

# Building a digital pathology ecosystem for education and research

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## Abstract

Successful roll-out of digital histopathology requires more than a whole slide scanner. At Brussels Free University (VUB), we currently have two main use cases for whole slide imaging: education and biobanking. Both are presented to various end-users through customized user interfaces. With the help of the Pathomation software platform for digital microscopy, these integrate various datastores and image repositories, where possible. Custom coding is used to interact with various vendor-software and server applications, where needed, and always with the goal of minimal data duplication in mind. The end-result is an interconnected network of heterogeneous information silos, and a thriving environment for multi-disciplinary and integrated (both brightfield and fluorescent) virtual microscopy. A subset of applications are available to the public via <http://www.diabetesbiobank.org>.

## Overview of the imaging platforms and web interfaces



## Enhanced network and local cloud infrastructure

The collage displays several web interfaces related to digital pathology and biobanking:

- Willy Gepts collection @ VUB**: A webpage titled "Willy Gepts collection - the disease process in type 1 diabetes discovered". It features a portrait of Willy Gepts and a histological image of pancreatic islets.
- Diabetes Biobank**: A central interface showing patient information for Case: HPA 0096, including demographic data, clinical history, and available histological slides.
- Alan Foulis Collection**: A webpage titled "Alan Foulis Collection" with a portrait of Alan Foulis and a histological image of pancreatic islets.
- Pathomation**: A screenshot of the Pathomation software interface showing a histological image and associated metadata.
- Diabetes Biobank Website**: A screenshot of the <http://www.diabetesbiobank.org> website, featuring logos for various partners like the Belgian Diabetes Registry (BDR), Beta Cell Therapy (BCT), nPOD, and the Center for Medical Innovation (CMI).

## Discussion & conclusion

Digital pathology involves much more than the acquisition of a slide scanner. At the VUB, we have engaged five different imaging platforms onto a single architecture. We are now storing data from all modalities in a single storage facility, and can manage it through a single access point. Furthermore, the Pathomation software platform for digital microscopy assists in rendering content to any type of display device, without the need for extra software or background information concerning the content's origin. The resulting ecosystem presents web-accessible interfaces to the right end-users at the right time. A single access portal is provided through <http://www.diabetesbiobank.org>.