Q1.Evaluate the business opportunity by looking at the potential market for the application.

* We are focusing on the flame retardant board as the main product for this project.
* Current global market value: 1129.4 million USD in 2020 (source: [Marketwatch](https://www.marketwatch.com/press-release/fire-retardant-osb-oriented-strand-board-market-2020-top-countries-data-market-size-share-analysis-to-2026-business-opportunities-and-growth-forecast-2020-09-22))
* Growth rate (global): CAGR of 8.1% during 2021-2026 (source: [Marketwatch](https://www.marketwatch.com/press-release/fire-retardant-osb-oriented-strand-board-market-2020-top-countries-data-market-size-share-analysis-to-2026-business-opportunities-and-growth-forecast-2020-09-22))
* Main global players are Norbord, LP and Kronospan
* Harder to find data on flame retardant boards for the UK - closest match is plaster-based boards (Source: IBIS World Database).
  + Building plaster and plaster-associated products market revenue is £831.7M with a negative growth rate of 1% in 2016-2021, but expected to recover to 6% in 2021-26.
  + Major players are Saint-Gobain, Etex and Knauf take around 90% of the market share
  + The market is in the mature stage of the life cycle and heavily dependent on demand from the construction industry
  + Low rates of innovation in general compared to other industries but quite capital intensive to enter
  + Government regulation and policy also seems a key driver for any industry change to occur
* Local player in Cambridge - Ridgeons - acquired by Huws Gray (builders merchants in Wales) - in order to broaden the geographical reach of the parent company

**Alternative materials:**

* Gypsum-based plaster board (flame-retardant and non fire-retardant versions) - fire retardant material is paper-covering with a chemical. **How ecologically friendly is the chemical used?**  Also look for a copy of the fire-retardancy certificate. Problem: is fragile, can break easily. This means manufacturing needs to be closer to place of usage. £10/sheet
* Cement-based boards - more rigid and heavier
  + Supalux board - asbestos-free version of rigid board (one variety), made of mica and cement
  + £40/sheet

(Previously, these boards were made of asbestos - 40-50% asbestos - Asbestolux)

* Possible application: stove in fireplace-> chimney void has supalux type board -> register plate, this can be done with cement board but gypsum board can’t be used here -> would fall apart in contact with rain
* **Need to compare Cambond board to currently available product- weight/unit, fire retardant (½ hour or 1 hour certificate- thickness can affect this), brittle (easy to transport), does it hold screws/do you need support? - follow up with Gareth**
* We can also briefly mention re aesthetics
* **Raw material costs and costs of production (+ any characteristics of products after test results come in) → Ask Gareth**
* Get the presentation from Peter

Q2. What is the actual business opportunity?

Opportunity: The actual business opportunity exists in the move away from using toxic chemicals in flame retardant products. A 2019 [Parliamentary inquiry](https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1805/180506.htm) on flame retardants suggests that flame retardant materials have been classified as persistent organic pollutants. **But there is still no regulation banning them.**

Weakness: The other aspect we need to address is the pricing. The current available flame resistant boards are £15-£200 based on size, so we need to understand how much more of a premium customers will be willing to pay for Cambond’s product.

Threat: Gypsum can be a threat - Saint-Gobain gypsum already uses a circular economy model for the production of flame-resistant boards - this is quite similar to the value proposition of Cambond. But gypsum is not biodegradable.

Q3. What is the problem the idea will address and for whom?

Thought A: cheap, sustainable/green fire-resistant board with better properties than the alternatives (plaster/cement-based very fire-proof, but heavy or light, but not very resistant chemical-treated wooden products). The problem: current solutions do not have ideal properties (heavy) or/and aren’t environmentally sustainable. Whom: the manufacturers/distributors, who will have a product more appealing to buyers, who might be individuals or, more likely, construction industry businesses.

* The idea will also have to take into account the cost margins that market players are emphasising on. In addition, some market players (i.e Saint Gobain Gypsum) are looking into recycling paper (from their suppliers) into plasterboards. Cambond could help offer them access to waste paper from paper and pulp heavy use industry (need to clarify). About sustainability, key players in the supply chain (regardless of their position) are looking to reduce both the operational carbon footprint of their assets as well as their embodied carbon (of the building materials and manufacturing processes that go into making them). Regardless of the sustainability criteria, the purchasing decisions from the target customers are made on the basis of cost and availability.

Q4. Who are the customers? What do they really need? Do we know this or are we making assumptions?

Thought A: The potential partners are manufacturers of similar construction products, i.e. oriented strand boards, medium density fibreboards and similar, that either do not yet have fire-resistant products or their fire-resistant products have inferior properties (weight, fire-resistivity, sustainability) and our product would be a very competitive alternative. In turn, these manufacturers/distributors’ customers would be either individuals looking for alternative and sustainable product or construction companies that either have to comply with fire-safety regulations or are attempting to market their more sustainable work. A lot of the current manufacturers have sections on their websites on sustainability, ethical sourcing of materials, responsibility, etc. This highlights increasing awareness of these issues and these companies’ attempt at marketing with that in mind, suggesting that cambond products would be a desirable addition in line with current trends.

Some manufacturers: Knauf, Norbord, Morland, Saint Gobain

* Partners/customers would be construction supplies wholesalers such as Travis Perkins, Saint Gobain, and Grafton Group plc. Regional players could also be considered due to the fragmented nature of the industry including the fact that state government, federal government and local communities hire both main and regional contractors (depending on the types of projects undertaken). The larger companies such as Saint Gobain are more reliant on main (large) contractors.
* Many of the potential customers are looking into establishing circular economy frameworks in their processes (for example Saint Gobain Gypsum and the way in which they recycle both natural and synthetic gypsum - they are tough to compete against so would consider licensing or partnerships).
* Regarding sustainability, the customers are looking for building solutions that improve energy efficiency through better insulation (if the material cambond is offering can lead to good insulating properties then this will be a huge advantage in this respect, if not it will be hard to position it as a building material alternative - Green housing schemes are focusing on reduced carbon footprint materials usually with superior insulating properties).
* Travis Perkins reports that it is switching to UK - sourced goods where possible.
* There are now a multitude of certification schemes for low carbon or low impact buildings or infrastructure such as BREEAM, LEED, Green Globe and CEEQUAL, which support increased sustainability of products through the demands of building specification and are operated through a points-based system (incentives for the industry).

Tier 3 suppliers

Q5. What other problems do these customers face that could be addressed? What needs to happen for these customers?

**SHOULD BACK UP EVERY STATEMENT**

Problems:

* Safe buildings, with non polluting fire-resistant products that offers an alternative to at least chemical ones:
  + Building that contain possibly hazardous or sensitive materials, like medical centers, supermarkets, TUNNELS, hotel, corporate offices, retirement homes
* Light product, that at the same time is strong enough and insulating (Is insulation always a good thing? Imagine more and more fire → higher and higher temperature). Lighter shipping/transportation, as it would save money
* New environmental regulations
* Good for PR?
* (Not a problem) Incentives from governments

What needs to be done:

* Provide them with the necessary infrastructure and materials to reach their goals
* Good insulating building to reduce energy consumption
* Affordability

Q6. What questions are you planning for starting primary and/or secondary market

research? Who are your KOLs?

* **Starting primary and secondary market research (Start from secondary, narrow down with primary)**
  + What is the big picture? What are the small pictures?
    - Big secondary research
    - Small primary and secondary research
  + Where is the society and market going in the sustainability of construction and materials?
    - Secondary research
  + Which is our target market, where they want our flame resistant boards?
    - Primary and secondary research
  + What are the problems implied by producing and using our technology?
    - Primary and secondary research
  + What are the thoughts of ‘people’ about these? (e.g. Ashes, waste problem)
    - Primary research
    - Are people aware of the gypsum-board flame retardant chemicals in the first place?
  + What is the people’s perception about the technology in general?
    - Primary research
  + Who to call, Zoom, Phone Calls
    - Primary research
    - Buyer in Ridgeons - interview -> characteristics and why would you stock this new type of product?
    - Building contractors - interview -> characteristics and how interested would you be?
  + What kind of survey could we do for a quick and easy way? Maybe could we make a quick survey to share with people in Cambridge/students?
    - Primary research
    - Secondary research (check some census website?)
  + Why people would like flame resistant boards?
  + Market trends, competitors, target demographics, economic shifts, and the buying patterns of their customers
  + Market capital for fire resistant boards
  + Market sectors, market segmentation
  + - What business are doing, where they are heading?
* **Possible KOLs:**
  + Activists
  + Academics
  + Experts in construction
  + People already working on this
  + Some Potential customers

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General questions:

1. Should we look at manufacturers of similar products (various boards, including fire-resistant ones) for potential to manufacture our boards?
2. Do the cambond products on offer have good insulating properties?