PONTIFICIO ISTITUTO ORIENTALE

20 November 2023

Current Needs List

1. **Building Security–Entrance domophone: 4,200 usd**
   a. As part of the renovations we have been doing, we have always included building security and fire safety upgrades. Eight years ago, the building was about 25 years behind Italian building codes, which we are bound to follow. Among other improvements, all entrance doors are now electronically controlled and throughout the building there are 16 video cameras for security, as well as 11 in the library. With the added security, however, there is no way of "knocking on the door" after hours, for either Jesuits or guests. If a community member has forgotten their electronic key and or cell phone or if a guest arrives after hours, they cannot get in. We have a professional estimate for a videophone at the entrance configured with our digital phone system in the building. The mechanism, integration, and labour estimate is 3870 euros, which today is about 4,200 usd.

2. **Fire Safety Doors on Stairwells: 23,350 usd**
   a. Tied in with the building security is fire safety throughout the building. We are inspected every year and must show improvements, especially since nothing had been done in this regard since Peter and Paul were in Rome. All of our library and classroom restoration has been done with fire-proofed materials, as well as the major expansion of the library currently nearing completion. Most of the stair wells have fire doors, but there remain three locations, the most used, which are not yet fire secure. In each case, some reconstruction is necessary before mounting the doors. We have a professional estimate for labour, doors, and installation at 21,400 euros, which today is 23,350 usd.

3. **Vulgate A.I. Program: Ingestion and Training: 10,000 usd**
   a. This is a significant and exciting project, unique in the academic world. As you know, we have been on the forefront in Rome of digitizing manuscripts and important books in our library collection. Magisterium AI (magisterium.com) is an AI program making publicly available the magisterial teachings of the Holy See. The Orientale has helped to develop that program's "Scholarly Mode", which makes available certain Catholic theological collections of such important authors as Thomas Aquinas, Augustine, and John Chrysostom. (I am the Chair of the Scholarly Advisory Committee.) The immediate popularity and functionality of these programs has been significant. Users, distinct from visitors, from over 100 countries use these resources, which have been available only since June. It has led us to the creation of another program called "Vulgate."

Vulgate fills a gap in library digital technology. While many universities make publications available online in pdf format, one cannot search a pdf with any reliability. OCR recognition of a pdf document depends on the clarity of the text and the sophistication of the OCR program, but they are notoriously faulty due to differing font styles and reproduction quality. In collaboration with Longbeard Creative, we are creating a program that translates pdf files into JSON, a computer language that eliminates the pdf problem. This allows us to use AI to search the texts and put together secure and sophisticated responses to theological questions. It also transcends languages. For example, if you query the program with a question like "what is the theological meaning of thanksgiving?", the program will search all instances of the term in the entire collection of books digitized in the system. There is no program in the world that does this. Harvard and Oxford, like other universities, have pdf documents available online, but you cannot search their collections for words or ideas. That is not all.

Beyond a word search, AI allows for something called a semantic search. This means it searches not only the word, but the meaning of the word. This is especially important in our case, for not only does it research words of comparable meaning in the language of the question (e.g., gratitude, gratefulness, appreciativeness, indebtedness), but AI algorithms will look through books of different languages in the system for words of the same meaning. In our library we may have books in as many as forty languages, ancient and modern. So the search will include thanksgiving, ringraziamento, action de grace, acción de gracias, şükran günü, подяка, dankbarkeit, സ്തോത്രം, and on and on, plus their equivalencies. We have paid Longbeard Creative 40,000 usd to develop the software, which shall be completed within the next few months. When completed, we will need 10,000 usd for the ingestion and training of our staff. "Ingestion" is the entering of our digitized books and manuscripts into the system. It is the last step to make the program operative. Once again, this kind of program exists nowhere in the academic world and it is of significant value for us who work in many languages. We will be a world leader in this technology, though it remains to be seen whether it will be broadly marketable. We have a detailed professional estimate for the project, if needed.

4. **Manuscript Restoration: 49,000 usd**
   a. In the Orientale library, we have 300-400 manuscripts in various ancient languages. About twenty years ago, the Orientale transferred a further 96 delicate and/or damaged manuscripts to the Vatican Apostolic Library (BAV) where they have the resources to maintain and restore such documents. The Vatican Library absorbed the cost of digitizing 75 of the manuscripts. The Orientale has paid 20,000 usd for the restoration and digitization of 21 of the most damaged manuscripts. All of these 96 digitized manuscripts will be in our digitized collection, however the physical manuscripts will remain at the Vatican. Almost all of the 75 need some form of repair: pages, covers, binding, etc. The Vatican Library estimates the restoration of those 75 at 45,000 euros, or 49,000 usd on today's market. Neither we nor the Vatican Library have such funds at the moment. An official estimate is available.

5. Ecology: Solar Roofing Tiles
    a. One section of the clay-tile roof has decay in its wooden substructure and will have to be repaired within the next five years or so. Our hope is to install solar tiles on the new structure, that is, tiles that look like clay but are really solar photovoltaic tiles. In this part of Rome, we have to maintain the aesthetic appearance of the original roof. The Vatican should pay for this and we will start lobbying them. I could imagine a collaboration such as, they pay for the structural work and we pay for the tiles. Again, this is a future project and not urgent.

6. Third floor Offices and Corridors
    a. Professor offices and corridors need new flooring, electrical, lighting, and doors with windows, the current normative requirement. This is another future project, not urgent.