UT Southwestern Medical Center

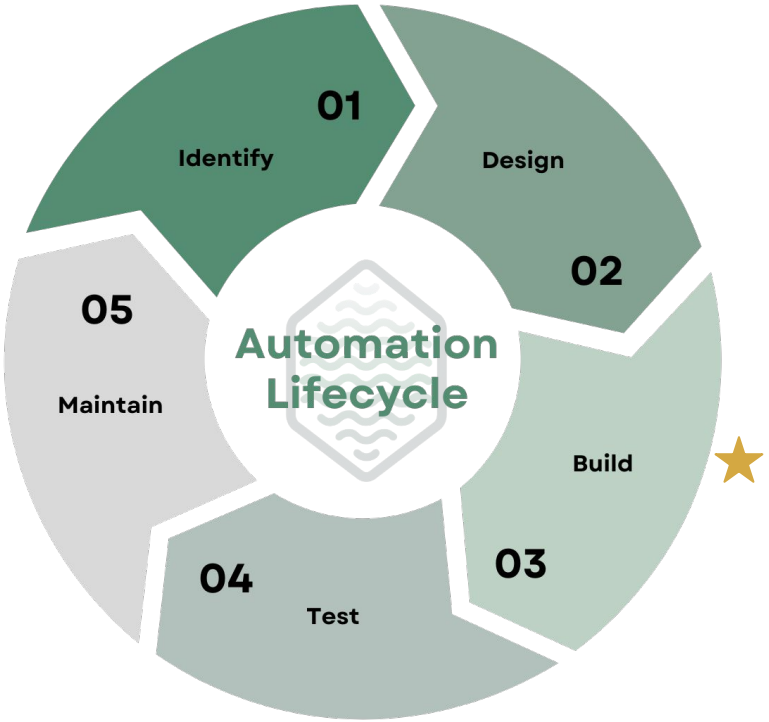
TARPON HEALTH

Building Efficient Automations

Agenda

1. About UTSW
2. Design impacts
3. UTSW automation use case background
4. UTSW automation design approach
5. Results & key takeaways

The Automation Lifecycle



About UTSouthwestern

Facts about UTSW

- Led by Daniel K. Podolsky, M.D., an internationally renowned gastroenterologist and member of the Institute of Medicine
- 4,200 Faculty across 70 specialties
- Faculty Includes:
  - 6 Nobel Laureates, 4 active
  - 21 Members in the National Academy of Sciences
  - 19 Members in the Institute of Medicine
- Top 15 in NIH funding
- US News and World Report - #1 Hospital In Texas

Program Overview

- **Program members:** Michael Laukaitis (Director Rev Cycle Accounting QA & Analytics) & Robbie Bright (Programmer Analyst II)
- **Live automations**: 4
  - Medical Record Bot - BCBS, Medicaid Patient Lookup Bot, Charge Reconciliation Bot, Ad Hoc Bots (Payment & Adj Posting)
- **Systems used**: UiPath and Autohotkey

William P. Clements Jr. University Hospital

Design impacts

Though there are various approaches to building an automation, certain design methods prove more efficient than others. Designing efficient automations saves on development time, maintenance time, and improves automation accuracy.

Design methods:

Design Method	Impact	Examples
★ **Standardizing upstream data**	Increasing the data obtain through an export versus screen scraping reduces the number of decisions and steps	Business logic identifies insurance ID and includes in the export rather than scraping in EHR
★ **Reducing clicks and actions**	A reduction in clicks and actions not only speeds up automation run time but improves automation accuracy	Tying templates to ROI module for medical record download process
Modular design	Splitting a very complex process into multiple, simpler processes will save you time and effort down the road by reducing maintenance requirements	Auth status automation requiring multiple payer portals

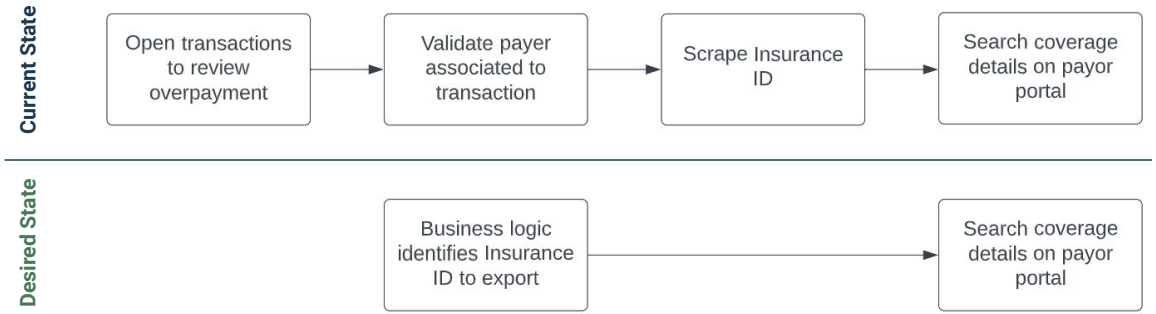
★ Areas of focus for today's webinar

Concept review: Tarpon Health Solution Architecture, Part 1

Standardizing upstream data

Increasing the data obtain through an export versus screen scraping reduces the number of decisions and steps.

Example - Overpayment Identification

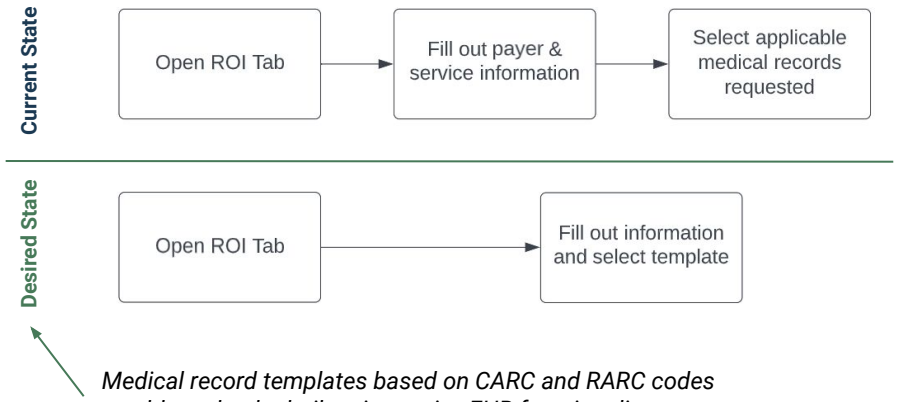


Concept review: Tarpon Health Solution Architecture, Part 1

Reducing clicks and actions

Maximizing your EMR capabilities to reduce in clicks and actions not only speeds up automation run time but improves automation accuracy.

Example - Medical Records

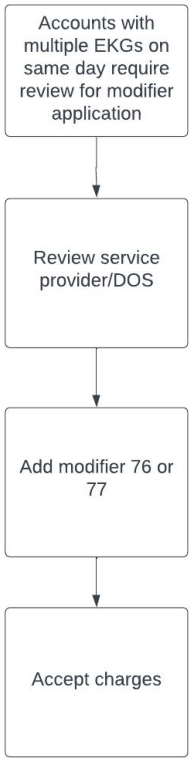


Concept review: Tarpon Health Solution Architecture, Part 1

EKG Charge Modifier

Item	Details
Description	Automation will review EKG charges and determine applicable modifier by validating provider & DOS
Department	Charging
Process schedule & frequency	Daily, 5am CT before shift start
Process execution time (per action)	50 seconds per record on average (more svc lines = higher process time)
Data input source	Sql export
Current manual daily volume	~600
Applications used	Epic hyperdrive
Service Areas	2

EKG Modifier Workflow



Design considerations

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"As-is" process considerations

1. Any lift or assistance from native capabilities?
2. 2 separate service areas in two separate work queues requiring the same outputs
    a. UTSW = data available from export and in Epic
    b. PHHS = data unavailable from export and missing in Epic
3. Varying number of service lines to check
    a. Automation will have to assess how many service lines exist each time it opens a session
4. Multiple outputs required by variances in service provider, reading provider, date of service, read date, and Medicare requirements
    a. Service Provider = Reading Provider, DOS = Read Date requires Modifier 76
    b. Service Provider <> Reading Provider, DOS = Read Date requires Modifier 77
    c. Service Provider = Reading Provider, Medicare, DOS = Read Date requires Modifier 76
    d. Service Provider = Reading Provider, Medicare, DOS <> Read Date requires update of DOS and removal of Modifier(s)

Design approach - data variances

How did we handle the differences in data and process requirements for the automation while retaining efficiency?

Steps taken to handle data variances:

1. **Identify data source containing missing data:** Tarpon and UTSW identified the service provider details were available in Muse data via an HL7 feed. This data was not currently being interfaced from PHHS Epic to UTSW Epic.
2. **Work with interface specialist to set up Muse data feed**: Tarpon and UTSW worked with the interface specialist to set up the HL7 feed. This included determining folder location, naming conventions, file frequency and timing, and consolidating the underlying data to only the applicable values necessary to the automation.
3. **Ingest Muse data into SQL database: "**Get File/Data" job created in SQL to locate and ingest data directly into the newly created table for missing PHHS MUSE data.
4. **Join Muse data with existing export data:** Existing UTSW query now joins to newly created table to fill data gaps between UTSW and PHHS accounts.
5. **Export file containing complete data set:** Automation receives one consolidated export, and has no additional task of parsing, referencing multiple files, etc.

Design approach - data variances

Data variances visualized in export

Initial export missing Parkland details

AUTOMATION_NAME	CHARGE_SESSION_ID	COUNT_OF_UCL_IDS	SERVICE_DATE_DT	PROC_COI	SERVICE_PROVIDER	SERVICE_AREA_ID	CASE	LINE_1_READ_PROV_NAME	LINE_1_READ_DATE
EKG Rhythm	123456789	2	9/1/2023	93010	Nick Lyons	Parkland	Medicare		
EKG Rhythm	123456766	1	9/1/2023	93010	Michael Laukaitis	Parkland			

HL7 MUSE report containing missing Parkland details

MRN used in query join

PHHS MRN	Read ProvLastName	Read ProvFirstName	Read Date
1111111	Lyons	Nick	9/2/2023
1111112	Laukaitis	Michael	9/1/2023

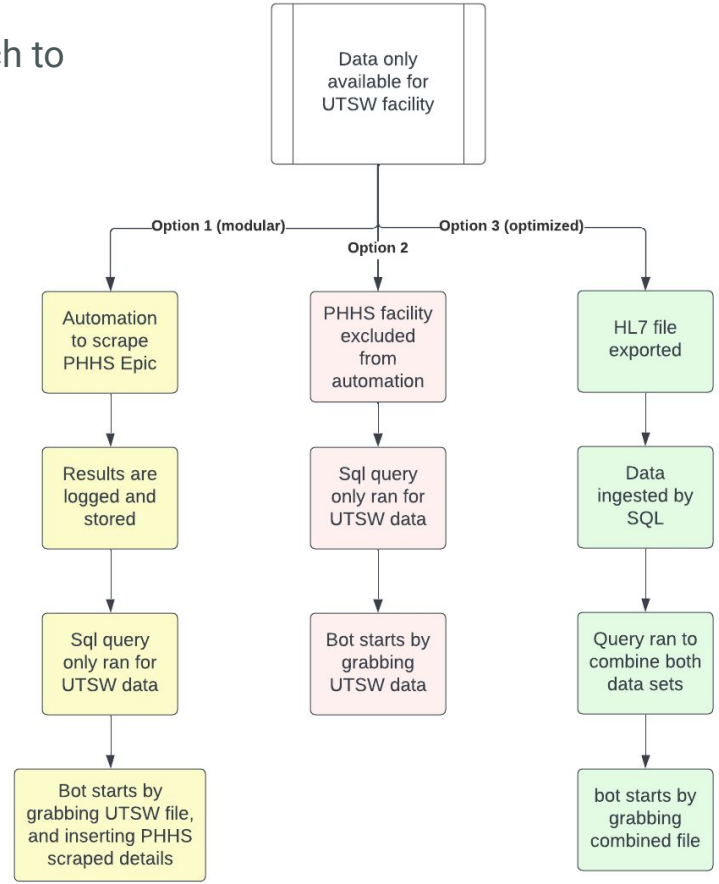
Final export containing all information needed for automation

AUTOMATION_NAME	CHARGE_SESSION_ID	COUNT_OF_UCL_IDS	SERVICE_DATE_DT	PROC_COI	SERVICE_PROVIDER	SERVICE_AREA_ID	CASE	LINE_1_READ_PROV_NAME	LINE_1_READ_DATE
EKG Rhythm	123456789	2	9/1/2023	93010	Nick Lyons	Parkland	Medicare	Nick Lyons	9/2/2023
EKG Rhythm	123456766	1	9/1/2023	93010	Michael Laukaitis	Parkland		Michael Laukaitis	9/1/2023

Design approach - data visualization

What were the options available during the design approach to include PHHS in the automation?

1. **Modular approach** *(Yellow)*
   a. Additional automation required to scrape applicable PHHS data so that the EKG automation has the necessary information to operate
2. **Exclude from automation** *(Red)*
   a. Solution not identified/available, modular approach does not justify positive ROI, etc
3. **Optimized by file transfer** *(Green)*
   a. Data exists and can be exported on a scheduled job and transferred to a file location accessible by the automation



Design approach - efficiency

Tarpon recommends using these common design approaches where applicable

Steps taken to handle process requirements:

1. **Optimize machine/environments:** Establish service accounts and ensure “production” machine has correct resolution, format, and file location/naming conventions.
2. **Optimize Epic:** Use of Epic customized toolbars, favorites in functions and available work queues, and potentially colors/designs to remain consistent across users/machines.
3. **Implement keystrokes to reduce CV requirements**: Using keystrokes where possible compared to Computer Vision “find and click” functions to reduce the time it takes to navigate, or action, an account.
4. **Leverage assets to reduce hard coded actions:** If there are changes in file locations, work queues, note details, etc - updates can be made to the assets instead of hardcoded functions, ultimately reducing the need for re-work if operational changes occur.

Design approach - reducing clicks

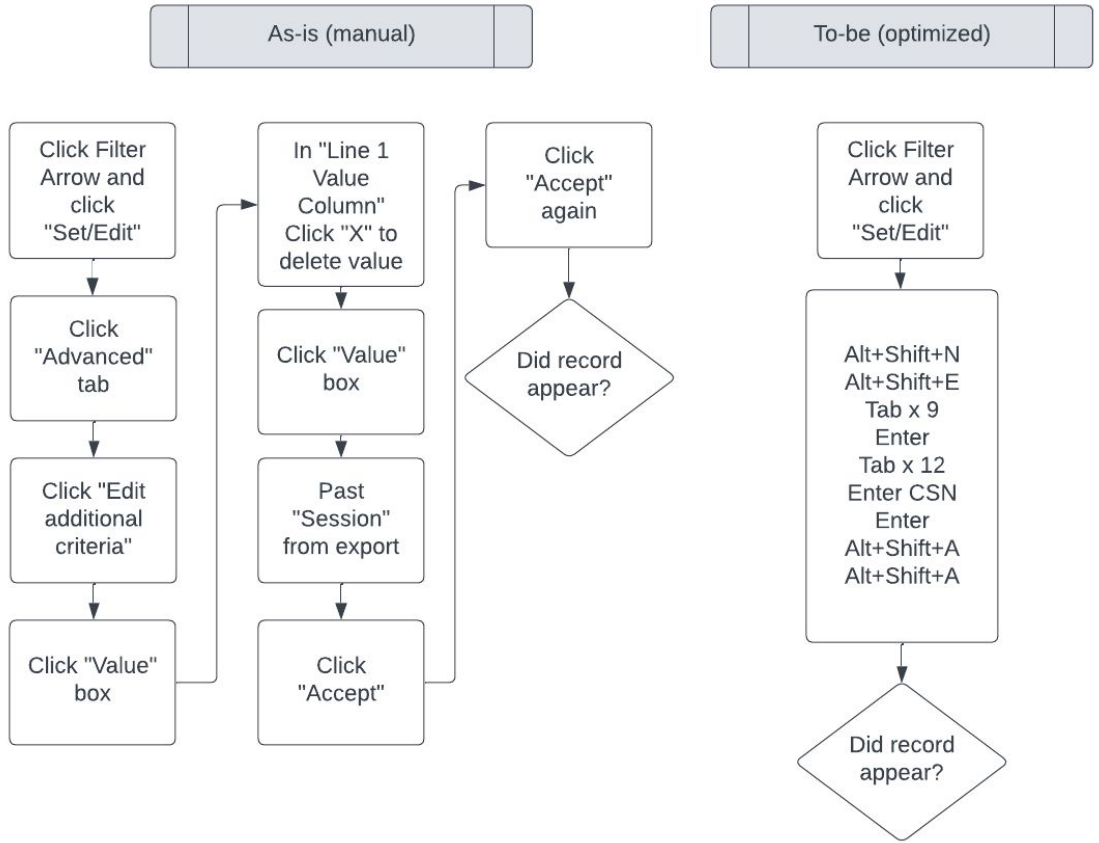
Reducing clicks and CV needs

As-is:

This is the process as someone does it today, manually, with no optimizations. If built in an automation without selectors, the automation would need to “see” each step with CV to confirm the action.

To-be:

This is the process with as little “Thought process” or steps as possible. The bot does not need to “see” if there is a solidified keystroke to achieve a step



Results

EKG Modifier automation results

Results

- **Success rate:** **92%** average daily success rate during testing
  - Failures attributed to non-EKG CPT codes existing, or Research modifiers being present
    - Identification of these exceptions will result in upstream exclusion, improving success rate
  - Some exceptions are unable to be resolved, and are accepted as a known failure (as long as success rate remains > 90%)
- **Three Year ROI**: **$189,481**
  - The ability to include PHHS work queues increased our anticipated ROI from $74,689 to $189,481
- **Development time**: **7 weeks** from the start of development planning to deployment
  - Tarpon estimates a 2 week reduction in development time with the incorporation of MUSE data and keyboard shortcuts

Key takeaways

- A well-designed automation solution will be more successful and require fewer resources to build and maintain
  - Leveraging keystrokes and reducing CV allowed for an improved success rate and a reduction in development time
- Investigate data input options with a goal of capturing as much data in the export as possible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