



THE COMPLETE GUIDE TO **UV PRINTING** FOR **CUSTOMISATION**

Everything You Ever Needed to
Know About UV Customisation



Welcome sign with braille text



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Customisation in Digital Print



01

Customisation is an established trend that continues to grow, with UV print leading the revolution.

Consumers expect products that reflect their individuality, and businesses see personalisation as a way to strengthen relationships, command higher prices, and stand out in competitive markets. At the same time, manufacturers and industrial companies are using customisation to streamline workflows, reduce costs, and add value at scale.

UV flatbed printing has become a pivotal technology in this shift. By allowing businesses to print directly onto almost any surface – quickly, with excellent precision, and without long set-up times – UV printing is opening up opportunities across industries. It combines efficiency with creative flexibility, offering both small businesses and large manufacturers a practical route into customisation.

This whitepaper provides a complete overview of UV printing for customisation: how the technology works, the benefits it delivers, the industries it serves, and the business models it supports. It also explores the return-on-investment potential, gives practical advice for companies considering adoption, and looks at the future of UV technology in the wider context of automation and sustainability.

UV printing...
combines efficiency
with creative flexibility.



Customised keypads

The Age of Customisation



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Customisation is no longer reserved for luxury markets. Today, it is present in everyday consumer goods, professional equipment, and industrial components.

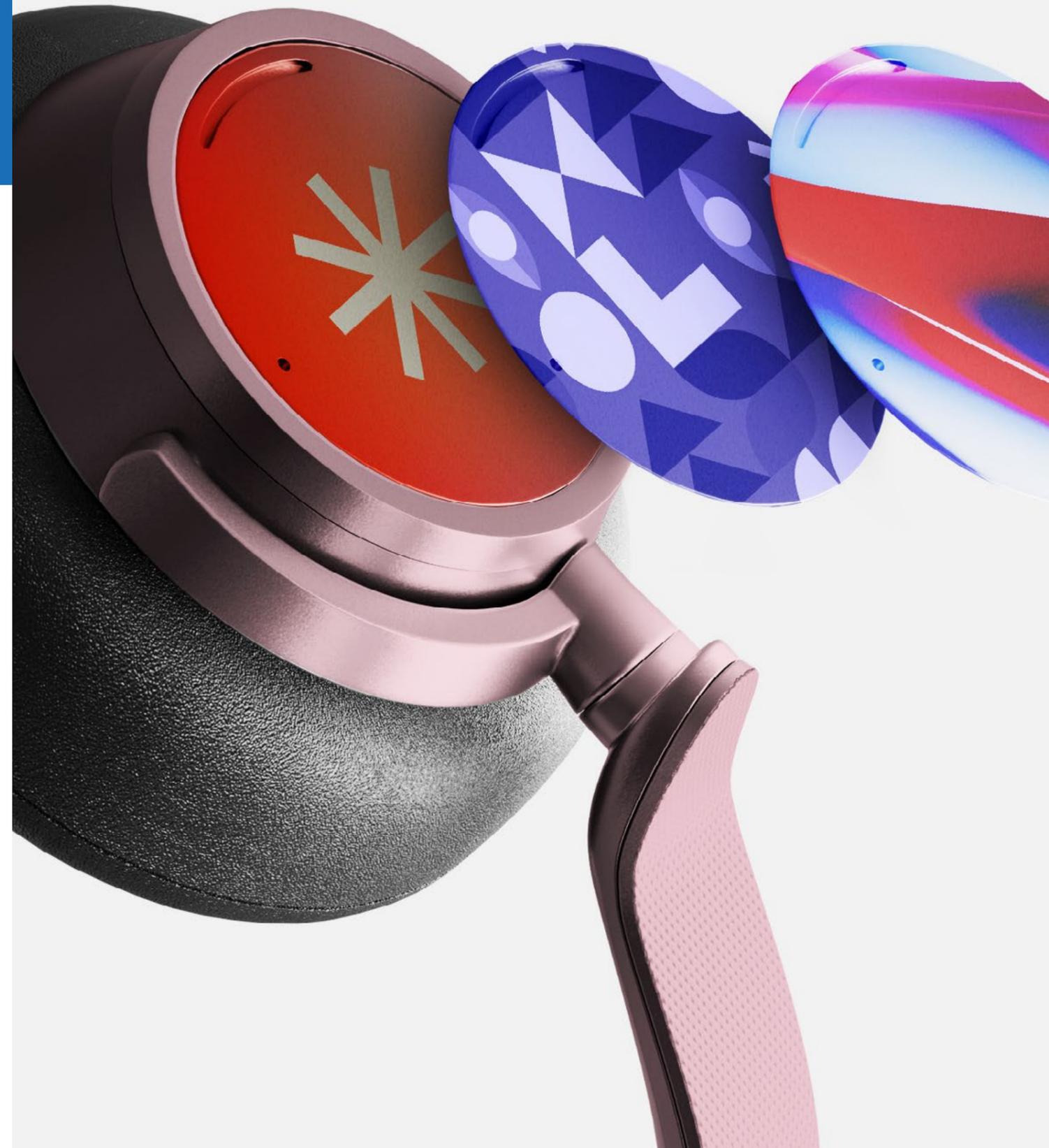
Research by Deloitte* shows that half of consumers believe customised products make better gifts, and many are prepared to pay a premium. This growing willingness to invest in personalised experiences means businesses across every sector are rethinking how they design, produce, and sell.

For manufacturers, customisation is not only about appealing to end-users. It can mean reducing waste by producing exactly what is needed, supporting just-in-time manufacturing, or enabling flexible product iterations. In sectors where competition is fierce, the ability to deliver unique or small-batch products quickly becomes a genuine competitive advantage.

The challenge lies in how to achieve this efficiently. Traditional printing methods – such as screen or pad printing – are designed for large runs. They involve high costs and lengthy preparation times, making them unsuitable for short runs or one-offs. UV printing changes this equation. With its combination of speed, versatility, and durability, it enables businesses to offer customisation without sacrificing efficiency.

* Deloitte Consumer Review www.deloitte.com

The ability to deliver unique or small-batch products quickly becomes a genuine competitive advantage.



03



Personalised UV printed waterbottle

Understanding UV Printing

UV printing is a digital printing method that uses special UV-curable inks. These inks are exposed to ultraviolet light during the printing process, which instantly cures and hardens them. The result is a print that is dry, durable, and ready to use straight from the printer.

Core Features of UV Printing

- **Instant curing** – eliminates drying times, allowing immediate processing, packaging, or shipping.
- **Material versatility** – compatible with a wide range of substrates, including plastics, glass, wood, metal, ceramics, leather, acrylic, and more.
- **Precision and quality** – sharp image reproduction, fine detail, accurate text, and vibrant colour.
- **Durability** – prints that resist abrasion, chemicals, and UV light, making them suitable for both consumer products and industrial components.
- **Special effects** – beyond CMYK, UV allows for opaque white, gloss and matte varnishes, raised textures, simulated embossing, and braille.

For certain substrates, such as glass or metal, adhesion can be improved by printing a Primer ink layer.

Comparison with Traditional Printing Methods

- **Screen printing** – ideal for high volumes but requires expensive screens and long preparation times.
- **Pad printing** – flexible for irregular shapes but less precise.
- **Sublimation** – cost-effective for coated surfaces but limited by substrate type, requires a polyester coating and used on flat surfaces.
- **UV printing** – combines the speed and flexibility of digital technology with the durability and versatility needed for industrial and creative applications.

This combination of features is what makes UV printing a genuine enabler of customisation.

Benefits of UV Printing

Versatility

Roland flatbed UV printers can handle a wide range of shapes and surfaces – flat, curved, or textured. They can print on objects from 100 mm to 242 mm high, and even higher with the use of spacers. Distance mode allows greater accuracy on uneven surfaces. This flexibility means businesses are not restricted by material type, opening doors to innovative applications and product diversification.

Quality and Precision

The technology produces vibrant colours, intricate details, and an accurate reproduction of designs. This is particularly valuable in packaging, labelling, and product decoration, where visual impact is critical. For example, a manufacturer can print directly onto product housing with full-colour branding, ensuring consistency across every unit.

Productivity and Speed

UV-curable inks dry instantly, eliminating bottlenecks in production. Companies with demanding schedules benefit from the ability to print, finish, and ship products in a single streamlined process.

Creative Flexibility

Special effects such as gloss, matte, embossed finishes, or textures add premium qualities to products. Raised lettering or braille can also be produced efficiently, making UV printing valuable for both aesthetic and functional purposes.

Durability

Products printed with UV inks can withstand everyday wear and tear, exposure to chemicals, or direct sunlight without fading. This makes the technology suitable not only for decorative applications but also for higher traffic environments.

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Sustainability

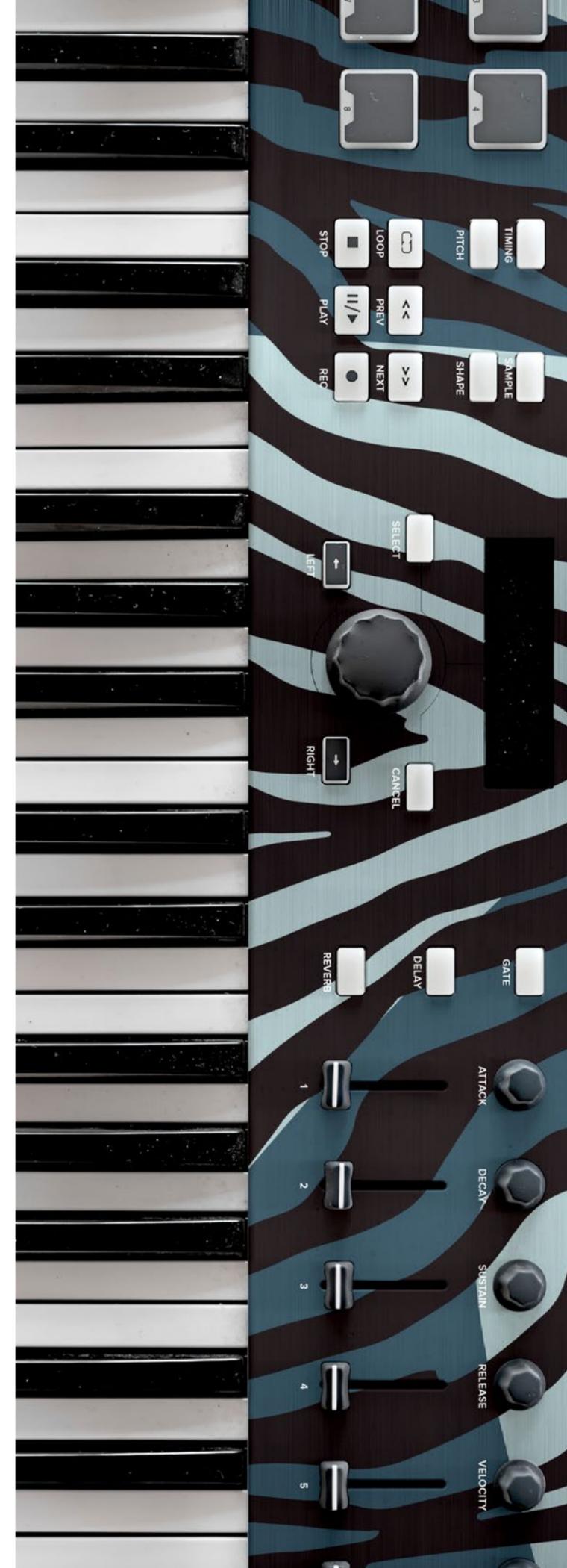
Roland UV flatbed printers often use LED lamps that consume less energy, produce no ozone, and last longer than traditional lamps. Certifications like GREENGUARD Gold help companies meet stricter environmental standards.

Cost Efficiency

UV printing reduces overheads by eliminating consumables such as drying equipment and screens. Stock management also becomes easier, as businesses can print on demand rather than carrying large inventories.

Print on a wide range of shapes and surfaces - flat, curved, or textured.

Personalise keyboard skin



Applications Across Industries

UV printing allows customisers to cross traditional market boundaries. It's as relevant to a small design studio creating personalised gifts as it is to a large manufacturer branding industrial components. Below are some key sectors and how they benefit:

01 - Promotional and Giftware

- **Corporate merchandise** – branded pens, USB sticks, notebooks, and giveaways.
- **Event products** – personalised lanyards, water bottles, trophies, and awards for conferences or a variety of events.
- **Consumer gifts** – custom phone cases, jewellery boxes, photo frames, and gaming accessories.

By adding embossing or gloss finishes, businesses can charge premium prices for items that stand out.

02 - Packaging and Prototyping

- **Short-run packaging** – trial packaging for new product launches or seasonal campaigns.
- **Prototypes and mock-ups** – high-quality visual samples produced quickly, with a short time from design to market.
- **Luxury packaging** – UV varnishes and textures elevate the look and feel, appealing to premium sectors such as cosmetics or spirits.

03 - Industrial Components

- **Branding on equipment** – permanent logos and serial numbers printed directly on housings, switches, or panels.
- **Functional printing** – safety markings, instructions, or tactile indicators directly on industrial parts.
- **Custom iterations** – small-lot production of modified components to suit specific client needs.

04 - Signage and Labelling

- **Safety and compliance** – braille, emergency signs, and durable warning labels.
- **Wayfinding** – custom signage for buildings, events, or transport hubs.
- **Retail displays** – vibrant promotional panels with tactile finishes for in-store marketing.



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The Business Case for UV Printing 06

Expanding Revenue Streams

Customisation offers a route into new markets. A sign shop might branch into corporate merchandise, or an industrial supplier might add branded parts to its

service offering. By providing personalisation in-house, businesses reduce reliance on third parties and capture more value themselves.

ROI in Practice

UV printing proves profitable even, or especially, in small volumes. For example:

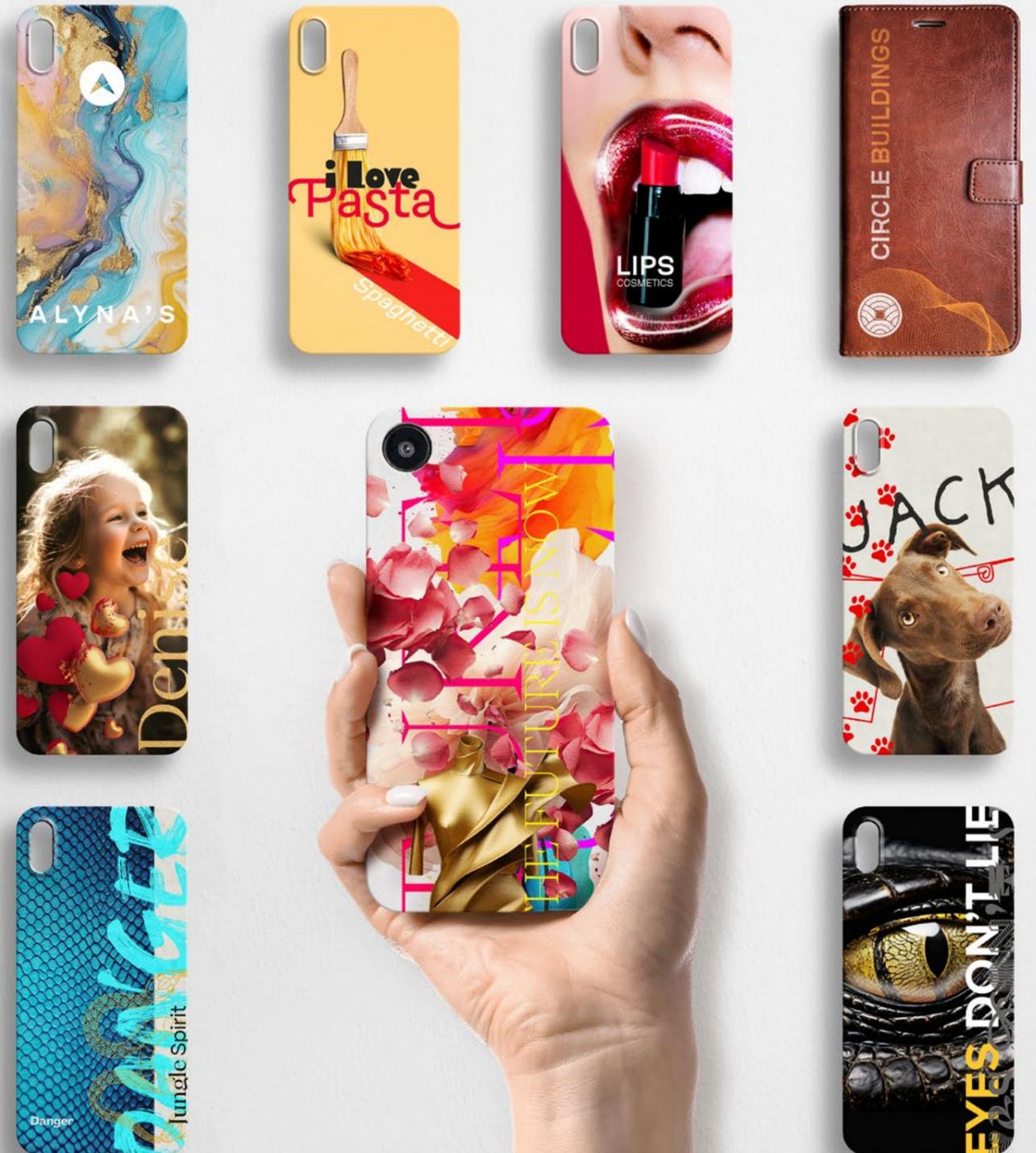
Materials	Cost/Blank	Retail Price	Profit/Hour
Luggage Tags	\$3.20	\$24.00	\$600
Phone Cases	\$2.20	\$30.00	\$800
Golf Balls	\$6.50 (for three)	\$25.00	\$370

These figures highlight how margins in personalisation can be substantial, even with low-cost blanks.

Figures are for illustrative purposes only. Real-world values vary by region, media, design complexity, and customer base.

Routes to Market

- **Online marketplaces** – make the most of built-in audiences on established platforms.
- **Direct e-commerce** – find businesses with their own e-commerce websites, with platforms designed to simplify processes.
- **Social commerce** – utilise Instagram or Facebook shops to combine marketing and sales.
- **Events and retail** – demonstrate live printing at exhibitions or offer customised products in-store.
- **B2B supply** – become a third-party provider of customised goods for other businesses.



Practical Guide to Getting Started

07

Transitioning into UV printing does not require an overhaul of operations. It can be phased in step by step.

Choosing the Right Equipment

- **Desktop UV printers** – compact and affordable, suited for small-scale personalisation such as gifts, stationery, and promotional products on objects up to 100 mm high.
- **Mid-range flatbeds** – balance of speed and flexibility, handling a wider variety of substrates and volumes on objects up to 204 mm high.
- **Large industrial flatbeds** – designed for high-volume or large-format applications, often integrated with automated workflows on objects up to 242 mm high (and more with spacers).

Software and Workflow

Design tools like Adobe Illustrator or CorelDRAW handle creative work, while RIP software such as Roland VersaWorks optimises print output. VersaWorks supports advanced layering, white and gloss inks, and variable data printing for efficient personalisation. PrintAutoMate simplifies the printing process further, especially for those who regularly print with jigs.

Substrate Sourcing

Finding the right blanks is a must. Options include online marketplaces for quick access, overseas suppliers for cost efficiency, and specialist manufacturers for higher-quality products. Businesses should ensure compliance with safety and import regulations when sourcing internationally.

Skills and Training

Unlike traditional methods, UV printing has a relatively shallow learning curve. Operators can quickly become proficient, and Roland DG provides resources and training to help teams make the most of the equipment.

Scaling Strategy

Many businesses start with smaller, consumer-facing applications, such as promotional goods, before expanding into industrial or B2B services once they are confident in managing workflows and demand.

The Future of UV Printing

08

The UV sector continues to evolve rapidly, driven by technology and market trends

Speed and Scalability

New print head designs and variable speed modes will give businesses more flexibility, from one-off items to mass production.

Enhanced Colour Management

Future RIP software will improve precision colour reproduction, with extended ink gamuts and better calibration to meet stringent branding requirements.

Sustainability

Energy-efficient LED lamps, eco-certified inks, and reduced waste will continue to align UV printing with sustainability targets – increasingly important for procurement decisions in both B2C and B2B markets.



09

UV printing continues to evolve:

- **Expanded material compatibility**
Ongoing ink development promises compatibility with even more substrates, from flexible plastics to advanced composites.
- **Automation and integration**
Expect to see UV printing embedded in automated production lines, with conveyors and robotic systems handling substrates. This reduces manual labour and boosts throughput.
- **Speed and scalability**
New print head designs and variable speed modes will give businesses more flexibility, from one-off items to mass production.
- **Advanced colour management**
Future RIP software will improve precision colour reproduction, with extended ink gamut and better calibration to meet stringent branding requirements.
- **Sustainability**
Energy-efficient LED lamps, eco-certified inks, and reduced waste will continue to align UV printing with sustainability targets – increasingly important for procurement decisions in both B2C and B2B markets.

These advances ensure that UV printing will remain at the centre of both creative and industrial customisation strategies.



Final Thoughts

UV printing combines versatility, quality, speed, and cost efficiency, making it one of the most practical technologies for businesses looking to offer customisation.

Its applications cover everything from personalised consumer goods to industrial components, so with clear ROI potential and a future shaped by automation and sustainability, UV printing will likely remain at the forefront of customisation.

For companies looking to add value, diversify services, or strengthen their competitive edge, UV printing provides a practical and profitable solution. Roland DG is committed to supporting this journey with proven technology, training, and expertise.

www.rolanddg.com.au



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