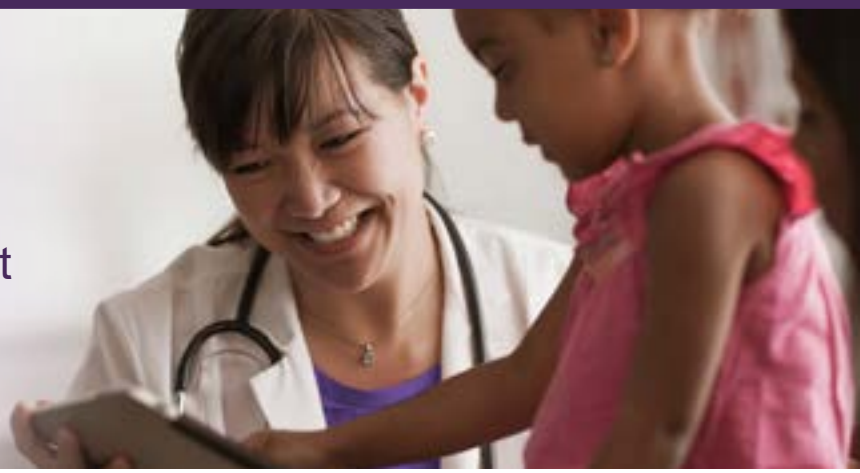
SUVODA

IRT Decision Guidance:

Choosing between a purpose-built IRT solution and IRT as add-on functionality to an EDC system



Making the decision about whether and what type of Interactive Response Technology (IRT) system to use in a given clinical trial can feel very complicated.[1] Sponsors, CROs, and clinical teams work hard to match the needs of their trials with supporting technologies. This article will lay out a framework to help evaluate when to select a purpose-built IRT solution equipped with sophisticated capabilities and when a simpler alternative of an EDC system with an add-on IRT functionality can work.

Since Suvoda's inception in 2013, we have worked tirelessly on matching trial needs with IRT functionality, assisting in over 1,400 trials covering a range of sizes, therapeutics, and geographies. Our goal is to leverage our body of experience to help sponsors and CROs feel more confident and informed about different approaches to IRT.

Growing clinical trial pressures:
Context for the conversation about purpose-built IRT

Even for those who have been involved in running clinical trials for years, the IRT versus EDC with add-on IRT functionality (EDC-IRT) decision can be complicated. There are many reasons for this, but three feature prominently:

1
Growing complexity of clinical trials

A 2021 report from Tufts highlighted that trial designs today are more complex, with much larger volumes of data from a variety of sources. Protocol procedures are up 44%, and the use of biomarker and genetic data adds even more challenges to managing the trial and data sets.

2
New pressures in managing the clinical trial supply chain

The need for transparency in tracking clinical trial supplies has always been critical. It is only becoming more important as manufacturing and comparator costs are growing, as the costs of supply overages are a larger percentage of clinical trial budgets, and as the harmful environmental impact of over-manufacturing and over-shipping is increasingly a concern. Collectively, this has led to the development of new tools - forecasting and dynamic IRT, for example - as a response to these pressures.

3
Expanding number of systems used to help clinical trial sponsors stay on track

In addition to IRT, other purpose-built systems include Clinical Trial Management Systems (CTMS), signal detection/adverse event reporting, supply forecasting and simulation modeling, eCOA, and more. Unified clinical trial platforms have been created to offer important benefits around streamlining technologies, processes and workflows - especially when the technologies fulfilling the most sophisticated needs are purpose-built for their task.

[1] IRT stands for Interactive Response Technology. Another term that has been used to describe this technology is 'randomization and trial supply management'. Essentially, IRT helps clinical trial sponsors and sites manage the patient and drug supply logistics throughout a clinical trial.

Five specific benefits of purpose-built IRT technology

In today's environment, the growing complexity of studies can be experienced in many ways. The majority of trials have ongoing amendments that can occur throughout the life of the trial, which can lead to change orders, delays, and budget concerns. So, too, there is a trend towards multi-arm, multi-stage trials, which grew four-fold from 2019-2020. These types of trials add multiple complexities, from sample size calculations to moving between trial arms with clear outcome measures.

As a result, study teams need new solutions to manage these complexities and adapt to changing circumstances. A system's flexibility should allow study teams to better manage complexity and reduce the pressure they feel as they respond to new protocols and workflow designs. Purpose-built IRT systems are designed with this in mind.

Sophisticated capabilities of purpose-built IRT

Flexibility to meet the exact needs of the trial

Real-time access to drug and patient-level data

Vendor expertise

Real-time integration

Sophisticated capabilities of purpose-built IRT

- **Dynamic cohort management:** Enables precise control of cohorts and enrollment limits so that study teams can make changes mid-study.
- **Complex, dynamic, and adaptive randomization:** Accommodates sophisticated protocol designs and randomization schemes that ensure scientific validity while optimizing enrollment levels and drug supply.
- **Drug dose escalation:** Allows study teams to modify dose and dispensation configurations mid-study, which is especially common in early-phase dose-finding and oncology trials when the exact treatment dosage is unknown.
- **Drug pooling:** Facilitates sharing IP, comparator, standard of care (SoC), and adjuvant drug supplies across multiple studies so that drug overages can be reduced.
- **Direct-to-patient drug shipping:** Allows drug doses to be shipped directly to patients, rather than only to clinical sites, to facilitate hybrid or remote clinical trials.
- **Cycle extension and dynamic visit schedules:** Assists study teams in managing the exact treatment dosage and duration once specific criteria are met through the use of a dynamic algorithm.
- **Supply forecasting:** Enables study teams to optimize clinical supplies budgets, IP manufacturing, and comparator sourcing while also reducing drug waste, shipping, and distribution costs.

Flexibility to meet the exact needs of the trial

In a recent Industry Standard Research (ISR) study, leading sponsors identified IRT set-up configurability and the ability to accommodate mid-study changes as important selection criteria when evaluating an IRT solution. Flexibility can vary substantially.

- **IRT systems offer significant flexibility, especially for complex trials**. They can accommodate complex supply chain strategies, manage varying treatment arms, and handle intricate logistics because they are designed from the outset with that in mind.
- **EDC is a data capture system that excels at storing the many types of patient data generated throughout a study.** Because EDC systems are patient-specific and follow a predetermined protocol, IRT systems that are added on to an EDC are inherently less flexible when there are changes in trial requirements, such as adding new cohorts or modifying dosing regimens.

Real-time access to drug and patient-level data

The benefits of real-time information in running clinical trials have long been discussed. Business agility and increased operational efficiency are just two of many. Purpose-built IRT systems are designed to meet this real-time information need.

- **Purpose-built IRT systems have data that is updated in real-time**. The data captured includes patient dose data, treatment progression, and visit schedules. The reporting capabilities of purpose-built IRT systems are also designed to display all trial data, including patient and drug data, to cover sponsor needs during the clinical trial.
- **EDC systems are often challenged to meet sponsors' real-time data needs.** In another ISR survey, respondents also cited the challenge of accessing data and ensuring it was accurate. This can become problematic for sponsors using EDC-IRT as an add-on to an EDC system.

Vendor expertise

Purpose-built IRT vendors often have a depth of experience that has been gleaned over many years as a result of supporting many customers. This means sponsors benefit from an intuitive system interface and well-designed processes for requirements gathering, user requirements specification (URS), and user acceptance testing (UAT). This can further result in fewer change orders and more achievable timelines because of the vendor's deep domain expertise.

With a purpose-built IRT solution, clinical trial teams will be served by a group of subject matter experts who can help make trials more efficient, and randomization and drug supply run smoother. For study teams and clinicians, this yields the major benefit of having more time with their patients.

Real-time integration

Multiple systems are needed to manage clinical trials, and these systems work best when they are integrated. Purpose-built IRT systems are designed for integration, now one of the most important IRT selection criteria for sponsors, and seamlessly integrate with solutions across the eClinical landscape.

Best-in-class IRT solutions and EDC vendors have developed robust integrations to manage the challenge. For example, Suvoda has performed many integrations with all major EDC providers. An integrated, two-vendor IRT and EDC solution can bring the simplicity of a "single vendor" solution without sacrificing the functionality and expertise of specialized solutions. In essence, study teams experience the "best of both."

Identifying when IRT as add-on functionality to an EDC system works

There are times when IRT as add-on functionality to an EDC system may be appropriate. This option may make sense when:

- The trial is small, the patients are few, and the geography is limited to one or two countries.
- The trial design is simple - for example, one-to-one randomization with no stratification, no dose modifications, no cohorts, and the protocol is for open-label enrollment only.
- The drug type is stable, single dose, and easily dosed, precluding vials requiring dose calculations.

When aspects such as adaptive design, dynamic visit schedules, or drug escalation are not part of the plan, then simpler technology may be appropriate. The only cautionary note is that sometimes these needs aren't anticipated but occur as the clinical trial proceeds.

Five questions to consider when evaluating IRT system needs

Answering five basic questions can help in assessing a trial's IRT needs. If the answers to any of these questions are yes, the trial is well suited for a purpose-built IRT system.

Question 1 Is the study a large, pivotal trial?

Factors to consider include whether the trial involves complex randomization, advanced protocol design, as well as the number of countries involved and the expected duration of the trial. Evidence suggests that phase 3 trials have grown one year longer over the last decade, now averaging 3.25 years. This increases the possibility for more adaptive design changes, more coordinating shipments of depot vendors across many geographies, more cohort complexity, and, overall, the need for more flexibility in managing the trial.

Purpose-built IRT has robust features and flexibility to accommodate known complexities and mid-study changes.

Question 2 Is the trial double-blind?

Double-blind trials, where it is essential that both the clinician and the patient do not know which treatment arm the patient is a part of, can be especially logistically complex. The IRT system plays a critical role in maintaining the double-blind status by defining various users' roles and information access and managing communication to protect the blind, as well as managing response and regulatory compliance in case of emergency unblinding.

In these types of instances, a purpose-built IRT system will allow closer oversight and more control over trial, drug, and patient logistics.

Question 3 Does the trial have complex randomization needs?

Complex protocols frequently involve complex randomization schemes. Block randomization might be used to ensure balanced sample sizes. Covariate adaptive randomization and stratified randomization seek to account for outside variables and prevent imbalance between treatment groups.

A purpose-built IRT system offering configurability, strong functionality, and scientific validity can be instrumental in managing these complex randomization techniques.

Question 4 Does the trial have an advanced protocol design for patient and treatment management?

In instances where study teams are working with advanced protocol designs, there typically is a need for more sophisticated capabilities. For example, clinical trial managers might need variable visit schedules or multiple visit schedules that vary by treatment arm or cohort. If the treatment is working, trial extensions might occur. So too, variable supply strategies might be needed to respond to the visit schedules while ensuring minimum drug supply waste.

For these applications and more, a purpose-built IRT is well-suited. Its use of dynamic cohort management, dynamic visit schedules, drug pooling, cycle extensions, drug escalation, and supply forecasting were built for such purposes.

Question 5 Does the study require either flexibility or precision in drug logistics?

There are many ways in which flexibility is important in drug logistics. Whether it's managing drug temperature sensitivity, manufacturing on demand, direct-to-patient shipping models, or drug pooling across multiple protocols, precision technology can ensure adequate supply, making sure the right drug is available for the right patient at the right time.

How does precision technology play out when it comes to purpose-built IRT? Study teams will be better able to manage sophisticated drug dispensing and weight-based dosing trials. They can accommodate different sourcing strategies and manage both IP and comparator therapies in one system. Finally, there is the continued emphasis on budget savings, reduced drug waste, easier logistics, and a reduced carbon footprint, all made easier by purpose-built IRT.

The arc of IRT technology will continue to evolve to meet increasingly sophisticated trial needs. To learn more, watch this webinar where representatives from Suvoda, Cara, and Veeva discuss the benefits of a seamless IRT and EDC integration.

Contact info@suvoda.com to **learn more**