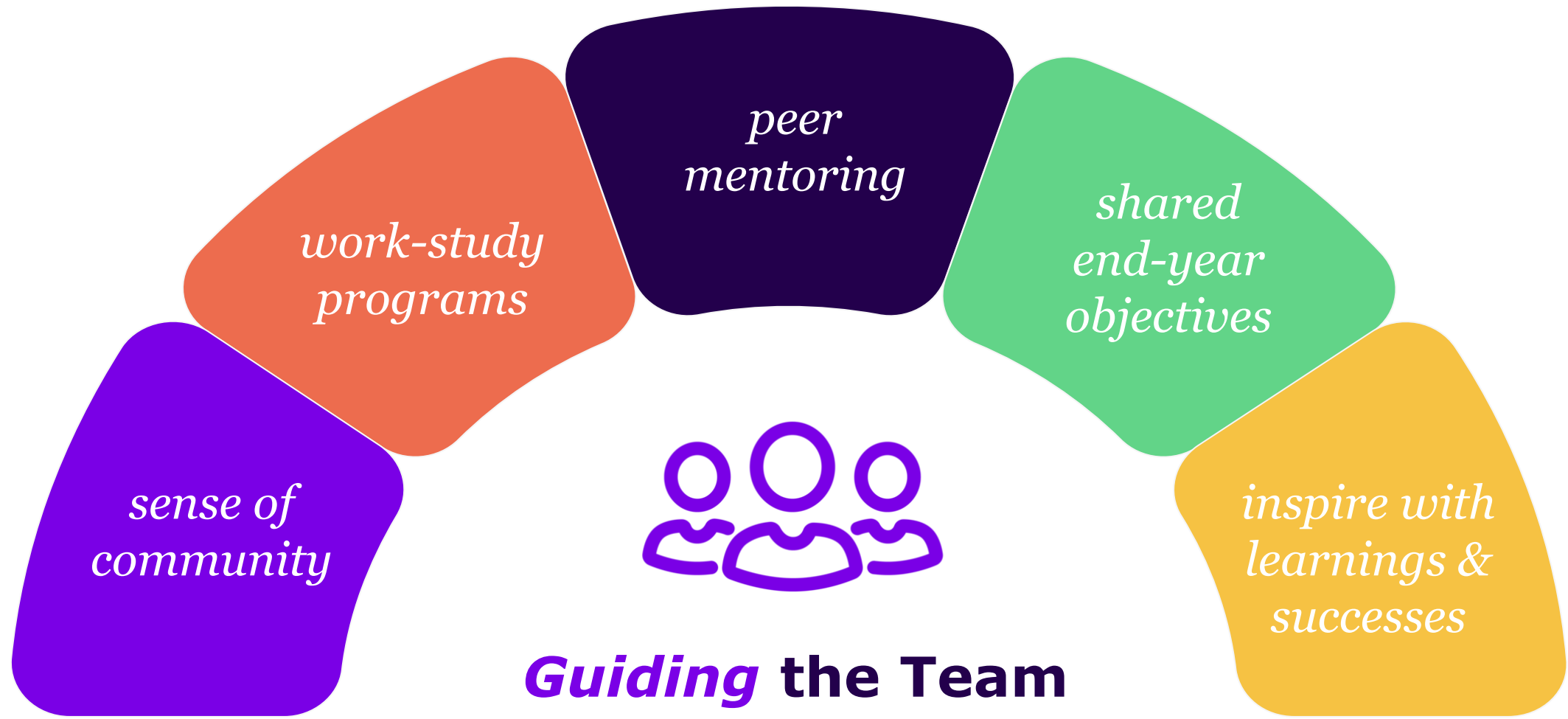


{SAS to R-evolution}

a Statistical Programming Team Journey

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The R ecosystem was leveraged for submitting eData dossiers. However, few statistical programmers and people managers have shared their *R adoption journey*. While ensuring business continuity, we adopted mindful risk-taking approaches and piloted innovations, including our SAS to R-evolution which began in 2019. Leveraging our personal backgrounds and aspirations, a sense of community, we emphasized *agility, flexibility, and curiosity*, aligning with the principles inherent to early clinical development: fast to fail or fast to go.

R programming upskilling was unique to each of us as we started learning at different time, with evolving training supports and validation frameworks. *Today, all Sanofi early phase statistical programmers* partially program their *deliverables in R*, without extra QC efforts, across pharma therapeutic areas. A success which is spreading to late phase statistical programmers, and statisticians.

A 20+ year experienced programmer with a 3-day teacher-led R-training shared, “Despite the initial challenges, I was impressed by what I could build within IDEO¹.”

A beginner who benefited from the first self-training path explained that, “The proposed R training did not fully meet my needs.” A better-fit content was offered to the next cohort.

In 2022, a team member told me, “If given the choice, I’d only program in R from now on.” In 2024, this leader is challenged to launch our first 100% R-programmed trial.

Listening to the *Voices of the Team*

Our R-Upskilling Journey							
Programming background when started R upskilling		2019	2020	2021	2022	2023	2024
20+ years SAS 1 st to onboard in R	Formal Training	beginner: teacher-led training					intermediate: virtual class + self-learning path
	RShiny Development	IDEO ¹ developer *					
	R Development			Pilot RECIST algo SAS to R conversion *			
	Learning with Peers		Intern Mentoring *			Peer Mentoring *	
	Sharing (status, lessons learned)				Webinar	Newsletter	
5+ years SAS 1 year R (academic) 2 nd to onboard in R	Formal Training		self-learning path			beginner: virtual class only	intermediate: virtual class only
	RShiny Development		IDEO ¹ developer *	IDEO ¹ business leader			IDEO ¹ cosponsor
	Sharing (status, lessons learned)			Phuse EU Connect		-Phuse W Webinar - SfDS R rencontres	
1 year SAS	Formal Training				beginner: virtual class + self learning		intermediate: virtual class + self-learning path
	R Implementation				TLFs (selected)		ADaMs/TLFs (selected)
	RShiny Development						ADaMs/TLFs
	R Development					IDEO ¹ developer *	
	Learning with Peers					create templates for ADaMs in multiple myeloma *	
10+ years SAS 1 year R (academic)	Sharing (status, lessons learned)					Intern Mentoring *	Peer Mentoring *
						(admiral) Hackathon *	Hands-on Workshops *
						Newsletter	Webinar
							Newsletter
2 years SAS	Formal Training					beginner: self-learning path	intermediate: virtual class + self-learning path
	R Development						
	Learning with Peers						
	Sharing (status, lessons learned)						
25+ years SAS	Formal Training					beginner: virtual class + self learning	intermediate: virtual class + self-learning path
	R Development						Short-term mission in another department
20+ years SAS	Formal Training					beginner: virtual class + self learning	intermediate: virtual class + self-learning path
	R Implementation						QC with mentoring *
Overview for other early phase team members	Formal Training				from beginner to intermediate training cohorts		
					from beginner to master self-training path		
	RShiny Development				IDEO ¹ developer *		
	R Implementation				from selected TLFs (in early oncology) to ADaMs/TLFs (across the early phase pipeline)		

* Collaborative part-time initiative deployed in focused groups of 3 to 8 participants, along usual business continuity activities
¹ IDEO is a Sanofi in-house built RShiny app dedicated to ongoing decision making in early oncology. Learn more on IDEO from the Phuse Wednesday Webinar, March 2023 ([link](#), 39'-52')