



Riding the Wave: How Incumbents Can Surf Disruption Caused by Emerging Technologies

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Abstract – Emerging technologies have the power to upend industries by offering disruptive innovations that displace established players. Incumbents often struggle to respond before losing significant market share when newcomers introduce breakthrough products, services or business models. However, disruption also creates opportunities for incumbents willing to ride the wave of change through continual innovation, partnerships, and cultural change. This paper examines emerging technologies' disruptive potential and strategies incumbents can employ to surf the turbulence. The introduction defines key terms like emerging technologies and disruption. It emphasizes understanding disruption considering accelerating technological change. The case studies analyze smartphone and online retail disruptions. The smartphone integrates functions of numerous single-use electronics into one multifunctional mobile computer. Smartphone disruption contributed to BlackBerry's fall from controlling half the US smartphone market to less than 1% today after it failed to meet changing consumer preferences. Online retail disruption catalyzed by Amazon utilizing infrastructure optimizations and advanced analytics contrasts with brick-and-mortar incumbents struggling to adapt. In response to disruption, incumbents should continually innovate products and business models to meet customers' evolving technological expectations, even if disruptive to existing cash cows. Establishing outposts where autonomous teams can expeditiously experiment with emerging technologies is another recommendation. Incumbents should identify promising startups to invest in or acquire to access potentially disruptive IP early. Building an open culture welcoming change and uncertainty with flatter, more adaptive organizational structures and better positions incumbents. Rather than just threats, disruptions also provide opportunities to develop new products and services. By lowering barriers to entry, disruptions allow agile moves into new, adjacent markets. Joining forces with startups grants incumbents quicker access to cutting-edge, disruptive tech through partnerships. In conclusion, disruption fueled by emerging technologies defines the new normal. However, incumbents can get ahead of the turbulence by continually innovating, forging alliances with startups, and transforming company culture. Protecting the core business remains important, but so does creative destruction. Incumbents must balance the two or risk being sunk by disruption's gathering storm.

Keywords: Disruption, Emerging technologies, Incumbents, Innovation, Startups, Business models, Market leadership, Organizational culture, Core business, Strategic foresight.

1. INTRODUCTION

1.1 Definition of Emerging Technologies and Disruption

Emerging technologies refer to breakthrough innovations that have the potential to significantly influence the world. As opposed to incremental advancements that mildly improve existing products or processes,



emerging technologies introduce radically novel functionalities and capabilities. They frequently establish entirely new technology categories rather than just refining current ones. Their relative novelty also means social assimilation remains incomplete as adoption spreads through early stages. Defining attributes of emerging technologies also incorporate rapid pace of change and uncertainty over developmental trajectories.

Several factors qualify innovations as emerging technologies. Firstly, they must provide substantially higher levels of performance or efficiency compared to antecedents. This performance discontinuity springs from novel technical approaches and capabilities not previously accessible. For instance, artificial intelligence now outpaces human capabilities in select domains thanks to machine learning breakthroughs and massive growth in computing power and datasets enabling its training.

Secondly, emerging technologies introduce unprecedented, paradigm-shifting functionality compared to what came before. For example, 3D printing greatly simplifies manufacturing complexity of customized product designs featuring organic shapes. Its additive, layer-by-layer fabrication stands distinct from preceding subtractive, high-volume manufacturing techniques. The unique format unlocks creativity by minimizing geometric constraints.

Thirdly, commercial availability remains restricted in initial phases but demonstrates immense latent growth potential as prices fall and capabilities improve over subsequent generations. For example, virtual reality headsets have declined in price while resolution, field of view, refresh rates, and mobility massively jumped ahead, priming the technology for mainstream enjoyment after decades of niche industrial and research usage.

Lastly, even post-commercialization, societal assimilation and revision of social structures complementing emerging technologies' novel attributes takes time, especially when business model disruptions occur. Hence, discontinuous innovation produces disruption until equilibrium restores. For example, despite ridesharing apps launching years ago, regulations and social attitudes toward taxi-alternative transportation services remain in flux across jurisdictions.

Such technological discontinuities that spur disruption frequently skip a generation by not just incrementally improving the previous standard but leapfrogging it entirely to establish a new baseline through unprecedented functionality. Their disruptive potential does not necessarily arise immediately at launch either. Commercial maturity and competitive threats to incumbents builds over successive refinements. However, once emerging technologies demonstrate viability, scaling speed, network effects, and rapid iteration speeds exacerbate disruption.

Disruption transpires when innovation conclusively shifts competitive landscapes to overturn incumbents and dominant designs. It proves inseparably intertwined with emerging technologies given their radical novelty. The initial commercial manifestations of emerging technologies target niche segments since higher costs and inferior performance compared to established products prohibits mainstream adoption. This forms the beachhead from which capabilities compound till attaining adequate standards for larger segments and ultimately conquering mass markets. Incumbents accustomed to sustaining innovations struggle with this unpredictable but recursive attack from below.

Therefore, disruptive innovation conquers markets by meeting the needs of new customer cohorts rather than just competing directly against incumbents' capabilities. The trajectory of disruption tends to rapidly blindside incumbents once emergence transitions to dominance despite initial unremarkable niches. After establishing



a foothold in simpler or more specialized applications dismissed as commercially unviable by leading firms, relentless improvement of price-performance attributes gradually surpasses incumbent thresholds.

Thereafter, scaling network effects, platform economics, distribution channel control, branding, and possible standardization cement the preeminence of disruptors utilizing emerging technologies. The qualitatively different attributes of emerging technologies lie at the root of this sequence from obscurity to mainstream ubiquity. Their novel functionality intrinsically favors new ecosystems around which barriers to entry and consumer switching costs prove lower early on than transferring user bases from mature incumbents. Hence disruption dethrones incumbents through assault vectors they neither control nor expect.

In conclusion, emerging technologies constitute discontinuous innovations containing unprecedented capabilities that require time for assimilation across economic and social systems. However, the ensuing disruption tends to swiftly overturn existing markets once sufficiently improved price-performance attain mainstream viability and scaling benefits accrue. Recognizing this critical linkage between emergence and disruption can help incumbents identify and adapt to potential competitive shocks before their core markets undergo irreversible transformation. Careful monitoring for threats, translating insights into robust strategies, and managed pivots into adjacent markets facilitated by emerging technologies also helps incumbent firms ride the wave of progress.

1.2 Importance of Understanding Disruption in Today's Rapidly Changing Technological Landscape

Grasping disruption wrought by emerging technologies proves critical for firms struggling to thrive amidst exponentially expanding technological complexity and uncertainty. Market liberalization shortened product lifecycles, globalization, expanding innovation sources, leaner production techniques, and proliferation of startups make business environments more hypercompetitive than ever. Time-tested strategies no longer guarantee survival as industry boundaries blur. Unexpected attacks can arise from all quarters. The only constant revolves around incessantly upended competitive foundations.

Previously admired companies now confront irrelevance or collapse after disruption blindsides their contraction of core markets. In 2000, Blockbuster's market capitalization hovered around \$5 billion with over 9000 stores globally as the world's largest video rental chain. However, it filed for bankruptcy by 2010 as on-demand entertainment shifted to streaming platforms. Kodak once controlled 90% of film and 85% of camera sales in America but plunged into bankruptcy by 2012. Despite inventing the digital camera, Kodak tragically misunderstood the consumer appeal and stuck to preserving their print film profit engines. They capped digital camera resolution to unsuccessfully avoid cannibalizing film sales amidst shifting consumer preferences towards convenience and digital image quality.

These examples underscore market leaders often losing dominance due to disruption. Seventy percent of the Fortune 1000 companies disappear within ten years despite ninety percent of executives anticipating disruption in the early survey stages. However, most fail to prioritize addressing the threats. The cognitive blind spots lull organizations into overlooking or downplaying disruption until too late. Hence prescience offers the only solution rather than racing to catch up later.

The unprecedented pace, scope, and convergence of emerging technologies today makes market disruption more frequent and harder to predict. Exponential improvements follow from combining complementary technologies like computing, artificial intelligence, Internet of Things sensors, cloud infrastructure, big data analytics, machine learning algorithms, robotics, 3D printing, genetic engineering, quantum computing,



blockchain ledgers and more. The cross-pollinating effects make reliable forecasting impossible regarding potency or time horizons.

Rapid adoption of mobile devices, apps and social media underscore the coordination challenges arising from interactive complexity and velocity. Initial emergence among scattered niche use cases obscures visualization of cumulative disruption potential before scaling network effects suddenly overhaul industries. Neither linear extrapolation of current trends nor analogies to historical precedents apply anymore. The exponential technological advances and resulting digital transformations of business ecosystems imply unprecedented capacity for value shifts.

The dramatic pace of change keeps compressing response times available. Twentieth century firms enjoyed decades of reacting to new rivals, products or market shifts. In this millennium, scale rich platforms deploy capital and data advantages to blitz scale new offerings faster than ever, shrinking lead times between disruption triggers and bankruptcy filings to months.

Startups also more easily leverage cloud services, open source software, development frameworks, modular components, and global talent to iterate products tapping into emerging capabilities much quicker using DevOps philosophies. This democratizes access to powerful technologies even for resource-constrained founding teams. The combination of dematerialized software and globally distributed collaboration drives creation of minimally viable products to flood untapped niches.

Therefore, the importance of noticing disruption precursors and having organizational willingness to address looming threats before markets tilt towards competitors constitutes contemporary firms' biggest imperative. However, the perennial challenge revolves around filtering noise for meaningful change while deprioritizing endless fads alongside troves of useless data or distracting headlines. This underscores why theory and frameworks to decode disruption possess enormous value.

While hindsight makes market transitions appear preordained, discontinuities only become obvious long after seminal events and critical junctures recede. Appreciating disruption's general contours and anatomical constructs is vital to nurture vigilance towards anomalies challenging incumbent assumptions. Leaders must also spotlight blind spots impeding realization of gathering threats. Reframing mental models provides the foundation for asking different questions that reveal disruption risks concealed by legacy perspectives and dated assumptions.

2. CASE STUDIES OF DISRUPTION

2.1 Smartphones Replace Earlier Mobile Devices

The smartphone signifies one of the most disruptive innovations in business history, utterly transforming mobility needs, computing platforms, and communication mediums in a few swift years. Smartphones condensed multiple gadgets like cellphones, cameras, music players, GPS devices, handheld game consoles and computers into a single always-connected pocket computer. By integrating an operating system with capacitive touchscreens and downloadable application ecosystems, they delivered utility far beyond predecessors leveraging faster processors, lighter batteries, stronger bandwidth connections, and compact sensors.

Prior to smartphones, early mobile phones primarily offered basic communication utilities like calling and texting. They initially targeted business users willing to pay premiums before consumer segments embraced mobility. Early cellphones ran proprietary embedded software designed for talk and text with limited graphics



or internet connectivity. Creative add-ons like cameras and music capabilities got incorporated over successive iterations along with colorful screens and games.

The subsequent rise of BlackBerry, Palm and Windows CE marked the intermediary transition towards smartphones. These integrated qwerty keyboards with email capabilities and robust enterprise management tools. BlackBerry phones became extremely popular by allowing professionals continual access to work communication from anywhere. However, the focus remained enterprise-grade security, encryption, and messaging rather than general computing uses.

The launch of Apple's iPhone in 2007 and Android phones over the following years catalyzed the true smartphone revolution by optimizing touchscreens for mass market adoption. Easy multitouch gestures facilitated mobile web browsing, media consumption, streamlined interfaces and an explosion of creative apps unlocking infinite use cases. The iPhone and Android phones standardized slick glass capacitive touchscreens instead of plastic resistive touchscreens and physical keypads.

Accelerometers enabling automatic screen rotation for media viewing or games epitomized rising expectations regarding base specs. Rapid leaps came in screen sizes, display resolutions, embedded sensors, cameras, storage capacity, memory, battery life and processors. Each upgrade cycle packed predecessors' total computer power into ever slimmer and sleeker smartphones with bigger screens and stronger network connectivity speed.

Crucially, both platforms fostered developer ecosystems creating millions of specialised apps optimizing smartphones for diverse tasks from banking to transport. Easy development environments, distribution through curated marketplaces and revenue sharing arrangements propelled adoption. By exploiting mobile broadband networks and server-side infrastructure, creative solutions overhauled stagnant industries. Location tracking enabled real-time ridesharing and navigation while mobile payments removed previous transaction friction and security vulnerabilities.

The runaway success of both iPhone and Android smartphones led mobile phones shipping globally to balloon from 1.1 billion in 2007 to 1.5 billion in 2012 while revenues soared from \$142 billion to \$358 billion over the same period. Smartphone sales steadily came to dominate volumes as users flocked to versatile, economical platforms with lush app ecosystems over single use, premium-priced hardware. By unleashing computing previously confined to desks, smartphones disrupted music players, book readers, personal organizers, roadmaps, and portable gaming consoles seemingly overnight.

Incumbents suddenly faced cratering sales, evaporating market shares and severe margin erosion as consumers defected rapidly towards aptly named smartphones. Former mobile phone leaders like Nokia, Motorola and Sony-Ericsson struggled to stay relevant in the wake of iOS and Android. They lacked ready software platforms and developer communities to create appealing ecosystems to lock-in users. Laggard responses failed against polished Apple interfaces while Google subsidized Android adoption across carriers and hardware partners.

Within years, Apple and Google smartphones almost erased major consumer electronics categories while turning phone makers into commoditized component suppliers. By 2019, annual smartphone sales breached 1.5 billion units globally creating a vast installed base for related services. The destruction of mobile phone incumbents had no historical precedents regarding scale or speed amidst seemingly unlimited upsell opportunities in high bandwidth 5G applications.



The smartphone revolution illustrated disruption triggered by a concatenation of maturing technologies like screens, sensors and networks finally crossing thresholds permitting irresistible platforms promising continual augmentation of functionality through apps. The result completely reconfigured communications, computing and commerce around ubiquitous portable access. The disruptive smartphone paradigm shift also highlighted risks for incumbents dismissing niche incursions that redefine performance metrics and expand use cases outside historic target users before conquering mass market segments.

2.1.1 BlackBerry's Fall From Dominance

BlackBerry, or Research in Motion (RIM) as formerly known, pioneered the smartphone category by optimizing mobile email and enterprise management. Their phones became status symbols throughout the 2000s before unraveling spectacularly this past decade, serving as cautionary tales regarding disruption. At peak popularity, BlackBerry commanded nearly half the US smartphone market capitalizing on reputed security and keyboards suiting commercial customers. However, immense consumerization engulfing personal technology ultimately dethroned them.

When BlackBerry emerged, mobile phones primarily targeted consumer segments without viable business functionality. BlackBerry recognized road warriors' thirst for continual connectivity and built the first credible smartphone solution melding hardware keyboards with robust email, calendars and corporate data access. Their platform optimizing secure communication, compression algorithms and push notifications catalyzed the mobile productivity revolution.

BlackBerry gained traction by solving critical business communication friction points, emerging from obscurity to control business smartphone sales despite minimal marketing. Positive word-of-mouth and distribution agreements with carriers targeting corporate accounts fueled adoption spanning executives to field staff accessing contact databases, email, and inventory systems remotely for the first time.

However, BlackBerry management catastrophically misjudged Apple's foray into smartphones given their historic computer focus and discretionary product positioning. They believed touchscreens made terrible typing interfaces for their core commercial audience. This dismissal blinded them towards wider mobile computing disruption until too late. Belated attempts copying touch interfaces and opening their platform came several years after developers and customers migrated towards richer app ecosystems.

The iPhone gained cultural cachet through intuitive controls, slick glass and metal gadgets exuding prestige. Application variety attracted casual users despite BlackBerry's communication strengths, while businesses followed employees bringing their own devices. Trying to protect high service fees, BlackBerry missed inexpensive consumer messaging needs later solved by cross-platform options like WhatsApp.

Within years, Apple's positioning bridging entertainment and work use cases made iPhone ubiquitous among consumers including corporate staff. Meanwhile, Android leveraged free open-source software and reasonable hardware to circulate cheap BlackBerry replacements across price tiers. Lacking internal software DNA or silicon advantages, BlackBerry hemorrhaged market share despite latter attempts recovering via Android compatibility.

During disruption, struggling firms often lose influence over distribution channels. Initially carriers actively pushed BlackBerry but shifted towards higher-margin iPhone contracts offering multimedia utilities and entertainment. Ceding channel control compounded BlackBerry's downfall. From peak 50% US market share in



2010, BlackBerry cratered under 1% by 2016 with chunks sold off amidst retreating enterprise preference, vanishing consumer mindshare and app desertion.

The rapid dominance of iOS and Android catching BlackBerry flat-footed spotlights the perils of organizational rigidities against external threats. While iPhone's initial success among consumers and creative professionals didn't worry BlackBerry catering to large enterprises, they crucially underestimated uptake even among corporate departments with looser device IT policies. Their delayed pivots failed matching pace with which both employee-chosen and corporate issued smartphone selections dumped BlackBerry for alternatives boasting far richer functionality and broader app support by 2011. Market participation contracted into specific government and financial sectors needing highest security.

BlackBerry's decline reinforces how quickly disruption erodes once-formidable competitive advantages, making business model adaptivity an imperative. Clinging onto legacy perspectives centered around narrow definitions of core customers, undervaluing user experience beyond pure utility, and minimizing cross-industry disruption creeping via consumerization together sealed BlackBerry's fate.

2.2 Online Retail Replaces Brick-and-Mortar Incumbents

The advent of e-commerce represents another disruption that upended incumbents unprepared for changing consumer preferences and new competition digitizing operations using internet technologies. Online retail disrupted physical chains by enabling convenient purchases from anywhere while bypassing real estate overhead that inflated costs. Retail exemplified markets long considered impervious to technology disruption before online penetration.

Amazon originated selling books online by optimizing warehouse and inventory management before pursuing aggressive growth across merchandise categories. Their successes attracted attention, but many incumbents remained skeptical why customers would shift significant wallet share towards virtual stores devoid of touch-and-feel browsing. Without appreciating convenience, choice and pricing proving greater priorities, they dismissed the threat.

However, relentlessly honing recommendations, pursuing fastest fulfillment, integrating peer reviews and enabling easy returns established trust bolstering online retail. Internet pure-plays also avoided expenses associated with leased mall locations, heating, lighting, sales associates and visual merchandising. The overhead burden left traditional retailers losing money on sales matching online prices given higher fixed costs and operating leverage challenges.

Meanwhile, online analytics provide infinitely greater customer insight regarding browsing habits and personalized triggers driving purchases across marketing channels. Traditional chains found site visits declining as product searches shifted to Amazon listings despite multi-billion dollar advertising budgets. The endless aisle selection online also appeals over constrained physical shelf space amidst rising rental and labor costs especially in tight real estate markets.

Once growth curves diverged, the financial strength gap between lean e-commerce firms and heavily encumbered old-school chains rapidly widened. Many prominent mall staples rapidly descended into bankruptcies, closures and irrelevance over the past decade including RadioShack, Toys "R" Us, Sears and Payless Shoe Source. Several major apparel chains barely staved off similar fates before the pandemic inflicted further damage on fragile financials and accelerated consumer migration online.



Meanwhile category kings like Amazon leveraged competencies built from software and data advantages to aggressively pursue new frontiers including cloud infrastructure, streaming entertainment, artificial intelligence, cashier less convenience stores and voice assistants. Tradition alone means little against relentless customer-centric innovation.

Incumbents poured billions into catchup efforts but remain unable to stem the tide. Changing tastes now clearly favor convenience, choice, community reviews and aggressive promotions. Early hesitancy to cannibalize profitable store networks by pouring effort into building compelling connected commerce functionality proved short-sighted. The winners demonstrate proactively reimagining business models as technology, data and customer expectations evolve while the losers cling onto legacy practices until forced hands arrive too late.

2.2.1 Amazon's Rise by Disrupting Retail

Among prominent cases of retail disruption, Amazon's ascent best signifies how emerging digital capabilities can empower new entrants to systematically dismantle traditional incumbents. Leveraging internet technologies to optimize e-commerce operations and analytics, Amazon concentrated on delivering convenience, selection and affordability exceeding expectations shaped by offline shopping conventions. Their breakneck expansion across categories continually raised customer anticipation levels regarding what retail experiences could encompass.

Amazon's founding vision recognized that online retail afforded opportunities to integrate innovations not viable in fragmented physical stores. They understood early that combining massive product selection, recommendations, peer reviews, rapid fulfillment and frictionless returns created significant consumer appeal. Amazon also realized the value locked within anonymized data trails left by customers. They built tools analyzing behavior to enhance personalization and categorical demand signals to guide inventory shaping supplier negotiations.

As the dot-com era progressed, Amazon aggressively cut prices despite thin margins to acclimatize mainstream customers towards online buying. They optimized supply chains for faster, cheaper deliveries through distribution infrastructure investments and volume negotiations benefiting from scale economies. While competitors focused on immediate profitability, Amazon pursued long-term total customer value supported by their share price and patient investors.

They expanded across merchandise from niche books into bigger mass market categories. Amazon judiciously entered attractive segments where internet capabilities afforded significant advantages over status quo retail experiences shaped within physical premises constraints. Their initial forays sold commodities with established demand and lightweight Shipp ability like media, consumer electronics and toys facilitated by 3rd party merchant partnerships to rapidly scale selection.

Amazon later pursued consumables, beauty, fashion, furniture, food and omni-channel brick-and-mortar initiatives recognizing mobile ubiquity offered new disruption avenues. They acquired sector expertise through acquisitions like Wholefoods for groceries and Zappos for apparel while aggressively rolling out private label brands competing directly against wholesalers. Recent forays into prescription drugs and physical convenience stores also shake things up by integrating radical transparency over choices and prices.



Throughout expansion into additional categories, Amazon accumulated more customers and data to personalize experiences across touchpoints while addicting subscribers to services like Prime speed deliveries and media streaming. Investors remained patient with the growth prioritization as rising cash flows from e-commerce, cloud computing and digital ads reduced earlier dependence on external financing. Amazon strategically used cash generation to recursively fund disruption campaigns that may dent near-term profitability but promise to expand lifetime customer value.

The result sees Amazon transforming from a niche online bookseller in the mid-90s into the world's fourth most valuable company worth nearly \$1.6 trillion by 2022. They generate over \$300 billion in online retail gross merchandise value and own significant cloud infrastructure and digital advertising market shares while exploring blockchain, quantum computing, cashier-less retail, logistics and media content. Over 200 million Prime loyalty subscribers now readily shift an ever increasing share of wallet onto Amazon because the value proposition keeps getting better through automation.

Meanwhile over the past decade, Amazon's torrent demolished retail predecessors anchoring shopping malls for generations who failed adjusting business models to meet customers' increasing internet-influenced expectations. The collapse shocked established brands like Sears, JCPenney, Barneys and Toys"R"Us that once ruled American commerce but saw sales evaporate against personalized experiences. Unable to service debt burdens due to market share losses, they descended into bankruptcies with huge job and store losses despite last ditch efforts to create standalone e-commerce divisions.

Surviving incumbent retailers poured billions into catchup initiatives like curbside pickup services, digital enhancements and omnichannel capabilities. However, legacy infrastructure still chains these initiatives. Siloed organizations also restrict data sharing across internal units to enable seamless experiences Amazon perfected. Though sales stabilized, the retail landscape irreversibly consolidated towards e-commerce survivors integrated across online and offline channels while leveraging advanced analytics.

The choose-your-own adventure shopping paradigm pioneered by Amazon continues setting ever bolder consumer expectations regarding convenience, value and choice. Their success reinforces market leaders now getting disrupted once emerging technologies demonstrably solve pain points at higher performance, lower costs or greater convenience. Companies that dismiss niches redefining user experiences risk huge value destruction despite commanding billions in sales today. Inability to imagine how innovation expands markets haunts incumbents unless they create new ecosystems aligned with future preferences.

3. STRATEGIES FOR INCUMBENTS FACING DISRUPTION

3.1 Continually Innovating Products and Business Models

Continual innovation constitutes the most intuitive yet challenging imperative for incumbents facing market disruption driven by new technological capabilities or competitor offerings. While exact prediction of disruption timing remains improbable, the certainty of eventual threats requires sufficient buffers against sudden revenue shrinkage before countermeasures gain traction. Hence firms must foster innovation disciplines exploring white space opportunities to balance current strengths.

Incumbents often enjoy strong cash flows, well-known brands, vast distribution footprints and operating leverage from accumulated assets allowing costs absorption at sizable volumes that newcomers struggle matching initially. However, complacency, bureaucracy and conflicting short-term financial priorities tend to hamper innovation enthusiasm over time. Annual planning rituals also suffer from risk aversion.



Leaders must therefore intentionally nurture cultures welcoming carefully bounded experimentation using design thinking frameworks welcoming uncertainty. Allowing the freedom to fail early, learn quickly and try new ideas outside established practices proves mandatory. Many incumbents now create autonomous divisions with direct leadership access and independent capital to pursue new innovation directions shielding them from traditional antibodies attacking unfamiliar ideas.

For instance, Amazon Web Services started as an internal tool to enable flexible computer capacity supporting holiday ecommerce load balancing needs. Recognizing latent external demand, it got developed into a separate unit now generating tens of billions annually. However, AWS likely struggled gaining traction internally if resources depended on retail division priorities habitually dismissing its relevance amidst meager initial profits. Under independent leadership, AWS refined value propositions and priorities tailored for external cloud consumers instead of just Amazon's e-commerce requirements.

In the case of supply or distribution control by channels, similar tactics help launch innovations circumventing traditional networks stuck in dated practices. For example, automakers face dealership and franchise laws limiting direct sales in ways Tesla bypassed as the first native electric carmaker lacking legacy baggage. Using an online direct factory order model without intermediary showrooms, Tesla educates interested car buyers to customize options. This streamlines production using demand signals and enables responsive post-purchase software enhancements over the vehicle lifetime unavailable via fragmented independent dealerships.

Beyond structural shifts, continual innovation also requires cultural discipline constantly questioning sacred cows that may blind incumbents from changing consumer priorities or emerging substitution threats. Leadership developing hypotheses around market evolution and assessing product portfolios through the lens of future scenarios prevents paralyzing short-termism. It helps balance resource allocation across high certainty maturity areas and mystery-rich spaces disrupted by innovation combinations undermining today's profit drivers.

Often the very strengths that rewarded past decisions transform into blind spots masking creative destruction forces gathering momentum. Legacy success formulas lead incumbents focusing on doing more of what worked before. But the endless parade of case studies showcasing one-time industry leaders replaced by upstarts using emerging technologies to redefine user needs highlights that past does not equal future. In these examples, criticism typically arises regarding management emphasizing incremental improvements over bold experiments responding to disruption signals.

Therefore, setting aside political capital and secured resources explicitly dedicated to exploratory innovation can pay significant dividends. Leadership must nurture a pipeline of transformational innovations ready for scaled investment when disruption threats approach key inflection points. However, escaping commercialization responsibilities during incubation shields bold ideas from production pressures that may corrupt novelty or hamper iteration speed.

Separation from core operations avoids immediate demands forcing innovations to favor short-term returns which tend to rely upon and reinforce traditional metrics, processes, and partners. New product categories often require reimagined value chains and key performance indicators. Imposing legacy assumptions may therefore restrict full potential. Allowing strategic patience for iterative prototyping helps shape more rounded solutions closely aligned with emerging consumer expectations before integration with existing business systems.



In summary, continually expanding innovation horizons and strategic sensitivity towards market evolution proves mandatory to sustain relevance amidst disruption. Dedicated programs, distinct units and discretionary budgets that empower teams to think freely and differently remain invaluable for incumbent firms despite abundance of current profits.

3.2 Establishing Innovation Outposts Outside Core Business

Legacy conglomerates historically generated ideas within headquarters before passing them down to business units for commercialization. However, massive successes from Californian garages to Israeli startups highlight bottom-up disruptions commonly outside rather than inside industry. Incumbents now increasingly look beyond their core, setting up outposts spanning startup ecosystems tapping localized talent and perspectives for accessing cutting-edge innovation.

Rather than confined thinking shaped by institutional assumptions, fresh eyes spot overlooked niches. External innovators enjoy greater freedom uncovering original insights without preconceptions about existing capabilities. Startup dynamism also contrasts with procedural heavy processes curtailing experimentation appetites within large corporations. However, integrating outside innovation faces classic not-invented-here rejection challenging success. Arm's length affiliates escape this by securitizing and localizing control for agile exploration benefiting through company expertise available on tap.

For instance, Alphabet, parent of Google, runs Moonshot Factory called X. They pursue radical innovation across sectors from internet balloons to cybernetic healthcare leveraging vertical expertise from existing divisions upon requirement while escaping red tape that impeded past efforts. Verily and Calico exploring life sciences report directly to Alphabet leadership instead of funneling ideas via Google management more obsessed with current search algorithms and digital ads.

Amazon Blanket subsidiary fuels "experimental product initiatives" drawing leadership attention plus capital for testing appetite before review regarding transitions into the mothership after proving promising strategic synergy and scale capability. Blanket shields teams from immediate demands facing retail, cloud, and device groups responsible for present-day revenue streams. This simultaneous separation and support strikes the right balance between flexibility and access.

Thomson Reuters similarly maintains a venture subsidiary with direct CEO supervision and a multi-million dollar annual budget funding startups transforming legal services, regulation, risk management plus decision tools markets aligned with customer needs. Building an internal accelerator helps their main divisions access cutting-edge innovation and negotiate co-creation partnerships leveraging data while providing startups growth avenues leveraging Thomson's extensive industry relationships.

The advantages of external outposts lie in partnerships unburdened by internal conflicts of interest that may otherwise obstruct reciprocally beneficial collaborations. External allies often pioneer game changing solutions as a creative outlet satisfying founders without pressure to immediately capitalize innovations. Exploring open, unconstrained dialog brings fruits that narrow problem statements with defined outcomes struggle yielding due to ingrained biases. Outposts thus provide corporate backing to independent innovators for pursuing promising white spaces in exchange for privileged first looks at potential pipeline opportunities with commercial legs.

In return for autonomy, outposts grant parent companies an inside track for acquiring emerging technologies that may disrupt existing products to get ahead of change curves. They also allow large firms channels for



injecting startup DNA back into bureaucratic legacy organizations while benchmarking methodologies against external innovation outcomes from unconventional thinkers. Corporate VC arms make similar preemptive investments in high potential startups aligning strategic theses with business unit directions.

Whichever model followed, the imperatives for success revolve around picking the right initial teams. Leadership must get comfortable with ambiguity and learn to distinguish temporarily risky innovation from bad ideas doomed in all scenarios. Setting expectations regarding nonlinearity of progress and applying customized yardsticks help continual refinement. Exposure across various incubators builds pattern recognition sorting viable experiments from likely dead ends.

In conclusion, establishing external outposts help large firms tap innovation sources beyond familiar corridors to revive pioneering spirits insulated from quarterly reporting burdens. Aligning financial incentives rewarding upside optionality over immediate returns incentivizes participating teams ignoring sunk costs for doubling down on validated hypotheses. Insourcing outside perspectives is invaluable for incumbent firms found lacking when technological progress suddenly surmounts defences once protecting leadership positions.

3.3 Investing in or Acquiring Startups With Emerging Technologies

Investing in promising startups allows incumbents to access potentially disruptive innovations early while injecting insights from external ecosystems into legacy organizations. Startups pioneer cutting-edge capabilities on the edges of existing systems before pushing mainstream. Partnering via capital provisioning grants incumbents valuable visibility into technology shifts challenging current products.

Equity investments facilitate ongoing dialog beyond contractual transactions, aligning incentives for collaboration as startups scale innovations. Securing access to disruptive intellectual property, talent pipelines and loosely coupled business models proves invaluable for revitalizing incumbents facing external threats or internal inertia preventing innovation. Startup deals also have relatively contained downside risk compared to intensive internal projects while promising massive upside should technologies transition into mass adoption.

For instance, Intel Capital invested in VMware's pioneering virtualization software during the late 1990s as enterprise data centers contemplated transitioning from hardware to software focus. The bet hedged disruption from native cloud application platforms like AWS. Intel secured critical insights regarding key technology shifts in data center architecture while collecting handsome returns from its stake once virtualization got embraced globally across on-premises servers to optimize workload consolidation.

Singapore's sovereign wealth fund Temasek jointly incubates cutting-edge startups with government agencies, universities and corporate titans facing digital disruption of services across telecom, logistics, finance, and urban sustainability sectors. Backing startups via regional VC networks provides front-row access to innovation clusters like autonomous mobility and alternative proteins that promise immense impact on national priorities. Support at ideation stages also increases likelihood of anchoring commercialization locally.

Where startups already demonstrate validation, acquiring them fully offers rapid capacity injection into incumbent innovation pipelines while denying rivals. However, balancing integration autonomy against superimposing legacy structures remains tricky for capturing initially promised dynamic capabilities. Many incumbents pursue majority acquisitions of high traction startups only to lose steam saddling founders with big company processes. Retaining talent also suffers without sufficient decentralization.



Therefore, acquisitions require separating structure from talent by offering operational independence for founders to pursue roadmaps under corporate umbrella backing. Recognizing differing rhythms existing between high growth startups continually adjusting hypotheses for finding product-market fit versus mature teams driving incremental optimization proves paramount. Imposing legacy rules upfront risks entrenching conformity rather than compounding disruptive thinking.

Microsoft's revitalization from stagnancy towards cloud enterprise leadership greatly benefited from astute acquisitions. CEO focused on securing cutting edge AI talent and customers through LinkedIn purchase while integrating GitHub's developer network to continue growing independently. Big acquisitions followed of code repository platform GitHub and enterprise social network LinkedIn to deepen engagement with software developer ecosystems underpinning digital transformation across economic sectors.

In contrast, previous leadership fumbled Nokia's handset business acquisition under Ballmer by failing to retain talent with imposing centralized integration. The cultural clash and strategy taxes overwhelmed capabilities that originally attracted interest. monumental write-down followed months later admitting grave misjudgment.

Therefore, acquiring startups with emerging technologies requires careful upfront planning on balancing integration with autonomy across priorities like personnel, platforms and customer routes-to-market. Getting initial evaluations wrong risks damaging hard won innovator trust and morale. Following closing with embed periods allowing independent charting of directions under separate boards before gradual integration allows both sides adapting without shocking entrepreneurial capacities built for agility against red tape minimize value erosion when bridging startup nimbleness with incumbent scale.

3.4 Building Open and Adaptive Organizational Culture

Company culture constitutes the invisible force determining capacities responding to external disruption. Leadership attitudes cascade across middle management before permeating the broader organization. Inflexible viewpoints rooted in historical strengths that rewarded past decisions often constrain future innovation. However, culture gets shaped through deliberate actions role modeled by executives addressing unseen barriers slowing change.

With disruption only accelerating, factors underpinning resilience and adaptability become mission critical. Incumbents enjoying leadership today based on one-time innovations face uncertainty over whether current advantages maintain relevance tomorrow. Remaining insensitive towards shifts risks rapid irrelevance when consumer preferences evolve.

Previously admired brands collapsed through disruption waved it off at first before struggling to steer bulky ships matching pace with external change. Legacy processes and metrics optimized over decades for maximizing output efficiency constrained responses when requirements suddenly shifted. Just as past strengths transform into blind spots obscuring impending threats, old reliable playbooks fail answering unprecedented situations needing improvised approaches.

For instance, Polaroid once exemplified innovative prowess with science talents behind pioneering instant cameras and film processing. Their revolutionary products created new demand categories securing 70% market share worth billions in today's dollars. However, Polaroid dismissed emergent digital camera technology with inferior resolution. They failed to capitalize early transition signs fearing reduced film sales. By



the time Polaroid vision digital prototypes started, consumer momentum already fled film driving Polaroid into bankruptcy despite no competitors offering comparable print sizes or developing convenience.

The disruption phenomenon repeats across industries from retail to computing. Iconic brands like Kodak, Xerox, General Motors, and Sears all boasted engineering pedigree, management rigor and massive balance sheets once representing the pinnacle of business excellence. Some even invented the very technologies displacing them – Xerox created graphical interfaces and mouse computing, Kodak engineered digital cameras, while Sears originally shipped mail-order catalogs before losing relevance to Amazon. The same feared traps continue ensnaring firms today within insurance, banking, autos, computing, and entertainment sectors.

While exact disruption timing remains uncertain, complacency risks rapid commoditization given technological upheaval continuously expanding. Recognizing future uncertainty around current cash generators spotlights the imperative for continual exploration outside core markets. Setting aside budgets funding internal startups or external partnerships searching adjacency possibilities tied to emerging needs balances mature businesses requiring efficiency against creating options staying relevant as user demands evolve.

However, success requires cultural readiness permeating the organization, not just structures. Innovation thrives through intrinsically motivated teams inspired by challenges bigger than next quarter targets. Finding kindred spirits curious tackling problems that seem unreasonably ambitious rather than reasonably impossible boosts morale. Supporting passionate advocates to attract collaborators betting against overwhelming odds builds momentum lifting output beyond individual abilities.

Leadership plays a pivotal role fostering psychological safety for speaking up, debating vigorously, handling conflicts maturely plus continuously learning from setbacks. Instituting feedback loops ensuring visibility over what works versus what doesn't minimize repeating past mistakes. Embracing uncertainty also proves critical because innovation lacks predictable linear process. Breakthroughs may arise iterating upon incremental developments or flash suddenly through radical paradigm shifts. Preparing culture for openness means judging teams based on mindset alignment over exact output.

Finally, large organizations must consciously balance structures and metrics catering to both exploitation and exploration. Too often focus fixates on increasing efficiency of existing operations which face less uncertainty and promise quicker returns due to understood capabilities. However, tight coupling leaves little slack absorbing sudden changes. Formal processes burden adaptivity by defining narrow success based on predictions rooted in status quo assumptions. By contrast, innovations creating future revenue streams suffer restricted permission to operate freely. Preserving independent rights so seeds escape some bureaucracy helps their agile evolution tackling undefined problems through repeatedly testing guesses. In conclusion, deliberately nurturing open cultures welcoming disruption signals counterbalances tendencies protecting repetitive profits permitting responsiveness pivoting directions as markets undergo technology-led redefinition.

4. TURNING DISRUPTION INTO OPPORTUNITY

4.1 Disruption Opens Doors for New Products and Services

Rather than just threats to mitigate, disruptive forces also promise opportunities for incumbents to explore adjacent spaces or access new customer segments through premium offerings unlocking monetization



upside. Technological discontinuities lowering barriers across industries facilitates market entry for those moving swiftly with vision to tap white space value pools before imitation intensifies rivalry.

Creative business leaders view turbulent disruption as ideal environments unveiling possibilities for capturing first-mover advantages if leveraged astutely. Marketplace uncertainties from new competitor activity, shifting consumer behaviors, innovative substitution and tech-driven redundancies of existing products all signal chances launching differentiated services aligned with redefined preferences.

Incumbents enjoying loyal customer bases, well-known branding and extensive infrastructure access maintain significant strengths commercializing new concepts faster to preempt speculative upstarts still building market viability. Additionally, disruption's threat to high-margin products opens doors adjusting value propositions targeting premium segments less sensitive to mass-market price wars only startups can likely win through sacrifices undermining profitability.

For example, Adobe navigated desktop publishing disruption in the 1990s as free browsers started rendering proprietary rich document formats incompatible. Instead of clinging to one-time mega sellers like PageMaker and Illustrator, they pursued recurring revenue models better aligning value with evolving customer needs. Adobe pivoted into PDF standardization securing digital document longevity then created subscription bundles around creative tools, marketing services and cloud collaboration suites that expanded access to lucrative enterprise clients.

The software bundles integrated English capabilities allowing continuous cross-selling to premium segments impervious towards low-cost threats. Competitive differentiation also got built through cloud seamlessness and AI-assisted features unavailable in free alternatives capturing casual users. Instead of fighting open-source office suites on price like Microsoft, Adobe redefined battlegrounds more receptive towards recognizing their offerings boasted far greater utility justifying spend for professional use cases.

Similar market redefinition got embraced by high-end Swiss watchmakers when low-cost quartz movements obliterated mechanical components on accuracy and cost. Rather than clinging onto shrinking unit sales within commoditized accuracy, Swiss players repositioned around luxury associations and heritage craftsmanship. By styling watches as fashion accessories symbolizing aesthetics and identity more than mere time display, they created new cultural meanings supporting premium pricing tiers insulated from mainstream utility considerations. The pivots allowed Rolex, Omega and TAG Heuer escaping virtual bankruptcy by better meeting affluent buyers' emotional aspirations even while technology disrupted practical needs for timekeeping accuracy.

Construction equipment majors also counter ongoing threats from Chinese entry-level brands and rental marketplaces eroding sales by adding GPS-enabled efficiency sensors across their heavy asset product lines. The smart fleet analytics build defendable competitive buffer as increased machine productivity and utilization promises higher job site profitability justifying higher equipment rental or acquisition costs over basic alternatives missing incremental optimization technologies.

Therefore, creatively reimagining markets by locating uncovered jobs-to-be-done or underserved use cases provides opportunities for launching new services immune from disruption targeting current cash cows. Market advancements lowering costs not only threaten existing products but may also expand total addressable market for differentiated solutions if positioned astutely.

History suggests industries undergoing disruption still support sustainable businesses serving customer segments valuing aspects incompatible with scale economics, for instance focus, specialization or



personalization. Small luxury brands stay insulated from mainstream mass-market turmoil. Boutique professional services avoid platforms and AI automation aimed at general knowledge cases rather than specifically advanced, multidimensional client needs warranting bespoke solutions. Discovery-driven incumbent offensives shaped by market insights matching differentiated capabilities with areas protecting uniqueness hence helps surf market turbulence profitably.

In conclusion, beyond defensiveness mitigating risks, proactively harnessing changing market forces through innovations serving premium needs, optimizing focus areas and converting threats into strengths offers paths for incumbent firms to successfully ride waves of disruption swelling across industries.

4.2 Lower Barriers of Entry Into New Markets

While disruption threatens incumbents' existing markets, the technological enhancements fueling such changes also reduce barriers for participating in new adjacent spaces. Capabilities making it easier for startups to attack established industries also decrease impediments for entering unfamiliar territory if strategically directed.

Many innovations pioneering disruption remain core enhancements applicable across categories like data analytics, cloud computing, AI algorithms, advanced sensors, and networking. Their versatile, general purpose utility creates building blocks usable in next-generation products, services, or business processes with customization. Recognition of transferability allows leveraging inevitability of disruption into exploratory offensives rather than just reactive defenses.

Incumbents boasting extensive datasets, proprietary networks and cloud infrastructure can leapfrog investigative stages startups undergo proving new markets. Intellectual property also protects rapid prototyping of minimum viable offerings. What incumbents lack regarding instincts targeting overlooked niches can get acquired through partnerships with hungry entrepreneurs skilled at spotting monetization potential within transitional technologies.

For example, Airbnb leveraged ubiquitous smartphones, mobile networks, and mapping tools lowering barriers for coordinating short-term lodging rentals aggregated across fragmented spare resources like household properties. Incumbents facing revenue uncertainties may similarly capitalize assets at scale using shared platforms, whether vehicles, equipment, or talent, to unlock untapped monetization options using available technical capabilities.

Car rental agencies find revenues threatened by mobility disruption from ride-sharing platforms. While defending the core business remains imperative, savvy players now envision bigger addressable markets harnessing vehicle downtime via peer renting networks, micro-leases or even courier delivery side hustles intermediate to trips optimizing utilization and returns. Pilots allow establishing viability before issues arise needing mass-scale capabilities balancing asset control against crowdsourced technologies.

Toyota also runs various trials leveraging ownership data for introducing service opportunities like flexible insurance, maintenance bundles and connected dashboards across distributed car owners unmatched by fragmented competitors. Transitioning into mobility providers futureproofs relevance even if consumers relinquish vehicle ownership under subscription models. The technical and commercial possibilities stay vast once mindsets shift spotting chances riding disruption waves rather than just seeing profit erosion threats.

Previously, building national big-box retail footprints required billion dollar investments over the years. E-commerce infrastructure democratized access for niche brands to directly access households across



geographies without prohibitive overhead establishing physical outlets. Incumbents facing online disruption even benefitted investing in proprietary delivery fleets, digital platforms, and analytics tools also usable for testing D2C niche launches without real estate burdens hampering earlier concepts.

While Amazon devastates old-school retailers, Target smartly acquired same-day delivery startup Ship and Saks purchased e-commerce luxury platform relative newcomer Saks Off 5th. The deals granted direct access into advancing online capabilities already disrupting sister concepts but promising stronger revenues for specialized offshoots less exposed to mass retail price wars.

Therefore, opening perspectives beyond defending what made companies originally successful in favor of reimagining implications of the very technologies driving external disruption provides options for exploratory counterattacks. Incumbent advantages like trusted brands, deep knowledge and proprietary data make possible future offerings unviable for resource-constrained startups absent years building credibility and optimized supply chains.

In summary, disruption invariably lowers hurdles to commercialization by improving technological access or customer readiness for new paradigms across once impenetrable sectors. Incumbents anchored on legacy assumptions may observe barriers tumbling across multiple industries as ominous warnings. However, embracing disruption with strategy to pinpoint adjacent market entry opportunities offers possibilities for preemption efforts outpacing the typical startup model of proving business cases before scaling innovations. With the right vision and urgency, lowered barriers provide seasoned players chances for proactive moves into newly created blue ocean spaces less immediately obvious for inexperienced venture disruptors caught in tunnel vision towards upending competitors instead of forging entirely fresh categories.

4.3 Forge Partnerships With Startups to Access Emerging Tech

While incumbents control valuable assets like proprietary data, vast distribution, deep technical specialization, and process excellence accumulated over years, they often lack instincts sensing adjacent innovation opportunities. Meanwhile, lean startups aggressively target white spaces but take years searching product-market fit before platformizing offerings due to resource constraints. Partnerships reconciling strengths foster invaluable insight swaps bridging gaps.

Incumbents secure access to potentially disruptive tech still maturing while injecting commercialization expertise into promising ventures lacking scale-up knowhow. Startups gain incumbent endorsement signaling validity, distribution reach and credibility enhancing fundraising chances necessary for growth. They also enjoy support navigating policy barriers unfamiliar to outsiders but well-known by established corporations wielding influence across regulatory spheres.

Amidst disruption triggered by electric, autonomous, and ridesharing capabilities, Toyota initiated a mobility services company called Toyota AI Ventures investing in early-stage startups strategically aligned with future automobile usage rather than just making cars. The fund targets ride-sharing operators, last-mile robotics and vehicle data analytics companies shaping next-generation transportation models incorporating environmental sustainability and intelligent systems.

Two Singapore government agencies, respectively regulating transport and infrastructure, jointly created an accelerator program called PIER71. It fosters partnerships between local and international maritime/logistics startups with incumbent maritime corporates facing digital modernization imperatives to enhance operational efficiency, transparency and sustainability leveraging emerging technologies. Founding



corporate partners already trialing solutions help set strategic focus aligning with the city-state's vision growing into a global maritime innovation hub amidst regional competition.

Rather than directly acquiring Property Guru, Southeast Asia's leading property marketplace facing competitive and technology disruption, REA Group representing Australia's dominant real estate classifieds player pursued a strategic investment securing rights to fully acquire once regional consolidation accelerates suiting REA's global ambitions. This stage allows REA to transfer operational expertise running decades-old listing businesses to guide decision systems, data warehousing and predictive analytics capabilities helping PropertyGuru manage regional expansion plans before fully integrating entities.

The autonomous vehicle space promises immense disruption across passenger mobility and logistics spheres with transformational productivity, sustainability, and inclusive access potential. However, realization depends heavily on confluence spanning batteries, sensors, telecommunications, mapping, machine learning and edge computing where no single player demonstrates leadership presently across all layers. Though pure-plays like Tesla and Waymo get noticed more, incumbents better recognize inherent complexities requiring orchestration. Toyota Research Institute and Mercedes-Benz AG judiciously partner selected startups fitting strategic pieces cooperating on prototyping specialized modules benefitting all partners instead of fearing competition prematurity with equivocal dominance definitions across evolving platform architectures.

Thyssenkrupp, once a German steel and elevator conglomerate, collaborated with an Israeli sensor startup called Waytap for experimenting with predictive maintenance capabilities to reduce equipment downtime costs within managed facilities and industrial environments. This initiative combines deep operational analytics from statistical detection of early warning degradation signals across thousands of elevators and escalators maintained by Thyssenkrupp technicians with AI-assisted evaluation capabilities of Waytap drawing insights from vast datasets more efficiently. Operational pilots allow proving value before commercialization weighed.

Hence partnerships with startups focused on building cutting-edge technologies concentrate complementary strengths for exploration benefiting both sides through cycles spanning incubation, validation and integration while maintaining flexibility adjusting collaboration formats. Such co-creation pipelines better survive disruption threats to incumbents compared to internal-only legacy perspectives dismissing signals detected faster by startups more attuned towards leading-edge external innovation able to spark creative responses instead of just trafficking competitive advantage erosion fears. Constructing independent collaborative programs expressly targeting selected disruption signals spots high potential responses offering strategic optionality. In conclusion, formally engaging startups through partnership structures focused on emerging technologies accelerates exploration of growth opportunities and disruption response options leveraging mutual synergies for prototype iteration that beat isolated legacy stagnancy or standalone resource constraints facing either side alone initially.

5. CONCLUSION

5.1 Disruption Driven by Emerging Tech is the New Normal

Emerging technologies continue demonstrating potential for radically transforming user experiences, business models and competitive dynamics across sectors due to novel functionalities encroaching from edges or intersecting across adjacent disciplines. As exponential tech improvements outpace gradual



assimilation into social systems, the resulting discontinuities catalyze disruption, making turbulence the new normal.

Digitalization, data proliferation, global connectivity and intelligence embedded in systems through advances in processing architectures, algorithms, and networks fuel relentless disruption. Combinatorial innovation from integrating complementary gains across capabilities makes emerging technology disruption recurrent over coming decades. Incumbents will struggle given pace of change outpacing legacy planning horizons calibrated for more linear progressions based on past trajectory assumptions.

Disruption genesis depends on unpredictable innovation confluence across domains rather than orderly R&D pipelines with clear identifiers. Technology convergence, spillovers catalysis and deceptive initially unremarkable inroads where niche traction belies latent generalizable use cases together make emergence patterns complex for projection, suggesting perpetual uncertainty over stable leadership. Dominant designs stay elusive with interfaces and standards in flux, creating opportunity amidst jeopardy.

Established companies focusing strictly on current strengths risk missing disruption signals until gathering trends suddenly unleash necessity for rapid adaptation. Leadership clinging onto comforting denial regarding radical innovation threats already visible on fringes risks unwary incumbents succumbing rapidly later to creative destruction forces once inflection points breach defenses. However perpetually preparing enterprise-wide for responding at unknown timelines paradoxically breeds overreaction misallocating resources against false positives.

Therefore, continually developing strategic learning systems offers better odds over outright disruption prediction attempts or reaction scrambles after landmark obsolescence events. This involves shaping sensitive antennae through hypotheses deliberation frameworks assessing anomalies undermining status quo assumptions across markets, models, and metrics. Preserving objectivity requires empowering talent rotations allowing unorthodox observations questioning legacy dogma. Signature hesitancy and skepticism welcoming technological uncertainty must define leadership mindsets.

Beyond structural reforms, proactively seeding protective innovation layers also helps respondents better surf market turbulence from emerging technology disruption waves. Pilots exploring novel attack vectors before definitive pointers compel engagement provides options staying viable amidst threats inevitably maturing somewhere. Preparatory insulation protects existing operations during initiatory learning phases testing applicability of unfamiliar tech capabilities in proprietary environments.

Once concepts demonstrate adoptability for redefining user value, cooperative incubation with external entities often progresses innovations faster through capability bridging before acquisitive integrations. Co-creation provides privileged access to specializations outside company DNA while venturing units escape fighting complacent antibodies dismissing progressive concepts conflicting legacy commitments. Dual corporate structures deliberately separating exploratory teams from exploitative departments reconciles contradictory operating models into unified ambition.

A mix of internal venturing, external partnership and acquisitive integration pathways help enterprises continuously adapt at multiple temporal scales spanning incremental enhancements to bold reimagination as emerging technologies infusion into markets looks certain recurring faster than most are organizationally designed to absorb. But beyond structuring exploratory innovation functions, leadership ability spotting early signals before pivotal threats acquire unstoppable momentum will likely decide legacy renewal odds against disruption.



In conclusion, the combinatorial, cross-boundary nature of emerging technology disruption targeting vulnerabilities promises recurring turbulence as the next normal that incumbents must embrace for sustenance rather than deny familiarity bias. Resisting distraction from endless noise while sharpening focus on locating anomalies threatening core assumptions allows incumbent firms to smoothly ride industry transformation waves enabled by new technological capabilities redefining user priorities beyond convention. With perpetual disruption anticipation as mantra, proactive innovation balancing protective and progressive initiatives offers best practices for gracefully surfing creative destruction.

5.2 Incumbents Can Proactively Harness Disruption Using Range of Strategies

Disruptive technologies may enter markets from below targeting overlooked niches outside the mainstream segments historically pursued using familiar metrics and processes by incumbents enjoying leadership today. However, despite weak initial signs arrested by flawed old lens, performance capabilities compound through iterative advances, platform effects and business model tweaks creating existential threats to established players once traction breaches mass adoption barriers.

This recurring pattern leads many industry titans falling short anticipating shockwaves sparked by innovations decreed unimpressive based on traditional benchmarks but redefining customer expectations in time after gaining footholds among emerging cohorts. These blind spots notwithstanding years observing previous upheaval implies cognitive unwillingness grappling disruption outweighs any inherent unpredictability surrounding triggering catalysts.

With odds tilting towards dethronement over prolonged dominance trajectories for erstwhile category kings facing new growth frontiers, incumbent survival depends on summoning courage reimagining markets despite surface stability before calendars make responding prohibitively expensive. However, companies commanding rich data, vast infrastructure and operating leverage still enjoy opportunities harnessing change forces productively for customers alongside shareholders.

Proactive strategies involve maintaining innovation pipelines exploring territories promising potential even lacking obvious large prospects immediately. Separate units insulated from core financial pressures allows such patience for market education, use case discovery and platform cultivation necessary in many truly novel categories with fragmented solutions seeking killer applications. Adjacent forays enable options playing offense while consolidating defensive fortifications for core markets against aggressive innovators less encumbered adapting quickly towards shifting trends.

Fostering a culture curious about progressive external change rather than reflexively rejecting ideas lacking short-term returns or misaligned with existing metrics proves critical behind sustainable innovation. New insights arise from empowering talent to dynamically engage across wider ecosystem interfaces through cooperation, conversation and connectivity principles spanning perceived boundaries. Maintaining dialogue with unorthodox thinkers likely signals impending deviance from standard practices before inflection.

However, beyond structural and cultural interventions, systematic discipline around strategic signaling and scenarios analysis helps executive teams overcome habitual blindness towards anomalies. Focusing intently on appraising implications behind emerging technologies diffusion trajectories allows contextualizing potentially deceptive data contraindicating disruption. Leaders must synthesize market understanding, technology maturity assessment and user willingness diagnostics assessing susceptibility of current products against interventions promising previously unimaginable utility.



Constant red teaming existing market paradigms and mental models provides insurance policies against missed warnings. But organizations also require protocols escalating expectations for responsiveness when verifiable evidence accumulates regarding threats crossing monitoring thresholds warranting mobilization. Prioritizing nuanced comprehension helps transcend tendencies dismissing unfamiliar capabilities lacking easily understood differentiation. Deeper, earlier technology scouting provides strategic flexibility once use case viability gets demonstrated. Preparatory steps then enable smoother navigation riding the wave rather than reacting late.

In summary, incumbent firms enjoy opportunity leveraging business model adaptivity, customer intimacy and resource abundance for not just refining existing value chains but harness proactively restructuring markets undermined by very technological and competitive forces also granting openings for counter-disruption through new product categories securing future revenue streams. Maintaining disruption vigilance, fostering progressive culture, and enacting offensive pilots in response to strategic signals provides a pathway for incumbents surfing turbulence by taking charge of their destiny.

5.3 Balance Protecting Core Business While Innovating for the Future

Market leadership represents the crown jewel and Achilles heel for established corporations enjoying success from one-time pioneering innovations, customer trust earned over decades and operational mastery honed through maturity. However, the very same factors driving sustained excellence also foster rigidity and complacency blinding industry titans from disruptive threats emerging at market fringes targeting overlooked niches outside historic best practices.

Incumbents therefore face the imperative balancing efficient, reliable core business stewardship while simultaneously fostering progressive innovation adjusting for market evolution. However conflicting orientations hamper executing both exploitation and exploration ambitions within unified corporate structures. Legacy productivity metrics also they restrict disruptive risk appetites necessary for incubating radical ideas fundamentally reimagining user value beyond current capabilities.

Structural segregation through quasi-independent divisions with direct leadership access, strategic latitude and differentiated success metrics proves necessary allowing adequate nurturance of disruptive concepts often requiring patience unseen in quarter-driven committees. Dual engines must manage contradictory priorities in the race to ride future waves without sinking short-term performance. Corporate venturing programs specifically empower outside-in capabilities for spotting nonconforming signals challenging doctrines underpinning cash cow immunity.

Strategic antennae attuned noticing anomalies counter status quo assumptions also increase importance for leaders navigating market turbulence. However productive paranoia requires balancing perpetual disruption anticipation with judicious commitment escalation, so every outlier observation or random surprise does not trigger hasty resource misallocation. Verifying the viability lag between technology emergence and actual commercial adoption allows calibrated responses.

Incumbents retain strengths like reputed branding, proprietary data access and vast infrastructure throwing weight behind ideas showing adoption inflections. But the temptation measuring incubation initiatives by legacy metrics risks prematurely curtailing radical thinking. Therefore, experimental projects warrant bespoke yardsticks assessing iterative learning suited for undefined challenges rather than predefined outputs applying existing playbooks.



Separation hence allows freedom to explore uncertainty for pioneers uncovering original insights where preconceptions obstruct breakthroughs. Patience pays off once structural innovations demonstrate adoption gaining momentum for assimilation into organization. But impatience thanks anything lacking immediate returns by declaring too early. Distinct teams prevent this by avoiding imposition of exogenous urgency before achieving internal clarity. They also facilitate cultural reprogramming against not-invented-here antibodies attacking alien concepts conflicting legacy perspectives.

Accordingly savvy executives increasingly embrace dual structures through deliberate design intervention for sustaining their enterprises amid disruption. Dominant airline Emirates funds an independent subsidiary incubating ideas leveraging emerging capabilities like biometrics, data analytics and IoT steer future offerings within travel ecosystem. German auto giants Daimler and Volkswagen both instituted standalone digital labs testing novel mobility concepts leveraging connectivity, electrification, and autonomous driving for proactive rather than reactive engagement facing industry turbulence.

Ultimately the challenge facing business leaders constitutes balancing present-day stewardship upholding past promises made to current stakeholders against pivoting towards future deliverables likely departing from historical norms to avoid surprise displacements. Counterintuitively this requires a culture deliberately exploring the unknown by questioning legacy gospel rather than just iterating on strengths.

While emerging technologies present uncertainty, their combinatorial nature also multiplies options for incumbents struggling against disruption erosion. But realistically appraising external change and internal readiness allows channeling market forces for evolution. Renewed perspectives targeted harnessing change into opportunities beyond direct substitution threats allows playing both defensive and offensive games.

In conclusion, disruption emerges from market fringes while concentration on operational excellence risks neglected foresight till incumbents face existential shocks. Separating growth engines optimizing productivity from experimental layers mitigates response lags. By explicitly assembling outside-in capabilities assessing signals counter assumptions sustaining mature products, incumbents retain access to future markets being redefined by very forces also eroding current dominance.

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