

# Change Management: A futuristic opportunity for SAS Programmers to build R Library

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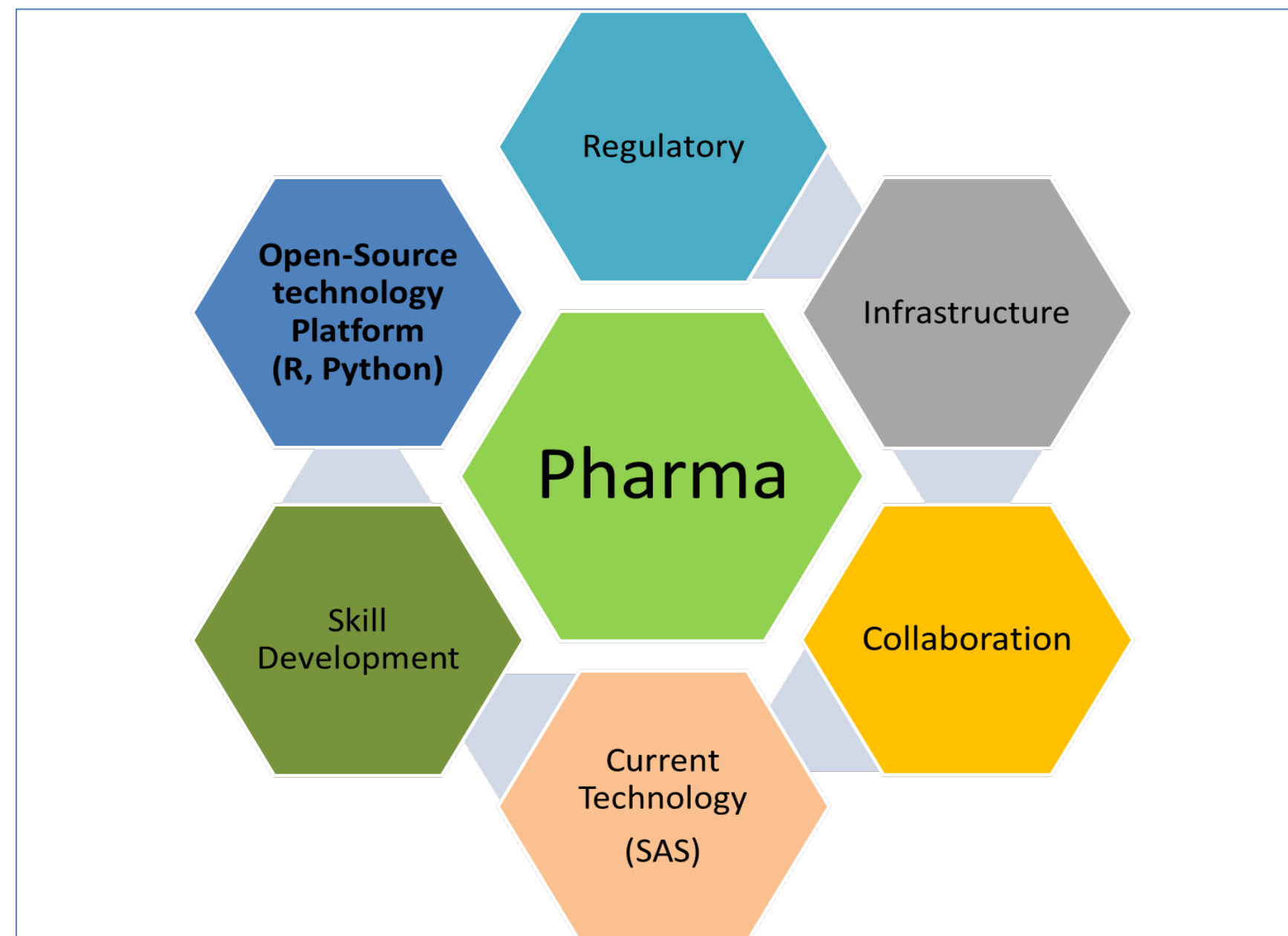
# Agenda

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1. Change is Inevitable
2. Adapting New Technologies
  - AI Era: ChatGPT
3. Open-Source Technologies
  - What are open-source technologies
  - Who can implement it
  - Advantages and challenges
4. Building SAS to R Libraries
5. Planning Effective Change Management
6. Conclusion
7. Q&A

# Change is Inevitable

Change management is a **multi-dimensional approach** and building a powerful strategy is key to success.



# Adapting New Technologies

## Cloud Computing

- Azure
- AWS
- SCE

## AI/ML

- ChatGPT
- Generative AI

## Statistical Software

- SAS
- R/R-Shiny
- Python

# Adapting New Technologies...cont.

## AI Era: ChatGPT

# ChatGPT Technology & its features



# Adapting New Technologies...cont.

## AI Era: ChatGPT vs SAS Programmer



# Adapting New Technologies...cont.

## ChatGPT



### Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →



### Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



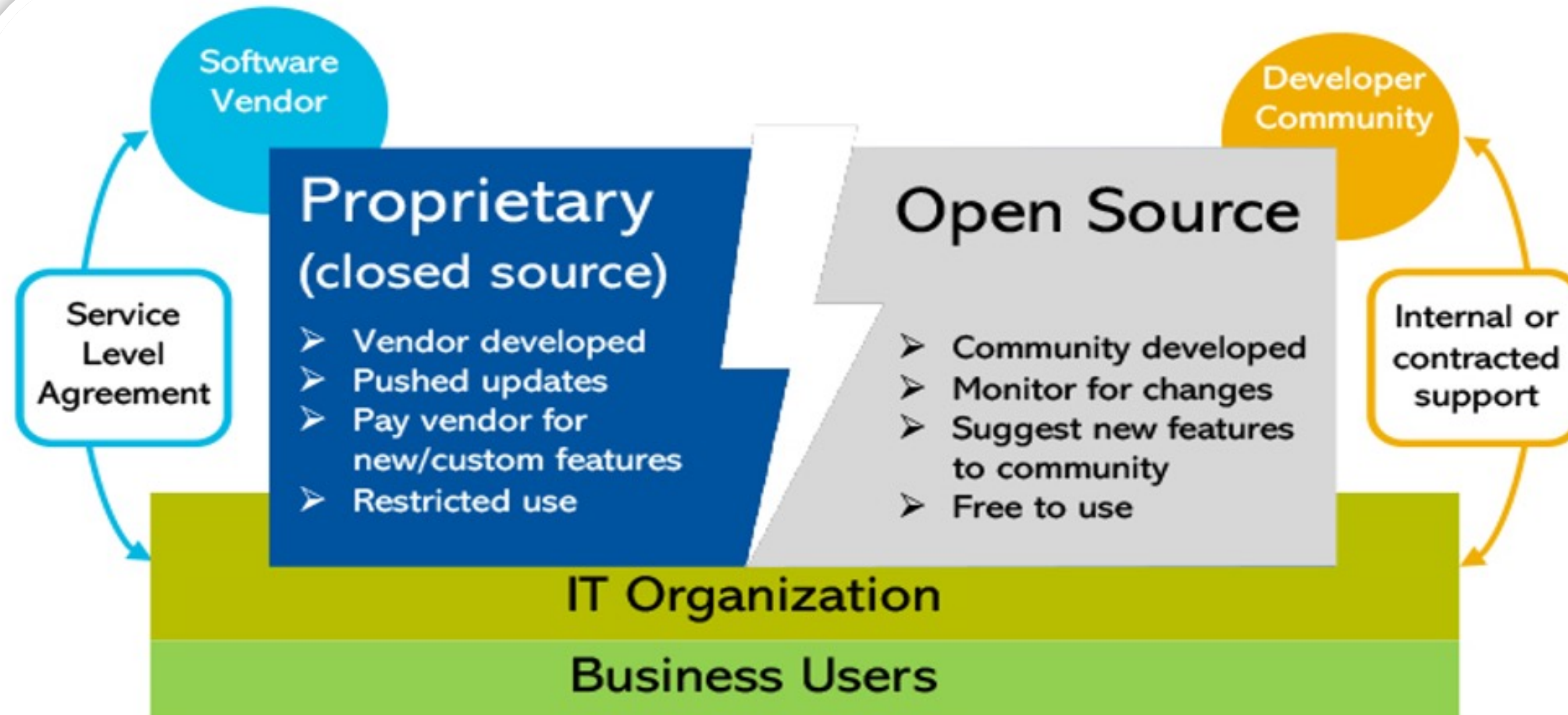
### Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

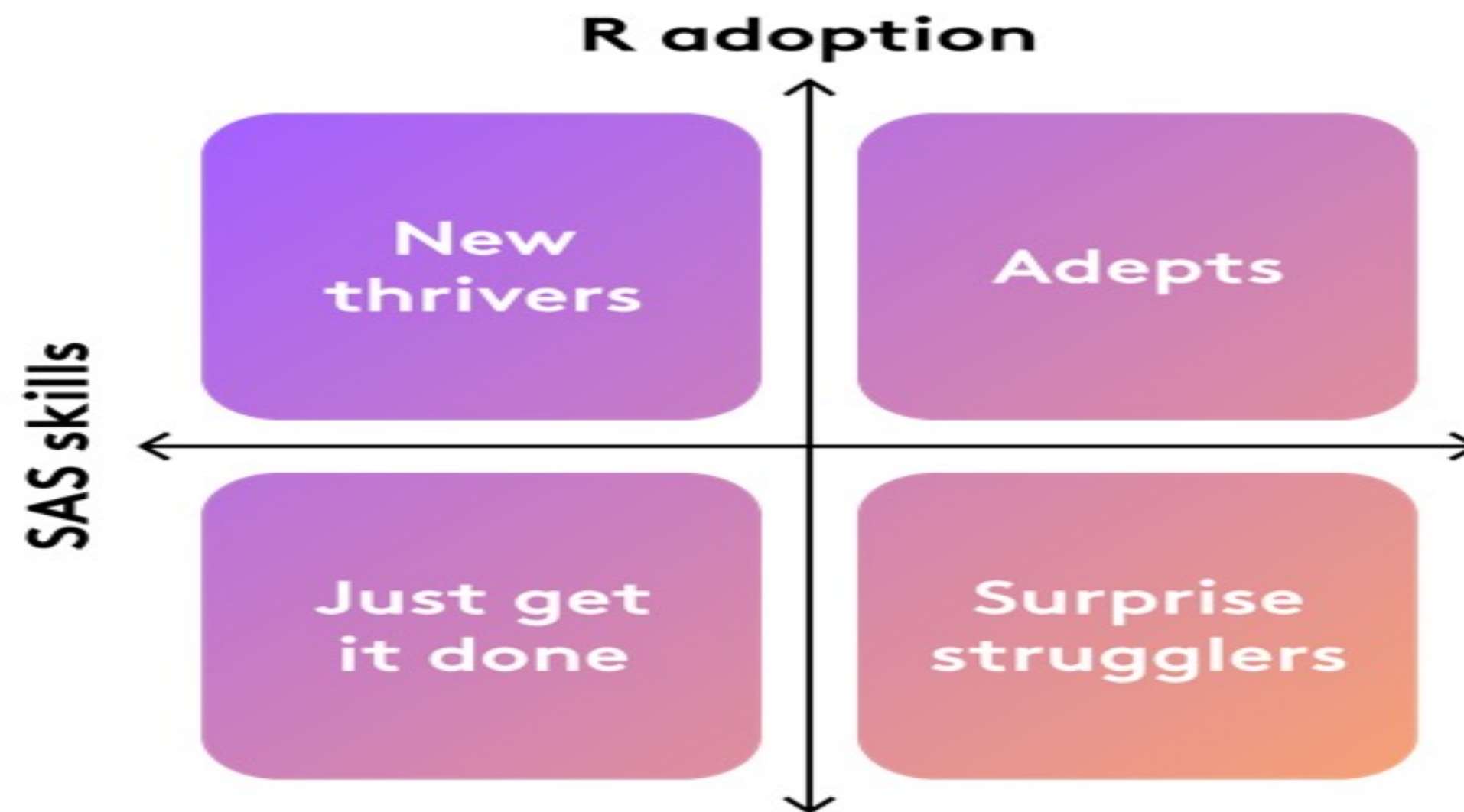
Limited knowledge of world and events after 2021

# Open-Source Technologies



# Open-Source Technologies...cont.

Implementation of SAS → R:



# Open-Source Technologies...cont.

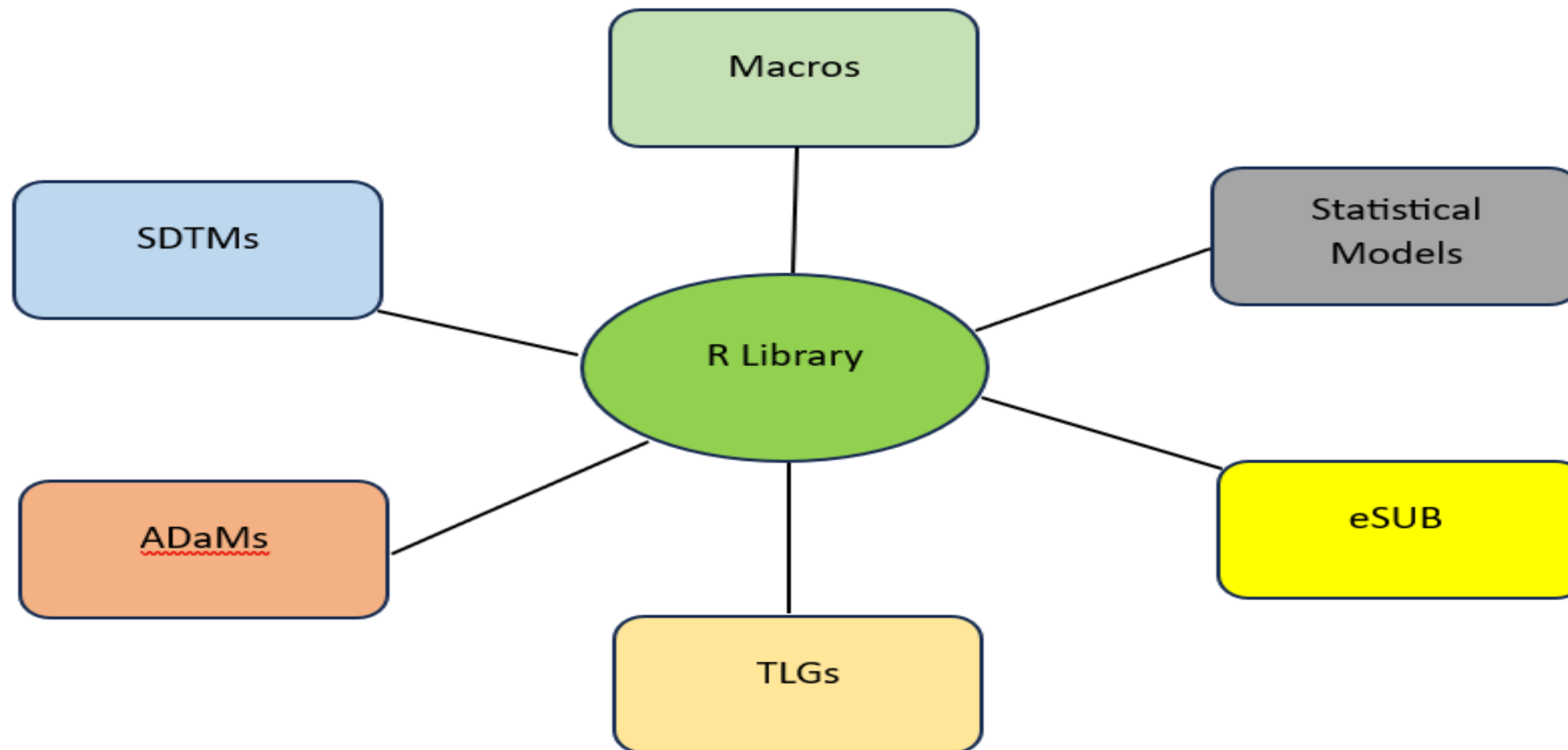
## Advantages of using Open source – R:

- Statistical Programming has evolved over years and many functionalities have been added
- Commercial softwares SAS, SPSS, STATA are costly and need licensing
- R software is commonly used in statistical programming and possess many features specially for GRAPHS
- Regulatory Authorities have started accepting reports developed in R

## Challenges of using Open Source:

- Lack of Documentation
- Acceptable Source Data Formats
- Software Sync Issue
- Missing Value Interpretation
- Efficiency

# Building SAS to R Libraries



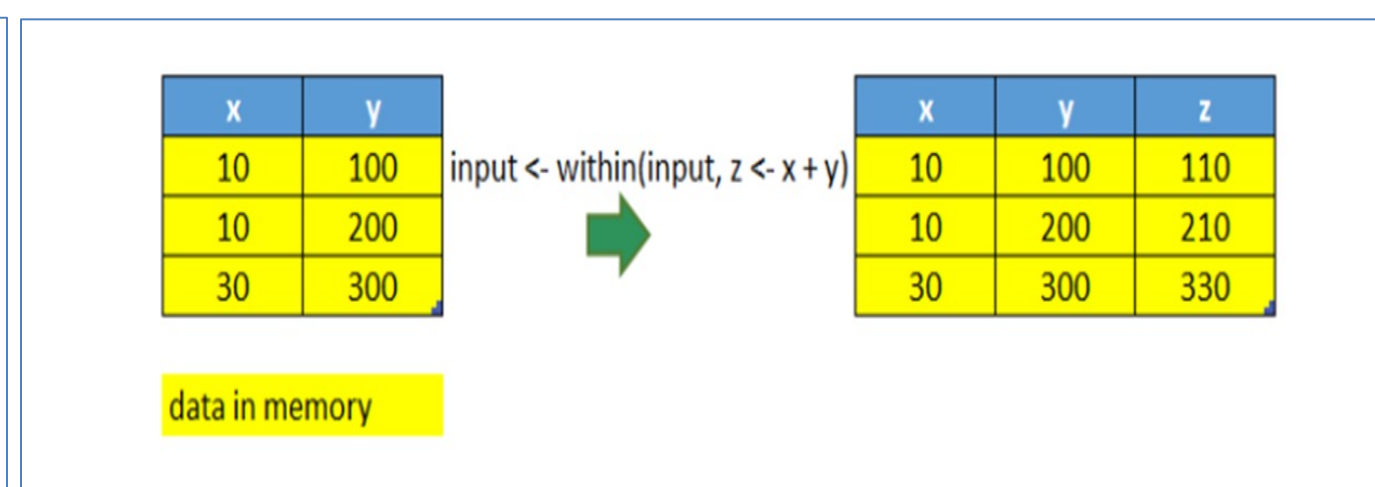
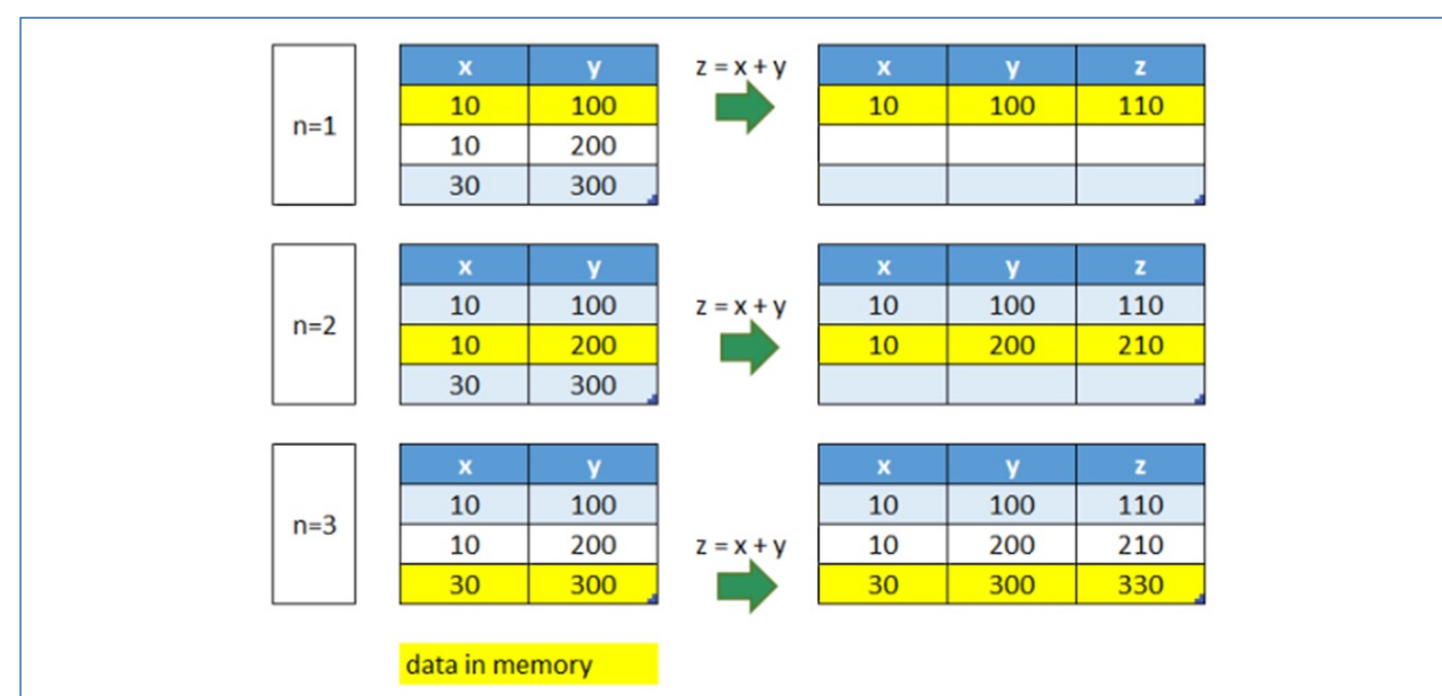
# Building SAS to R Libraries...cont.

## How SAS and R Program works?

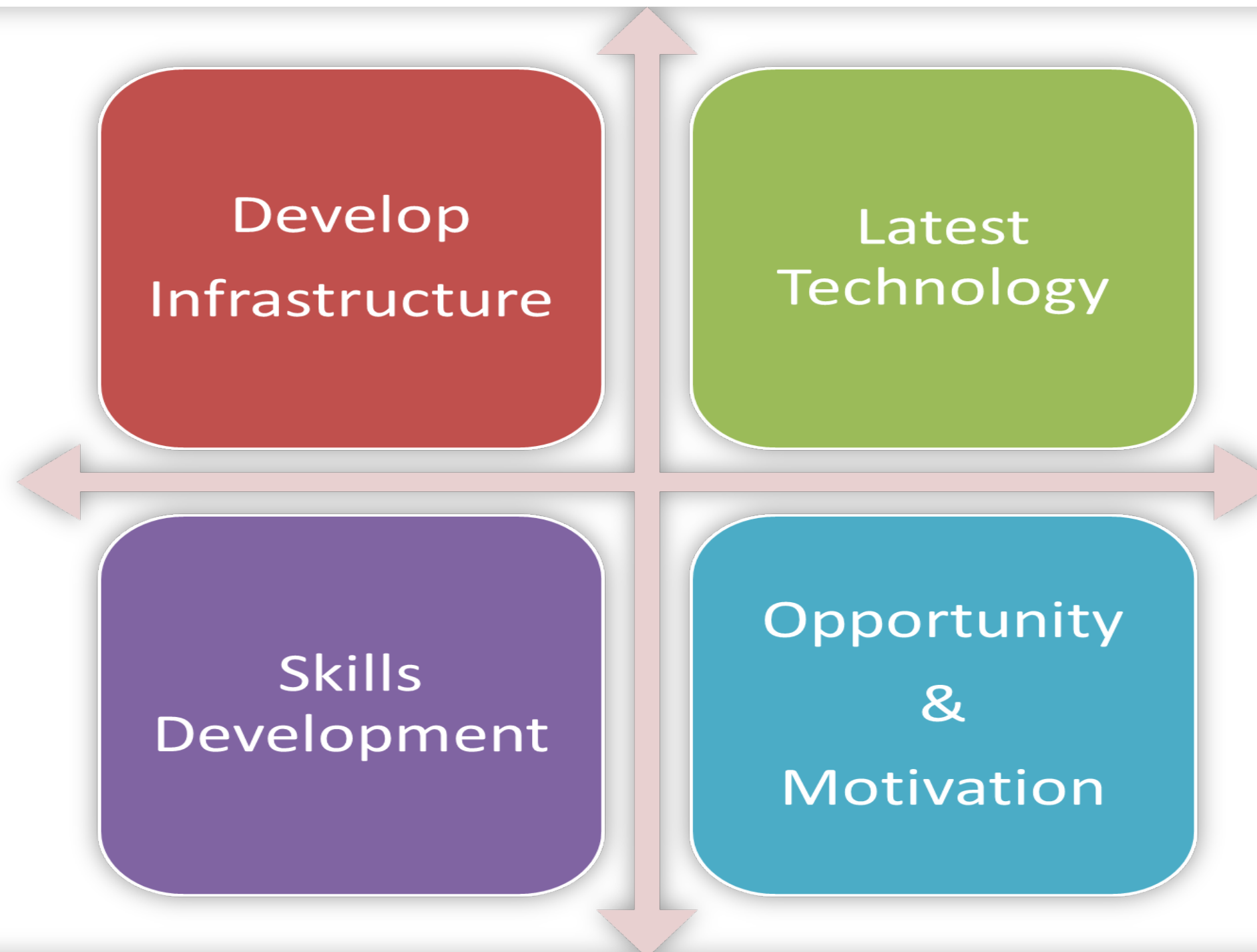
| SAS                                                                                         | R                                                                            |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <pre>* add two variables in SAS ; data output ;     set input ;     z = x + y ; run ;</pre> | <pre># add two variables in R input &lt;- within(input, z &lt;- x + y)</pre> |

**Step #1.** SAS processes data row by row, by using an implied loop in Data Step.

**Step #2.** R, on the other hand, applies functions at the column level by processing all rows at the same time, as shown in the following graph.



# Key Features to Enable Positive Change



# Conclusion

**Implementation of Open-Source software**

**Capability building and SAS to R transition**

**Practical aspects of Change management**

**Cost optimization**

**Develop skills based on cutting-end technologies**

**Creating and maintaining R-based program libraries**

**A step ahead towards R community**



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THANK YOU