DMF – Third-party Patent Activity Monitoring in the field of Nylon Polymer Recycling

Define the Opportunity or Problem

INVISTA Upstream team is observing a recent global uptick in polymer recycling technologies. Many companies are actively developing a variety of potentially scalable polymer technology options, and specifically, nylon recycling.

INVISTA recently applied for and granted a patent on one such post-industrial nylon recycle (PIR) technology. Another application is underway in the same area. INVISTA Upstream has prioritized this active area under its nylon stewardship focus and is making sizable investments in nylon recycling technology developments through R&D initiatives. There is an urgent need for us to stay vigilant and proactively scout this area where other companies are making rapid advancements. The challenge is to efficiently screen patent literature of interest. Such patent screening is currently performed manually using automated patent alerts containing excessive results. A team of 4+ reviewers are spending ~3 hrs/week or so on this workstream.

It would be desirable to gain efficiency in this process by automating the initial screening step and save the reviewers' opportunity cost. Even a nominal 20% week-after-week time saving can be significant for our researchers.

Value of the project:

A reviewer spends ~3 hrs each week => 12 hrs per month; 144 hrs per year;

Number of reviewers = 4 [conservative for now, this number may go up]; => 576 hrs per year;

Through ML/AI auto. screening, a 20% review time saving amounts to => 115 hrs per year;

At $2k/hr reviewer's opportunity cost => 115 hrs x $2k per hr = **$230k per year [value est.];**

Upside value – Efficient 3rd party patent screens also have long-term benefits of achieving rapid learning in technology developments to accelerate our R&D initiatives;

Clarify Objectives

- Gain efficiency for 3rd party patent screening.
- Improve classification accuracy of relevant patents.
- Ensure the solution is scalable and user-friendly [adaptability is important].
- Enable real-time feedback from reviewers.
- Integrate seamlessly with existing workflows.

Determine Viability

- **Data Availability**: Close to 100 relevant patents are available in our dataset.
- **Stakeholder Support**: The review team will actively engage from the start.
- **Business Alignment**: Nylon stewardship is a key focus for the organization.

- **Project Importance**: The project aligns with broader corporate goals, and starting early ensures efficiency in patent classification, saving significant review time.

Develop a Range of Alternatives

1. **Proceed with the project**: Develop a patent classification system that enhances review efficiency and reduces opportunity cost.
2. **Do not proceed**: Continue with the current manual screening process that consumes time from reviewers' priority programs.

Analyze the Alternatives

Criteria	Proceed with Project	Do Not Proceed
Time Savings	20% reduction in screen time	No improvement
Business Alignment	Supports nylon stewardship and efficiency improvement goals	Maintains status quo
Scalability	Can be expanded and refined	Limited to manual efforts
Stakeholder Efficiency	Enables entire review team to collaborate effectively	Continued high opportunity cost
Financial Impact	Potential cost savings over time	Higher long-term costs

Select the Best Alternative
Proceeding with the project is the best alternative as it would potentially improve patent screen efficiency, , supports corporate stewardship goals.

Determine the Next Steps

- Seek challenge, align with stakeholders for approval and resource allocation.
- Finalize project scope and milestones.
- Develop an implementation plan targeting a 3–4-month completion timeline.
- Conduct iterative development with real-time stakeholder feedback.

Communicate and Seek Approvals

- Present findings to leadership and key stakeholders.
- Align with Milind Kantak to evaluate cost-benefit impact.
- revisit the objectives, progress and seek approval for full-scale deployment.

Reviewed by: If document is reviewed, please highlight your names in green. Thank you.

Project developer: Chitra

Data Science lead: Jennifer

DnA Director: Ameya

Stakeholder: Milind and his team

Business Team: To be taken care by Jennifer to get approval from the business.