



MAKING RISK-FREE, ACCELERATED LEGACY MODERNIZATION POSSIBLE!

Abstract

New technologies get introduced much faster than the time it takes an agency to modernize its systems and adopt those technologies. As soon as the modernized system becomes operational, agencies are forced to look at modernizing the 'modernized' system.

Maybe this indicates why agencies continue to spend 80% of their IT budgets on maintenance of outdated systems, despite having legacy modernization as a top priority for several years now!

Clearly traditional modernization approaches are not working. To keep pace with new technologies, agencies should leverage a software + people based modernization approach, which can help build modern, agile and future-proof systems much faster, and at a lower cost and risk.

Software + people based modernization approach

People are crucial to the successful execution of a modernization program (replace, renew, re-architect etc.). However, people can also cause program delays and introduce risk, especially when the systems are old, complex, interdependent and integrated with other systems (both internal and external). The risk increases when there is limited knowledge or documentation about the systems.

A software + people approach amplifies people's abilities with technology to overcome these challenges, minimize risks, and execute the modernization program much faster, by as much as 70%!

Automating modernization phases with software

A typical modernization program will have the following key phases:

1. Discovery and reverse engineering of the existing system to understand its functionality

2. Analysis and deconstruction of existing legacy systems into modules to be modernized
3. Migration of legacy code, business functionality and user screens into target technology and user interface
4. Ancillary activities like training, change management etc.

A software + people approach can accelerate the first three phases and facilitate the last phase Let's see how.

1. Knowledge curation

Typically few people in the agency understand everything that their legacy system can do, which other applications is it dependent upon or that depend on it, or what processes it influences. One of the reasons is that these systems often predate the current users and have undergone multiple modifications. In many cases, original documentation is inadequate to begin with and documentation of subsequent modification is often nonexistent.

Without this information, modernizing the system can be a very risky proposition. Reconstructing system documentation requires significant business and IT staff time, which is generally in short supply.

Knowledge curation tools use automation to help an agency understand how a system works more quickly and accurately. They analyze the entire system portfolio; extract and store operational, workload, interface, and code data; and present this data in a meaningful way (e.g. what-if analysis, correlation models between code and issues/logs, critical business paths etc.) to help an agency decide the right modernization approach (replace a component, renew, optimize etc.). Figure 1 (page 3) shows an example of the output generated by a knowledge-curation tool.

Curating knowledge using a manual approach may take months and still be incomplete. A tool can help complete this exercise within hours and uncover information that the agency thought was lost forever without eating up business users/subject matter experts' time.

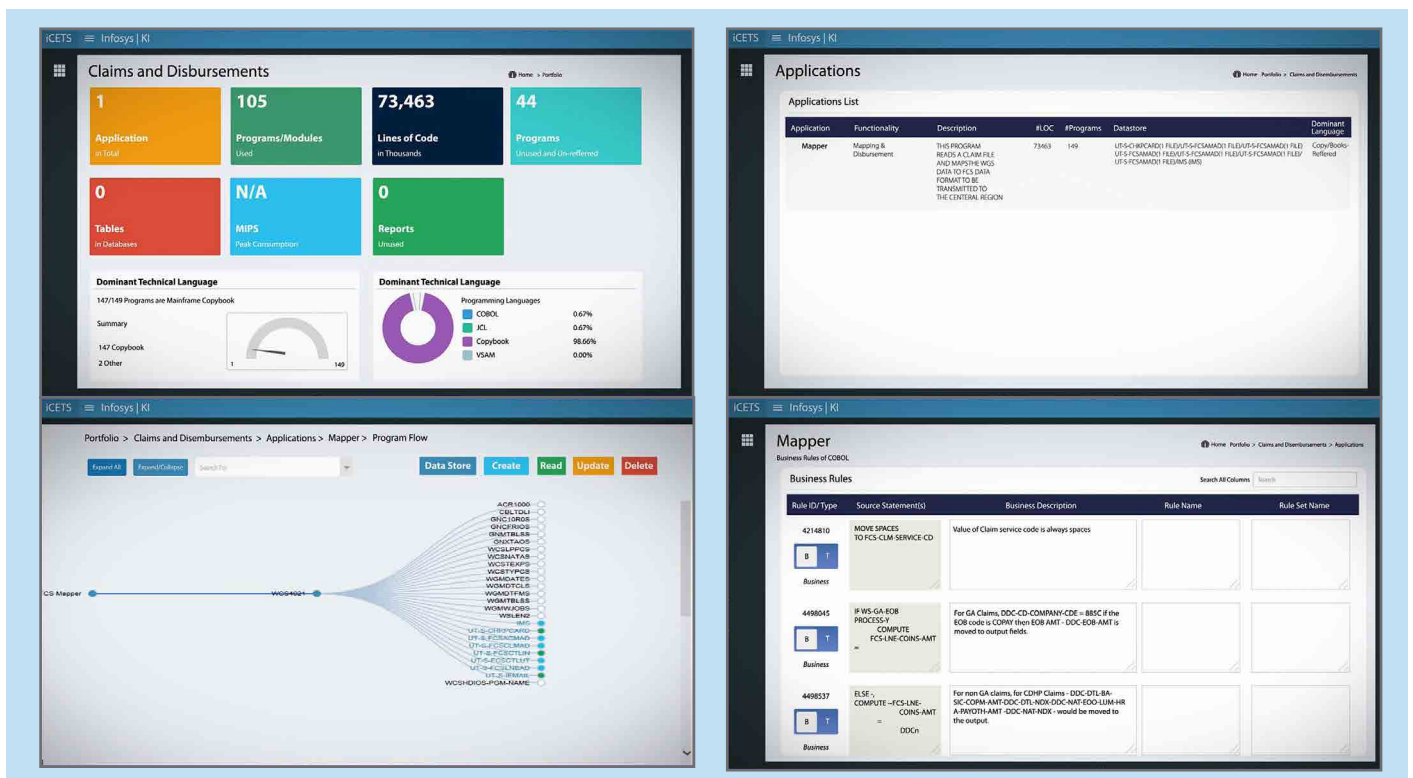


Figure 1: Output from a Knowledge Curation Tool

2. Deconstruction of the legacy system portfolio

Once an agency understands more about its legacy system portfolio, it may realize that not all components require replacement. Some can be re-architected using new technologies, some may need simple tweaks, or some may not be required at all.

The agency may also have to prioritize implementation of components based on their complexity, criticality, business requirements, available resources etc. Deconstructing the entire portfolio, which may have multiple systems, and may be made up of millions of lines of codes, manually will take a very long time and may not be accurate.

Deconstruction tools and frameworks can help an agency do this more rapidly and with greater precision. They can analyze the entire portfolio based on multiple criteria in a matter of hours and enable the agency to prioritize implementation. (Figure 2 below)

Case Study

A leading financial services firm used Infosys' Portfolio Assessment Framework to analyze 2300+ Applications. They identified opportunities to decommission 45% of the applications, which they decommissioned over a period of 3 years and significantly reduced their cost of operations.

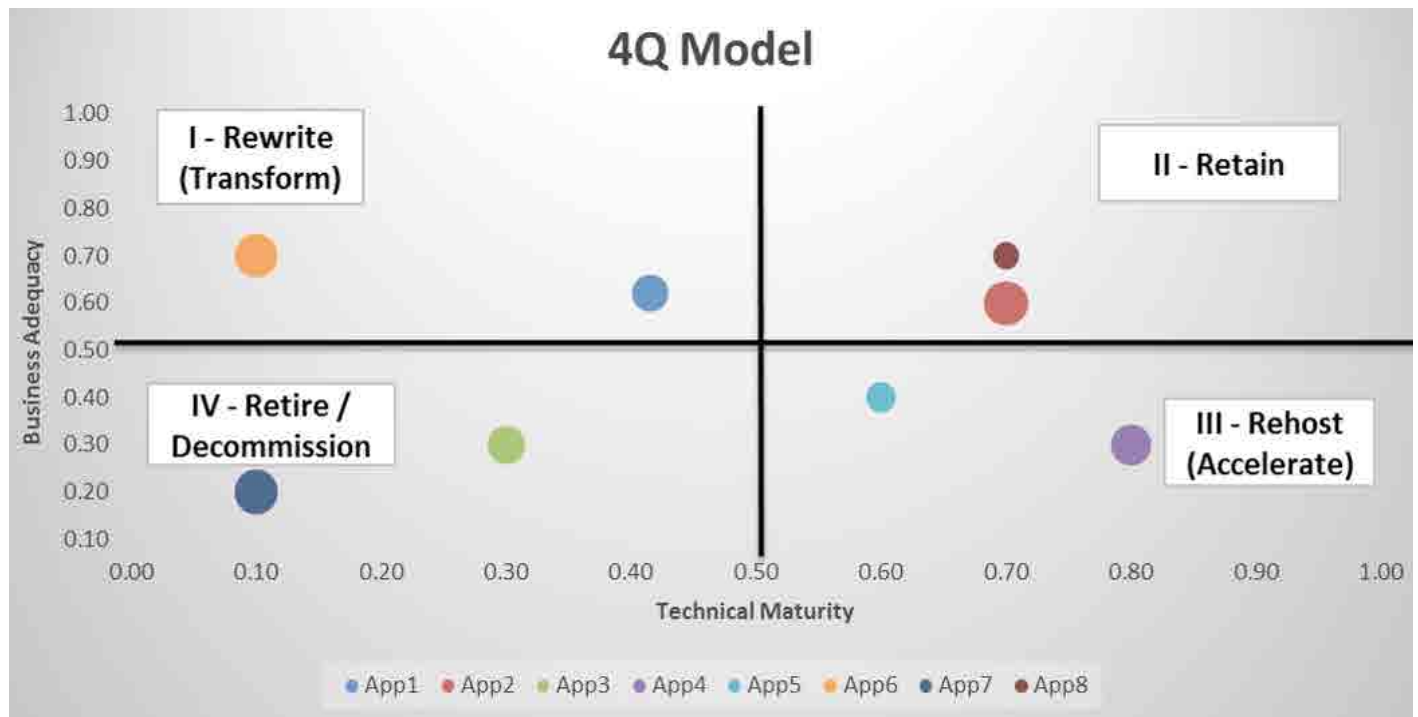


Figure 2: Output from Portfolio Assessment Framework

3. Migration of legacy code to new technologies

Migration or re-architecting systems from legacy to the new technology is probably the most time consuming exercise.

Agencies need to ensure that:

- ✓ There is no loss to business functionality during migration
- ✓ The code in target technology follows industry best practices and is easy to maintain
- ✓ The target architecture is agile to address future needs

This is the phase where business subject matter experts spend a lot of time helping ensure complete coverage of business functionality and testing of the applications.

With the right tools, agencies can do all of the above up to 70% faster and also minimize the time demand on scarce SMEs.
(Figure 3 below)

Code converters can analyze the entire code, migrate it into the selected targeted technology, and even ensure that dead code gets eliminated.

The right converters not only migrate the code but also the associated user interface in such a way that the final screens are similar to the old screens of the existing application and also include additional productivity features. This is crucial since most of the time UI and code are tightly coupled, especially for PowerBuilder applications, and unless the same associations are maintained in the new applications, the modernized system may not be readily adopted by the business users.

Case Study

Long Term Care Partners, a leading federal long term care program administrator, used this approach to modernize its core administration platform into a scalable, user-friendly web-based system. They were able to complete the transition faster, saved ~25% in maintenance costs, and made their employees who were using the system 20% more productive.

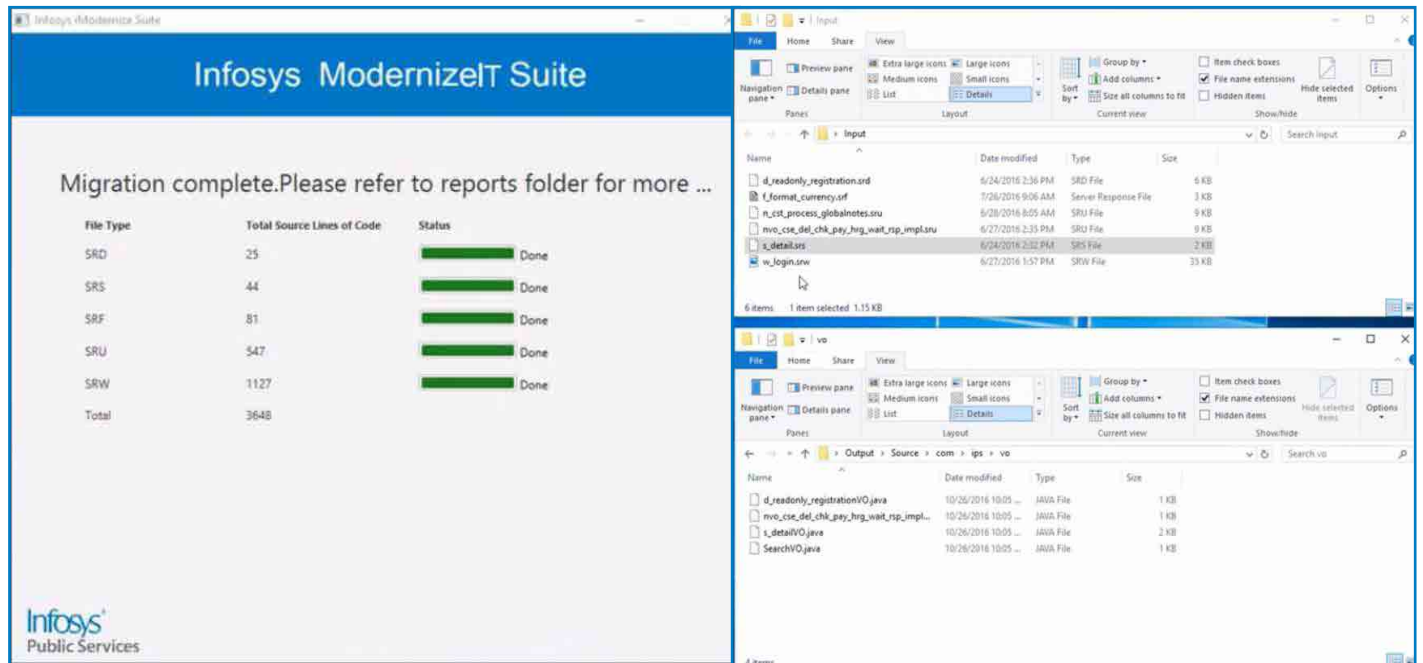


Figure 3: Code Converter in Action: Automated Migration of PowerBuilder Code to Java/.NET

4. Training, change management and other activities

While tools don't automate activities like change management or user training, they do make the process much easier and less effort intensive.

The tools ensure that only the necessary components/modules are modernized and also ensure that the new application looks very similar to the old application. This minimizes the time, effort and money required to manage change or re-train users on the new application. Users adopt the new applications more quickly and are able to service customers more effectively.

Where do the people come in?

No tool ensures 100% automated migration or modernization. Agencies still need people to fill the gaps and ensure seamless connectivity with other applications (e.g. build or update interfaces, add new requirements etc.). Since the tools minimize effort and bandwidth requirements, agencies can use their existing people for system integration related activities.

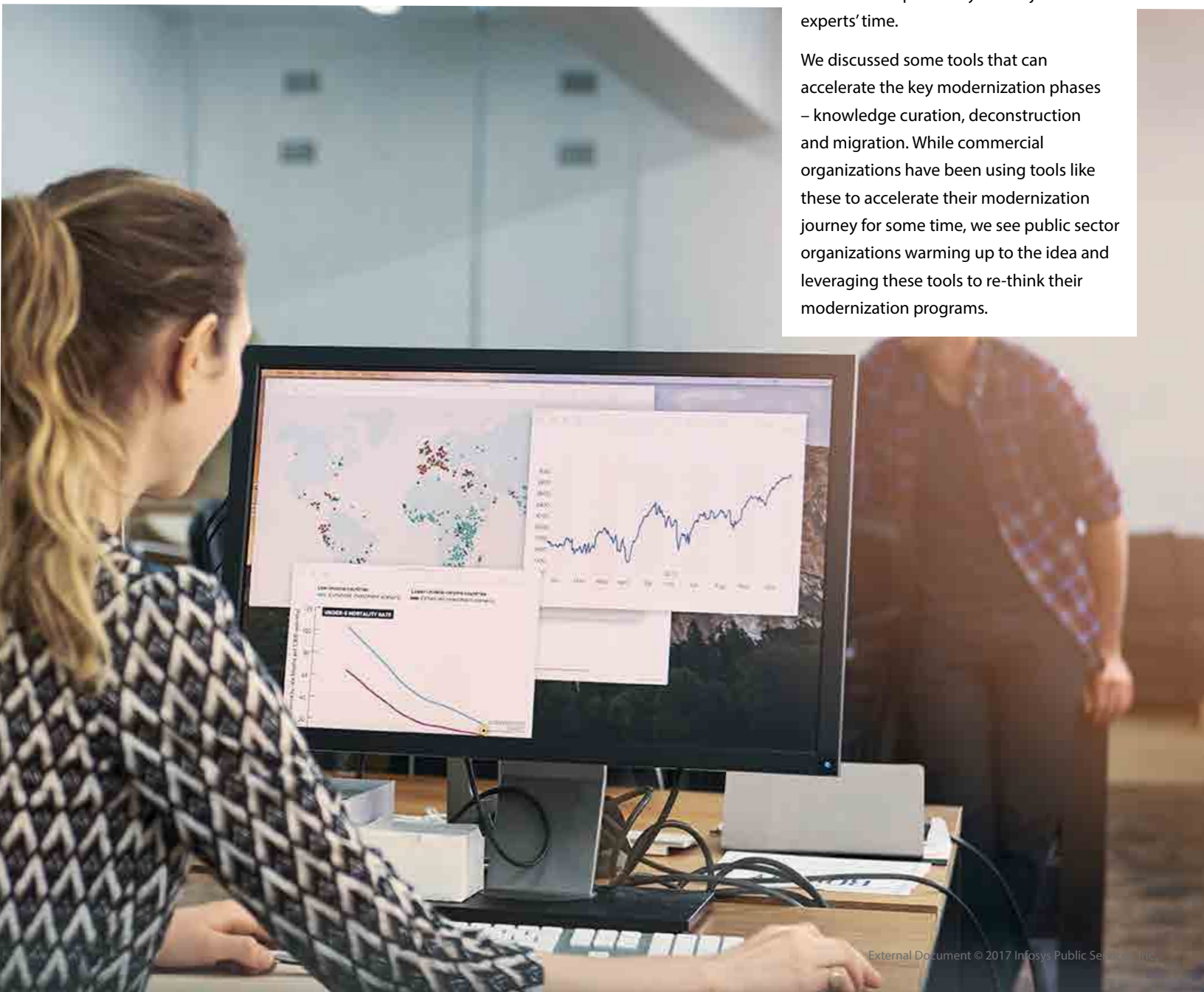
Additionally, people bring best-practices and lessons learned from past exercises, which not only fast-tracks the process but also minimize risk.

Conclusion

Given the pace of technology change and the heightened service expectations of citizens, agencies must modernize their legacy systems and do so quickly. A traditional manual approach will be painfully slow and prone to error. The key is to amplify people's potential by adopting various tools that can accelerate the entire modernization exercise by as much as 70%.

Effective tools are those that not only provide data but also help an agency generate information and insights, are non-intrusive, work on both the code and all associated components like the user interface, are easy to use, and significantly reduce the dependency on subject matter experts' time.

We discussed some tools that can accelerate the key modernization phases – knowledge curation, deconstruction and migration. While commercial organizations have been using tools like these to accelerate their modernization journey for some time, we see public sector organizations warming up to the idea and leveraging these tools to re-think their modernization programs.



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