Discussion 1.2: Uncovering New Opportunities by Merging Technologies

In the last few videos, you learned about some exciting advancements in various tech domains. Then in the poll you just participated in, you picked one technology domain that is the most promising for your industry. Now pick a second technology, and explore what the merging of these technologies might look like. Craft a discussion post that addresses the following:

* Reflect on your organization or an organization of your choice. What new product or service could be created by merging these two technologies?
* What implications would this product or service have for your organization?

Then, read through your peers’ posts, and respond to at least one post by sharing how that product or service could be relevant to your industry.

## [Adam Salmen](https://student.emeritus.org/courses/3412/users/144005)

FridayLocal: Sep 10 at 3:30pm<br>Course: Sep 10 at 7:30pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

In my first technology choice, I chose AI, as I think there is allot of insights we can get from the vast amount of data we calculate as a science based chemical company. for instance, if we do several chemical experiments to make our polymer more chemical resistant, this could be stored and processed further by an AI model which could inform scientists in further experiments what may work or what may not work. if we profiled all the phenothypes of our polymer, we could narrow down the probabible additives when doing a specific development in the future.

The second technology which seems really interestng is the robots, or specifically the software robots which could be used on our website to field inquirys from customers.  Could we combine the AI algorhythms with our customer service bots to help scan for newly developing polymer needs that we can then match with our internal capabilities and develop new polymers of interest to our business? could we help our field service engineers troubleshoot issues in a more enlightened way? Alternatively, could we automate our production processes, so the runs of our various polymer productions could be specifically controlled by robots based on the small scale reactions done in the lab?

[Collapse Subdiscussion](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)[Federico Giannangeli](https://student.emeritus.org/courses/3412/users/151424)

## [Federico Giannangeli](https://student.emeritus.org/courses/3412/users/151424)

YesterdayLocal: Sep 12 at 6:56am<br>Course: Sep 12 at 10:56am

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

Hi Adam.  Your post got my attention.  I am not directly involved but I do follow some project we are introducing in the company that bring the in-silico concept together with the robots.  I totally agreed with what you said.  I also think the AI application you mentioned can also be used to develop customized material (in your case polymers) feasible.   By combining in silico chemistry with robots perhaps we won’t need line of products that works for multiple application but we could make customer oriented products at competitive cost that fit specific needs.

Hi Adam,

Fully agree with your choices that exploit the synergy between AI and robotics! My choices are the same two, but in reverse order, in a R&D setting. It is the same concept that robotics and automation can generate data in fast and larger scale, in your case, even in customer directed way,  AI will be used to mine the data for more insight, which in turn direct more informed optimization of process/product for robotics to produce. Virtuous cycle. :)

## [Jasmine Campos](https://student.emeritus.org/courses/3412/users/82697)

SaturdayLocal: Sep 11 at 4:02pm<br>Course: Sep 11 at 8:02pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

The first technology I chose is AI because I believe it has many relevant applications in Supply Chain such as lowering manufacturing costs, enhancing customer experience, reducing risk, and enabling faster operations.

The second technology I would focus on is Robotics and Automation. By combining AI with Robotics and Automation there could be opportunities to improve our Supply Chain planning processes from manual to autonomous planning where demand and supply signals are continuously synchronized, and the planning system is able to detect new problems from the data and make predictions and recommendations on how to fix the issues before they occur.

Improving this type of processes will enable the organization to be more responsive, agile, and better anticipate customer needs.

## [Federico Giannangeli](https://student.emeritus.org/courses/3412/users/151424)

YesterdayLocal: Sep 12 at 6:44am<br>Course: Sep 12 at 10:44am

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

I selected AI and Data Science applied to the Oil and Gas (O&G) Industry as my first choice and I am paring this with BlockChain to share my view of a new product that could make this industry more efficient.

The O&G value chain starts in the exploration activities.  This is a high risk operation in multiple dimensions (i.e. cost, effectiveness, HSE, etc) and the challenge to find Oil and/or Gas is strongly driven by successful seismic acquisition and interpretation activities.  In simple words, this activity is the one that provides a photo of the subsurface, it point towards where the resources are located and it results in huge amount of data and computer resources requirement.  AI/ML has introduced in the pipeline of products algorithms (e.g. Segmentation and Classification techniques) that improve image resolution and is helping to improve seismic image only with AI.  This, combined with over 50 years of Geophysics Interpretation databases, is resulting in products where trained machines perform interpretation tasks.  If we bring Block Chain to the picture, we open the possibility to develop smart contract among companies that have seismic and interpretation data for sharing.  This is a complex task today considering confidentiality, multiple ownerships, country legislation, data formatting, etc.  Blockchain could unlock new ways of exchange information.

As a result of the above, the industry could become more efficient through the development of open source platforms that activates the data release with the underlying block chain technology supporting it.   Among the implications: less seismic campaigns will be needed, image improvement and stronger AI/ML technologies could be developed through collaboration, environmental impact will be reduced since some area will not require drilling and the cost of exploration will surely decrease.

Additional info for interested peers:  AI image quality is everywhere.  The Medical Sector (which we have some peers in this group) has led the development of amazing product (e.g. cancer identification).  Also the photography, that it might be closer to all of us, is evolving.  Since Ryan Liu mentioned to think about areas we could get involved to test Technologies, I am herein sharing a website I found during the research for those that like photography and have a picture that you love but it was not perfect.  You might find AI to be of good help (see: [https://www.topazlabs.com/ (Links to an external site.)](https://www.topazlabs.com/))

Edited by [Federico Giannangeli](https://student.emeritus.org/courses/3412/users/151424) on Sep 12 at 6:45am

## [Mosongo Moukwa](https://student.emeritus.org/courses/3412/users/86918)

YesterdayLocal: Sep 12 at 8:26am<br>Course: Sep 12 at 12:26pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

We are in the chemical manufacturing industry. I chose AI and Data Science because they can improve the performance of chemical companies, for example in the identification of characteristics of feedstock and prediction of the final product. It can also be used in quality control by quickly identifying defects. They can help determine the feasibility of a particular reaction, the effect of temperature on certain reactions. Finally, it could help in managing safety by providing timely alerts.

It is expected that AI and Data Science will increase the speed of production process. There may be an opportunity to merge AI and Data Science with stronger computer power. But the area of Quantum computing to augment Data Science in the chemical industry is an intriguing one. Chemical processes are inherently complex. According to an article published in HBR,

“Quantum computers can take large manufacturing data sets on operational failures and translating them to combinatoric challenges that, when paired with a quantum-inspired algorithm, can identify which part of a complex manufacturing process contributed to incidents of product failure”.

For many of the chemical products where the specific composition and nature of feedstock is difficult to fully characterize, Quantum may help in working with different feedstock configurations and their impact on reactions. This would mean that with Quantum computers, it is possible to further accelerate current efforts in materials discovery and chemicals development.

## [Tom Gol](https://student.emeritus.org/courses/3412/users/164325)

YesterdayLocal: Sep 12 at 10:07am<br>Course: Sep 12 at 2:07pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

The most promising technology domain for my industry, in my opition, is Computer power. The second technology I picked is AI and Data Science. In my organization's industry we perform complex research projects, many of them include highly demanding algorithms. These algorithms can run for days, performing calculations and going over large number of permutations in order to detect patterns. By combining Computer Power with AI and Data Science, we could create Machine Learning algorithms for detecting patterns, instead of brute-forcing permutations and decrease their run time by using more compute power on-demand.

The implications will be shorter research cycles which will allow us to bring new features to the market more quickly, thus creating an advantage over the competition.

## [Rene Felder](https://student.emeritus.org/courses/3412/users/138032)

8:06amLocal: Sep 13 at 8:06am<br>Course: Sep 13 at 12:06pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

I am working in the communication and financial industry, so many technologies can be merged. On one side AR/VR can be included in the payment process together with fintech and blockchain. AI/ML can be used to offer the right thing to people and combined with the first group of technologies the payment can be done seamless. But also IoE can be interwoven into a payment process which will include and merge the previous technologies. All new technologies can be merged together with other ones.

## [Sonal Shah](https://student.emeritus.org/courses/3412/users/156539)

6:41pmLocal: Sep 13 at 6:41pm<br>Course: Sep 13 at 10:41pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

The first technology I choose was Data Fabric and pairing this with RPA will allow my company to automate lot of our manual process or EUC’s as they call it. Currently we spent a lot of time, every month end, during our ledger close process in gathering data on a common DB platform and running repetitive manual queries to bring together data for analysis purposes. By using RPA, we can automate most of our manual process  and create auto scheduling to run them on a set schedule so that all these EUCs can be streamlined.

This will bring lot of efficiencies in our process, along with faster execution cycles, speed to market and eliminate several errors introduced during the manual process.

[Collapse Subdiscussion](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)[Scott Roosa](https://student.emeritus.org/courses/3412/users/163238)

## [Scott Roosa](https://student.emeritus.org/courses/3412/users/163238)

6:49pmLocal: Sep 13 at 6:49pm<br>Course: Sep 13 at 10:49pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

The technologies I chose are IOE and AR/VR.   As we develop products for the firefighting/first responder market, I envision a product that can combine various sources of data to provide the firefighter pre-scene and on-scene situational awareness.   Data and communications will be key for an ever evolving emergency scene.   These products would give the individuals access to information that they do not have right now and would allow for a more precise and rapid resolution to the mission.

The implications would be that we can open up new products, customers and move forward in technologies that we are not currently working with.  This would also allow us to collaborate with other third parties to create innovative solutions and leverage emerging technologies.

## [Jinmi](https://student.emeritus.org/courses/3412/users/163394)

10:35pmLocal: Sep 13 at 10:35pm<br>Course: Sep 14 at 2:35am

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600?module_item_id=742262)

I work in biopharmaceutical research and development, as well as manufacturing. The technology I choose first is robotics and automation, which can significantly increase our capacity for exploring the design space for molecular entities, as well as production process development and optimization. The automation enabled "rich data", which can then be analyzed by the second technology I choose, which is AI and data sciences. The insight it generates can feed into the second round of design and optimization process using robotics and automation. One simple example is formulation development. By applying automation, the screening capacity for formulation components and ratio is significantly increased,  the associated assays can also be automated to generate data for different drug product quality attributes and degradation pathways. The data can be analyzed by AI for valuable insights on effect of different components and the interactions between them, leading to better formulation design, which can be further verified in subsequent experiments.

## [Yavuz Kurt](https://student.emeritus.org/about/164312)

4:57pmLocal: Sep 15 at 4:57pm<br>Course: Sep 15 at 8:57pm

[Manage Discussion Entry](https://student.emeritus.org/courses/3412/discussion_topics/188600)

The first technology I have chosen was the composable enterprise, which enables my company Deluxe to serve its clients packaged services. Due to dealing with millions of small companies, it is good to call another technology in to help which will be embedded to the existing one and boost the performance. Especially when we already invested and acquired a new bank that was inevitable for us.

That is AI.

The benefits of AI for the company will be transforming our customer experience with faster, more relevant information, injecting efficiency into systems and processes, improving fraud detection and risk management, and last but not least gaining new insights from previously trapped data.

Implications will come most likely in the process of integrating both systems, not only the technologies in terms of new software developments, purchasing new tools/systems or services but might also require re-organizations in the human resources.