



온프레미스에서 클라우드로 ERP 고도화 전략

17 July 2019



Beyond cost saving and business model shifts

Cost Saving + Business Model Shifts

애플리케이션은 서브스크립션의 일부로 새로운 기능을 더 빠르게 추가하고 있다. 따라서
클라우드로의 전환은 새로운 비즈니스 모델에 관한 것이다.

Oracle CEO
Mark Hurd



10 New Reasons to move ERP into Cloud

- Make more-precise (and more-profitable) decisions with built-in analytics and machine learning.
- Automate risk management with cloud-based governance, risk, and compliance (GRC) tools.
- Eliminate non-value work and manual transaction processing.
- Expand quickly into new markets at lower risk by automating foreign tax law compliance.
- Gain real-time insight into day-to-day operational performance and financial trends from any device.
- Extract maximum value from existing IT investments and assets with infrastructure as a service (IaaS).
- Get a faster month-end close by connecting to multiple data sources and using prebuilt reporting templates.
- Speed up innovation using platform as a service (PaaS).
- Adapt to changing compliance regulations and accounting standards, using revenue-management cloud services.
- Monitor the entire business from a single cloud platform.

Source: Forbes.com, Sasha Banks-Louie, April 4, 2017.



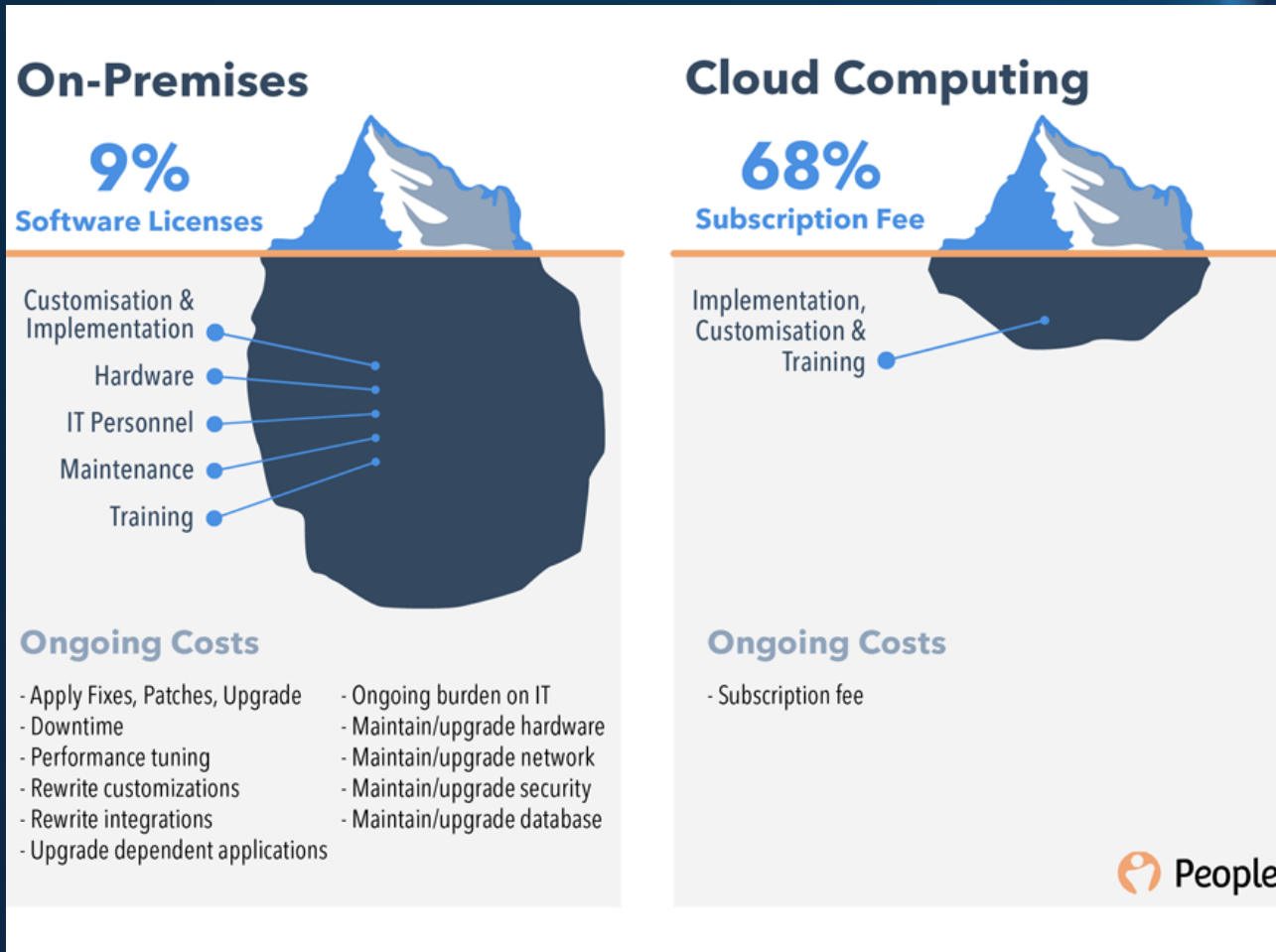
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SAP Cloud(HEC)을 도입하는 10가지 이유

- 1 HANA기반 시스템구축 가속화**
eg. Fast deployment and ROI effect
- 2 H/W 운영에 있어서 효율성 향상**
eg. 감가상각비, 전기세, 상면비 등 별도비용 없음
- 3 혁신(Innovation)의 가속화**
eg. 머신러닝, 인공지능, 챗봇 등 최신기술 지속적용
- 4 비즈니스 변동성에 대한 탄력성 강화**
eg. 기간별 계약방식(subscriptions), etc.
- 5 SAP 테크놀로지 유연한 사용**
eg. S/W subscription
- 6 IT 복잡성 제거 및 단순화**
eg. S/4's architecture, embedded solutions
- 7 운영비용 절감**
eg. Phased-approach, Shared pool based experts
- 8 특정 IT전문가 예비성 대기 X**
eg. Shared pool based experts globally
- 9 기존 On-Premise 투자 보호와 함께 Cloud로 전환**
eg. S/W Lic. + HEC sub.for HW and Infra
- 10 비용모델 전환 (CaEx to OpEx)**
eg. simple accountings

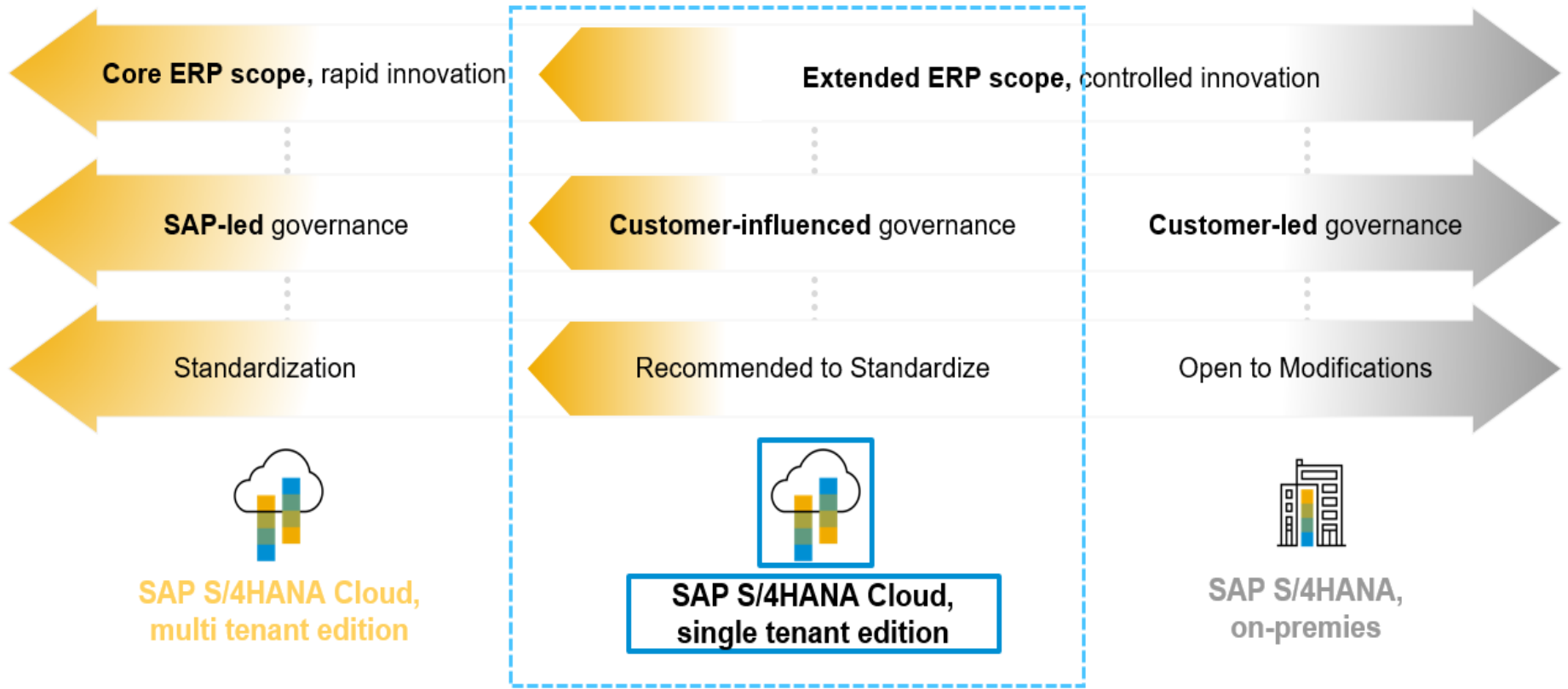
Source: SAP

일반적인 TCO 비교: On Premise vs. Cloud



Source: <https://www.peoplehr.com/blog/index.php/2015/06/12/saas-vs-on-premise-hr-systems-pros-cons-hidden-costs/>

SAP 구축 Option



Source: SAP



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SAP 구축 Option 별 Pros & Cons

		특성	Pros	Cons
On-Premise Edition		기업의 하드웨어 및 서버에 직접 설치하는 사내 구축형 (온프레미스) ERP 시스템	<ul style="list-style-type: none"> ▪ Most flexible and customizable ▪ 시스템끼리 간단한 integration ▪ 빠른 data transfer ▪ 기업이 선호하는 인프라에서 운영 ▪ Software upgrade 스케줄 및 the latest support package의 이행 여부를 기업이 결정 	<ul style="list-style-type: none"> ▪ Most expensive ▪ Time-consuming ▪ 자체 hardware 및 DB 필요 ▪ 기업이 자체적으로 모든 것을 관리 ▪ 새로운 기능 도입 위해 추가로 hardware나 software 구입 필요
HANA Enterprise Cloud (HEC) (Private Cloud Edition)		기업의 데이터센터에 구축한 Private Cloud (HEC)를 통해 S/4HANA ERP에 액세스 (IaaS로 제공)	<ul style="list-style-type: none"> ▪ Customizable, modification ▪ 기업 전용 server와 가상 private cloud 제공 ▪ 기존 SAP application을 HEC로 도입 가능 ▪ 모든 languages and countries 지원 가능 	<ul style="list-style-type: none"> ▪ Greenfield implementation ▪ Time-consuming (시스템 확장 및 set up)
Public Cloud	Single-Tenant Edition (STE)	SAP의 데이터센터에 구축된 기업 전용 private cloud를 통해 S/4HANA ERP에 액세스 (SaaS로 제공)	<ul style="list-style-type: none"> ▪ Full-featured S/4HANA ERP ver. 구축 가능 ▪ 기업 전용 가상 private cloud 제공 ▪ AWS, GCP, MS Azure에서도 구축 가능 ▪ 다양한 languages and countries 지원 ▪ Fully managed and supported by SAP ▪ 사용자 단위(FUE) 과금 체계 	<ul style="list-style-type: none"> ▪ Expensive ▪ Greenfield implementation ▪ 추후 MTE로의 원활한 전환을 위해서 Cloud Standard("The Five Golden Rules") 준수
	Multi-Tenant Edition (MTE)	MTE를 선택한 모든 기업은 SAP의 데이터센터에 구축된 public cloud를 함께 공유 (SaaS로 제공)	<ul style="list-style-type: none"> ▪ ERP 구현의 복잡성 최대한 제거 ▪ 단시간에 새로운 ERP 사용 가능 ▪ Low cost, Efficient, Faster, Scalable ▪ Economic of Scale ▪ 매 분기마다 정기적으로 업데이트 진행 ▪ Fully managed and supported by SAP 	<ul style="list-style-type: none"> ▪ Limited-featured S/4HANA ERP ver. ▪ Pre-configured by SAP → Customization 불가 ▪ 정해진 languages and countries만 지원 ▪ 제조, HR, 영업지원 및 금융서비스, 소싱 및 조달, 프로페셔널 서비스만 지원 ▪ Security risks 증가

Moving ERP to Cloud: Don't lose sight of the risks

- ▶ Offers more powerful processing power
- ▶ Can be accessed from anywhere at any time
- ▶ Built-in templates such as segregation of duties(SoD)
- ▶ Less expensive
- ▶ also comes with fraud and cyber security threats.

Source: Oracle and KPMG Cloud Threat Report, 2018/



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Fraud, cyber security, and weak controls



17% of organizations surveyed had a cyber breach associated with their ERP solution



19% of organizations surveyed had a fraud incident associated with their ERP solution in the last five years



71% of executives surveyed are concerned with moving finance and human resource applications to a cloud ERP platform



78% are concerned with unauthorized individuals gaining access to sensitive data

Source: KPMG ERP controls survey 2017



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Security issues: Recognized but not resolved



13% of organizations said that their internal audit team conducts periodic security and controls assessments



11% of executives surveyed said the internal audit team had the appropriate knowledge, skills, and expertise to support these assessments



75% of executives surveyed plan to allocate 3% to 10% of a future ERP project budget for security and controls

Source: KPMG ERP controls survey 2017



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Steps to take for enhancing cloud ERP security and controls

- ✓ Strategy, business requirements, and business case development
- ✓ Current state assessment
- ✓ Controls analytics state assessments
- ✓ Cloud ERP role-based access security
- ✓ Cloud authentication
- ✓ Cloud identity management
- ✓ Data and infrastructure security design and implementation

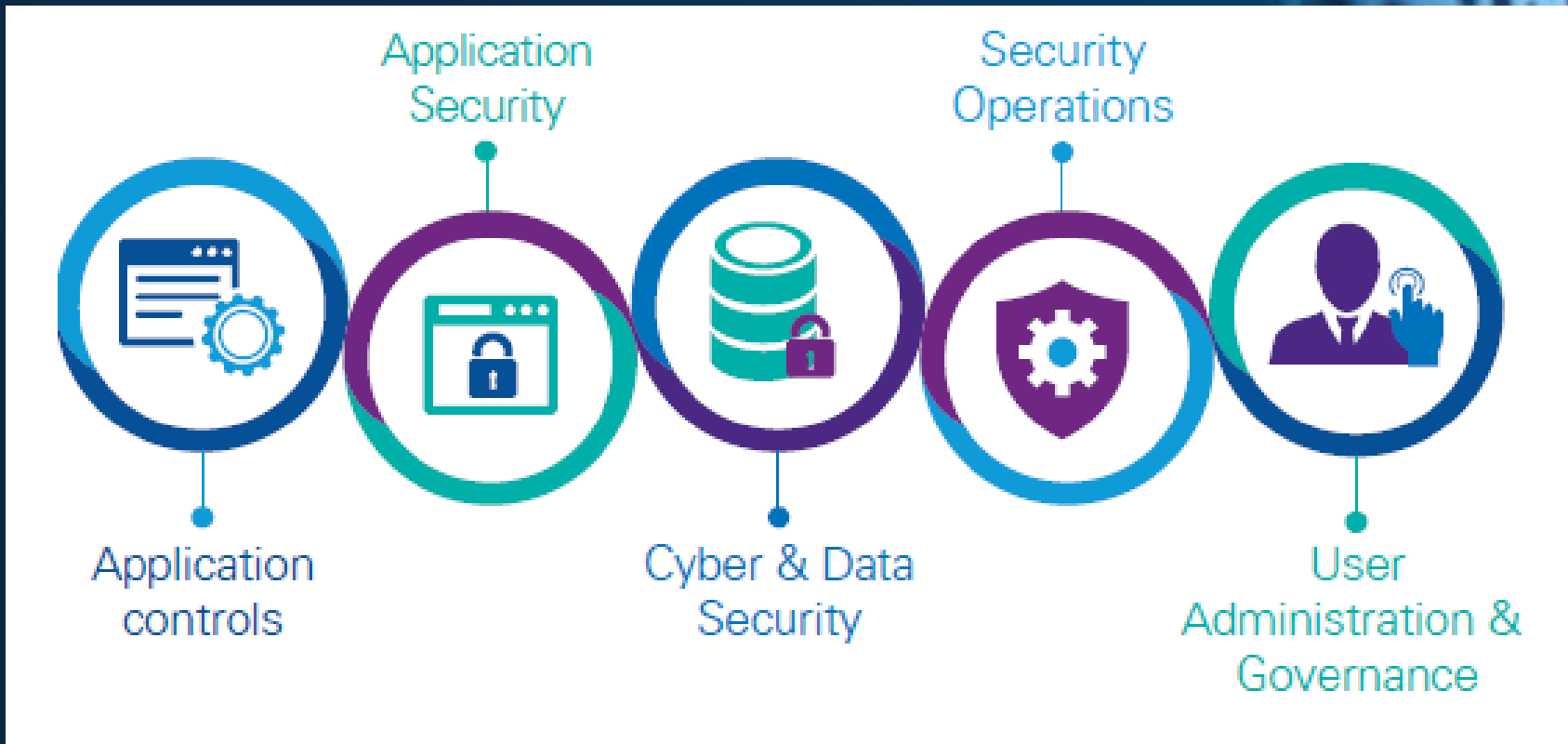
Source: KPMG ERP controls survey 2017

How much to spend?

“ Typically we recommend that 5-10 percent of the overall implementation budget should be allocated to security and controls. ”

– Laeeq Ahmed,
Managing Director, KPMG Advisory

KPMG's securing the cloud ERP framework



Application Controls

Application Controls

- Business Process Controls
 - Manual
 - Configurable
 - Automated
- Enhancement & Configuration Controls
- Conversion & Interface Controls

The key to application controls is **automation and Prevention.**

Organizations acknowledge that automating their cyber security programs (e.g., updating firewalls, quarantining affected systems) is critical to combat cyber attacks and mitigate damages. More than 80 percent of cyber leaders suspect that employees do not follow cloud security procedures, so the more that can be automated, the better.

Application Security

Application Security

- Adaptive Authentication
- Role Based Access Controls (RBAC)
- Cloud Application Security Architecture
- Sensitive Access & Segregation of Duties

A guiding principle to cloud ERP security is that the same individual **shouldn't be able to control all aspects of a transaction.**

This concept, generally referred to as SoD, serves as a "checks-and-balances" measure or control that mitigates the risk of fraud or theft, especially by employees.

Cyber & Data Security

Cyber & Data Security

- Information Protection
- Cyber Security
- Business & Technology Resilience
- Privilege Administrative Access

A potential roadblock to establishing synergies and cooperation is **the different world view of the business and IT department about cyber security.**

Because of their advertised operational and efficiency advantages, many organizations tend to adopt cloud apps and services quickly, without applying the proper scrutiny. This often puts the business at odds with the IT department, which typically prefers a more risk adverse approach to cyber and data security.

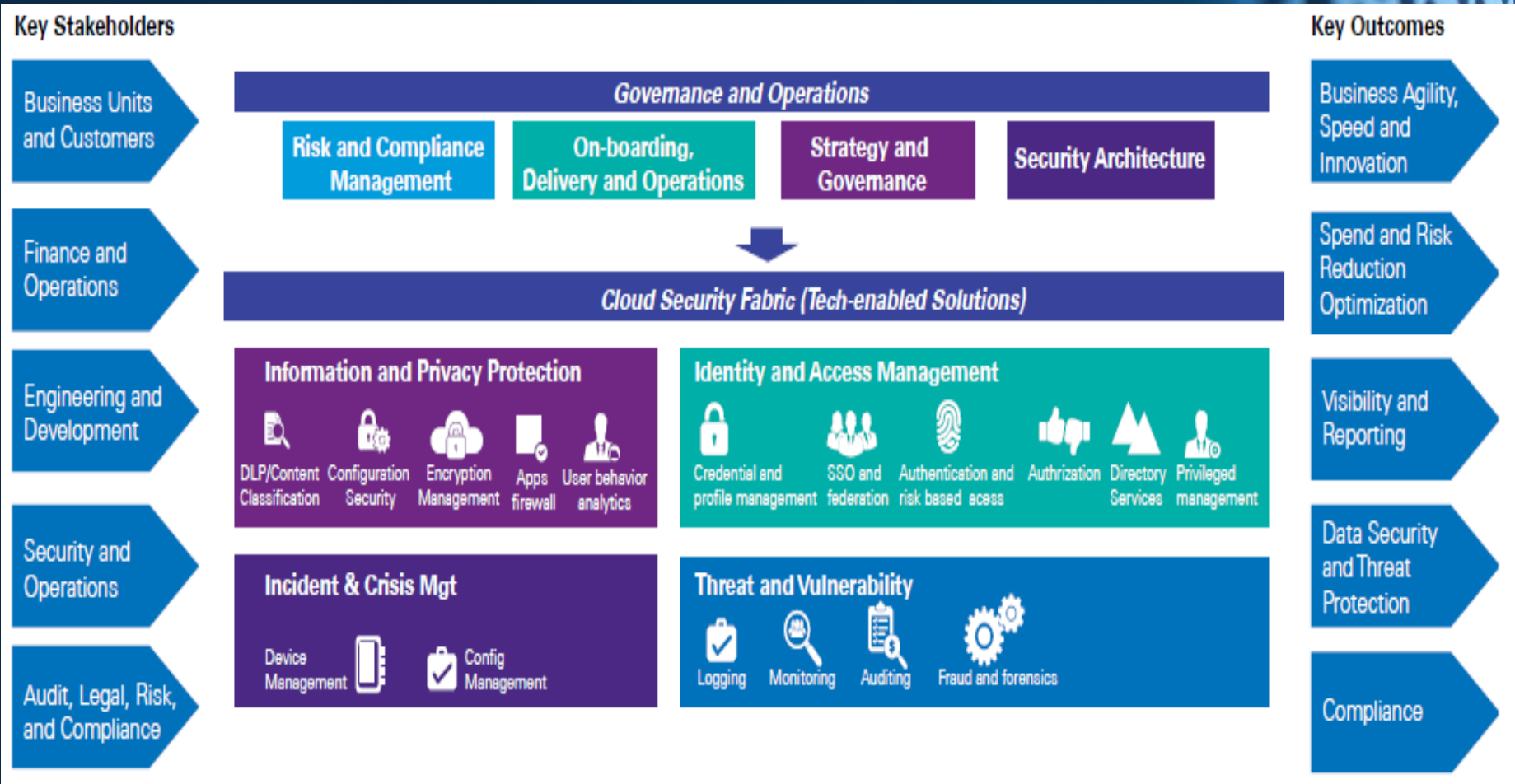
Cloud Security Operations

Cloud Security Operations

- Enhancement Management for Security & Controls
- Cloud ERP Security & Controls Operations

Cyber threats are constantly changing and evolving, and so must your cloud ERP security operation. It's unlikely to work well if it's done piecemeal, narrowly targeted to address a specific issue, or forgotten about once put in place.

Framework for Cloud Security Capability Assessment



User Administration & Governance

User Administration & Governance

- User Access Management
- Password Management
- User Access Management
- User Analytics

The governance process should also require **auditors – internal or external – to come in and examine** how the cloud ERP program is functioning. They should certify what is working and recommend ways to improve where it is falling short. They should be using the latest D&A software so they can review the large amounts of data flowing through the system.

Cloud ERP risk control action steps

1. Plan ahead

2. Take a layered approach

3. Automate whenever possible

4. Don't overlook on premise ERP threats

5. Monitor regularly

6. Work within your budget limitations



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