# BBD BULLETIN

# CONTENTS

# NOTE FROM THE ED

The second quarter of 2018 is just starting and already it's been an interesting year with Elon Musk sending a Tesla Roadster into space, rapper 50 Cent apparently becoming a bitcoin billionaire and everyone not-so-patiently awaiting news on the cloud data centres coming to South Africa.

And in the world of BBD? Well, we're continuously taking the tech world by storm! Within the first months of 2018 we have already achieved the exceptional. The BBD Java CoE team at Nedbank were nominated for an Ongoing Award, a new generation scalable cloud-enabled solution for TurfSport went live, we've aided Right ePharmacy and the Department of Health in launching Africa's first pharmacy dispensing unit and we're working with Discovery Bank to launch their retail banking product offering.

We were also the main sponsor for DevConf 2018 with three remarkable BBD speakers. Read more about this on page 32.

So, what's in store for the rest of 2018? We're looking forward to continuing to partner with our clients to enable them to gain real business benefit from our services, all the while helping the BBD family to grow bigger and better. Oh, and of course all the cool upcoming powwows such as esc@pe, mid-year, year-end and Bierfest!

Some highlights to look out for in this edition include ATC session dates on page 8, what open banking means for SA on page 26 and a Q&A with Rory on FRP on page 56.

We hope you enjoy reading the Bulletin as much as we enjoy putting it together for you. If you have anything interesting to share with us for the next edition, please send your suggestions and pics to **marketing@bbd.co.za**.

# atc
## Sessions - **2018**

A core responsibility of ATC is to keep abreast of new and emerging technologies, help BBD explore and evaluate them, and assist in early and rapid adoption of chosen technologies.

ATC members provide technical consultancy services for clients, involving all phases of a project. In addition, they are sometimes seconded to BBD project teams to boost skills and/or mentor team members on particular technologies.

The capabilities and experience within the ATC team stretch across the whole software development life cycle (SDLC). Drop us a mail at **atctraining@bbd.co.za** to see where and how we can assist you in achieving your project goals.

Dates of below sessions are subject to change. Notifications of change will be handled via the community: **www.community.bbd.co.za**

**Important Dates**

| | | |
|---|---|---|
| » | SA Hackathons | **tbc** |
| » | India Hackathons | **tbc** |
| » | Esc@pe JHB 2018 | **23 Aug 2018** |
| » | Esc@pe CT 2018 | **30 Aug 2018** |

**Web**

| | | |
|---|---|---|
| » | Advanced Angular | **Jun 2018 / Nov 2018** |
| » | React Fundamentals | **Sep 2018** |

## Languages

| | | |
|---|---|---|
| » | Advanced Java | **Sep 2018** |
| » | C# Bootcamp | **May 2018** |
| » | ASP.NET Fundamentals | **May 2018** |
| » | Xamarin | **May 2018** |
| » | Python Bootcamp | **Jul 2018 / Nov 2018** |

## Software Development Skills

| | | |
|---|---|---|
| » | Service Design | **Jun 2018** |
| » | Micro Services Architecture | **Jul 2018** |
| » | Containerisation – Docker | **Jun 2018 / Nov 2018** |
| » | Cloud Fundamentals | **Jun 2018 / Oct 2018** |
| » | Continuous Integration & Continuous Delivery | **Apr 2018 / Nov 2018** |
| » | Database Fundamentals | **Apr 2018** |
| » | Security Fundamentals | **May 2018 / Sep 2018** |
| » | Design Patterns | **Jul 2018** |

## BA

| | | |
|---|---|---|
| » | Documentation Tools & Effective Communication | **Apr 2018** |
| » | PASA fundamentals | **Jun 2018** |
| » | Scrum Fundamentals for the Business Analyst | **Jun 2018** |
| » | Rethinking the Role of the Business Analysts | **Sep 2018** |
| » | UX Design techniques for Business Analysts | **Oct 2018** |

## Labs

| | | |
|---|---|---|
| » | IoT | **Apr 2018 / Oct 2018** |

## Certifications

| | | |
|---|---|---|
| » | Java Programmers | **May 2018 / Jun 2018** |
| » | Scrum Master | **tbc** |
| » | C# | **tbc** |

# GROUP OF COMPANIES **UPDATE**

**bbd**
software development

BBD is built on a bedrock of people working hard to ensure they have the knowledge and expertise to deliver quality software and services to our clients. Our own measure of success is when we see our clients gaining real business benefit from our services. This can be a challenge in the competitive and dynamic worlds of technology and business.

Thank you to all our BBD people who through their actions continue to grow BBD, making us the software development powerhouse of Africa.

Being South African based means that in many respects we have had a tumultuous year. From water shortages to political upheavals and less success than we like on the sports fields. However, South Africans are a positive lot in spite of the challenges and side shows and we continue to see many individuals, institutions and businesses - like BBD and our clients - continuing to work hard to keep South Africa tracking upwards. We are privileged to live in one of the most diverse and beautiful countries in the world and with the "Pottinger" poison out of the system we can focus on reaching our dreams.

BBD is a technology business made great by humans - how cool is that!

Over the past year, the Pune office has grown from 45 to 66 people. One of our 2017 aims was to try and diversify the client base that India staff were working on, with 65% of the India office working on Vodacom projects.

After being expatriated for a year in India, Francois Bester and Maryke Nel returned to SA in September. Francois and Maryke had been performing the roles of office leadership and acting to a certain extent as Russell's proxy in the India office. Their return didn't come as a surprise, and Anand Kumar and Ankur Chourasia were identified to take over their roles.

On the office front, we have recently expanded and renovated the canteen area to make it more hospitable and created a larger space for the Standard Bank teams. At our current rate of growth, we may run out of space towards the end of the year – but a good problem to have.



In March 2018 Fusion Software moved to new premises to kick start a very busy new year, sharing a funky space with BBD! Our team is growing, both locally and internationally, and we are really excited for the challenging prospects that it brings.

MiFusion, our new online product, was launched in 2017 and now boasts well over a thousand users and is growing rapidly. This just shows – the best way to predict the future is to create it! Fusion Software has hugely exciting times ahead and we are looking forward to an amazing 2018.



The new year started with a bang in the insurance industry. Turns out the noise wasn't fireworks, but the sound of new regulatory guidelines hitting the table. After more than two years of consultation, the Financial Services Board has finally put a stake in the ground on rules that impact everything from premium pricing to data access, to who may offer which services to the end client.

Of course, one man's ceiling is another man's floor: digitalisation will be the simplest way to ensure compliance with many of the new regulations, which is only good news for us. In 2018, we look forward to continuing to help our clients find simple, cost-effective technology solutions for real business problems.

# bbd
## AWARD
## NOMINATIONS
## 2018
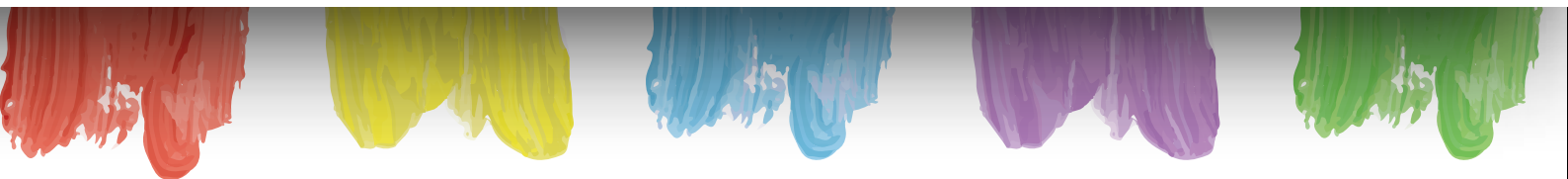
## **ABOUT** AWARD NOMINATIONS

The Award Nominations give recognition for **exceptional solution and service delivery**. They recognise the excellence within the company by rewarding BBD staff members who go beyond the call of duty for our clients and colleagues. Those who are **"doing what it takes"** so to speak.

The 2018 Award Nominations will accept nominations for anybody in whichever category, and there will be **two winners selected every month!** The nominations will run from February through to October. The grand prize winners will be announced in November.

Winners chosen on a monthly basis will receive awesome prizes and will be entered into the final draw. Three lucky people stand a chance of winning a piece of the R120,000 at the end of the year!

<div align="center">

**1<sup>st</sup> R60,000 // 2<sup>nd</sup> R40,000 // 3<sup>rd</sup> R20,000**

</div>

Winners will be able to **"PICK A PRIZE"** from a choice range of prizes. In addition to this, winners will be given a **selection of charities** from which they can choose one and BBD will donate R1,000 on their behalf!

# THE CATEGORIES
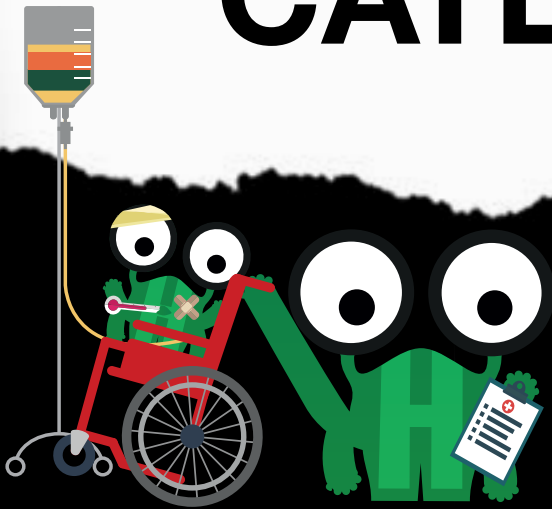
## HYPE

### HELPING YOUR PEOPLE

Recognising the individual who always delivers an extraordinarily high standard of work, and is acknowledged in their team as a mentor, sharer of skills, time and knowledge.

## GROW

### GRASPS OPPORTUNITIES & WISDOM

This category recognises the improvement and development of skills. A person who takes initiative to develop and improve their career through continuous learning and skill acquisition and successfully seek out training or on-the-job opportunities for developing skills.
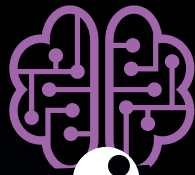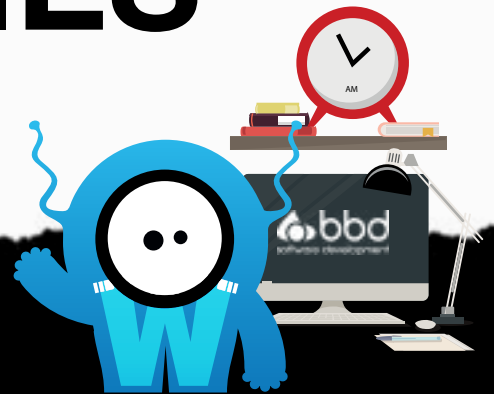
## WIT

### WHATEVER IT TAKES

This category is for the kingpin of perfection and reliability – the person who is driven towards ensuring client satisfaction no matter what the personal cost. An almost endless source of dedication, passion and enthusiasm, this individual is a tireless long-term champion for the successful delivery of projects.

## STEALTH

### THE SILENT OPERATOR

Quiet and dependable, the stealth award is designed to recognise the individual who is not often heard, but whose positive impact is always keenly felt.

## UBA

### ULTIMATE BBD AGENT

This is the individual who spearheads the conversion of ideas into realities, fosters the BBD philosophy at every turn with a relentless ambition to promote the true essence of what the company stands for and upholding the BBD brand in everything they do.

## Qinisela Molefe chosen for Stealth

Qinisela's quiet pragmatism and breath of technical expertise has been crucial in quickly squashing tricky production issues for clients. He has proven himself an outstanding developer with a wealth of experience and knowledge, and is a great asset to our team.

**Charity of choice:** Door of Hope
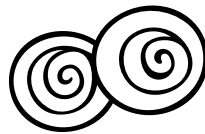
## William van Staden chosen for WIT

William has made numerous contributions of effort and time that are the very definition of a "whatever it takes" approach. Aside from taking on extra responsibilities in core areas due to the departure of a colleague, he also took on the responsibility of managing the technical aspects of the data and service migration to the cloud.

All this while still delivering on his own projects, which were vital to the client's goals. William's contribution this year cannot be underestimated. It is certain that without his involvement, focus and attention to detail, many core processes of the client would be suffering, and their ability to return the desired value would have dropped significantly.

**Charity of choice:** Children of Fire

# MARCH
# WINNERS

## Rudolf Stander chosen for Hype

Rudolf is a very motivated colleague to work with and his determination is contagious. He is a good source of information and will always make time to assist others who need his help.

**Charity of choice:** ORT SA
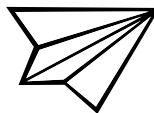
## Lucky Nkosi chosen for UBA

Need help with biometrics, product catalogues or HTML – call Lucky. He is an all-round awesome person, who is always enthusiastic about work and inspires others with his energy.  Lucky recently delivered the impossible for a client, including putting in extra hours. He is a great team player and person to work with … the Ultimate BBD Agent.

**Charity of choice:** CHOC
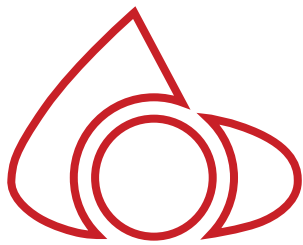
# bbd benefits

From state of the art equipment to unbelievable events, a wide selection of free and subsidised meals, and imported coffees for brew-tiful days at the touch of a button – BBD is the place to be. Destress on one of our putting greens or get social in the games room.

BBD cultivates an environment in which staff can thrive – one centered on our ethos of work hard, play hard.

**Here are some of the enviable perks you'll love to brag about:**

## CAFÉ AND COFFEE STATIONS*

- Fully stocked vending machines with free snacks
- Breakfast cereals
- Subsidised meals
- Fresh fruit and bread daily
- Unlimited BBD branded still and sparkling water
- All the microwaves, cutlery, crockery and condiments you could need
- Endless coffee from the best producers – Tanzanian Mbeya, Burundi and Ethiopian beans
- BIBO water dispensers for instant hot, tepid and cold water
- Comfy couches

## PERKS

- 50% medical aid contribution
- BBD facilitated medical aid gap cover option
- Retirement annuity option
- Group life, disability and dread disease cover
- Financial advisor
- Bonuses for exceptional performance
- 3G reimbursement - project specific
- Standby allowance - project specific
- Annual salary review
- Had a baby? You get flowers and moola
- Tied the knot? You get moola
- Staff recognition through monthly award nominations. The prizes include Samsung Gear, drones, Playstation consoles, GoPros, TVs, gas braais, sound systems, cinema projectors, stocked wine fridges AND the winner gets to donate R1000 to a charity of their choice. Winners announced at the annual Bierfest – nominees have the opportunity to win loads of cash (like R120 000!!!)

## WORK ENVIRONMENT

- State of the art tools of the trade
- Breakaway rooms and private phone rooms*
- Secure underground* and shaded parking
- Safe working environment
- Relaxed yet professional atmosphere
- Encouraged creativity and collaboration
- Gautrain shuttle* to and from Rosebank station

**3**

## HEALTH AND WELLNESS

- Vitality Health assessments*
- Free flu vacs and vitamin B injections*
- 5 blood drives per year*
- Annual wellness days* with cocktail and sushi bars, reflexology, manis, massages, stress management, hypnotherapy, live blood analysis, biokineticist, chiropractors, games, photo booths and so much more. We even have awesome spot prizes like Nutribullets and Stormtrooper lights to give away.

**4**

**5**
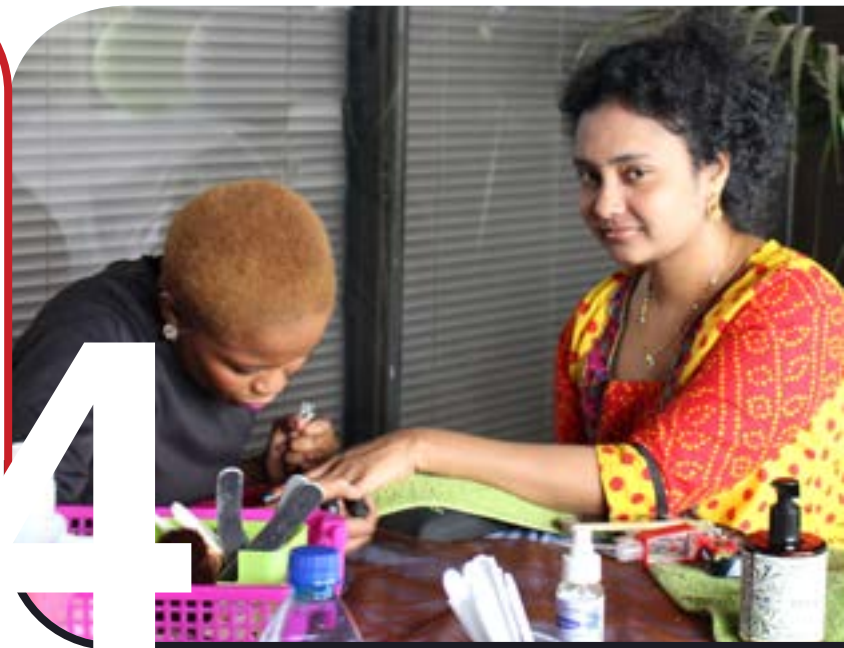
## EVENTS

- Trailblazing annual tech event – Esc@pe
- Kick ass year-end function with great entertainment, delicious food and taxi services to make sure you get home safely
- Mid-year update party* to keep you in the loop
- Annual Bierfest* where teams brew their own craft beer
- Industry meetups
- Team lunches
- Unique team building events

## FUN TIMES AT BBD

- Games room* with arcade machines, table tennis, darts, pool table and giant Jenga
- Putting greens*
- Payday chocolates
- Free eco carwash*
- Competitions with awesome prizes
- Bar
- Jukebox*
- Board games*
- 42" TV screens and projectors*
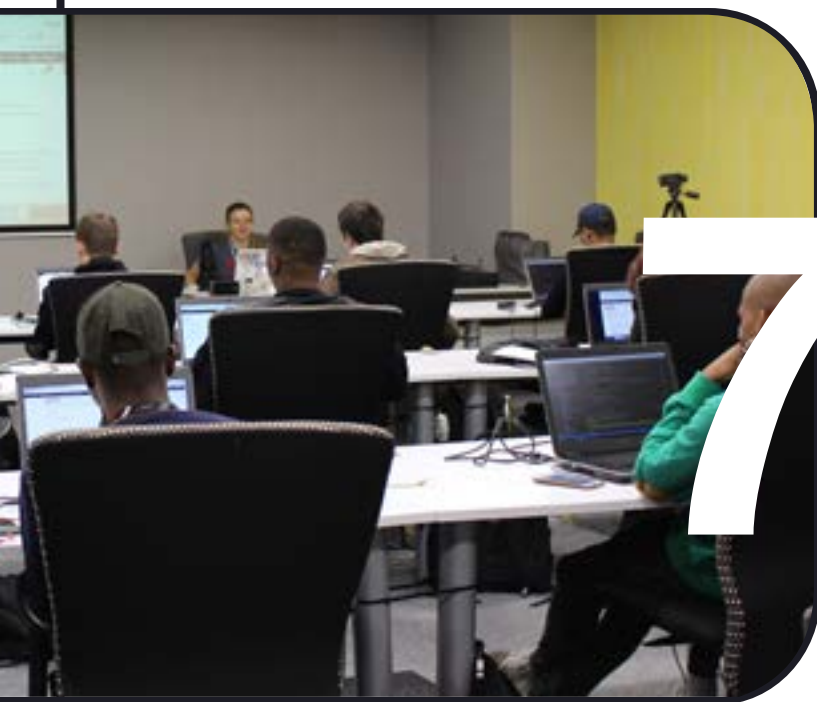


## WORK LIFE PRACTICES

- Mentoring
- Internal and external training
- Online training
- Onsite / VC training by SA's top IT specialists
- Certifications
- Ability to attend key technical events
- Financial aid to assist with further studies
- Bursary, learnership and graduate programmes
- Enterprise development* for young up and coming IT professionals
- Career development
- Socio-economic developments
- Flexi working hours - project specific



## SPORT TEAMS

- Sponsored uniforms for all sports teams
- Action cricket
- Cycling
- Netball
- Soccer
- Fitness groups

*Location-specific. Not available at all offices*

# Public sector roundup

### 2017 in review

» Drive towards ICT as solution enabler for improved service delivery
» Push for collaborative efforts across clusters
» Planned re-arrangements for the ICT environment in the public sector
» Growing demand for free and open access to public information
» Call for a connected government is driving modernisation
» Data as a key asset is behind growing demand for enterprise data sovereignty as an innovative idea for digital enlightenment

### 2017's hurdles

» Still largely a silo'd/ Single Purpose Model approach
» Lack of horizontal integration
» Lack of an interconnected government
» Fragmented and non-standardised ICT infrastructure
» Restrictive operating hours, long queues and travelling time results in less time for productivity
» Loss of momentum on some large-scale modernisation programmes

### 2017 public sector wins

» BBD encouraged data sharing as a packaged value proposition
» Promoted re-use of established frameworks
» Continued success with client modernisation and transformation

### 2018 goals

» Unleashing digital potential for a connected government
» Interconnected front- and back-end systems
» Technology driven transformation
» Building trust in digital ecosystems
» Playing our role in the 4th industrial revolution (digital/knowledge/ economy)
» Delivering on digital platforms accessed using omni-channels
» Helping the public sector deliver and achieve agility

# Insurance sector roundup

### 2017 in review

» Growing trend for automated chat bots that interact with potential and existing clients
» Push for better experience via digital channels – especially mobile and mobile web
» Push to get people transacting through self-service channels

### 2017's hurdles

» IT departments having to deliver enhanced digital client interactions
» Working around legacy systems

### 2017 insurance sector wins

» Rewrote top insurance company's mobile app
» Developed new web front-ends
» Designed and developed new ratings engine for top insurer

### 2018 goals

» Continue to do what we do best – deliver top quality solutions in time and on budget
» Showcasing the difference we can make
» Streamline the process for insurance companies to incorporate the VAT increase

# Discover
# **Discovery**

**BBD has been providing services to a number of divisions of Discovery for over seven years.** What started off as a proof-of-concept iPad app, grew into a number of different initiatives and projects for the Discovery Group. We currently have 15 people based onsite at Discovery's offices – most of who are based at Discovery's impressive new campus in Sandton.

BBD is also doing work for Discovery Bank, which is looking to launch its retail banking product offering in the first half of 2018. Discovery Bank will be moving to the new campus just prior to its launch.The services that we have provided Discovery over the years include mobile app development, Java development, C++ development, JavaScript development, business analysis, project management, testing analysis and scrum master services.

As always, BBD people provide world-class effort, commitment and expertise in order to meet the fast-paced and innovative requirements that the Discovery Group is known for.

## Some interesting facts about the new Discovery Campus:

> The building is actually owned by Growthpoint Properties (55%) and Zenprop (45%). Discovery is reportedly leasing it on a 15-year lease agreement

> The building cost an estimated R3 billion

> It has 87 000 square metres of office space

> The building has a 5-Star Green Star rating, and is energy, water and light efficient

> It can accommodate over 5 000 employees

> There's a fully equipped gym, yoga decks, a running track and multipurpose courts set in the indigenously landscaped roof

> An expansive ground floor includes a wide range of restaurants and coffee shops for staff

# InsurTech
shakes up insurance industry

**T**echnological innovations have taken multiple industries by storm over the last few decades. However, insurance has often been pegged as a slightly more traditional industry. Enter insurtech. A portmanteau of "insurance" and "technology" inspired by the term fintech, emerging technologies are increasingly underpinning insurtech solutions.

Traditionally, insurers created categories of risk profiles based on variables such as your age, where you live and previous incidentals. Your insurance premium would then be an industry average based on similar individuals in the same broad category. But the use of emerging technologies is improving risk profiling, pricing and general efficiency in the insurance industry.

Friendsurance is a great example of a disruptor in the insurance industry. Initially a German insurtech company that has expanded into Australia, Friendsurance created a peer-to-peer insurance model which connects groups of customers to create their own risk pool to settle small claims. If their connections remain claims-free during the year, they can retrieve as much as 40 percent of their premiums.

Through insurtech, South African insurers have a more accurate representation of their clients, ensuring ultra-customised policies according to observed behaviour. **BBD is enabling top South African insurance companies to leverage insurtech through developing innovative solutions.** Below are a few examples of innovative technology being introduced throughout the different sectors in the insurance industry:

## Car insurance

Multiple vehicle insurers are incorporating apps which use GPS and smartphone sensor technology to track your driving. These apps can track when you are speeding, taking corners too hard or even just slamming on the brakes too aggressively. But responsible drivers will be rewarded. BBD executive, Matthew Barnard admits that his wife's insurance premium is much lower than his, because evidently she is the better driver. Well, "only according to the app," he facetiously adds.
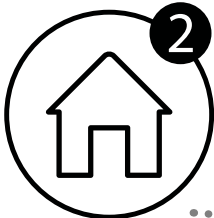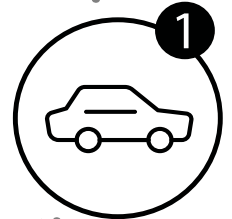
## Property insurance

Smart home security systems allow insurers and homeowners to monitor their homes through – you guessed it – an app. Using your smartphone or tablet, properties can be armed or disarmed, and even be monitored for floods or fires through sensors. Insurers can therefore manage risks which results in fewer claims.

## Medical insurance

Insurers are encouraging healthier lifestyles through the use of wearable biometric sensors, such as Fitbit or Garmin fitness trackers. If you see your colleague hurriedly walking up and down the stairs at work, the chances are they are trying to meet their daily step target. Using these trackers, insurers can monitor movement, heart rate and even sleep patterns.
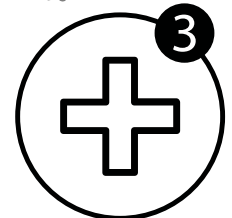
**Innovations and emerging technologies are truly transforming the insurance industry, with the biggest challenge being separating the limited fads from the everlasting game changers.**
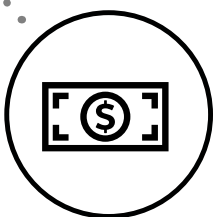
*Peter Scheffel*
**BBD CTO**

# we think code_
## social tech lab

**WeThinkCode (WTC), a revolutionary tech-based learning institution dedicated to eliminating South Africa's IT skills gap, has been making waves in the ICT sector in recent years.**

Founders Camille Agon and Arlene Mulder believe technology can help address South Africa's toughest problems, such as accessing quality education, improving healthcare delivery and building sustainable cities.

The duo created the Social Tech Lab challenge to give second-year WTC students the opportunity to innovate and create impact-driven technology products and services. Students had five months to conceptualise and design their entries, with assistance and mentoring being provided by WTC sponsors and partners.

With BBD being one of the founding partners, Matthew Barnard, Russell Davidson, Gus Pringle, Tony van der Linden and Peter Searle were part of the judging panel. Projects such as the Social Tech Lab are important in providing students the opportunity to work with leaders in the tech industry, and benefit from their learnings and experience.

The Social Tech Lab Finale took place in January at their Johannesburg campus. Students presented solutions specifically designed to solve one or more of the UN's Sustainable Development Goals, with a focus on Africa. Teams were scored on how innovatively they used tech, how they would ensure it becomes a sustainable business and how the solution could solve a socio-economic challenge and change lives for the better.

The winning team created an app called ER-QR, which can host a person's medical information, such as allergies and next of kin, via a QR code. The app enables paramedics and other medical professionals to scan a person's details in the event of an emergency.

The QR Med team are off to Paris in May to represent Africa at Viva Technology, an event which brings together global start-ups and leaders.

*Jolene van Heerden*

**BBD MARKETING TEAM**

**Providing students the opportunity to work with leaders in the tech industry**

# OPEN BANKING
## and what it means for **South Africa**

Imagine if you owned your bank data and could decide who you want to share this data with, thereby gaining access to a broad range of products to suit your needs. This could become a reality through open banking, whereby a third party could access a user's bank information to provide superior service.

## How does open banking work?

Open banking requires banks to open their data via secure application programming interfaces (APIs), giving access to outside developers, to allow them to develop other apps. This would provide customers with many resources to view and understand their finances. Well-known examples of open APIs include PayPal and Apple Wallet.

Through open banking, customers would have more control of their finances, as barriers between customers and their data would fall, ultimately ending the banks' monopoly on customer data. Authorised third parties, such as fintechs, could gain access to a customer's bank data to create an engaging banking experience to best meet each customer's needs.

In Europe, open banking has been legislated through the implementation of the Payment Services Directive (PSD2). This came into effect 13 January 2018, with most of the large banks scrambling to adhere to the directive. Regulatory authorities passed this legislation to create more competition, levelling the playing field and ensuring a dynamic banking environment, able to adapt to customers' needs.

## Risks

Open banking is not a new concept, as users have already been sharing their banking user IDs and passwords with third parties. The problem with this approach is that it is unsecure and unreliable, which invalidates your agreement with your bank.
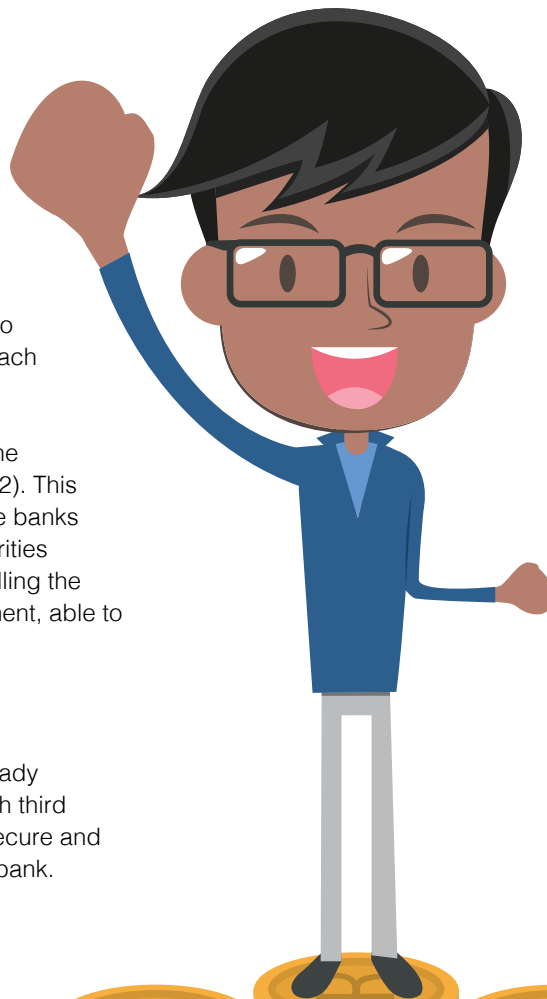
Having the right security in place when the APIs are accessed by third parties would be an integral requirement, together with a client's express permission for them to access their data and transact on their behalf.

The biggest concern of open banking is online security, as the potential misuse or loss of customer data is a concern for many, as the market opens up to new players. With constant stories of data hacks making headlines, some customers are wary of the change.

## Benefits

Despite the security concerns, the benefits may outweigh the risks. According to Accenture's 2017 UK Open Banking Survey, more than half of United Kingdom customers would never change how they bank. With this 'loyalty' comes little transparency. Open banking aims to change this, by making it easier to move banks and make smarter financial decisions. Money management will also be easier for people who have multiple accounts, allowing third parties to consolidate data into one secure platform.

This change will benefit fintechs. Most fintech start-ups don't have the massive funding or client base banks have. Authorised financial service providers (FSPs) can thus make use of this data to offer unique services to clients, but without having to build back-end systems of their own. Innovative banks are already taking advantage of these changes by partnering with fintechs and merging the functionality of traditional banking apps with personal financial management and consolidating capabilities.

## What does open banking mean for South Africa?

Even though the European Union (EU) started the trend by implementing the PSD2 legislation, the rest of the world is not far behind. South Africa is already leading in this space.

> **At BBD we are already enabling South African banks to open APIs and interact with fintech companies offering niche services.**

South African banks are known for being innovative and in this instance, aren't waiting to be regulated before embracing the change.

Similar legislation to that of PSD2 will slowly be implemented across countries. The South African banks that are most proactive are likely to gain market share and access new market segments, while those banks ignoring the disruption will be left behind. One of the biggest opportunities is bringing the unbanked market into the financial system, which will require innovative approaches from many of the existing market participants. Open banking could play a role in meeting this by allowing lower cost niche solutions to easily interact with existing market infrastructures.

Through open banking, the future could see banks giving you access to only one app but an ecosystem of apps, for you to choose from and download those that meet your particular needs.

*Matthew Barnard*
**EXECUTIVE HEAD OF BANKING**

# BBD knows how to PARTY!

Looking back at the year-end functions in JHB, CT and India

# devconf;

## 2018

As the main sponsor of DevConf 2018, BBD was excited to be a part of the largest independent developers' conference in SA.

This year saw the third annual tech conference staged in both Joburg and Cape Town. The event was filled with industry leaders and tech enthusiasts coming together to discuss various technologies and trends to help solve today and tomorrow's software development problems.

Some of the prevalent themes this year were around progressive web apps, the Internet of Things and DevOps in general.

Everyone who was anyone was there on mass and with DevConf getting better year on year, we were blown away by the electric atmosphere and comradery at the event. It's an extraordinary thing to see industry insiders come together to share knowledge for the benefit of the entire community.

Our minified Angular JavaScript coded shirts flew off the table and we were thrilled to see how they sparked debate and discussion among the throngs of developers.

As a global software development powerhouse, we were honoured to have three speaker slots this year for Mike, Gergana and Melissa, who each did a spectacular job!

### A junior's guide to going full stack

Melissa, who won our internal tech talk competition and earned our third speaker slot, spoke on a junior's guide to going full stack and how it can lead to developers bettering their craft. Melissa insists that for a developer to hone their skill, they need to make the conscious decision to invest in all aspects of the team, and go through the full journey of how code can improve people's lives. After all, is this not what programming is all about? Her first time presenting at DevConf, Melissa did a fantastic job.

### Building progressive web apps with angular

Mike focussed on embracing native design thinking and applying it to both code and content. He showcased how you can use ideas from progressive web apps to create engaging and fast apps that ensure the best of both native and web.

With his unique *(read: barefoot)* presenting style, Mike delighted the crowd with his fully offline capable mobile meme generating website that made use of PWA features. It was incredible to watch him adjust and tweak as he went – a true master of his craft.

### The physical web

Gery, as she's affectionately known, explored the opportunities that the physical web can provide in her talk. She insists that we shouldn't rely on apps when we have the knowledge and tools to build them ourselves. Using BB-8 (her Star Wars app-enabled droids) and physical web principles, Gery built a website, deployed it, and controlled her little droids live on stage. With only a smart mobile device connected to the internet, the audience was able to join in the fun and control the droids themselves – eliciting unadulterated glee from many Star Wars fans in the crowd.

*Katie Cubitt*
**BBD MARKETING TEAM**

# TIPS FOR **MEA** DEVELOPMENT

Having a mobile app doesn't distinguish you anymore – that period is long gone. But not having a mobile app, and not having some basic functions that competitors in your industry have, makes it impossible for you to successfully operate. This is according to Peter Scheffel, BBD's CTO, who believes that your app really is your ticket to the game.

A **mobile enterprise app (MEA)** is designed for your business and co-ordinates your content and information management systems which can be directly accessed on your mobile phone. With more business occurring outside the office block – having access to your customers on the move is increasingly important.

With a recent success using Xamarin and shared code while leaving the business logic and security protocols in place, BBD understands that each project comes with its own set of variables. Despite the many different approaches to enterprise apps, below are five important aspects to consider before developing your own.

### More than just native apps

Your first choice must be around what model will work best for your business and employee needs. You have a few options here. A native app is developed specifically for either iOS or Android, while a hybrid app installs like a native app, but works as a mini website. You also have the option to share between your app and your website.

### Type of app

These days you have to support Apple and Android, but it is extremely expensive to have two separate teams developing for iOS and Android concurrently. If you still want to go native, you luckily have choices, and it's getting simpler.

One of the options is to develop using a toolset such a Xamarin which allows you to share code across multiple platforms. Although you still need the specific skills for the stack, time and effort will be reduced. Moreover, the Xamarin App Player allows the developer to instantly see changes you've made to your code. This effectively shows you what you've done directly on your mobile phone – lessening the project cycle time.

Microsoft has also been attempting to make the process easier with a set of tools which allow a developer to compile Apple apps in the cloud using Visual Studio App Centre. This relieves you of the model where you had to have an Apple computer to compile for the iPhone/iPad apps.

### Timeline

Companies who want to rapidly deploy can become frustrated by the work flow and approval processes of the app stores delaying the release of an app. To counteract this, there are new ways using React Native which allows for dynamic apps that can be modified without going through the app store work flows. In this way, React Native is making the development process more palatable for large organisations to be able to change and adapt their app quickly to respond to business needs.

### Maintainability

One more important consideration that is often overlooked is that of maintainability. Quality requirements such as maintainability are important to ensuring that the app really does work for you. It is in this way that you ensure continued efficiency and usability.

### Budget

As with all projects, budget is an important consideration. To a large degree, it will be your budget that will guide your decisions. Have a clear figure in mind to help your developers shape a solution that works for you and that you can afford. What baffles me is that this information isn't easily available in a search, and yet these are points every company must consider at some point. And if you haven't yet, now is the time.

*Peter Scheffel*
**BBD CTO**
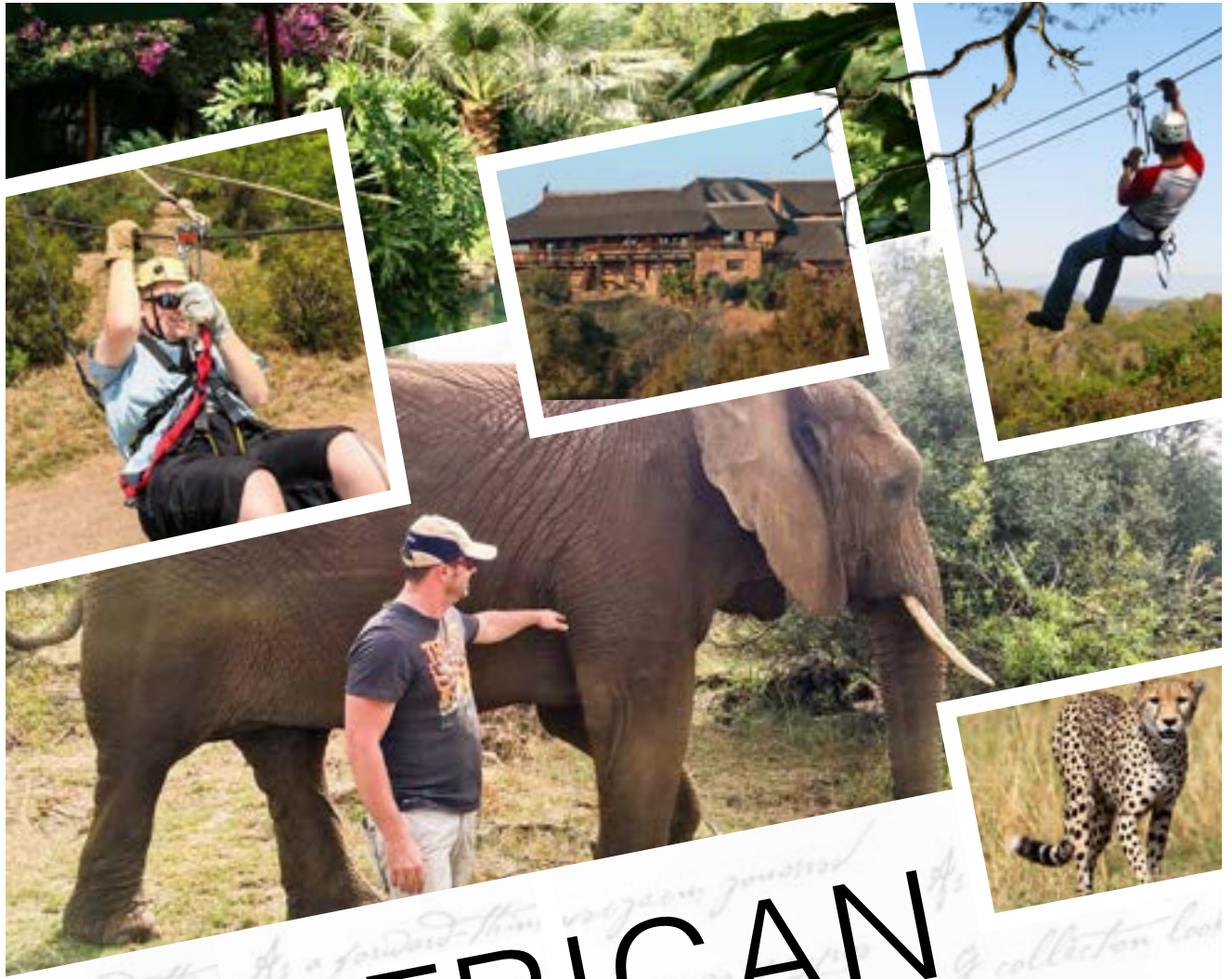
# AN AFRICAN *Adventure*
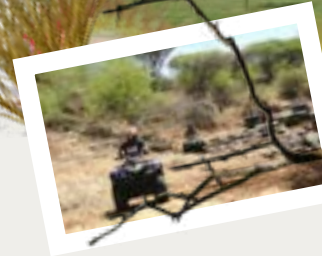
An early morning drive along a scenic mountain road out of Johannesburg led the BBD Absa team to coffee and muffins at Amanzingwe Lodge.

My group started with quad biking, taking in the ambience and crisp morning air on a trip around the farm. We luckily came back unscathed and headed for our next adventure. We started with all sorts of ropes and paraphernalia tied to our bodies before being taken to the first zipline tower. It seemed legit – as all you had to do was slide across the rope to the next tower…

There were stairs in case you felt this wasn't for you and wanted out, but once we arrived at the tower I saw that the stairs looked less appealing than the zipline and so off I went. It wasn't long before I was at the highest tower with the longest zipline and no other option to descend. Two more of these and I was back, unharmed, with my feet on solid ground. Thankful for the little blessings and fuelled with adrenaline, our group moved

**We signed indemnity forms to relinquish responsibility for possible death or injury from the adventures that were to ensue, and if that wasn't enough to make us nervous, curious and possibly cautious, we were split into colour-coded teams and sent off on different adventures.**

onto our next adventure. This included a tug-of-war, wooden puzzles, land-mines and a wooden steam train.

With much laughter and camaraderie, we tackled what seemed to be the easiest task of the day: trying to keep a plastic cup filled with water on a drive in a game viewing vehicle. Easy-peasy right? Not! We decided to opt for a safety-first approach and threw the water out so that we could concentrate on survival until the white-knuckle ride was over. It's a great conversation starter next time you pass a BBD colleague from the ABSA team *wink wink*.

The groups then joined together for a delicious feast followed by a game drive at Glen Afric, which included seeing lions, tigers and cheetahs, and touching elephants. The great day ended with drinks, laughter, dinner and giggles around the fireplace. Perfect. Thank you to the best company for organising this!

*Sonia De Andrade*
**BBD HR TEAM**

# My Vodacom App Wins!

## BBD & VODACOM PARTNER TO WIN BEST MOBILE APP AWARD

For the third year in a row the My Vodacom App won Best Mobile App in Africa at the 2017 Digital Impact Awards Africa.

BBD partnered with Vodacom to develop their My Vodacom App, where personalisation was a key consideration in today's highly competitive mobile market.

Customers want ease of use and functionality when using a mobile app. Working with Vodacom has enabled BBD to continuously push technology boundaries, to deliver an innovative app that meets the ever-changing needs of their customers.

One of the key reasons for their success is that Vodacom listens to what their customers have to say across various channels. By taking nothing for granted, Vodacom has been able to continually improve customer experience. The My Vodacom App is very rich in functionality and they manage a good balance between product delivery and commercial focus.

BBD has been involved with the My Vodacom App since its launch over five years ago. As smart phones have advanced, developing apps to meet the customer's expectations has become more challenging. In partnership with Vodacom, we use an Agile development approach and invest heavily in technology, while making use of modern design patterns to deliver quickly and overcome the challenges in the digital landscape.

With customisation a strong differentiator for mobile companies, intelligent offerings that allow a customer to access information relevant to their needs and manage their service is a crucial component of the My Vodacom App.

The app is available on both Android and iOS systems, as well as Samsung's Tizen system. BBD has striven to provide enhanced functionality, ease of use and speed with each new version launch. The team releases a new update every six weeks which improves the app's stability, and adds features useful to Vodacom customers.

*Norman van der Mescht*

**BBD VSP TEAM**

# Donate blood

| Type | You can give blood to | You can recieve blood from |
|------|----------------------|----------------------------|
| A+ | A+, AB+ | A+, A-, O+, O- |
| O+ | O+, A+, B+, AB+ | O+, O- |
| B+ | B+, AB+ | B+, B-, O+, O- |
| AB+ | AB+ | Everyone |
| A- | A+, A-, AB+, AB- | A-, O- |
| O- | Everyone | O- |
| B- | B+, B-, AB+, AB- | B-, O- |
| AB- | AB+, AB- | AB-, A-, B-, O- |

BBD's 2018 goal is to donate 200 pints of blood and save up to 600 lives.

# SHOUT IT OUT!

**Anything exciting to share with BBD?**

Whether you've racked up an award, found a sick new game or have been on an epic adventure – **we want to know!**

Mail **marketing@bbd.co.za** and we'll give it a shout-out.

BBD, Africa's leading partner, provides custom software development, consulting, integration and system support and maintenance solutions. Our long track record and large skill base sets us apart from our peers.

BBD Pune complements BBD SA's core business by attracting the most talented individuals that one of India's top university cities has to offer. As Pune is a growing IT hub, BBD Pune is also able to access specialist skills that are scarce in South Africa.

InnoSys, a subsidiary company of BBD, is a specialist in the development of custom software systems for the South African, UK and European insurance industries. InnoSys has extensive insurance knowledge and experience in the development, implementation and post-implementation support of systems across a range of short term, life, commercial and specialist niche insurance domains.

Fusion Software, a BBD partner, is a powerful, innovative and integrated software solutions and business management tools provider. With solutions built by real people for real people, to deliver value and true assistance to customers. Their modern business management software incorporates software and web solutions, app and custom development and integration.

# BBD
# STRUCTURE

**bbd**

**Sphere Investments** // 49.9%
**Broad Based Educational Trust** // 1.1%

**BBD Management** // 49%

**bbd india**

**BBD** // 100%

**innosys**

**BBD** // 73%

**InnoSys Management** // 27%

**fusion software**

**BBD** // 26%

**Fusion Software Management** // 74%

**bbd**
group of companies

# PREMIER VERIFICATION

B-BBEE Verification Certificate
Issued to:

## Barone, Budge & Dominick (Pty) Ltd

1 Newtown Road, Killarney, 2193

Company Registration: 1984/007589/07
VAT: 4070111713

## LEVEL THREE (3) CONTRIBUTOR
## B-BBEE RECOGNITION LEVEL- 110 %

Generic Scorecard -
Amended Information and Communication Technology Sector Code (Section 9(1): 40407)

| Criteria | Result | Weight |
|---|---|---|
| Ownership | 24.54 | 25.00 |
| Management Control | 13.55 | 23.00 |
| Skills Development | 15.33 | 20.00 |
| Enterprise & Supplier Development | 48.28 | 50.00 |
| Socio-Economic Development | 12.00 | 12.00 |
| Overall Result | 113.58 | 130.00 |
| Priority Elements Achieved | Yes | |
| Empowering Supplier | Yes | |
| Nature of Business | Real estate and other business services industry (excluding financial intermediation and insurance) | |

| Element | Result |
|---|---|
| Black Ownership | 51.01% |
| Black Female Ownership | 18.38% |
| Designated Group Supplier | No |
| Modified Flow Through Applied | Yes |

| | |
|---|---|
| Re-Issue Date | Not Applicable |
| Issue Date | 07 December 2017 |
| Expiry Date | 06 December 2018 |
| Certificate Number | PV_1712003 |

Matthew Kearns
Premier Verification (Pty) Ltd

sanas
BVA100

As a level 3 contributor, BBD shows an on-going commitment to all the different aspects of B-BBEE. The pillars that are used for measurement of a business in the ICT sector are designed to require a B-BBEE focus on ownership, management, procurement, employment, training, business development and social initiatives.

A recent change in the ICT Sector B-BBEE codes has meant that social initiatives are now focused on helping South Africans cross the digital divide. BBD's level 3 score, along with being recognised as a value adding enterprise, means that BBD clients can claim 110% of every rand spent with BBD as B-BBEE spend.

# Wading through the continuum of **web**, **native** and **progressive** web apps

Trying to wade through the continuum of application technologies sometimes feels like you're strolling through a swamp in an astronaut suit… But if you take a step back you'll see a logic to how web, native, and progressive web apps work in different situations.

It is widely acknowledged that native applications (particularly mobile) make for rich, compelling and personal user experiences. With deep platform integration, comes both incredible performance and a wide array of capabilities – all the while reassuring the user that they are in total control of the device and applications. While it would seem a clear and obvious choice for many applications, it does have some drawbacks worth considering. Most native platforms have a dedicated app store with distinct standards and guidelines that need to be adhered to. Different platforms may require vastly different skillsets to develop on, and you may require many different specialists to do it justice. The final drawback is that the ecosystem puts the user firmly in the driving seat, and knowing how fickle and unpredictable users can be - this can manifest in versioning, deployment and adoption issues.

The web is an old platform, but is far from stale. As an ecosystem it is constantly growing and changing; vibrant and seemingly evergreen. Web applications have the widest reach of any digital platform, bringing content and functionality to the far reaches of the globe. Truly bridging the digital divide with ubiquitous connectivity, and accessible from almost every device. The strength of this unified, consistent platform is also directly responsible for its largest drawback – the functionality available to the platform is exclusively standards driven. It is by necessity that the W3C (World Wide Web Consortium) judiciously deliberates on the web platform, but that does little to mitigate the effect of holding back innovation. Browsers have little access to the user's device and, as such, web applications always feel an arm's length away. This, in conjunction with the requirement for constant connectivity, makes the web a less personal and fulfilling experience. The sense as a user is that you are allowed to play in a playground that is shared, but never truly yours.

If these two platforms are considered absolute poles, there exists a continuum of technologies in between. You get technologies that are far closer to the native realm, such as Xamarin, Unity or React-Native. These attempt to provide a single development experience that targets multiple disparate devices. Similarly, you get technologies closer to the web, such as Angular, React, Meteor, or Cordova, that attempt to provide richer feature-sets aimed at creating more personal user experiences.

In the centre of this turbulent continuum is a new player – one that aspires to form the perfect compromise between web and native. Progressive Web Apps (PWAs) are not a discrete technology, but rather the union of a select few browser features with a set of opinionated patterns and an underlying philosophy. PWAs promise to bring true offline support to the web and augmenting applications (with an attempt to make PWAs indistinguishable from native applications). Although the technical features seem to always take centre stage, it is the pattern and philosophy that binds the package of PWAs. Embracing native design aesthetics, mobile-first functionality and an obsessive focus on user-centricity, the philosophy of PWAs is attempting to move away from the impersonal, content-driven web-to-user experiences that delight, enthrall and inspire confidence.

There is a place for every technology on the continuum between pure native and web, but the tumultuous churning of the stuff in the middle makes it increasingly unclear as to which is appropriate for the situation. This confusion is unlikely to ever go away, but PWAs will hopefully bolster the midpoint creating a third, solid pillar of modern application experiences.

*Mike Geyser*

**BBD ATC TEAM**

" We had "runaways" (which is chicken feet – eek!), chicken heads, cow heels, boerewors, pap and morogo (African spinach). Everybody tried a taste of everything with some interesting facial expressions. "

# SHOW ME YOUR
## *culture*

## ...AND I'LL SHOW YOU MINE

BBD is filled with culturally rich teams, so the SARS team decided to embrace it. We came together at the KammaFrans Guesthouse and kicked off our team build with a proper English muffin breakfast.

Afterwards we played a cultural game involving "tribes", negotiations and villages. This was more complex than it seems and really got us out of our comfort zones. We then hopped into our taxis and headed off to a shebeen in Mamelodi, where we were dancing to the commercial house music the DJ played, while enjoying a few "Zamaleks" (Black Label for the beer rookies).

Lunch was quite…interesting. We had "runaways" (which is chicken feet – eek!), chicken heads, cow heels, boerewors, pap and morogo (African spinach). Everybody tried a taste of everything with some interesting facial expressions.

Our last cultural experience took place at Weiveld in Pretoria. Okay, for you not-so-Afrikaans guys, Weiveld is the home of the sokkie, complete with Afrikaans music and a show by Johannes Kerkorrel. We had platters that included "skilpadjies" (lamb liver in fat) and "skaapstertjies" (sheep's tail). Everyone attempted to sokkie, resulting in a few injured toes throughout the night. It was a blast nonetheless.

After experiencing each other's cultures, our team grew closer and formed a new-found respect for each other's differences.

*Bongiwe Mhlanga & Anneke Schutte*
**BBD SARS TEAM**

# Tech Talk

**Since DevConf started in 2016, BBD has taken part in both sponsoring and presenting every year.**

As a sponsor we get a 45-minute speaking slot. In previous years we always chose a person for this slot, but this year we all had differing opinions on who that person should be. It was because of this that we decided to rather host an internal competition and let the candidates battle it out.

The subsequent Tech Talk Competition was a great success and we got to meet some amazing speakers – well done to each of you. Melissa was rated the overall highest and we believe that she will grow into an even better speaker and developer with this opportunity.

## 1. LODEWYK

*Live video stream analysis using AWS Video Rekognition and AWS Kinesis Video Streams*
Launched at AWS re:Invent 2017, Kinesis Video Streams provide your applications with the ability to securely stream video to AWS. Amazon Rekognition Video is a deep learning analysis service that can perform analysis on video. Cutting-edge cloud computing services were leveraged to perform object recognition on a live video stream.

## 2. VUTLHARI

*Adopting a modular approach to Building Cross-Platform Xamarin Apps*
Xamarin is a framework that allows developers to create cross-platform applications. Using this framework, loosely coupled, MVVM and modular application can be built. Adopting a modular approach can further break down the complexity into smaller, simpler modules. By employing dependency injection and extensibility, runtime discovery of modules can be used to make the application features pluggable.

## 3. THOMAS

*Microservices with Spring Boot, MongoDB and RabbitMQ*
Using Spring Boot and Spring Cloud Stream to facilitate inter-process communications: As a high-level alternative to using messaging drivers directly, Spring Cloud Stream abstracts the implementation details of using messaging systems away from the developer, enabling a true "fire and forget" working model, while also making consumption of messages on the receiving end painless and hassle-free. Built on the highly efficient and lightweight Spring integration framework, the Spring Cloud Stream is ideal for use as an asynchronous communications broker in a microservice environment. The setup, delivery options, durability and methods of message consumption, were all explored - without touching XML.

# Recap

**4.** **AADIL**

*An introduction to Vue.js and VueX*
Get to grips with Vue.js: a fast and progressive framework for building rich user interfaces by exploring a simple match-two memory game.

**5.** **RORY**

*Getting up and running using Reactive Streams with Spring Data*
Spring 5 is here! One of the most exciting introductions in this release is support for Reactive Streams out of the box. Finally, the most popular Java framework and ecosystem gets the reactive library it needs. The core features were looked at with a demo on how you can easily get started.

**6.** **FREDERICK**

*The programmer's etiquette guide*
Do you write and understand your code? Does your colleague understand your code? Can a non-developer read and understand your code? Fast forward 2 years and ask yourself if you still remember and understand your code. If the answer to any of these questions is no, then this guide to programmer's etiquette is for you. Documentation, linting, unit testing, and the cycle of writing, refracting, researching, improving were all covered.

**7.** **DONALD**

*Professionalism and ethics in software development*
A quick introduction to the IEEE Computer Society Code of Ethics in software development.

**8.** **WERNER**

*Strategies for running containerised applications*
Docker has become a popular way of packaging applications to run in a deterministic environment. There are however many frameworks out there to deal with communication orchestration and container management. A brief overview was given of popular approaches, such as using simplistic Docker compose as well as other frameworks such as Google's Kubernetes, Redhat's OpenShift and Amazon's ECS platforms.

*Melissa reigned supreme with her junior's guide to full stack*

**Melissa's talk centred around what a full stack developer is and how this can guide developers to be better at the craft. Not just a definition, this is a dedicated and conscious decision for any developer to become good at what they do. For a junior to become involved in all aspects of a team, they have to go through a journey - a journey that involves different technologies, methods and experiences that make people's lives easier with their code. Isn't this what programming is all about after all?**

*Gergana Young*
**BBD ATC TEAM**

# **BBD** AT THE GAUTENG TECHNOLOGY INNOVATION **CONFERENCE**

**Over 2 000 pre-registered delegates, 100 high-level speakers, and 70 exhibitors were in attendance**

The Gauteng Provincial Government (GPG) hosted its annual technology innovation conference on 1 – 2 February 2018 at the Gallagher Estate in Midrand. This year the theme was building innovative technology ecosystems for a modernised city region. BBD exhibited at the conference, with Jabu, Richard and I attending as representatives.

The Minister of Science and Technology, Naledi Pandor, Gauteng Premier David Makhura and Gauteng Finance MEC Barbara Creecy were among the speakers. Over 2 000 pre-registered delegates, 100 high-level speakers, and 70 exhibitors were in attendance, along with media which included outside broadcasts from 702, Power FM and CNBC.

The main objective of the conference was to track progress on plans to modernise government services through Information Communications Technology (ICT), in order to improve service delivery in Gauteng. The conference also afforded the GPG the opportunity to share its future ICT plans of identifying areas of collaboration and direct investment from both the public and private sectors, within the framework of the Transformation, Modernisation, and Re-industrialisation (TMR) programme as set by David Makhura.

The conference provided BBD with an opportunity to interact with GPG officials and introduce our service offerings, as well as share our solid track record of successfully delivering solutions within the public sector. It was also a platform for BBD to mingle and network with peers in the ICT industry and to explore potential areas of synergy and partnership.

*Muzi Matlala*
**BBD SARS TEAM**

# trekking the
# sahyadris

After another eventful year, the BBD India team took off to Xthrill Adventure Academy for our team build. Set against the stunning backdrop of the green and rugged terrain of the Sahyadris, this adventure-filled spot is about a two-hour drive outside Pune.

Our day was packed with rappelling, rock climbing and trekking, with a breathtaking view of the Warasgaon Lake backwaters to spur us on. One of our favourite activities of the day was the trekking. The trek took us to a hidden waterfall which was absolutely mesmerising.

After a jam-packed day outdoors, we were exhausted and ravenous. We ended our team build by sinking out teeth into some of the most mouth-watering food and relaxing over a few drinks.

Thanks to the amazing India team for another great team build!

*Vanessa Joseph*

**BBD INDIA TEAM**

# WE ARE SOCIAL

**f** /BBDSoftwareDevelopment

**g+** /BBDSoftwareDevelopment

**▶** /BBDSoftware

**in** /company/bbd

**🐦** @ bbdsoftware

**📷** @ bbdsoftware

bbd
software development | www.bbd.co.za

# Spring 5 has sprung for BBD

**F**unctional reactive programming (FRP) is not a new idea, but with more frameworks coming into the mainstay and reactive programming more widely adopted, developers need to stay on top of trends. BBD's software developer whizz, Rory Preddy, explores FRP with Spring 5.

## Why is this something we should be talking about?

Reactive programming revolves around models that are built to react to change. Recently Spring has made itself the de facto standard for Enterprise Java, predominantly as Oracle has 'abandoned' JavaEE i.e. Oracle is still heavily involved but in flux as they're migrating to the Eclipse foundation – with Eclipse attempting to mimic the Spring frameworks. This goes against intuition as Spring already exists and for developers looking for a stable enterprise platform, Spring 5 is it.

## So Spring has become the Enterprise platform of choice?

Yes. With certain libraries only moving to Eclipse – Spring is the safer bet for developers.

## Would you say that Spring has the longevity to maintain this position as the de facto choice?

Pivotal, the provider, is managing it well as they've invested in providing training, maintenance and support. This means that not only is there someone to call to resolve any issues, they believe in the longevity of the framework.

## What's new in Spring 5?

Spring 5 has three main changes:

1. Full end-to-end Java 8 compatibility. You must use Java 8 and yes, we know Java 10 is releasing later in March, but that's a story for another day
2. Netty: a full non-blocking web server to use in conjunction with Spring 5
3. WebFlux: the standard front-end model view controller

These changes are exciting, as WebFlux is providing more control over the web request handling. This means developers can write a good non-blocking protocol, using what WebFlux is describing as request mapping. I haven't seen this before, and to be honest it's very complicated because a developer needs to write their own protocol handler but in a non-blocking fashion.

Luckily, the old-school Java developers are still catered for and you can use standard controller syntax for non-blocking handling.

## What features of FRP should we be aware of?

Composionality – tough to say, but it basically means that services need to be composed of multiple small functions. It's bit-by-bit, high level programming with Java 8.

Immutability – certain classes and objects in Java shouldn't change. This gives a developer the ability to control the state of the underlying system because you know it won't change. Java has traditionally been terrible at immutability, as there aren't whole collections that are immutable. To get around this in Spring 5, Java has provided base objects that remain immutable. The jury is still out as to whether this will work well for Java developers.

Inherent parallelisability – the ability to scale in parallel, is guaranteed with the Spring 5 framework when using WebFlux. This is an excellent thing because with the cloud the ability to scale is very important, but scaling gracefully is even more so.

## How could a Java developer scale gracefully using Spring 5?

One of the features that allows these reactive services to scale gracefully is the ability to use back pressure, and WebFlux now has this built in. Back pressure has actually been around for a long time, despite many developers not knowing exactly it is.

What this means for the developer is that if you are not coping, you can tell the system to slow down. If you want to throw the data away, you do so at your own discretion. It's about consuming what you want and how you want, with the system not mandating that you consume at a speed that you are uncomfortable with. A reactive stream's main purpose is to allow the developer to control how fast or how slow the publisher will produce data.

Back pressure works both ways – if you need to speed up certain containers or servers, you can do so, and gracefully.

This all results in developers now being able to send big data to a consumer across a standard rest endpoint, that gracefully expands to allow the consumption of that data. This brings a fascinating 'near' data science element to Spring 5 and reactive programming.

At BBD we have a heavy Java investment, so as JavaEE becomes less of a choice, Spring 5 is on track to become our go-to platform. This could be the route many software development organisations choose and Spring 5 developers need to be familiar enough with this to decide whether to go reactive with it or not.

*"The ability to scale in parallel, is guaranteed with the Spring 5 framework."*

Q & A with Rory Preddy
**BBD ATC TEAM**

# WILD AT *Harties*

## BBD NEDBANK TEAM PUTS THE ♥ IN HARTESBEESPOORT

*A*fter some trials, tribulations and triumphs experienced throughout the year, the team was ecstatic when we finally received our team build invitation.

Our journey started (not-so) bright and early at 6am, where we departed from BBD Killarney to The Venue Country Hotel in Hartbeespoort. On arrival, we started our day with a delicious brekkie and much-needed 'morning refreshments'.

Thereafter we departed to the Lion Park where we were split into three groups. Our group's game driver offered us an opportunity to leave the safety of the game drive vehicle to go hug lions. Fortunately, no one dared. We didn't want to lose valuable devs, BAs or testers to territorial lions.

We were then welcomed by a five course meal at De Vette Mossel, which included an unlimited supply of drinks, followed by a team photo on the 'beach'. We ended off the day with a quiz night, coupled with some sundowners.

The team utterly enjoyed the time off and strengthening the team dynamics.

Koketso Rammego
**BBD NEDBANK TEAM**

# **Jump** right of of your **career** slump

**BBD is an amazing company to work for, however you have to create your own path and be your own spokesperson. There are hundreds of other developers just like you, who are working to get noticed. You need to be one of those sticking their hand up. Do that, and the doors will open.**

I have been with BBD for 10 years now, and there were times early on in my career where I really felt lost and needed a push in the right direction, or I wouldn't still be sitting here today.

I smile when thinking back to emailing Gus and asking him why anyone would want to work at BBD. The lessons I learned during that time are the same things I today tell potential employees during interviews, "BBD is an amazing company to work for, however you have to create your own path and be your own spokesperson. There are hundreds of other developers just like you who are working to get noticed. You need to be one of those sticking their hand up. Do that, and the doors will open."

Below are a few ways that you can continue to make progress and shine during your career.

**Have bite-sized goals**
If you find yourself completely swamped by your 9-5, with no time to tuck into large chunks of training, try and break it up. First, consider what you want to achieve, and then commit to it. Set time-bound goals that motivate you. Most importantly, plan the steps you need to take to achieve your goals. It will feel really satisfying to be able to tick them off the list.

**Attend BBD events!**
I cannot stress how important going to our events is. BBD hosts many events where you can learn more about projects in other areas, technologies we are considering and methodologies we are trying. Not only will you meet like-minded people and grow your network, your interest could be sparked by the content and lead you in a new direction. Thanks to Tony van der Linden and his ATC team, BBD is very active in the South African tech community.

If nothing here grabbed your attention, please feel free to walk straight into Peter or Gus' office, as we are very fortunate to have some of the most approachable leaders in the business. Although it's challenging to get the balance right, they understand that running a successful business relies on happy employees.

*Dieter Lehmann*
**BBD STD BANK TEAM**

# ICO

## Initial coin offering

## As easy as riding a bus?

nitial coin offerings (ICOs), also referred to as token sales, have become the latest fintech trend gaining popularity in the cryptocurrency environment. But what are they? Simply put, ICOs are used to raise investments for a particular project. But instead of traditional equity, investors receive electronic tokens for their investments, confirming their stake in the project.

While this may sound similar to an initial public offering (IPO), ICOs are different:

- An IPO is used when a privately-owned company with a track record needs to raise capital for future growth plans and offers shares of the company's stock to the public. As part of this process, the company lists on a stock exchange such as the JSE or NYSE.

- ICOs are start-ups or possibly just a rough idea for a product, written in the form of a white paper describing an idea. More often than not, the solution or product has not yet been built or sold. There is no business track record other than the expectation being set by the creators. The ICO issues a new token in the form of a cryptocurrency that investors purchase with the hope that the product

gets built and is successful. It is unclear if the investor is actually purchasing equity in the start-up or just a 'token' to use the service being built at a later date.

Other similar examples include angel investing, seed funding rounds from venture capital companies and crowdfunding.

Here is an analogy to explain the concept. If my white paper focuses on inventing and developing a bus, I could either sell you a share in the bus company that I'm starting, or I could sell you a ticket or token to ride on the bus. This token doesn't give you partial ownership of the company, but if I develop my bus, you will get a certain number of rides on that bus. These bus tokens, giving you access to the service, are then your ICOs.

It is important to note that issuing equity to the public is highly regulated, hence ICOs are treading a very fine line between issuing equity and issuing tokens. Some ICOs may find themselves on the wrong side of the law and end up with fines or even jail time. Regulators from a range of countries have warned about the unpredictability of ICOs, with China recently banning the use of ICOs as a form of fundraising.

Many of the investors in ICOs are often unaware of what they bought, merely hoping that it will increase in value based on what they have seen happen to Bitcoin.

Despite this, there are a few success stories, with Ethereum being an example of a project that was profitable to early investors. Often compared to Bitcoin, Ethereum is a distributed public blockchain network, which uses Ether as a type of crypto token that fuels the network. Ethereum also offers the ability to program smart contracts, which are algorithms that can facilitate the exchange of money, content or anything of value. Using the bus analogy, a smart contract would be an agreement where you would give the driver your bus token if you travel comfortably and safely from Johannesburg to Cape Town. When the conditions of the contract are met, the payment is automatically made.

Even though ICOs can be used to start up useful projects like Ethereum and many others, I remain very wary of the concept. Investors need to be aware they stand the risk of losing their investment, hence I suggest waiting till ICOs are better regulated before participating.

*Matthew Barnard*
**EXECUTIVE HEAD OF BANKING**

**" I could either sell you a share in the bus company that I'm starting, or I could sell you a ticket or token to ride on the bus. This token doesn't give you partial ownership of the company, but if I develop my bus, you will get a certain number of rides on that bus. These bus tokens, giving you access to the service, are then your ICOs. "**

# BBD MAKING
## *a difference*
## IN **SA**

## *We believe in giving back to our communities*

BBD is the proud supporter of numerous CSI initiatives. We believe in an educated and successful South Africa, and are proud to put our efforts where are mouths are.

One of the ways we're doing this is as a founding partner and proud sponsor of WeThinkCode – a revolutionary tech-based learning institution dedicated to eliminating South Africa's IT skills gap.

We donate time and computers to Vmite, a registered public benefit organisation that empowers young people from under-privileged backgrounds with the critical technology skills necessary to thrive in the current job market. Vmite works in schools where ICT labs have become white elephants, and train the teachers and learners on digital skills and innovative learning tools that can be integrated into the everyday classroom.

Through our internal awards programme, winning employees get to select a charity, and BBD donates monthly to various charities. This is on top of the ad-hoc drives that BBD are honoured to support.

# Charitiy initiaives

## Tech education

> GirlCode
> Girls & Boys Town
> Khuphulanani Training Institute
> Mphatlalatsane Education Project
> ORT SA
> Student Sponsorship Programme
> Touch Life Centre
> Tshimologong Digital Innovation Precinct
> WeThinkCode

## General

> Animal Anti-Cruelty League
> Boost Africa Foundation
> Children of Fire
> CHOC
> COACH
> Door of Hope
> Hospice WITS
> Sandton SPCA
> Thuthukani

*Lynn van Aarde*
**BBD HR TEAM**

# Bright future for **containerisation and serverless tech?**

**Kubernetes is one of the leading open-source container orchestration platforms in the world. Kubernetes ("koo-bur-net-eeez") is the techie-bastardised, conventional pronunciation of a Greek word, κυβερνήτης, which means "pilot" or "helmsman". Leading the way through the storm of cloud computing and containerised applications, Kubernetes makes it easy to deploy, scale and manage containers.**

First announced by Google back in 2015, Kubernetes has come a long way. GitHub announced in August 2017 that they would be transitioning entirely onto the Kubernetes platform, joining other companies and systems running on the platform such as Pokémon Go, the New York Times and eBay.

Some of the major technical value propositions that Kubernetes brings to the table is its platform level service discovery, smart scheduling of deployments and horizontal application-level scalability. Businesses benefit from the elasticity provided by the platform to adapt to load. The fact that developers care less about where their code is running and focus more on writing good quality code allows businesses to achieve a shorter time to market for their products with the added benefit of being able to easily scale out as demand grows.

Many cloud providers and tech companies have developed container orchestration platforms similar to Kubernetes. These often come with the caveat of vendor lock-in or environment limitations. Kubernetes runs on most current cloud providers (AWS, Azure, GCE, etc.) and can be deployed on prem on both VMs and bare metal machines. The popularity of Kubernetes has grown to such an extent that cloud providers are offering managed Kubernetes clusters, only at the cost of the underlying infrastructure. Regarding the evolution of containers, some are of the opinion that the natural order of progression has gone from simple executables, to containers and now to serverless applications.

It's clear though that this discrimination between serverless and containerised applications as the path to the future, may be open to debate. In late 2017, AWS announced at re:Invent a new service called AWS Fargate. Fargate allows running containers without provisioning any virtual machines or physical hardware, this then allows serverless containers to run. It was said during the same announcement that Fargate will support AWS EKS in 2018 - a managed Kubernetes service. The collaboration between serverless and containerisation technologies may open some unique opportunities in the near future.

The Kubernetes platform has grown a lot since its release in 2015 and is going strong in the wake of competitor platforms. Kubernetes, in partnership with the Cloud Native Computing Foundation (CNCF), have launched official training and certification content for those with the desire to enrich their knowledge of the platform.

Read more at: www.cncf.io/certification/expert/

Werner Mostert

**BBD TURFSPORT**

kubernetes

# IMMERSIVE TECH

## SHOULD WE CARE?
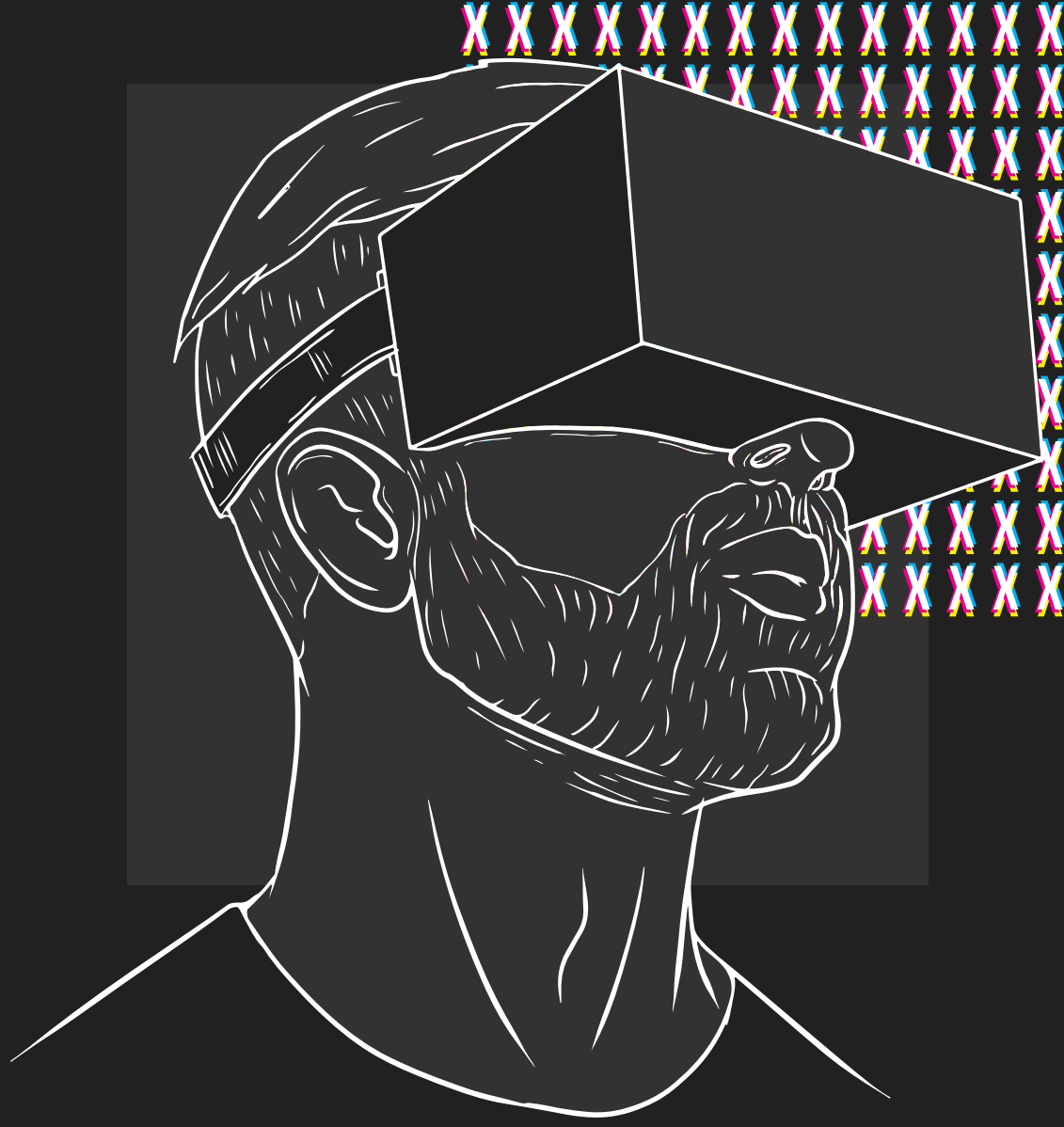
In today's fast-paced world the push for smarter, more intuitive and immersive technology that eases the burden of complex systems is continuous.

**VR and augmented reality (AR) are not just for entertainment or media, the technology is being used in innovative ways. The International Data Corporation estimates the total revenue for both AR and VR to be over $162 billion by 2020.**

Not sure of the difference between the two technologies?

> **VR** is an escape from the real world via an immersion into a fantasy "reality", effectively cutting you off from the physical world. This is achieved with headsets (head-mounted displays), earphones (3D surround sound), optional motion controllers and position tracking. VR environments can be as detailed and engaging as the creator wants, able to run off both a mobile or desktop computer.

> **AR** combines the real world with a virtual world, by creating virtual layers on top of your physical environment. This is best achieved with non-isolating smart glasses, enabling interaction with the virtual 'world' while still staying in touch with the real world.

The healthcare, training, education, military, gaming, mining, marketing, real estate and entertainment industries are all finding unique uses for the technology. As immersive technology becomes more easily available to the public, the extent to which it can be useful will constantly be redefined.

Gartner predicts that 20 percent of large-enterprise businesses would have evaluated and adopted AR and VR solutions by 2019, while consumers and businesses will have easy access to quality devices, systems, tools and services by 2020.

AR and VR are not as new as some may think. Large organisations were already using the technology in the 1990s for mining and flight simulations. Current growth behind AR and VR is due to the technology becoming more cost-effective for smaller businesses and private customers. Coupled with this is the growing need for this technology in sectors such as workforce training, education and the medical sciences.

I have always been interested in creating 3D worlds and sees a lot of potential for the growth of AR and VR, despite the current drawbacks. When using mobile VR - challenges such as phone batteries, processing power, overheating and low resolutions are somewhat balanced out by the complete freedom of the fully mobile setup. Desktop VR with its greater processing power negates some of the mobile issues, but one has to remain connected to the PC.

A workaround to try and achieve the best of the mobile and desktop options is through a gamer's laptop. These contain graphics cards, better processing power and with the use of a backpack, are portable. VR and AR each have their own specific markets, dependent on the user's needs for interacting with the physical environment.

Now that we have the potential to immerse ourselves in knowledge through virtual experiences - we can truly change how we teach, learn and understand.

*Caspar Schutte*

**BBD STD BANK TEAM**

# Making a splash

After months of planning, our big day finally arrived.  It was now time for us to let our hair down, get to know our team and to enjoy team building, ADMIN style.

We started our day off with a team breakfast in preparation for all the beer tasting that was about to be consumed at the BBD Bierfest.

At 14h00 we left the BBD office and were on our way. The trip alone was an adventure, lots of singing to the music, loads of laughter, which made the trip fly by and within no time we arrived at the City of the Sun.

On arrival, we unpacked and boy oh boy did we pack a lot of stuff, if I did not know better I would have thought that we planned to stay there for a week!

We all met up for a Portuguese style dinner and returned to our chalets for some much-needed R&R.

On Saturday morning, we were welcomed by a troop of monkeys that really wanted to join in on the fun and wow were they tenacious in trying to get to our food!  After a scrumptious champagne breakfast, we headed to the Valley of the Waves for some fun in the sun.

After a hard day in the sun, we prepared for a traditional South African evening braai. Meat check, fire check, salad check, music check, drinks check, soccer and rugby game check, Admin team check… we were now ready to take this evening to another level of fun at 'home' around a braai.  As the evening progressed the stories became more entertaining, sore bellies were the order of the evening from too much laughter and fun activities.

We then had a very early start the next morning to head back home. The trip back was more subdued but laughter still reigned as some of the weekend stories started coming out.  Thanks to the Admin team this was yet another amazing and successful team build.

*Abrie van Aarde*
**BBD ADMIN TEAM**
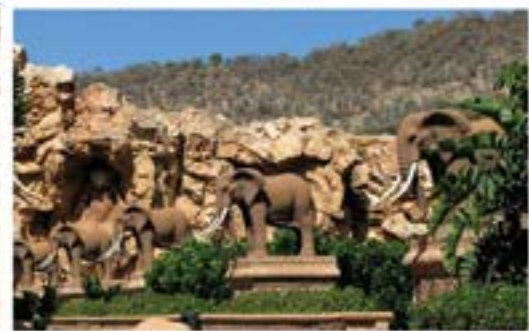
# bbd Environmental Policy

BBD is dedicated to reducing our impact on the environment. We strive to continuously improve our environmental performance and to initiate projects and activities that will further reduce our footprint on the environment. Our commitment extends to our clients, our staff, and the community in which we operate.

## We are committed to:

Complying with all applicable environmental regulations set out by the Department of Labour, such as:

- **Thermal requirements**
- **Lighting**
- **Windows**
- **Ventilation**
- **Housekeeping**
- **Noise and hearing conservation**
- **Fire precautions**

We reduce pollution and waste where possible, by means of:

- **LED lighting in our office space**
- **Controlled lighting on motion sensors**
- **E-waste recycling**
- **Expired battery collection points**
- **Waterless carwash**
- **Recycling bins**

BBD communicates the environmental policy by encouraging contribution and participation via recycling bins throughout our offices, as well as eco-friendly car washes.

We promote efficient and conservative use of resources in the working environment such as water, electricity and paper to name but a few.

At BBD we avoid unnecessary use of hazardous materials and products, seek substitutions where feasible and take all reasonable steps to promote a healthy environment when such materials are used, stored and disposed of.

We strive to continually improve our environmental performance and minimise the social impact and damage of activities by periodically reviewing our environmental policy in light of our current and planned activities.

# Water saving tips

We've all heard the warnings. Droughts are a reality across the world and we need to adapt our lifestyles accordingly to save water.

**Not sure how to save water? Here are a few tips:**

• Wait for a full load before running the washing machine or dishwasher
• Only flush the toilet when necessary - if it's yellow let it mellow
• Place a water displacement device in your cistern to save a litre per flush
• Install a water-efficient showerhead
• Take short showers instead of baths
• Collect water from showers and basins and re-use to flush toilets
• Use eco-friendly detergents and re-use grey water to water your garden, or wash your dog
• Fix unnecessary water leaks around the house
• Water your garden before 10am or after 6pm
• Don't leave water running while brushing your teeth
• Don't fill the sink to wash your dishes
• Don't run the tap till the water is cold, keep water in a jug in the fridge instead
• Use buckets for cleaning cars instead of a hosepipe

# GETTING UNDER YOUR SKIN WITH
# VASCULAR BIOMETRICS

The vein patterns of every person are different, unique to that individual and formed in the fifth week of embryonic development.

As biometric systems are being used more frequently commercially and in research, the use of the vein patterns in the hand region have been examined, and the finger, palm, wrist and dorsal hand veins have proved to be unique. My MSc thesis looks at this in more detail and is titled "dorsal hand vein pattern recognition including rotation and occlusion of images".

The science of biometrics is the measurement of living things and the investigation of the identification of an individual based upon inherent physiological or behavioural features that can be quantified. Biometric traits can also be used for security purposes, with a trait needing to have specific characteristics to be considered as a biometric e.g. universality, uniqueness, permanence and collectability.

One trait that has been publicly accepted and used over the last few years is the vascular pattern. In hand-based biometric systems, it is important to acquire information, which in most cases is under the skin, so different imaging is used for each occasion. The skin is comprised of three core components, which all absorb light from different wavelengths:
• water, one of the skin's main components, absorbs light from wavelengths above 1000nm and below 300nm
• haemoglobin and melanin absorb visible light from wavelengths of 200-650nm

During my MSc research, it was taken as a given that the vein pattern is unique for each individual and hence focus was placed on defining the maximum distance that the hand could

be from the camera and whether the rotation/occlusion of the hand would alter the identification process and the results.

Images from four different distances between the hand and the camera were captured for all five different positions of the hand. After the analysis of images from 100 participants, it was proved that a distance more than 25cm between the hand and the camera was not providing the system with enough information to identify the user. However, for most rotating positions, the key points of the vein pattern remained obvious so the identification process was not influenced.

An example of biometrics at play in South Africa is Capitec, making banking easy for its customers and building trust through the increased security level biometric fingerprint identification.

*Christina Komlikis*
**BBD NEDBANK TEAM**

# pedal
## to the metal

In the BBD family, not being lekker is considered a heinous offensive. At Momentum, the dedicated software devs who build the internet and its underlying services page by page are members of an elite squad known as...well...the BBD guys stationed at Momentum. These are our stories.

We had our team build towards the end of 2017, which I don't think any of us complained about. It was right when our stress levels were reaching their yearly peak and the pressure was mounting to finish 2017 off well. We got a day to let the tops down (metaphorically – go-carts don't have tops silly) and relieve some stress with some friendly competition, and boy – what a day it was!

Because we were a smallish group we were able to have everyone on the track at the same time, taking part in an epic battle-royale style race. There were wipe outs, collisions and rivalries fueled by a deadly cocktail of petrol and adrenaline (think Mario Kart meets The Grand Tour).

After the free for all, we broke into teams of two and went head to head, attempting to lay our claim on the coveted winners' cup, bestowed onto man in the early ages by Brodin. The winners of this epic contest of champions were Werner and Waldo (congrats guys!). Trophies were also awarded to Kabelo, Francois and Thomas and the most special of all, the most careful driver – receiving the coveted 'uiltjie' (lit. 'small owl') trophy, which was won by Livhuwani.

All in all, it was a great day! Not only did we have loads of fun, but while our teammates were on the track we had the opportunity to bond with our colleagues and talk about [redacted by BBD] and how they used the [redacted by BBD] to solve the problems they had with their [redacted by BBD]…

*Andre Prinsloo*
**MOMENTUM TEAM**

# Escape through immersion

Who among us have not at some point seen and envied (or indeed attended local versions of) Medieval or Renaissance fairs as depicted on popular TV shows?

I too have had fond notions of enjoying such experiences, and had even encountered one or two live action role-play (LARP) stalls at conventions having mainly been attracted by elf ears and skimpy armour you'll understand. "What is a LARP?" I asked them.

"It's like a table top role-playing game such as D&D, except that you physically assume the role of your character and participate with other players by acting the game out".

I thought this was interesting, but that perhaps I should attain a higher geek ranking before participating…

Some years pass and I find myself contemplating how to remedy the atrophied state of my imagination. Unable to conjure up even the most trivial child-like fantasy, adulthood was starting to seem too drab. I thought back to the mental images from TV and to the fair elf-maidens tending their stalls, and decided that if anything could resuscitate my imagination - it would have to be this.

I made some enquiries and attended a work day (or 'bag & tag' as they say) in preparation of a weekend event, which gave me the opportunity to interrogate some of the organisers and long-time participants. I quickly realised that there was a lot to assimilate in terms of lore, custom and politics among factions and races, but most notable was that everyone I spoke to had a glow of enthusiasm and were eager to share their passion for their game.

I cautiously proceeded where I have seen others rush in, and in order to scout out the landscape, attended that first event as a kitchen/catering aid. It was at this event that I witnessed a barbarian adventuring party, and was instantly hooked by their marvellously wrongheaded logic, fantastically broken speech, and unabashedly reckless shenanigans.

The real fun started at the next event for which I had created my own barbarian. Inspired by what I had seen and by the exercise of writing a back story, it turned into an interesting, almost cathartic, dipping into my subconscious mind.

Only once you attend a weekend in another's name and persona, devoid of all your worldly cares, do you truly know what it means to be on holiday.

*Jean Blignaut*
**INNOSYS TEAM**

# Vampire
## THE MASQUERADE
### BLOODLINES

You wake up, plunged into a world of darkness. Your life completely changed by one fateful night with a mysterious conquest. Your sire executed, you kneel on a stage as a council of vampires debate what to do with you. The Prince of the Camarilla being forced to spare you only by the intervention of the Anarchs.

This is where you get to decide. Make friends and enemies as you fight for your survival and freedom in a world where monsters exist. A world you're now a part of.

VtMB is an awesome 2004 retro classic RPG style game where you can carve out your own fate and decide who you want to fight for. With dialogue choices, branching objectives and different endings, you're likely to play multiple times with different experiences. Not to mention the fascinating lore behind the different vampire clans you can belong to.

Each clan having its own unique abilities and traits makes for an exciting play-through every time. And if you don't know what you want to play, start off with the personality test to see which clan you truly belong to (Malkavian for life!).

If you enjoy the RPG genre and haven't heard of or played VtMB, you should seriously consider getting it. It's available on Steam and is a necessary addition to any gamer's library.

*Antoinette Henn*
**BBD ACTURUS TEAM**

# BBD brings the **Gautrain** to your **doorstep**



**Catching the Gautrain to Rosebank and worried about how you will get to work?**

**No problem! A shuttle service will take you to and from the BBD Johannesburg offices.**

**Monday to Friday**
07h10 and 08h10 - Rosebank
16h15 and 17h15 - Killarney

# A taste of
# INDIA

## Murgh Makhani (Butter Chicken)

### INGREDIENTS

- 1 kg boneless chicken, skin removed
- Juice of 1 lime or lemon
- 1 tsp. red chilli powder (adjust to suit your taste)
- 6 cloves
- 8-10 peppercorns
- 1 stick of cinnamon
- 2 bay leaves
- 8-10 almonds
- Seeds from 3 cardamom pods
- 1 cup fresh, unsweetened yoghurt
- 2 tsp. coriander powder
- 1 tsp. cumin powder
- ¼ tsp. turmeric powder
- 3 tbsp. vegetable, canola or sunflower cooking oil
- 2 onions, chopped finely
- 2 tsp. garlic paste
- 1 tsp. ginger paste
- 400g chopped tomatoes, ground to a smooth paste in a food processor
- 500ml chicken stock
- 2 tbsp. kasuri methi (dried fenugreek leaves)
- 3 tbsp. butter
- Salt to taste
- Garnish: coriander leaves

### METHOD

1. Mix the chicken, lime juice, salt and red chili powder in a large, non-metallic bowl. Cover and allow to marinate for 1 hour.
2. Heat a flat pan or griddle over medium heat and gently roast the cloves, peppercorns, cinnamon, bay leaves, and almonds until they darken slightly (stirring frequently). Cool and add the cardamom seeds. Now grind into a coarse powder in a clean, dry coffee grinder.
3. Mix the yoghurt, spice powder (from the previous step), coriander powder, cumin and turmeric powder together and add them to the chicken. Allow it to marinate for another hour.
4. Heat the oil in a deep pan over medium heat. When hot, add the onions. Fry until pale golden brown in colour and then add the ginger and garlic pastes. Fry for another minute.
5. Add the chicken (reserving the marinade) and fry until cooked through.
6. Add the tomato paste, chicken stock, kasuri methi, and the yoghurt-spice marinade to the chicken
7. Cook until the chicken is tender and the gravy is reduced to half its original volume.
8. Melt the butter in another small pan and then pour it over the chicken.
9. Garnish with coriander leaves and serve with naan and kaali daal.

# WHAT THE HEALTH

## Don't be misled by these mainstream food choices.

Healthy eating is all the rage now. "Low-fat", "organic", "free range", "gluten-free" and "green" seem to be all one looks for on a label, along with a picture of a tree. But to what extent should we trust labels?

Below are a few examples of misleading foods that seem healthy, but aren't:

### Low-fat yoghurt
Rich in protein, calcium and probiotics, this high-nutrition food is actually loaded with sugar. Compared to full-fat, sugar content in low-fat yoghurts increase by over 6 grams per serving.

### Pre-packaged salads
If you're trying to stay away from take-aways, these salads are a great alternative. But that's only until salad dressing is added. Dressings add unnecessary sugar, sodium and saturated fats to your calorie intake.

### Trail mix
High in calories, this grab-and-go snack is only to be eaten in small portions, with nuts being the greatest quantity. Added chocolate and sugar-packed fruits turn this once healthy snack into just another sugary treat.

### Microwave popcorn
Popcorn is a healthy snack, having good antioxidants called polyphenol. Unfortunately, although you might think microwave popcorn is a quick alternative when you're pressed for time, it's actually comprised of salts and unhealthy fats. Even worse, there is a chemical coat that when heated up, can cause high cholesterol, bladder cancer and thyroid issues.

### All kinds of fried chips/crisps
Just because it says beetroot or sweet potato, doesn't mean it's healthier. Fried in high temperatures, the oil changes into an unhealthy trans-fats which is linked to a higher chance of heart disease.

### Cook-in sauce
A simple solution to a flavourful meal, these sauces are loaded with salt, unhealthy vegetable oils, flour, sugar and preservatives – packing in extra unnecessary calories.

### Ice tea
This tasty drink may be packed with antioxidants, but with all the added sugar, you will be consuming the same number of calories as in a standard soda.

When buying "healthy foods", start off by looking at the serving size. Often this amount is way less than suggested in the image. Check calories to see how much energy you get from a single serving as well as the nutrients they offer. In other words, look at the nutrition facts before buying your groceries.

See the label to the right as an example.

Use the % Daily Value (% DV) column: 5% DV or less is low, and 20% DV or more is high.

Keep these low: saturated and trans-fats, cholesterol, and sodium.

Get enough of these: potassium and fiber, vitamins A, C, and D, calcium, and iron.

Check the calories: 400 or more calories per serving of a single food item is high.

*Stephanie van den Brink*
**BBD MARKETING TEAM**

# Nutrition Facts

Start here

**Serving Size 1 cup (288g)**
**Servings Per Container 2**

**Amount Per Serving**

Check calories

**Calories** 250       Calories from Fat 110

Quick guide to % DV

% **Daily Value\***

5% or less is low
20% or more is high

| | % Daily Value* |
|---|---|
| **Total Fat** 12g | 18% |
| Saturated Fat 3g | 15% |
| Trans Fat 3g | |
| **Cholesterol** 30mg | 10% |
| **Soduim** 470mg | 20% |
| **Potassium** 700mg | 20% |
| **Total Carohydrate** 31g | 10% |
| Dietary Fiber 0g | 0% |
| Sugars 5g | |
| **Protein 5g** | |

Limit these

Get enough of these

| | |
|---|---|
| Vitamin A | 4% |
| Vitamin C | 2% |
| Calcium | 20% |
| Iron | 4% |

Read footnote

\* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

| | Calories | 2,000 | 2,500 |
|---|---|---|---|
| Total Fat | Less than | 65g | 80g |
| Sat Fat Cholesterol | Less than | 20g | 25g |
| Sodium | Less than | 300mg | 300mg |
| Total Carbohydrate | Less than | 2,400mg | 2,400mg |
| Dietary Fiber | | 300g | 375g |
| | | 25g | 30g |

# Cocky corner

## Top 10 replies by programmers when their programs don't work:

10) It worked yesterday

9) Somebody must have changed my code

8) It worked on my machine

7) That's weird...

6) It must be a hardware problem

5) It's never done that before

4) It works, but it hasn't been tested

3) I haven't touched that module in weeks!

2) How is that possible?

1) You must have the wrong version

## Programmers while coding



It doesn't work...

Why?



It works...

Why?

---

A SQL query goes into a bar, walks up to two tables and asks...

"Can I join you?"

---

99 little bugs in the code,
99 bugs in the code,
1 bug fixed...compile again,
100 little bugs in the code.

---

```
//life motto
if (sad() === true) {
    sad.stop.();
    beAwesome();
        }
```

---

Hide and seek champion...

;

since 1958

---

Hardware *(noun.)*
The part of a computer you can kick.

---

Programmer *(noun.)*
A person who fixed a problem that
you don't know you have,
in a way you don't understand.

---

How do you tell HTML from HTML5?
- Try it out on Internet Explorer.
- Does it work?
- No.
- It's HTML5.

---

Algorithm *(noun.)*
Word used by programmers when...
they do not want to explain what they did.

| 4 |   | 1 |   |   |   | 5 |   | 6 |
|---|---|---|---|---|---|---|---|---|
| 2 | 6 | 5 | 1 |   |   | 4 | 3 |   |
|   | 9 |   |   |   |   |   |   |   |
| 7 |   |   | 8 | 5 |   | 9 |   |   |
|   |   |   |   |   |   |   |   |   |
|   |   | 2 |   | 1 | 9 |   |   | 7 |
|   |   |   |   |   |   |   | 7 |   |
|   | 2 | 3 |   |   | 4 | 6 | 9 | 1 |
| 6 |   | 7 |   |   |   | 2 |   | 5 |

"How long is forever?
Sometimes, just
one second."

The rabbit has gone down the hole
once again and we need your help.

Find the rabbit hidden within the
bulletin and stand to win a magical
prize. Mail marketing@bbd.co.za
with your answer by 30 June 2018

**in**

/company/bbd

**🐦**

/bbdsoftware

**YouTube**

/BBDSoftware

**g+**

/+BbdCoZa

**f**

/BBDsoftwaredevelopment

**📷**

/bbdsoftware

**bbd**
software development

www.bbd.co.za