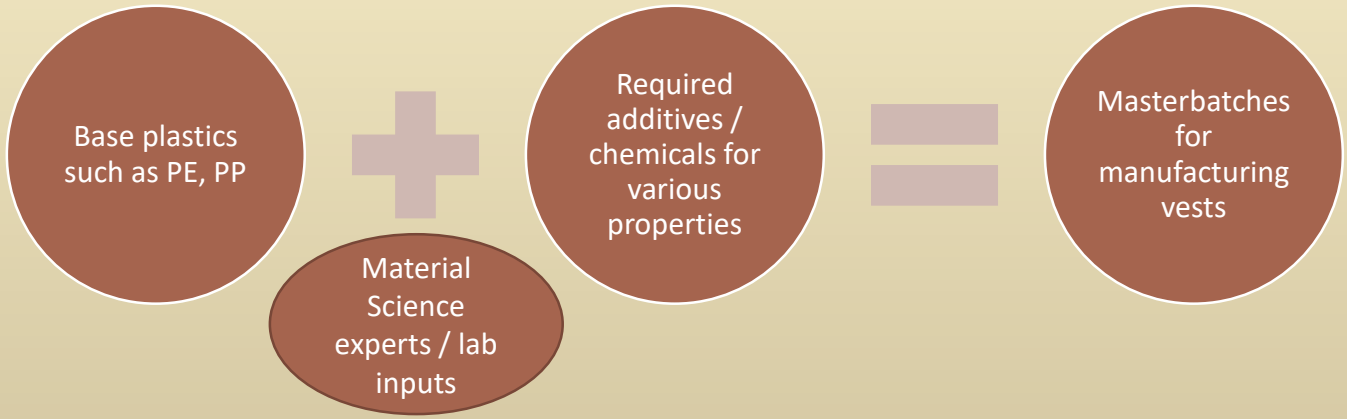
- Motor show preparation will include the following:
- Complete system and integration testing has to be done for everything to work together perfectly.
- At least 50-100 color change test runs have to be conducted before the Motor show demonstration.
- A motor show core team and a repeatable set-up / process should be established.
- Then, we are ready to go live.

# OEM Cool car design
# Additional details

| Parameters | Comments |
|---|---|
| Seamless alignment of vests at the intersection lines of panels. | This can be achieved by the following:<br>a) The visible area span of the exterior panel should be fully covered by the 2-layer vest outer layer which shows the color.<br>b) The extensions should wrap around the panel exactly after the edge end of the panel.<br>c) Further, the intersection line spacing has to be effectively managed with the thickness of the extensions of the vest on the panel and the adjacent panels that would form those intersection lines.<br>d) The thickness of the vest tapering to zero has to be managed exactly on all panels such that the color (and its depth) is seen on the entire car end to end.<br>e) Effective management of vests at the intersection lines is key for showing the superiority / high quality of the car and its workmanship. |
| 2- Layer vest fabrication | a) One of the many methods to fabricate a 2-layer vest is provided on Cool Car Technology website link: https://coolcartechnology.com/technology.html. There are other techniques as well.<br>b) A vest has to be designed for 3 years life, prompting replacement of all vests at 3-year car service.<br>c) Ideally there should be 3 access ports (or microvalves) for each vest, for effective management of air-bubble formation or their elimination during the color drainage and injection process. The robotic system incisions should access the 3 microvalves with precision to change the color.<br>d) The outer layer will be thicker gauge to resist deformity and expensive. Inner layer would be thinner and relatively cheap.<br>e) Scratches could be sand-papered or ground right out of the vest outer layer. |
| Other OEM considerations | a) Impact of this concept on performance of the vehicle. There is an increase in weight.<br>b) Partial color fill of vests, wherein the speed / acceleration will be visible by the movement of paint within the vest.<br>c) Combination color schemes should be considered.<br>d) Permanent color on smaller panels in combination of color change on larger panels could be considered. |

# OEM Cool car design
# Perfect blend of Polymers for vest material

- As per the below smart art, there is some 'Material science' lab work or trials involved to come up with the perfect blend for manufacturing vest outer layer. Making the vest inner layer is relatively easy, due to fewer properties desired.
- OEM R&D budgets, R&D team, have access to material scientists and labs to come up with a perfect blend of polymers, additives / chemicals to deliver the best material for vest outer layer.
- Key properties desired for vest outer layer are: 100% Transparency (ideally), rubbery nature, enough 'Fatigue strength' or 'Endurance strength' so as not to deform due to the weight of color fluid (over extended periods of time) and other forces acting on the vest.
- It should be noted that there will be multiple formulae / compositions / combinations of materials for vest outer layer material.




Chemicals / Additives industry delivers many sought after properties to current day manufacturers which include and are not limited to:

Modify surface tension, Improve flow properties, Improve the finished appearance, Improve pigment stability,
Impart antifreeze properties, Control foaming, Control skinning, Catalysts, Transparency, Thickeners, Stabilizers, Emulsifiers, Texturizers, Adhesion promoters, UV stabilizers, Glossing agents, Flatteners (de-glossing agents), Biocides to fight bacterial growth and other.

# To Automobile OEM

Convert manufacturing plants to
Cool car manufacturing plants

***Details related to plant transition***

Enabling colorful times

# Manufacturing plants
# Transition to Cool technology

# OEM manufacturing
# Transition plan to ‘Cool cars’

## Transition plan

List all OEM passenger car manufacturing plants run as owned or in partnership / JV.

- Transition all the existing plants to manufacture ‘Cool cars’, by a holistic transition plan.
- The holistic transition plan will predominantly push for a parallel transition of all plants, without interdependency.
- Transition of a manufacturing plant, involves decommissioning the paint shop at the plant and integrating ‘Cool car’ making into the assembly line process.
- At the ‘Body in white’ stage, the vest is integrated or installed on the vehicle panels, to build a ‘Cool car’.
- A manufacturer could transition all of their plants or most of them, and retain one or two plants for conventional car manufacturing, if they choose to.

## Transition timeline

A simple way to explain transition of an automobile manufacturing plant is to decommission the paint shop, by integrating ‘Cool car’ making into the existing assembly line process.

Transition timeline:

- A realistic target timeframe to convert a large automobile manufacturing plant into making ‘Cool cars’ is 4-5 years.
- An aggressive goal could be 1-3 years.
- It depends on the manufacturing plant production capacity.
- The timeline if further dependent on the number of models manufactured at the plant. More models could need more time for transition.

## Key factors

Key factors of transition:

- Redesigning work of all car models to Cool cars is a key consideration.
- The vest manufacturing capacity has to match the production capacity to enable transition.
- The supply chain for anti-freeze color paints, vests and valves is a key factor.
- Robotic station infrastructure at dealerships and as private stations, to enable color change is a key aspect to mobilize sales of ‘Cool cars’.

# Manufacturing
# Transition plan to make ‘Cool cars’

**Press Shop**

- JIT of vest outer layer rolls, vest inner layer rolls come in along with sheet metal rolls.
- While body panels are forged / pressed in press shop, Thermoforming machines would shape the vest inner and outer layers. Two layers joined to form a 2-layer vest; for each of the panels.
- Alternately fabricated 2-layer vests could be procured from an external manufacturer / vendor.

**Body Shop**

- The body panels and 2-layer vests for each of the body panel arrive at the body shop.
- Each vest is attached by various fastening techniques to the corresponding panels.
- The car body is assembled along with vests on each panel. It is Body in white with vests.

Cool cars directly move to Assembly line

**Paint Shop**

- No activity
- Can Decommission paint shop when 100% Cool car production is achieved

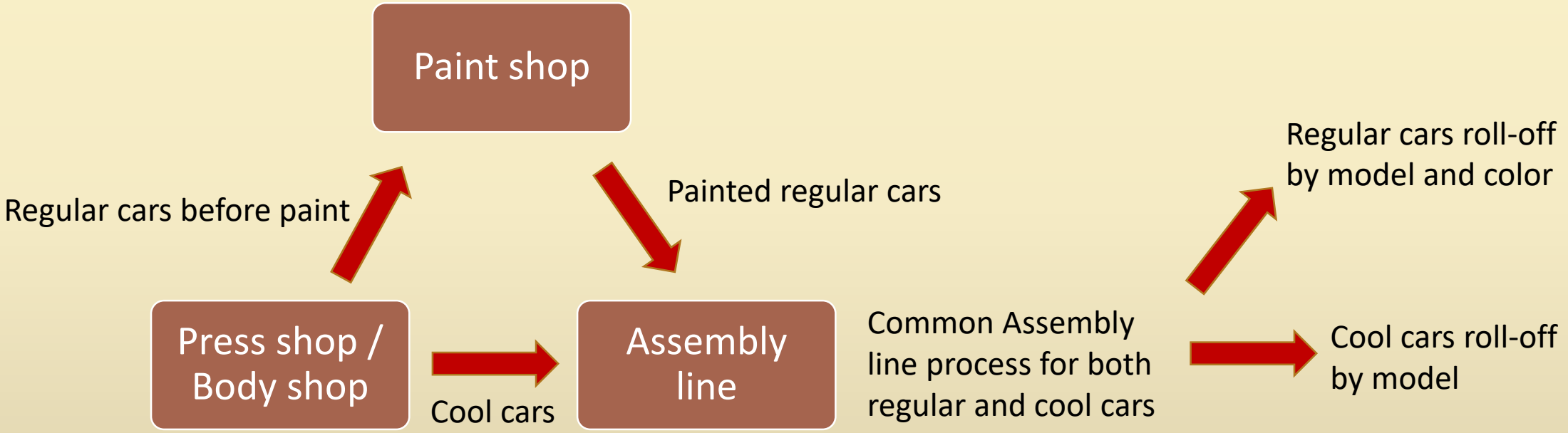
**Assembly line**

- No change in process.
- Some precautions while assembling other parts, so as not to damage the vests will be factored in at various assembly steps.

Line-off Cool cars

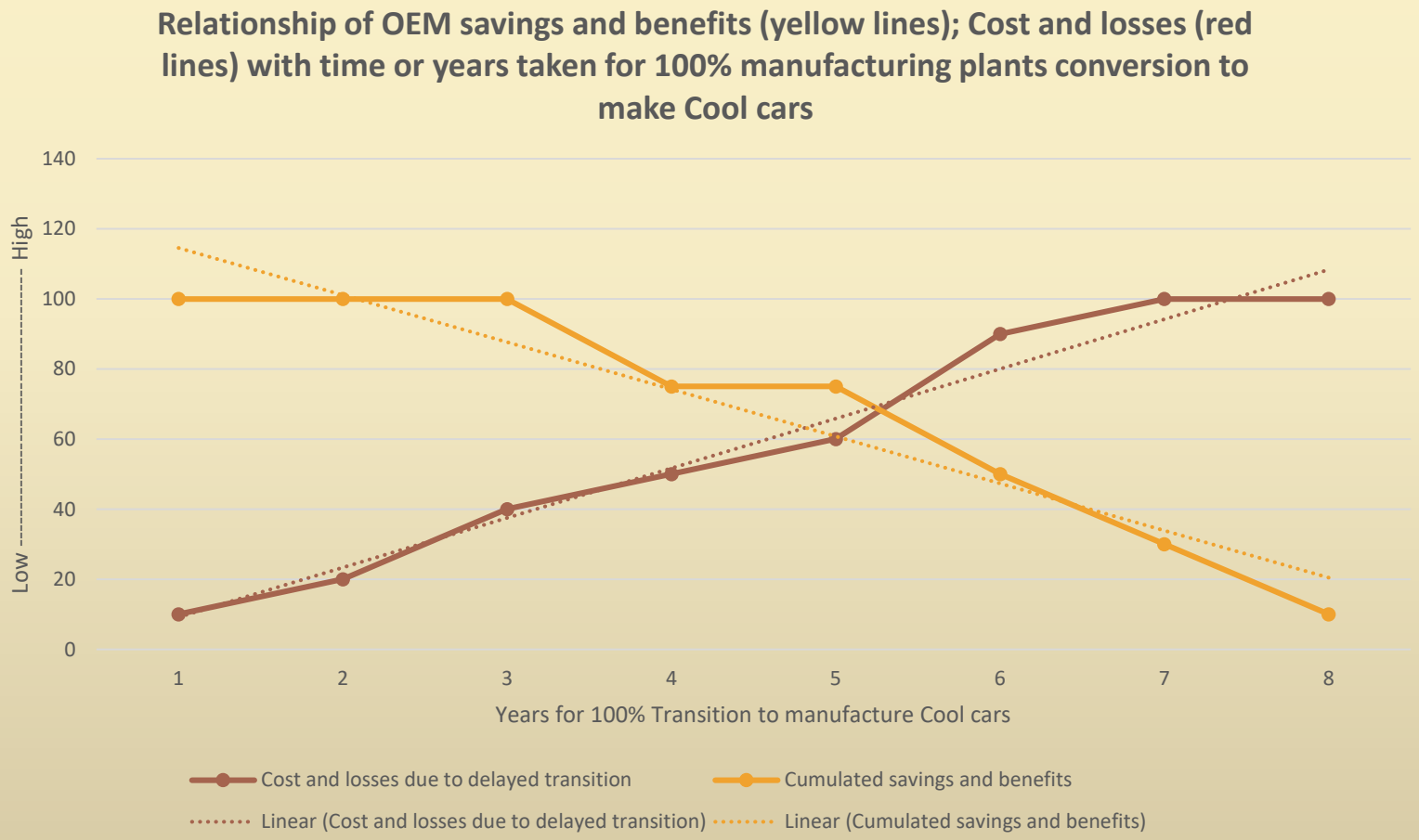
- You could refer additional content and slides at my website link: www.CoolCarTechnology.com
- Few slides show a comparative between conventional regular car manufacturing and Cool car manufacturing.

# Production during transition
# Making both regular and Cool cars



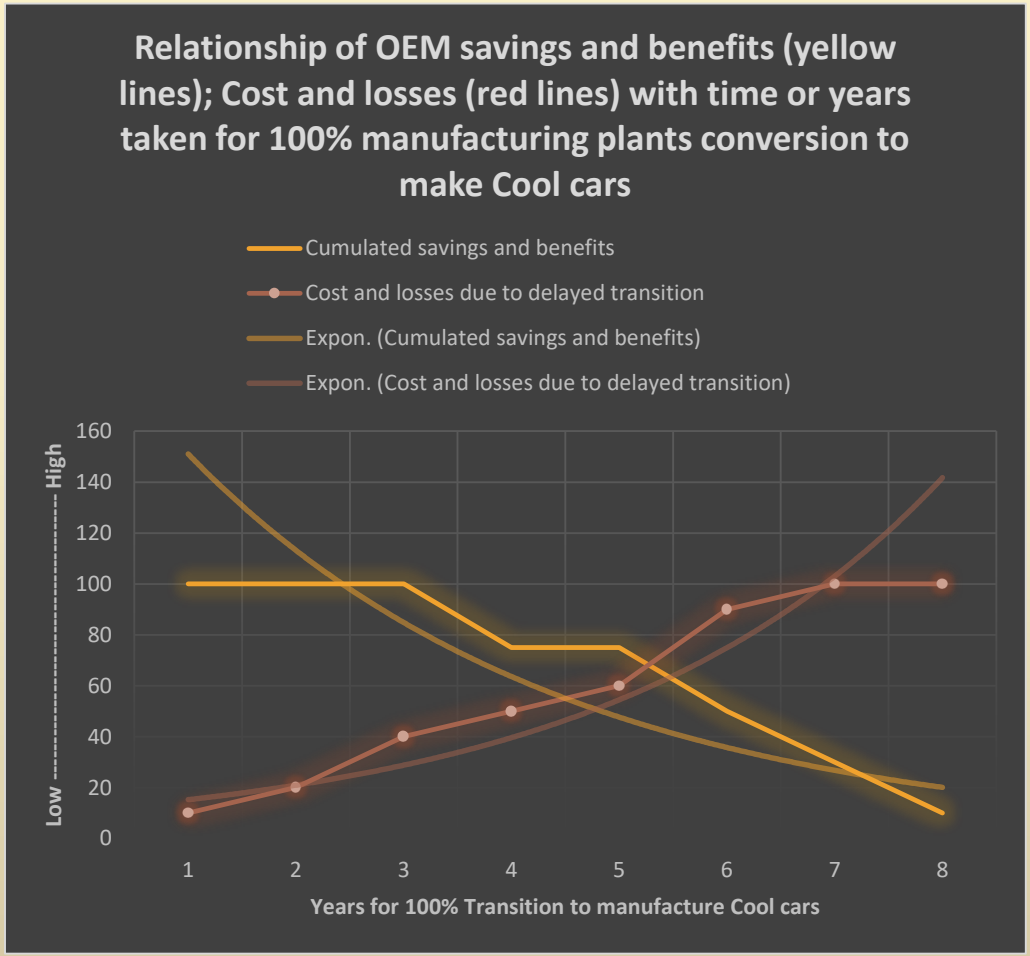

- For large OEM plants which will take full 3 years for 100% conversion, there shall be quarters / years when both conventional / regular painted cars will be manufactured and also Cool cars will be manufactured.
- This shows steps for both types of cars produced from a single plant during transition.

# OEM all plant transition pace
# Linear trends of benefits and losses




- OEM could maximize benefits and minimize losses, by going for an aggressive transition plan.
- Reasonable and realistic plan could be to complete 100% transition of all manufacturing plants within 5 years from today.
- The Linear trend curves intersect at 4.9 or 5 year point.
- An aggressive goal for OEM could be to complete conversion of all plants within 3 years from start of transition.

# OEM all plant transition pace
# Exponential trends of benefits and losses




- OEM and the automotive industry will benefit greatly by an aggressive 'Transition plan' of all their manufacturing plants to manufacture 100% Cool cars instead of the Regular cars.
- The details of all OEM benefits have been listed in great detail on my website https://coolcartechnology.com.
- Conversion or transition of ONE manufacturing plant to make Cool cars may take 1 to 3 years depending on number or units manufactured, number of models manufactured, availability of Re-design team and JIT for vests.
- The same timeline could be extended for say 30 or 50 manufacturing plants (making passenger cars). This is due to the fact that the OEM should see each plant as independent and should trigger conversion / transition of all plants in a parallel work stream rather than sequential. Each plant is independent and there should be no Interdependency as it relates to Transition plan.
- Each plant should have a focused Transition manager working closely with Plant manager.
- Slow transition would delay benefits / savings and increase conversion costs and losses.
- Aggressive transition is ideal for OEM's to maximize benefits / savings from cool technology and minimize the related conversions costs and losses.
- As per one estimate, ideal timeline for an OEM to convert all their manufacturing plants to make cool cars is between 4$^{th}$ and 5$^{th}$ year from start of transition. This could be achieved by a "Parallel all-plant transition plan".
- As you can see, the exponential trend lines intersect at 4.6 year point. The linear trend lines intersect almost at the 5$^{th}$ year point.

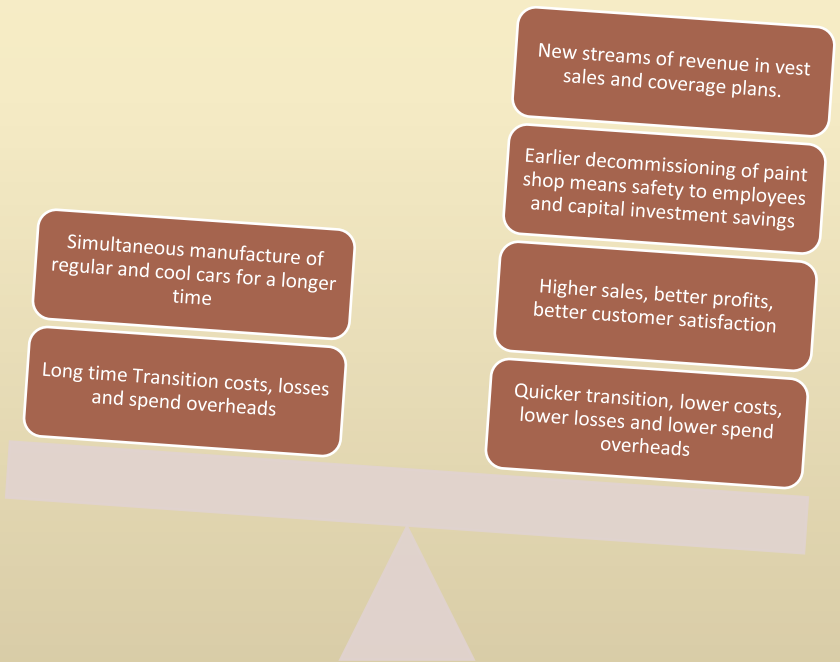
# Manufacturing
# Prerequisites for aggressive transition

- There have to be enough 'Colorium®' stations built or accessible to consumers.
- At the minimum, all OEM dealers should be equipped with robotic color changing systems (Colorium® set-up). This will allow consumers to go to their OEM dealerships to get a vehicle color change for free (maybe first 3 color changes) or for a fee.
- Redesign of all OEM car models to cool cars. This is a key factor as a larger design / redesign team is required for this transition.
- Enough supply of raw materials to manufacture vests, which may include:
  - Base plastics and polymers
  - Enough Additives / chemicals supply as required to fabricate the vests for all cars as per production plan
- Yearly Transition plan budgets (conversion investments) should be allocated fully to ensure work is fully funded for 3-4 years.
- Rolling out a full program plan / repeatable methodology for transitioning a manufacturing plant would be ideal for OEM. Such a program plan could be rolled out at each plant and conversion program activated.
- Realizing that there is no-interdependency of production plants during conversion or transition, is a key factor. Each manufacturing plant is on its own, for conversion or transition. This will enable parallel conversion and NOT sequential.
- A OEM 'Plant conversion committee' could oversee all plant transitions against a Program plan spanning all plants and a Transition plan for each plant.
- The Plant manager should closely work with the 'Plant conversion committee' and also appoint a 'Transition manager' for the plant, if he/she feels necessary.

# OEM
# Transition style

Regular pace transition

Aggressive transition




Inventor recommends an aggressive style of transition, for exponentially cumulated benefits. Further doing it with no-interdependency between plants. Goal should be: All OEM passenger car manufacturing plants transitioned in around 4 years. Related points and benefits of Aggressive transition style:

- Time is money.
- Due to the above, quicker and better returns to OEM shareholders, including OEM owners / promoters.
- Aggressive transition style is better for OEM, the entire Automotive industry, local / regional economics, national economics and global economics.

# OEM
# Transition thought process

**Transition bands for Overall transition plan**

- Transition by car model in a plant or across plants
- Transition by one plant, all models, in a planned sequence
- Transition by plants in one country – National transition
- Transition of all plants (overall plan) will be sum of all individual plant transitions

Inventor recommends a wholistic transition plan encompassing all OEM passenger car manufacturing plants.

- A pilot has to be quickly done at one plant on one model.
- Following which a parallel conversion execution of all plants with no-interdependency should be triggered.
- Within each plant, a sequence of models being rolled out should be followed for conversion.
- National grouping of all plants in one country, has to be dealt by National head with the government for legal implications.

# OEM supply chain
# Plant transition considerations

Supply of raw materials – Polymers / source Crude oil

Outer vest layer rolls

Inner vest layer rolls

Supply of raw materials – Chemical additives

Re-Design of all car models to Cool cars

Fabrication or procure for JIT of 2-layer vests for all panels

Robotic color change set-up at dealerships nearby

OEM Manufacturing plant

Cool car

Regular cars until 100% transition

Private side Colorium® stations doing color change businesses

# Cool Car Technology

Enabling colorful times