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AN IJI RESOURCE

WRITING GOOD PI OBJECTIVES

Setting the Pace in Software

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INTRODUCTION & ABSTRACT

Welcome to the amalgamation of a short series of articles on crafting effective, well-formed objectives as part of the SAFe® Program Increment (PI) / Big Room Planning activity.

We have seen a lot of confusion surrounding the use of PI objectives; confusion that often results in:

- Resistance to their use and;
- The production of poorly formed team objectives that appear to be completely redundant as they just list the Features being addressed.

The first step to creating well-formed, useful objectives is for everyone to understand why they are so important.

In this series we will cover:

1) Why do we need PI Objectives when we have Features?

2) Writing good PI Objectives

3) PI Objectives and the PI Planning Process

4) PI Objectives Beyond PI Planning: Reaffirming and Monitoring Your Commitments

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SECTION 1: WHY DO WE NEED PI OBJECTIVES WHEN WE HAVE FEATURES?

WHY ARE PI OBJECTIVES SO IMPORTANT?

The purpose of PI planning is to generate alignment and allow teams to innovate, estimate and plan their own work.

PI Planning is part of SAFe®'s approach to 'mission planning' where, as in traditional mission planning:

> *The mission is a general statement of how you will achieve your vision. Strategies are a series of ways of using the mission to achieve the vision. Goals are statements of what needs to be accomplished to implement the strategy. Objectives are specific actions and timelines for achieving the goal.*

We enter PI planning with a loosely defined set of goals that align to the previously considered business strategy (we shouldn't have a room with 50 – 150 people ready to plan if we don't have a strategy that their existence supports), and a prioritized set of Features that support, but do not guarantee, the achievement of the goals.

It is the job of the teams to come up with the objectives that embody the specific actions and timelines for the achievement of the goal

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Now, many people think that the role of the teams on a SAFe® Agile Release Train (ART) is to act as a software factory; mindlessly churning out the Features that have been selected by the Product Manager. This mindset is akin to the traditional waterfall mindset where the decisions about how to perform the mission and achieve the goals have already been determined by the great and the good.

For an Agile Release Train (ART) to be a high performing team of teams, the teams need to look beyond the Features and take ownership of the achievement of the goals themselves. This involves doing many things not found in, or even directly related to, the Feature list. If we want to have truly empowered agile teams then they need to be able to come up with their own objectives and not just select things from a pre-defined list.

The following illustrates the kind of things that ART's need to consider, if not actively pursue, every PI.

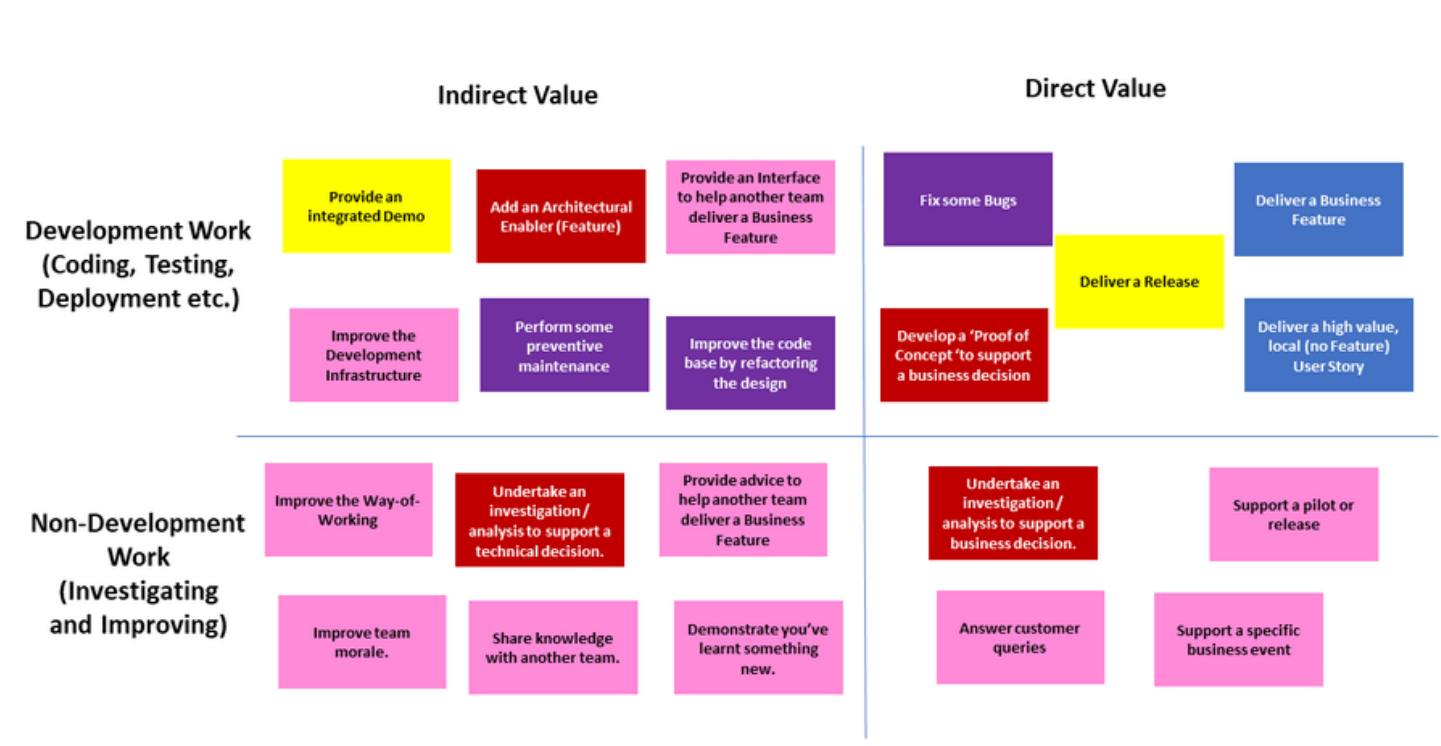

Figure 1 has four quarters that illustrate the different types of objectives that a team may pursue. On the right of the figure we can see a selection of objectives that provide direct value to the sponsors, customers and users by shipping Features or Stories, supporting business activities, answering customer queries or enabling business decisions.

On the left of the figure we can see a selection of objectives that provide indirect value to the business by reducing costs, improving the way of working, eliminating waste, addressing risks, or improving the moral or knowledge of the teams.

At the top of the figure we can see a selection of objectives that require development work and at the bottom a selection of objectives that require the team to do non-development activities. Product development teams need to do many more things than just developing and enhancing their products. The items are color coded in line with the SAFe® big picture and the standard PI planning instructions where:

- Blue is used to indicate those directly related to Business Features and Business Stories
- Dark Red to indicate those related to Enabler Features
- Yellow to indicate those related to key events and milestones
- Pink to indicate those generated by the need for the teams to collaborate, learn and relentlessly improve
- Purple to indicate those related to the maintenance of the system

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THE RELATIONSHIP OF PI OBJECTIVES TO FEATURES: CLARIFYING THE BENEFITS HYPOTHESIS

There is another important thing to remember when considering the relationship between Features and PI Objectives: Features are assertions and hypotheses not formal requirements. They are asks and not tells – pseudo goals and not agreed objectives.

The true relationship between a Feature and the PI Objective that a team creates when committing to deliver a Feature (or set of Features) is one of qualifying how the team intends to validate / prove / challenge the Feature's Benefits Hypothesis. They do this by clearly stating the measurable results that their implementation will generate.

The team's PI Objectives should qualify the benefits hypothesis of the Features they have selected and provide details of the real measures that they will use to do this.

Note: Teams that take on a Feature and quickly disprove the benefits hypothesis deserve full credit for their work and should score highly when the PI Objective is assessed at the end of the PI.

We'll talk more about assigning 'business value' to PI Objectives in the third section in this document: "PI Objectives and the PI Planning Process", and reviewing the completion of objectives in section 4: "PI Objectives Beyond PI Planning: Reaffirming and Monitoring Your Commitments".

The positioning is illustrative only as the actual amounts of value and development work are context specific. The key points to note here are that:

- There is truly no limit on the kinds of objectives a team can come up with. Those that represent the completion of Features only cover one part of a healthy team's responsibilities.

- An over-emphasis on Features as objectives stifles the autonomy and creativeness of the teams. If all they do is deliver the Features requested, they will become dysfunctional and create a legacy of technical, intellectual and motivational debt.

The goals of a team's objectives are many including:

- Clarify anything of importance that the team believes it will achieve within the PI.

- Record the team's commitments.

- Bridge the gap between the team's plans and the business's goals.

- Ensure a balance between delivery and sustainability.

- Relentlessly improve.

- Continuously innovate, experiment and build knowledge.

They articulate the specific achievements each team is going to contribute to the shared goals of the train.

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GOOD OBJECTIVES FOCUS ON DESCRIBING THE MEASURABLE RESULTS

Well written objectives describe both the purpose of the actions being taken and the evidence that will be used to assess that the actions have been successful. One very popular form of writing objectives in this style is the Objective Key Result format popularized by Google.

This can be presented informally as a simple statement such as:
Objective: Provide an API to allow items to be added to the shopping cart by the end of Sprint 1 so that team Alpha can allow the results of their searches to be purchased. Key Results:

The Shopping cart is successfully integrated with the search and browse functions allowing individual items, or sets of items, to be added.

Or using more tabular formats;

Objective	For	By	Key Results
Provide an API to allow items to be added to the shopping cart so that the results of the searches can be purchased.	Team Alpha	The end of Sprint 1	The Shopping cart is successfully integrated with the search and browse functions allowing individual items, or sets of items, to be added.

Update: September 2022

Scaled Agile have updated their guidance on Applying OKRs in the Scaled Agile Framework.

Their advice is **don't** utilise OKRs for PI Objectives; keep it as a simple SMART statement. Their reasoning is that OKRs are intended to OKRs represent long term strategic goals. It takes a significant amount of time to discuss and negotiate such long term strategic goals and there should be 2–5 key results measuring progress towards the objective. Such overhead isn't warranted for short-term PI Objectives.

When the blog series was initially written the use of OKRs was intended in a very lightweight fashion. The format of OKRs is used with just a single result in order to focus the team on ensuring that PI Objective is measurable.

Regardless of the formality of the presentation it is important that each objective clearly describes its purpose, any applicable anchors or constraints (such as when it is needed and who needs it), and finally the evidence (in the form of actionable, measurable results) that will be used to assess how well the team has done in achieving (or surpassing) it.

In the next section in this document we will look in more depth at how to write well-formed PI Objectives before moving on to look at how objectives emerge from the PI Planning process and, finally, how to use the PI Objectives during the PI itself.

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SECTION 2: WRITING GOOD PI OBJECTIVES

GOOD OBJECTIVES FOCUS ON DESCRIBING THE MEASURABLE RESULTS

As we saw in the first section that it is essential that the objectives come from the teams, this ensures buy-in, unleashes the creativity of the team members, and helps create a better plan. It does though beg the question where do the teams find the inspiration for their objectives?

We have found that there are 5 areas that every team should consider when forming their objective, each of which can influence the phrasing used when writing the objective itself:

Features - ***Generating value by delivering one or more Features.***

The most obvious source of Objectives are the features that the team has taken. In this case the Objectives should not simply be a re-stating of the Feature's name. They should capture the results of any negotiations that have occurred during planning; the Feature request that came into planning is not necessarily what ends up being done.

Example:

Objective: Provide "Flexible Search" with fuzzy character matching (see the Flexible Search notes for details) that displays the results in a list ordered by closest match.

Useful Trick:

Try to use phrasing in the PI Objective drawn from the title of the feature as this will make it easier to tie the objective back to the feature after the event.

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Collaborations - *Helping other teams do Features.*

Many features need inputs from several teams; the collaborations where one team is helping another make good objectives. Indeed, the receiving team will be listening out for the objectives from the other teams that have agreed to deliver work or information to them.

Example:

Objective: Provide team Alpha with an API to allow items to be added to the shopping cart by the end of Sprint 1 so that the results of searches can be purchased.

Key Results: The Shopping Cart is successfully integrated with the search and browse functions allowing individual items, or sets of items, to be added.

Not all collaborations are document or code handovers, sometimes they are true collaborations, an architectural gathering to map out technical strategy for a feature or future work.

Example:

Objective: Collaborate with team Alpha and System Architects on Wednesday 4th to establish the Shopping Cart API to allow items to be added to the shopping cart for future purchase.

Key Results: API agreed. Stubbed functionality coded and submitted to version control that allows both teams to develop, and test, in parallel.

Useful Trick:

When writing help objectives, construct the objective so that the name of the team that you're helping comes first, followed by the help that you are providing them. When the objective is read out during presentations the other teams will start to pay attention when they hear their name mentioned; then they'll be listening when the objective explains how you intend to help them. If the objective is constructed the other way around then by the time a team hears their name and starts listening the help they are going to receive has already been described and they'll have missed it.

Useful Trick:

Again try to use the phrasing from the feature description so that it can be traced back to the feature if necessary.

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Internal work - *Keeping the train running smoothly.*

Refactoring, code clean-up, keeping the lights on, relentless improvement, and much, much more are all things that the train needs to do but aren't necessarily coming through the Program Backlog.

Teams should be empowered to add work that they know they need to do to their own backlogs; but this internally generated work must be made visible to honour the principle of transparency and allow tracking and negotiation around it. This internally generated work can be aggregated into one or more objectives.

Example:

Objective: Reorder the tests in the automated regression test systems to run the end-to-end performance and smoke tests ahead of the repetition of the functional Feature tests.

Key Results: Ability to determine a working build ahead of the detailed Feature level validation so we can spot systemic failures faster and repair them quicker.

Useful Trick:

Focus on the key results of the internal work and the value that it provides. If teams can clearly articulate why it is valuable the stakeholders are less likely to question the work and demand that other work be done in its place.

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Capacity Reservations - *To deal with the known-unknowns.*

These objectives occur when teams know that there is work to be done but they don't know exactly what that work is going to be until it appears; typically these are operational incidents such as emergency defect fixes or support duties to assist frontline staff. The team can set capacity aside to deal with this work and honouring the principle of transparency it can be made visible by turning it into an objective.

Note: In these cases it is essential that it is clear what the capacity is going to be utilised for and to bound the amount of capacity that will be consumed. This can then be tracked and the numbers used to influence the reservation in subsequent PIs.

Example:

Objective: Provide frontline support to the call centres answering queries, analysing problems, and providing work arounds and hot fixes as necessary.
Key Results: Support calls are dealt with within 12hrs. No more than 10% of the team's capacity within the PI is spent on support.

Learning and Growth - Gaining knowledge.

Whilst this could be considered Internal Work many organisations are striving towards Enterprise Agility and one of the key cornerstones of Enterprise Agility is to have a Learning Organisation. It therefore makes sense to explicitly ask all our teams to be thinking about how they will learn and grow.

Without learning and growth there will be no improvements to how we develop our solutions and the solutions themselves will be anchored by their historical context and unable to change. It is important to make the learning objectives visible so that we can demonstrate that the teams and the train are preparing and evolving their skills ready for the future.

Example:

Objective: Learn about non-Latin mark-up in HTML to prepare ourselves for the content translation functionality that is on the roadmap for the next PI
Key Results: Demonstrate at least two pages using non-Latin character sets, spending no more than 2 days of the team's effort.

Writing Objectives - *Make them SMART.*

Objectives should be SMART. You've probably already encountered the SMART acronym with respect to your own personal objectives, and it's regularly referenced in training material on writing objectives, but how does it apply within SAFe's PI Planning context?

What is SMART

SMART is an acronym that you can use to guide your goal setting. Its criteria are commonly attributed to Peter Drucker's Management by Objectives concept. The first known use of the term occurs in the November 1981 issue of Management Review by George T. Doran. Since then, Professor Robert S. Rubin (Saint Louis University) wrote about SMART in an article for The Society for Industrial and Organizational Psychology. He stated that SMART has come to mean different things to different people, We have gone with the definition used in the SAFe® training materials.

Specific (simple, sensible, significant)

In the previous section we discussed The Relationship of PI Objectives to Features: Clarifying the Benefits Hypothesis; the concrete instantiation of how the team intends to approach the problem. This needs to be specific, clearly stating the action and the intended outcome as concisely and explicitly as possible.

As seen in the examples above we favour a two part format where part one communicates the action and its purpose whilst part two clearly specifies the key results.

Look for key words such as:

- Deliver
- Provide
- Improve
- Learn
- Decide
- Support
- Ensure
- Prevent
- Demonstrate
- Investigate

We make the key results specific by making them measurable.

Measurable (meaningful, motivating)

In the previous section we discussed how Good Objectives focus on describing the measurable results: Look for the evidence / results - is this clear and measurable?

Has the team called out the key results that will prove they have achieved the objective?

Watch out for “weasel” words, typically adjectives, that don’t mean anything such as:

- Better
- Easier
- Efficient
- Faster
- Quicker
- Simpler

All of these need some form of quantification in order for the objective to be measurable, and some kind of target for the objective to be achievable.
For Quicker, have a target for how much Quicker you're expecting to make the system.

For Easier & Simpler, what are the specific concrete actions that are going to be done to make the system Easier or Simpler.

The more concrete the target that is being aimed for the easier it will be to judge and score later on when the feature has been delivered.

Beware: more concrete doesn't mean we lock down our options; don't form a strict plan that cannot be deviated from! What it does mean is that we understand how we are measuring the targets that we are setting for ourselves, so that when we do evaluate options within the execution of the Program Increment we know that they're achieving the desired goals.

The measures may be descriptive, binary (yes/no), quantitative or provide a range. However if the results are to be measured then they must be achievable.

Achievable (agreed, attainable)

As well as ensuring that key results themselves are achievable the team should also be thinking about whether or not they are equipped to achieve them. Do they the skills and capabilities needed? Is achieving the objective within the team's influence and control? For an objective to be achievable the team needs the skills required to deliver the results; or the plan needs to contain time to acquire those skills.

As well considering whether or not the team is equipped to achieve the objective they also need to think about whether or not the objective itself is realistic, relevant and reasonable.

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Realistic (relevant, reasonable)

The team should also be thinking about whether or not their plan to achieve the objective is realistic. In fact before they start planning they should consider whether or not it is realistic for them to take on the work - sometimes the objectives themselves are not relevant or reasonable, and therefore not sensible objectives for the team.

If the objective does not seem worthwhile, if we're not the right people to do it or it is clearly not the right time to take it on then, even though it is specific, measurable and achievable, it is probably not a realistic objective.

For the achievement of the objective to be realistic the team also needs to have set the right amount of time aside at the right time within the sprints to satisfy any internal collaborations or external dependencies.

They also need to understand all the additional activities that they are expected to perform in order to ensure that the work is done properly; this will be driven by the Definitions-Of-Done at Story and Feature level.

The underlying plan for delivering the objective needs to be realistic, making any assumptions and risks visible. The plan should deal with a reasonable "bad-day" scenario; the estimates shouldn't be too optimistic.

Recognize factors that cannot be controlled and avoid making "happy path" assumptions. Plan to do everything; if things happen quicker, or a better solution emerges that involves less effort, then execution gets easier and the team can always pull work forward from Program Backlog or spend the gained time clearing technical debt.

It must also be realistic to achieve the objective within the Program Increment. If the objective is too grand in its scope then it may require more than one PI to complete. This means it is not a realistic PI objective.

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Time-bound (timely, time sensitive, time/cost limited)

Within SAFe® the default time-bounding for a PI Objective is the timebox of the PI itself; but some objectives might need to be more tightly time-bound. In particular the collaborations where there is an agreement in place to deliver something by a certain point in time; but don't constrain yourself more than you have to.

If it's not explicitly needed by a certain date give yourself the freedom of anywhere in the PI. Look for the anchors. Is the timeline fixed or flexible? Is there a customer or collaborator that depends on the timely achievement of the objective?

Useful Trick:

When objectives are tied to milestones, often releases, our experience is that using the name of the milestone or release is more understandable than a fixed date. As a bonus; if the date of the milestone moves then the objectives relating to it don't have to be rewritten, they remain valid!

Sometimes the objective isn't just time-bound by a fixed delivery date or a specific time-box; sometimes you want to limit the amount of time that is to be spent on attempting to achieve the objective. Often these kinds of time-limited objectives are called Spikes - some of these may already be explicitly identified as backlog items but many of them will emerge as the objectives themselves are formed. Make sure that any time-limits are explicit in the objective.

Useful Trick:

When objectives are time-limited state the maximum amount of time to be spent on the objective as part of the Key Results. This is often clearer than trying to integrate it into the objective statement and ensure that it is measurable and considered when the objective is evaluated.

SMARTER - *going beyond SMART objectives.*

Many authors, including Professor Rubin, have noted that the definition of the SMART acronym may need updating to reflect the importance of efficacy and feedback. To this end, some authors have expanded it to SMARTER to include extra focus areas Evaluated and Reviewed.

The good news here is that we don't need to extend the acronym as these are built into the SAFe® framework as part of both the PI planning process itself and the PI's Inspect and Adapt activities.

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SECTION 3: PI OBJECTIVES AND THE PI PLANNING PROCESS

OBJECTIVE CREATION WITHIN PI PLANNING

Objectives are not an input to the PI Planning process they're the output; they are created to describe where the team's time and effort will be spent in the upcoming PI.

Teams should try to avoid waterfalling the writing of Objectives; don't leave it until the very end! Write objectives up as you plot work into sprints and/or as work is negotiated with other teams.

Teams should be applying the Lean and Agile principles to the act of planning itself. Teams should be taking one feature at a time from the backlog and adding it to their plan; but at the same time the teams should be deferring elaboration of the detail until later.

In practice this means breadth not depth. Teams should put a rough plan together early in the planning process and have a full set of candidate objectives ready by the end of the first break-out even if they haven't finished planning all of them. This is so that the Business Owners can do a proper job of scoring the objectives during the second break-out on Day 2.

The act of scoring the objectives will inevitably result in negotiations that will change the details so better to defer elaboration of those details as late as sensibly possible in the process to avoid effort being wasted on detail that subsequently gets negotiated away.

With a rough plan assembled and candidate objectives laid out the team can continue to add more detail; particularly focus on the early iterations as the detail required for execution will be needed sooner than the later iterations.

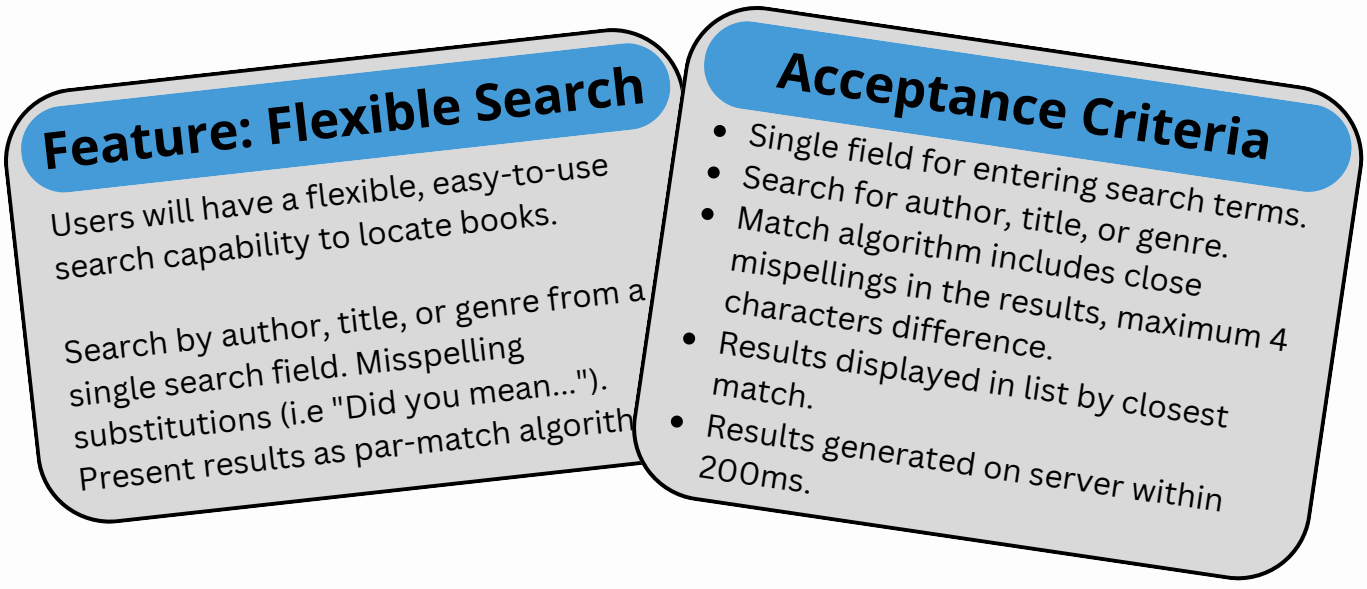
Useful Trick:

Write the objectives on Post-Its® whilst they are still being edited and elaborated. All the edits and corrections can be made on the Post-It; the entire Post-It® could be rewritten from scratch if the edits are sufficiently large or a set on minor edits has become too numerous. Only commit the objective to the large sheet of flipchart paper at the last moment; literally in the last 5 minutes of the Team Breakout the Team Member with the neatest handwriting copies them off of the Post-Its® onto the flip-chart.

Commit to the paper too soon and you can guarantee that within 5 minutes somebody will have suggested an edit!

GETTING TO GOOD OBJECTIVES

Crafting the words for a good objective is itself an iterative process. In this example we'll look at the steps that a team have gone through to get to a good objective and examine some of the thought processes that drove development of the objective.



The team have grabbed a feature called "Flexible Search" and have been negotiating and planning it during a PI Planning event.

Their first attempt at an objective is: *'Provide Flexible Search'*

Essentially just a restating of the feature name; this is likely not specific enough to capture any negotiations that have occurred during the planning event itself.

As a coach my questioning to the team will often start with “Are you planning to do all of it?” Upon questioning the team reveal that scope negotiation has occurred so the results of that negotiation get written into the objective:

'Provide Flexible Search with basic matching and a Levenshtein Distance Algorithm.'

“Basic” is one of our trigger words; it’s not specific. The team need to rephrase that to explain what their idea of “Basic” is;

'Provide Flexible Search with exact character matching and a Levenshtein Distance Algorithm.'

'Levenshtein Distance Algorithm' is too specific; it locks the team into a specific technical implementation. Whilst we want to be specific (from the SMART acronym) about the business outcomes desired, it would be preferable to preserve the design options available to the team during execution, following SAFe® principle #3 (See also our SAFe Principles Cards for more detail on the principles).

Flexibility in this dimension allows the team to explore other algorithms with the aim of achieving a better business outcome. The specific technical phrasing is also something that the stakeholders might struggle to understand. The team are steered towards rephrasing this in terms of the outcome expected and using language the stakeholders will understand.

'Provide Flexible Search with exact character matching and fuzzy matching.'

Do we need to clarify any other assumptions that people might have? In this instance is this just the back-end processing of the search or are the stakeholders expecting to see the results listed?

'Provide Flexible Search with exact character matching and fuzzy matching and display the results in a simple list.'

"Simple" is another trigger word; it's not specific.

'Provide Flexible Search with exact character matching and fuzzy matching and display the results in a list ordered by closest match.'

In this context "and" is another trigger word. Isn't exact character matching just a form of fuzzy character matching where all the characters match?

What do we mean by fuzzy character matching? In this case the team needs to do two things: 1) include the Feature Card in their negotiations, and 2) start to think about the key results that they are expecting.

By referring to the Feature Card they find that the level of fuzzy matching desired has already been defined, and that there are already some negotiable acceptance criteria that hint at the expected results. Using this information they add more notes to the Feature Card and prepare their final revision of the objective.

'Objective: Provide "Flexible Search" with fuzzy character matching (see the Flexible Search notes for details) that displays the results in a list ordered by closest match.'

'Key Results: The search allows users to find items that match and are close to the given spelling.'

The journey to a good objective has captured the negotiations of planning, ensured specificity whilst preserving flexibility and clarified any assumptions.

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UNCOMMITTED OBJECTIVES

Uncommitted objectives are used to indicate risk that an objective might not be achievable; teams are not required to make a commitment to delivering their uncommitted objectives. By having the escape valve of uncommitted objectives the commitment to the main objective becomes stronger.

Some of the criteria for Uncommitted Objectives are:

- The last feature in the last sprint of the team's plan. If something goes wrong and other features take longer to deliver then this feature is likely to be knocked off the back of the plan for this Program Increment.

- A feature with a significant external dependency where the external supplier is notoriously bad at delivering on time. If the delivery was expected early in the Program Increment and there is sufficient flexibility in the plan to move things around if things slip then classing as a stretch might not be needed; but if the delivery were towards the end of the Program Increment and leaves very little room for manoeuvring then classing as stretch is a useful signifier.

Can the highest priority Feature from the backlog be an uncommitted objective?

Yes. Use of uncommitted objectives is to indicate risk and if there is significant delivery risk then it should be a stretch objective. If the stakeholders requesting and prioritising the features don't like that then encourage them to work with the team to de-risk the delivery; the stakeholders may have more authority over any external factors and can help the team.

Teams and stakeholders must learn to strike a balance and embrace some degree of risk; only significant risks involved in delivery should be criteria for classification as an Uncommitted Objective.

Useful Trick:

Enablers need to be turned into objectives as well. One team that I was working with was struggling with turning their Enabler Experiments into Objectives; they repeatedly got hung up on the fact that they didn't know the result that the experiment would produce therefore they couldn't craft a "Specific" objective around it. The trick was to take a step back and ask whether the experiment itself was specific, yes it was. Is "running" the experiment measurable, yes; the measure is "do we have a result?" Do we have the resources both physical and mental to make the experiment Achievable and Realistic, yes they did. The time-bounding was still the PI. The objective became running the experiment not predicting its result.
As long as the experiment can be run; that we can't predict the experiment's result is not a grounds for making it an uncommitted objective.

SCORING OBJECTIVES

As part of the activities occurring during the Team Breakout Session on Day 2 the Business Owners are asked to score the objectives. SAFe® uses the phrase Business Value; but our preference is to use talk about importance to the business rather than value.

There are three reasons for scoring the objectives:

- Early Contact – Uncover the assumptions
- Data Point for team sequencing
- Closing the loop – Predictability to plan

Early Contact: Scoring the objectives forces the Business Owners to read and understand the objectives; this will uncover any assumptions that either the team has around what the business wanted or assumption the business has around what the team is expecting to deliver.

We were working with a major global household name; they had a new product that they wanted to to get to market. The senior sponsor was attending the PI Planning event, this was his endeavour and he had real skin in the game, the outcome of this was either going to get him fired or make him famous. Halfway through Team Breakout on Day 2 we send the sponsor out into the room with the instructions "go score the objectives". Half an hour later he's toured the room and comes back to the table reserved for the central roles and we asked him how he felt.

"Empty."

*Even our enthusiastic optimism struggles to put a positive spin on "Empty"; we had to start questioning what had gone on. It turned out two of the teams had grabbed business functionality from the backlog whereas the other two teams planning were, to use the sponsors phrasing, "doing techie s**t." The teams were setting up the build system, delivery pipelines and underlying system infrastructure which were all necessary but an indirect contribution to the overall goal rather than direct business functionality.*

*On the afternoon of Day 2, after Final Plan presentation, the senior stakeholder was asked "Does he accept the plan?" Yes, slightly grudgingly, he accepted the plan and he went on to raise his hand with a score of 4 for the subsequent confidence vote. Consider how this could have turned out had he not had early exposure to the objectives; his response to the teams presenting their plans to get the necessary infrastructure up and running would have been questioned with "What is this techie s**t you're doing?" in front of an audience of all the other teams. Early exposure allowed us to anticipate and fix the issues and maintain the momentum of the planning event.*

Team Sequencing: The team's goal is to try and maximise the amount that they're delivering back to the wider organization; they should try to target the most important objectives and the scoring provides that information. Ultimately at the team level technical issues will primarily drive the sequence in which stories are accomplished; the team might need to go through some less important objectives to unlock the ability to deliver the more important objectives.

If bad things happen then the team also knows which objectives are most important to the business and can focus on them and defer the less important objectives.

Closing The Loop: The score will be used to close the loop on predictability of the team's delivery of the plan. Closing the loop will be covered later in this document.

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Useful Trick:

At one planning event the two stakeholders scoring the objectives could never agree; one was tasked with new functionality the other business-as-usual and they regularly came into conflict. Rather than forcing them into agreeing on a number, which would have caused issues, they scored the objectives individually and the independent scores were totalled up. If they both cared about an objective, they'd both score it high and the total would be nearer 20. If one cared about it and the other didn't it would score around 10. If neither cared, it was down towards 2. The actual range used doesn't matter; it's the fact that it is a range is what makes it a useful input for the team.

COMMUNICATION OF INTENT

During the PI Planning event team's need to communicate their plan to the rest of the release train on two separate occasions, Draft Plan Review at the end of day 1 and Final Plan Review in the middle of day 2.

These plans need to be communicated quickly but accurately without digressing into team level technical detail. The assembled audience wants to know what the outwards value deliveries are from the team and the collaborations needed to help with value delivery.

Just reading the team's objectives should provide this focus; if a team has to extemporize when reading their objectives then it's a sign that the objectives aren't clearly describing the team's intent.

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SECTION 4: PI OBJECTIVES BEYOND PI PLANNING: REAFFIRMING AND MONITORING YOUR COMMITMENTS

Previously we have focused on the evolution of good PI Objectives; in this final section we look at how they are utilised during execution of the PI.

We will follow the sequence of activities undertaken by a team during the PI starting with role the PI Objectives play in Iteration Planning and concluding with how they help to close the PI as part of the program level Inspect and Adapt.

TEAM ALIGNMENT / ITERATION PLANNING

During the PI the teams work in series of time-boxed iterations. Regardless of whether the team choose to base their team process on Scrum or Kanban they should summarise their objective for the iteration as a set of committed Iteration Goals; these are a more generalized version of what Scrum defines as a Sprint Goal. The link aside is to the Sprint Goal card from the Essence based Scrum Essentials Practice developed in conjunction with Scrum Inc. Visit our Coaching Card Download Hub to grab the cards and learn more.

The PI Objectives provide context, and an obvious source, for the team's Iteration Goals. Typically, a team will take one or more of their PI Objectives to directly act as their Iteration Goals. This gives the team a focus and helps steer them towards selecting the set of stories that will deliver the desired value. Focusing on just one or two of the PI Objectives at a time also helps keep Work-In-Process limits low.

During the Iteration planning process, the scores assigned to the PI Objectives can be used by the team to help make sensible decisions. It is important to remember that the score assigned to a PI Objective is a relative summary of its business value. This is one of the inputs used by the team when deciding what to work on. To plan the iteration the team needs to consider many other factors such as effort, risk, architectural impact, availability of people and resources etc.

The team's purpose is to optimize the value delivered and it may make sense to deliver a number of smaller less-valuable items than to attempt to address a single very large, time-consuming item of equivalent or higher value.
In some cases, a PI Objective will take more than a single iteration to achieve; in this case the Iteration Goal should show some measurable progress towards the objective.

The advice in the earlier blogs on writing good PI Objectives also applies to writing good Iterations Goals. If the PI Objective is being used directly as one of the Iteration Goals, then it is already well-formed and can be used as is.

CONTINUOUS MANAGEMENT INFORMATION / ITERATION REVIEW

The PI Objectives provide an excellent way of communicating what's going on to upper management:

- they're written in human readable language
- they've seen them before – they are what they accepted as part of the Final Plan Review
- they focus on value
- they represent the tangible commitments made by the team(s)

The best things about them are that they 1) allow us to see what has been achieved 2) enable us to keep the business owners engaged throughout the PI and 3) they allow us to regularly reaffirm the team's commitment.

Working with a number of our customers we have developed a very simple "commitment tracker" for use by the individual teams. This is usually implemented as part of each team's public wiki pages.

It involves the publication of each team's PI objectives and their tracking across the Iteration in the PI. At the end of PI Planning it would look like the following;

	Commitment Tracker							Business Value	
	Level	Plan	S1	S2	S3	S4	S5	Plan	Actual
Structured locations and validation of locations	Core							7	
Build and demonstrate a proof of concept for context imag	Core							8	
Implement negative triangulation by tags, companies and p	Core							8	
Speed up indexing by 50%	Core							10	
Index 1.2 billion more web pages	Core							10	
Extract and build URL Abstracts	Core							7	
Fuzzy search by full name	Stretch							7	
Improve tag quality to 80% relevance	Stretch							4	

Here the objectives are listed in the first column – usually these would be the full objective with clear measurable results but here just a tag-line is shown to keep the illustration simple. The second column shows whether the objectives were un-committed objectives or fully committed 'core' objectives.

The final two columns show 1) the planned Business Value and 2) the actual Business Value achieved. We'll discuss the scoring of the objectives in more detail in the next section. As Figure 1 shows the table at the end of PI planning there are no actual scores to be shown.

The middle six columns are used to show the team's original and on-going commitments using a simple colour code.

Colour	not started
Green	Committed – the team fully expects to achieve the objective
Orange	Planned – the team believes they will be able to achieve this objective (if everything goes to plan), but it is at risk and may not happen.
Red	Not Happening – the team is no longer committed to the achievement of this objective within the PI.

As seen in the previous illustration, it is very easy to see which of the objectives the team has fully committed to. The graphic below shows the same team's tracker at the end of Iteration 2.

	Commitment Tracker							Business Value	
	Level	Plan	S1	S2	S3	S4	S5	Plan	Actual
Structured locations and validation of locations	Core		👍	👍				7	
Build and demonstrate a proof of concept for context imag	Core			👍				8	
Implement negative triangulation by tags, companies and	Core							8	
Speed up indexing by 50%	Core							10	
Index 1.2 billion more web pages	Core							10	
Extract and build URL Abstracts	Core							7	
Fuzzy search by full name	Stretch							7	
Improve tag quality to 80% relevance	Stretch							4	

Here an additional adornment has been used to show when an objective has been achieved and the team has therefore completed its work on it. In this case we have used a thumbs-up, but a simple tick would work just as well.

Now we can clearly see how the team is progressing and how its plans are changing based on what has been learnt from their first two iterations. The team has completed two of its objectives and has realized that the first of the stretch objectives is not going to be completed during this PI and that the fourth objective is now at risk.

	Commitment Tracker							Business Value	
	Level	Plan	S1	S2	S3	S4	S5	Plan	Actual
Structured locations and validation of locations	Core		👍	👍	👍	👍	👍	7	7
Build and demonstrate a prrof of concept for context image	Core			👍	👍	👍	👍	8	8
Implement negative triangulation by tags, companies and	Core				👍	👍	👍	8	6
Speed up indexing by 50%	Core							10	5
Index 1.2 billion more web pages	Core						👍	10	8
Extract and build URL Abstracts	Core				👍	👍	👍	7	7
Fuzzy search by full name	Stretch							7	0
Improve tag quality to 80% relevance	Stretch					👍	👍	4	4

The use of the ‘commitment tracker’ clearly communicates to the Business Owners and everyone else involved how the team is progressing providing a great basis for value focused conversations and decision making.

Teams’ indicate the state of their own objectives, which can in turn be aggregated to the Program Objectives. Typically, all teams need to have completed their contributing objectives for an aggregate objective to be marked as complete. If a team changes its level of commitment on an objective that contributes to an aggregate objective then this can be reflected in the commitment shown on the shared objective.

The commitment tracker is completed as part of a team’s Iteration Review. This reaffirms the team members commitment, makes sure they don’t take their eye off the ball and forget the things they committed to in PI planning, and helps prepare them for the next Iteration or PI planning meeting.

This information is typically broadcast within the program, upwards to business owners, and across to other teams and trains. If anyone wants more regular updates, or a finer granularity of information than this broadcast provides, then they need to start investing time and effort to attend the team level events and to learn how to utilise the team level tooling.

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Useful Trick:

You can also use the tracker to indicate when PI Objectives are pulled to form Sprint Goals and which objectives are being worked on. By adding an arrow symbol to indicate when a PI Objective is being focused on and a stop sign to show when something is blocked, we can see when work is planned and started on a specific objective. This does require the tracker to be updated as a result of Iteration Planning as well as the Iteration Review.

Figure 4 shows our example extended in this way to show the results of the Iteration Planning for the first and third iterations as well as at the end of the PI.

	Commitment Tracker							Business Value	
	Level	Plan	S1	S2	S3	S4	S5	Plan	Actual
Structured locations and validation of locations	Core							7	
Build and demonstrate a proof of concept for context imag	Core							8	
Implement negative triangulation by tags, companies and p	Core							8	
Speed up indexing by 50%	Core							10	
Index 1.2 billion more web pages	Core							10	
Extract and build URL Abstracts	Core							7	
Fuzzy search by full name	Stretch							7	
Improve tag quality to 80% relevance	Stretch							4	

	Commitment Tracker							Business Value	
	Level	Plan	S1	S2	S3	S4	S5	Plan	Actual
Structured locations and validation of locations	Core							7	
Build and demonstrate a proof of concept for context imag	Core							8	
Implement negative triangulation by tags, companies and p	Core							8	
Speed up indexing by 50%	Core							10	
Index 1.2 billion more web pages	Core							10	
Extract and build URL Abstracts	Core							7	
Fuzzy search by full name	Stretch							7	
Improve tag quality to 80% relevance	Stretch							4	

	Commitment Tracker							Business Value	
	Level	Plan	S1	S2	S3	S4	S5	Plan	Actual
Structured locations and validation of locations	Core							7	7
Build and demonstrate a proof of concept for context imag	Core							8	8
Implement negative triangulation by tags, companies and p	Core							8	6
Speed up indexing by 50%	Core							10	5
Index 1.2 billion more web pages	Core							10	8
Extract and build URL Abstracts	Core							7	7
Fuzzy search by full name	Stretch							7	0
Improve tag quality to 80% relevance	Stretch							4	4

With the application of a little more discipline around the planning of the objectives, it's very easy to spot infractions of our Agile Principles; namely SAFe® Principle #6: Visualise and Limit Work-In-Process. If the team plans to start working on all the objectives in the first Iteration then something is wrong.

We have found that using the PI Objectives in this way, as an integral part of the iterative process, helps keep everyone focused, increases business transparency, enables increased business engagement, and ultimately helps fight the entropy that leads to teams becoming an un-thinking Feature or Story factories rather than value delivery teams.

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HANDLING CHANGE / BACKLOG REFINEMENT

Change is inevitable and Agile Manifesto Principle #2 is “Welcome changing requirements, even late in development. Agile processes harness change for the customer’s competitive advantage.”

As change happens and new work comes in; other work will need to be removed to make space for it. If the new work is large and not related to the existing objectives, then new Objectives will need to be put in place and existing objectives down-graded from Committed to Planned or Planned to Not Happening. We are dealing with a fixed capacity. We cannot add new objectives to the train without removing some of the existing ones.

Obviously, any new objectives will need to be scored and shown to have a greater urgency and value to effort ratio than the ones they are replacing. Remember you cannot prioritize based on value alone so, just as it is for Features, it is not always the most valuable objectives that make the cut.

Any new objectives will be treated as stretch of objectives when being added to the table, even if they are replacing one of the team’s original core objectives. We need to retain the initial baseline set of objectives to support the predictability measure at the end of the PI.

Not all new Features and Stories requested will require new objectives. As seen earlier in the series we will have objectives related to maintenance and support, many of which will not have specific sets of Features or Stories identified up front for them. The Product Management Team will be constantly refining the Program and Team backlogs based on the current PI Objectives and the team’s focus.

The first question to ask when receiving any new Features or Story requests is "What does this mean for the current PI? How does it affect our current PI Objectives?". Once again having the information on the state of the PI Objectives, in the form of the 'commitment tracker', is incredibly helpful when managing the backlogs.

Useful Trick:

Whilst we welcome change, too much change is indicative of other problems within our system; namely the Content Authority (the business) can't work out what it wants. Whilst we can show that we are still predictable to the evolving plan, a "churn" metric to illustrate how much change occurred during the PI is often a useful indicator to reflect back towards the Content Authority. If the churn rate is too high, then the Stakeholders and Business Owners that suggest work need to stop and reflect on why they can't stabilise their demands for a PI.

CLOSING THE LOOP / SCORING THE OBJECTIVES

The Objectives and the scores attached to them during PI Planning are used to close the loop on commitment at the end of the Program Increment. This serves two purposes; it acts as a forcing function to generate more conversations between the Business Owners and the Agile Teams and it generates a predictability metric. We'll cover the Predictability Measure in the next section.

It's at this point that SAFe®'s phrase "Business Value" can be potentially troublesome. What we don't want is the Business Owners to come along and say, "thanks for delivering all that we requested; now that we've seen it we realise that it's not valuable; therefore we're going to score this as 0." If the team delivered then the team should get the full score. What we are looking at here is whether the teams achieved what they set out to do NOT how good the Business Owners are at 'guestimating' the value of the individual objectives. We also want to avoid the unpleasant situation where teams try to up the value of the things they've done to cover up for the things that they haven't done.

It is also important not to revise / re-work the originally assigned value as we want to use the numbers to drive a predictability measure – a measure that won't work if we fiddle with the inputs.

In the example above (Figures 1 to 4) you may be wondering "Why are the objectives not being scored as and when they are completed?" Well, this is a sad a reflection on the lack of involvement from most Business Owners. In an ideal world the Business Owners would be actively involved throughout the PI and could score any objectives completed in an iteration as part of that iteration's System Demonstration.

Useful Trick:

Don't organize your system demo's around teams or Features – organize them around the shared and individual team objectives. Encourage your Business Owners to attend and score any completed objectives as part of the demonstration. This has many benefits including increasing Business Owner engagement, more relevant demos and, most importantly, keeping everyone focused on achieving their objectives rather than becoming an un-thinking Feature or Story factory.

If the Business Owners are not engaged enough to 'accept' the objectives in this way, then have Product Management accept the objectives as they are achieved, and the Business Owners score them after the PI System Demo as part of the Inspect and Adapt.

Having seen the appropriate System Demonstration the Business Owners discuss with the team how much of each Objective was delivered; this should be a two-way discussion. Sometimes teams have as much of an opinion on how much they achieved as the Business Owners; they were doing the work after all therefore they know how much they've done.

This discussion also facilitates knowledge transfer; the engineering staff learn what and why certain things were important to the Business Owners and the Business Owners start to learn what challenges the teams are facing so that they can prioritise future features and enablers accordingly. And everyone learns how to write better objectives next time – if there is a lot of debate over whether or not an objective was achieved then it probably wasn't very well formed in the first place.

Sometimes the PI Objectives are black or white, there or not-there. In this case if the objective was achieved then it gets the full score that was given to it in PI planning, otherwise it gets 0. In other cases there is more of a sliding scale and the team can be given some credit even if all the desired results were not achieved.

Take for example an objective to speed something up by 50%. This would make a good measurable objective but may be very difficult to achieve, with the team, for example, only achieving an improvement of 30%. It is up to the Business Owners to assess the value of this increase in speed. It is less than they hoped for but still of significant value. If the original score was 10 the Business Owners may well give the team 8 out of 10 in this case. It will be up to them to judge the value delivered and score the objective appropriately.

We should also be careful not to overthink or overly quantify what we mean by value. As discussed in the previous section this is a score that reflects the relative importance of a team's objectives to the Business Owners at the time the plans were made. It is not an absolute value and is not comparable between teams.

The last thing we want is the Business Owners to come along and say, "thanks for delivering all that we requested; now that we've seen it we realise that it's not valuable; therefore we're going to score this as 0.", if the team delivered then the team should get the full score.

Any new objectives should be scored in exactly the same way as the original objectives. This is why it is so important that the Business Owners are involved in the change process and agree the value of any new objectives before the team commits to them. Any objectives that were abandoned because their work was moved out to make room for new objectives will score 0.

What happens if the team come up with, and deliver on, some of their own objectives during the PI and don't involve the Business Owners? Well in this case they provide us with a fantastic learning opportunity. They should definitely be presented to the Business Owners for scoring as part of closing out the PI. Our goal is full transparency and it is always interesting to see how the involved parties react.

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CLOSING THE LOOP / THE SAFE® PREDICTABILITY MEASURE

The number one metric referenced in all the SAFe® training material is the Program Predictability Measure. This is the only measure that gets specifically called out and illustrated in the Leading SAFe and Implementing SAFe courses. The reason that it is such an important measure is that predictability is an essential precursor to any experiment-based approach to improvement. If the system is unpredictable how will you be able to interpret the impact of any changes that you make to the team's way-of-working.

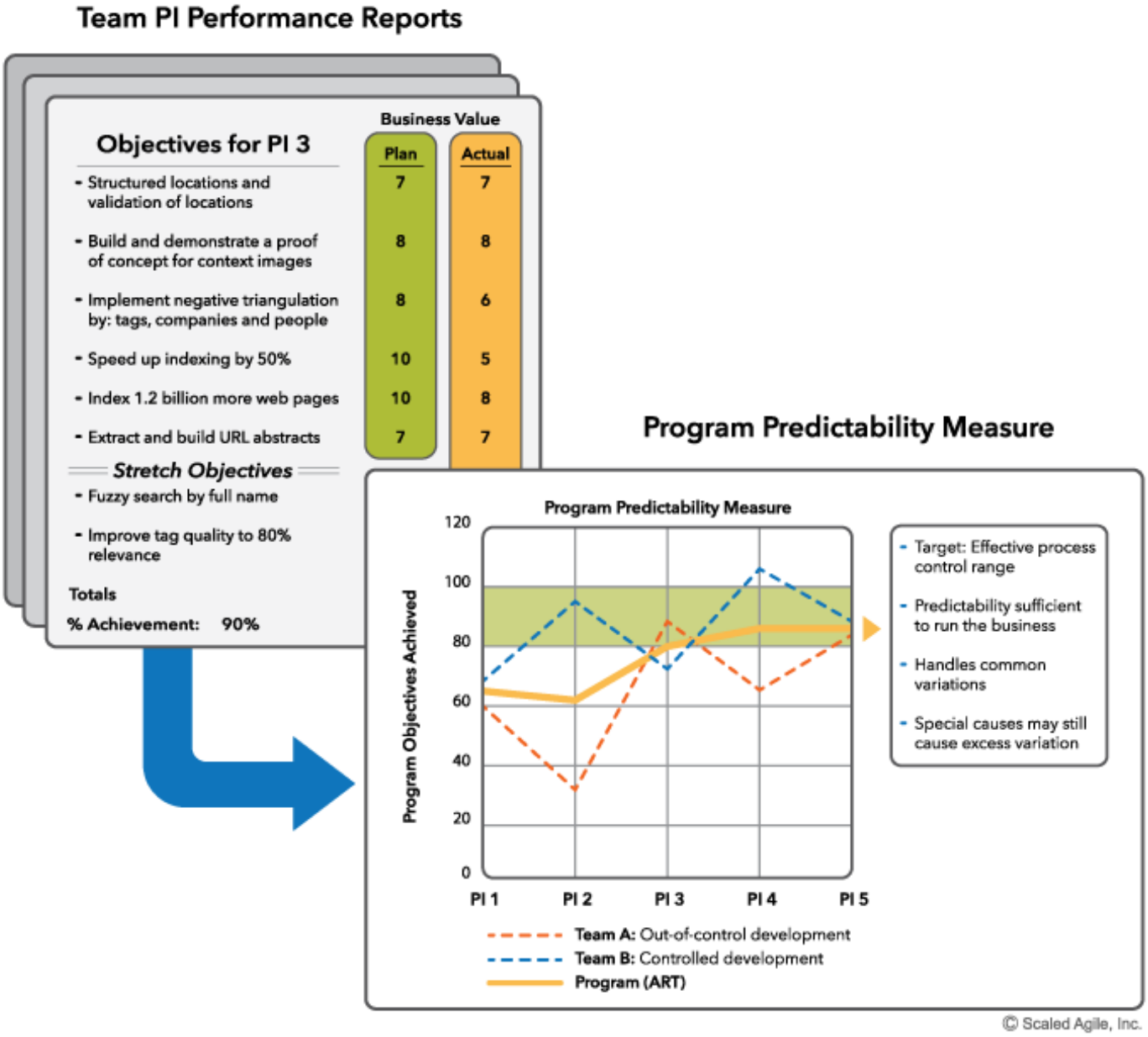
The predictability score is calculated by the sum of the actual value achieved as a percentage of the planned / committed value - the sum of the value assigned to the core objectives by the Business Owners during the planning event. The stretch objectives aren't included in the calculation of the planned / committed value, but their actual scores are included when calculating the teams actual score.

This means that teams can score greater than 100% if they manage to deliver their stretch objectives. Now this is not a problem but it is also not the objective.

Any team that is consistently delivering over 100% is probably declaring too many of their objectives as stretch objectives; are they trying to make themselves look good by gaming the system rather than highlighting that there is true risk inherent in those objectives? As the predictability score uses the values assigned for each objective (and doesn't just count them and treat them all equally) it is also naturally weighted towards the PI Objectives that the Business Owners felt were most important – the ones they awarded the highest scores.

Any new objectives that were added once the PI was started are treated in the same way as the stretch objectives when calculating the scores. The added objectives don't contribute to the planned score because they weren't part of the committed set, but they do contribute to the actuals at the end. The calculated predictability score shows that the team is still predictably delivering even to an evolving plan.

This image from the Scaled Agile Framework succinctly sums up how the predictability measure is presented and how the overall program predictability is derived from that of the individual agile teams.



The desired operating band for the predictability measure is deliberately a range, typically 80-100%. This is shown as the green band on the graph in shown above.

The fact that it is a range is important; it gives the teams some room for manoeuvre. If they were tasked with achieving an absolute value then there would be a tendency to manipulate the numbers to exactly achieve that value whereas when trying to land within a range the truth can shine through. The range also provides space to absorb the variations inherent in our delivery processes.

The results provide lots of food for thought; individual teams might be out of range, get beyond the numbers and find out what problems have afflicted the teams. It might not be a bad team; it might be that the team sacrificed themselves (for example they took all the incoming defects) to allow other teams to maintain their predictability. The key metric, the one to broadcast outside the Agile Release Train, is the aggregate metric for the train as a whole.

If that Predictability score is in the 80-100% region then the Business Owners can start to trust that 4 out of 5 things committed to at PI Planning will come out the end of the Program Increment; perfection is impossible because teams are dealing with problems that have never been solved before and some of those problems might not have economically viable solutions.

Measuring Predictability and Commitments Achieved NOT Value Delivered

It's at this point that SAFe®'s use of the term "Business Value" can be potentially troublesome. The true business value delivered is an emergent property of the system and not something that can be attributed to the delivery of individual Features or the achievement of individual objectives. The metric being calculated is not "Value" but "Predictability" to the committed plan. Value is a separate measurement; typically measured outside of the train, the Benefits Hypotheses of the Epics are a good starting point for measuring value.

Velocity How Much Can We Do? *Forecasting*	**Predictability** Can We Repeatedly Meet Our Commitments? *Trust*
Quality Does The System Work As Expected? *Compliance*	**Value** Have We Done The Right Thing? *Business Measures*

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FINAL WORDS

Over the course of this blog series we've explored all aspects of the generation and use of PI Objectives in SAFe®. We have seen why they are such a vitally important part of the framework, how they are generated, and how they are utilised within execution and closing the loop on commitment to a plan.

We have seen how they are an integral part of every one of the management activities in the framework from PI and Iteration Planning to Backlog Refinement and Inspect and Adapt, When used properly they prevent us from degenerating into a feature factory, enable the empowerment of the teams, bridge the gap to the sponsors and other business owners and, possibly most importantly, provide the predictability that is needed to support our on-going, relentless improvement.

We've also tried to share our practical experience gained across through many years and many PIs in many different organisations, and to tie everything back to the underlying principles that are the guiding force within agile and SAFe®.

Thank you for taking the time to download our 'Writing Good PI Objectives' PDF. You can read the individual articles on the IJI website here, and access our Scaled Agile® related resources here.

The IJI website is home to a great deal of useful resources, from Agile 'Serious Game Cards' to practical video workshops to improve your SAFe® practices, among others.

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Inspired? Looking for more content and resources to aid in your PI objectives journey?

How Many Features do you need for PI Planning?

WSJF & Feature Slicing

All about the PI Planning Management Review & Problem Solving

Secrets of Dispersed PI Planning

Estimating in Story Points