Product Aikido

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Foreword

This is the first version of *Product Aikido* — an exemplar of a manual or handbook for an organisation's Product Development Group. I hope, should you choose to adopt it, it will have a significant impact both inside and outside your organisation. My intention in writing this manual is to change the way everybody in your organisation thinks about product development.

I anticipate it causing energetic and productive debate. The philosophy of product development, as described in this manual, is in consonance with leading edge practices in the software development and product development spaces. This philosophy will also contribute to your ability to recruit and retain the best people, as well as operate harmoniously with your clients.

That said, I believe *Product Aikido* can and will evolve and improve to look much different than it appears here and now. Organisations need an ongoing evolution of doctrine, based on

growing experience, advancements in theory, and the changing face of product development itself. It is in this spirit that I write this exemplar publication. I have several goals for this version. One goal is to share a baseline and structure within which folks across an organisation can comment and contribute. Another goal is to describe the nature of effective product development — for example, to emphasise product development's complexity and unpredictability, and to widen the definition of product development to account for modern business's increasing dependence on technology and technology-based products, the changing mores of society, and the rapid pace of technological and business change. A third goal is to illustrate the relevance of important *auftragstaktik*-derived concepts such as *organising intent*, *main effort*, and *critical vulnerability*.

Very simply, this publication, once adopted and adapted, describes a philosophy which can distinguish your organisation from all others. The thoughts contained here are not merely guidance for action in developing products, but a way of thinking — an organisational *mindset*. This publication provides an authoritative basis for how to develop products, and how to *prepare* to develop products. It contains no specific techniques or procedures for conduct. Rather, it provides broad guidance in the form of concepts and values. It requires creativity in its application.

I do not intend *Product Aikido* to serve as a reference manual; I have conceived it to be read from cover to cover. Its four chapters have a natural progression. Chapter 1 describes an understanding of the characteristics, problems, and demands of

product development. Chapter 2 derives a theory about product development from that understanding. This theory in turn provides the foundation for how to prepare for product development and how to engage in product development, chapters 3 and 4, respectively.

Experience has shown that the product development philosophy described in these pages applies far beyond the ranks of management. I invite all your staff — workforce and management, technical and non-technical people alike — to read this publication, adopt it, understand it, adapt it and act upon it. This publication describes a philosophy for action that, in challenging situations, in times of both significant change and business as usual, defines an approach to making life more wonderful for everyone involved with your organisation and its products.

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Bob Marshall
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Note: Throughout this publication, masculine nouns and pronouns are used for the sake of simplicity. Except where otherwise noted, these nouns and pronouns signify either gender.

Preface

This is the first edition of *Product Aikido*. My intent is to describe a philosophy of product development, present it in an easy-to-read format and invite you to establish it as your organisation's *doctrine*. In the foreword to this manual, I have suggest inviting every member of your staff to read and reread the text, to understand it, contribute to its evolution, and to take its message to heart. The philosophy contained in this publication will influence your approach to everything you undertake, and not just in the immediate sphere of product development itself.

"Business is both timeless and ever changing. While the basic nature of product development is constant, the means and methods we use evolve continuously." Like business itself, any approach to product development must evolve. If we cease to refine, expand, and improve our profession, we risk becoming outdated, stagnant, and irrelevant. This doctrinal publication refines and expands a philosophy of product development, taking into account new thinking about the nature of product development and the understanding gained through participation in software and product development across numerous businesses over the past four decades. I hope you will be willing to read it, study it, and take it to heart.

Semper Mirabilis,

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Product Aikido

Chapter 1. The Nature of Product Development

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Chapter 1
The Nature of Product Development

"Everything in war is simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction that is inconceivable unless one has experienced war."

—Carl von Clausewitz

"Strength does not come from physical capacity. It comes from an indomitable will."

—Mohandas K. Gandhi

"The will to win is not nearly as important as the will to prepare to win."

—Bobby Knight

"An organisation is a system whose major deficiencies arise from the ways its parts interact, not from their actions taken separately."

—Russell L. Ackoff

"Risk management is project management for grown-ups."

—DeMarco & Lister

*T*o understand this philosophy of product development, we first need an appreciation for the nature of product development itself — its moral, emotional and intellectual characteristics, and demands. A common view of product development among all people in an organisation, is a necessary base for the development of a cohesive doctrine, because any approach to the *conduct* of product development derives from a shared understanding of the *nature* of product development.

Product Defined

Product is a term used in a specific way in this doctrine. We use the term always in the sense of "Whole Product". This sense expresses the idea of a generic product (or core product, for example, software) augmented by everything *else* that is also needed for the customer to have a compelling reason to buy.

Product Development Defined

Product development is the activity of finding ideas that might have some value, to some people or businesses, and taking those ideas through various stages of transformation until they are in a suitable form to offer to prospective purchasers.

The essence of product development is an intense and ongoing struggle between *organising intent* and *entropy*. Organising intent is the will of the company, manifest in the actions of its product development people, bent on meeting the goals of the company through the creation and evolution of products and product features.

Product development is fundamentally an interactive social process. We might imagine a randori situation (freestyle Aikido training) with a uke (receiver) and nage (thrower), each attempting moves and countermoves to try to defeat the other. Product development is thus a process of continuous adaptation to events, of give and take, simultaneous synthesis and dissolution. While we try to express our organising intent in the product, entropy resists us and seeks to countervail our intent. Appreciating this dynamic interplay between organising intent and entropy is essential to understanding the fundamental nature of product development.

The object in product development is to continually evolve the design of something of value — along with everything else needed for the customer to have a compelling reason to buy. The means to this end is the organised and social application of knowledge, intellect and intuition. Our fundament currency of means is the experiment — through which we discover the optimum "sweet spot" where all stakeholders' maximum appreciation of value intersects.

The target of our experiments may be a known pain suffered by one or more individuals or businesses, or it may extend to our suppositions about pains nor yet expressed or known. Product development may range in size and scope from intense research and development on a large scale addressing major pain points — sometimes in association with partners or consortia — to subtler, unconventional approaches to pleasing customers that barely reach the threshold of a tangible product (or service).

Total satisfaction and ubiquitous pain rarely exist in practice. Instead, they are extremes between which exist the state of most customers and their businesses. This range includes routine business-as-usual, more or less permanent discomfort or tension, and occasional crises. The decision to seek a remedy to their pain (or an increase in pleasure) through the procuring of a product of some kind may arise at any point within these extremes, even during periods of relative calm. On one end of the spectrum, a product may be used simply to maintain or restore normal functioning in day-to-day operations. At the other extreme, a product may be procured to completely overturn the existing order within a business or even a complete business ecosystem. Some companies consider it a moral imperative to buy something only as a last resort when all other means to reduce their pain have failed. Others have no such hesitancy in buying products to achieve relief or improved functioning.

Friction

Portrayed as a clash between organising intent and entropy, product development might appear a simple enterprise. In practice, the conduct of product development becomes extremely difficult because of the countless factors that impinge on it. These factors collectively have been called *friction*, which Carl Philipp Gottfried von Clausewitz described as "the force that makes the apparently easy so difficult". Friction is the force that resists all action and saps energy. It makes the simple difficult and the difficult seemingly impossible.

The very essence of product development as a clash between organising intent and entropy creates this friction. In this dynamic environment of interacting forces, friction abounds.

Friction may be mental, as in indecision over a course of action. It may be physical, as in physical laws that must be overcome. Friction may be external, imposed by competitors' or customers' actions, legislation, poorly-suited tools, or mere chance.

Friction may be self-induced, caused by such factors as lack of a clearly defined goal, lack of coordination, unclear or unquantified plans, complex coordination and prioritisation relationships, or complicated technologies. Whatever form it takes, because product development is a human enterprise, friction will always have a psychological as well as a physical impact.

While we attempt to minimise self-induced friction, the greater requirement is *to act effectively despite the existence of friction*. One essential means to overcome friction is the will; we prevail over friction through persistent strength of mind and spirit, underpinned by mutual moral support and a web of social connections.

We can readily identify countless examples of friction, but until we have experienced it ourselves, we cannot hope to appreciate it fully. Only through experience can we come to appreciate the force of will necessary to overcome friction and to develop a realistic appreciation for what is possible in product development — and what is not. While formal learning situations can attempt to approximate the conditions of actual product development,

we realise it can never fully duplicate the level of friction in *real* product development.

Uncertainty

Another attribute of product development is *uncertainty*, often referred-to as variation, or variability. We might argue that uncertainty is just one of many sources of friction, but because it is such a pervasive aspect of product development, we will treat it singly. All actions in product development take place in an atmosphere of uncertainty, or the "fog of development". Uncertainty pervades our actions in the form of unknowns about the problem space, about the environment, and even about what other parts of our own company are doing. While we try to reduce these unknowns by gathering information, we must realise that we cannot eliminate them — or even come close. The very nature of product development *makes certainty impossible*; all actions in product development will be based on incomplete, inaccurate, or even contradictory information.

Product development is intrinsically unpredictable. At best, we can hope to determine possibilities and probabilities. This implies a certain standard of business acumen: What is possible and what is not? What is probable and what is not? By assessing probability, we make an estimate of entropy's impact (often referred-to as *risk*) and act accordingly. Having said this, we realise that it is precisely those actions that seem improbable or risky that often have the greatest positive impact on the outcome of our product development endeavours.

Because we can never eliminate uncertainty, we must learn to act effectively despite it. We can do this by developing simple,

flexible, unambiguous plans; planning for likely alternate contingencies; developing standing operating procedures; and fostering initiative in everyone — from the most experienced, to the newest developer recruit.

One important source of uncertainty is a property known as *nonlinearity*. Here the term describes systems in which causes and effects are disproportionate. Minor incidents or actions can have decisive effects. Outcomes of our endeavours can hinge on the actions of a few individuals, and as Clausewitz observed, "issues can be decided by chances and incidents so minute as to figure in histories simply as anecdotes."

By its nature, uncertainty invariably involves the appreciation, estimation and acceptance of risk. Risk is inherent in business — product development not least — and is involved in every endeavour. Risk is equally common to action and inaction. Risk is often closely related to reward; greater potential gain often requires greater risk. The practice of concentrating development power toward the main effort implies the willingness to accept prudent risk elsewhere. However, we ask that folks clearly understand that the acceptance of risk does not equate to the imprudent willingness to gamble the entire likelihood of success on a single improbable event.

Part of uncertainty lies in the ungovernable element of *chance*. Chance is a universal characteristic of product development and a continuous source of friction. Chance consists of turns of events that cannot reasonably be foreseen and over which we have no control. The constant potential for chance to influence outcomes in product development, combined with the inability

to prevent chance from impacting on plans and actions, creates psychological friction. Consequently, we must view chance not only as a threat but also as an opportunity — which we must be ever ready to exploit.

Fluidity

Like friction and uncertainty, fluidity is an inherent attribute of product development. Each episode in product development is the temporary result of a unique combination of circumstances, presenting a unique set of problems and requiring an original solution. Nevertheless, no episode can be viewed in isolation. Rather, each episode merges with those that precede and follow it — shaped by the former and shaping the conditions of the latter — creating a continuous, fluctuating flow of activity replete with fleeting opportunities and unforeseen events. Since product development is a fluid phenomenon, its conduct requires flexibility of thought. Success depends in large part on the ability to adapt — to proactively shape changing events to our advantage as well as to react quickly to constantly changing conditions.

It is physically and financially impossible to sustain a high tempo of activity indefinitely, although clearly there will be times when it is advantageous to invite people to make a concerted effort, and push e.g. budgets or burn-rates to the limit. The tempo of product development will fluctuate from periods of intense activity to periods in which activity is limited to information gathering, reflection, or capability development. Politics and resources can influence the tempo of product development but need not halt it. A competitive rhythm will develop between

organising intent and entropy with us trying to influence and exploit tempo and the continuous flow of events to suit our purposes, and entropy continually trying to oppose us.

Flow

Flow, that is, the continuous, smooth flow of value from us to our customers, is our desired operating condition. In product development, economy comes from flow, and not, as more often but mistakenly believed, from scale. To achieve "good flow" requires flexibility and a widespread understanding of what "good flow" looks like.

Disorder

In an environment of friction, uncertainty, and fluidity, product development gravitates *naturally* toward disorder. Like the other attributes of product development, disorder is an inherent characteristic; we can never eliminate it. In the heat of action, plans will go awry, instructions and information will be unclear and misinterpreted, communications will fail, and mistakes and unforeseen events will be commonplace. It is precisely this natural disorder which creates the conditions ripe for exploitation by an opportunistic will.

Each endeavour will usually tend to grow increasingly disordered over time. As the situation changes continuously, we are forced to improvise again and again until finally our actions have little, if any, resemblance to the original scheme.

By historical standards, the modern landscape of product development is particularly disorderly. While past endeavours could be described by hierarchical formations and uninterrupted

sequential steps, we cannot think of today's product development context in linear terms. The power, complexity and ambitions of modern product development and its technologies has decreased cohesion between collaborative efforts. In spite of communications technology, this dispersion strains the limits of positive control. The natural result of dispersion is overlooked areas, gaps, and vulnerabilities which can and will be subject to the vicissitudes of entropy.

Our endeavours in product development will not unfold like clockwork. We *cannot* hope to impose precise, positive control over events. The best we can hope for is to impose a general framework of organising intent on the disorder—to influence the general flow of action rather than to try to control each event.

If we are to win through, we must be able to operate in a disorderly environment. In fact, we must not only be able to act effectively in the face of disorder, we must seek to generate disruption and discontinuities and use them as assets.

Complexity

Product development is a complex phenomenon. We have described product development as essentially a clash between organising intent and entropy. In reality, our organising intent is not a single, homogeneous will guided by a single intelligence. Instead, it is a complex (adaptive) system consisting of numerous individual parts. A business unit comprises functions, or value streams. These comprise departments or groups, and so on all the way down to product development teams which are composed of individual engineers. Each element is part of a larger whole and cooperates with other elements for the

accomplishment of the common goal. At the same time, each has its own mission and adapts to its own situation. Each deals with friction, uncertainty, and disorder in its own context, and each may create friction, uncertainty, and disorder for others.

As a result, product development is not governed by the actions or decisions of a single individual in any one place but emerges from the collective behaviour of all the individual parts in the system interacting locally in response to local conditions and incomplete information. A product development endeavour is not the monolithic execution of a single decision by a single entity but necessarily involves near-countless independent but interrelated decisions and actions being taken simultaneously throughout the whole company. Efforts to fully centralise product development — and wider business — operations and to exert complete control by a single decision-maker are inconsistent with the intrinsically complex and distributed nature of product development.

The Human Dimension

Because product development is basically a clash between human will and entropy, the *human dimension* is central in product development. It is the human dimension which infuses product development with its intangible moral factors. Product development is shaped by human nature and is subject to the complexities, inconsistencies, and peculiarities which characterise human behaviour. Since product development is an act of intent based on social and economic and factors, it will invariably both inflame and be shaped by human emotions.

Product development is an *extreme* trial of moral and intellectual strength and stamina. Any view of the nature of product development would hardly be accurate or complete without consideration of the effects of fear, obligation, guilt and shame, as well as numerous cognitive biases, on those who do the work. However, these effects vary greatly from case to case. Individuals and people react differently to the stress of product development work; a situation that may demoralise one person or team may only serve to stiffen the resolve of another. Human will, instilled through fellowship and mutual support, is the driving force of all action in product development.

No degree of technological development or scientific calculation will diminish the human dimension in product development. Any doctrine which attempts to reduce product development to processes, standards, metrics and policies neglects the impact of the human will and the human psyche on the conduct of product development and is therefore inherently flawed.

Fear, Obligation, Guilt and Shame

Software product development is among the greatest challenges known to humanity. Deluding ourselves as to this reality serves no one well. The means of product development is applied in the form of organised and collaborative nonviolence. It is through the use of nonviolence, that we set free our intellect to find winning products. Nonviolence is an essential element of product development, and its immediate result is freedom of thought, innovation and invention. While the application of nonviolence may vary with the object and means of product development, the nonviolent essence of product development will never

change. Any study of produce development that neglects this basic truth is misleading and incomplete.

Since product development is a nonviolent enterprise, the opportunity for wonder is ever present. Since product development is a human phenomenon, the use of fear, obligation, guilt and shame, society's normal reaction to challenges, has a significant negative impact on the conduct of product development.

Everybody feels fear. Fear contributes to the corrosion of will. And to the impairment of cognitive function. Communities that foster the courage to overcome fear, both individually and within the group, thrive. Courage is not the absence of fear; rather, it is the strength to overcome fear.

Knowledge of fear, an understanding of it, and means to cope with it, are paramount. Courage and fear are often situational rather than uniform, meaning that people experience them differently at different times and in different situations. Like fear, courage takes many forms, from a stoic courage born of reasoned calculation to a fierce courage born of heightened emotion. Experience under stress generally increases confidence, as can realistic training—by lessening the mystique of complexity, technology, uncertainty and the like. Strong fellowship, where each earns the respect and trust of his fellows, can also limit the effects of fear. We ask that teams develop group cohesion and esprit, and develop too the self-confidence of the individuals within the team, and of others.

Intellectual, Moral and Emotional Forces

Product development is characterised by the interaction of intellectual, moral, and emotional forces. The intellectual characteristics of product development are relatively easily understood:. The emotional characteristics are less tangible. (The term "emotional" as used here is not restricted to ethics, although ethics are certainly included, but pertains to those forces of a psychological rather than tangible nature.) Emotional forces are difficult to grasp and relatively impossible to quantify. We cannot easily gauge forces like individual resolve, conscience, fear, courage, morale, fellowship, or esprit. Product development also involves a significant mental, or intellectual, component. Intellectual strengths provide the ability to grasp complex situations; to make effective estimates, calculations, and decisions; to devise tactics and strategies; and to develop plans.

Although material factors are more easily quantified, moral and emotional forces exert a greater influence on the nature and outcome of product development. This is not to lessen the importance of intellectual forces, for the intellectual forces in product development can have a significant impact on the others. For example, the greatest effect of fires (panics) is generally not the amount of disruption they cause, but the effect of that disruption on folks' moral strength.

Because it is difficult to come to grips with moral and emotional forces, it is tempting to exclude them from our study of produce development. However, any doctrine or theory of product

development that neglects these factors ignores the greater part of the nature of produce development.

The Evolution of Product Development

Product development is both timeless and ever changing. While the basic nature of product development is constant, the means and methods we use evolve continuously. Changes may be gradual in some cases and drastic in others. Drastic changes in product development are the result of developments that dramatically upset the equilibrium of product development, such as communication and collaboration technologies, mobile devices, neuroscience, and theories of the mind (both individual and collective).

One major catalyst of change is the advancement of technology. As the hardware and topology of product development improves through technological development, so must the tactical, operational, and strategic usage adapt to its improved capabilities both to maximise our own capabilities and to counteract the effects of entropy.

It is important to understand which aspects of product development are likely to change and which are not. We must stay abreast of the process of change for the companies who first exploits a development in the art and science of product development gains a significant advantage. If we are ignorant of the changing face of product development, we will find ourselves unequal to its challenges.

The Science, Art and Dynamics of Product Development

Various aspects of product development fall principally in the realm of science, which is the methodical application of the empirical laws of nature. The science of product development includes those activities directly subject to the laws of physics, biology and like disciplines. However, science does not describe the whole phenomenon.

An even greater part of the conduct of product development falls under the realm of art — or intuition — which is the employment of creative or intuitive skills. Art includes the creative, situational application of scientific knowledge through judgment and experience, and so the art of product development subsumes the science of product development. The art of product development requires the intuitive ability to grasp the essence of a unique business situation and the creative ability to devise a practical solution. It involves conceiving strategies and tactics and developing plans of action to suit a given situation. This still does not describe the whole phenomenon. Owing to the vagaries of human behaviour and cognitive function — and the countless other intangible factors which influence product development — there is far more to its conduct than can be explained by art and science. Art and science stop short of explaining the fundamental dynamic of product development.

As we have said, product development is a social phenomenon. Its essential dynamic is the dynamic of cooperative human interaction rather than the dynamic of art or science. Human beings interact with each other in ways that are fundamentally

different from the way a scientist works with chemicals or formulas or the way an artist works with paints or musical notes. It is because of this dynamic of human interaction that fortitude, perseverance, boldness, esprit, and other traits not explainable by art or science are so essential in product development. We thus conclude that the conduct of product development is fundamentally a dynamic process of human intention requiring both the knowledge of science and the creativity of art but driven ultimately by the power of *humanity*.

Conclusion

At first glance, product development seems a simple clash of intent vs entropy. On closer examination, it reveals its complexity and takes shape as one of the most demanding and trying of human endeavours. Product development is an extreme test of will. Friction, uncertainty, fluidity, disorder, and danger are its essential features. Product development displays broad patterns that can be represented as probabilities, yet it remains fundamentally unpredictable. Each episode is the unique product of myriad moral, mental, and intellectual forces.

Individual causes and their effects can rarely be isolated. Minor actions and random incidents can have disproportionately large — even decisive — effects. While dependent on the laws of science and the intuition and creativity of art, product development takes its fundamental character from the dynamics of human interaction.

Chapter 2
The Theory of Product Development

"The purpose of life is not to be happy. It is to be useful, to be honourable, to be compassionate, to have it make some difference that you have lived and lived well."

—Ralph Waldo Emerson

"Our purpose in life is to find our purpose and give our whole heart and soul to it"

—Gautama Buddha

"In any moment of decision, the best thing you can do is the right thing. The worst thing you can do is nothing."

—Theodore Roosevelt

"Want of foresight, unwillingness to act when action would be simple and effective, lack of clear thinking, confusion of counsel until the emergency comes, until self-preservation strikes its jarring gong - these are the features which constitute the endless repetition of history."

—Winston Churchill

*H*aving arrived at a common view of the nature of product development, we proceed to develop from it a *theory* of product development. Our theory of product development will in turn be the foundation for the way we prepare for and conduct product development.

Product Development as an Act of Purpose

Product development is an extension of both organisational purpose and business strategy, with the addition of commercial concerns. Purpose and business strategy are related but not synonymous, and it is important to understand product development in both contexts. The purpose-related aims that are the motive for any group in product development are also the foremost determinants of its conduct. The single most important thought to understand about our theory is that product development *must serve our organisational purpose*.

As the purpose-related aims of product development vary, so does the application of effort vary in accordance with those aims. Of course, we may also have to adjust our purpose-related objectives to accommodate our chosen — or available — means. This suggests that we must not establish goals outside our capabilities. It is important to recognise that many business strategy problems cannot be solved by means of product development efforts. Some can, but rarely as anticipated. Product development tends to take its own course as it unfolds. We recognise that product development is not an inanimate instrument, but an animate force which may likely have

unintended consequences that may call for changes to the business strategy.

To say that product development is an extension of business strategy and purpose is not to say that product development is strictly a business strategy phenomenon: It also contains social, cultural, psychological, and other elements. These can also exert a strong influence on the conduct of product development, as well as on product development's usefulness for solving business strategy problems.

Means in Product Development

At the highest level, product development involves the use of all the elements of development power that a company can bring to bear. These include, for example, diplomatic, financial, intellectual and psychological forces.

The Spectrum of Action

Action can take a wide range of forms constituting a spectrum which reflects the magnitude of effort involved. At one end of the spectrum are those actions referred to as business operations other than product development in which the application of effort is usually restrained and selective.

A Product Development group, as the tip of any organisation's spear, must have the versatility and flexibility to deal with a situation at any scale across the entire spectrum of product development demands. This is a greater challenge than it may appear: Product development work other than creating and evolving products is not simply a lesser form of general product development. A modern product development group capable of

developing major new products may find itself ill-prepared for a "small" effort to quickly see a new product concept tested in the market. And vice versa.

Levels of Product Development

Activities in product development take place across several interrelated context which form a natural nesting. These contexts are: the purposeful, the strategic, the operational and the tactical. (See figure 1)

The outermost context is the purposeful context.

[TBD]

Next outermost is the strategic context.

Activities in the strategic context focus directly on business strategy objectives. We distinguish between business strategy, which coordinates and focuses all the elements of the business to attain the organisational purpose, and product development strategy, which is the application of development power to secure the organisational purpose. Product development strategy thus is subordinate to business strategy. Product development strategy can be thought of as the art of winning markets and securing revenues. Strategy involves establishing goals, assigning resources, providing assets, and imposing conditions on the use of customer relationships in certain markets. Strategy derived from organisational purpose must be clearly understood to be the sole authoritative basis for all operations.

The innermost context level is the tactical. Tactical refers to the concepts and methods used to accomplish a particular mission.

Figure 1. The Contexts of Product Development [TBD].

There is a certain overlap between tactics and techniques. We make the point only to draw the distinction between tactics, which requires creativity, and techniques and procedures, which generally involves repetitive routine.

The operational context of product development links the strategic and tactical contexts. It is the use of tactical results to attain strategic objectives. The operational context includes deciding when, where, and under what conditions to commit resources to getting things done — and when, where, and under what conditions to refuse to so commit, in support of higher aims. Actions in this context imply a broader dimension of time and space than actions in the tactical context. As strategy deals with winning markets and tactics with winning sales, the operational context of product development is the art and science of winning customers and customer relationships. Its means are tactical results, and its ends are the established strategic objectives. The distinctions between contexts of product development are rarely clearly delineated in practice. They are to some extent only a matter of scope and scale. Usually there is some amount of overlap as the folks in a single endeavour may have responsibilities in more than one context. As shown in figure 1, the overlap may be slight. This will likely be the case in large-scale, conventional product development involving large numbers of people and multiple market segments. In such cases, there are fairly distinct strategic,

operational, and tactical domains, and most endeavours will find their activities focused in one context or another. However, in other cases, the contexts of product development may compress so that there is significant overlap, as shown in figure 2.

Figure 2. The Contexts of Product Development, Compressed [TBD].

Initiative and Response

All actions in produce development, regardless of the context, are based upon either taking the initiative or reacting in response to events. By taking the initiative, we dictate the terms of the action and force events to meet us on our terms. The initiative allows us to pursue some positive aim even if only to preempt events. It is through the initiative that we seek to impose our organising intent on entropy. The initiative is clearly the preferred form of action because only through the initiative can we ultimately impose our will on events. If we cannot take the initiative, we are compelled to respond to events. The response generally has a negative aim, that of negating — blocking or counterattacking — the effects of entropy. Actions in product development more or less reflect the constant imperative to seize and maintain the initiative.

Styles of Product Development

Styles in produce development can be described by their place on a spectrum of attrition and manoeuvre. Product development by attrition pursues victory through the cumulative elimination of unknowns by application of massive resources. It is a direct

approach to the conduct of product development that sees product development as a straightforward test of strength and a matter principally of resources applied. The work to be done is seen as a collection of targets to be engaged and overcome systematically. The logical conclusion of attritional product development is the eventual surmounting of all obstacles and unknowns, although the expectation is that product may be launched before this is completely achieved. The focus is on the efficient application of staff and other resources, leading to a highly proceduralised approach to product development. Technical proficiency—especially in the use of tools and standing procedures — matters more than cunning or creativity.

Attritional product development may recognise manoeuvre as an important component but sees its purpose as merely to allow us to bring our resources to bear more efficiently. The attritionist tends to gauge progress in numerical terms: hours worked, utilisation, function point or story point counts, and test coverages. Results are generally expected to be proportionate to efforts; greater expenditures net greater results — that is, greater attrition. The desire for progress tends to lead toward centralised control, just as the emphasis on efficiency tends to lead to an inward focus on procedures and techniques. Success depends on an overall superiority in attritional capacity — that is, the ability to inflict and absorb attrition. The greatest necessity for success is a high burn rate of resources — both figuratively and literally. At the company-wide level, product development becomes as much an industrial as an organisational problem. Historically, companies that perceived they were financially and

technologically superior have often adopted product development by attrition.

Purely attritional product development does not exist in practice, but examples of product development with a high attrition content are plentiful, especially in the US and other militaries; in finance — banking, insurance and so on; and in local and national government projects, such as the UK's NHSpfIT, regional fire control project, and ID Cards scheme.

On the opposite end of the spectrum is product development by manoeuvre which stems from a desire to circumvent a problem and attack it from a position of advantage rather than meet it straight on. Rather than pursuing the cumulative surmounting of every unknown and likely feature in the prospective product space, the goal is to deliver maximum "value" in a minimum time frame — to align systematically to what the customers and other parties are most willing to pay for. Various elements of the initial pain remain untouched but fail to command much attention. Rather than being viewed as desirable targets, areas of complexity and likely high cost are generally avoided. Instead of attacking these targets, the goal is the application of our strength against selected market and customer "sweet-spots" in order to maximise advantage. This tack requires the ability to identify and exploit such sweet-spots. Success depends not so much on the efficient performance of procedures and techniques, but on understanding the specific characteristics of the market or customer in question, and the things valued most highly. Manoeuvre relies on speed and surprise for without either we cannot concentrate our strength in line with the fleeting

demands of the market. Tempo is itself a weapon — often the most important. Success by manoeuvre — unlike attrition — is often disproportionate to the effort made. However, for exactly the same reasons, manoeuvre incompetently applied carries with it a greater chance for catastrophic failure. With attrition, potential losses tend to be proportionate to risks incurred.

Skills, know-how and initiative are essential elements of product development by manoeuvre.

Like attritional product development, manoeuvre product development does not exist in its theoretically pure form. Examples of product development with a high enough manoeuvre content that they can be considered manoeuvre product development include the original Thompson, Ritchie and Kernighan UNIX; Linus Torvald's Linux; and Twitter.

All product development involves both manoeuvre and attrition in some mix. The predominant style depends on a variety of factors, not least of which are our own capabilities and the nature of the market opportunities. The Product Development doctrine detailed in this publication is based principally on product development by manoeuvre, as we will see in the fourth chapter, "The Conduct of Product Development."

Development Power

Development power is the total creative force we can bring to bear on an endeavour at a given time. Some factors in development power are quite tangible and easily measured — such as superior numbers, which Clausewitz called "the most common element in victory." Some may be less easily measured

such as the effects of manoeuvre, tempo, or surprise; the advantages conferred by market incumbency or special relationships; the relative strengths of the offence and defence; or the relative merits of approaching the market head-on vs. obliquely. Some may be wholly intangible such as morale, esprit, perseverance, or the effects of leadership and fellowship.

It is not our intent to try to list or categorise all the various components of development power, to index their relative values, or to describe their combinations and variations; each combination is unique and temporary. Nor is it even desirable to be able to do so, since this would lead us to a formulaic approach to product development. Our intent is merely to make the point that development power is the situationally dependent and unique product of a variety of intellectual, moral, emotional and social factors.

Speed and Focus

Of all the consistent patterns we can discern in product development, there are two concepts of universal significance in generating development power: speed and focus. Speed is rapidity of action. It applies to both time and space. Speed over time is tempo — the consistent ability to operate quickly. Speed over distance, or space, is the ability to move rapidly. Both forms are genuine sources of development power. In other words, speed is a tangible asset. In product development, it is relative speed — relative to the speed of entropy — that matters, rather than absolute speed. Superior speed allows us to seize the initiative and dictate the terms of action, forcing events to react to us. Speed provides security. It is a prerequisite for manoeuvre

and for morale. Moreover, speed is necessary in order to concentrate attention and development power at the decisive time and place.

Since it is relative speed that matters, it follows that we take all measures to improve our own speed while reducing the rate of entropy. However, experience shows that we cannot sustain a high rate of speed indefinitely. As a result, a pattern develops: fast, slow, fast again. A competitive rhythm develops in action with us trying to generate speed when it is advantageous.

Focus is the convergence of effects in time and space on some objective. It is the generation of superior development power at a particular time and place. Focus may achieve decisive local superiority for even a small team or group. The willingness to focus at the decisive place and time necessitates strict economy and the acceptance of risk elsewhere and at other times. To devote means to unnecessary efforts or excessive means to necessary but secondary efforts violates the principle of focus and is counterproductive to the true objective. Focus applies not only to the conduct of product development but also to the *preparation* for product development.

Since product development is fluid and opportunities are fleeting, focus applies to time as well as to space. We must focus effects not only at the decisive point but also at the decisive moment.

We achieve focus through cooperation toward the accomplishment of the common purpose. This applies to all

elements of the group or team, and involves the coordination of many different specialisms.

The combination of speed and focus adds "punch" or "shock effect" to our actions. It follows that we always try to strike with the greatest possible combination of speed and focus.

Surprise and Boldness

Two additional concepts are particularly useful in generating development power: surprise and boldness.

By surprise we mean a state of increased morale resulting from an unexpected event that enhances our ability to act. We achieve surprise by completing a mission or sub-mission at a time or place or in a manner not immediately expected by the folks involved. It is not essential that we take ourselves unawares, but only that awareness comes late enough to provide a welcome boost. Surprise is a genuine source of development power in its own right because of its psychological effect. Surprise can decisively affect the outcome of actions far beyond the intellectual means at hand.

While the element of surprise is often of decisive importance, we realise that it is difficult to achieve. Its advantages are only temporary and must be quickly exploited. Friction, a dominant attribute of product development, is the constant enemy of surprise. We also recognise that while surprise is always desirable, the ability to achieve it does not depend solely on our own efforts. Surprise is not what we do; it is our reaction to what

we do. Therefore, while surprise can be useful, it is risky to depend on it alone for the margin of victory.

Boldness is a source of development power in much the same way that surprise is. Boldness is the characteristic of unhesitatingly exploiting the natural uncertainties of product development to pursue major results rather than marginal ones. According to Clausewitz, boldness "must be granted a certain power over and above successful calculations involving space, time, and magnitude of resources, for wherever it is superior, it will take advantage of its opponent's weakness. In other words, it is a genuinely creative force." Boldness is superior to timidity in every instance although boldness does not always equate to immediate progressive action. A nervy, calculating patience that allows events to unfold before we act can also be a form of boldness. Boldness is based on strong situational awareness: We weigh the situation, then act. In other words, boldness must be tempered with intuition lest it border on recklessness.

There is a close connection between surprise and boldness. The willingness to accept risks often necessary to achieve surprise reflects boldness. Likewise, boldness contributes to achieving surprise. After we weigh the situation, to take half measures diminishes the effects of surprise.

Centres of Gravity and Critical Vulnerabilities

It is not enough simply to generate superior development power. We can easily conceive of superior development power dissipated over several unrelated efforts or concentrated on some inconsequential object. To succeed, we focus

development power toward a decisive aim. There are two related concepts that help us to think about this: centres of gravity and critical vulnerabilities.

Each endeavour is not a unitary undertaking, but a complex system consisting of numerous intellectual, moral, and emotional components as well as the relationships among them. The combination of these factors determines each endeavour's unique character. Some of these factors are more important than others. Some may contribute only marginally to the challenges of the endeavour, and their loss would not cause significant damage. Other of these factor may be fundamental sources of capability.

We ask ourselves: Which factors are critical to the endeavour? Which make it challenging? Which, if eliminated, will bend events most quickly to our will? These are centres of gravity. Depending on the situation, centres of gravity may be intangible characteristics such as resolve or morale. They may be capabilities such as technologies, tools or experienced people. They may be localities such as a key algorithm or architectural decision that anchors an entire solution. They may be the relationship between two or more components of the system such as the cooperation between two teams or people, the relations in an supplier or client partnership, or the junction of two business units. In short, centres of gravity are any important sources of strength. If they are helpful centres of gravity, we want to protect them, and if they are unhelpful centres of gravity, we want to take them away.

We want to tackle the tough problems, but we do not want to attack directly into that strength. We obviously stand a better chance of success by concentrating our strength against some relatively high-value sweet-spot. So we also ask ourselves: Where is the highest value-add? The biggest bang for our buck? In product development terms, this means that we generally avoid areas of complexity, where costs and risks will be high, and seek out areas of relative simplicity, where we can create demonstrable and compelling value and where we can also evoke the greatest positive emotional impact. We might also best choose to strike at a moment in time when the sweet-spot is at its sweetest.

Of all the various sweet-spots we might choose to exploit, some are more critical than others. Some may contribute significantly to a blockbuster product while others may lead only to minimal gains. Therefore, we focus our efforts against a *critical* sweet-spot — a sweet-spot that, if exploited, will provide the most significant returns in both the short and long term.

We try to understand the endeavour in terms of a relatively few centres of gravity or critical vulnerabilities because this allows us to focus our own efforts. The more we can narrow it down, the more easily we can focus. However, we recognise that most endeavours will not have a single centre of gravity on which everything else depends, or if they do, that centre of gravity may be high in complexity or otherwise costly to tackle. It will often be necessary to attack several lesser centres of gravity or critical vulnerabilities simultaneously or in sequence to have the desired effect.

Centre of gravity and critical vulnerability are complementary concepts. The former looks at the problem of how to approach endeavours from the perspective of seeking a source of strength, the latter from the perspective of seeking weakness. A critical vulnerability is a pathway to attacking a centre of gravity. Both have the same underlying purpose: to target our actions in such a way as to have the greatest positive effect on the endeavour.

Creating and Exploiting Opportunity

This discussion leads us to a corollary thought: the importance of creating and exploiting opportunity. In all cases, our organising intent must be prepared to react to the unexpected and to exploit opportunities created by conditions which develop from any particular action. When identification of critical vulnerabilities is particularly difficult, teams may have no choice but to exploit any and all vulnerabilities until action uncovers a decisive opportunity. As organising intent and entropy interact, they create various fleeting opportunities. Such opportunities are often born of the fog and friction that is natural in product development. They may be the result of our own actions, or more or less random chance. By exploiting opportunities, we create in increasing numbers more opportunities for exploitation. It is often the ability and the willingness to ruthlessly exploit these opportunities that generate decisive results. The ability to take advantage of opportunity is a function of speed, flexibility, boldness, and initiative.

Conclusion

The theory of product development we have described here provides the foundation for the discussion of the *conduct* of product development in the final chapter. All acts of product development are business strategy acts, and so the conduct of product development must be made to support the aims of business strategy. Product development takes place in several contexts simultaneously, from organisational purpose, through the strategic direction of the overall product development effort, to the tactical application of development power in action. In the outermost contexts, product development involves the use of all the elements of business strategy power, of which produce development power is just one. Action in product development, in all contexts, is the result of the interplay between intent and entropy, with the object being to see our intent triumph over entropy. All product development is based on concepts such as speed, focus, surprise, and boldness. Success in product development depends on the ability to direct our efforts against critical vulnerabilities or centres of gravity and to recognise and exploit fleeting opportunities. As we will discuss, the *Product Aikido* doctrine we derive from our theory is one based on manoeuvre.

Chapter 3

Preparing for Product Development

"The essential thing is action. Action has three stages: the decision born of thought, the order or preparation for execution, and the execution itself. All three stages are governed by the will. The will is rooted in character, and for the man of action character is of more critical importance than intellect. Intellect without will is worthless, will without intellect is dangerous."

—Hans von Seeckt

"It is not enough that the troops be skilled infantry men or artillery men of high morale: they must be skilled water men and jungle men who know it can be done—Marines with Marine training."

—Earl H. Ellis

*D*uring times of relative slack, the most important task of any product development group is to *prepare* for action. Through its preparedness, a product development group provides confidence in the company's ability to respond to events. As the company's value generation hub, the Product Development group maintains itself ready for immediate employment in any situation and in any type of action. All non-development activities focus on achieving development readiness. This implies a high level of know-how, flexibility in organisation and equipment, professional competence, and a *cohesive doctrine*.

Capability Planning

Capability planning is planning that is associated with the creation and maintenance of product development capabilities. Planning plays as important a role in the *preparation* for product development as it does in the *conduct* of product development. The key to any plan is a clearly defined objective, in this case a required level of readiness, and a "fit" to likely demands placed upon the product development group.

Capability planning is concept-based. That is, all capability planning derives from a common set of concepts which describe how Product Development people, etc. operate and perform certain key functions. These concepts describe the types of missions Product Development teams and people are likely to be asked to perform, and how they might accomplish those missions. These concepts provide the basis for identifying

required capabilities and implementing coordinated programmes to develop those capabilities.

Based on this common set of concepts, capability planning integrates all the efforts of a Product Development group, including learning, education, doctrine, organisation, group dynamics, and knowledge- and tool acquisition. Unity of effort is as important during the preparation for action as it is during action. This systematic process of identifying the objective and planning a course to obtain it applies to all areas and levels of preparations.

Organisation

The overall group is organised to provide rapidly deployable teams and people capable of conducting product development endeavours in any segment of the organisation's markets. This means that in addition to maintaining its unique domain expertise, the overall group must maintain the capability to deploy in whatever circumstance are dictated by the situation.

The active product teams must be capable of responding immediately to most types of demand. Some sustained missions will require augmentation from e.g. third party suppliers.

For both operations and learning, the Product Development group will be formed into teams. Teams are mission-focussed units consisting of folks with a wide range of specialisms, including support and command elements. They have no standard structure, but rather are constituted as appropriate for the specific situation. The team provides a mission-ready, multi-

skilled group that can be tailored to the situation. As the situation changes, it may of course be necessary to restructure the team.

Operating teams and groups are organised for active product development and then adapted for downtime where necessary, rather than vice versa. Tables of organisation will reflect the two central requirements of deployability and the ability to task-organise according to specific situations.

Doctrine

Doctrine is a coherent packaging of the fundamental beliefs of a Product Development group, on the subject of product development—from its nature and theory to its preparation and conduct. Doctrine establishes a particular way of thinking about product development and a way of acting. It also provides a philosophy for coordinating development teams in action, a mandate for professionalism, and a common language. In short, it establishes the way we practice our profession. In this manner, doctrine provides the basis for harmonious actions and mutual understanding.

A doctrine is made official by the Head of Product Development and as established in this publication. This doctrine does not consist of procedures to be applied in specific situations so much as it sets forth general guidance that requires judgment in application. Therefore, while *authoritative*, doctrine is not *prescriptive*.

Professionalism

This Product Development doctrine asks professional competence from its people. As product development

professionals charged with the future of the Company, product development people are true experts in the conduct of product development. They are individuals both of action and of intellect, skilled at "getting things done" while at the same time conversant in the product development art. Resolute and self-reliant in their mutual decisions, they are also energetic and insistent in execution.

The product development profession is a *thinking* profession. Every person is asked to be a student of the art and science of product development. All are asked to acquire a solid foundation in product development theory and a knowledge of product development history and the timeless lessons to be gained from it.

Folks have a strong sense of the great responsibility of their calling; the most significant resources they will expend in product development are the working hours, intellect and potential of their fellow human beings.

The style of product development outline here asks for intelligent people with a penchant for boldness and initiative, from long-serving experts to the newest recruits. Boldness is an essential moral trait for it generates development power beyond the basic intellectual means at hand. Initiative, the willingness to act on one's own judgment, is a prerequisite for boldness. These traits carried to excess can lead to rashness, but we realise that errors stemming from over-boldness are a necessary part of learning. We deal with such errors leniently; there must be no "right first time" mentality. Abolishing "right first time" means that we do not stifle boldness or initiative through the threat or fear of

punishment. It does not mean that folks do not counsel their peers on mistakes; nonviolent feedback is an important element in learning. Nor does abolishing "right first time" give folks free license to act stupidly or recklessly.

Not only do we encourage boldness and initiative, we continue to encourage both traits in spite of mistakes. On the other hand, we deal immediately with errors of inaction or timidity. We will not accept lack of direction (orders) as justification for inaction; we ask each person to take initiative as the situation demands. We do not allow to go unchallenged or unremarked the avoidance of responsibility or necessary risk.

Consequently, trust is an essential trait — trust in the abilities, competence and support of our fellows. Trust is earned, and actions which undermine trust meet with immediate dialogue and enquiry. Trust is a product of confidence, familiarity and comfort with — inevitable — interpersonal conflict. Confidence among fellows results from demonstrated professional skill. Familiarity results from shared experience and a common professional philosophy.

Relations among all product development people are based on honesty and frankness, regardless of disparity in e.g. skills, experience, pay grades or position. Until a unit has reached and stated a decision, we ask that everyone involved consider it their duty to provide honest, professional opinions even though these may be in disagreement with the opinions of the majority. However, once the decision has been reached, we ask that everyone then support it as if it were their own. We ask that more experienced folks encourage candour and positive

interpersonal conflict amongst their fellows, and not hide behind their laurels. Ready compliance for the purpose of personal advancement — the behaviour of "yes-men" — does not meet our needs.

Learning

The purpose of all learning is to develop produce development folks that can succeed in action. *Mindset* is the key to product development effectiveness and learning an essential element of developing the right mindset. Therefore learning is the main effort in times of relative slack. However, learning should not stop with the commencement of action; learning must continue during product development action — to adapt to the lessons of each moment.

All folks new to the product development group undergo similar entry-level familiarisation which is, in effect, a socialisation process. This provides everyone with a common experience, a proud heritage, a set of values, and a common bond of fellowship. It is the essential first step in the making of a Product Development professional.

Basic individual skills are another essential element of product development effectiveness and receive heavy emphasis. Everyone, regardless of occupational specialty, is asked to study basic product development doctrine and skills. At the same time, group skills are extremely important. They are not simply an accumulation of individual skills; adequacy in individual skills does not automatically mean group skills — such as teamwork, collaboration and fellowship — are satisfactory.

The Product Development group allots its people sufficient time and freedom to accomplish the learning necessary for them to achieve proficiency in their various specialisms. The Company ensures that higher-level demands — such as "client work" — do not deny people adequate opportunities for both individual and group learning.

In order to develop initiative, opportunities for learning — as for action — are decentralised. We influence learning by understanding the needs of our people, communicating the needs of the Company, and establishing a "main effort" for learning. As a solid rule, we refrain from dictating how people will accomplish this learning.

Formal learning opportunities reflect the practical, challenging, and progressive needs of the product development group, beginning with individual and small-team skills and culminating in a full multi-specialism, multi-team product development group. In general, the organisation for active product development is also the organisation for formal learning. That is, teams learn in the company of the full complement of assigned, reinforcing, and supporting specialisms they work with in action.

Formal learning of the workshop variety approximates the conditions of real product development as much as possible; that is, it introduces friction in the form of uncertainty, stress, disorder, and entropy.

This last characteristic is most important; only in chaotic, free-play exercises can we practice the art of product development. Dictated or "canned" scenarios eliminate the elements of

randomness and chance that is the *essence* of product development.

Reflection is an important part of formal learning because introspection and retrospection, even after success, is essential to improvement. Its purpose is to draw out the lessons of formal learning. As a result, we conduct reflection sessions as an integral part of each formal learning session, before memory of the events has faded. Reflection is held in an atmosphere of open and frank dialogue in which everyone is invited to contribute. We learn as much from mistakes as from things done well, so we must be willing to admit mistakes and discuss them. Of course, folks' willingness to admit mistakes depends directly on our organisation's willingness to embrace them. Because we recognise that no two situations in product development are ever the same, our reflections should focus not so much on the actions we took as on why we took those actions and why they brought the results they did.

Professional Product Development Education

Professional product development education is designed to develop creative, thinking people. From the initial stages of formal learning, we view each person's career as a continuous, progressive process of development. At each stage, we ask that people be preparing for the subsequent stage.

The early stages of a product development specialist's career are, in effect, an apprenticeship. While receiving a foundation in theory and concepts that will serve them throughout their product development careers, people focus on understanding the needs of a particular specialism, and on learning and

applying the relevant tools and techniques. As they progress, folks have the opportunity to master their respective specialisms, and to understand the interrelationship of the techniques and theories within each such specialism. Each person at this stage has the opportunity to become a multi-skilled specialist in the tactical aspects of product development.

As each person continues to develop, mastery encompasses a broader range of subjects and extends to the whole-product level of product development. At this stage, people have the opportunity to grow beyond expertise in simple in tactics and techniques and into an understanding of the "whole product" lifecycle. Full mastery of product development entails being fully capable of articulating, applying, and integrating the full range of product development capabilities in a joint and multinational environment. Folks achieving this are expert in the art of product development in all contexts.

The responsibility for implementing professional product development education in the Company's Product Development group is four-tiered: It resides not only with the Company's education services, but also with the senior management, the team and the individual.

The education establishment consists of those schools — administered by the Company's Product Development group itself, or by outside agencies — established to provide formal education in the art and science of product development. All professional schools focus on developing a talent for product development *judgment*, not on imparting knowledge through rote learning. Study conducted by the education establishment

can neither provide complete career preparation for an individual nor reach all individuals. Rather, it builds upon the base provided by the company, and by team and individual study.

All units have the opportunity to consider the professional development of their people a principal responsibility. Effective units foster a personal mentor-mentee relationship between all their members. Units have the opportunity to conduct continuing professional education programs for their people, that includes developing product development judgment and decision-making. Useful tools for general professional development include supervised reading programs, etc. Effective product development units see the development of their people as a direct reflection on everyone involved, and on their own competence.

Finally, everyone has an individual opportunity to study the profession of product development. Anyone lacking either interest in or knowledge of the history and theory of product development — the intellectual content of the product development profession — is a product development professional in appearance only. Self-directed study in the art and science of product development is at least equal in importance to maintaining specific skills and we ask that it receives at least equal time.

Group Dynamics

Since product development is at base a human enterprise, effective group dynamics are important to success. This is especially true for a doctrine of *Product Aikido* which places a premium on individual creativity and action. We recognise that

people are not interchangeable cogs in some behemoth machine, and we invite teams and individuals to sort themselves out, based on specific abilities, temperaments and general get-alongedness.

Our approach to group dynamics seeks to achieve personnel instability within teams as a means of fostering cohesion, teamwork, and implicit understanding at the level of the wider endeavour. We recognise that turnover and churn will add to the instability, but the greater self-constituting is a team, the better it will absorb change and incorporate replacements.

Finally, recognition policy and e.g. peer signification events reward the willingness to articulate needs, meet the express needs of others, learn continuously, and exercise initiative.

Equipping

Equipment should be easy to operate and maintain, reliable, and interoperable with other equipment. It should require minimal specialised operator training. Further, we ask that equipment be designed so that its use is consistent with established doctrine and tactics. A primary consideration is the reduction or elimination of administrative burden. Another key consideration is employability and supportability in new markets and problem domains with limited supporting infrastructure.

In order to minimise research and development costs and fielding time, the Company's Product Development group will exploit existing capabilities — "off-the-shelf" technology — to the greatest extent possible.

Acquisition is a complementary, two-way process based on established operating and functional concepts. Especially for the long term, the process identifies product development requirements, and develop equipment to satisfy these requirements. Where possible, we base these requirements on an analysis of likely endeavours and we develop equipment and tools to support such kinds of endeavour.

Equipment is useful only if it increases product development effectiveness. Any piece of equipment requires support: operator training, maintenance, power sources, and often, transport. The anticipated enhancement of capabilities must justify these support requirements and the employment of the equipment must take these requirements into account.

There are two dangers with respect to equipment: the over-reliance on technology and the failure to make the most of technological capabilities. Technology can enhance the ways and means of product development by improving our ability to do it, but technology cannot and should not attempt to eliminate humanity from the process of product development. Better equipment is not the cure for all ills; doctrinal and tactical solutions to deficiencies must also be sought. Any advantages gained by technological advancement are only temporary. Additionally, we must not become so dependent on tools that we can no longer function effectively when the tools becomes inappropriate. Finally, we must exercise discipline in the use of technology. Advanced information technology especially can tempt us to try to maintain precise, positive control over teams

and people, which is incompatible with the Product Development group's philosophy of coordination.

Conclusion

There are two basic product development functions: product development, and preparing for product development. Any activities that do not contribute to the conduct of a current product development endeavour are justifiable only if they contribute to preparedness for a possible future one. Clearly, we cannot afford to separate conduct and preparation. They must be intimately related because failure in preparation leads to disaster in the execution.

Chapter 4

The Conduct of Product Development

"Now an army may be likened to water, for just as flowing water avoids the heights and hastens to the lowlands, so an army avoids strength and strikes weakness."

—Sun Tzu

"Speed is the essence of war. Take advantage of the enemy's unpreparedness; travel by unexpected routes and strike him where he has taken no precautions."

—Sun Tzu

"There are only four types of officer. First, there are the lazy, stupid ones. Leave them alone, they do no harm…Second, there are the hard-working, intelligent ones. They make excellent staff officers, ensuring that every detail is properly considered. Third, there are the hard-working, stupid ones. These people are a menace and must be fired at once. They create irrelevant work for everybody. Finally, there are the intelligent, lazy ones. They are suited for the highest office"

—General Erich Von Manstein

"We will encourage you to develop the three great virtues of a programmer: laziness, impatience, and hubris."

—Larry Wall

*T*he common purpose (reason for existence) of our Company is to *[insert purpose here]*. How the Company proposes to fulfil this purpose is the product of our understanding of the nature and the theory of product development and must be the guiding force behind our preparation for product development.

The Challenge

The challenge is to develop a concept of product development consistent with our understanding of the nature and theory of product development and the realities of the modern business climate. What exactly does this require? It requires a concept of product development that will help us function effectively in an uncertain, chaotic, and fluid environment — in fact, one with which we can exploit these conditions to our advantage. It requires a concept with which we can sense and use the time-competitive rhythm of product development to generate and exploit superior tempo. It requires a concept that is consistently effective across the full spectrum of product development because we cannot attempt to change our basic doctrine from situation to situation and expect to be proficient. It requires a concept with which we can recognise and exploit the fleeting opportunities that naturally occur in technology markets. It requires a concept that takes into account the moral and emotional as well as the intellectual forces of product development — because we have already concluded that these form the greater part of product development. It requires a concept with which we can succeed in highly challenging work — because we cannot presume to have unlimited financial and

other resources, either on individual endeavours or across our whole portfolio of product development. Especially in exploiting transient commercial opportunities, in which executive support for product development efforts may be tepid and short-lived, it requires a concept with which we can win quickly in delivering significant value with minimal impact on the morale and private lives of our people.

Product Aikido

The Product Development group's concept for winning under these conditions is a product development doctrine based on rapid, flexible, and opportunistic manoeuvre. In order to fully appreciate what we mean by manoeuvre, we need to clarify the term. The traditional understanding of manoeuvre is a spatial one; that is, we manoeuvre in space to gain a positional advantage. However, in order to maximise the usefulness of manoeuvre, we must consider manoeuvre in other dimensions as well. The essence of manoeuvre is taking action to generate and exploit some kind of advantage as a means of accomplishing our objectives as effectively as possible. That advantage may be psychological, technological, or temporal as well as spatial. Especially important is manoeuvre in time — we generate a operating tempo faster than entropy can disrupt us, to gain a temporal advantage. It is through manoeuvre in *all dimensions* that a relatively small product development team can achieve decisive results at the necessary time and place.

Product Aikido is a product development philosophy that seeks to overcome the effects of entropy and friction through a variety

of rapid, focused, and coordinated actions which create a situation favouring our success.

Rather than beating down a problem with massive — and costly — resources, Product Aikido attempts to bypass such obstacles in order to succeed quickly and effectively. The aim is to find the sweet-spot of maximal value and minimal cost, rather than to solve the problem through the incremental attrition of each of the problem's components, which is generally more costly and time-consuming. Ideally, the components of the problem that remain after manoeuvre are irrelevant because we have disrupted their ability to cause pain. Even if an outmanoeuvred problem continues to cause some pain in isolated pockets, we can pick off these outliers with relative ease because we have acquired the momentum to tackle them incrementally once the main features of the product are generating revenues.

This is not to imply that skills and experience are unimportant. On the contrary, skills and experience are central to *Product Aikido*. Nor do we mean to imply that we will pass up the opportunity to delver a whole product. We will concentrate skills and experience at decisive points to deliver functionality whenever the opportunity presents itself and when it fits our larger purposes. Engaged in product development, we can rarely go wrong if we enthusiastically pursue the delivery of value. In fact, *Product Aikido* often involves extremely high rates of functional delivery where we have focused development power against critical — highly valued — features. Nonetheless, the aim of such delivery is not merely to reduce incrementally the features remaining to be delivered. Rather, it is to continually

delight the stakeholders with repeated delivery of highly-valued features.

Inherent in *Product Aikido* is the need for speed to seize the initiative, maintain momentum and outrun the effects of entropy, thereby reducing friction. We seek to establish a pace that sees the product delivered — feature by feature — before entropy can reduce the impact and value of our efforts.

Also inherent is the need to focus our efforts in order to maximise effect. In product development this includes non-functional and emotional aspects of value, again not so much as a source of additional satisfaction, but as a source of emotional awe. We concentrate strength against the sweet-spot of the market or market segment, delivering quickly and boldly where, when, and in ways in which will cause the greatest positive impression of us as a highly-effective product and services supplier. Once gained or found, the sweet-spot must be exploited relentlessly and unhesitatingly. We must be ruthlessly opportunistic, actively seeking out signs of the sweet-spots against which we will direct all available development power. When the decisive opportunity arrives, we must exploit it fully and aggressively, committing every ounce of development power we can muster and pushing ourselves to the limits of sustainable efforts.

An important weapon in our arsenal is surprise, the value of which we have already recognised. By studying our situation, we will attempt to appreciate the perceptions of our market. Through emotioneering we will try to shape the market's expectations. Then we will exploit those expectations by over-

delivering, either on price, or quality or sheer awesomeness of the product. In order to appear dynamic, innovative and cutting-edge, we must avoid set rules and patterns, which inhibit imagination and initiative. In order to appear flexible, adaptable and customer-intimate, we should operate on axes that offer numerous courses of action, keeping our options open and our ability to exceed customer expectations high.

Besides traits such as endurance and courage that all product development demands, *Product Aikido* puts a premium on certain particular human skills and traits. It requires the temperament to cope with uncertainty. It requires flexibility of mind to deal with fluid and disorderly situations. It requires a certain independence of mind, a willingness to act with initiative and boldness, an opportunistic mindset that takes full advantage of every opportunity, and the moral courage to accept responsibility for this type of behaviour. It is important that this last set of traits be guided by self-discipline and loyalty to the shared purpose of the company — and to delighting the customer. Finally, *Product Aikido* requires the ability to think outside our own immediate context and to act within our immediate context in a way that is in consonance with the requirements of the broader picture.

Orienting on Value

Orienting on value is fundamental to *Product Aikido*. *Product Aikido* goes to the heart of the challenge of recognising and then delivering customer value. Customer value is whatever engages, delights and the customers — and other stakeholders — of a specific product.

We try to understand, quantitatively, the unique characteristics that define "covalent" value, so that we can find the sweet spot in the market, deliver to it, and, if necessary, follow up with delivery of features of more marginal positive value. We should seek to identify and attack critical vulnerabilities and centres of gravity. This means focusing outward on the particular characteristics of the sweet spots and stakeholder needs rather than inward on the mechanical execution of predetermined procedures, or on our established view of the way things are done.

[Example here.]

We will try to "get inside" the customers business and see the value as customers — and other stakeholders — see things so that we can set them up for success. It is essential that we understand the customer on his own terms. We do not assume that every customer — or other stakeholder — thinks as we do, works as we do, or has the same concerns, objectives or doctrine.

Philosophy of Coordination

It is essential that our philosophy of coordination support the way we go about developing products. First and foremost, we must ensure we generate the tempo of operations we desire — and to best cope with the uncertainty, disorder, and fluidity of action. To this end, coordination and prioritisation of effort *must* be decentralised. That is, teams in the thick of it must make decisions on their own initiative, based on their understanding of the mission objectives (organising intent), rather than passing information up some extended chain of command and waiting

for the decision to be passed back down at some later date. Further, a competent team who is at the point of decision will naturally better appreciate the true situation than a coordinator or executive some distance removed. *Individual initiative and responsibility are of paramount importance*. The principal means by which we implement decentralised coordination and prioritisation is through the use of mission-type tactics — also known as *auftragstaktik*.

Second, since we have concluded that product development is a human enterprise and no amount of technology can reduce the importance of the human dimension, our philosophy of coordination and prioritisation must be based on human characteristics rather than on tools, methods or procedures. Communications equipment and coordination and prioritisation procedures can enhance our ability to coordinate and prioritise, but they must not be used to lessen the human element of coordination and prioritisation. Our philosophy must not only accommodate but must exploit human traits such as boldness, initiative, personality, strength of will, and imagination.

Our philosophy of coordination and prioritisation must also exploit the human ability to communicate implicitly. We believe that implicit communication — to communicate through mutual understanding, using a minimum of key, well-understood phrases or even anticipating each other's thoughts — is a faster, more effective way to communicate than through the use of detailed, explicit instructions, charts, plans, and such like. We develop this ability through familiarity and trust, which are

founded on a shared philosophy, shared experience, and above all a shared mindset.

This concept has several practical implications. First, we establish long-term working relationships to develop the necessary familiarity and trust. Second, we ask that key people — "actuals" — talk directly to one another when possible, rather than through communications channels, intermediaries or messengers. Third, we communicate orally when possible, because we communicate also in *how* we talk — our inflections and tone of voice. Fourth, we communicate in person when possible because we communicate also through our gestures, bearing and general body-language.

Finally, we recognise the importance of *fellowship*. Only by their common presence — by demonstrating the willingness to share danger and privation — can people fully gain the trust and confidence of their fellows. We must remember that coordination and prioritisation at the gemba should not equate to over-supervision or coercion of others. At the same time, it is important to balance the need for a presence at the gemba with the need for keeping apprised of the overall situation, which is often best done with the aid of visualisations, information channels and information radiators. Coordination and prioritisation must not become so focused on one aspect of the situation that we lose overall situational awareness.

As part of our philosophy of coordination and prioritisation, we recognise that product development is inherently disorderly, uncertain, dynamic, and dominated by friction. Moreover, *Product Aikido*, with its emphasis on speed and initiative, is by

its nature a particularly disorderly style of product development. The conditions ripe for exploitation are normally also very disorderly. To try to gain certainty as a basis for action, maintain positive control of events at all times, or dictate events to fit our plans is to deny the nature of product development. We are therefore prepared to cope — even better, to thrive — in an environment of chaos, uncertainty, constant change, and friction. If we can come to terms with those conditions and thereby limit their deleterious effects, we can use them to our commercial advantage.

In practical terms, this means that we do not strive for certainty before we act, for in so doing we will surrender the initiative to entropy, and pass up opportunities. We do not try to maintain firm control over people and events since this will necessarily slow our tempo and inhibit initiative. We do not attempt to impose precise order on the work since this leads to a formula-driven approach to product development. We are prepared to adapt to changing circumstances and exploit opportunities as they arise, rather than adhering insistently to predetermined plans that have outlived their usefulness.

There are several points worth remembering about our philosophy of coordination. First, while it is based on our product development style, this does not mean it applies only during active product development. We put it into practice during the preparation for product development as well. We cannot rightly expect our teams to exercise boldness and initiative in the field when they are accustomed to being over-supervised in training

and learning situations. Whether the mission is training, administration, or general conduct, this philosophy applies.

Next, our philosophy requires competent coordination and prioritisation at all levels. A centralised system theoretically needs only one competent person, the senior commander, who is the sole authority. A decentralised system requires the coordinators and prioritisers at all levels to demonstrate sound and timely judgment. *Initiative* becomes an essential condition of competence and effectiveness among our people.

Our philosophy also requires familiarity among fellows because only through a shared understanding and mutual trust can we develop the implicit communication necessary for unity of effort. Perhaps most important, our philosophy demands confidence among everyone who works together, whether near or far.

Shaping the Action

Since our goal is not merely the cumulative production of features, we have some larger picture of how we expect to achieve success. That is, before anything else, we conceive and articulate how we intend to win.

The first requirement is to establish what we want to accomplish, why, and how. Without a clearly identified concept and organising intent, the necessary unity of effort is inconceivable. We identify the market sweet-spots we believe will lead most directly to the appeal of our product and the accomplishment of our mission. Having done this, we can then begin to act so as to shape the endeavour or engagement to our advantage. Similarly, we try to see ourselves through our customer's eyes in order to

identify our own vulnerabilities that he may bemoan and to anticipate what he will try to do so that we can serve him better. Ideally, when the moment of truth arrives, the issue will have already been resolved. Through our influencing of the events leading up to the encounter, we have so shaped the conditions of product development that the result is a matter of course. We have shaped the action decisively to our advantage.

To influence the action to our advantage, we project our thoughts forward in time and space. We frequently do this through planning. This does not mean that we establish a detailed timetable of events. We have already concluded that product development is inherently disorderly, and we cannot expect to dictate its terms with any sort of precision. Rather, we attempt to shape the general conditions of product development. This shaping consists of actions that span the spectrum from direct development of product features in code, to psychological operations, from electronic information gathering to the stockpiling of critical knowledge and information for future operations. Shaping activities may render the sweet-spot more accessible, facilitate manoeuvre of our teams, and dictate the time and place for impressive delivery. Examples include shaping stakeholder expectations through emotioneering so that we can appear more awesome, attentive and proficient.

Through shaping, we gain the initiative, preserve momentum, and control the tempo of operations. We should also try to shape events in a way that allows us several options so that by the time the moment for decisive actions arrives, we have not restricted ourselves to only one course of action.

The further ahead we think, the less our actual influence can be. Therefore, the further ahead we consider, the less precision we should attempt to impose. Looking ahead thus becomes less a matter of direct influence and more a matter of laying the groundwork for possible future actions. As events approach and our ability to influence them grows, we have already developed an appreciation for the situation and how we want to shape it.

The wider our span of responsibility, the greater is our sphere of influence and the further ahead in time and space we must seek to shape the action. Those with wide responsibility in developing and pursuing business strategy look ahead weeks, months, or more, and their areas of influence and interest will encompass entire markets. Those with more limited responsibilities engaged in the work at hand are concerned with the coming hours, even minutes, and their immediate needs of the moment. Regardless of the sphere in which we operate, it is essential to have some vision of the result we want and how we intend to shape the action so as to achieve it.

Decision-making

Decision-making is essential to the conduct of product development since all actions are the result of decisions or of non-decisions. If we fail to make a decision out of lack of will, we have willingly surrendered the initiative to entropy. If we consciously postpone taking action for some reason, that is a decision. Thus, as a basis for action, any decision is generally better than no decision.

Since product development is a continual conflict between organising intent and entropy, we cannot make decisions in a

vacuum. We must make our decisions in light of potential events, recognising that while we are trying to impose our intent on the situation, entropy and friction may always frustrate us.

Time is a critical factor in effective decision-making — often the most important factor. A key part of effective decision-making is realising how much decision time is available and making the most of that time. In general, if we can accelerate the making and implementing of decisions consistently faster we can gain a tremendous, often decisive advantage. Decision-making in execution thus becomes a time-critical process, and timeliness of decisions becomes essential to generating tempo. Timely decisions demand rapid thinking with consideration limited to essential factors. In such situations, we spare no effort to accelerate our decision-making ability. That said, we also recognise those situations in which time is not a limiting factor — such as deliberate planning situations — and do not rush our decisions *unnecessarily*.

A product development decision is not merely a mathematical or formulaic computation. Decision-making requires both the situational awareness to recognise the essence of a given problem and the creative ability to devise a practical solution. These abilities are the products of experience, education, intelligence and intuition.

Decision-making may be an intuitive process based on experience. This will likely be the case close to the gemba and in fluid, uncertain situations. Alternatively, decision-making may be a more analytical process based on data, experimentation, and the comparing of various options.

This will more likely be the case for folks with wider responsibilities or in deliberate planning situations.

We base our decisions on awareness rather than on mechanical habit. That is, we act on a keen appreciation for the essential factors that make each situation unique instead of from conditioned response. We must have the moral courage to make tough decisions in the face of uncertainty — and to accept full responsibility for those decisions — when the natural inclination would be to postpone the decision pending more complete information. To delay action in an emergency because of incomplete information shows a lack of both moral courage and of intellect. We do not want to make rash decisions, but we must not squander opportunities while trying to gain more information.

Finally, since all decisions must be made in the face of uncertainty and since every situation is unique, there is no perfect solution to any product development problem. Therefore, we should not agonise over one. The essence of the problem is to select a promising course of action with an acceptable degree of risk and to do it more quickly than entropy can intervene. In this respect, "a good plan enthusiastically executed right now is better than a perfect plan executed next week."

Mission-type Tactics

One key way we put Product Aikido into practice is through the use of mission-type tactics. Mission-type tactics is just as the name implies: the tactics of launching a sub-mission without specifying how the mission must be accomplished. We leave the manner of accomplishing the mission to the team, thereby

allowing the freedom for the team to take whatever steps they deemed necessary based on the situation as they see it. Mission-type tactics relies on a team's exercise of initiative framed by proper guidance, information, understanding and — above all — context.

Mission-type tactics benefit us by freeing time to focus on higher-level concerns rather than the details of execution. Others get involved in the details of the execution only to the degree that is essential for coordination. Others intervene in a team's execution only by exception. It is this freedom for initiative that permits the high tempo of operations that we desire. Uninhibited by unnecessary restrictions from others, teams can adapt their actions to the changing situation. They inform everyone of what they are doing and have done — through information radiators and visualisations, for example — but they do not seek nor wait for permission.

Mission-type tactics serves as a contract between everyone involved in an endeavour. The endeavour as a whole agrees to meet teams' needs and specific requests necessary to help them accomplish their missions but without prescribing their actions. The endeavour as a whole — in practice, those acting as coordinators and prioritisers — provides the guidance that allows a team to exercise proper judgment and initiative. The team acts in conformity with the organising intent of the wider endeavour. Mission-type tactics only works well when everyone acts with "topsight" — a grasp of how their actions fit into the larger situation. In other words, to take full advantage of mission-type tactics, we ask that everyone always think outside their

immediate context in order to contribute to the accomplishment of the higher mission.

It is obvious that we cannot pursue decentralised initiative without some means of providing unity, a.k.a. coordination or focus, to the various efforts. To do so would be to dissipate our strength. We seek unity not through imposed control, but through harmonious initiative and lateral coordination within the shared context.

Organising Intent

We achieve this harmonious initiative in large part through the use of *organising intent*, a concept designed to help everyone understand the larger context of their actions. The purpose of providing intent is to allow everyone to exercise creativity and initiative — to depart from the original plan whenever the unforeseen occurs — in a way that is consistent with the common intent.

There are two parts to any mission: the artefacts to be delivered and the reason or intent behind them (most often, described in terms of "value"). The intent is thus a part of every endeavour. The artefacts imply the actions to be taken while the intent describes the purpose of the action. The artefacts denote what is to be delivered, often with implied times and locations; the intent explains *why*. Of the two, *the intent is predominant*. While a situation may change, making the specific artefacts irrelevant, the intent is more lasting and continues to guide our actions. Understanding the common intent allows us to exercise initiative in harmony with everyone else engaged in the same endeavour.

The intent for a team is established by their accepting or self-assigning themselves one or more deliverables (an artefact intended for delivery to e.g. a stakeholder). A deliverable normally provides intent as part of its description or story. A team that finds it has accepted responsibility for producing a deliverable lacking in clarity of intent will ask for one. Relevant teams will each develop a concept of operations — often in concert with other teams — which explains how each team will accomplish its part. Each team's concept of operations may define an intent for one or more supporting teams. This networked flow of intent provides consistency, continuity and coordination of each team's actions and establishes the context that is essential for the proper bottom-up exercise of initiative.

It is often possible to capture intent in a simple "…in order to…" phrase following the assigned artefact. To maintain our focus on the customer, we can often express intent in terms of the customer. [Example.]

Sometimes it may be necessary to provide amplifying guidance in addition to an "…in order to…" statement. In any event, a common — or shared — statement of intent is best when both brief and compelling. The more concise, the better. We ask that each team should be ever-conscious of other teams' intent so that it guides every decision. An intent that is involved or complicated will fail to accomplish this purpose.

A clear expression and understanding of intent is essential to unity of effort. The burden of understanding falls on everyone in equal measure. Folks with wider responsibilities make their intent perfectly clear but in a way that does not inhibit initiative. Folks

with narrow responsibilities have a clear understanding of the wider intent. Further, effective teams will invest effort in clearly understanding the intent of the endeavour as a whole, including its wider contexts.

Main Effort

Another important tool for providing unity is the concept of *main effort*. Of all the actions going on within our endeavour, we recognise *one* as the most critical to success at any given moment. The team or teams who have accepted responsibility for accomplishing this key mission are designated as the main effort — the focal point upon which converges the development power of the whole endeavour, and on occasion of the whole company. The main effort receives priority for support of any kind. All other teams in the endeavour clearly understand their roles in supporting the main effort in the accomplishment of its mission. Like the organising intent, the main effort becomes a harmonising force for team initiative. Faced with a decision, we ask ourselves: How can we best support the main effort?

We cannot take lightly the decision of which work we designate as the main effort. In effect, we have decided: This is how I will achieve a result; everything else is secondary. We carefully design the operation so that success by the main effort ensures the success of the entire endeavour. Since the main effort represents our primary bid for success, we must direct it at that object which will have the most significant effect, and which holds the best opportunity of success. The main effort involves a intellectual, moral and emotional commitment, although not an irretrievable or inviolable one. It forces us to concentrate decisive

development power just as it forces us to accept risk. Thus, we direct our main effort against a centre of gravity through a crucial gap or sweet-spot, exercising strict economy elsewhere.

Each endeavour establishes a main effort. As the situation changes, the endeavour may shift the main effort, redirecting the weight of development power in support of the team or teams that are now most critical to success. In general, when shifting the main effort, we seek to *exploit success* rather than recover from or turnaround failure.

Surfaces and Gaps

Put simply, surfaces are hard spots — where entropy is strong — and gaps are soft spots — where entropy is weak. We avoid areas of strong entropy and focus our efforts against areas of weak entropy with the object of creating the most value for the least cost, since pitting our strengths against points of weak entropy reduces friction and is more likely to yield decisive results. Whenever possible, we exploit existing gaps. Failing that, we create gaps.

An appreciation for surfaces and gaps requires a certain amount of intuition. What is a surface in one case may be a gap in another. [Example].

Due to the fluid nature of product development, gaps will rarely be permanent and will usually be fleeting. To exploit them demands flexibility and speed. We actively seek out gaps by continuous and enthusiastic reconnaissance. Once we locate them, we exploit them by redirecting our efforts rapidly. For example, if our main effort has struck a surface but another team

has located a gap, we designate the second team as the main effort and redirect our development power in support of it. In this manner, we "pull" development power through gaps, rather than "pushing" it through. Endeavours must rely on the initiative of teams and individuals to locate gaps and must have the flexibility to respond quickly to opportunities rather than blindly follow predetermined plans.

Generalising Specialists

In order to maximise development power, we use all the available resources to best advantage. To do so, we follow a doctrine of generalising specialists — also known as multi-skilling, or "Cthulhu-shaped people". Generalising specialists are people with multiple specialisms, capable of working on multiple aspects of product development sequentially, and even simultaneously.

Generalising specialists not only afford us more flexibility in terms of getting things done — we can expect fewer delays due to waiting for a specialist to become available to do a certain task — but accelerate work through enabling individuals to remain in a state of "flow" (cf. Csikszentmihalyi) for longer, with fewer handoffs.

Conclusion

We have discussed the aim and characteristics of *Product Aikido.* We have discussed the philosophy of command necessary to support this style of product development. We have discussed some of the tactics of *Product Aikido*. By this time, we hope it is clear that *Product Aikido* exists not so much

in the specific methods used — we do not believe in a formulaic approach to product development — but in the minds of the people engaged in product development. In this regard, *Product Aikido*, like multi-skilling of individuals, applies equally to *everyone* involved. It applies regardless of the nature of the endeavour, whether major developments of strategic products or local evolution of one or more product features, of low or high complexity, whether destined for internal use or sale to customers, under time pressure or no, with customers large or small, in any market segment.

Product Aikido is a way of thinking in and about product development that shapes our every action. It is a state of mind born of a bold will, intellect, initiative, and acute opportunism. It is a state of mind bent on getting the right things done with world-class effectiveness, by avoiding rabbit-holes of complexity, by quickly and decisively delivering value to all stakeholders in line with our evolving intent, on growing wonderful products and creating a wonderful experience for everyone — both for those involved in nurturing the products and for those touched by them.

In short, *Product Aikido* is a philosophy for generating the greatest decisive effect in the market at the least possible cost to ourselves — a philosophy for "working smart."

Colophon

Typography

This publication has been created using Pages for Mac. Font is Helvetica Neue Light for body text, and Helvetica Neue Bold for headings. The main title is Helvetica Neue Ultralight.

Authors

This version of *Product Aikido* has been written by Bob Marshall.

Inspiration

This publication has been inspired by [the *Warfighting* Manual](#) - the US Marine Corps Doctrinal Publication 1. The author notes many similarities between *Warfighting* and *Product Aikido*, and invites readers to compare these two doctrines.

The Enemy

One key difference between *Warfighting* and *Product Aikido* lies in the nature of the "enemy". In *Warfighting*, the enemy is the opposing force, and entropy, although ever-present, is not attributed with any specific intent. In *Product Aikido*, entropy is the enemy, in constant opposition to our own organising intent.

Nonviolence

Another key difference between *Warfighting* and *Product Aikido* is the foundation of the latter in nonviolence. Attentive readers may notice a subtle change of language throughout the publication, with the expurgation of words implicative of fear,

obligation, guilt and shame — words such as such as "should" and "must" — as well as a replacement of terms indicative of military command hierarchy with terms close to those from e.g. sociocracy and fellowship. An example of the latter is the use of the term "organising intent" — a.k.a. common intent, shared purpose — in place of the Clausewitzian "Commander's Intent".

Choice of Name

The author chooses the name "Product Aikido" to reflect the role of spirit, especially harmony, which lies at the centre of effective product development. We might serve our purposes better if we regard entropy not an our enemy, but rather as a wayward friend, with whom nevertheless we choose to dance.

"*Product Aikido* — it's a lot like dancing."