

SIEMENS

Ingenuity for life



Outcomes and Opportunities

How finance-enabled business models are developing to drive effective organizational and digital transformation

Foreword

The current wave of digitalization – affecting business processes, supply chains and value chains – is opening up new business opportunities that are, in turn, driving the evolution of new business models that enable continued investment in digital technology and processes. The huge volumes of information (from people, systems and now equipment) from the sensor-enabled, digitalized world are delivering new levels of transparency that allow processes to be continuously monitored and improved. In parallel, digitalization is driving the accelerated pace of equipment innovation and upgrades as well as new digital service offerings. Businesses increasingly need to grasp digital innovation to remain competitive in globalized marketplaces where the smallest companies now compete with the largest, and where global is less distinguishable from local.

The Internet of Things (IoT) enables equipment and technology performance to be remotely monitored, analyzed, improved, predictively maintained, and made more efficient. Virtual environments are bringing new products and processes to market more quickly. And finance providers have increasing transparency in how equipment and technology are being used, allowing them to base tailored financing arrangements on the expected business benefits resulting from the use of that technology. As a result, embedded finance (where finance is an intrinsic part of the sales proposition) has grown in importance as one of the key factors making such pay-for-outcomes business models work.

The result for organizations, whether in manufacturing, commerce, healthcare, infrastructure, or any other sector, is the fusion of technology provision, maintenance, finance, updating, support, and so forth into a single, integrated value proposition. In an increasing number of situations, technology users can pay on the basis of what the use of the latest equipment or technology is predicted to achieve – with those outcomes ranging across productivity gains, speed to market, volume capacity, energy savings, cash-flow improvements, health outcomes and many others. Considering the opinions of business and trade associations, this paper explores the journey from today’s status quo to the expected state of affairs in the future as finance has become an increasingly vital factor in the technology-integrated value proposition.

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Management Summary

In the past, business technology and equipment innovation moved at a slower pace. Typically, businesses would acquire enabling machinery and technology with the expectation it would broadly deliver a series of business benefits measured over a five-to-10-year period.

Subsequently, the pace of innovation accelerated with the rise of technology-driven equipment and the advent of widespread business use of the internet. Increasing numbers of organizations began to globalize, and downward price pressure from low-cost economies and escalating energy costs had to be countered in the developed world with increasing automation and process and energy efficiency.

Organizations could no longer expect their established machinery, equipment and technology landscape to keep them competitive across a decade. As a result, “pay-to-use” financing approaches gained popularity as they supported a company’s need to access the required technology to compete without requiring upfront capital and allowed the benefits of the equipment’s use to be broadly matched to payments over time while providing a means of avoiding technology obsolescence.

As technology innovation and replacement cycles have continued to shorten since the millennium, newer, more flexible pay-to-use financing techniques to accommodate these changes have continued to emerge:

- Tech-refresh arrangements that build in equipment upgrades and protect organizations from being left with outdated technology.
- Retrofit packages that allow innovative layers to be added to existing platforms.
- Technology-migration packages that assist organizations operationalizing new technology bases and equipment while still maintaining previous setups without having to pay for both at the same time.

These pay-to-use models are expected to grow and develop further, providing organizations with essential agility and coexisting alongside other new and emerging integrated financing business models.

Two decades ago, systems connectivity was typically achieved through dedicated private and local networks. Today, a new generation of connectivity between organizations, people and technology or equipment is once again transforming the business landscape. Technology in increasingly sensor-enabled applications used in factories, buildings, cities and hospitals leverages the Internet of Things (IoT) and provides huge quantities of powerful performance and usage data, as well as enables remote monitoring and control.

Such connectivity is making it possible for exciting integrated financing business models to take hold and grow – “pay-for-outcomes”. Finance and technology are being combined

into an integrated value proposition where solution providers (and vendors) offer organizations the opportunity to pay on the basis of expected business outcomes – such as productivity improvements, cost reduction or increased energy efficiency.

These pay-for-outcomes propositions combine the interconnectedness of technology and technological innovation with the power of enabling, innovative financing approaches. With the monitoring and controlling of technology, equipment and whole facilities available in real-time across a wide range of applications and organizations, integrated solutions providers can offer, among other things, increased uptime and more transparent performance improvement and energy efficiency.

The ongoing globalization of trade continues to apply pressure on margins, compelling businesses to closely scrutinize what is truly contributing to customer value-add and margin generation and what could be more efficiently performed in a different way. As a result, some elements of what was previously undertaken internally are now devolved to expert solutions providers, often through some form of pay-for-outcomes arrangement.

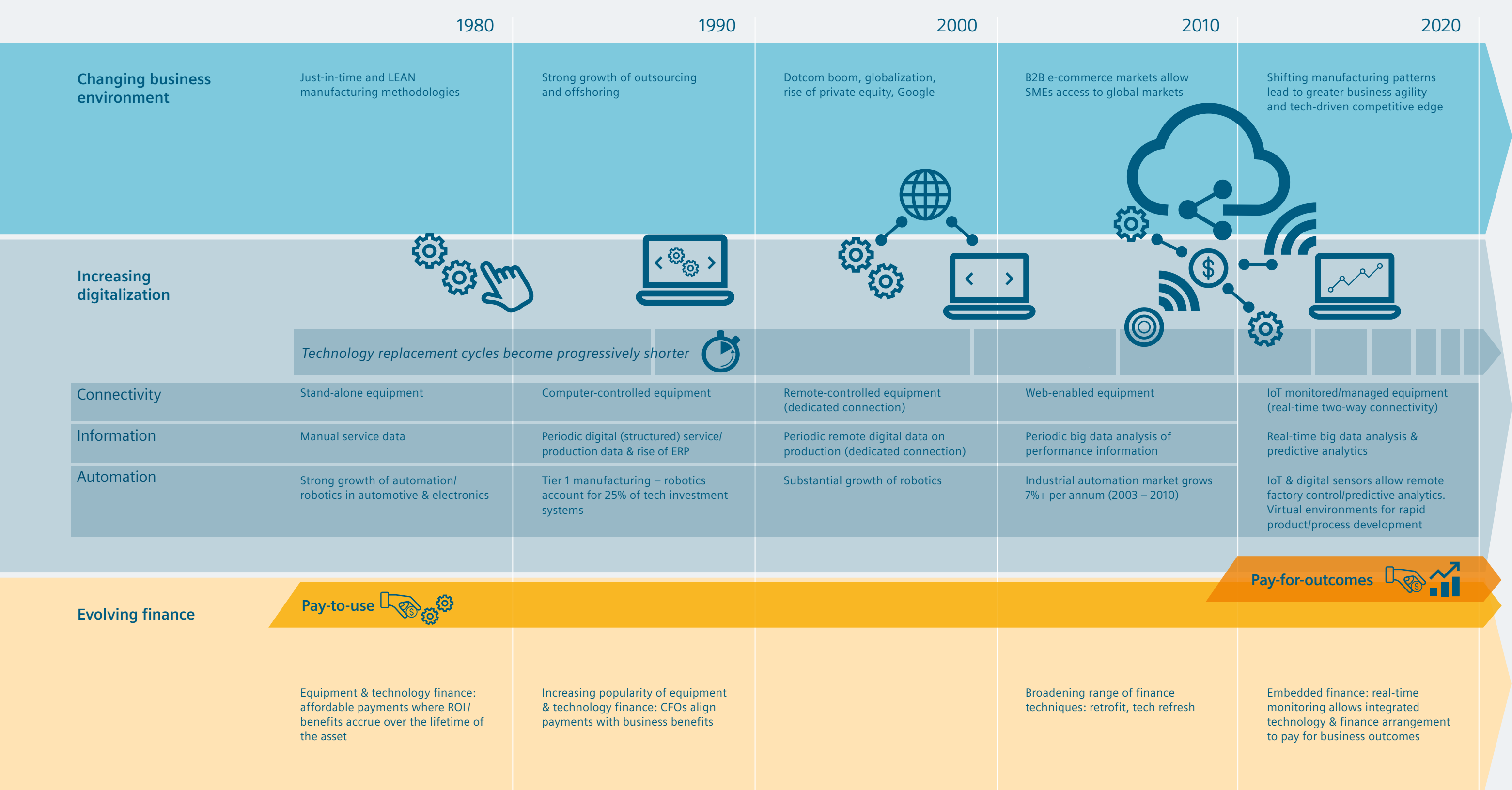
In this way, business models that integrate technology and finance can deliver outcome-based solutions that, in turn,

help end-user organizations to maintain competitiveness as well as offer innovative solutions and services to **their** customers.

Both pay-to-use and pay-for-outcomes business models deliver operational and business benefits that have broader and important impacts, such as more responsible energy management, industrial competitiveness and, ultimately, economic growth, employment, and an improved ecological footprint.

This paper describes the emerging and expected future, the integrated finance business model of pay-for-outcomes and where it is currently being applied. This is considered in tandem with maturing pay-to-use models, and the likely direction this will take as we move toward 2020 as illustrated by testimony from business and professional associations across the globe.

Innovating new business models
How financing evolves with technology



Pay-to-use: A maturing model

Pay-to-use arrangements, enabled by financing techniques such as leasing, rental and asset finance, have steadily gained ground over the last 20 years as businesses have sought to acquire key operating technology and equipment while broadly spreading payments across the period during which they are gaining advantages from using that equipment, machinery or technology.

Although the main subject of this paper is the emerging integrated finance business models, which is underpinned by a pay-for-outcomes approach, it is likely that pay-to-use methods will continue to play an important role in providing access to the latest advances in technology and equipment. During this decade of digitalization, when the operating base across a broad range of industries is facing a phase change to the new digital generation of technology, pay-to-use models are making it possible for manufacturers, service industries, healthcare organizations and even cities to make

necessary technology upgrades and enjoy the business benefits that result. Not only do pay-to-use models make it possible to acquire equipment, machinery and technology that might otherwise be unaffordable out of “own or loan” capital; these models are also developing into more sophisticated forms that have flexed to embrace and accommodate trends in the technology markets.

Pay-to-use models are expected to grow and further develop alongside the emerging new pay-for-outcomes models described in the next section of this paper. Even today, use of pay-to-use techniques by CFOs has become increasingly sophisticated and transparent, with payment schedules much more closely aligned with the rate at which technology and equipment deliver concrete business benefits and contribute to revenue generation.

Here are three examples:
Tech-refresh arrangements have been created that accommodate continually shortening replacement cycles. These financing packages include regular options to upgrade to new-generation equipment, thereby addressing organizations’ concerns about potentially being left with previous-generation technology, a situation that would impair their competitiveness.

Sometimes a technology platform may be entirely fit for a certain purpose, but innovative components or add-ons begin appearing on the market that have the potential to make the platform substantially more productive, or easier to reset, or less costly to run. **Retrofit** packages allow innovative layers to be added to existing platforms and machinery landscapes.

Transferring from one technology platform to a new one can be very disruptive to an organization, both operationally and financially. Flexible pay-to-use packages have been created that only initiate payment for a new technology solution once it has been fully installed, set up and tested. These **technology migration solutions** assist organizations when operationalizing a new technology base while still running the previous one and overcome the burden of having to pay for both at the same time.

Organizations from around the world interviewed for this paper confirm that failing to grasp the latest generation of technology and equipment can seriously impair their ability to

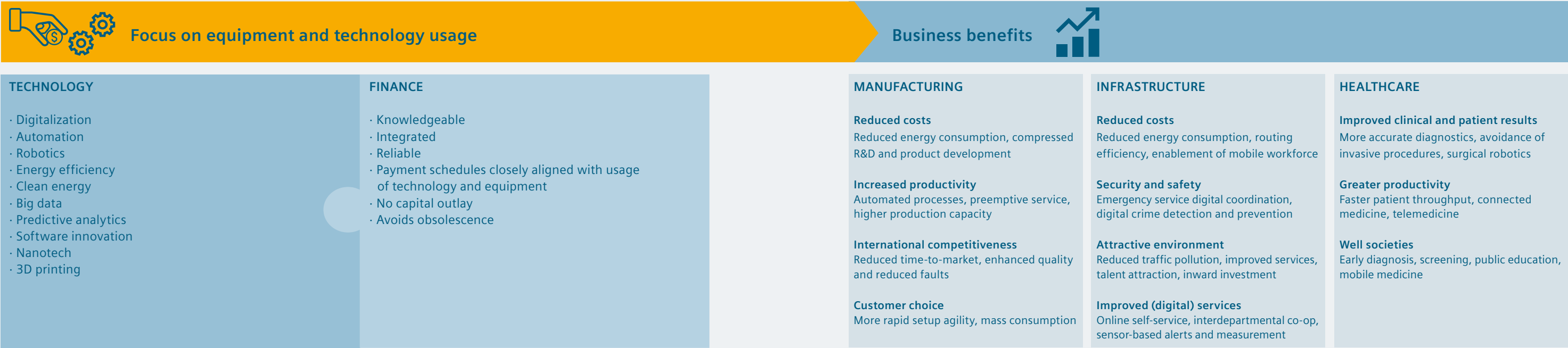
“Increased use of technology abroad is making it more difficult for us to stay competitive... [so] our demand for equipment financing options has increased over the last three years.”

Auto parts manufacturer, Turkey

compete in international markets (private sector) or deliver against increasingly stringent quality, productivity and efficiency targets (public sector). For private sector companies, margin pressures continue to rise in increasingly globalized markets where competition may come from any part of the world.

In addition, each key sector also has its own definition of the key business benefits to be gained from new-generation digitalized technology made accessible through pay-to-use arrangements. They are illustrated in the diagram below.

Current business model: Pay-to-use



“Asset finance helps us increase our volume of business. We can expand. Over the last two or three years, a lot of suppliers have reduced their applications for bank credit; and at the same time, asset finance increased accordingly.”

Precision components manufacturer, India

“Asset finance is very important in enhancing product quality as well as supporting companies financially. An organization’s growth is contingent on its acquiring the most advanced technologies for manufacturing.”

Pharmaceutical equipment manufacturer, China

“Considering technological developments, I’m assuming traditional manufacturers will consider alternative financing more. They have to rationalize investment and capital spending on new programs that will only bring in benefits two to three years down the line. In the long run, traditional manufacturers will move into the area of IoT, fourth industrial revolution, etc., and this will affect businesses.”

Train component manufacturer, US

“We may now choose renting for equipment we need to acquire. Renting can be interesting for us particularly because you can quote a residual value while the base of funding is lower. Also, it allows us to replace equipment more often which means we will be able to have more modern machinery.”

Machine tools manufacturer, Spain

“Leasing helps us to build customer loyalty, particularly when we can offer an operating lease where the machine tool can be exchanged after a few years. This also gives us a good understanding of how our clients are developing their business.”

Plastic products manufacturer, Germany

“Equipment finance plays a great role in our overall financial toolkit as state-of-the-art equipment is the key to quality as well as reduced manufacturing costs.”

Beverage bottling, Russia

MANUFACTURING

Pay-per-wrap at TRAKRAP

Based in Lancashire, UK, TRAKRAP manufactures a packaging solution for retailers that uses 90% less energy and 70% less wrapping film. As demand for its solution grew rapidly, TRAKRAP wanted to access a business model enabled by suitable financing that would help its cash flow and improve its customer service.

Introduced to Siemens Financial Services by technology partner Siemens Digital Factory, TRAKRAP agreed on a vendor financing arrangement that enabled its customers to spread the costs for use of the system over the contractual period on a “cost-per-wrap” basis. In turn, TRAKRAP receives payment for their solution from Siemens without delay and can continue to invest in growth. Martin Leeming, Managing Director of TRAKRAP Ltd, noted, “The Siemens arrangement means we can develop as rapidly as the market demands. So we’re truly powered by Siemens, both financially and technically.” Without the need to acquire the equipment, the end customer benefits from the use of the system on a pay-to-use basis, without upfront capital expenditure.

MANUFACTURING

Cash flow management at Mayoristamotor

Based in Spain, Mayoristamotor S.L. is a major vendor of industrial electric motors that grapples with a constant cash flow management issue because of the substantial difference in payment terms between customers and suppliers.

To help manage this cash flow challenge, Mayoristamotor turned to Siemens, and a financing arrangement was put in place that was designed to match the company’s exact cash flow needs. The resulting extended-payment program provides a business model that makes the company more competitive and underpins sustainable sales growth. José Antonio Hernández, Commercial Manager at Mayoristamotor, noted, “Thanks to this financing arrangement, we have managed to adapt our business processes to the needs of our customers, while making a closer collaboration with Siemens, enabling us to tackle more ambitious projects.”

MANUFACTURING

Investing for testing at Greenmot

Greenmot provides innovative, state-of-the-art, vehicle testing services for its clients – automotive, military and agricultural machinery manufacturers. The company wished to create a new testbed facility, unique in its type, to test pollutant output in real-life conditions. The investment was strategically important for Greenmot in staying competitively ahead and in penetrating new markets for HGV and industrial vehicles. Together with Siemens Digital Factory and Process Industries & Drives, Siemens Financial Services was able to create a pay-to-use, leasing-backed financing solution for the specialist equipment and analytical technology for the new testbed, which also offered the option to purchase at the end of the financing period, once Greenmot had more detailed evidence of return on investment. Sebastien Barret-Boisbetrand, Business Developer at Greenmot, noted, “Both financial and technical expertise was needed. The various teams at Siemens knew how to deploy agility, understand our needs, and build mutual trust.”

HEALTHCARE

Discover Laser grows through pay-to-use solution

Dr. José Miguel Montero García wanted to open an aesthetic clinic offering a wide range of nonsurgical laser treatments ranging from laser hair and tattoo removal to acne scar improvements. As a start-up business with limited capital, the clinic, named Discover Laser, needed affordable and flexible financing for the acquisition of initial equipment required for the running of the business.

With its extensive experience in financing medical equipment and expertise in the healthcare sector, Siemens Financial Services (SFS) provided Discover Laser with a pay-as-you-earn financing mechanism that allowed the clinic to acquire the latest laser technology without having to commit substantial upfront capital. Through four further customized pay-per-use agreements provided by SFS, Discover Laser was able to broaden its service portfolio with the additions of new equipment. These bespoke financing offers and customer-oriented services have played a crucial role in helping Discover Laser grow.

HEALTHCARE

Technology update at the Orthopädie Centrum Erlangen

Diagnostics and patient therapies of the highest quality is the watchword of the Orthopädie Centrum (OCE). The OCE wanted to acquire new MRI scanning equipment from Siemens that would increase patient throughput while also reducing monthly costs. This facility would enhance its competitiveness and help the OCE stand apart from most orthopedic practices.

The new MRI equipment was funded through a pay-to-use arrangement from Siemens that encompassed maintenance costs and parts replacement over the financing period. This gave OCE access to differentiating technology and improved patient services while also improving OCE’s cash flow management and guarding against any escalation in technology costs.

“For businesses of our size, having asset finance means you can penetrate markets that might otherwise seem unreachable without a lot of capital behind you.”

Injection molding, UK

“Market change is very fast. When interesting opportunities arise, we have no time to wait for loans. We have to act quickly to take that chance and that is when asset finance can be beneficial to our business.”

Glass processing, Poland

“It is a necessity for us to renew our technology, so asset finance plays an important role in our business strategy.”

Aviation parts manufacturer, France

“What distinguishes us from the competition is our machinery. When you have to save up capital to purchase equipment, you fall behind. With leasing, the process is much faster and means we can acquire cutting-edge equipment.”

Industrial pump manufacturer, Norway/Sweden

The journey toward paying for outcomes

Every aspect of the private and public sector is in the process of altering its perspective on success. In the past, in-house technology experts were the principal buyers, themselves taking responsibility for the technology's performance. Now, businesses widely recognize the value of concentrating their human capital on the competencies that must be developed in-house – product or service development, market intimacy, operating and financial agility, product and service differentiation, marketing and more. Increasingly, organizations are handing over responsibility for other competencies, either in full or in part, to an expert third party with the expectation of achieving greater efficiency.

Such initiatives are increasingly managed through pay-for-outcomes arrangements. The accompanying diagram¹ summarizes this transformation.

Across the globe, different countries are at different stages on the journey toward the new pay-for-outcome models described in the next section. Drawing on Siemens' aggregated knowledge and experience of integrated technology and finance offerings, the following table broadly illustrates the journey to adopting pay-for-outcome models.

“We wanted 3D printing capability, but the board wouldn't make the capital investment ... so the supplier did a deal based on results – mainly a 30% reduction of cost per unit. The deal worked.”

Machine components manufacturing, Russia

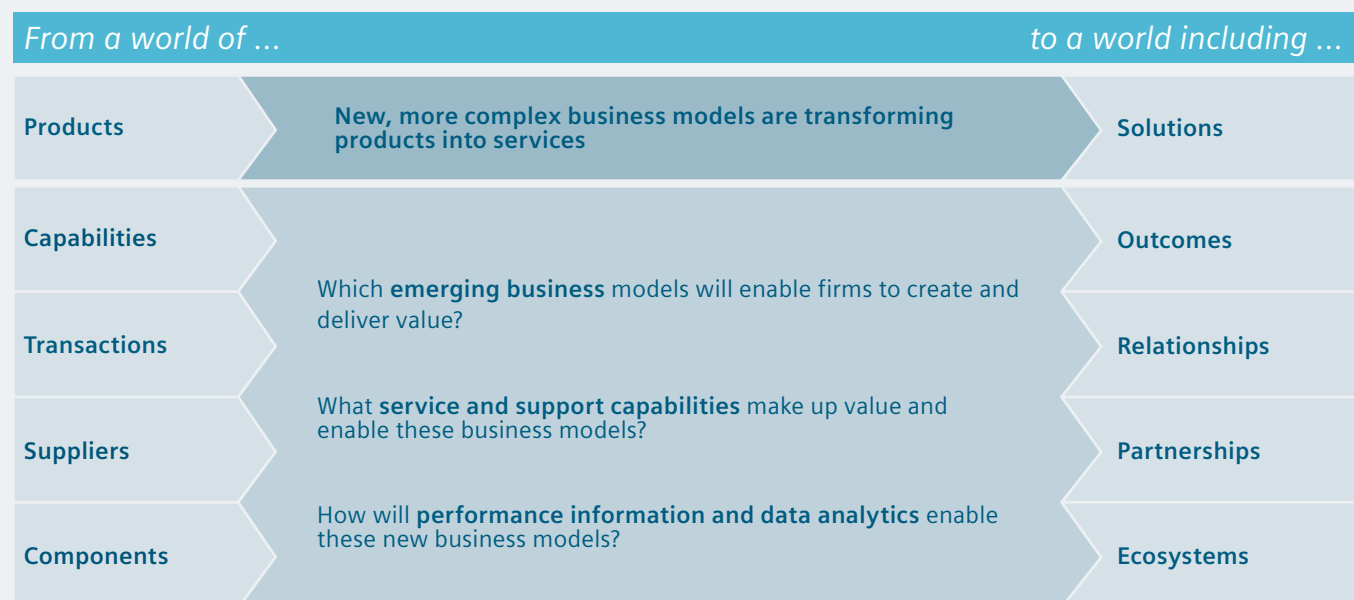
“Our organization has an arrangement with the technology provider for one of our production lines where payment is predicated on a product-per-minute productivity increase, tied in with a reduction in faults per thousand.”

Manufacturing, Poland

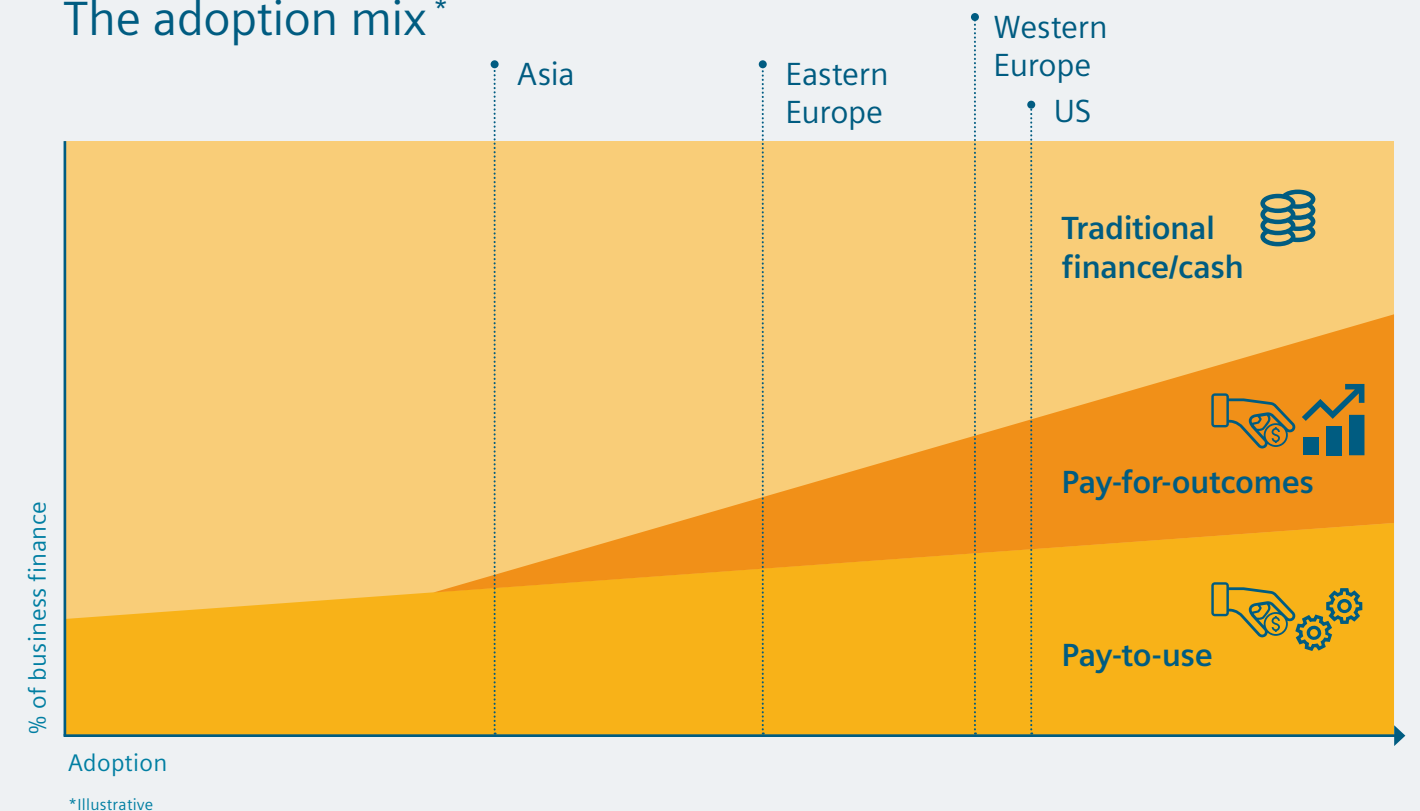
“The reimbursement to our tech-solutions supplier is based on a contractual promise to reduce lead time, reduce rejects and reduce the cost per product.”

Automotive manufacturing, US

Developing business models



Financing models: The adoption mix *



Pay-for-outcomes: An emerging model

Over the last few years, there has been significant growth in the availability of and interest in the idea of paying for business outcomes, rather than paying to use the technology that the acquirer believes will produce beneficial outcomes. The roots of this idea go back to the Rolls Royce Power by the Hour initiative of the 1960s,² which predicated payment on operational jet engine time. More recently, the emergence of a new generation of digitalized technology that links people, technology and organizations has made it possible to closely align what is paid by private or public-sector organizations with the expected business benefits. The notion is now being more widely discussed as the emerging business model in healthcare,³ manufacturing,⁴ and buildings and infrastructure.⁵ Finance and technology are being combined into an integrated value proposition where the solution provider offers organizations the possibility of paying for expected business outcomes, such as productivity improvements, optimized uptime, precise

performance gains, cost reduction or reduced energy usage.

Being able to pay for business outcomes transforms the reliability of financial planning in manufacturing, services, infrastructure and healthcare. Not only are costs more transparent, the risk of technology obsolescence, capital commitment, and so on are avoided. Moreover, the organization does not necessarily have to worry about fostering technology expertise in-house, as some variations of the general concept effectively outsources this to the integrated solutions provider. This is a significant advantage in a world where the accelerating pace of technology replacement not only increases investment risk, but also creates skills and recruitment challenges.

Four key factors are driving the recent growth in pay-for-outcomes options. They are summarized below.

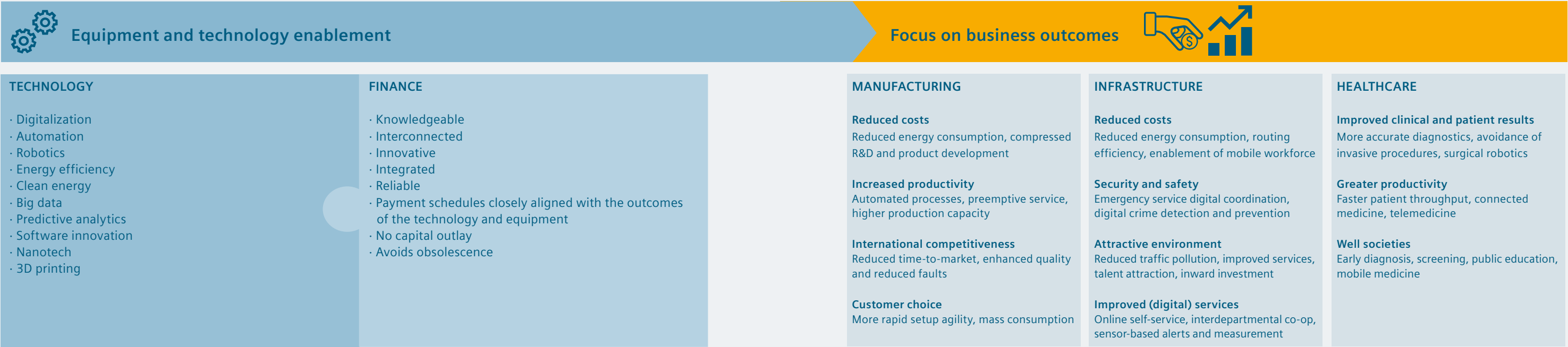
1. Digital enablement. IoT (equipment and technology that can “communicate”) now allows technology-based service providers to manage and monitor equipment at a distance, allowing usage tracking, preemptive servicing, process optimization, and so forth at relatively low cost. Monitoring also allows the service provider **and** financier to understand and interpret an organization’s usage behavior and proactively offer improvements to the arrangement over time.
Result: The integrated solution provider can confidently offer the customer payment arrangements based on predicted outcomes.
2. Digitalization and the rise of software-driven technology development mean the rate of technology change continues to accelerate. Fueled by digitalization, constant software updates and developments enhance the performance possibilities of hardware platforms in the manufacturing, services, buildings and healthcare sectors.
Result: Organizations can focus on gaining key business outcomes and be less concerned about how that result is produced, preferring to leave technology issues (not their core expertise) to third-party experts.
3. Pressures on growth, competitiveness and efficiency are mounting across a wide range of sectors, precisely because digitalized equipment and tech platforms allow major shifts in productivity (cost per unit), product/service customization, etc.
Result: Margin pressures continue to grow for the private

sector and regulatory and efficiency demands are increasing for the public sector; if technological capabilities can be harnessed without the need for capital and with less dependency on technology performance risk (a noncore skill), business planning can be greatly enhanced, which will lead to a major competitive advantage.

4. In the strategic bid for cost reduction across a spectrum of sectors, organizations are increasingly defining their core skills (those skills that must be nurtured and developed in-house) in contrast to activities that are best – or most efficiently – provided either in full or in part by third-party specialists.
Result: Organizations can prioritize their investments and efforts to focus on their wholly owned core differentiators in their markets, harnessing the expertise of solutions providers to complement those differentiators in partnerships of excellence.

Lastly, in order to confidently offer outcomes-based solutions, considerable knowledge of the technologies involved, along with their likely impact on the user organization, is required.⁶ That “intimacy” with technology and its applications does not tend to be the province of generalist financiers. It requires specialist knowledge and wide experience, along with a close relationship between solution provider and financing partner. User organizations interviewed for this paper noted that they strongly favor specialist financiers who are using their technological knowledge to embed finance into the total value proposition.

New business model: Pay-for-outcomes



“Paying for outcomes already exists in a number of pioneering applications. For example, some industrial robots are paid for according to the value they create. Finance is becoming more and more innovative as businesses want to focus more on the detail of what they’re getting.”

Anders Ydstedt, Senior Consultant, Industrial Group Recycled Energy (Atervunnen Energi), Sweden

“Our estates refurbishment for heating and lighting is increasingly being performed on a pay-for-outcomes basis, with savings effectively paying for the technology upgrade.”

Commercial landlord, Far East/Europe

“Not all our financing requirements fit into the same pattern. ... We need different periods and different deals for different technologies and outcomes, for instance, and so we looked for a financier that had this flexibility”

Hospital group, France

“Pay-for-outcomes is a financing arrangement with high potential and is likely to grow quickly over the next few years. The field of energy is a good example – you don’t buy heating equipment now, you buy an effectively but efficiently heated factory. The buyer wants the outcome, and doesn’t really care how it is reached.”

Holgar Ade, Head of Business Administration and Economy, Economic Association of Steel and Metal Processors, Germany

“Providing the most appropriate and sensible financing arrangements, calls for an expert finance provider’s more in-depth understanding of technology, specific market requirements and grasp of trends in particular industries.”

Electronics manufacturer, China

“We don’t pay for equipment, but for certain outcomes – increased operating capacity/capability, product quality and productivity levels.”

Packaging manufacturing, UK

“In our industry, every tiny bit of profitability is critical as we operate on quite thin margins – so the security of paying for outcomes rather than committing scarce capital is really attractive.”

Conference centers, UK

Business outcomes: Definitions

Business outcomes may take many forms, depending on the priority of the end-user organization. It is therefore important to define what kind of “outcomes” might be built into a pay-for-outcomes solution. To illustrate this point, the following sections look at outcomes from two perspectives: in terms of job role and in terms of business sector.

- CFOs tend to value financial outcomes: capital conservation for tactical initiatives, working capital and cash flow improvement, better management of future risk, and growth sales financing as well as other performance measures such as productivity and efficiency.
- Operations directors focus on productivity, quality and reliability: reduced cost per product or cost per procedure, reduced fault or error rates, quicker throughput, reduced lead time and reduced energy consumption.
- Sales and Marketing Directors seek market and pricing agility and competitiveness: shorter time to market, virtual development of products and mass customization.

· Brand and Corporate Communications Directors want Corporate Social Responsibility outcomes: environmental friendliness and green practices, the ability to manufacture and employ locally, and organizational positioning as a net economic contributor.

· CEOs, in addition to the above points, demand overall business performance outcomes: increased profitability, new market growth and improved competitive positioning.

The sector definition of “business outcomes” can also be presented on a sector-by-sector basis:

· Manufacturing companies usually seek one (or more) of four business outcomes: reduced cost per manufactured product unit (through, e.g., faster production rates, reduced setup time, etc.); reduced operating overheads (e.g. lower energy consumption); ability (and agility) to deliver product variations to each customer without cost penalty; and faster product development (e.g., through virtual testing capabilities) – all of which lead to greater competitiveness, new market penetration and overall growth.

“Solutions structured as pay-for-outcomes will continue to develop in the next five to 10 years – with a focus on improvements in production-line productivity. What’s more, some technology companies may even find that they have to change the whole way they do business – perhaps changing their business model entirely to continue offering technology in ways that are sustainable for their customers”

Xiagang Wang, Deputy Secretary General of the Guangdong Manufacturing Association, China

“Pay-for-outcomes is a really good concept – so long as the financing techniques are sufficiently flexible to make the deal work for both parties.”

SME Manufacturing, Sweden

· In buildings and infrastructure and the service sector, valued business outcomes include: reduced energy usage and a better environmental footprint (lighting, heating, air-conditioning, etc.), better security (through smart systems that return data on people movements, improved safety (IoT capabilities allow the building to “talk” and maximize preemptive safety measures as well as optimize emergency response) and utilization analysis (again through IoT, a critical feature for organizations to optimize their estate efficiency).

· In healthcare, the business outcomes in focus comprise: increased quality and accuracy of the diagnosis or therapy (to improve patient outcomes), reduced cost per procedure (consultation, diagnosis, surgery, other therapy), improved patient throughput rates (more people get more treatment with constrained premises and human resources) and early and accurate detection (to improve patient health prospects and avoid distressing and expensive lifetime therapies for chronic illnesses).

“Pay-for-outcomes financing deals can function with outcome clarity that can be measured in terms of improved productivity, increased energy efficiency and reduced costs. In an outcomes contract, it must be possible to clearly report and verify all results.”

Alliance Prom (Infrastructure Association), Russia

“We use a performance arrangement, where we pay for uptime gains and productivity levels. We’re skilled in clinical services and are happy to outsource the enabling technology.”

Hospital trust, UK

BUILDINGS & INFRASTRUCTURE

Paying for outcomes through energy performance contracting at the Gewandhaus Concert Hall

The Gewandhaus Concert Hall in Leipzig houses one of Europe's most celebrated symphony orchestras. Yet this famous venue was overspending on electricity and needed to invest in the latest energy-efficiency technology to radically reduce this outlay. Siemens Building Technologies was engaged to replace and refit the concert hall's ventilation and heating systems and modernize the lighting in the foyer. The amount of time to install the new energy-efficiency technology was very tight: Since the Gewandhaus is fully operational during the concert season, the project had to be completed during the one-month summer break. The integrated energy performance contracting solution from Siemens was a pay-for-outcomes arrangement that enabled the investment to be paid for with the savings – almost €1 million – realized from the new technology and did not require Gewandhaus to dip into its precious cash reserves. In this way, an important cultural facility was made more financially and environmentally sustainable at no net cost to the taxpayer.

MANUFACTURING

Efficiency excellence at Pilkington

One of the UK's foremost glass manufacturers, Pilkington United Kingdom Ltd ("Pilkington"), a part of the NSG Group, has worked with Siemens to drive a major energy management project across its production sites. The program with Siemens is designed to enhance Pilkington's overall energy performance, cut costs and create a more sustainable future. The agreement enabling these projects to be realized comprised an industry-leading energy performance contract between Siemens and Pilkington. The principle of the arrangement is that Siemens Financial Services funds the initial capital expenditure required for the projects, which have typical three-year payback periods in terms of generated energy savings. Pilkington then simply makes a monthly payment that matches its monthly savings in energy costs. This effectively results in a zero net cost investment, which not only modernizes the Pilkington manufacturing infrastructure but also sustainably reduces the company's carbon footprint.

BUILDINGS AND INFRASTRUCTURE

Updating school facilities in Bytom

For some years, the problem of energy overspending had been increasing at local schools in Bytom, Silesia, in southern Poland. Siemens undertook to deliver a finance-enabled pay-for-outcome deal that would modernize the heating and energy control systems across all 17 schools in the area. Following installation, electricity consumption is being reduced by some 20%, and thermal energy generation costs are being lowered by over 40%. More than 80% of the cost of the enabling technology will be subsidized by energy savings achieved over the period of the agreement. Quite apart from the financial benefits of the agreement with Siemens, students and teachers can now work in a more comfortable environment that is conducive to study, and the schools are able to reduce their ecological impact by contributing to the city's improved air quality and carbon footprint.

MANUFACTURING

Kübler & Niethammer reduces energy generation outlay

Kübler & Niethammer is a mid-sized papermaker based in Saxony, Germany. The company continuously aims to improve the environmental and resource friendliness of its manufacturing processes. Most recently, it did so by implementing an efficiency optimization program for its power plant that involved installing an additional steam turbine SST-060 from Siemens Power & Gas. To preserve the company's lines of bank credit so they did not get tied up in technology acquisition and instead remained available for tactical needs and opportunities, Siemens created a tailored pay-for-outcomes arrangement for the company. The financing arrangement made it possible to match the reduced energy costs resulting from the new turbine technology to the cost of the new technology and therefore pay for it. Regina Ludwig, Chief Financial Officer at Kübler & Niethammer, noted, "Siemens is supporting the expansion of our energy supply to include electrical power by contributing the excellence of its play technology as well as the expertise of its skilled financing specialists."

"We're working with a specialist financing partner to establish a strong relationship and develop a strong track record together. ... There aren't that many experts to choose from, and we are involved with this partner partly because they have a powerful international network that mirrors our global expansion strategy."

Commercial office portfolio, Germany

"Pay-to-use, and now the emerging new business model of pay-for-outcome, is a natural progression of intelligent financing techniques."

Precision engineering, China

"Five years ago, pay-for-outcomes arrangements were much talked about, but in practice most agreements rarely worked. However, times have changed, and the business models are more accurate and reliable now; in the future we will likely see more of these types of agreements."

Jonathan Graham, Head of Policy at the Association for Decentralised Energy, UK

"We work with a performance solutions provider in joint replacement where they combine consultancy and technology to deliver contractual improvements in clinical quality, patient satisfaction and productivity."

Hospital, US

Pay-for-outcomes: The wider impact

In a broader context, the business benefits generated by the emerging pay-for-outcomes business model and existing pay-to-use models can, in turn, be seen to ultimately generate important results for national economies and for society at large. These wider benefits may be characterized in six categories.

Boosting productivity and innovation

Delivering technology-based business benefits⁷ makes it possible for organizations to plan their business growth more reliably. This in turn allows private-sector companies to devote more resource to innovation development in the way their products and services are offered to customers. In the public sector, consuming technology-based services on a pay-for-outcomes or pay-to-use basis also means that more concentration can be confidently focused on public service delivery or clinical service quality and efficiency. Early diagnosis and intervention using digitalized healthcare

technology is a key factor in creating more “well” societies – helping to reduce long-term healthcare consumption. In another productivity example, one study predicts that digital transformation has the potential to unlock \$1.3 trillion of value for the electricity sector.⁸

Sustaining the environment

Just-in-time manufacturing eliminates wasted inventory. Such business benefits are a typical⁹ outcome that might be built into a pay-for-outcomes or pay-to-use arrangement, not only reducing a company’s overheads, but also making sure that a greater proportion of manufactured product is ultimately used by businesses and individual consumers. Correspondingly, the most widespread application of pay-for-outcomes solutions today is probably in energy performance contracting, where technology is applied to radically reduce electricity consumption in industry, commerce, healthcare and the wider public sector.

Improving infrastructure

Digital cities can offer better, more easily accessed and more effective citizen services. Yet they often lack the available capital to make the necessary investment in digitalization. Pay-for-outcomes and pay-to-use solutions allow cities to digitalize with a more reliably predicted return on investment. This not only provides city CFOs with more planning confidence, but also reassures stakeholders – from the individual taxpayer to central governance authorities.

Driving economies

One consultancy estimates that digitalization will boost the European GDP growth rate by up to 40% through 2020.¹⁰ If that digitalization is harnessed through pay-for-outcomes or pay-to-use arrangements, the likelihood of technology investments failing is reduced, wasted effort is eliminated, and economies become more productive and competitive.

Developing skills

Digitalizing the public and private sector makes it possible for a wider range of technology-based products and services to be offered on a pay-for-outcomes basis. At the same time, digitalization also creates the need for new skills and offers new career opportunities. One consultancy noted that these new skills areas cover data scientists, artificial intelligence programmers, maintenance engineers for digitally enabled platforms, and so forth, and they will all be directed by a new management class that has sufficient technical knowledge to get the most out of this workforce with new skills.¹¹

Responsible business

Societies and the business community want, wherever possible, to reduce the consumption of natural resources. One of the most typical applications of pay-for-outcomes models is in the field of energy performance contracting, where the financial savings from reduced energy consumption are used to pay for the enabling technologies. Once the financing period is over, the benefits of reduced energy usage and financial savings continue to be gained.

Outcomes



“The goals or KPIs built in to such [pay-for-outcomes] arrangements will, broadly speaking, be improved patient outcomes and reduced cost per procedure (usually from technology that offers improved productivity with no loss of quality).”

April Snyder, Vice President, the American Association of Managed Care Nurses (AAMCN), US

“Our tech supplier has analysed our production, come up with an energy-saving strategy, implemented the solution and used the savings to pay for the technology, offering us a ‘no net cost’ deal.”

Paper product manufacturing, France

“There’s a major requirement for pay-for-outcome offers – probably best delivered by organizations that understand how the technology works.”

SME manufacturing, India

“So long as the deal and contractual terms are clear and enforced, the future development of these pay-for-outcomes agreements, in my opinion, will be very fast. As long as there are financial services providers to support this type of technology and service offering, it will logically be the optimal way of doing business for manufacturers and for customers as well.”

Maria Jose Legalina, Directora Economico Financiera en AMEC (Asociacion Multisectorial de Empresas), Spain

Methodology

The Siemens Financial Services study captured testimonies from businesses and industry associations in 13 countries, examining use of finance-enabled business models. The research comprised qualitative telephone interviews, conducted from June 2015 to October 2016, with over 150 CFOs/CEOs and trade associations in the manufacturing, infrastructure, city management and healthcare sectors.

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