

# DARTH Framework

## made with xaringan

DARTH workgroup

2020/01/10 (updated: 2021-04-29)

# How most \* people currently work

(\* includes me)

# Specialized software

Most of us use **many different software programs**

and save it without a **clear**, **concise** and **consistent** naming convention or folder structure.

## Result?

Uhm??

Right!

Naam	Bewerkingsdatum
▼ Diagnostic Assignments (CE02) - Excel and R	✓ Vandaag 10:35
Diagnostics_Assignment instructions in Excel_17.06.19.docx	✓ 19 jun. 2017 17:41
▼ Assignments in R	✓ 12 sep. 2018 08:11
ROC package.R	✓ 28 okt. 2015 13:55
Introduction to R_Clinical Epidemiology.pptx	✓ 5 jan. 2016 16:30
DecisionTreeSolution.png	✓ 6 jul. 2017 11:56
color_template_NIHES.docx	✓ 17 jul. 2017 15:01
Tip & Tricks from your colleagues .docx	✓ 18 jul. 2017 09:49
Copy of ROCTutorial.xls	✓ 18 jul. 2017 09:51
Diagnostics_Assignment instructions in R & Solutions.Rmd	✓ 18 jul. 2017 10:54
Diagnostics_Assignment_instructions_in_R__Solutions.docx	✓ 18 jul. 2017 10:54
▼ Extra's	✓ 12 sep. 2018 08:17
CAD example.dta	✓ 11 jun. 2013 16:35
CAD example June 2013.do	✓ 12 jun. 2013 16:12
CAD example June 2013.log	✓ 2 okt. 2015 15:41
Building Tree instructions.docx	✓ 5 okt. 2015 14:26
DR_Report_Eline & Ilse_Groep A-1 (1).pdf	✓ 8 okt. 2015 11:08
Diagnostic research	✓ 12 okt. 2015 18:42
Decision Tree in R.R	✓ 14 okt. 2015 11:53
Markov model for assignment 2.R	✓ 14 okt. 2015 12:30
Diagnostic research exercises2 - Copy.R	✓ 14 okt. 2015 14:54
Diagnostic research exercises edits MGH.R	✓ 19 okt. 2015 13:49
ROCR.pdf	✓ 28 okt. 2015 13:04
ROCR.pdf.crdownload	✓ 28 okt. 2015 13:04
DR_Excel sheet exercises_v1.2-3.xlsx	✓ 28 okt. 2015 13:19
▼ Old files	✓ Vandaag 10:35
Diagnostic research exercises.R	✓ 14 okt. 2015 16:07
Assignment instruction in R.docx	✓ 16 okt. 2015 14:22
Diagnostic research exercises edits MGH.R	✓ 17 okt. 2015 20:56
Backup of Assignment instruction in R edits MGH.docx	✓ 17 okt. 2015 20:56
Assignment instruction in R edits MGH.docx	✓ 18 okt. 2015 02:20
Assignment 3.2 difficult.R	✓ 20 okt. 2015 17:06
Assignment 2.7 difficult.R	✓ 20 okt. 2015 17:06
Diagnostic research exercises correct with edits MGH .R	✓ 22 okt. 2015 16:01
Assignment instruction in R_10.21.15 edits MGH.docx	✓ 22 okt. 2015 16:02
Diagnostic research exercises_10.21.15 edits MGH.R	✓ 22 okt. 2015 16:02
Assignment instruction in R_10.22.15.docx	✓ 22 okt. 2015 23:55
Diagnostic research exercises_10.22.15.R	✓ 22 okt. 2015 23:55

# Consequence



404

We can't find what you're looking for.

Image from [Dropbox](#)

# Our motivation:

maximize effectiveness, reduce  
frustration, facilitate collaboration and  
increase readability of your work

# Streamline your work using R

R has the potential to facilitate **transparency**, **reproducibility**, and **shareability**

## You can use R for

- Data synthesis
- Data analysis
- Reporting
- Presenting

But this all comes with a **very steep learning curve** which can cause a lot of frustration.

# DARTH Framework

## ‘A coding framework for improving transparency in decision modeling’

Pharmacoeconomics (2019) 37:1329–1339  
<https://doi.org/10.1007/s40273-019-00837-x>

PRACTICAL APPLICATION



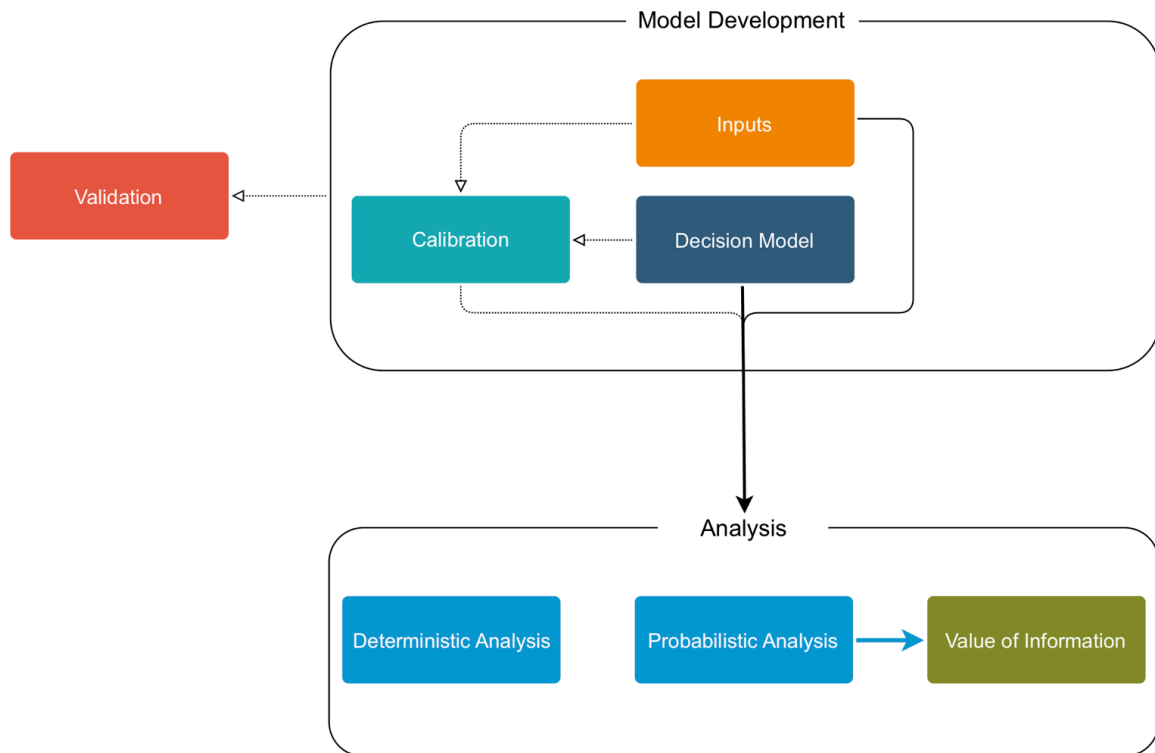
### A Need for Change! A Coding Framework for Improving Transparency in Decision Modeling

Fernando Alarid-Escudero<sup>1</sup>  · Eline M. Krijkamp<sup>2</sup>  · Petros Pechlivanoglou<sup>3</sup>  · Hawre Jalal<sup>4</sup>  · Szu-Yu Zoe Kao<sup>5</sup>  · Alan Yang<sup>6</sup>  · Eva A. Enns<sup>5</sup> 

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# Schematic representation



# Good project directory structure example:

- `data` - all input data (and metadata) used in the analysis
- `functions` - for functions to help us modify the data
- `R` - where interactive files for the analysis are stored
- `figs` - for the figures
- `tables` - for the tables
- `output` - any type of intermediate or output files
- *you might prefer an extra `cleaned-data` folder*
- `report` - for the RMarkdown manuscript or report of results

# DARTH naming convention (1)

**Table 2** File and variable naming conventions in the proposed DARTH coding framework

Object type	Naming recommendation	Examples
Files	dir/<component number>_<description> <ext>	analysis/01_model_ inputs.R R/02_simulation_ model_functions.R
Functions	<action!>_<description>	generate_init_params() generate_psa_params()
Variables	<x>_<y>_<var_name> where x = data type prefix y = variable type prefix var_name = brief descriptor	n_samp hr_S1D v_r_mort_by_age a_M l_params_all df_out_ce

# DARTH naming convention (2)

Prefix	Data type	Prefix	Variable type
<> (no prefix)	scalar	n	Number
v	vector	p	Probability
m	matrix	r	Rate
a	array	u	Utility
df	data frame	c	Cost
dtb	data table	hr	Hazard ratio
l	list	rr	Relative risk
		ly	Life years
		q	QALYs
		se	Standard error

# darthpack

☰ README.md



## darthpack

[darthpack](#) is an R package that showcases the [Decision Analysis in R for Technologies in Health \(DARTH\)](#) coding framework to construct model-based cost-effectiveness analysis in R. The main website of [darthpack](#) can be [found here](#).



[darthpack](#) is part of the following manuscript:

- Alarid-Escudero F, Krijkamp E, Pechlivanoglou P, Jalal H, Kao SY, Yang A, Enns EA. ["A need for change! A coding framework for improving transparency in decision modeling"](#). Pharmacoeconomics 2019;37(11):1329–1339. <http://dx.doi.org/10.1007/s40273-019-00837-x>
- Shareable link: <https://rdcu.be/bRP5h>

The release that accompanies the published article has been archived in zenodo: <https://zenodo.org/record/3445451>.