

# Meeting 1

<b>Date</b>	Wednesday, 13 January 2021
<b>Attendees</b>	Dr Ali Yetisen (AY), Marie Jones (MJ), Mathusan Kandiah (MK), Zong Lee (ZL), Yuxin (Bryan) Liu (YL), Helen Ogbobi (HO), Wei Ooi (WO), Andreas Richardson (AR), Stephen Tan (SN), Sathurthini Thurairatnam (ST), Mingchuan Zheng (MZ)
<b>Apologies</b>	Mustafa Naser (MN)
<b>Chair</b>	Marie Jones
<b>Secretary</b>	Andreas Richardson

## Minutes

Item	Discussion
<b>1 – Welcome</b>	<p>Team introductions.</p> <p>AY gave some introduction to Final Year Design.</p> <ul style="list-style-type: none"> <li>• The most difficult/challenging project; load nevertheless has been decreased.</li> <li>• Important advice: meet regularly. Divide tasks and deliver on time.</li> <li>• Be careful of dependencies between project parts.</li> <li>• Progress on analysis <b>and</b> write-up each week.</li> <li>• Work with the experts.</li> <li>• The role of facilitator is to observe the process, not to intervene or provide answers.</li> </ul>
<b>2 – Logistics</b>	<p>MJ: Tuesday morning is the only time we found for everyone to meet.</p> <p>AY: Afternoons best; for mornings please send 3 meeting choices every Friday (minimum 3 days in advance).</p>
<b>3 – Brief (MK)</b>	<p><b>(1) Clarifying “multi-purpose”</b></p> <p>AY: This means having modularity in the system. Personal interpretation is that you need to be able to switch between different products.</p> <p>MJ: Modularity in which sense: materials, end products, process?</p> <p>AY: Flexible enough to switch line to a new product (e.g. when market requirements change)</p> <p><b>(2) Clarifying “3 suitable exemplars”</b></p> <p>AY: There are pros and cons of different processes. Collate options; discuss at negotiation phase. Previously teams have taken both converging and diverging paths from the same brief.</p> <p>MK: Are they 3 process designs?</p> <p>AY: Can be that or 3 end products. Discuss all this at the brief negotiation.</p> <p><b>(3) Discussion of final use</b></p> <p>AY: Yes, can send product to any industry. Some teams have had multiple end-products.</p> <p><b>(4) Defining the exact limits on the feedstock</b></p> <p>AY: Technical questions go to the experts. Over the coming weeks they will clarify what they would like to see as an outcome</p>

	(formulations, approaches etc.). They may throw out open-ended questions to guide your work.
<b>4 – Literature review &amp; market research (MZ, AR, SN)</b>	<p>MZ: Team has read the papers. Challenge locating reference [2] from brief; AR has requested from British Library.</p> <p><b>Conclusion from papers: use flow chemistry.</b></p> <p>AY: Continuous is preferred to batch (pros: avoiding contamination, safety etc.). Consider starting to write general introduction to companies, competing products, prices etc. Use company websites, business reports—even surveys and meeting with employees. Calculations &amp; information from this process should be rational and make sense.</p> <p>AR: Product identification points us towards specific/specialised compounds, but market literature is largely about bulk chemicals. Does AY have any recommendations to overcome this?</p> <p>AY: Free to decide between bulk materials or “clear” end products. This determines market &amp; purity. Market analysis must be evidence based (e.g. GSK will buy 1 t/yr); make educated assumptions</p> <p>AR &amp; MJ: Brief hints strongly at pharma product (500 t/yr &amp; 99.9% purity)</p> <p>AY: Note that different purity levels command different prices. This links back to modularity and market analysis.</p> <p>SN: Plant location</p> <p>AY: Brief mentions China; offshoring manufacturing to south-east Asia is common due to lower operational costs. Consider transport of materials, product, and safety implications.</p> <p>SN: Exact cost implications of plant location</p> <p>AY: Different levels of detail can be presented in the intermediate and final reports.</p> <p>SN: Should location be specified precisely?</p> <p>AY: City-level is fine (e.g. New Jersey, Beijing). Consider locations at a crossroads (e.g. Singapore) between markets. More complex: tax implications.</p> <p>AY: Consider dividing work now. Some suggestions:</p> <ul style="list-style-type: none"> <li>• Someone to be responsible for each component, with a colleague for support.</li> <li>• Someone to manage write-up and oversee the report.</li> <li>• Someone to manage timelines. Measure progress and talk regularly.</li> <li>• Someone to oversee everything and ‘connect the dots’ (a facilitator). Consider information flows and dependencies; establish a line of command.</li> </ul>
<b>5 – Product selection method (HO)</b>	<p>HO outlined the 4 step process.</p> <p>HO: Do safety standards change on a country to country basis?</p> <p>AY: Depends on the end product, though ISO safety standards are global</p> <p>HO: Can we identify very different pathways, perhaps beyond what is in the brief?</p> <p>AY: Stick broadly to the main guidelines. “Innovation” comes into play when designing the reactor &amp; production process; can share examples.</p>

HO: Would it be advisable to use a mix of the broad (AHS, TOPSIS) & analytical methodologies for multiple-criterion decision making?  
AY: Must have analytical / in-depth understanding of reaction (kinetics etc.).  
Some team members need to focus on the fundamentals, others on more broad topics.

HO: Trade-off between quantitative and qualitative analysis  
AY: It's ideal to have all quantitative analysis, but not usually possible.  
HO: Any pointers on the number of criteria to consider for each theme (e.g. safety)?  
AY: Consider e.g. 3 key points under each heading. Could ask experts and/or raise this at negotiation.

<b>6 – Company logo &amp; name</b>	MJ proposed to discuss this next week when it will have progressed beyond an initial draft.
<b>7 – Plans for next week</b>	MJ briefly introduced our current work plan (outlined in full below).
<b>8 – Feedback</b>	<p>MJ invited feedback on the meeting setup</p> <p>AY's feedback</p> <ul style="list-style-type: none"> <li>• Send minutes same-day for signature</li> <li>• Keep ensuring that every member speaks at every meeting</li> </ul>

**Next meeting: 11am UK time Tuesday 19 Jan.**

## Actions

Description	Assignee	Due
Synthesise information (chemical, process, economic) about possible products from literature review, market research.		
- Collate list of candidate pharmaceutical products & assign to team members	YL, MJ, MZ	17 Jan
- Create "whiteboard" to gather research together	MZ	14 Jan
- Gather data for assigned compound(s)	All	Next meeting
Initial preparations for brief negotiation		
- Read 3 examples of modified briefs from past reports	All	Next meeting
- Draft list of negotiation parameters breaking down current specification and opportunities to change	AR	Next meeting
Sub-team assignments (synthesis, separation, economics)		
- Prepare for and attend Week 1 economics consultation	AR, MN, WO, MK	14 Jan
- Prepare for and attend Week 2 economics consultation	AR, MN, WO, MK	19 Jan
- Prepare for and attend Week 1 separations consultation	YL, SN, ZL	15 Jan
- Prepare for and attend Week 2 synthesis consultation	MJ, HO, MZ, ST	19 Jan
Complete branding (logo, name)	MN	Next meeting
Create outline timeline for project (e.g. Gantt chart)	MJ, AR	17 Jan

Approval



Dr Ali Yetisen  
*Facilitator*



Marie Jones  
*Chair*



Andreas Richardson  
*Secretary*












# FYD Team 8 - Meeting 1 minutes

Final Audit Report

2021-01-14

Created:	2021-01-14
By:	Andreas Richardson (ar1999@me.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAWxbCJ-pPaAaEyMAIkK2vpRpVXfebPqcs

## "FYD Team 8 - Meeting 1 minutes" History

-  Document created by Andreas Richardson (ar1999@me.com)  
2021-01-14 - 10:49:41 AM GMT- IP address: 92.40.169.144
-  Document emailed to Andreas Richardson (andreas.richardson17@imperial.ac.uk) for signature  
2021-01-14 - 10:51:59 AM GMT
-  Email viewed by Andreas Richardson (andreas.richardson17@imperial.ac.uk)  
2021-01-14 - 10:52:58 AM GMT- IP address: 92.40.169.143
-  Document e-signed by Andreas Richardson (andreas.richardson17@imperial.ac.uk)  
Signature Date: 2021-01-14 - 10:53:52 AM GMT - Time Source: server- IP address: 92.40.169.143
-  Document emailed to Marie Jones (marie.jones17@imperial.ac.uk) for signature  
2021-01-14 - 10:53:53 AM GMT
-  Email viewed by Marie Jones (marie.jones17@imperial.ac.uk)  
2021-01-14 - 10:54:39 AM GMT- IP address: 93.6.92.18
-  Document e-signed by Marie Jones (marie.jones17@imperial.ac.uk)  
Signature Date: 2021-01-14 - 10:58:06 AM GMT - Time Source: server- IP address: 93.6.92.18
-  Document emailed to Ali K. Yetisen (a.yetisen@imperial.ac.uk) for signature  
2021-01-14 - 10:58:07 AM GMT
-  Email viewed by Ali K. Yetisen (a.yetisen@imperial.ac.uk)  
2021-01-14 - 11:41:20 AM GMT- IP address: 90.254.9.124
-  Document e-signed by Ali K. Yetisen (a.yetisen@imperial.ac.uk)  
Signature Date: 2021-01-14 - 11:45:39 AM GMT - Time Source: server- IP address: 90.254.9.124
-  Agreement completed.  
2021-01-14 - 11:45:39 AM GMT